2009 Surgical Spring Week

IPEG

18th Annual Congress for Endosurgery in Children

International Pediatric Endosurgery Group

Held in conjunction with the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES)

Final Program

April 21 - 25, 2009

Phoenix Convention Center, Phoenix, Arizona

Inside Front Cover

Storz Ad

General Information

IPEG's 18th Annual Congress for Endosurgery in Children April 21 - 25, 2009

2009 Meeting Objectives:

The objectives of the activity are to educate, expose and allow pediatric surgeons and urologist the opportunity to discuss the developing techniques and management principles regarding minimally invasive surgical techniques and scientific developments that will affect their patient population.

Specific Objectives include:

- Presentation of new and developing minimally invasive surgical techniques in a scientific environment.
- Opportunity to interact with experts in the fields of minimally invasive pediatric surgery and urology via panel interactions and audience response systems.
- Discussion of current and future controversial issues regarding minimally invasive surgery in infants and children.
- Advance the use of minimally invasive surgical procedures in infants and children.
- Encourage international interactions in the management and minimally invasive surgical interventions for infants and children.

At the conclusion of this event, the participant will be able to implement the information and techniques that were obtained during the event and by doing this the care of that population will be improved and will continue to advance.

Scientific Session Objectives:

At the end of this session, participants will understand the current and emerging practices and procedures in minimal access surgery and other developing applications. Participants will acquire information, which relates to indications, contraindications, diagnosis, technique, prevention and management of complications, and results of minimal access surgery, endoscopic, and general surgical procedures Participants will recognize the scientific and physiologic basis of minimal access surgery, endoscopy and emerging surgical technology (e.g. robotics, single port access, and NOTES®).

IPEG Is Going Green!

Presentations will be made available on the IPEG website.

Description:

The theme of the 2009 IPEG Meeting will be a case oriented approach to challenges in clinical situations with expert panels, joint sessions, and with invited faculty who will speak on specific topics. Included are oral sessions, video presentations, and poster presentations of abstracts selected by Program Committee. Panel information and information about the abstract & video presentation sessions will be available in the Final Program distributed on-site.

What is included?

Includes entrance to the IPEG Scientific sessions on Thursday, Friday, & Saturday, entrance to the exhibit hall & welcome reception, general session breaks, Thursday Poster Tours, Friday Lunch in the Exhibit Hall, and Main event

Where?

Phoenix Convention Center
100 North Third Street
Phoenix, AZ 85004

Who?

International Pediatric Endosurgery Group (IPEG)
11300 W. Olympic Blvd., Suite 600
Los Angeles, CA 90064
Phone: 310-437-0553 Fax: 310-437-0585
Email: admin@ipeg.org
Website: www.ipeg.org

Hotels

Wyndham Phoenix (IPEG Headquarters)
50 East Adams Street, Phoenix, AZ 85004
Phone: 602-333-5500 or 800-996-3426

IPEG 2009

Table of Contents

General Information

IPEG 2009

Exhibit Dates and Times

Wednesday, April 22, 2009
Opening Reception 5:00 PM - 7:00 PM

Thursday, April 23, 2009
Hall Open 9:30 AM - 3:30 PM

Friday, April 24, 2009
Hall Open 9:30 AM - 3:30 PM

Saturday, April 25, 2009
HALL CLOSED
Posters & Learning
Center still open 9:30 AM - 1:30 PM

SAGES & IPEG exhibits will take place at the Phoenix Convention Center in North Exhibit Hall D-E.

SAGES & IPEG Registration Hours

Tuesday, April 21, 2009:
12:00 PM - 5:00 PM

Wednesday, April 22, 2009:
6:30 AM - 6:00 PM

Thursday, April 23, 2009:
7:00 AM - 6:00 PM

Friday, April 24, 2009:
6:30 AM - 6:00 PM

Saturday, April 25, 2009:
7:00 AM - 2:00 PM

IPEG Registrants: Attend the SAGES Scientific Session for only $150. Ask at the Registration Desk for details.

Poster Hours

Thursday, April 23, 2009
Poster Hours: 9:30 AM - 3:30 PM
Poster Tour: 5:00 PM - 6:30 PM
(with Beer & Wine service)

Friday, April 24, 2009
Poster Hours: 9:30 AM - 3:30 PM

Saturday, April 25, 2009
Poster Hours: 9:30 AM - 1:30 PM

Speaker Prep Room Hours

Wednesday, April 22, 2009:
6:30 AM - 5:00 PM

Thursday, April 23, 2009:
6:30 AM - 6:00 PM

Friday, April 24, 2009:
6:00 AM - 6:00 PM

Saturday, April 25, 2009:
6:30 AM - 3:30 PM

IPEG Corporate Supporters

Thank you to all IPEG's 2009 corporate supporters!

DIAMOND DONORS

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CME & Evaluation Forms

IPEG Registrants, please complete the IPEG CME & Evaluation form and turn in at the IPEG Membership Booth to have your CME certificate mailed to you after the meeting.

IPEG members who have also registered for the SAGES meeting and need to claim credits, please complete the SAGES CME Worksheet included in the SAGES final program and turn in at any of the SAGES CME drop boxes.

Please allow 4-6 weeks for processing for all CME requests.

IPEG 2009 Meeting Leaders

2009 IPEG Program Chairs

Program Chair:
Daniel J. Ostlie, MD

Program Co-Chair:
Benno M. Ure, MD, PhD

2009 Program Committee

Hossein Allal, MD
Aayed R. Alqahtani, MD
Maria Marcela Bailez, MD
Klaas (N) M.A. Bax, MD
Peter Borzi, MD
Sanjeev Dutta, MD
Ciro Esposito, MD
Keith E. Georgeson, MD
Munther J. Haddad, MD
Carroll M. Harmon, MD
George W. Holcomb III, MD
Thomas H. Inge, MD, PhD
Michael Irish, MD
Marc A. Levitt, MD
Thom E. Lobe, MD
Marcelo H. Martinez Ferro, MD
Girolamo Mattioli, MD
Philippe Montupet, MD
Azad Najmaldin, MD
Daniel J. Ostlie, MD
Olivier Reinberg, MD
Steven S. Rothenberg, MD
Jürgen Schleef, MD
Shawn St. Peter, MD
Benno M. Ure, MD, PhD
Jean-Stéphane Valla, MD
Holger Till, MD
David van der Zee, MD, PhD
John H.T. Waldhausen, MD
Mark L. Wulkan, MD
C.K.Yeung, MD

Executive Committee

President – George W. Holcomb III, MD
President Elect – Marcelo H. Martinez Ferro, MD
1st Vice President – Behrouz Banieghbal, MD
2nd Vice President – Gordon A. MacKinlay, MD, FRCS
Secretary – Benno Ure, MD, PhD
Treasurer – Marc A. Levitt, MD
Journal Editor – Thom E. Lobe, MD
Asia/Africa Representative – Tadashi Iwanaka, MD, PhD
European Representative – Jürgen Schleef, MD
Americas Representative – Carroll "Mac" Harmon, MD, PhD
Immediate Past President – Jean-Stéphane Valla, MD

IPEG Past Presidents

Jean-Stéphane Valla, MD	(2008)
Atsuyuki Yamataka, MD	(2007)
Keith E. Georgeson, MD	(2006)
Klaas (N) M.A. Bax, MD	(2005)
C.K. Yeung, MD	(2004)
Craig T. Albanese, MD	(2003)
Vicenzo Jasonni, MD	(2002)
Peter Borzi, MD	(2001)
Steven S. Rothenberg, MD	(2000)
John HT. Waldschmidt, MD	(1999)
Hock Lim Tan, MD	(1998)
Takeshi Miyano, MD	(1997)
Steven Rubin, MD	(1996)
Gunter-Henrich Willital, MD	(1995)

About IPEG

Why IPEG?

Now is an excellent time to become an IPEG member. Join IPEG now and receive a substantial discount on the meeting registration by being an IPEG member! Your dues also include a subscription to the *Journal of Laparoendoscopic & Advanced Surgical Techniques* (A $900 value is yours for FREE).

Who Should Attend?

The 18th Annual Congress of the International Pediatric Endosurgery Group (IPEG) has elements that have been specifically designed to meet the needs of practicing pediatric surgeons, urologists & other related specialties, physicians-in-training, GI assistants and nurses who are interested in minimally invasive surgery in children & adolescents. The IPEG Program Committee recommends that participants design their own attendance schedule based on their own personal educational objectives.

International Pediatric Endosurgery Group Member Benefits:

IPEG exists to support excellence in Pediatric Minimal Access Surgery and endoscopy through education and research; to provide a forum for the exchange of ideas in Pediatric Minimal Access Surgery and endoscopy; and to encourage and support development of standards of training and practice in Pediatric Minimal Access Surgery and Endoscopy. Benefits of membership include:

- Subscription to our official journal: *Journal of Laparoendoscopic & Advanced Surgical Techniques.* **(A $900 savings!** IPEG members receive the Journal for FREE).
- Significant discounts on registration fees for the Annual Congress for Endosurgery in Children. (Note: registering for the IPEG Scientific Session, as a member, will save you the equivalent of one year's dues.)
- Affordable dues for surgeons and surgeons-in-training in any country.
- Opportunities to meet and discuss pediatric minimally invasive surgery with the leaders and innovators of the field.
- Access to the IPEG outcomes site on the web.

For more information and applications, please go to:
http://www.ipeg.org/whyjoin.html

IPEG 2009

IPEG Accreditation

This activity has been planned and implemented in accordance with the Essentials and Standards of the Accreditation Council for Continuing Medical Education through the joint sponsorship of the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES). SAGES is accredited by the ACCME to provide continuing medical education for physicians. SAGES designates this Continuing Medical Education activity for

5.5 AMA PRA Category 1 Credit(s)™ for the Advance Laparoscopic Lecture

4.0 AMA PRA Category 1 Credit(s)™ for the Advance Laparoscopic Hands On Lab

7.0 AMA PRA Category 1 Credit(s)™ for Thursday Sessions

8.0 AMA PRA Category 1 Credit(s)™ for Friday Sessions

2.0 AMA PRA Category 1 Credit(s)™ for Saturday Sessions

for a total of **26.5 AMA PRA Category 1 Credit(s)™.** Physicians should only claim credit commensurate with the extent of their participation in the activity.

CME Worksheet

This is not your CME credit form. Please use the worksheet below to track the number of CME hours you attend for each activity. Your CME credit form can be found inside your registrant bag. Fill in the number of hours you attended each activity in the chart below to track your CME credits.

TIME	ACTIVITY	CREDITS AVAILABLE	HOURS ATTENDED
TUESDAY, APRIL 21, 2009			
12:00 PM – 6:00 PM	**Advanced Laparoscopic & Single Incision Course Lecture**	5.5	
	Total Credits Available for Tuesday, April 21, 2009:	**5.5**	
WEDNESDAY, APRIL 22, 2009			
7:00 AM – 11:00 AM	**Advanced Laparoscopic & Single Incision Course Lab**	4.0	
	Total Credits Available for Wednesday, April 22, 2009:	**4.0**	
THURSDAY, APRIL 23, 2009			
7:45 AM – 8:45 AM	**IPEG/SAGES Joint Breakfast Video Session: Hepatobiliary and Solid Organ**	1.0	
8:45 AM – 9:00 AM	**Welcome Address**	0	
9:00 AM – 10:00 AM	**Scientific Session: Clinical & Basic Science**	1.0	
10:30 AM – 11:30 AM	**Scientific Session: How I Do It**	1.0	
11:30 AM – 12:00 PM	**IPEG Presidential Address: Can Prospective Clinical Trials Be Applied to MIS in Children?**	0.5	
1:00 PM – 2:15 PM	**Scientific Session: Thorax**	1.25	
2:15 PM – 3:00 PM	**Karl Storz Lecture: History & Development of a Minimally Invasive Repair for Pectus Excavatum**	0.75	
3:30 PM – 5:00 PM	**Panel: "Showdown at the Anorectal Canal"**	1.5	
5:00 PM – 6:30 PM	**Poster Tours with Beer & Wine**	0	
	Total Credits Available for Thursday, April 23, 2009:	**7**	
FRIDAY, APRIL 24, 2009			
7:00 AM – 8:00 AM	**Morning Video Session: "My Favorite Tricks"**	1.0	
8:00 AM – 9:30 AM	**Scientific Session: Gastrointestinal & Hepatobiliary**	1.5	
9:30 AM – 10:00 AM	**Keynote Lecture: "What is Going on with MIS in China?"**	0.5	
10:30 AM – 11:30 AM	**Scientific Session: All Short Papers**	1.0	
11:30 AM – 12:30 PM	**Scientific Session: Robotics & Emerging Technology**	1.0	
1:30 PM – 3:00 PM	**Panel: Cutting Edge Genitourinary Reconstruction**	1.5	
3:30 PM – 5:00 PM	**SAGES/IPEG Joint Panel: Urgent & Emergent Acute Care Problems**	1.5	
5:15 PM – 6:15 PM	**IPEG/SAGES Simulator Session**	0	
	Total Credits Available for Friday, April 24, 2009:	**8**	
SATURDAY, APRIL 25, 2009			
8:00 AM – 9:00 AM	**General Assembly**	0	
9:00 AM – 10:30 AM	**Scientific Session: Single Port Access/Notes**	1.0	
11:15 AM – 12:15 AM	**IPEG Awards Session**	0	
11:15 AM – 12:15 PM	**Scientific Video Session: Miscellaneous**	1.0	
12:15 PM – 12:30 PM	**Closing Remarks**	0	
	Total Credits Available for Saturday, April 25, 2009:	**2.0**	
	TOTAL CREDITS	**26.5**	

To receive your CME credit:

Turn in your CME form at the IPEG Membership Booth to have your CME certificated mailed to you after the meeting. Please allow 4-6 weeks for processing.

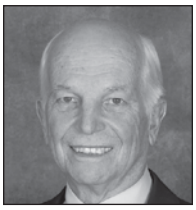
IPEG Speaker Bios

George W. Holcomb III, MD

Dr. Holcomb has served as Surgeon-In-Chief and the Katharine Berry Richardson Endowed Chair in Pediatric Surgery at Children's Mercy Hospitals and Clinics since 1999. He also is a Professor of Surgery at the University of Missouri-Kansas City School of Medicine and serves as Director of the Pediatric Surgery Residency Training Program and Director of the Center for Minimally Invasive Surgery at Children's Mercy.

Dr. Holcomb received his medical degree and completed his surgery residency at Vanderbilt University Medical Center. He completed his fellowship in pediatric surgery at The Children's Hospital of Philadelphia. Before joining the medical staff at Children's Mercy, he was an Associate Professor in the Departments of Pediatric Surgery and Pediatrics at Vanderbilt. He completed his MBA at the Henry Bloch School of Business at UMKC in 2002.

Dr. Holcomb is the current President of the International Pediatric Endosurgery Group. In addition, he is a newly elected member of the Executive Committee of the Section on Surgery in the AAP. He serves on the editorial board of four major surgical journals and is the author of more than 200 publications, abstracts and book chapters. He is internationally recognized as one of the leading experts in pediatric minimally invasive surgery and has made more than 100 presentations around the world on pediatric surgical topics.



Donald Nuss, MB, Ch.B., FRCS©, FACS, FAAP

Dr. Nuss was born in Pietermaritzburg, Republic of South Africa and graduated from the University of Cape Town, South Africa in 1963. Dr. Nuss completed his General Surgery Residency at the Mayo Clinic in 1971 and his Fellowship in Pediatric Surgery at Red Cross War Memorial Children's Hospital in Cape Town in 1973. Dr. Nuss served as the Director of CHKD's Division of Pediatric Surgery and Professor of Surgery and Pediatrics at Eastern Virginia Medical School in Norfolk, Virginia and currently serves as a member of the Board of Directors of Children's Hospital of The King's Daughters Health System, Inc.

Dr. Nuss served on the Medical Executive Committee of Children's Hospital of The King's Daughters for 25 years and as Surgeon-in-Chief and Vice President for Surgical Affairs for 20 years. He helped facilitate the development of the operating rooms at Children's Hospital of The King's Daughters and saw the volume of surgical patients grow from 2,200 patients per annum to over 11,000 patients per annum during his tenure as Surgeon-in-Chief.

Dr. Nuss is the developer of the Minimally Invasive Procedure for Pectus Excavatum and conducts an intensive international workshop and training course each year at the Children's Hospital of The King's Daughter's in Norfolk, Virginia. Dr. Nuss has been a guest lecturer and visiting Professor at many major medical centers in North America, South America, Europe, Asia, Africa and has been an invited guest speaker at numerous National and International Surgical Congresses.

Dr. Nuss and his wife Tessa have made Norfolk, Virginia their home since 1977. He is the father of three daughters, Kara Saperston, MD, Elizabeth Prier, MD, and Kristi Milburn.

Long Li, MD

Professor Li is currently Professor of Pediatric Surgery at the department of Pediatric Surgery at the Capital Institution of Pediatrics in Beijing, China. He graduated from the China Medical University in 1985, completed his postgraduate pediatric surgical training, and started his career as a full-time pediatric surgeon in Beijing Children's Hospital. In 1997, he received training as Visiting Research Fellow in pediatric surgery at Queen Mary Hospital, Hong Kong. In 2000, he received overseas training as Visiting Surgical Fellow in advanced laparoscopic pediatric surgery at the Juntendo University School of Medicine, and in pediatric liver transplantation at the Tokyo University School of Medicine in Tokyo, Japan. Since 2001, Professor Li and his team have developed a large pediatric laparoscopic surgery program in China. He also established pediatric liver transplantation program with the first successful pediatric liver transplantation in Beijing in November 2001. He has contributed more than 170 articles, 2 books, 1 set of laparoscopic video and several book chapters to the pediatric surgery literature.

Professor Li has special interests in Pediatric hepatobiliary surgery and pediatric minimally access surgery and his team have undertaken more than 4000 laparoscopic operations for children.

Gary Dunnington, MD, FACS

Professor and Chairman of Surgery, Southern Illinois University

Gary Dunnington, M.D., joined the faculty at Southern Illinois University in September of 1997, where he is currently Professor and Chairman of Surgery. He received his MD degree from Indiana University and completed surgical training at the University of Arizona. Dr. Dunnington comes to SIU after nearly six years at the University of Southern California where he was Associate Professor of Surgery and Senior Associate Dean for Academic Affairs for the USC School of Medicine. Dr. Dunnington's area of clinical practice is surgical oncology with a focus in breast and endocrine disease. After coming to USC in 1991, he developed the USC/Norris Breast Center, a multidisciplinary breast cancer treatment team, and has served as Medical Director of the USC/Norris Breast Center since that time. He serves as Principal Investigator on numerous local and national breast cancer research trials. While at USC, he served as both Clerkship Director for the Department of Surgery, as well as Program Director. He has received a total of twelve teaching awards, having been named Outstanding Faculty Teacher of the Year eight times at three institutions. He has been involved in surgical education research for many years and has been the director of a fellowship program in surgical education at USC and at SIU. He is Past President of the Association for Surgical Education and received the 1999 Distinguished Educator Award from this organization. He is one of five faculty who, for the last several years, have taught the annual Surgeons as Educators Course for the American College of Surgeons. He is a frequent visiting professor of education to Departments of Surgery throughout the United States and Canada, and is involved in faculty development seminars both regionally and nationally.

IPEG Schedule-at-a-Glance

IPEG 2009

Program Chair: Daniel J. Ostlie, MD

Tuesday, April 21, 2009

12:00pm - 6:00pm **Advanced Laparoscopic & Single Incision Course (Lecture)**
Chair: Steven S. Rothenberg, MD
Co-Chairs: Carroll "Mac" Harmon, MD, Phd & Daniel J. Ostlie, MD Wyndham Hotel Salon 3-4

Wednesday, April 22, 2009

7:00am - 11:00am **Advanced Laparoscopic & Single Incision Course (Lab)**
Chair: Steven S. Rothenberg, MD
Co-Chairs: Carroll "Mac" Harmon, MD, PhD & Daniel J. Ostlie, MD Conv. Ctr. North Exhib. Hall A

5:00pm - 7:00pm **IPEG/SAGES Evening Exhibit Opening Reception** Conv. Ctr. North Exhibit Hall D-E

Thursday, April 23, 2009

Exhibits, Posters & Learning Center Open

7:45am - 8:45am **IPEG/SAGES Joint Breakfast Video Session: Hepatobiliary and Solid Organ**
Chairs: Kent Kercher, MD & Benno M. Ure, MD, PhD Conv. Center – West 301D

8:45am - 9:00am **Welcome Address**
George W. Holcomb, III, MD
Conv. Center – West 301D

9:00am - 10:00am **Scientific Session: Clinical and Basic Science**
Moderators: Benno M. Ure, MD, PhD & Atsuyuki Yamataka, MD
Conv. Center – West 301D

10:00am - 10:30am Break Foyer

10:30am - 11:45am **Scientific Session: How I do it**
Moderators: Gordon A. MacKinlay, MD & C.K. Yeung, MD Conv. Center – West 301D

11:45am - 12:15pm **Presidential Address & Lecture: "Can Prospective Clinical Trials Be Applied to MIS in Children?"**
Speaker: George W. Holcomb, III, MD
Introduction by: Daniel J. Ostlie, MD
Conv. Center – West 301D

12:15pm - 1:15pm **Lunch (On own)**

1:15pm - 2:15pm **Scientific Session: Thorax**
Moderators: Steven S. Rothenberg, MD & Shawn D. St. Peter, MD
Conv. Center – West 301D

2:15pm - 3:00pm **Karl Storz Lecture: "The Nuss procedure – The First 10 Years"**
Speaker: Donald Nuss, M.B., Ch.B., FRCS (C), FACS, FAAP
Introduction by: George W. Holcomb, III, MD
Conv. Center – West 301D

3:00pm - 3:30pm **Break** Foyer

3:30pm - 5:00pm **Panel: "Showdown at the Anorectal Canal"**
Chair: Marc A. Levitt, MD
Conv. Center – West 301D

5:00pm - 6:30pm **Poster Tours:**
Moderators: Miguel A. Guelfand, MD, Timothy D. Kane, MD, Oliver Muensterer, MD, Todd A. Ponsky, MD, Klaus Schaarschmidt, MD, & Jürgen Schleef, MD
Conv. Center-North Exhibit Hall B-C

Friday, April 24, 2009

Exhibits, Posters & Learning Center Open

7:00m - 8:00am **Morning Breakfast Video Session: My Favorite Tricks**
Moderators: Marcelo Martinez Ferro, MD & Carroll "Mac" Harmon, MD
Conv. Center – West 301D

8:00am - 9:30am **Scientific Session: Gastrointestinal & Hepatobiliary**
Moderators: Douglas Barnhart, MD & Girolamo Mattioli, MD Conv. Ctr – West 301D

9:30am - 10:00am **Keynote Lecture: "What is Going on with MIS in China"**
Speaker: Long Li, MD
Introduction by: George W. Holcomb, III, MD
Conv. Center – West 301D

10:00am - 10:30am **Break** Foyer

10:30am - 11:45am **Scientific Session: All short papers**
Moderators: Mohamed E. Hassan, MD & Thomas H. Inge, MD, PhD Conv. Ctr – West 301D

11:45am - 12:30pm **Scientific Session: Robotics & Emerging Technology**
Chair: Aayed Alqahtani, MD
Co-Chairs & Faculty: Celeste Hollands, MD, & John J. Meehan, MD Conv. Ctr – West 301D

12:30pm - 1:30pm **Lunch (Free Lunch in the Exhibit Hall)**
North Exhibit Hall D-E

1:30pm - 2:30pm **Panel: Cutting Edge Genitourinary Reconstruction**
Chair: Marc A. Levitt, MD
Conv. Center – West 301D

2:30pm - 3:00pm **Break** Foyer

3:30pm - 5:00pm **SAGES/IPEG Joint Panel: Urgent and Emergent Acute Care Problems in Pediatrics and Adults**
Chairs: Carroll "Mac" Harmon, MD, PhD (IPEG) & John Sweeney, MD (SAGES)
Conv. Center - TBD

5:15pm - 6:15pm **IPEG/SAGES Simulator Session (Non-CME)**
Chair: David van der Zee, MD
Co-Chair: Sanjeev Dutta, MD
Conv. Center – West 301D

7:30pm - 11:00pm **Main Event & International Sing-Off**
Corona Ranch

Saturday, April 25, 2009

8:00am - 9:00am **General Assembly** Conv. Ctr–West 301D
Moderators: George W. Holcomb III, MD

9:00am - 10:30am **Scientific Session: NOTES®, Single Incision Access Surgery, & Urology**
Moderators: Munther J. Haddad, MBBCH, FRCS, Daniel J. Ostlie, MD, Todd A. Ponsky, MD
Conv. Ctr – West 301D

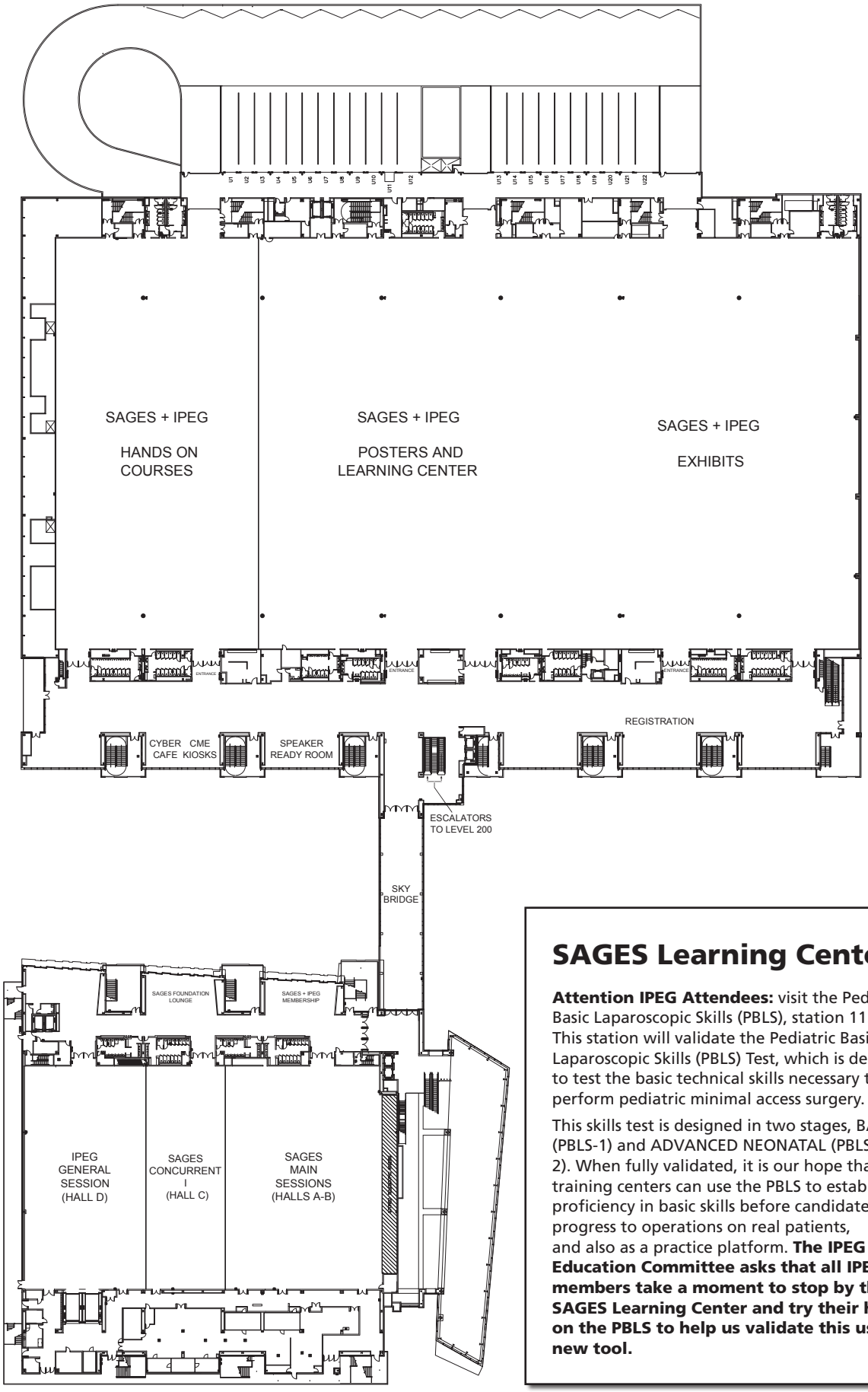
10:30am - 11:00am **Break** Conv. Center – West 301D

11:00am - 11:15am **Awards (Basic Science, IRCAD, My Favorite Trick & How I Do It)** Daniel J. Ostlie, MD Benno M. Ure, MD, PhD Conv. Ctr – West 301D

11:15am - 12:00pm **Scientific Video Session: Miscilleaneous**
Moderators: Azad S. Najmaldin, MD & Daniel J. Ostlie, MD Conv. Center – West 301D

12:00pm - 12:15pm **Closing Remarks**
Speakers: George W. Holcomb, III, MD & Daniel J. Ostlie, MD Conv. Center – West 301D

Floorplans



SAGES Learning Center

Attention IPEG Attendees: visit the Pediatric Basic Laparoscopic Skills (PBLS), station 11. This station will validate the Pediatric Basic Laparoscopic Skills (PBLS) Test, which is designed to test the basic technical skills necessary to perform pediatric minimal access surgery.

This skills test is designed in two stages, BASIC (PBLS-1) and ADVANCED NEONATAL (PBLS-2). When fully validated, it is our hope that training centers can use the PBLS to establish proficiency in basic skills before candidates progress to operations on real patients, and also as a practice platform. **The IPEG Education Committee asks that all IPEG members take a moment to stop by the SAGES Learning Center and try their hands on the PBLS to help us validate this useful new tool.**

Tuesday, April 21, 2009

12:00 pm - 6:00 pm **Location: IPEG Headquarters Hotel The Wyndham Phoenix (Salon 3-4)**

IPEG Advanced Laparoscopic & Single Incision Course (Lecture)

Chair: Steven S. Rothenberg, MD; Co-Chairs: Carroll "Mac" Harmon, MD, PhD & Daniel J. Ostlie, MD
Lab Coordinator: Todd A. Ponsky, MD

Description of Course:

This two-part course is designed specifically for pediatric surgeons in practice interested in managing more complex pediatric cases, using minimally access techniques. Pediatric surgeons in training are welcome as well. On day one, lectures will focus on the management of advanced operations using the minimally invasive approach. The format will be interactive in which case presentations are accompanied by discussion and question and answer sessions. On the next morning, an animate laboratory will be utilized to demonstrate many of these techniques. In the laboratory experience, attendees will practice the skills necessary to perform advanced pediatric MIS procedures. After completing the course, attendees will be better prepared to recognize and manage advanced situations in pediatric thoracoscopic and laparoscopic surgery. This course will also help identify areas in pediatric MIS in which additional training may be useful.

Objectives:

- Attendees will understand the elements, which comprise advanced pediatric MIS cases
- Surgeons will be able to predict potential problem areas during the performance of advanced pediatric MIS cases
- Surgeons will be able to understand the indications, key steps, and potential problem areas for the following pediatric MIS operations:

TIME	TOPIC	FACULTY
12:00 pm - 12:05 pm	**Welcome & Introduction**	Steven Rothenberg, MD, Carroll "Mac" Harmon, MD, PhD & Daniel J. Ostlie, MD
12:05 pm - 12:30 pm	**Esophageal Atresia**	George W. Holcomb,III, MD
12:30 pm - 12:40 pm	**Q & A**	
12:40 pm - 1:15 pm	**Lung Biopsy and Lobectomy**	Steven Rothenberg, MD
1:15 pm - 1:25 pm	**Q & A**	
1:25 pm - 2:00 pm	**Diaphragmatic Hernia**	Timothy D. Kane, MD
2:00 pm - 2:10 pm	**Q & A**	
2:10 pm - 2:40 pm	**Break**	
(Single Port Access Surgery Video)		Todd A. Ponsky, MD
2:40pm - 3:15pm	**Redo Antireflux Operations**	Carroll "Mac" Harmon, MD, PhD
3:15 pm - 3:25 pm	**Q & A**	
3:25 pm - 4:00 pm	**Duodenal Atresia, Intussusception**	Daniel J. Ostlie, MD
4:00 pm - 4:10 pm	**Q & A**	
4:10 pm - 4:45 pm	**Spleen, Adrenal, Pancreas**	Sanjeev Dutta, MD
4:45 pm - 4:55 pm	**Q & A**	
4:55 pm - 5:30 pm	**Inflammatory Bowel Disease**	Marc Levitt, MD
5:30 pm - 5:40 pm	**Q & A**	
5:40 pm - 5:55 pm	**Hirschsprung Disease and High Imperforate Anus**	Keith E. Georgeson, MD
5:55 pm - 6:00 pm	**Q & A**	

Wednesday, April 22, 2009

7:00 am - 11:00 am *** Space is limited** **Location: Phoenix Convention Center – North Hall A (Section 2)**

Advanced Laparoscopic & Single Incision Hands-On Course

Chair: Steven S. Rothenberg, MD; Co-Chairs: Carroll "Mac" Harmon, MD, PhD & Daniel J. Ostlie, MD
Lab Coordinator: Todd A. Ponsky, MD ***Please dress comfortably, disposable scrubs will be provided.**

PROCEDURES

Seromuscular Colon Biopsy
Gastrojejunostomy side-to-side as model of duodenoduodenostomy
Nephrectomy as model of splenectomy
Pulmonary Lobectomy
Esophageal transaction and anastomosis
Single Port Access Surgery (Cholecystectomy)

FACULTY

At stations:

Douglas Barnhart, MD	Gordon MacKinlay, MD, FRCS	Holger Till, MD
Sanjeev Dutta, MD	Marcelo Martinez Ferro, MD	David van der Zee, MD
Thomas H. Inge, MD, PhD	Oliver Muensterer, MD	Benno M. Ure, MD, Phd
Timothy D. Kane, MD	Jürgen Schleef, MD, PhD	Atsuyuki Yamataka, MD
Marc A. Levitt, MD	Shawn St. Peter, MD	

Floaters: Maria Marcela Bailez, MD, Carroll "Mac" Harmon, MD, PhD, Keith E. Georgeson, MD, Daniel J. Ostlie, MD, Todd A. Ponsky, MD, Steven S. Rothenberg, MD, Mark Wulkan, MD

IPEG acknowledges unrestricted educational grants in support of this course and lab from ***Covidien, Karl Storz Endoscopy-America, Novare Surgical Systems, Olympus-Gyrus ACMI,*** *and* ***SurgiQuest***

IPEG acknowledges contributions in-kind in support of this course from ***Covidien, Karl Storz Endoscopy-America, MedSurg, Novare Surgical Systems, Olympus-Gyrus ACMI, Stryker Endoscopy*** *and* ***SurgiQuest.***

Wednesday, April 22, 2009

5:00 PM - 7:00 PM **Exhibit Hall – Free for all IPEG & SAGES Registrants & Guests**

Please join us for the...

IPEG/SAGES Welcome Exhibit Opening Reception

IPEG and SAGES exhibits will take place at the Phoenix Convention center in North Exhibit Halls D-E. SAGES Learning center and IPEG/SAGES Posters will NOT be open until Thursday.

Date: Wednesday, April 22, 2009

Time: 5:00 - 7:00 PM

Place: Exhibit Hall

Fee: No Fee for Registrants & registered guests

Dress: Business casual

Special promotions, presentations and entertainment. Great food! Open bar!

Note: **Children under the age of 14 will not be permitted in the Exhibit Hall due to safety considerations.**

Thursday, April 23, 2009

7:45 AM - 8:45 AM

IPEG/SAGES Joint Breakfast Video Session: Hepatobiliary and Solid Organ

Chairs: Kent Kercher, MD & Benno M. Ure, MD, PhD

Description:

This course will focus on minimally-invasive approaches to solid organ surgery, including differences in the management of adult and pediatric disease processes requiring solid organ resection and/or ablation. The techniques described will include solid organ resection as well as the potential role for organ-preserving surgery. The course format will revolve around videos that describe the various techniques discussed. Video presentations will be supplemented with slides intended to address both the technical aspects of the various procedures as well as indications and outcomes.

Objectives:

At the conclusion of this course, participants will be able to:

- List the indications and techniques for splenic-preserving surgery in the pediatric population
- Describe the strategies available for combining minimally invasive hepatic resection and tumor ablation
- Explain the potential roles for minimally-invasive surgery in treating pediatric renal and adrenal tumors
- Discuss the techniques for live donor nephrectomy and understand the important considerations related to choosing the appropriate kidney for organ donation

SCHEDULE

7:45 AM	**Introduction**	Kent Kercher, M.D. & Benno Ure MD, PhD
7:50 AM	**Laparoscopic Splenectomy in Children: Total or Partial Splenectomy?**	Jacob C. Langer, MD
8:05 AM	**Minimally Invasive Approaches to Liver Surgery: Combining Resection and Ablation Kidney and Adrenal Techniques for Laparoscopic Nephrectomy and Adrenalectomy**	David Iannitti, MD
8:20 AM	**The Role for Minimally Invasive Surgery for Wilms Tumor and Neuroblastoma**	Gordon MacKinlay, MD, FRCS
8:35 AM	**Live Donor Nephrectomy: Which Technique, Which Kidney?**	Kent Kercher MD

Panelists:

Jacob C. Langer, MD - Laparoscopic Splenectomy in Children: Total or Partial Splenectomy

David Iannitti, MD - Minimally Invasive Approaches to Liver Surgery: Combining Resection and Ablation Kidney and Adrenal: Techniques for Laparoscopic Nephrectomy and Adrenalectomy

Gordon A. MacKinlay, MD, FRCS - The role for minimally-invasive surgery for Wilms tumor and Neuroblastoma

Kent Kercher, MD - Live Donor Nephrectomy: Which Technique, Which Kidney

*IPEG acknowledges an unrestricted educational grant in support of this session from **Covidien.***

8:45 AM - 9:00 AM

Welcome Address: George W. Holcomb III, MD, 2009 IPEG President

Thursday, April 23, 2009

9:00 AM - 10:00 AM

Scientific Session: Clinical and Basic Science

Moderators: Benno M. Ure, MD, PhD & Atsuyuki Yamataka, MD

9:00AM **S001: Immunological Alterations After Laparoscopy In Different Age Groups In Rats,** Tulin Oztas, MD Unal Bicakci, MD, Burak Tander, MD, Riza Rizalar, MD, Feride Duru, MD, Tunc Fisgin, MD, Ender Ariturk, MD, Suat H Ayyildiz, MD, Ferit Bernay, MD, Ondokuz Mayis University, Department of Pediatric Surgery

9:08AM **S002: Do Gastric And Intestinal Motilities Change By Pneumoperitoneum In Young Rats?** Ahmet Unlu, MD, Baran Tokar, MD, Yasemin Aydin, MDHuseyin Ilhan, MDDilsad Demet, MDUmut Alici, MD, Eskisehir Osmangazi University, School of Medicine, Department of Pediatric Surgery and Physiology, Eskisehir, Turkey

9:16AM **S003: Helium Instead Of CO2 For Laparoscopic Pneumoperitoneum? - An Experimental Risk Analysis**, Steffen Richter,Felix Prof. Schier, Thomas Huckstadt, Devrim Aksakal, Daniela Klitscher, Tobias Wowra,Christoph, Prof. Kampmann, Holger Prof. Till, Pediatric Surgery Universital Medical Center Leipzig; Universital Medical Center Mainz

9:21AM **S004: Histological Immunohistochemical And Morphological Evaluation In Refluxing Ureters Treated With Dextranomer/Hyaluronic Acid Copolymer.**, Salvatore Arena MD, Carmine Fazzari MD, Maria Grazia Scuderi MD, Alessandra Implatini MD, Francesco Arena MD,Piero Antonio Nicòtina MD, Vincenzo Di Benedetto MD, Unit of Pediatric Surgery - University of Catania (ITALY); Unit of Histopathological Diagnosis - University of Messina (ITALY)

9:29AM **S005: Laparoscopy Induced Changes In Cardiac Parameters At Repeated IAP Elevations**, Thomas Hückstädt, Felix Schier PhD, Devrim Aksakal, Steffen Richter, Daniela Klitscher, Tobias Wowra, Christoph Kampmann PhD, 1Department of Pediatric Surgery, University Medical Center Mainz, Germany

9:37 AM **S006: Calorimetric Measurements During Laparoscopy In An Animal Model**, Devrim Aksakal, Felix Schier PhD, Steffen Richter,Thomas Hückstädt, Daniela Klitscher, Tobias Wowra, Christoph Kampmann, 1Department of Pediatric Surgery, University Medical Center Mainz, Germany

9:45AM **S007: A Middle Fidelity Model Is Effective In Teaching And Retaining Skill Set Needed To Perform A Laparoscopic Pyloromyotomy**, Joseph A Iocono MD,Margaret Plymale MS,James Hospkins BS,Daniel Davenport PhD, University of Kentucky

9:50AM **S008: Long-Term Outcomes Of Laparoscopic Nissen Fundoplication Versus Laparoscopic Thal Fundoplication: A Prospective Randomised Study**, Rainer Kubiak MD, James Andrews, Hugh Grant, Department of Pediatric Surgery ; John Radcliffe Hospital, Oxford, U.K.

9:30 AM - 3:30 PM

IPEG/SAGES Exhibits & Posters Open; Learning Center Open

10:00 AM - 10:30 AM

Break: Exhibits, Posters, Learning Center

10:30 AM -11:45 AM

Scientific Session: How I Do It

Moderators: Gordon A. MacKinlay, MD & C. K. Yeung, MD

Description

The topic is open and the objective is to have participants share their experience about how they handle cases in their MAS practice. For example: difficult cases, management of complications, anatomic anomalies, special maneuvers, unusual pathologies, etc. Participants will have 5 minutes to present their video and / or power point presentation. The audience will also have an opportunity to interact with presenters via automated response system (ARS)

Objectives:

- To promote the exchange of new ideas and techniques, that facilitates the development of minimally access surgery (MAS).
- Promote the advancement of minimally access surgery (MAS) in Pediatrics.
- To stimulate the development of new ideas and techniques outside the habitual scientific framework.

10:30 AM **S009: The Benefit Of Stay Sutures During Thoracoscopic Esophagoesophagostomy In Patients With Esophageal Atresia**, Akihiro Shimotakahara MD, Ryo Sueyoshi MD, Tadaharu Okazaki MD, Geoffrey J Lane MD ,Atsuyuki Yamataka MD, Department of Pediatric General and Urogenital Surgery, Juntendo University School of Medicine

10:35 AM **S010: Laparoscopic-Assisted Repair Of Femoral Hernias In Children**, Obinna O Adibe MD, Eric N Hansen MD, Federico G Seifarth MD, Cathy A Burnweit MD, Oliver J Muensterer PhD, Children's Hospital of Alabama, Birmingham, Alabama and Miami Children's Hospital, Miami, Florida

10:40 AM **S011: Ureka**:**Umbilical Ring Easy Kannula Access - A Technique For Initial Laparoscopic Port Placement**, Jared W Carlson MD, James M DeCou MD, Helen DeVos Children's Hospital, Grand Rapids, Michigan, USA

10:45 AM **S012: Laparoscopic Pancreatic Resection In Children: How We Do It**, Kaushik Mukherjee MD,Stephen E Morrow MD, Edmund Yang MD, Monroe Carell Jr. Children's Hospital at Vanderbilt

10:50AM **S013: Microlaparoscopic Pyloromyotomy For Hypertrophic Pyloric Stenosis – Our Technique**, Salmai Turial MD, Ruth Freudenberger, Kathrin Krause, Barbara Goldinger, Veronika Engel, Felix Schier MD, University Medical Centre, Department of pediatric surgery, Mainz, Germany

10:55 AM **S014: Ligasure For The Management of Tubular Duplication Of Esophagus**, Hamid Reza Foroutan MD, Seyed Abbas Banani MD, Shiraz University of Medical Sciences

Thursday, April 23, 2009

11:00 AM **S015: Laparoscopic Omentoplasty For Lower Extremity Lymphedema**, Hamid Reza Foroutan BA, Shiraz University of Medical Sciences

11:05 AM **S016: Split Appendix Technique For Appendiceal Lengthening For Malone And Mitrofanoff Conduits**, Curtis A Sheldon MD, Belinda Dickie MD, Shumyle Alam MD, Marc A Levitt MD, Cincinnati Children's Hospital Medical Center

11:10 AM **S017: Preperitonescopic Bladder-Neck Suspension For The Fascia Sling Procedure In Children.** Girolamo Mattioli MD, Piero Buffa MD, Michele Torre MD, Vincenzo Jasonni MD, Dept of Surgery, Gaslini Institute, University of Genova

11:15 AM **S018: Laparoscopic Restorative Procto-Colectomy In Children.**, Girolamo Mattioli MD,Paolo Gandullia MD,Giovanni Rapuzzi MD,Vincenzo Jasonni MD, Gaslini Institute - University of Genova - Italy

11:20 AM **S019: The Endoscopic U-Sticth Technique For Primary Button Placement**, Neil Nixdorff BS, Jennifer Diluciano RN, Todd Ponsky MD, Robert Parry MD, Walter Chwals MD, Scott Boulanger MD, Division of Pediatric Surgery, Department of Surgery, Case Western University School of Medicine

11:25 AM **S020: Laparoscopic Diagnosis And Treatment For Intestinal Malrotation In Children**, Suolin LI MD, Yingchao LI, Weili XU, Department of Pediatric Surgery, 2nd Hospital of Hebei Medical University, Shijiazhuang, 050000,China.

11:30 AM **S021: Mini-Invasive Treatment Of Intestinal Duplication In Newborns And Small Infants**, Claudio Vella MD, Massimo Garriboli MD, Luciano Maestri MD, Gianluca Monguzzi MD, Giovanna Riccipetitoni MD, Department of Pediatric Surgery, Children's Hospital ;V. Buzzi . Milan, (Italy)

11:35 AM **S022: Fetal Endoscopic Treatment Of Congenital High Airway Obstruction (CHAOS)**, Shinjiro Hirose MD, Hanmin Lee MD, University of California, San Francisco

*IPEG acknowledges an unrestricted educational grant in support of this session from **Stryker Endoscopy.***

11:45 AM - 12:15 PM

IPEG Presidential Address: Can Prospective Clinical Trials Be Applied to MIS in Children?

George W. Holcomb III, MD

Introduction by: Daniel J. Ostlie, MD

IPEG acknowledges our Diamond Level Donors for their support of the Presidential Address:
Karl Storz Endoscopy-America** and **Stryker Endoscopy

12:15 PM - 1:15 PM

Lunch Break: Exhibits, Posters, Learning Center

1:15 PM - 2:15 PM

Scientific Session: Thorax

Moderators: Steven S. Rothenberg, MD & Shawn D. St. Peter, MD

1:15 PM **S023: Experience With Thoracoscopic Tracheal Surgery In Infants And Children**, Steven S Rothenberg MD, The Rocky Mountain Hospital for Children

1:20 PM **S024: Thoracoscopy In The Management Of Residual Disease In Patients Treated For Hodgkin lymphoma (HL) And Non-hodgkin lymphoma (NHL). A Single Centre Experience.**, Eleonora 1 Cesca MD, Paola 1 Midrio MD, Pietro Betalli MD, Angelo Rosolen MD, Piergiorgio Gamba MD, Department of Pediatrics, Pediatric Surgery, 2 Department of Pediatrics, Pediatric oncology University of Padua - ITALY

1:25 PM **S025: New Fully Endoscopic Pectus Carinatum Repair Using Subpectoral CO2 Insufflation And Sternal Nuss Bar Compression Or Mis-Hybrid Technique, Establishing A Differential Indication.** Klaus Schaarschmidt BA, Andreas Kolberg-Schwerdt BA, Michael Lempe BA, Frank Schlesinger MD, Helios Center for Pediatric & Adolescent Surgery, Berlin-Buch, Germany

1:33 PM **S026: Noninvazive Correction Of Pectus Carinatum With Compresive Orthotic Bracing In Children: Preliminary Results Of One Instutition**, Gulce Hakguder MD, Oguz Ates MD, Mustafa Olguner MD, Feza M Akgur MD, Department of Pediatric Surgery, Dokuz Eylül University, Medical School, Izmir, Turkey

1:41 PM **S027: Thoracoscopic Repair Of Congenital Diaphragmatic Hernia in Neonates: Lessons Learned**, Anne C Kim MD, Benjamin S Bryner MS, Begum Akay MD, James Geiger MD, Ronald B Hirschl MD, George B Mychaliska MD, Division of Pediatric Surgery, University of Michigan Health System, Ann Arbor, Michigan

1:49 PM **S028: Which Is The Best Vessel And Bronchial Sealing Method For PEdiatric Thoracoscopic Lobectomy?** Marcelo Martinez-Ferro MD, Horacio Bignon MD, Enrique Buela MD, Hospital Privado de Ninos Fundacion Hospitalaria

1:54 PM **S029: Thoracoscopic Lobectomy For Severe Lobar Bronchiectasis In Children,** Keith A Kuenzler MD, William Middlesworth MD, Steven S Rothenberg MD, Morgan Stanley Children's Hospital of NY-Presbyterian, Columbia University Medical Center, New York, NY and The Rocky Mountain Hospital for Children, Denver, CO

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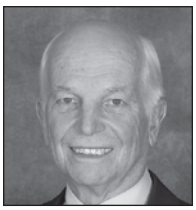
2:02 PM **S030: Thoracoscopic Thoracic Duct Ligation For Plastic Bronchitis**, Curt S Koontz MD, S. Salman A Shaw MD, Claire S Nicholas MD, Mark L Wulkan MD, Children's at Egleston/Emory University School of Medicine

2:07 PM **S031: Usage Of Simulators On Real Organic Inanimate Models For Training In Neonatal Thoracic Surgery**, Sonia Guzman-Martinez MD, Alfonso Galvan-Montaño MD, Fernando Puente-Compean MD, Sergio Landa-Juarez MD,Weimar Maldonado-Arze MD, Jose A. A Martinez-Hernandez, Florencio De la Concha-Bermejillo MD, Gustavo Jurado-Barrios MD, Hospital General Dr. Manuel Gea Gonzalez

*IPEG acknowledges an unrestricted educational grant in support of this session from **Karl Storz Endoscopy-America.***

2:15 PM - 3:00 PM

Karl Storz Lecture: History & Development of a Minimally Invasive Repair for Pectus Excavatum



Speaker: Donald Nuss, MB, Ch.B., FRCS©, FACS, FAAP
Introduction by: George W. Holcomb, III, MD

3:00 PM - 3:30 PM

Break: Exhibits, Posters, Learning Center

3:30 PM - 5:00 PM

Panel: "Showdown at the Anorectal Canal"

Chair: Marc A. Levitt, MD

Panelists:

Keith E. Georgeson, MD & Alberto Peña, MD

Description:

This session will cover the scope of practice related to the surgical management of anorectal malformations, focusing on the technical details of the surgical approaches to its repair. The target audience is pediatric surgeons, all of whom take care of these types of patients. The content relates to a specific patient group – children born with congenital anorectal malformations. There will be discussion of controversies related to laparoscopic vs. posterior sagittal approach to anorectal malformations, identification of pitfalls, and honing of knowledge about technical details related to the operations. The format of this session will be case-oriented. The session chair will present the cases and the audience will have an opportunity to participate in the panel discussion and exchange of ideas through the Q & A session and use of the automated response system (ARS).

Objectives:

- Understand the key technical differences between the laparoscopic and posterior sagittal approach to anorectal malformations.
- Understand the key pitfalls related to both.
- Understand the advantages and disadvantages of each technique.

TIME	TOPIC
3:30 PM	**Introduction**
3:35 PM	**Case #1: Technical Challenges**
3:45 PM	**Panel discussion & audience participation**
3:52 PM	**Case #2: Pitfalls**
4:02 PM	**Panel discussion & audience participation**
4:09 PM	**Case #3: Potential Complications**
4:16 PM	**Panel discussion & audience participation**
4:23 PM	**Case #4: Issues of Continence**
4:33 PM	**Panel discussion & audience participation**
4:40 PM	**Case #5: Indications for Laparoscopy**
4:50 PM	**Panel discussion & audience participation**

5:00 PM - 6:30 PM

Poster Tours with Beer & Wine

Moderators: Miguel A. Guelfand, MD, Timothy D. Kane, MD, Oliver Muensterer, MD, Todd A. Ponsky, MD, Klaus Schaarschmidt, MD, & Jürgen Schleef, MD

7:00 AM - 8:00 AM

Morning Video Session: "My Favorite Tricks"

Chairs: Marcelo H. Martinez Ferro, MD & Carroll "Mac" Harmon, MD, PhD

Description:

The topic is open and the objective is to have participants share their best "tricks" they use when performing minimal access surgery (MAS). For example: making knots, instrument use, trocar placement, special maneuvers, special positioning of the patient or of the surgeon, etc. Participants will have 3 minutes to present their video and / or power point presentation. The audience will also have an opportunity to interact with presenters via automated response system (ARS)

Objectives

- To promote the exchange of new ideas and techniques, that facilitates the development of minimally access surgery (MAS).
- Promote the advancement of minimally access surgery (MAS) in Pediatrics.
- To stimulate the development of new ideas and techniques outside the habitual scientific framework.

7:00 AM **V001: Laparoscopic Excision Of Large Hepatic Cyst** Parissa Tabrizian MD, Adheesh Sabnis MD, Peter Midulla MD, Mount Sinai School of Medicine

7:05 AM **S032: "Lasso"-Needle For Vats-Aortosternopexy By Tracheomalacia**, Yury Kozlov MD, Vladimir Novogilov MD, Alexey Podkamenev MD, Pavel Yurkov MD, Natalya Aleynikova MD, Irina Weber MD, Marina Kononenko, Svetlana Kuznecova, Vitaly Kovalev, Andrey Machov, Municipal Pediatric Hospital Irkutsk, Department of Neonatal Surgery

7:10 AM **S033: Laparscopic Excision Of An Endoscopically Irretrievable Colonic Polyp**, Peter Fitzgerald MD, Wasmi Alfadhli MD, Ana Sant 'Anna MD, McMaster Children's Hospital, Hamilton, Ontario

7:15 AM **V002: Intrathoracic Kidney: MIS Approach**, Mario Riquelme MD, Arturo Aranda MD, Enrique Villarreal MD, San Jose Hospital, ITESM University, Monterrey, Mexico

7:20 AM **S034: A Modified Nathanson Style Liver Retractor Is Able To Provide Excellent Exposure For Paediatric Laparoscopic Fundoplication.** Colin Lazarus, Milind Chitnis, Itayi Simango, Mie Elsen, Eastern Cape Pediatric Surgical Service, East London, South Africa.

7:25 AM **V003: Thoracoscopic Patent Ductus Arteriosus Ligation In Very Low Birth Weight Infants Utilizing A Novel Retractor**, Jeffrey R Lukish MD, The National Naval Medical Center and Walter Reed Army Medical Center

7:30 AM **S035: Cutting Balloon Dilatation Of Congenital Ureteric Strictures**, B Narayanaswamy MD, Late W G Manson* MD, A G Wilkinson MD,G A MacKinlay MD, Royal Hospital for Sick Children, Edinburgh, UK

7:35 AM **V004: Laparoscopic Bilateral Gonadal Resection And Hernioplasty In 46 XY DSD Female Raised Patients. How We Do It.** M Bailez MD, A Ruesmann MD, Diagnosis and Treatment Argentine Institute, Buenos Aires, Argentina

7:40 AM **S036: Improvement Of Tracheal Compression After Pectus Excavatum Repair**, Go Miyano MD, Romeo C Ignacio, Jr, Robert E Wood MD, Thomas H Inge PhD, Cincinnati Children's Hospital Medical Center

7:45 AM **S037 Minimally Invasive, Laparoscopic-Assisted, Percutaneous Liver Biopsy In Children**, Richard Carter MD, Martin Graham MD, David Lanning MD, Virginia Commonwealth University Health System

IPEG acknowledges our Diamond Level Donors for their support of this symposium:
Karl Storz Endoscopy-America, Inc.
Stryker Endoscopy

8:00 AM - 9:30 AM

Scientific Session: Gastrointestinal & Hepatobiliary

Moderators: Douglas Barnhart, MD & Girolamo Mattioli, MD

8:00 AM **S038: Esophageal Manometry In Postoperative Achalasia Repair**, Melissa Logan MD, Prithvi Reddy MD, Rathna Amarnath MD, Juan Camps MD, Palmetto Health Children's Hospital

8:08 AM **S039: Laparoscopic Ladd's Procedure: Safe, With Improved Short-Term Results.** Ravindra K Vegunta MD, Kavitha Kalvakuri MD, Amy B Stanfill MD, Lizabeth J Wallace MS, Richard H Pearl MD, University of Illinois College of Medicine at Peoria and Children's Hospital of Illinois, Peoria, Illinois

8:16 AM **S040: The Safety Of Laparoscopy In Pediatric Patients With Ventriculoperitoneal Shunts**, Jason D Fraser MD, Pablo Aguayo MD, Susan W Sharp PhD, Daniel J Ostlie MD, George W Holcomb MD, Shawn D St. Peter MD, The Children's Mercy Hospital

8:24 AM **S041: Risk Of Ventriculoperitoneal Shunt Infections After Laparoscopic Placement Of Chait Trapdoor™ Cecostomy Catheters In Children**, Saniz Yamout, MD, Betty J. Huo, MD, Veetali Li MD, Mauricio A Escobar MD, Michael G Caty MD, Women and Children's Hospital of Buffalo

8:29 AM **S042: Laparoscopy-Assisted Stoma Closure In Children: Outcome Comparison With Conventional Open Approach**, Go Miyano MD, Manabu Okawada MD, Toshihiro Yanai MD, Tadaharu Okazaki MD, Geoffrey Lane MD, Atsuyuki Yamataka MD, Juntendo University School of Medicine

8:34 AM **S043: Laparoscopic Nissen Fundoplication In Very Small Patients**, Carlos Garcia Hernandez MD, Lourdes Carvajal Figueroa MD, Juan Carlos Dueñas Ramirez MD, Hospital Infantil Privado

8:39 AM **S044: Long-Term Follow-Up After Laparoscopic Gastropexy In Children With Gastric Volvulus.** Mario Mendoza-Sagaon MD, Olivier Reinberg MD, Alexandre Darani MD, Rudolf Leuthardt MD, Department of Pediatric Surgery, Centre Hospitalier Universitaire Vaudois and Ospedale Regionale di Bellinzona e Valli. Switzerland.

Friday, April 24, 2009

8:44 AM **S045: Laparoscopic Endorectal Pull-Through For Hirschsprung's Disease ? 10 Years Experience**, Clare M Rees MD,Niamh Geoghegan RN,Diane de Caluwe MD,Simon Clarke MD,Munther Haddad MD, Chelsea & Westminster NHS Foundation Trust, London, UK

8:49 AM **S046: Air Insufflation Of The Stomach Following Laparoscopic Pyloromyotomy Does Not Reliably Detect Perforation**, Steven L Lee MD, Roman M Sydorak MD, Stanley T Lau MD, Kaiser Permanente, Los Angeles Medical Center

8:54 AM **S047: Technical Challenges Of The Laparoscopic Approach For Patients With Anorectal Malformation And Rectobladderneck FIstula**, Andrea Bischoff MD,Marc A Levitt MD, Belinda Dickie MD, Alberto Pena MD, Cincinnati Children Hospital

8:59 AM **S048: Wrap It, Stitich It And Patch It! ? A New Technique In Laparoscopic Fundoplication**, Aniruddh V Deshpande MD, Stephen Farrell MD, Irene Tsang, Albert Shun MD, Children's Hospital at Westmead, Sydney, Australia

9:07 AM **S049: New Techniques And Late Results Of Laparoscopic Subtotal >90% Splenectomy For Haemolytic Anaemia Or ITP In Children And Adolescents**, Klaus Schaarschmidt MD, Andreas Kolberg-Schwerdt MD, Michael Lempe MD, Frank Schlesinger MD,Irina Hayek MD, Jan Patino-Meyer, Helios Center for Pediatric & Adolescent Surgery, Berlin-Buch, Germany

9:15 AM **S050: Laparoscopic Splenectomy And Pericardial Devascularization With Endoligature For Portal Hypertension In Children**, Suolin LI MD,Zengwen YU, Yinghcao LI, Department of Pediatric Surgery, 2nd Hospital of Hebei Medical University, Shijiazhuang, 050000,China.

9:20 AM **S051: Laparoscopically Assisted Pull Through For Hirschprung's Disease: The Edinburgh Experience**, Gillian Duthie, Maryam Davoodi, Derrick Wilson-Storey, Royal Hospital for Sick Children, Edinburgh

*IPEG acknowledges an unrestricted educational grant in support of this session from **Covidien.***

9:30 AM - 10:00 AM

Keynote Lecture: What is Going on with MIS in China?

Speaker: Long Li, MD
Introduction by: George W. Holcomb, III, MD

*IPEG acknowledges our Platinum Level Donor for their support of this lecture: **Covidien***

9:30 AM - 3:30 PM

IPEG/SAGES Exhibits and Posters Open, Learning Center Open

10:00 AM - 10:30 AM

Break: Exhibits, Posters, Learning Center

10:30 AM - 11:45 AM

Scientific Session: All Short Papers

Moderators: Mohamed E. Hassan, MD & Thomas H. Inge, MD, PhD

10:30 AM **S052: Laparoscopic Assisted Anterior Gastropexy For Primary Gastric Volvulus In Children**, Paul CY Chang MD, Ming-Lun Yeh MD, Beng-Huat Lou MD, Chih-Chun Chao MD, Shin Kong Memorial Hospital, Taipei, Taiwan

10:35 AM **S053: Does The Use Of Peri-Operative Antibiotics During Minimal Access Gastrostomy Insertion Decrease The Incidence Of Wound Infection?**, Julia R Fishman MD, Ramesh M Nataraja MD,M Haywood BS,J Ekpe BS,G Mallon RN,S A Clarke MD,M H Haddad MD, Chelsea and Westminster Hospital NHS Foundation Trust and Imperial College London

10:40 AM **S054: Laparoscopy In The Management Of Abdominal Trauma In Children**, Ahmed R Marwan MD, Geni Smith RN, Carrol M Harmon PhD, Keith E Georgeson MD, Oliver J Muensterer PhD, Children's Hospital of Alabama, Birmingham, Alabama

10:45 AM **S055: Laparoscopic Management Of The Impalpable Testes In Children. New Classification, Lessons Learned And Rare Anomalies.** Mohamed E Hassan BA, A R Mustafawi BA, Al Wasl Hospital, Dubai, UAE

10:50 AM **S056: Laparoscopic Contralateral Groin Exploration: Is It Cost Effective?** Steven L Lee MD, Roman M Sydorak MD, Talar Tejirian MD, Stanley T Lau MD, Kaiser Permanente, Los Angeles Medical Center

10:55AM **S057: Laparoscopic Pyeloplasty For Repair Of Ureteropelvic Junction Obstruction In Children**, Manuel Lopez MD, François Michel MD, Emmanuelle Guye MD, François Varlet PhD, Department of Pediatric Surgery, University Hospital of Saint Etienne-France

11:00 AM **S058: Surgical Management Of Ovarian Disease In Infants, Children And Adolescents: A 15-Year Review**, Bradley Segura, MD, Indranil Sau MD, Sonia Perez-Bertolez, Timothy D Kane, Children's Hospital of Pittsburgh of UPMC, Pittsburgh, Pennsylvania, USA

11:05 AM **S059: The Role Of Gasless Laparoscopy In Newborns With Necrotizing Enterocolitis: Preliminary Experience**, Giovanna Riccipetitoni MD, Claudio Vella MD, Enrica Caponcelli MD, Ernesto Leva MD, Massimo Garriboli MD, Department of Pediatric Surgery- Children's Hospital,V. Buzzi, Milan, (Italy)

Friday, April 24, 2009

11:13 AM **S060: New Trends In Reduction Of Intussusception In Children: A Minimal Invasive Vision**, H Steyaert PhD, J Lauron MD, JS Valla PhD, Lenval Foundation for Children

11:18 AM **S061: Computer-Aided Workflow Comparison Of Laparoscopic Versus Robot-Assisted Nissen Fundoplication In Infant Pigs**, Alexandra Krauss MS, Thomas Neumuth PhD, Robin Wachowiak MD, Bernd Donaubauer MD, Werner Korb PhD, Oliver Burgert PhD, Oliver J Muensterer PhD, University of Leipzig,Pediatric Surgery, Innovation Center Computer Assisted Surgery, Anesthesia and Intensive Care Medicine, Leipzig, Germany; Pediatric Surgery, Children's Hospital of Alabama, Birmingham, Alabama

11:24 AM **S062: Laparoscopic Management Of Intussusception In Pediatric Patients**, Jason D Fraser MD, Pablo Aguayo MD, Susan W Sharp PhD, Daniel J Ostlie MD, George W Holcomb MD, Shawn D St. Peter MD, The Children's Mercy Hospital

11:29 AM **S063: Short Term Natural History Of The Standard Approaches For Gastrostomy Tube Placement In The Pediatric Patient**, Jason D Fraser MD, Todd A Ponsky MD,Pablo Aguayo MD,Scott Boulanger MD,Robert Parry MD,Neil Nixdorf MD,Jennifer DiLuciano RN,Patti Smith RN,Susan W Sharp PhD,George W Holcomb MD,Daniel J Ostlie MD,Shawn D St. Peter MD, The Children's Mercy Hospital and Rainbow Babies and Children's Hospital

11:34 AM **S064: Laparoscopic Total Colectomies In Children**, Michel Francois, MD, Manuel Lopez MD, Emmanuelle Guye MD,S. Irtan MD, A Bonnard MD, P De Lagausie PhD, H Staeyert MD, J-S Valla PhD, M Demarche MD, P Erpicum MD, H Lardy PhD, M Robert PhD, G podevin PhD, Y Héloury PhD, O Reingberg PhD, P Montupet MD, H Martelli PhD, J-F Colombani MD,D Weil MD,C Piolat PhD, F Varlet PhD, University hospital of Saint Etienne and GECI. France

11:45 AM - 12:30 PM

Robotics & Emerging Technology

Chairs: Aayed Alqahtani, MD, Celeste Hollands, MD, & John J. Meehan, MD

11:45 AM **S065: Robotic Thymectomy In Children**, Franklin C Margaron MD, Claudio Oiticica MD, David Lanning MD, Virginia Commonwealth University

11:50 AM **S066: Robotic Surgery Facilitates Learning Curve In MIS**, Juan Camps MD, Trey Bradley MD, Palmetto Health Children's Hospital

11:55 AM **S067: A New Platform For Basic And Advanced Endoscopic Skills Training**, M Lima MD, C Melchiorri,G Ruggeri MD,G De Novi,T Gargano MD, Pediatric Surgery ? University of Bologna, Italy Faculty of Engineering? University of Bologna, Italy

12:00 PM **S068: Development Of A New 2.4 MM Laparoscope For Microlaparoscopy In Children.** Salmai Turial MD, Miriam Luise Knab, Veronika Engel MD, Felix Schier MD, University Medical Centre, Department of Pediatric Surgery, Mainz

12:05 PM **S069: The "Endo-Paed-Trainer": Why A Laparoscopic Training Device Is Indispensable In Pediatric Surgery**, Markus Duersch MD, Bertram Reingruber MD, Department of pediatric surgery - Regensburg

12:10 PM **S070: A Novel Transoral Esophageal Anastomosis Device (EAD): Toward A NOTES Approach To Esophageal Atresia Repair**, Zachary J Kastenberg BS, Pablo Garcia MS, Sanjeev Dutta MD, Multidisciplinary Initiative for Surgical Technology Research- Stanford University/SRI International, Palo Alto, CA, USA

12:15 PM **S071: Comparative Performance Evaluation Of Force Triverse? ModeE vs. Starndard Electrosurgical Modes**, Hannah K Swayze MD, Arlen K Ward, Myron St. Louis MD, David Tashjian MD, Kevin P Moriarty MD, Department of Surgery, Baystate Children's Hospital, Pioneer Valley Life Sciences Institute, Springfield, Massachusetts

12:20 PM **S072: Serial Intestinal Lengthening Using A Re-Deployable Intraluminal Spring Device**, Shant Shekherdimian MD, Mohanchandra Panduranga PhD, Gregory Carman PhD, James Dunn MD, University of California, Los Angeles

12:25 PM **V005: Robotic Resection Of A Mediastinal Neuroblastoma**, John J Meehan MD, Seattle Children's Hospital

12:30 PM - 1:30 PM

Don't forget: Friday lunch in the Exhibit Hall, free for all IPEG & SAGES Scientific Session registrants!

Friday, April 24, 2009

1:30 PM - 3:00 PM

Panel: Cutting Edge Genitourinary Reconstruction

Chair: Marc A. Levitt, MD

Description:

This session will describe what the latest surgical options are in the area of complex genitourinary anomalies including ureteral, bladder, vaginal, and cloacal reconstructions. Advanced techniques including MIS, tissue engineering, and operative details will form the basis of the presenations, and the panel will then be presented with challenging cases for discussion.

Objectives:

- To understand the latest advances in ureteral reconstruction.
- To understand the latest advances in vaginal replacements.
- To understand the latest advances in bladder augmentation.
- To understand the latest advances in cloacal malformation reconstruction.

TIME	TOPIC	FACULTY
1:30 PM	**What's New in Vaginal Replacement Surgery**	Maria Marcela Bailez, MD
	Q & A /Discussion	
1:50 PM	**What's New in Bladder Surgery**	Steven G. Docimo, MD
	Q & A /Discussion	
2:10 PM	**What's New in Ureteral Surgery**	Alberto Peña, MD
	Q & A /Discussion	
2:30 PM	**What's New in Cloacal Reconstruction Surgery**	C.K. Yeung, MD
	Q & A /Discussion	

3:00 PM - 3:30 PM

Break: Exhibits, Posters, Learning Center

3:30 PM - 5:00 PM

SAGES/IPEG Joint Panel: Urgent and Emergent Acute Care Problems in Pediatrics and Adults

Chairs: John Sweeney, MD (SAGES) & Carroll "Mac" Harmon, MD, PhD (IPEG)

There are many general and pediatric surgeons who treat pediatric and adult patients with complex surgical problems. The topics covered in this joint SAGES/IPEG activity will outline the differences in presentation, diagnosis and management of several complex surgical problems in pediatric and adult patients.

Objectives:

At the conclusion of this session, participants will be able to:

- Describe the differences in the presentation, diagnosis, and treatment of acute appendicitis, intestinal malrotation, and intussusception in pediatric and adult patients
- Review the role of laparoscopy in the treatment of small bowel obstruction
- Identify methods for improving the early detection of intestinal ischemia
- Discuss current recommendations for non-operative and operative management of acute diverticulitis

SCHEDULE

3:30 PM	**Introduction**	John F. Sweeney, MD & Carroll "Mac" Harmon, MD, PhD
Diagnosis and Management in Pediatric and Adult Patients		
3:35 PM	**Acute Appendicitis**	Shawn D. St. Peter, MD
3:45 PM	**Intestinal Malrotation**	Steven S. Rothenberg, MD
3:55 PM	**Intussusception**	Keith Georgeson, MD
4:05 PM	**Discussion**	
Other Emergent Problems		
4:15 PM	**Small Bowel Obstruction: Is There a Role for Laparoscopy?**	Vadim Sherman, MD
4:25 PM	**Intestinal Ischemia: Tips for Intervening Before It's Too Late**	S. Scott Davis, MD
4:35 PM	**Diverticulitis: Current Management and Recommendations for Surgical Intervention**	Edward P. Dominguez, MD
4:45 PM	**Discussion**	
4:55 PM	**Closing Remarks**	John F. Sweeney, MD & Carroll "Mac" Harmon, MD, PhD

5:15 PM - 6:15 PM

IPEG/SAGES Simulator Session

Location: West 301D Ballroom

Chairs: Sanjeev Dutta, MD & David van der Zee, MD

Course Description:

Simulation as a modality for training is taking center stage in surgical education. Part-task trainers and virtual reality simulators are becoming more prevalent for technical skills training. This course familiarizes attendees to the range of commercially available simulators, and gives an overview of the role of technical skills simulation in the surgical education curriculum.

Learning Objectives:

- To become familiar with a variety of surgical simulator technologies currently available commercially.
- To understand the role of simulation in training surgical technical skills with respect to practice, performance feedback, and assessment.

5:15 PM	**Introduction**	David van der Zee, MD
5:15 PM	**Industry Presentations**	Haptica, Simbionix, & Surgical Science
5:30 PM	**State-of-the-Art Lecture: "Skills Simulation: The Practice Arena before the Performance Arena"**	Gary Dunnington, MD, FACS
6:00 PM	**Roundtable Discussions**	Sanjeev Dutta, MD

IPEG acknowledges unrestricted educational grants in support of this session from ***Hapatica, Simbionix*** *and* ***Surgical Science.***

7:30 PM - 11:00 PM

IPEG/SAGES Main Event & International Sing-Off
Viva La SAGES! Viva La IPEG! Gala
An Evening at Corona Ranch

Dinner and Sing-Off

Date: Friday Evening, April 24, 2009

Place: Corona Ranch

Time: 7:30 - 11:00 PM

Dress: Casual (really casual!)

Fee: Included in Registration for SAGES SuperPass (Option A), IPEG meeting & registered guests.

Ticketed Event

The evening will conclude with the SAGES International Sing-Off.

Shuttles begin departing at 7:15 PM in front of the Sheraton Phoenix Downtown, Hyatt Regency Phoenix and Wyndham hotels. Buses will circle all evening until the event ends.

CME & Evaluation Forms

IPEG Registrants, please complete the IPEG CME & Evaluation form and turn in at the IPEG Membership Booth to have your CME certificate mailed to you after the meeting.

IPEG members who have also registered for the SAGES meeting and need to claim credits, please complete the SAGES CME Worksheet included in the SAGES final program and turn in at any of the SAGES CME drop boxes.

Please allow 4-6 weeks for processing for all CME requests.

Saturday, April 25, 2009

9:30 AM - 1:30 PM

Posters and Learning Center Open (Exhibits CLOSED)

8:00 AM - 9:00 AM

IPEG General Assembly – All IPEG Members Encouraged to Attend!

Moderator: George W. Holcomb, III, MD

9:00 AM - 10:30 AM

Scientific Session: NOTES®, Single Incision Access Surgery, & Urology

Moderators: Munther J. Haddad, MBBCH, FRCS, Daniel J. Ostlie, MD, & Todd A. Ponsky, MD

9:00 AM **S073: Treatment Of Ureteropelvic Junction Obstruction In Children With A Laparoscopic Vascular Sling Technique And Pelvic Pexy: A Case Series**, Kris Milbrandt MD, Sarah Wong BS, Anthony Cook MD, Alberta Children's Hospital, Calgary, Alberta, Canada

9:05 AM **S074: Functional Outcome After Laparoscopic Dismembered Pyeloplasty In Children**, Philipp O Szavay MD, Tobias Luithle MD, Joerg Fuchs MD, Department of Pediatric Surgery and Urology, Children's Hospital, University of Tuebingen

9:10 AM **S075: Is Balloon Burst Pyeloplasty A Useful Alternative To Open Or Laparoscopic Pyeloplasty?** Boma Adikibi MD, Rachel M Hall MD,A. Graham Wilkinson MD, Gordon A. MacKinlay MD, Royal Hospital for Sick Children, Edinburgh.

9:15 AM **S076: Laparoscopic Maneuver For Orchidopexy In High Intra-Abdominal Testes When Cremasteric Artery Is Present: A Technical Report**, Claudio De Carli MD, Michael Leonard MD, Marcos Bettolli MD, Luis Guerra MD, University of Ottawa, Children's Hospital of Eastern Ontario. Dept of Surgery - Divisions of Pediatric Urology and General Surgery

9:20 AM **S077: Laparoscopic Extravesical Reimplantation For Vesico-Ureteral Reflux.** Manuel Lopez MD, Emmanuelle Guye MD, Michel François MD, François Varlet PhD, Department of Pediatric Surgery, University Hospital of Saint Etienne-France

9:25 AM **S078: Our Experience Of A Single Port Laparoscopic Appendectomy In Children**, Takashi Nogami BA, Makoto Yagi BA, Yuko Udatsu BA, Hideki Yoshida MD, Yuji Morishita MD, Hitoshi Shiozaki MD, Harumasa Ohyanagi MD, Division of Pediatric surgery, Department of Surgery, Kinki University of Medicine

9:30 AM **S079: Endoscopic Treatment Of Duodenal Webs On Pediatric Patients**, F. yankovic MD, F. Saitua MD, C Castillo MD, C navarrete MD, Luis Calvo Mackenna hospital, Clinica Alemana de santiago

9:35 AM **S080: Rigid NOTES: The Transurethral Approach In Female Piglets**, Martin L Metzelder MD, Joachim F Kuebler MD, Gertrud Vieten PhD, Jan Gosemann MD, Benno M Ure PhD, Department of Pediatric Surgery, Hannover Medical School, Hannover, Germany

9:43 AM **S081: Scarless Abdominal Surgery: Single Incision Laparoscopic Splenectomy, Cholecystectomy, And Appendectomy** Sanjeev Dutta MD, Division of Pediatric Surgery, Lucile Packard Children's Hospital, Stanford University

9:48AM **S082: Experience With Modified Single Port Laparoscopic Procedures (SPA) In Children**, Steven S Rothenberg MD, The Rocky Mountain Hospital for Children

9:53 AM **S083: Preliminary Experience With Single Incision Laparoscopic Surgery In Children**, Todd A Ponsky MD, Scott Boulanger MD, Walter Chwals MD, Edward Barksdale MD, Robert Parry MD, Rainbow Babies and Children's Hospital, Case Western Reserve University

10:01 AM **S084: Transumbilical Laparoscopic Assisted Appendectomy (TULAA) In Children - First Experience.** Robert Bergholz MD, Thomas Krebs MD, Katharina Wenke MD, Altona Children's Hospital, UKE Medical School, University of Hamburg, Germany

10:06 AM **S085: A Homemade Grasper For "Single Conventional Port" Laparoscopic Appendectomy: Swing Poylpropylene Suture Introduced Through A Single Vascular Needle**, Feza M Akgur MD, Mustafa Olguner MD, Gulce Hakguder MD, Oguz Ates MD, Department of Pediatric Surgery, Dokuz Eylul University, School of medicine, Izmir, Turkey

10:11 AM **V006: Single Site Laparoscopic Splenectomy In A Child**, Todd A Ponsky MD,Scott Boulanger MD, Rainbow Babies and Children's Hospital, Case Western Reserve University

10:16 AM **V007: Modified Single Port Cholecystectomy In A Child,** Steven S Rothenberg MD, The Rocky Mountain Hospital For Children

*IPEG acknowledges an unrestricted educational grant in support of this session from **Karl Storz Endoscopy-America.***

10:30 AM - 11:00 AM

Break: Posters and Learning Center Open (Exhibits CLOSED)

11:00 AM - 11:15 AM

IPEG Awards Session

Moderators: Daniel J. Ostlie, MD & Benno M. Ure, MD, PhD

11:15 AM - 12:00 AM

Scientific Video Session: Miscellaneous

Moderators: Azad S. Najmaldin, MD & Daniel J. Ostlie, MD

11:15 AM **V008: Laparoscopic Repair Of Traumatic Abdominal Wall Hernia From Handlebar Injury**, Erin E Rowell MD, Anthony C Chin MD, Children's Memorial Hospital

11:20 AM **V009: Thoracoscopic Repair Of An H-Type TEF In An Year Old Female**, Steven S Rothenberg BA, Kristen Shipman BA, The Rocky Mountain Hospital for Children

11:25 AM **V010: Extraperitoneal Splenopexy For Wandering Spleen**, Earl C Downey BA, University of Utah Department of Surgery, Division of Pediatric Surgery

11:30 AM **V011: Laparoscopic Treatment Of A Rectovaginal Fistula. Feasibility And Technical Details Of A Rare Anorectal Malformation.(ARM)**, M Bailez MD,E Paz MD,V Dibenedetto MD, Pediatric Surgery Garrahan Children's Hospital. Buenos Aires. Argentina

11:35 AM **V012: Laparoscopic Repair Of A High Urogenital Sinus And Duplex Vagina**, Joerg Fuchs MD,Guido Seitz MD, Monika Schroeder MD,Juergen F Schaefer MD, Steven W Warmann MD, University Children's Hospital, Department of Pediatric Surgery, Tuebingen, Germany

11:40 AM **V013: Laparoscopic Removal Of A Gastric Trichobezoar In A Pediatric Patient**, Charles M Leys MD, Jason D Fraser MD, Shawn D St. Peter MD, The Children's Mercy Hospital, Kansas City, MO

11:45 AM **V014: Laparocopic Cholecystectomy And Concomitant Splenectomy – Four Working Ports And A 5 MM Bipolar Sealer.** M Bailez MD, A Ruesmann MD, N Tamburri MD, Diagnosis and Treatment Argentine Institute, Buenos Aires, Argentina

11:50 AM **V015: Laparoscopic Dismembered Pyeloplasty And Repair Of An Infundibulo-Pelvic Stenosis In A Horseshoe Kidney**, Florian Obermayr MD, Philipp O Szavay MD, Joerg Fuchs MD, Department of Pediatric Surgery, Children's Hospital, University of Tuebingen

11:55 AM **V016: Laparoscopic Inguinal Hernia Inversion And Ligation In Female Children**, Aaron M Lipskar MD, Samuel Z Soffer MD, Richard D Glick MD, Nelson G Rosen MD, Stephen E Dolgin MD, Andrew R Hong MD, Schneider Children's Hospital, North Shore-Long Island Jewish Health System

12:00 PM - 12:15 PM

Closing Remarks

George W. Holcomb, III, MD & Daniel J. Ostlie, MD

Best Basic Science Award

The Best Basic Science Abstract Award will be a cash prize of US $1000 to be presented during the Thursday session of the Abstract Presentations. The Program Committee will select the Award recipient. The IPEG Executive Committee is committed to education and feels this is a very concrete way to express that commitment.

IRCAD Award

As a result of a generous grant provided by Karl Storz Endoscopy, the Best resident abstract presenter will be selected by the IPEG Executive Committee to receive the 2009 IRCAD award. The award recipient will travel to Strasbourg, France to participate in a course in pediatric minimally invasive surgery at the world famous European Institute of Telesurgery. This center, on the campus of the University of Strasbourg, is a state-of-the-art institute for instruction in all aspects of endoscopic surgery that is now providing a series of courses in pediatric surgery.

2009 IPEG Faculty

IPEG 2009

Aayad Alqahtani, MD: Riaydh, SAUDI ARABIA

Maria Marcela Bailez, MD: Buenos Aires, ARGENTINA

Douglas C. Barnhart, MD: Salt Lake City, Utah, USA

Steven Docimo, MD: Pittsburgh, Pennsylvania, USA

Sanjeev Dutta, MD, FRCS: Stanford, California USA

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Mohamed Hassan, MD: Dubai, United Arab Emirates

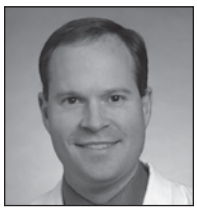
George W. Holcomb III, MD: Kansas City, Missouri, USA

Celeste Hollands, MD: Mobile, Alabama, USA

David Iannitti, MD: Charlotte, North Carolina, USA

Thomas H. Inge, MD, PhD: Cincinnati, Ohio, USA

Timothy D. Kane, MD: Pittsburgh, Pennsylvania, USA



Kent Kercher, MD: Charlotte, North Carolina, USA

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Marc A. Levitt, MD: Cincinnati, Ohio, USA

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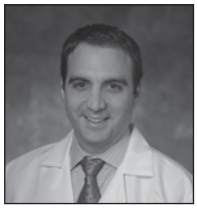

Todd A. Ponsky, MD: Cleveland Heights, Ohio, USA

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Steven G. Docimo, MD	Nothing to Disclose			
Gary L. Dunnington, MD	Nothing to Disclose			
Sanjeev Dutta, MD, FRCS		Novare	Consulting Fee	Proctoring
Keith E. Georgeson, MD	Nothing to Disclose			
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Munther J. Haddad, MBBCH, FRCS	Nothing to Disclose			
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Thomas H Inge, MD, PhD.		Ethicon	Grant fee	Consulting
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Alberto Pena, MD	Nothing to Disclose			
Todd A. Ponsky, MD		Novare	Honoraria	Speaking
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IPEG 2009

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Steven L Lee, MD	Nothing to Disclose			
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Suolin LI, MD	Nothing to Disclose			
Aaron M Lipskar, MD	Nothing to Disclose			
Manuel Lopez, MD	Nothing to Disclose			
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Franklin C Margaron, MD	Nothing to Disclose			
Marcelo Martinez-Ferro, MD	Nothing to Disclose			

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Ahmed R Marwan, MD	Nothing to Disclose			
Girolamo Mattioli, MD	Nothing to Disclose			
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John J Meehan, MD		Intuitive Surgical	Honorarium	Speaking and/or Teaching
Martin L Metzelder, MD	Nothing to Disclose			
Brett Michelotti, BS	Nothing to Disclose			
Go Miyano, MD	Nothing to Disclose			
Kaushik Mukherjee, MD	Nothing to Disclose			
Bommayya Narayanaswamy, MS, FRCS(Paed)	Nothing to Disclose			
Neil Nixdorff, BS	Nothing to Disclose			
Takashi Nogami, PhD	Nothing to Disclose			
Florian Obermayr, MD	Nothing to Disclose			
Todd A Ponsky, MD		Novare Sugiquest Covidien Novare	Honorarium Honorarium Honorarium Honorarium	 Speaking and/or Teaching Speaking and/or Teaching Speaking and/or Teaching
Clare M Rees, MD	Nothing to Disclose			
Giovanna Riccipetitoni, MD	Nothing to Disclose			
Steffen Richter	Nothing to Disclose			
Mario Riquelme, MD	Nothing to Disclose			
Steven S Rothenberg, MD		Covidien Storz Covidien Storz Covidien Storz Covidien Storz	Consulting Fee Consulting Fee Consulting Fee Consulting Fee Consulting Fee Consulting Fee Consulting Fee Consulting Fee	Consulting Consulting Consulting Consulting Speaking and/or Teaching Consulting Speaking and/or Teaching Consulting
Francisco Saitua, MD	Nothing to Disclose			
Klaus Schaarschmidt, MD	Nothing to Disclose			
Klaus Schaarschmidt, Prof. MD, PhD	Nothing to Disclose			
Akihiro Shimotakahara, MD	Nothing to Disclose			
Amy B Stanfill, MD	Nothing to Disclose			
H Steyaert, PhD	Nothing to Disclose			
Philipp O Szavay, MD	Nothing to Disclose			
Parissa Tabrizian, MD	Nothing to Disclose			
Baran Tokar, MD	Nothing to Disclose			
Salmai Turial, MD	Nothing to Disclose			
Sarah Wong, BS	Nothing to Disclose			
Sani Z Yamout, MD	Nothing to Disclose			

2009 Oral Abstracts

S001

IMMUNOLOGIC ALTERATIONS AFTER LAPAROSCOPY IN DIFFERENT AGE GROUPS IN RATS, Tulin Oztas MD, Unal Bicakci MD, Burak Tander MD, Riza Rizalar MD, Feride Duru MD, Tunc Fisgin MD, Ender Ariturk MD, Suat H Ayyildiz MD, Ferit Bernay MD, Ondokuz Mayis University, Department of Pediatric Surgery

Purpose: To compare alterations of immun responses of endoscopic and open accesses in rats of different age groups.
Methods: 24 Wistar rats were divided into 3 groups [infant (n=8), prepubertal (n=8), adult (n=8)] [subgroups: laparoscopy (n=4), laparotomy (n=4)] . Lymphocyte subgroups (CD4-CD25, CD4/CD8a) were measured .
Results: The CD4/CD8a ratio was depressed in all age groups of open access; but in endoscopy group of infants and adults, this ratio was elevated, indicating that the tissue damage is obvious after laparatomy (p>0.05). In adult age subgroups, the CD4-CD25 depression was more in open access group after surgery (p>0.05), indicating that the active T lymphocyts were depressed. CD8a measurements were increased in open surgery group of all ages, they were decreased after endoscopy (p>0.05).

	I Preop/Postop	P Preop/Postop	A Preop/Postop
Endo CD4-CD25	1.36/1.23	0.12/0.67	1.39/0.93
Endo CD4/CD8a	2.27/2.67	2.69/2.27	1.62/1.68
Open CD4-CD25	1.40/1.47	1.36/2.33	4.00/1.99
Open CD4/CD8a	2.90/2.28	2.95/1.35	1.39/1.05
I: Infant; P: Prepubertal; A: Adult			

Conclusion: Although statistically not significant, endoscopic surgery seems to cause less tissue damage compared to open access especially in adult rats. Laparoscopy may have minimal immun response in all age groups.

S002

DO GASTRIC AND INTESTINAL MOTILITIES CHANGE BY PNEUMOPERITONEUM IN YOUNG RATS?, Ahmet Unlu MD, Baran Tokar MD, Yasemin Aydin MD, Huseyin Ilhan MD, Dilsad Demet MD, Umut Alici MD, Eskisehir Osmangazi University, School of Medicine, Department of Pediatric Surgery and Physiology, Eskisehir, Turkey

Purpose: In literature, the data are very limited and it is still not clear whether a pneumoperitoneum induces significant changes in gastric and intestinal motilities in children. In this experimental study on rats, the aim was to determine the effect of pnuemoperitonium on gastric and intestinal motility for both pediatric and adult ages.
Methods: Of 4 groups, group 1 and 2 were pediatric age groups; in group 1 (n=8), pnuemoperitonium was applied, in group 2 (n=7) laparotomy was performed. In adult age groups, in group 3 (n=10), pnuemoperitonium was applied, in group 4 (n=10) laparotomy was performed. The duration of the procedures was one hour for all groups. Carbon dioxide insufflation with 5 mmHg pressure-0.5 ml/min flow was applied with Thermoflator (Karl-Storz, Germany). Postoperative gastric and intestinal motility studies were performed. Acetylcholine and KCL (between 10 -8 - 10-3 mM doses) contraction responses were recorded by Isometric Transducer (Biopac, USA) and analyzed with Data Acquisition Analyzing System (MP100 Biopac, USA). **Results:** The lowest mean contraction responses were obtained in group 1 for both gastric and intestinal studies, but when all groups were compared statistically, the difference was not significant. Conclusion: This study may suggest that pnuemoperitonium does not cause a significant change in gastric and intestinal motilities in children comparing with adults and pediatric cases having laparotomy. Our next step is to design new experimental and clinical motility studies comparing different ages including newborns, different pressures, operation and pnuemoperitonium durations, and the effect of different surgical procedures in children.

S003

HELIUM INSTEAD OF CO2 FOR LAPAROSCOPIC PNEUMOPERITONEUM? - AN EXPERIMENTAL RISK ANALYSIS, Steffen Richter,Felix Prof. Schier,Thomas Huckstadt,Devrim Aksakal,Daniela Klitscher,Tobias Wowra,Christoph Prof. Kampmann,Holger Prof. Till, Pediatric Surgery Universital Medical Center Leipzig; Universital Medical Center Mainz

Carbon dioxide is the common used gas for laparoscopy. Inert gases like Helium are discussed as alternatives, especially to prevent lokal tissue acidosis, decreased postoperative tumor growth and less spread of tumors to port sites.1,2 During laparoscopic procedures gas bubbles caused by micro vessel injuries could be detected in the right ventricle by echocardiographic examination.3
AIM: Evaluation of cardiopulmonary reactions while either carbon dioxide or helium was injected into the venous system of young piglets.
METHODS: Ten male piglets aged 5 to 7 weeks (mean body weight 10,9 kg) were anesthesized by intravenous infusion of pentobarbital and fentanyl and a pressure-controlled ventilation was performed. Three piglets received a carbon dioxide, three piglets a helium and three piglets first a carbon dioxide and then a helium gas embolism. The gas was injected rapidly into the inferior cava vene with 2 mL/kgBW in all cases. One piglet received alternately carbon dioxide (3 times, 9mL) and helium (2 times, first 3mL and then 9mL) gas embolism. Heart rate (HR), mean arterial pressure (MAP), mean pulmonary pressure (PAP) and endtidal carbondioxide (etCO2) were measured continuously since embolism start until 20 minutes follow up (15 minutes during alternate bolus).
(animal rights committee approved study 1.5 177-07/051-6)
RESULTS: All animals survived In the carbon dioxide group. After initial increase of HR and decrease of MAP and etCO2 baseline levels were reached within 20 minutes. In the helium group one piglet died at two and one at 14 minutes after embolism. In the mixed group all animals survived carbon dioxide embolism similar like in the first group. Two of these died in the first minutes of helium embolism. None of the helium embolism piglets reached baseline levels within 20 minutes. Decrease in HR and MAP occurred just before death. The animal with alternated embolism survived all gas applikations. During helium embolism significant greater cardiopulmonal reactions with prolonged readaption were monitored.
CONCLUSION: Helium embolism is associated with greater cardiopulmonary reactions in comparison to carbon dioxide embolism and probably often leads to a letal outcome. The readaptation after a gas embolism with helium needs more time in comparison to carbon dioxide.
1 Dähn S, et al. Surg. Endosc. 2005; 19: 65-70 - 2 Neuhaus SJ, et al. Surg. Endosc. 2001; 15: 553-60 - 3 Schmandra TC, et al. Br. J. Surg. 2002; 89: 870-6

S004

HISTOLOGICAL, IMMUNOHISTOCHEMICAL AND MORPHOLOGICAL EVALUATION IN REFLUXING URETERS TREATED WITH DEXTRANOMER/HYALURONIC ACID COPOLYMER., Salvatore Arena MD, Carmine Fazzari MD, Maria Grazia Scuderi MD, Alessandra Implatini MD, Francesco Arena MD, Piero Antonio Nicòtina MD, Vincenzo Di Benedetto MD, Unit of Pediatric Surgery - University of Catania (ITALY); Unit of Histopathological Diagnosis - University of Messina (ITALY)

Introduction Endoscopic injection of a bulking agent is considered an alternative to conservative medical treatment and sugical ureteral reimplantation in patient affected by vesicoureteral reflux (VUR). Dextranomer/Hyaluronic acid (Dx/HA) copolymer is considered ideal for treating VUR because it is biocompatible, biodegradeble, no migratory and shows no signs of mutagenesis.Dx/HA treatment is known to be associated with a granulomatous inflammatory reaction, subsequently replaced by fibrosis. Aim was to evaluate histological changes, immunolocalize CD68 positive cells, tryptase mast cells and myofibroblasts and to perform a morphological analysis in refluxing ureters treated with Dx/HA.
Materials and methods We performed an histologcal, immunohistochemical and morphological analysis in 22 Dx/HA treated refluxing ureteral endings and compared data with 17 untreated ones. For immunohistochemestry we used CD68 (or monocytes/macrophages and epithelioid cells), mast cell tryptase (for mast cell) and alpha-smooth muscle actin/vimentin (for myofibroblasts) antibodies. Area and thickness of ureters were measured in treted and untreated ureteral endings.
Results Light macroscopy showed a chronic inflammatory reaction and a significant enhancement of histological lesion, CD68+ cells and tryptase mast cells in Dx/HA treated ureters. A myofibroblastic invasion was displayed around dextranomer particles. Area of Dx/HA treated ureters was significantly less as compared to untreated ones.
Conclusions Our data documented a significant accumulation of collagenous stroma, and enhancement of CD68+ cells and tryptase positive mast cells with an abnormal recruitment of myofibroblasts in Dx/HA treated refluxig ureteral endings. Moreover, morphological analysis howed a significant reduction of ureteral area in treated ureters. Myofibroblastic invasion suggests a their role in tissue contraction promoting reduction of ureteral area, modifying ureteral length to diameter ratio, preventing so urine reflux.

S005

LAPAROSCOPY INDUCED CHANGES IN CARDIAC PARAMETERS AT REPEATED IAP ELEVATIONS, Thomas Hückstädt,Felix Schier PhD,Devrim Aksakal,Steffen Richter,Daniela Klitscher,Tobias Wowra,Christoph Kampmann PhD, 1Department of Pediatric Surgery, University Medical Center Mainz, Germany

Aim Laparoscopy has become a surgical method in newborns. Insufflation of the abdomen results in increasement of intraabdominal pressure (IAP). In previous studies there are different statements about the hemodynamic consequences. Elevated IAP was associated with increased cardiac output as well as with decreased cardiac output. We investigated hemodynamic parameters during repeated IAP elevations in young piglets.
Methods Ten piglets (median body weight 10,8 kg) were anesthesized by intravenous infusion of pentobarbital and fentanyl. The investigation was started on normocarbia. After registration of baseline values capnoperitoneum was induced. In five animals intraabdominal pressure was raised in 5 mmHg steps up to 20 mmHg, followed by desufflation. In the second group IAP was elevated up to 8, 16 and 12 mmHg whereby after each pressure step the abdominal cavity was desufflated. Cardiac output (C.O.), mean arterial blood pressure (p carot), heart rate (HR) and arterial oxygenation (paO2) were registrated. (animal right committee approved study 1.5 177-07-04/G 07-1-014)
Results Low IAP-levels (5, 8, 10 mmHg) were associated with increasements in cardiac output (2, 7, 7 % in median respectively) and mean arterial pressure (6, 5, 9 % in median respectively). No significant changes were recognized at IAP 12 or 15 mmHg. There were no significant changes in oxygenation or heart rate seen at any IAP-level. After desufflation cardiac output decreased in eight out of ten animals independently of the previous IAP used (8, 12, 16 and 20 mmHg).
Conclusions During laparoscopy intraabdominal pressure causes increasements in cardiac output at low IAP-levels, whereas higher IAP-levels correlate with decreased cardiac parameters in young piglets. Desufflation was associated with an additional decrease in cardiac output within five minutes after capnoperitoneum. If higher IAP-levels are used quick desuffaltion should be avoided as well as hypovolaemia.

S006

CALORIMETRIC MEASUREMENTS DURING LAPAROSCOPY IN AN ANIMAL MODEL, Devrim Aksakal,Felix Schier PhD,Steffen Richter,Thomas Hückstädt,Daniela Klitscher,Tobias Wowra,Christoph Kampmann, 1Department of Pediatric Surgery, University Medical Center Mainz, Germany

Aim: We investigated the carbondioxide uptake during laparoscopy at different intraabdominal pressure (IAP) levels in piglets. The peritoneal surface and its perfusion depends on the IAP used. We supposed no linear correlation between IAP and carbondioxide uptake. The endtidal carbondioxide pressure (etCO2) serves as a good parameter for ventilatory adaptation during any operative procedure. The question arises how reliable is etCO2 measurement if carbondioxide is used for laparoscopy.
Methods: Nine piglets (German landrace, body weight 8.9 – 13.3 kg, median 11.2 kg) were anesthesised. The investigation was started on normocarbia. After registration of baseline values capnoperitoneum was induced. The intraabdominal pressure was performed at 8, 12 and16 mmHg, followed by desufflation after each IAP-step. Each pressure level was maintained for 20 minutes. Ventilation was adjusted to normocarbia by elevating the airway pressure. Indirect calorimetric measurements were performed by the Deltatrac. Carbondioxide elimination, oxygen consumption and arterial carbondioxide pressure (pa CO2) were calculated at any IAP-level and etCO2 were measured continuously. (animal right committee approved study 1.5 177-07-04/G 07-1-014)
Results: The carbondioxide elimination increased at all IAP levels. The greatest increase occurred at the lowest IAP-level (IAP = 8mmHg: +22,2 %, IAP = 12 mmHg: +14,4 %, IAP = 16 mmHg: +10,3 %). The oxygen consumption remained nearly unchanged. The paCO2-etCO2 difference was increased with capnoperitoneum (IAP = 8mmHg: +7 mmHg, IAP = 12 mmHg: +3 mmHg, IAP = 16 mmHg: +0,7 mmHg). All parameters reached baseline levels after desufflation.
Conclusions: Resorption of carbondioxide during laparoscopy depents on the IAP used. The maximum of carbondioxide uptake occurs at low IAP-levels. In the postoperative period the differences between arterial and endtidal carbondioxide pressure is more variable than before laparoscopy. Negative differences are possible. In ventilated patients ventilatory adaptation orientated on the etCO2 pressure can lead to hyperventilation.

S007

A MIDDLE FIDELITY MODEL IS EFFECTIVE IN TEACHING AND RETAINING SKILL SET NEEDED TO PERFORM A LAPAROSCOPIC PYLOROMYOTOMY, Joseph A Iocono MD, Margaret Plymale MS,James Hospkins BS,Daniel Davenport PhD, University of Kentucky

Background: Inanimate technical skills training for laparoscopic pyloromyotomy (LP) has not been described. We reproduced the 3 consistent steps in LP with a "middle fidelity" model. Credibility was validated by a cohort of pediatric surgeons. This study tested a teaching module of LP with medical students and early surgery residents to evaluate construct validity and retention of cognitive knowledge and surgical technical skills after 8 weeks. **Methods:** Subjects participated in the training individually. Training materials included a didactic overview of pyloric stenosis and narrated videos of a LP and the LP model. The LP model was inserted into the ProMIS trainer. After completing the training materials, subjects performed the task (pyloromyotomy) 3 times (Round 1). ProMIS automatically recorded unbiased values for each subject's time, instrument path lengths and smoothness, and a trained observer recorded information on task completion. Subjects were re-tested after 8 weeks (Round 2). Outcome measures included simulator output from the post-instruction and follow-up performance; step completion as recorded by the observer; and pre-instruction, post-instruction and follow-up knowledge-based test scores. Data were analyzed using paired sample t-tests and one-way analyses of variance. **Results:** A total 26 subjects completed the study. 23 subjects (88%) completed each of the steps of LP in Round 1 (post-instruction simulator use x 3). Mean time was 156 ± 60.9 seconds, and the mean improvement between runs 1 and 3 was 85.2 ± 75.4 seconds. Based on a one-way analysis of variance, higher level of training was associated with decreased mean times ($p = .04$). Of the 16 subjects (62%) that completed all steps for both Rounds, mean times decreased by 35.05 seconds from Round 1 to Round 2 ($p < .001$). Knowledge-based test percent scores improved from pre-instruction to post-instruction by +17.45 (SEM = 3.5) ($p< .001$), and from pre-instruction to 8 week follow-up by +4.54 (SEM = 3.2) ($p = .17$). **Conclusions:** An LP model provided an effective training experience. Construct validity of the model was demonstrated. At 3 months, task completion rates and task performance times show technical skills were retained whereas, based on knowledge-test scores, cognitive knowledge was not as well retained.

S008

LONG-TERM OUTCOMES OF LAPAROSCOPIC NISSEN FUNDOPLICATION VERSUS LAPAROSCOPIC THAL FUNDOPLICATION: A PROSPECTIVE RANDOMISED STUDY, Rainer Kubiak MD, James Andrews,Hugh Grant, Department of Paediatric Surgery ; John Radcliffe Hospital, Oxford, U.K.

AIM: The aims of the study were to compare the long-term outcomes and control of symptoms following laparoscopic Nissen and Thal fundoplication in children.
METHODS: 175 patients were recruited to this prospective, randomised study between July 1998 and April 2007. 167 were followed-up - 85 had Nissen fundoplication and 82 had Thal fundoplication. Demography of the patients was similar in both groups. The absolute outcome measure for fundoplication failure was recurrence of symptoms that merited a re-do fundoplication or insertion of a transgastric jejunostomy. The follow-up time ranged from 1 to 108 months (median 30.5). Chi-squared and Mann-Whitney U tests were used for statistical analysis.
RESULTS:

	Nissen (n=85)	Thal (n=82)
Re-do surgery	4 (4.7%)	10 (12.2%)
Jejunostomy	1 (1.2%)	0
Late deaths	20 (23.5%)	12 (14.6%)
all late deaths were due to other co-morbidities		

The reasons for recurrence of symptoms were: in the Nissen group 2 patients had a partially undone wrap, two had a hiatus hernia, and one had an intact but ineffective wrap. The last patient underwent transgastric jejunostomy. In the Thal group 5 had a partially undone wrap, 4 had a hiatus hernia and one had an intact but ineffective wrap. 14 out of 15 patients who needed a re-do procedure had neurological disability. The re-do operation was performed after a median of 16.5 months (range 3-90). Dysphagia occurred in 20 patients in the Nissen group and 21 in the Thal group, however

the dysphagia appeared to be worse in the Nissen group as 50% underwent oesophagoscopy +/- dilatation, whereas only 10% in the Thal group required intervention. No late death was related to the primary surgical procedure.
CONCLUSION: There was no significant difference between the need for revisional surgery between laparoscopic Nissen and laparoscopic Thal fundoplication. The incidence of post-operative dysphagia was similar between the two groups, however more required intervention in the Nissen group. Late deaths were due to other co-morbidities.

S009

THE BENEFIT OF STAY SUTURES DURING THORACOSCOPIC ESOPHAGOESOPHAGOSTOMY IN PATIENTS WITH ESOPHAGEAL ATRESIA, Akihiro Shimotakahara MD, Ryo Sueyoshi MD, Tadaharu Okazaki MD, Geoffrey J Lane MD, Atsuyuki Yamataka MD, Department of Pediatric General and Urogenital Surgery, Juntendo University School of Medicine

We report the efficacy of using stay sutures during thoracoscopic esophagoesophagostomy (TEES) in patients with esophageal atresia. Following excision of the tip of the proximal end of the esophagus to create an opening of adequate size for anastomosis, the tracheoesophageal fistula is divided 4/5 medially to prevent retraction of the distal esophagus and TEES commenced. Firstly, a 5/0 suture is placed through the lateral edge of the proximal esophagus. This suture is exteriorized through the thoracic wall using as a stay suture without tying using a LAPA-HER-CLOSURE®. A second suture is then placed through the medial edges of the proximal and distal ends of the esophagus. This suture is tied and exteriorized through a 5mm trocar placed in the mid-axillary line. These 2 improvised stay sutures allow the luminal surfaces of the anterior and posterior walls of the proximal and distal ends of the esophagus to be exposed nicely. It is crucial that both sutures include the mucosa, since when tension is gently applied on the sutures, the mucosae of both the proximal and distal ends of the esophagus can be exposed much more effectively than if such sutures are not used and mucosa-to-mucosa anastomosis during TEES is greatly facilitated. These 2 stay sutures are also effective for releasing tension on the anastomosis when the gap between the proximal and distal ends of the esophagus is long. This technique has been used in 5 patients with esophageal atresia, and based on our experience, it facilitates accurate anastomosis during TEES.

S010

LAPAROSCOPIC-ASSISTED REPAIR OF FEMORAL HERNIAS IN CHILDREN, Obinna O Adibe MD, Eric N Hansen MD, Federico G Seifarth MD, Cathy A Burnweit MD, Oliver J Muensterer PhD, Children's Hospital of Alabama, Birmingham, Alabama and Miami Children's Hospital, Miami, Florida

Background: Femoral hernias in children are rare, difficult to diagnose, and require a different treatment approach than the standard indirect inguinal hernia repair. There has been a recent trend towards laparoscopic repair of these atypical pediatric hernias.
Objective: We have developed a simple, effective laparoscopic-assisted femoral hernia repair that avoids opening the inguinal canal.
Methods: 1) A 5 mm trocar is placed in the umbilicus and the femoral hernia is visualized intracorporeally via a 30-degree laparoscope. 2) The laparoscope is then passed into the hernia sac with the visual axis pointing anterior towards the skin. 3) Guided by transillumination, a 1 cm skin incision is made over the hernia sac at the upper thigh; the fundus of the sac is grasped extracorporeally and dissected free from surrounding tissue. 4) The sac is then grasped within the abdomen, inverted, twisted, and an endoscopic tie is placed at its neck. 5) The defect between the medial pectineal and inguinal ligaments is closed externally with an absorbable suture.
Results: The described technique was successfully used on 3 boys each with right femoral hernias (age 4 to 11, mean = 7). On one-month follow-up, all patients had excellent cosmetic results with minimal scars and no recurrence.
Conclusion: Laparoscopic-assisted femoral hernia repair is straightforward, efficient, and avoids dissection of the inguinal canal, thereby circumventing any risk of injury to the vas deferens and spermatic vessels. Although these early results are encouraging, a larger study and longer follow-up is necessary to substantiate our technique.

S011

UREKA: UMBILICAL RING EASY KANNULA ACCESS -- A TECHNIQUE FOR INITIAL LAPAROSCOPIC PORT PLACEMENT, Jared W Carlson MD, James M DeCou MD, Helen DeVos Children's Hospital, Grand Rapids, Michigan, USA

Introduction: Initial laparoscopic port placement in the pediatric population can be difficult, particularly for larger patients and those with prior abdominal surgery. Knowing that umbilical hernias afford easy access to the peritoneal cavity, we began using a technique of dissection around the umbilicus in patients without clinical hernias, and found a patent umbilical ring in essentially every patient. In this retrospective study, we describe the umbilical ring easy kannula access (UREKA) technique and review our results, evaluating the safety and potential decrease in complications related to initial port placement.
Methods: In the UREKA technique, a supra- or infraumbilical incision is made followed by circumferential dissection of the umbilical stalk. The skin is dissected free from the fascia, exposing the umbilical ring. A STEP Cannula sheath is passed through the ring, stiffened with a guarded Veress needle. After establishing pneumoperitoneum, the STEP Cannula is placed through the sheath. The fascia is later closed with a figure-of-8 suture, with the same suture used to secure the umbilical skin back down to the fascia.
Medical records were reviewed for all laparoscopic procedures using UREKA performed by one pediatric surgeon over a 14 month period. Data included patient age, weight, gender, diagnosis, procedure, and operative and post-operative complications.
Results: Ninety-four patients (48 male, 46 female) underwent laparoscopic surgery with initial port placement via UREKA. Ages ranged from 0.25 to 18 years (mean 10 years), and weights from 5 to 135 kg (mean 44 kg). Appendectomy (n=57) was the most common procedure, followed by fundoplication (15) and cholecystectomy (10). Eleven of the appendectomies were for perforated appendicitis. There were no bowel or bladder injuries and no other intraoperative complications related to port placement. The only postoperative complication was a superficial wound infection in a 135 kg patient following cholecystectomy, treated successfully with oral antibiotics alone.
Conclusion: The umbilical ring persists to some degree in nearly all pediatric patients and provides a safe portal of entry for laparoscopic surgery. UREKA has few complications and is a straightforward, reproducible technique for gaining initial laparoscopic access.

S012

LAPAROSCOPIC PANCREATIC RESECTION IN CHILDREN: HOW WE DO IT, Kaushik Mukherjee MD, Stephen E Morrow MD, Edmund Yang MD, Monroe Carell Jr. Children's Hospital at Vanderbilt

INTRODUCTION: Laparoscopy has been applied successfully for children with traumatic pancreatic injuries and pancreatic masses. We report our technique and experience with four cases.
OPERATIVE TECHNIQUE: The patient is positioned supine. An umbilical trocar is used for the camera. Three or more additional 5mm trocars are positioned bilaterally in the epigastrium. The gastrocolic ligament is opened and the stomach is retracted superiorly. A vessel sealing electrosurgical device is used to dissect along the inferior margin of the pancreas. Dissection proceeds proximally or distally depending on the location of the pathology. The proximal injured pancreatic duct is oversewn for trauma cases, and for tumors the pancreas is divided with a 45 mm stapling device. The distal pancreas is mobilized from the splenic vessels, usually in a proximal to distal direction. If the vessels cannot be separated safely, then they are divided and a laparoscopic splenectomy is performed as well. The specimen is placed in a retrieval bag and removed through a small incision. Drains are placed prior to closure.
CASE EXPERIENCE: We report 4 cases: two patients with pseudopapillary tumors and two with traumatic pancreatic injuries. Operative time ranged from 206 to 305 min. Mean hospitalization was 5.75 days (range 5-8). Oral intake was tolerated 1.5 days postoperatively (range 1-3 days). There were no deaths. One patient was readmitted for a peripancreatic fluid collection and required a 3 week course of TPN for resolution. There were no other complications.
CONCLUSIONS: Laparoscopic pancreatic resection in children is feasible, safe, and leads to rapid recovery without significant morbidity. The spleen can often be spared, minimizing future infectious risks. This initial experience should encourage wider use of minimally invasive techniques for pancreatic resection in children.

S013

MICROLAPAROSCOPIC PYLOROMYOTOMY FOR HYPERTROPHIC PYLORIC STENOSIS – OUR TECHNIQUE, Salmai Turial MD, Ruth Freudenberger,Kathrin Krause,Barbara Goldinger,Veronika Engel,Felix Schier MD, University Medical Centre, Department of pediatric surgery, Mainz, Germany

Purpose: The aim of this prospective feasibility study was to determine the value and safety of the microlaparoscopy for pyloromytomy in children.
Methods and Patients: This study included 21 consecutive children (11 boys and 7 girls, ages ranged from 3 to 12 (average 4.8) weeks) undergoing microlaparoscopic pyloromyotomy for hypertrophic pyloric stenosis. A Mini-Porte was inserted infraumblical for the small diameter scopes (1.9 to 2.4 mm) in supine position of the patient. Another two working Mini-ports were inserted pararectally at umbilical level for a 2mm grasper on the right side and in the left Hypochondrium for the pyloromyotomy knife. The duodenum was grasped just distal to the pylorus olive and a serosal incision was made along the pylorus olive in the avascular plane by using monopolar cautery. A 2mm grasper was used to split the hypertrophied muscle until mucosa was visualized. At the end of procedures the trocars were removed and the skin was approximated with strips only.
Results: In first 10 cases a laparoscopic pyloromyotomy spreader, inserted directly through the abdominal wall, was used to complete the pyloromyotomy. Later on, by performing a complete serosa incision with high-power monoploar cautery the 2mm grasper was sufficient to spread the muscles and to use the spreader was not needed. All microlaparoscopic procedures were performed successfully. The operative time ranged form 9 to 18 min (average 13 min). No complications occurred due to the exclusive use of 2 mm instruments and small diameter scopes. There were no intraoperative or late postoperative complications (duodenal perforation, conversion, incomplete pyloromytomy, wound infection, readmission to four weeks after surgery) noted.
Prolonged vomiting occurred in two infants in first postoperative day. The feeding was started four hours after surgery and full feeding was reached in first postoperative day in 16 infants.
Conclusion: According to the small number of patients in this study, it appears that the microlaparoscopic pylormyotomy in children is feasible, safe and effective.

S014

LIGASURE FOR THE MANAGEMENT OF TUBULAR DUPLICATION OF ESOPHAGUS, Hamid Reza Foroutan MD, Seyed Abbas Banani MD, Shiraz University of Medical Sciences

Tubular duplications of esophagus is very rare. To treat these patients major surgeries through thoracotomy, laparatomy, or thoracoscopy approaches have been recommended. Resection, side to side anasthomosis or interposistion procedures have been performed. Here we present a very minimally invasive surgery, without thoracotomy,thoracoscopy, laparatomy, or laparoscopy as an innovative procedure for the treatment of these anomalies with complete remission of symptoms.
A 15 days old boy was admitted in NICU due to respiratory distress. He was intubated and was artificially ventilated since birth. During intubation they noticed an orifice in oropharynx posterior to esophagus. Endoscopy was performed which confirmed a tubular esophageal duplication originating posteriorly in the oropharynx and parallel to esophagus for almost its length and was distally blind ended. The mucosa of both lumens seemed normal. Esophagography was performed which confirmed the double esophagus. There was no reflux and peristalsis was normal. Chest CT scan with double contrast was not very conclusive. Echocardiography was normal and no other associated anomaly was present. Under general anesthesia, videoendoscope was inserted and with LigaSure 5mm, the common wall was gradually sealed and cut till the end of the duplication. The patient was ventilated for a few days and gradually was tapered off within a few days. Barium swallow, two weeks after operation , showed well patent normal esophagus with good peristalsis. Re-endoscopy three weeks after operation revealed normal mucosa with minimal redness at the lateral parts of the esophagus. The patient gradually well tolerated the feeding and was discharged. In the follow-up one month later he was doing well with good weight gain.
Conclusion: we highly recommend LigaSure for patients with tubular duplication of esophagus.

S015

LAPAROSCOPIC OMENTOPLASTY FOR LOWER EXTREMITY LYMPHEDEMA, Hamid Reza Foroutan BA, Shiraz University of Medical Sciences

Omentoplasty as a palliative therapy has been recommended for patients with lower extremity lymphedema. Here we present a patient with severe lower extremity lymphedema who was treated laparoscopically.
The patient was a 14 years old girl with history of longstanding left lower extremity lymphedema.The edema involved her thigh and leg. The diameter was almost two times of her right leg. the patient had difficulty in walking. She had been treated conservatively with no benefit. The deep veins were patent. Omentum was dissected laparoscopically and through a tunnel in left groin the omental patch was performed in the groin for about 10x10 cm. Within a few days after operation the edema decreased and became much softer. the patient was able to walk much easier.
Conclusion: We recommend laparoscopic omentoplasty for patients with intractable lymphedema.

S016

SPLIT APPENDIX TECHNIQUE FOR APPENDICEAL LENGTHENING FOR MALONE AND MITROFANOFF CONDUITS, Curtis A Sheldon MD, Belinda Dickie MD, Shumyle Alam MD, Marc A Levitt MD, Cinciinati Children's Hospital Medical Center

Purpose: Management of fecal and urinary incontinence often include mitrofanoff and malone conduits, which sometimes can be performed during the same operative procedure For each of these procedures, the appendix is extremely useful and durable as a catherizable channel. We describe a technique to split the appendix and elongate the base of the appendix so it can be used for both purposes.
Methods: The appendix is examined for length and a suitable mesentery. An adequate length of the distal aspect of the appendix based on the appendicial blood supply is initially selected for the urinary reconstruction. The remaining proximal portion of the appendix is then left for the malone appendicostomy. Because this portion of the appendix is often not long enough to allow plication, it is elongated with a firing of the endovascular TA stapler along the cecum on the antimesenteric side with preservation of the vascular supply. This is done over a twelve French foley catheter for calibration. Cecal plication is then performed to prevent leakage.
Results: We have performed the split-appendix approach in 29 patients. All patients have had adequate conduits for both urinary catheritization and antegrade continent enemas. We have also used this technique in patients with cloaca extrophy who have short appendices. The appendiceal lengthening technique can avoid the need of a neoappendicostomy. Use of the endovascular TA stapler facilitates this maneuver.
Conclusions: With this technique of splitting the appendix and elongating its base, the appendix can be used to provide access for both bladder catherizations and administration of antegrade continent enemas

S017

PREPERITONEOSCOPIC BLADDER-NECK SUSPENSION FOR THE FASCIA SLING PROCEDURE IN CHILDREN., Girolamo Mattioli MD, Piero Buffa MD, Michele Torre MD, Vincenzo Jasonni MD, Dept of Surgery, Gaslini Institute, University of Genova

Aim of the study is to present the technical details of our preliminary experience on the endoscopic pneumoCO2 preperitoneal approach to the bladder neck and U-type sling suspension and bladder augmentation.
Patient: A 13 year old boy was admitted to our OR in order to treat bladder incontinence due to neurogenic lower urinary tract dysfunction and spina bifida. A bladder augmentation and bladder neck suspension was planned.
A left transperitoneal subcostal first port was inserted. The preperitoneal space was prepared under direct transperitoneal visualization. As the space was sufficient, a total of three ports were inserted in the preperitoneal space: one in the midline in the navel and the other two ports laterally to the rectus muscles in order to preserve the integrity of the fascia to perform the bladder neck suspension.
Dissection of the bladder was very easy and rapidly the deep pelvis, octuratoria and retropubic space were exposed.
A rigid tube was inserted in the rectum and a foley catheter in the

bladder in order to exactly identify the bladder neck, uretra and bowel.
Under direct visualization the bladder was prepared and separated from the rectum soon after the prostatic region. A loop was inserted and used for positioning of the rectus fascia.
Duration of this procedure lasted 2 hours. No complications occurred. Technical details will be showed.
Discussion: The direct visualization of the bladder neck and the minimal traumatic dissection of the deep pelvis is very useful and safe. In this difficult area it is not easy to control the vessels and viscera which is of utmost importance in order to reduce the risk of complications. Our preliminary experience on the minimal invasive preperitoneal pneumoCO2 endoscopic assisted access is, in our opinion, to be considered an interesting minimal-invasive and safer alternative to the perineal or the laparotomic approach to the bladder neck in order to perform the rectus fascia sling suspension in children.
References: Chrzan R, Dik P, Klijn AJ, de Jong TP.Sling suspension of the bladder neck for pediatric urinary incontinence.J Pediatr Urol. 2008 Oct 29.

S018

LAPAROSCOPIC RESTORATIVE PROCTO-COLECTOMY IN CHILDREN., Girolamo Mattioli MD, Paolo Gandullia MD, Giovanni Rapuzzi MD, Vincenzo Jasonni MD, Gaslini Institute - University of Genova - Italy

Aim of the study is to define the role and feasibility of laparoscopic restorative proctocolectomy in children with refractory ulcerative colitis (UC) or total colonic aganglionosis (CA) and to demonstrate some details of the technique.
Patients: 18 consecutive patients (13 UC and 5 CA), undergoing restorative total proctocolectomy were prospectively included in the study in the period 2006-2008.
Results: Endorectal pull-through (ERPT) and straight ileo-anal anastomosis was performed in 4/18 and ileo-rectal anastomosis in 14/18.
Median age at surgery was 8.6 years (44 days - 17 years). Minimum follow-up after bowel restoration was 3 months.
In all cases of UC, colectomy was supported by acute pancolitis and bleeding, diagnosed by clinical examinations and endoscopies.
12 patients underwent restorative proctocolectomy and J-pouch double-stapled rectal anastomosis (Knight-Griffen) and one case underwent straight Georgeson-Soave ERPT.
CA was diagnosed by histochemical analysis. An ERPT was done in 3 out 5 and a retrorectal pull-through (Duhamel) in 2 out 5.
In all the cases ileostomy was done before bowel restoration.
5 complications occurred: 2 anastomotic stenosis which required simple dilation, 1 abdominal abscess due to rectal pouch dehiscence after colectomy which needed drainage and 2 bowel adhesions.
Mean post-operative in-hospital stay was 7 days.
Discussion: In the period before 2006, restorative proctocolectomies were performed through an open approach. As the experience increased, the number of laparoscopic procedures grew as well and now the minimally-invasive access surgery (MIAS) is our standard as it is feasible, guarantees a shorter hospitalization, lower problems and a good quality of life. Details of the technique will be discussed.
References: Georgeson KE, Laparoscopic-assisted total colectomy with pouch reconstruction, Semin Pediatr Surg. 2002 Nov;11(4):233-6

S019

THE ENDOSCOPIC U-STICTH TECHNIQUE FOR PRIMARY BUTTON PLACEMENT, Neil Nixdorff BS,Jennifer Diluciano RN,Todd Ponsky MD, Robert Parry MD, Walter Chwals MD, Scott Boulanger MD, Division of Pediatric Surery, Department of Surgery, Case Western Unviersity School of Medicine

Introduction: There are several techniques for the primary placement of a gastrostomy button. Abrahamian et al. recently reported their record of success with a laparoscopic U-stitch technique (J Laparoendosc Adv Surg Tech A. 2006 Dec;16(6):643-9.) Here, we describe the performance and safety profile for an endoscopic version of that laparoscopic technique, the endoscopic U-stitch (EUS) technique, that is practiced at our institution.
Methods: A hospital database retrospective study and chart review of primary gastrostomy placements between 2003 – 2008.
Results: Out of 277 primary procedures for gastrostomy tube placement, 103 were done using the Endoscopic U-Stitch technique. 56 (55%) EUS procedures were performed in neurologically impaired patients. The median patient age was 3.51 years (Range 0.12 - 23.89; Mean 1.34; 25/75% quartiles – 0.59/3.3 years). In cases where operative times and weights were recorded (n=43), the median operative time was 15 minutes (Range 5 – 39; Mean 16; 25/75% quartiles – 14/22.5 minutes) and the median weight was 11.3 kg (Range 3.2-70.0; Mean 11.34; 25/75% quartiles – 5.67/12.78 kg). We identified perioperative complications in 5 patients which included postoperative bloody emesis (2), postoperative cellulitis (2) and gastrostomy perforation (1). In addition to the 103 EUS procedures, 6 cases that were started as EUS procedures had to be converted intraoperatively to laproscopic or open procedures due to technical challenges.
Conclusion: The Endoscopic U-stitch gastrostomy technique is safe and allows primary button placement in infants and children. Its complication rate compares favorably to other reported gastrostomy techniques.

S020

LAPAROSCOPIC DIAGNOSIS AND TREATMENT FOR INTESTINAL MALROTATION IN CHILDREN, Suolin LI MD, Yingchao LI,Weili XU, Department of Pediatric Surgery, 2nd Hospital of Hebei Medical University, Shijiazhuang, 050000,China.

Objective The aim of this study was to evaluate the effectiveness of a laparoscopic approach for the diagnosis and surgical treatment of intestinal malrotation and to explore the optimal repairing condition for midgut volvulus.
Methods From July 2002 to March 2008, 23 children with suspected intestinal malrotation underwent a diagnostic laparoscopy. There were 13 males and 10 females.Age range was from 5 days to 12 years(average, 1.9 years).The procedure was performed using 3 trocars of 3.5mm to 5.5mm diameter. Under laparoscopic vision, the midgut volvulus was untwisted by grasping and pulling the instine, Ladd¡¯s band was divided and broadened, the duodenum and proximal jejunum were mobilized, and the concomitant abnormities were treated at the same time.
Results 23 cases suffered from intestinal malrotation were certainly diagnosed and completely operated through the laparoscope. 18 cases with midgut volvulous from 270 to 960 degrees were corrected successfully. Of them, 2 cases with paraduodenal hernia, 1 duodenal web, 1 ectopic pancreas and 1 Meckle¡¯s diverticulum also had a procedure meanwhile.The average operative time was 65.2¡À15.8 min (35¡ª150 min). Feedings were started on postoperative 1 to 3 days. There were no complications. But one case was reoperated for proximal jejunal adhension after 2 months. 21 patients had followed up from 1 month to 5 years resoluting their symptoms and growing well.
Conclusions The intestinal malrotation is exactly diagnosed and treated with laparoscopy. It can be performed in neonates securely and appropriated for a subacute midgut volvulus. Patients also benefit from this minimally invasive approach, as manifested by an earlier oral intake, an earlier discharge from the hospital and a better cosmesis.

S021

MINI-INVASIVE TREATMENT OF INTESTINAL DUPLICATION IN NEWBORNS AND SMALL INFANTS, Claudio Vella MD, Massimo Garriboli MD, Luciano Maestri MD, Gianluca Monguzzi MD, Giovanna Riccipetitoni MD, Department of Pediatric Surgery - Children's Hospital - V. Buzzi – Milan – (Italy)

INTRODUCTION The laparoscopic approach is particularly indicated in the treatment of intestinal duplications in newborns and small infants. It permits to define a correct diagnosis and to identify the type of duplication and the eventual presence of associated intestinal anomalies.
The procedure seems to be feasible, easy to perform, with faster recovery and better cosmetic results.
MATERIAL AND METHODS From July 2007 to November 2008 four babies, aged between 1 and 3 months, 3 males and 1 female, were referred to our institution for an antenatal suspicion of intestinal duplication. In all cases the diagnosis was confirmed post-natally by ultrasonography (US) and magnetic resonance imaging (MRI). At the physical examination, two babies presented a palpable mass in the right abdomen with referred increasing dimension. In 3 cases the laparoscopic approach was carried out using a single trans-umbilical operative telescope, in the remaining case a 3 mm trocar was added.
RESULTS At surgery we found 2 cases of cystic ileal duplication, in 1 case the duplication interested the ileocecal valve; isolated multiple cystic duplications were detected in the fourth case.
The 2 ileal duplications were extracted from the umbilical trocar site and submitted to limited intestinal resection. The ileocecal duplication was exteriorized with the same procedure and resected

with an extra mucosal approach preserving the ileocecal valve.
The patient with isolated multiple cysts was entirely treated laparoscopically.
No complications occurred, the cosmetic results were excellent.
DISCUSSION We recommend removing an intestinal duplication as soon as possible, because they may lead to volvulus, intussusceptions, perforation or bleeding. Also in this imaging advanced new era the diagnosis and characterisation isn't always possible.
The laparoscopic approach permits to define the diagnosis, to identify the different type of duplication and to perform a proper treatment with a mini-invasive technique and excellent cosmetic results.
CONCLUSION Intestinal duplications can be considered a good indication for video assisted surgery in newborns and small infants

S022

FETAL ENDOSCOPIC TREATMENT OF CONGENITAL HIGH AIRWAY OBSTRUCTION (CHAOS), Shinjiro Hirose MD, Hanmin Lee MD, University of California, San Francisco

Congenital high airway obstruction (CHAOS) is a rare disorder consisting of tracheal obstruction resulting in massive distention of the lungs, ascites, pleural effusions, and fetal hydrops. Left untreated, this anomaly is almost uniformly fatal. We present a case of anatomic, fetoscopic treatment of CHAOS.
Maternal ultrasound at 22 weeks gestation revealed normal amniotic fluid, marked fetal ascites, distended lungs with everted diaphragms, and a dilated distal trachea.
We performed maternal laparotomy and fetal bronchoscopy at 23 weeks gestation visualizing the larynx, vocal cords, and esophagus. We placed a wire across the airway obstruction using a combination of direct vision and ultrasound and subsequently decompressed the distal airway. Follow-up ultrasound demonstrated resolution of the ascites, improvement in lung distention, and normalization of the diaphragms.
The infant was born via EXIT procedure at 30 weeks gestation, during which we placed a tracheostomy. He subsequently has undergone repeat endoscopy, and his trachea remains patent and as been dilated to 2mm. He is at home and remains on positive pressure ventilation.

S023

EXPERIENCE WITH THORAOCSCOPIC TRACHEAL SURGERY IN INFANTS AND CHILDREN, Steven S Rothenberg MD, The Rocky Mountain Hospital for Children

Purpose: Complex thoracoscopic procedures in infants and children, such as TEF repair and lung resection have already been shown to be safe and efficacious in infants and children. This study evaluates the application of thoracoscopic techniques in more complex and unusual tracheal anomalies.
Methods: From January 2002 to October 2008 9 patients with more rare anatomic tracheal anomalies, between the thoracic inlet and the carina were treated by thoracoscopy. Ages ranged from 5 months to 8 years and weights ranged from 5.4 to 8 years and weight from 5.9 to 42 Kg. Pathology included 3 H type TEFs, 2 recurrent TEFs following previous open repair of an esophageal atresia with fistula, resection of a giant tracheal pouch, and 3 tracheo-bronchi with associated abnormal lung parenchyma.
Results: All procedures were completed successfully thoracoscopically. Operative times ranged from 60 to 130 minutes. Procedures included division and closure of the 3 H type fistulas and 2 recurrent fistulas, resection of the tracheal pouch, 2 upper lobectomies, and resection of an aberrant upper lobe segment by segmentectomy. There were no operative or post-operative complications. Chest tubes were left in for an average of 1 day and hospital stay averaged 2.2 days.
Conclusion: Thoracoscopy provides an excellent technique for approaching tracheal pathology from the level of the thoracic inlet to the carina. A thoracoscopic approach avoids the morbidity of a major thoracotomy, and or a major neck exploration, while providing greater exposure, especially in the upper thorax.

S024

THORACOSCOPY IN THE MANAGEMENT OF RESIDUAL DISEASE IN PATIENTS TREATED FOR HODGKIN LYMPHOMA (HL) AND NON-HODGKIN LYMPHOMA (NHL). A SINGLE CENTRE EXPERIENCE., Eleonora 1 Cesca MD, Paola 1 Midrio MD, Pietro 1 Betalli MD, Angelo 2 Rosolen MD, Piergiorgio 1 Gamba MD, 1 Department of Pediatrics, Pediatric Surgery, 2 Department of Pediatrics, Pediatric oncology University of Padua - ITALY

Introduction. The surgeon's job in the management of patients affected by HL and NHL with residual mediastinal or lung nodules after the completion of the chemo/radiotherapic program, is to obtain specimen for diagnosis or to remove residual masses. Samples of residual masses can be obtained by thoracoscopy.
Methods. Records and operative reports of patients treated for HL and NHL undergoing thoracoscopy between January 2002 and June 2008 in our Centre were retrospectively reviewed for demographics, diagnoses, operative management, and outcomes.
Results. Seven patients (6M, 1F), mean age 13 years, underwent thoracoscopy: 4 biopsies of mediastinal masses, 2 biopsies of lung nodules, and 1 removal of a residual mediastinal mass. In 1/5 patients with persistent mediastinal tumor histopathological examination revealed the presence of neoplastic cells. In 1/5 cases a thymic cyst was excised. Necrotic tissue was present in 3/5 cases. The 2 patients with suspected lung lesions had non neoplastic cells in the excised tissue. Mean operative time was 50 minutes without major complications nor need to conversion. Mean hospital stay was 2 days. At a median follow-up of 10 months, six patients are alive and free from disease and one is alive and in disease progression.
Conclusions. Patients with persistent thoracic lesions require repeated clinical and radiologic examinations to reduce surgery indications. Thoracoscopy should be the technique of choice for diagnostic and therapeutic second look procedures.

S025

NEW FULLY ENDOSCOPIC PECTUS CARINATUM REPAIR USING SUBPECTORAL CO2 INSUFFLATION AND STERNAL NUSS BAR COMPRESSION OR MIS-HYBRID TECHNIQUE, ESTABLISHING A DIFFERENTIAL INDICATION., Klaus Schaarschmidt BA,Andreas Kolberg-Schwerdt BA,Michael Lempe BA,Frank Schlesinger MD, Helios Center for Pediatric & Adolescent Surgery, Berlin-Buch, Germany

Objective: No universally applicable endoscopic minimal access pectus carinatum repair has been devised, few sizeable series are reported. Severe pectus carinatum beyond adolescence and combined deformities with pectus excavatum and/or costal flaring seem inaccessible to MIS. This prospective study of 143 minimal access pectus carinatum repairs in Berlin-Buch intends to establish differential indications for 2 MIS carinatum techniques.
Methods: From 2/2001 to 12/2007 we minimized access (2.9-4.7 cm) by endoscopic hybrid technique (EH) with 2 transsternal Hegemann-Willital bars. 136 EH patients aged 17.1 ± 3.4 y (12-41y) were recorded prospectively and followed 52.3 ± 13.9 mo (10-92 mo - 7 redos).
In 2008 we used endoscopic Nuss bar compression (ENBC) in 7 patients (age 16.3 ± 2.4 y range 12-19y) with minimal operative trauma. We implant a standard Nuss bar into an endoscopically dissected submuscular presternal pocket correcting pectus carinatum by sternal back-pressure. The bars were bent to a concavity over the maximal prominence of the PC and put under tension by backward traction via stabilizers and 3 endoscopically placed pericostal wire sutures.
Results: All 143 pectus carinatum repairs were done by minimal access with no conversion (Haller 0.68-1,89). There were 3 seromas in the EH series (4/136) managed conservatively. 125 patients judged their result as excellent, 11 as good, in 74 patients struts were removed with no recurrence so far.
In all 7 ENBC patients full correction of the PC could be achieved, in 3 endoscopic repair of costal flaring was added.There were no complications in the purely endoscopic ENBC series, 5 patients juged their result as excellent 2 as good, no ENBC bar was removed so far.
Conclusions: Both methods are safe and effective so far.
EH endoscopic hybrid repair yields results at least as good as conventional carinatum repair and was applicable in all 136 cases including the most severe and is our new standard technique.
For younger patients up to 20y ears with more compressible protrusions fully endoscopic compression technique may become a far less invasive alternative technique - however, this is a very early ENBC experience.

2009 Oral Abstracts

S026

NONINVAZIVE CORRECTION OF PECTUS CARINATUM WITH COMPRESIVE ORTHOTIC BRACING IN CHILDREN: PRELIMINARY RESULTS OF ONE INSTUTITION, Gulce hakguder MD, Oguz Ates MD, Mustafa Olguner MD, Feza M Akgur MD, Department of Pediatric Surgery, Dokuz Eylül University, Medical School, Izmir, Turkey

Aim: Among the chest wall deformities, pectus carinatum (PC) has not given the same attention as pectus excavatum. Patients with PC, complain of cosmetic matters because it draws attention in spite of wearing clothes. Although the clasical treatment of PE is operative, recently compressive orthotic braces have been used with good cosmetic results. We herein present the results of the noninvasive correction of pectus carinatum with compressive orthotic bracing in our department.
Materials and method: Between April 2006 and October 2008, 18 patients with PC were treated with compressive orthotic bracing. Patients with positive manual carinatum flexibility (compression) test were began bracing protocol. The patients were evaluated with echocardigraphy and respiratuary function tests. Baseline thorax computed tomographies (CT) were obtained and custom-fitted orthotic braces were prepared for each patient. Angle of sternal rotation of the patients were evaluated. Patients were frequently followed up. The patients started wearing the brace with a 6 hours duration and prolonged the duration time by one hour every month. The brace was worn for 16 hours per day until the PC deformity is corrected. The patients were frequently evaluated for skin lesions and patients compliance. The patients who completed their treatment were reevaluated by a thorax CT.
Resuts: There were 15 boys and 3 girls aging between 5 to 16 years, mean age of 11.4 ± 6. Ten patients had an asymetrical PC deformity. Treatment of the 3 patients were completed with excelent visual results. The average duration of the bracing was 21 months in these patients. In those who successfully completed treatment, an improvement in the angle of sternal rotation was found. One of the patients abandoned bracing because of noncompliance. The remaining 14 patients are still under bracing.
Conclusion: Compressive orthotic bracing is a noninvazive, effective and safe alternative to surgical correction in the treatment of PC deformity even asymmetry is present. Patients and the family compliance is important for reaching good results.

S027

THORACOSCOPIC REPAIR OF CONGENITAL DIAPHRAGMATIC HERNIA IN NEONATES: LESSONS LEARNED, Anne C Kim MD, Benjamin S Bryner MS,Begum Akay MD, James Geiger MD, Ronald B Hirschl MD, George B Mychaliska MD, Division of Pediatric Surgery, University of Michigan Health System, Ann Arbor, Michigan

Purpose: We sought to characterize our recent experience with thoracoscopic CDH repair and identify patient selection factors.
Methods: We reviewed medical records of full term neonatal (<1 month of age) patients who underwent thoracoscopic CDH repair between 2004-2008, n=15. We obtained data on prenatal diagnosis, characteristics of the CDH and repair, complications and outcome.
Results: All patients were stabilized preoperatively and underwent repair at an average of 5.7 ± 1.3 days. Six were inborn and had been prenatally diagnosed. Thirteen of the defects were left-sided; the two right-sided defects had liver herniation. All were intubated shortly after birth and two required extracorporeal membrane oxygenation (ECMO). Twelve of 15 (80%) underwent successful thoracoscopic primary repair, including one of the patients who required ECMO prior to repair. Conversion to an open procedure occurred in 3/15 (20%) because of the need for patch closure or intraoperative instability. Among those converted to open, all had left-sided CDH defects and two had stomach herniation (out of four such patients). Patients spent an average of 6.9 ± 1.0 days on the ventilator following repair. The average time until full-enteral feeding was 16.7 ± 2.25 days, and average length of hospital stay was 23.8 ± 2.73 days. All fifteen patients survived to discharge, and average length of follow-up was 460 ± 101 days.
Conclusions: Thoracoscopic repair of CDH is a safe and effective strategy in patients who have undergone prior stabilization. Stomach herniation is associated with, but does not categorically predict, conversion to open repair. ECMO use prior to repair should not be an absolute contraindication to thoracoscopic repair.

S028

WHICH IS THE BEST VESSEL AND BRONCHIAL SEALING METHOD FOR PEDIATRIC THORACOSCOPIC LOBECTOMY?, Marcelo Martinez-Ferro MD, Horacio Bignon MD, Enrique Buela MD, Hospital Privado de Ninos. Fundacion Hospitalaria

Introduction: Thoracoscopic lobectomy is performed with increasing frequency in children. Several published reports suggest thoracoscopic resection is safe, with the potential advantage of shorter hospital stay, quicker recovery, and comparable long term results. Limitations still remain, however, mostly because of technical restrictions regarding vessel and bronchial sealing. We analize and report our experience in 20 consecutive pediatric cases in order to define the best method for both procedures.
Methods: Mean age was 4,1years (6 d-12 y). Preoperative diagnosis included congenital cystic adenomatoid malformation (n 14), Bronchiectasis (n 4) and Intralobar Pulmonary Sequestration (n 2). . Three or four 3-5 & 12mm ports were used depending on the patient age. Single lung ventilation and controlled low pressure pneumothorax were used in every case. Methods for vascular sealing included the use of Ligasure ®, Hemo-Lock® clips or a combination of both (Proximal clip plus distal sealing and cutting with Ligasure) . Methods for bronchial sealing included Hemo-Lock® clips, EndoGiaII® staplers or the combinations of both. We defined as vascular Incident (VI) when bleeding appeared after the first intent of sealing a vessel. A chest tube was left in all cases.
Results: Of 20 procedures, 16 were completed thoracoscopically. Operating times ranged from 60 to 330 min (mean, 150min). There were 4 upper, 2 middle, and 14 lower lobe resections. None of the 4 conversions where related to a VI. There were 5 VI (25%), all of them arteries and could be solved by thoracoscopy. One patient required intraoperative blood transfusion. None of the VI occurred during dissection, but always after an apparently "good" sealing with the Ligasure device. All of the VI occurred in patients older than 2 years. Also, in all patients younger than 2 years, bronchial sealing was achieved using different sizes of Hemo-Lok® clips, but older patients required the use of staplers or the combination of both.
Conclusions: The age of the patient, is a crucial data to consider at the moment of planning a pediatric thoracoscopic lobectomy. In our experience in order to obtain a reliable vessel sealing, patients older than 2 years needed a combination of a proximal clip plus distal Ligasure. As for the airway sealing, a combination of stapler plus clips was the best choice for the same age group of patients.

S029

THORACOSCOPIC LOBECTOMY FOR SEVERE LOBAR BRONCHIECTASIS IN CHILDREN, Keith A Kuenzler MD, William Middlesworth MD, Steven S Rothenberg MD, Morgan Stanley Children's Hospital of NY-Presbyterian, Columbia University Medical Center, New York, NY and The Rocky Mountain Hospital for Children, Denver, CO

BACKGROUND/PURPOSE: Lung resection should be considered for severe, localized bronchiectasis causing recurrent infections in patients with cystic fibrosis (CF) and other diseases. This series represents the authors' experience and results with thoracoscopic lobectomy for treatment of bronchiectasis confined to a single lobe. **METHODS:** 18 thoracoscopic anatomic lobectomies were performed between July 1994 and August 2008. Patient age at the time of surgery ranged from 3 to 22. Left lower lobectomy was the most frequently performed procedure (n=9). Eight patients suffered from CF, 5 had chronic pneumonia, 2 had chronic aspiration, and 3 had other diagnoses. **RESULTS:** Mean operative time was 162 minutes (range: 65 to 300 minutes), and no cases required conversion to thoracotomy. The mean duration of postoperative chest tube drainage was 3.2 days (range: 1 to 9 days). The mean postoperative length of stay was 3.6 days (range: 1 to 12 days). One patient had a prolonged air leak lasting 9 days, which resolved with placement of a second chest tube. Another small hydropneumothorax persisted after chest tube removal but resolved spontaneously. **CONCLUSIONS:** Thoracoscopic lobectomy for severe lobar bronchiectasis with recurrent infection may be technically challenging, but appears to be safe and effective. Avoidance of a thoracotomy in these patients allows for earlier mobilization, less postoperative pain with cough and chest physiotherapy, and faster recovery. There appear to be significant benefits in this group of patients with chronic respiratory illnesses.

S030

THORACOSCOPIC THORACIC DUCT LIGATION FOR PLASTIC BRONCHITIS, Curt S Koontz MD, S. Salman A Shaw MD, Claire S Nicholas MD, Mark L Wulkan MD, Children's at Egleston/Emory University School of Medicine

Background: Plastic bronchitis (PB) is a disease in which thick, arborizing casts of the tracheobronchial tree develop resulting in airway obstruction. Patients who have congenital heart disease that require a Fontan procedure are at risk for this unusual disease. One theory for the development of PB is that high intrathoracic lymphatic pressures with lympho-bronchial fistulas are the cause of the casts. There is a recent report of 2 successful cures of PB with ligation of the thoracic duct via thoracotomy. We are reporting our 2 cases of PB treated with thoracoscopic thoracic duct ligation.
Methods: Two patients underwent right-sided thoracoscopic thoracic duct ligation for PB. A Veress needle was used to create a pneumothorax. Three 5mm trocars were placed. The inferior pulmonary ligament was taken down. The pleura was opened and the structures identified. The thoracic duct was found between the aorta & the esophagus just above the diaphragm. Visualization was facilitated with cream & methylene blue dye administered via a nasogastric tube. The duct was ligated and divided between clips. Chest tubes (CT) were placed selectively. Data was obtained from retrospective chart review.
Results: Patient #1 was a 12 yo female & weighed 35.4 kg. She had had a previous thoracotomy on the same side. Operative time was 131 min. She was discharged home on POD 3. She had a singular recurrence of PB approximately 16 months post-operatively after an upper respiratory infection. She is currently 19 months post-op. Patient #2 was a 11 yo female & weighed 40.1 kg. Operative time was 108 min. A chest tube (CT) was not placed during the initial surgery. On POD 2 she developed a pleural effusion that was confirmed on thoracoscopic reexploration to be a chyle leak. Additional clips were placed as well as a CT. The CT was then removed on POD 2. She was discharged home on POD 7 from the initial surgery. She has had resolution of her symptoms over 13 months of follow-up.
Conclusions: Thoracoscopic thoracic duct ligation is a feasible technique for treating PB even if a patient has had a previous thoracotomy. Complications can be managed using minimally invasive techniques with minimal morbidity.

S031

USAGE OF SIMULATORS ON REAL ORGANIC INANIMATE MODELS FOR TRAINING IN NEONATAL THORACIC SURGERY, Sonia Guzman-Martinez MD, Alfonso Galvan-Montaño MD, Fernando Puente-Compean MD, Sergio Landa-Juarez MD, Weimar Maldonado-Arze MD, Jose A. A Martinez-Hernandez,Florencio De la Concha-Bermejillo MD, Gustavo Jurado-Barrios MD, Hospital General Dr. Manuel Gea Gonzalez
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BACKGROUND: The first models used for simulation of medical procedures were performed in the 17th century in Paris , France. These models evolved to virtual reality simulators.
OBJECTIVE: Establish the effectiveness of an inanimate model with organic components of the oviparous family to develop surgical dexterity for neonatal thoracoscopy.
MATERIAL AND METHODS: By building an inanimate silicon model that simulates reality in shape, texture and size of a newborn, incorporating organic components that include thorax previously removing anterior thoracic cage, and neck leaving esophagus and trachea intact it is fixed to the base. Inserting 2 3mm ports and one 5mm port for the camera, dissecting and sectioning and carrying out the anastomosis of the trachea and followed by the same procedure for the esophagus
Using 30° 5mm lens we incide on the silicon model with scalpel and introduce lens and two ports. Next we proceed by dissecting the trachea first. It is sectioned entirely and both ends are separated. It is then approximated and tracheoplasty is practiced by placing non-absorbible with intracorporeal and extracorporeal knots. After this we take on the esophagus, being the latter a less rigid structure the degree of dexterity increases significantly for dissecting and for anastomosis.
DISCUSSION: Traditionally laparoscopic training has been done either on virtual models or organic live models. Being the first very effective they lack texture and resistance of real tissue, therefore the inconvenience for the student when presented with a live patient. On the other hand live models provide texture and resistance, but are extremely expensive for the apprentice to continue until ready for operating on a real patient even more if the patient is a newborn.
With the existence of congenital pathology like the case of esophageal atresia whose incidence is low, and the scarce experience on thoracoscopic surgery, we were launched to search for an organic model based on low cost which provides surgical dexterity. Therefore we manufactured a silicon model that simulated thorax and the abdomen of a newborn. It is similar in size texture, color , thickness, permeability, resistance and flexibility. Highlighting the similarity in characteristics of the oviparous with the newborn as to texture size and resistance of tissue it is considered an excellent organic model to acquire neonatal thoracoscopic dexterity. The advantage of this model consists on the low cost considering the organic parts are of easy acquisition due to the regular human consumption of the donator and specially the introduction of the apprentice with the handling of delicate tissue of the newborn . These being characteristics that are absent in the virtual simulator for a rare pathology like esophageal atresia.
CONCLUSION: In the end our study revealed significant improvement in time measured practice. Considering the evaluation of faculty members and surgical residents, either of them with previous thoracoscopic experience.

S032

"LASSO"- NEEDLE FOR VATS-AORTOSTERNOPEXY BY TRACHEOMALACIA, Yury Kozlov MD, Vladimir Novogilov MD, Alexey Podkamenev MD, Pavel Yurkov MD, Natalya Aleynikova MD, Irina Weber MD, Marina Kononenko,Svetlana Kuznecova,Vitaly Kovalev,Andrey Machov, Municipal Pediatric Hospital Irkutsk, Department of Neonatal Surgery

Background. The thoracoscopic aortopericardiosternopexy proposed by K. Schaarschmidt in 2002 is the procedure of choice in severe traceomalacia. We report a modified technique of this operation with using original method of transduction of the aortic suture through sternum.
Methods. The patient was intubated endotracheally with no attempt for single-lung ventilation made. The midline of the sternum was marked for the orientation of future insertion of the needles. The three cannulae were inserted in a triangular configuration in the midaxillary region on the left. CO2 was insufflated at a pressure of 4 mm Hg and a flow 1 L/min. The thymus was mobilized and shifted into the left pleural cavity and the ascending aorta with pericardial reflection and innominate artery were seen. The steel loop ("lasso"-shaped) was inserted into entering tip of the injection needle. The needle should be directed perpendicular to the sternum and passed through the sternum in the midline into mediastinum. The "lasso" was passed to distal tip of the needle. Three longitudinal rows of strictly adventitial prolene sutures with a round-bodied needle (4/0) were placed from the innominate artery to the pericardial sleeve on the aortic root and the cranial pericardium. The distal tips of this sutures after remove of the suture needle were inserted in the steel loop. The introducing needle consisting "lasso" with aortic suture was removed under direct visualization.
Under bronchoscopic control, the aortic sutures were tied in the presternal subcutis. There is no need to pull the aorta and innominate artery completely against the sternum. The lung was reexpanded. The incision after ports insertion was closed with adhesive strips.
Results. Two children 3 and 6 months old with tracheomalacia were received a thoracoscopic aoptopericardiosternopexy. Intraoperative tracheoscopy showed the trachea to be widely open. The patients were very well tolerated to the operation and can be rapidly extubated. Operating time was 80 and 90 minutes. There were no postprocedural complications – no bleeding and repeat of the respiratory symptoms. Patients were discharged on the 9 and 14 postoperative day.
Conclusions. There is little experience with modified technique of the aortopericardiosternopexy. This technique gives excellent transsternal transduction of the aortic sutures and preservation of the intrathoracic structures.

S033

LAPAROSCOPIC EXCISION OF AN ENDOSCOPICALLY IRRETRIEVABLE COLONIC POLYP, Peter Fitzgerald MD, Wasmi Alfadhli MD, Ana Sant 'Anna MD, McMaster Children's Hospital, Hamilton, Ontario

BACKGROUND: Patients with endoscopically irretrievable colonic polyps traditionally have required open or laparoscopic assisted surgical removal. We present a technique of removal

of an endoscopically irretrievable colonic polyp by a completely laparoscopic approach.
METHOD: An eighteen-month-old female of African descent presented with intermittent abdominal pain and rectal bleeding. Colonoscopy revealed a large endoscopically irretrievable colonic polyp of the descending colon. Surgical removal involved a three trocar laparoscopic technique. We identified the area of the polyp and stabilized the bowel to the anterior abdominal wall with a single suture. Enterotomy and excision of the polyp was completed, followed by intracorporeal suture closure of the bowel. The specimen was left in the bowel and passed by the patient.
RESULTS: The patient had an uneventful recovery from surgery and passed the specimen on the second post-operative day. Pathologic analysis of the specimen revealed a large juvenile polyp. Follow-up at three months confirmed no further bowel symptoms and an excellent cosmetic appearance of the abdominal wall.
CONCLUSION: Laparoscopic "assisted" procedures for colonic lesions have been described. However, our technique fully utilizes the advantages of laparoscopic surgery by avoiding any extension of a trocar incision. Additional options for specimen retrieval are discussed.

S034

A MODIFIED NATHANSON STYLE LIVER RETRACTOR IS ABLE TO PROVIDE EXCELLENT EXPOSURE FOR PAEDIATRIC LAPAROSCOPIC FUNDOPLICATION., Colin Lazarus,Milind Chitnis,Itayi Simango,Mie Elsen, Eastern Cape Paediatric Surgical Service, East London, South Africa.

Particularly in infancy, liver retraction to provide adequate exposure can be to be one of the more problematic aspects of laparoscopic fundoplication. Snake, 3 finger, fan retractors or locking Allis and Babcock retractors applied to the crura are all used for this purpose. We have overcome the problem of exposure of the hiatus by the use of a Nathanson style liver retractor whose atraumatic blades have been modified in size to provide a selection of 5 blades suitable for infants, children and adolescents.
The retractor blade is inserted without a cannula through a 5 mm incision immediately below and to the left of the xiphoid, is placed under the left lobe of the liver which is elevated to provide access to the hiatus. The retractor is then fixed by an adjustable clamp to an arm attached to the rail of the table on the patient's right.
The shape of the Nathanson style retractor blades allows an even distribution of the liver lobe on the retractor. The particular value of the smaller blades is in ensuring the elevation of the left lobe itself. While the stem of larger blades tends to slip into the interlobar fissure allowing the lobe to flop downwards and thus diminishing exposure, placing a smaller blade under the lobe itself ensures elevation of the lobe and enhances exposure of the hiatus.
We have used the retractor in 42 consecutive laparoscopic fundoplications in the 3 year period to November 2008 without difficulty in insertion, any damage to the liver and with consistent excellent exposure of the hiatus.

S035

CUTTING BALLOON DILATATION OF CONGENITAL URETERIC STRICTURES, B Narayanaswamy MD, Late W G Manson* MD, A G Wilkinson MD, G A MacKinlay MD, Royal Hospital for Sick Children, Edinburgh, UK

Background & Aim - Congenital ureteric strictures are a rare cause of upper urinary tract obstruction for which surgical management has been reported. Balloon dilatation has been performed in adults with ureteric strictures resulting from previous surgery or secondary to tuberculosis or schistosomiasis. It has also been successfully undertaken for PUJ obstruction in adults and children. We describe our novel use of cutting balloon dilatation in the management of congenital ureteric strictures in two children.
Patients - Two boys, each with a unilateral congenital ureteric stricture have been treated at our institution during the period 2007 - 2008. One child presented with antenatally diagnosed Left hydronephrosis and the other presented with recurrent episodes of abdominal pain over a period of 7 years. In both children, imaging showed hydronephrosis and a dilated proximal ureter as well as failure of drainage on diuretic isotope renography. The latter child had significant deterioration in function to 30% on the affected side.
Procedures & Outcome - After confirmatory retrograde studies, both children underwent attempted conventional balloon dilatation of their ureteric strictures, at 18 months and at nearly 11 years of age respectively. Although this failed to abolish the strictures, subsequent use of a cutting balloon proved successful. Follow-up ultrasound and isotope scans approximately 6 months post-procedure have confirmed resolution of dilatation and significant improvement in drainage in both children as well as good recovery of function to 45% in the latter child. Both children remain clinically well at 21 and 7 months' follow-up respectively.
Conclusion - We believe this to be the first description of cutting balloon dilatation for paediatric congenital ureteric sticture, which is a feasible, effective and minimally invasive treatment option.
*W G Manson passed away in May 2008. This abstract is submitted in his memory.

S036

IMPROVEMENT OF TRACHEAL COMPRESSION AFTER PECTUS EXCAVATUM REPAIR, Go Miyano MD, Romeo C Ignacio, Jr,Robert E Wood MD, Thomas H Inge PhD, Cincinnati Children's Hospital Medical Center

A 4 year-old female presented with a history of multiple episodes of respiratory infections since infancy and was diagnosed with tracheomalacia (TM). Due to the presence of pectus excavatum (PE), that had gradually worsened since infancy, aortopexy was not considered to be a technically feasible nor likely successful treatment for her TM. However, minimally invasive PE repair was successfully performed in an effort to correct her TM. Her intraoperative course was uneventful, and postoperative bronchoscopic view demonstrated the marked improvement of the airway caliber. At 2 years follow-up since the bar was removed, chest wall appearance is normal and she has remained asymptomatic, even with exertion. Minimally invasive PE repair should be considered as a treatment option for TM when the two conditions coexist.

S037

MINIMALLY INVASIVE, LAPAROSCOPIC-ASSISTED, PERCUTANEOUS LIVER BIOPSY IN CHILDREN, Richard Carter MD, Martin Graham MD, David Lanning MD, Virginia Commonwealth University Health System

Background: A common approach for liver biopsy in children is ultrasound-guided percutaneous needle biopsy. The only method of hemostasis is for the child to lay on their right side for an extended period of time. Bleeding of some degree is invariable and is monitored by serial hemoglobin levels. Children often have abdominal pain and some require abdominal imaging, a blood transfusion, or even surgical intervention. To minimize bleeding, small biopsy needles are often used, which can result in an inadequate amount of tissue for diagnosis. We present our experience using a minimally invasive, laparoscopic-assisted, percutaneous technique for obtaining a liver biopsy.
Methods: Laparoscopic-assisted liver biopsy was performed on 13 patients. The technique involved placing a 3 or 5 mm trocar at the umbilicus and creating a pneumoperitoneum. A standard laparoscopic hook cautery was placed through a small stab incision in the epigastrium. A 14 gauge tru-cut biopsy needle was then placed through a small nick in the skin in the right upper quadrant. After 2 to 4 core biopsies were obtained with the needle, the hook cautery was used to obtain hemostasis at the puncture sites. Wounds were closed in standard fashion after injecting local anesthesia. We reviewed records of children who underwent this approach for liver biopsy from 2005-2008. Adequacy of specimen, length of hospital stay, and complications associated biopsy were examined.
Results: Patients 3 months to 16 years with mild to severe liver disease underwent biopsy. Specimens obtained were all adequate for diagnosis. Eleven patients were discharged on the same day as the procedure once recovering from anesthesia. Two patients had additional procedures and were admitted for reasons unrelated to the biopsy. There were no intraoperative or postoperative complications.
Conclusions: Potential for post-biopsy bleeding with acute or chronic liver disease is a significant concern. We present a technique of laparoscopic-assisted, percutaneous liver biopsy that offers a safe and cost effective method for the diagnosis and staging of liver disease in children. For patients with mild to moderate disease we feel that this technique offers a safe method for obtaining adequate tissue for diagnosis in the setting of a same day procedure thus reducing medical cost. Furthermore, for patients with advanced disease, this technique allows collection of an adequate biopsy utilizing a minimally invasive approach where hemostasis is ensured.

S038

ESOPHAGEAL MANOMETRY IN POSTOPERATIVE ACHALASIA REPAIR, Melissa Logan MD, Prithvi Reddy MD, Rathna Amarnath MD, Juan Camps MD, Palmetto Health Children's Hospital

Background: Achalasia is a rare disease with an incidence of 1 in 100,000 people, and only a minority affecting children. It is, however, associated with significant morbidity. We describe a modified surgical approach to the treatment of achalasia using a laparoscopic anterior crura-myotomy plication and partial anterior fundoplication. The purpose of this study is to analyze the esophageal function in pediatric patients after surgical intervention for achalasia.
Methods: Between 2003 and 2008 twelve children underwent the proposed technique and have been followed for an average of 33.2 months. Under IRB approval, all patients have had a post operative manometry to asses the esophageal function. All patients had esophagogram, esophageal manometry and one time endoscopic esophageal dilatation prior to surgery.
Results: All cases were performed successfully by laparoscopy with no immediate postoperative complications. One patient required an additional pyloroplasty at the initial surgery because of a poor gastric emptying. Two patients developed postoperative symptoms of dysphagia within the first 6 months from surgery. A tight anterior gastric fundoplication was the cause of dysphagia and corrected after laparoscopic surgical release of the stomach wrap. Average preoperative LESP was 48.25mmHg and was reduced to normal in all patients with an average of LESP of 11.69 mmHg. Average preoperative resting LESP was 26.51 mmHg compared to postoperative average resting LESP of 4.07 mmHg. There is no improvement in the underlying esophageal motility dysfunction despite improvement on the patient's symptoms. There was an average of only 15% of postoperative esophageal coordinated contractions and an average of 60% of retrograde contractions or non propulsive esophageal contractions. Despite of symptoms improvement, manometry esophageal peristalsis has shown no differences from preoperative and postoperative values. All patients are eating regular soft diet. Some patients have had vague symptoms of chest pain or heartburn most likely related to esophageal poor motility or gastro-esophageal reflux.
Conclusions: Despite the dramatic clinical improvement of these 12 patients tolerating regular diet, esophageal manometry study has shown poor real functional improvement of the esophageal motility. However, decreasing significantly the lower esophageal resting pressure seems to be the only factor that surgery can do to help this patients with achalasia.

S039

LAPAROSCOPIC LADD'S PROCEDURE: SAFE, WITH IMPROVED SHORT-TERM RESULTS., Ravindra K Vegunta MD, Kavitha Kalvakuri MD, Amy B Stanfill MD, Lizabeth J Wallace MS,Richard H Pearl MD, University of Illinois College of Medicine at Peoria and Children's Hospital of Illinois, Peoria, Illinois

Introduction: Laparoscopic Ladd's (LL) procedure is currently not widely accepted for management of malrotation of the midgut in children. Since May 2004 LL has been the standard approach in our institution.
Method: IRB approved retrospective analysis of all Ladd's procedures in our institution between September 1998 and June 2008 comparing open (OL) and LL. Patients with diaphragmatic hernia and gastroschisis are not included.
Results: A total of 156 children underwent Ladd's procedure during the study period. There were 120 in OL and 36 in LL. See table:

All numbers except 'wound infection' are medians			
	OL	LL	p-value
DOS	76	75	0.22
Sart feeds-days	4	1	0.001
Full feeds-days	6	2	0.001
LOS- days	7	3	0.001
Wound infection	14 (11.7%)	0	0.041
DOS: duration of surgery; LOS: post-op stay			

Conversion rate in LL was 8.3%. Recurrent volvulus following Ladd's procedure was seen once in OL and twice in LL. Bowel obstruction led to re-admission in OL in 13.3% of the group and none in LL.
Conclusion: In elective and semi-elective situations, Ladd's procedure can be performed safely by laparoscopic means. Short-term results are superior in LL compared to OL.

S040

THE SAFETY OF LAPAROSCOPY IN PEDIATRIC PATIENTS WITH VENTRICULOPERITONEAL SHUNTS, Jason D Fraser MD, Pablo Aguayo MD, Susan W Sharp PhD,Daniel J Ostlie MD, George W Holcomb MD, Shawn D St. Peter MD, The Children's Mercy Hospital

Introduction: In the pediatric patients requiring abdominal operations, ventriculoperitoneal (VP) shunts for hydrocephalus are a frequently encountered co-morbidity. Laparoscopy has not been extensively evaluated in this population and there is concern about the safety of insufflation under pressure with the shunt in place. There is a paucity of data in the literature to address this issue. Therefore, we reviewed of our experience in patients with VP shunts who underwent either open or laparoscopic abdominal procedures to determine the safety of laparoscopy in these patients.
Methods: We conducted a retrospective review of all pediatric patients with VP shunts who underwent laparoscopic and/or open abdominal operations at a single institution from 1998-2008. Complications were defined as a shunt or surgery-related event (including any shunt revisions) within six months of abdominal surgery. Continuous variables were compared using an independent sample, 2-tailed Student's t test. Discrete variables were analyzed with Fisher's exact test with Yates correction where appropriate. Significance was defined as P value < of 0.05.
Results: A total of 91 intraabdominal operations were performed on patients with VP shunts, 47 laparoscopic and 44 open. Mean age was 3.17 versus 2.93 years respectively (p=0.37). The distribution of operations is listed in Table 1.There were no episodes of air embolism into the shunt. There was one shunt infection in the laparoscopic group and three in the open group (p=0.57).
Table 1. Distributions of procedures performed

	Lap	Open	p value
Fundoplication ± G-tube	17	23	**0.12**
G-tube only	8	12	**0.24**
Appendectomy	2	1	**0.6**
Laparoscopic Evaluation for Inguinal Hernia	13	0	**N/A**
Other	11	12	**0.68**

Conclusions: Our data suggest that laparoscopy is safe in patients with ventriculoperitoneal shunts.

S041

RISK OF VENTRICULOPERITONEAL SHUNT INFECTIONS AFTER LAPAROSCOPIC PLACEMENT OF CHAIT TRAPDOOR™ CECOSTOMY CATHETERS IN CHILDREN, SANI Z YAMOUT MD, BETTY J HUO MD, VEETAI LI MD, MAURICIO A ESCOBAR MD, MICHAEL G CATY MD, Women and Children's Hospital of Buffalo

INTRODUCTION: Laparoscopic placement of Chait Trapdoor™ cecosotomy catheters has been practiced in our institution since 1999. Chait cecostomy catheters allow antegrade irrigation of the colon without the complications associated with appendicostomies. The use of laparoscopy allows precise placement of these catheters into the cecum. Although placement of Chait catheters under direct vision may make this procedure safer, the presence of a concomitant ventriculoperitoneal (VP) shunt in patients who undergo catheter placement raises concerns for the potential for shunt infection.

MATERIALS AND METHODS: This is a retrospective review of all patients with VP shunts who underwent laparoscopic placement of a Chait cecostomy catheter from 1999 to 2008. We recorded patient demographics, duration of operation, hospital stay, follow up duration, and incidence of shunt infection.

RESULTS: Sixteen patients with spina bifida and VP shunts who underwent laparoscopic placement of VP shunt infections were identified. There were twelve males. Mean follow up was 46 ± 27 months (range, 3 to 87 months). Mean operative time was 90 ± 55 minutes (range, 45 to 235 minutes). Mean hospital stay was 3 ± 2 days (range, 1 to 6 days). Two patients (12.5%) had a VP shunt infections related to the placement of their cecostomy catheter. One shunt infection occurred five days postoperatively and the other occurred several years later, when the shunt and cecostomy catheter tracts merged in the subcutaneous tissue. Both patients underwent shunt externalization, and subsequently did well.

CONCLUSION: Cecostomy catheter placement in patients with preexisting VP shunts may increase the risk of shunt infections. Our series illustrates two different mechanisms by which a VP shunt can get infected after cecosotomy catheter placement. In the first case, leakage of enteric content from a poorly sealed tract probably

resulted in the shunt infection. More secure fixation of the cecum to the abdominal wall, using intracorporial sutures rather that T-fasteners, may avoid this complication. The second complication might have been avoided if the cecostomy catheter had been placed further away from the VP shunt.

S042

LAPAROSCOPY-ASSISTED STOMA CLOSURE IN CHILDREN: OUTCOME COMPARISON WITH CONVENTIONAL OPEN APPROACH, Go Miyano MD, Manabu Okawada MD, Toshihiro Yanai MD, Tadaharu Okazaki MD, Geoffrey Lane MD, Atsuyuki Yamataka MD, Juntendo University School of Medicine

Purpose: This study was conducted to compare outcome of stoma closure (SC) with or without laparoscopic assistance (LA).
Methods: Data from 44 consecutive patients who underwent SC between 2005 and 2008 were collected prospectively and analyzed according to incidence of postoperative wound infection and adhesive bowel obstruction. All SC with LA (LASC) were performed by the same 2 pediatric surgical trainees, and conventional SC without LA (CSC) were performed by board certified pediatric surgeons. Wound infections were classified as: Grade-1: superficial redness not requiring antibiotics or drainage, Grade-2: requiring antibiotics only, and Grade-3: requiring drainage. The same antibiotics were used in both groups. Bowel obstructions were classified as: Grade-1: requiring nasogastric tube decompression only, Grade-2: requiring nasojejunal tube decompression, and Grade-3: requiring laparotomy.
Results: Of the 44 patients, 22 had LASC and 22 had CSC. Age at stoma closure (LASC 1.5yr; CSC 2.3yr), duration of follow-up length (LASC 1.7yr; CSC 1.9yr), indications (anorectal malformation, Hirschsprung's disease, intestinal atresia, meconium plug syndrome, etc), and location/type of stoma were similar for both groups. Mean operative time was 136 minutes for LASC and 114 minutes for CSC (p=NS). There were no intraoperative complications. Postoperatively, wound infections were significantly milder in LASC ($p<.05$). Specifically, in LASC, only 2 Grade-1 infections occurred, but in CSC, 1 case had Grade-1, 2 had Grade-2, and 3 had Grade-3. No incisional hernias were identified in either group. Incidence of bowel obstruction was not significantly different (p=NS: LASC: 1 case in Grade-1, 2 cases in Grede-2, no cases in Grade-3; CSC: 1 case in Grade-1, 3 cases in Grade-2, no cases in Grade-3).
Conclusions: This is the first report to compare outcome between LASC and CSC in children. LASC appears to be associated with lower incidence of wound infection in children even though SC was performed by more junior staff.

S043

LAPAROSCOPIC NISSEN FUNDOPLICATION IN VERY SMALL PATIENTS, Carlos Garcia Hernandez MD, Lourdes Carvajal Figueroa MD, Juan Carlos Dueñas Ramirez MD, Hospital Infantil Privado

Background: The difficulty to perform minimal invasion procedures in small patients has limited its use despite of the benefits of this technique proved by Rothenberg and Iwanaka. The gastroesophageal reflux disease that affects small patients threat their lives, because of this it is necessary to carry on a surgical treatment in complicated patients that will indeed benefit if the procedure was performed by laparoscopic means.
Methods: Between March 1999 and October 2008, we have carried on a surgical procedure of Nissen Funduplication in 1312 patients using laparoscopy. The patients of this group whose weights were below 3000 grams were selected.
Results: 22 patients with weights between 1480 and 2900 grams (X= 2.27 kg) were submitted to surgery, of this total 9 had cyanosis, 7 had apnea and 6 had pneumonia. Most of the subjects were premature and they had as certain anomalies; one had a cloacal malformation, two of them esophageal atresia, one duodenal atresia , , three anorectal malformation, one Hirschprung, one with polycystic kidneys as well as one with hydrocephaly and one with aortic coarctation. Of these subjects 5 of them had colostomy, 2 with renal insufficiency with peritoneal dialysis and 1 with a ventricle peritoneal valve. In 21 patients the procedure was performed without complications, one conversion due to ventilatory difficulties .In 6 with performed gastrostomy. Average surgical time of 59 minutes, oral feeding after 25.2 hours. 5 of the patients suffered post surgical pneumonia. All of them had control of the reflux symptomatology 3 of these patients died, 2 of them of renal insufficiency and one as a cause of a non-related sepsis after the procedure.
Conclusion: The very small patient with weights lower than 3 kg is benefited when a minimal invasion procedure is carried on. However as limits we have: -1)Working in smaller spaces that are also shared with colostomies and catheters, 2) The ventilator problems due to the pneumoperitoneum, so we have to insuflated them with lower pressures smaller than 8 mmHg. And 3) The patients tend to have hypothermia which aggravates if the CO2 is provided for too long. If these complications aren't presented then the procedure is feasible to perform by laparoscopic approach

S044

LONG-TERM FOLLOW-UP AFTER LAPAROSCOPIC GASTROPEXY IN CHILDREN WITH GASTRIC VOLVULUS., Mario Mendoza-Sagaon MD, Olivier Reinberg MD, Alexandre Darani MD, Rudolf Leuthardt MD, Department of Pediatric Surgery, Centre Hospitalier Universitaire Vaudois and Ospedale Regionale di Bellinzona e Valli. Switzerland.

The aim of this study was to evaluate the long term results of our technique of laparoscopic gastropexy in children with gastric volvulus. Methods: The files of all children with gastric volvulus operated with a laparoscopic gastropexy in 2 Swiss medical institutions were analyzed. Results: Fifteen children were included in our study. Range of age was between 1 and 11 months at the time of surgery. Main symptoms included sudden postprandial crying, probably related to abdominal pain, vomiting and irritability. In 3 patients, apneic episodes associated with cyanosis, pallor and hypotonia were recorded. In all cases the diagnosis was established with upper GI series. Organo-axial gastric volvulus was found in all cases. The laparoscopic gastropexy was performed with an 8-mmHg CO2-pneumoperitoneum using 3-mm instruments and a 5 mm telescope. Our technique includes 3 steps: 1) esophagofundopexy, 2) phrenofundopexy and 3) anterior gastropexy. Average time of surgery was 60 minutes. One conversion was performed. Follow-up ranged from 1 year to 8 years. One patient needed a laparoscopic hemifundoplication for a persistent gastro-esophageal reflux one year after the gastropexy. To date, all patients are free of symptoms .Conclusion: Our technique of laparoscopic gastropexy is a good option and offers excellent results in children with gastric volvulus.

S045

LAPAROSCOPIC ENDORECTAL PULL-THROUGH FOR HIRSCHSPRUNG'S DISEASE – 10 YEARS EXPERIENCE, Clare M Rees MD, Niamh Geoghegan RN,Diane de Caluwe MD, Simon Clarke MD, Munther Haddad MD, Chelsea & Westminster NHS Foundation Trust, London, UK

Aims: To describe our experience of laparoscopic endorectal pull-through and investigate long term outcomes of this procedure.
Methods: All children diagnosed with Hirschsprung's Disease (HD) from 1999-2008 were identified. Case notes, radiology and pathology reports were reviewed. Patients who had endorectal pull-through for HD had detailed data extracted and analysed. Data are presented as % and median (range). Mann Whitney test was used for comparisons and $p<0.05$ considered significant.
Results: Of 74 patients identified, 68 had a confirmed diagnosis of HD. 45 (66%) had endorectal pull-through as their definitive procedure, 11 had other operations; 79% were male. Diagnosis was made on suction rectal biopsy in 27/50 (54%) patients, 16% had >1 biopsy. Diagnosis was made at a median age of 32 days (range 1 day to 9 years), age at open biopsy was 470 days, compared to 12 days for suction biopsy (p=0.001). Patients were managed with rectal washouts (62%) or laxatives (29%) until definitive surgery. Planned laparoscopic endorectal pull-through was performed 4 months after diagnosis (range 0.5-52) at a median age of 7 months (1.8 months-13yrs). 3 patients underwent laparoscopic assisted Duhamel for long segment disease (2 converted). Median post-operative stay was 4 days (range 2-11). Patients were followed up for 20 months (range 1-118). 27% had episodes of enterocolitis (EC); patients had a median of 4 hospital admissions (range 1-29), significantly higher in patients who had EC (6 vs. 3, p=0.03). At follow up 13% were constipated and 33% had some degree of faecal incontinence. 18% required anal dilatation and 4% had an ACE procedure. 6 patients had significant complications, requiring multiple operations and stoma formation. Overall 36% were felt to have good post-op satisfaction, 42% fair and 21% poor outcome.
Conclusions: Endorectal pull-through is the management of choice in our institution for patients with rectosigmoid HD. Patients can be managed safely at home with rectal washouts and operation performed some months later. Continence outcomes appear poorer than published data but constipation and enterocolitis are reduced, and families are generally satisfied with the results.

S046

AIR INSUFFLATION OF THE STOMACH FOLLOWING LAPAROSCOPIC PYLOROMYOTOMY DOES NOT RELIABLY DETECT PERFORATION, Steven L Lee MD, Roman M Sydorak MD, Stanley T Lau MD, Kaiser Permanente, Los Angeles Medical Center

Purpose: Undetected perforation during laparoscopic pyloromyotomy can be fatal. Detecting a perforation at the time of laparoscopic pyloromyotomy is difficult. The purpose of this study is to determine whether air insufflation of the stomach reliably detects perforation during laparoscopic pyloromyotomy.
Methods: A retrospective review of all patients who underwent laparoscopic pyloromyotomy from 2007-2008 was performed.
Results: 61 patients underwent laparoscopic pyloromyotomy and 2 patients (3.3%) had perforation. One perforation occurred at the gastric end of the pylorus and the other occurred in the middle of the pyloromyotomy at the inferior edge. Insufflating the stomach with air did not demonstrate the perforation in both cases. Both perforations were detected by careful inspection of the myotomy; a small amount of mucus was seen at the perforation site. Both patients underwent open suture repair with an omental patch. Both had unremarkable postoperative courses.
Conclusions: Air insufflation of the stomach during laparoscopic pyloromyotomy does not reliably rule-out perforation. A high index of suspicion and careful inspection of the entire myotomy may help detect perforation.

S047

TECHNICAL CHALLENGES OF THE LAPAROSCOPIC APPROACH FOR PATIENTS WITH ANORECTAL MALFORMATION AND RECTOBLADDERNECK FISTULA, Andrea Bischoff MD, Marc A Levitt MD, Belinda Dickie MD, Alberto Pena MD, Cincinnati Children Hospital

Introduction: Laparoscopy is ideally indicated to replace laparotomy, when the rectum can not be reached posterior sagitally because it is located very high in the pelvis (rectobladderneck fistula). In males, this only occurs in 10% of cases. We report the technical challenges that we found during the laparoscopic approach for patients with anorectal malformation and rectobladderneck fistula.
Methods: A retrospective review of our last six cases with rectobladderneck fistula was conducted, with special emphasis on the technical challenges encountered during the laparoscopic approach.
Results: In all six cases the fistula could be ligated laparoscopically. Following fistula ligation, all rectums required dissection and ligation of several inferior mesenteric artery branches to gain length. One case was repaired entirely laparoscopically. The other five were considered laparoscopically assisted, since an abdominal incision was required to: take down a mucous fistula when the colostomy was placed too distal in the sigmoid (2), mobilize a high rectum with a difficult mesenteric arcade dissection (2), and to taper a bulbous distal rectum (1).
Conclusion: Laparoscopy provides excellent exposure of the peritoneal floor, which allows an accurate and safe dissection and ligation of a rectobladderneck fistula. An incorrect placement of the colostomy in the sigmoid may limit the pull-through and the laparoscopic approach. Limitations also might be found in identifying and safely cauterizing branches of the mesenteric vessels to gain length on a very high rectum, and in order to taper a dilated rectum.

S048

WRAP IT, STITCH IT AND PATCH IT! – A NEW TECHNIQUE IN LAPAROSCOPIC FUNDOPLICATION, Aniruddh V Deshpande MD, Stephen Farrell MD, Irene Tsang,Albert Shun MD, Children's Hospital at Westmead, Sydney, Australia.

Background- The commonest cause of failure of surgical treatment of gastroesophageal reflux in children is the failure of the hiatal repair. Recently, we have adopted the technique of reinforcing the hiatal repair with a bioprosthetic patch.
Aim: The aim of this study is to report the novel use of a bioprosthetic patch (Surgisis, Cook Surgical, Inc.) in laparoscopic fundoplication in children, and to report the initial results of its safety and efficacy.
Methods: This study included all patients who had undergone laparoscopic fundoplication by a single surgeon between 2001-7 and was approved by the Human Research Ethics Committee. All eligible patients were recruited to the study by a letter.
Surgical technique- All patients in this study underwent a 360 degree loose laparoscopic Nissen's fundoplication. The hiatus was repaired with interrupted stitches of 2(0) Ticron– (Group 1, n=59). In some, the hiatal repair was additionally reinforced with a patch of Surgisis which was stitched to the hiatus and the posterior aspect of the fundal wrap (Group 2, n=16).<@>
Follow-up -The patients were prospectively assessed as outpatients by a blinded independent surgical trainee using a validated questionnaire and barium studies were performed in the symptomatic patients. Information was obtained on symptoms in the immediate postoperative period as well as at the time of assessment for the study. Data was analysed for the incidence of symptoms and recurrent hiatal hernia in the 2 groups as well as any side effects of the procedure.
Results: In total, 75 (16 with Surgisis) eligible patients were identified and to date, 25 (5 from Group 2) patients have been assessed. The median age for the group is 75 months (range 18-196 months). The mean follow-up for the group is 90 months, while that for the group 2 is 26 months.There was a trend towards an increased incidence of dysphagia and gagging after feeds in the immediate postoperative period in Group 2 which resolved over time. Three patients (15%) in the group 1 had radiologically confirmed hiatal hernia recurrence, no patient in group 2 had evidence of recurrence. There were no side effects or complications associated with the use of Surgisis patch.
Discussion: This is the first report of use of a bioprosthetic patch in fundoplication in children. Although the study is in its initial stages, the early comparative trend from the available data suggests that its use is safe and may provide a clinical benefit as has been shown in adults.

S049

NEW TECHNIQUES AND LATE RESULTS OF LAPAROSCOPIC SUBTOTAL >90% SPLENECTOMY FOR HAEMOLYTIC ANAEMIA OR ITP IN CHILDREN AND ADOLESCENTS, Klaus Schaarschmidt MD, Andreas Kolberg-Schwerdt MD, Michael Lempe MD, Frank Schlesinger MD, Irina Hayek MD, Jan Patino-Meyer, Helios Center for Pediatric & Adolescent Surgery, Berlin-Buch, Germany

Introduction: Splenectomy should be avoided inyoung children but also adolescents with symptomatic haemolytic disease because a perfused splenic rest most likely eliminates the risk of postsplenectomy sepsis. Moreover laparoscopic subtotal splenectomy affords symptomatic relief in rarer hematolgic diseases like Pyruvat kinase deficiency, Thalassaemia, Hypersplenism, Felty syndrome, severely transfusion dependent ITP, and recurrent splenic cysts or hemangiomas.
Methods and Procedures: In the 15-year period 7/1993 – 6/2008, out of 197 total laparoscopic splenic procedures 128 children and adolescents aged 7.2 ± 3.7 years (range 1.1 - 28.2 years) received subtotal laparoscopic splenectomy with follow up of 3.6 ± 1.9 years (range 10.4-0.6y). Most patients required blood transfusions, mean 3.4 ± 4.1 (range 0 - 189) or up to 342 Thrombocyte and/or immunoglobulin transfusions.
Spleen sizes ranged from 8,9-41 cm, overlarge spleens were delivered in several bags transumbilically. From 3-5 5mm-ports polar vessels were preserved and the spleen divided by ultrasonic scalpel retaining 10.5 ± 4 % of splenic volume. 2 subtotal splenectomies were successful redos of insufficient partial splenectomies elsewhere.
Results: There were 2 conversions and 3 relaparoscopies due to haemorrhage resulting in resection of 2 splenic rests. After initial viability of all splenic rests late viability could not be proven in 4 patients. In all others late viability of the splenic rests was proven by dopplersonography and scintigraphy, Hemoglobins rose permanently and significantly ($p<0.0001$)from 6.9 ± 1.3 g/dl (lowest preop) to 13.1 ± 1.1 g/dl (lowest postop).
There was moderate regrowth of all spleens by up to 50% predominantly during the first year, but only 4 required late laparoscopic removal of the splenic rest after 3.1 ± 1.6 y (range 0.8-4.1)3 for recurrent hemolysis, 1 due to hyperbiliruinaemia.
Conclusions: Mean follow-up of 3.6 ± 1.9 years is still short, but according to the present data laparoscopic subtotal splenectomy reduces transfusion requirements effectively for years. New and rare indications and new techniques are presented.

S050

LAPAROSCOPIC SPLENECTOMY AND PERICARDIAL DEVASCULARIZATION WITH ENDOLIGATURE FOR PORTAL HYPERTENSION IN CHILDREN, Suolin LI MD, Zengwen YU,Yinghcao LI, Department of Pediatric Surgery, 2nd Hospital of Hebei Medical University, Shijiazhuang, 050000,China.

Objective The aim of this study was To explore the clinical effects

of laparoscopic splenectomy and pericardial devascularization with endoligature for portal hypertension complicated hemorrhagic varices in children.

Methods From 2003 to 2007, 6 children with portal hypertension complicated hemorrhagic varices. There were 5 males and 2 females. Age range was from 8 to 17 years. By using silk ligature and hamonic scapel or Ligasure, six patients underwent laparoscopic massive splenectomy and selective pericardial devascularization.

Results All the operations were completed successfully under total laparoscope. The intraoperative average blood loss was 150 ml(80¡ª200 ml). None of the patients required blood transfusion or conversion to an open procedure. The operatinn time was 180¡ª270 minutes (mean, 210 minutes). There were no surgical complications, and all patients had returned to usual activity by 5 days. There weren¡¯t recurrent variceal hemorrhages by following up of 8 to 40 months.

Conclusions Laparoscopic massive splenectomy with selective pericardial devascularization with endoligature is a feasible, effective, safe, little blood loss and minimally invasive procedure for portal hypertension with esophagogastric varices.

S051

LAPAROSCOPICALLY ASSISTED PULLTHROUGH FOR HIRSCHPRUNG'S DISEASE: THE EDINBURGH EXPERIENCE, Gillian Duthie,Maryam Davoodi,Derrick Wilson-Storey, Royal Hospital for Sick Children, Edinburgh

Introduction: Surgical management of Hirschprungs disease has evolved over the past two decades with minimally invasive techniques now at the forefront. We review our unit's 10 year experience of laparoscopically assisted pullthrough for Hirschprung's Disease .

Methods: Patients were identified from the Lothian Surgical Audit System. A ten year period was analysed. The case notes, pathology and radiology were also reviewed.

Results: 33 patients underwent a laparoscopically assisted pullthrough. 73% were male. The age at presentation ranged from 1 day old to 2 years of age. 97% were born at term. Seven patients presented out with the neonatal period. Age at diagnosis ranged from 3 to 732 days of age with age at operation ranging from 34 to 762 days. Only five presented with failure to pass meconium, bilious vomiting and abdominal distension. One patient presented with enterocolitis. Average length of stay was one week. Contrast enemas were performed in 30 patients of which 4 failed to identify a transition level. Radiology matched pathology in terms of the transition zone in 56%. 6.5cm of ganglionic bowel was removed on average with 11.4cm of aganglionic bowel excised. 40% of patients had a complication. These included 33% with enterocolitis. Two patients required colostomies for recurrent enterocolitis whilst one patient had a post operative perforation requiring a colostomy. 20 patients required admission following their pullthrough with a total of 82 admissions. 7 were admitted for dilatation and four for manual evacuations. At 3/12 post pullthrough 70% were stooling 1-3 times daily. At 6/12 follow up 50% were stooling 1-3 times daily with 4 patients on laxatives and two undergoing washouts. At 1 year 60% had regular stooling. At 2 years post surgery 63% were stooling regularly with two patients on laxatives and one undergoing regular washouts. At 4 years follow up the majority were stooling satisfactorily but with 75% on laxatives.

Conclusion: Minimally invasive surgery for Hirschprung's Disease has been described as the gold standard. Surgery for Hirschprung's is not without its complications regardless of the technique employed. Our series reports a high frequency of enterocolitis and constipation in comparison to previous studies. It does however report good overall outcomes. As a result of this review we are now routinely calibrating all patients.

S052

LAPAROSCOPIC ASSISTED ANTERIOR GASTROPEXY FOR PRIMARY GASTRIC VOLVULUS IN CHILDREN, Paul CY Chang MD, Ming-Lun Yeh MD, Beng-Huat Lou MD, Chih-Chun Chao MD, Shin Kong Memorial Hospital, Taipei, Taiwan

BACKGROUND/PURPOSE: Non-acute or chronic gastric volvulus is rare and usually more difficult to diagnose. In patients with primary gastric volvulus, there are no associated etiologies such as previous surgery, diaphragmatic hernias, or hiatal hernias. The authors report 3 patients with primary, non-acute, intermittent gastric volvulus who were treated successfully by laparoscopy.

MATERIALS/METHOD: The first patient was a healthy, 7-day-old neonate, who presented with intermittent non-bilious vomiting and mild dehydration. Pyloric stenosis was excluded by abdominal ultrasound. Barium upper GI series was diagnostic. Laparoscopic anterior gastropexy was performed with a single 5.5 mm trocar via the umbilicus. The greater curvature of the stomach was sutured to the anterior abdominal wall via three sutures which were inserted percutaneously and tied subcutaneously. We believe this was the youngest patient in the literature with primary gastric volvulus who had undergone laparoscopic gastropexy.

The second patient was an 18-months-old girl with fetal alcohol syndrome, developmental delay and cleft palate who lives in a nursing home. Se has been receiving suboptimal nasogastric tube feeding due to intermittent non-bilious vomiting and failure to thrive. Metabolic and infectious causes were excluded and there was no evidence of gastro-esophageal reflux disease.

The third patient was a 7-year-old boy, who was relatively well except for recurrent post-prandial abdominal fullness and bloating. There was no history of acute abdominal pain. In both of these patients, barium upper GI series were also diagnostic of gastric volvulus. Laparoscopic anterior gastropexy was performed successfully by using two 5 mm trocars. Four to six fixation sutures were used for these older children. All patients recovered well post-operatively and started to gain weight, and were symptom-free at 3 years, 2 years, and 7 months follow-up respectively.

CONCLUSION: Gastric volvulus, although rare in children, should be considered in the differential diagnosis of pediatric patients with a history of vomiting and post-prandial bloating. Barium upper GI series are usually diagnostic, even in cases with intermittent volvulus. Laparoscopic anterior gastropexy is simple, safe and effective in both children and neonates.

S053

DOES THE USE OF PERI-OPERATIVE ANTIBIOTICS DURING MINIMAL ACCESS GASTROSTOMY INSERTION DECREASE THE INCIDENCE OF WOUND INFECTION?, Julia R Fishman MD, Ramesh M Nataraja MD, M Haywood BS,J Ekpe BS,G Mallon RN,S A Clarke MD, M H Haddad MD, Chelsea and Westminster Hospital NHS Foundation Trust and Imperial College London

Background / Purpose: Minimal access gastrostomy formation in children is a relatively common procedure. Wound infection remains a significant source of early post operative morbidity. Use of antibiotics in prevention is unclear. A comparison of wound infection rates was performed at our centre.

Methods: We performed a retrospective case note review between January 2001 and August 2008 inclusive. All patients who underwent a gastrostomy insertion either with laparoscopic or endoscopic techniques (with or without another procedure) were identified from the electronic patient records & theatre log books. Ethical approval was obtained. Gender, age at operation (months), indication for procedure and use of perioperative antibiotics were noted. Primary outcome was early post-operative wound infection defined as inflammation, pus and a positive wound culture. Secondary outcome measures included time to full feeds (days), % weight gain and technique.

Results: We identified 89 patients who had a minimal access gastrostomy insertion (18 laparoscopic and 71 endoscopically). Post operative infection rate was 13.5% for all gastrostomies. 49 received peri-operative antibiotics. Patients who received antibiotics had an infection rate of 12.4% compared to 15% in patients who did not receive antibiotics. This was not statistically significant (p=0.76).

Conclusion: Peri-operative antibiotics do not influence the incidence of wound infection with minimally invasive gastrostomy placement. We are initiating a randomised controlled trial to fully establish our findings.

S054

LAPAROSCOPY IN THE MANAGEMENT OF ABDOMINAL TRAUMA IN CHILDREN, Ahmed R Marwan MD, Geni Smith RN,Carrol M Harmon PhD,Keith E Georgeson MD, Oliver J Muensterer PhD, Children's Hospital of Alabama, Birmingham, Alabama

Background: Laparoscopic surgery has been used for both diagnosis and therapy of abdominal trauma in children, however only few small series have been reported.

Objective: To systematically analyze our experience concerning indications, procedures, and outcome using laparoscopy in pediatric trauma patients over the last 11 years.

Methods: Our trauma database was searched for patients who underwent laparoscopy after being admitted for abdominal trauma. The cases were grouped into diagnostic and therapeutic procedures. Success was defined as attaining the correct diagnosis, or

as the ability to repair the traumatic injury by laparoscopic surgery, respectively. Success rates for diagnostic and therapeutic laparoscopy were calculated.
Results: There were 4836 pediatric trauma admissions over a period of 11 years, of which 92 had open or laparoscopic abdominal explorations for blunt (n=47) and penetrating (n=35) injuries. Twenty-one diagnostic and 5 therapeutic laparoscopic procedures were performed. Overall, 19 of the 21 diagnostic laparoscopies were successful (90.5%), and 5 of the 5 therapeutic laparoscopic procedures were successful (100%). There was a significant difference in success rate of diagnostic laparoscopy between acute and delayed cases ($p<0.001$), as laparoscopy failed to identify the injury in 2 patients with late presentation (2 and 3 weeks after trauma). Retrospectively, laparotomy was avoided in 13 out of 21 patients (62%) overall, and in 10 out of 10 patients with penetrating trauma (100%) ($p=0.02$).
Conclusions: Laparoscopy is useful in the early management of the hemodynamically stable pediatric patient with abdominal trauma. It is less valuable in cases with delayed presentation. Most injuries are amenable to laparoscopic repair. Laparoscopy can decrease the need for exploratory laparotomy, especially in patients who sustained penetrating abdominal trauma. Laparoscopy is currently underutilized in the management of pediatric abdominal trauma.

S055

LAPAROSCOPIC MANAGEMENT OF THE IMPALPABLE TESTES IN CHILDREN. NEW CLASSIFICATION, LESSONS LEARNED AND RARE ANOMALIES., MOHAMED E HASSAN BA,A R MUSTAFAWI BA, ALWASL HOSPITAL, Dubai, UAE

Introduction: Cryptorchidism is the most common genitourinary anomaly in male children. About 20% of cryptorchid testicles are impalpable. Laparoscopy has become one of the important diagnostic modalities for management of impalpable testes. The aim of present study is highlighting the lessons and rare anomalies encountered during the management of impalpable testes in children over a period of 10 years in a single pediatric surgery centre and to establish a new classification that better describe the anomalies.
Patients and methods: A retrospective review of 93 laparoscopic explorations for nonpalpable testes between 1998 and 2008 was conducted. Demographic data, intraoperative findings and management, associated anomalies and postoperative follow up was collected and analyzed. A new laparoscopic classification is described.
Results: age range was 7 months- 8 years. 20 bilateral versus 73 unilateral impalpable testes were operated. 4 groups were established with subgroups in each group. Group 1 (vanishing syndrome) 30 cases; Group 2 (peeping testes) 18 cases, Group 3 (Intraabdominal testes) 37 cases and group 4 (disorders of sex development) 8 cases. Associated anomalies included 4 cases of Down syndrome, 7 cases neurological impairment, 3 renal anomalies, 3 cardiac anomalies and 1 case of eye anomalies. Follow up range was 3 - 6 years.
Conclusion: A new laparoscopic classification is described that better describe the anomalies and help planning the treatment of impalpable testes. Impalpable testes with Down syndrome sometimes associated with bizarre anatomy. Parents should be well explained all the possible findings especially in bilateral cases.

S056

LAPAROSCOPIC CONTRALATERAL GROIN EXPLORATION: IS IT COST EFFECTIVE?, Steven L Lee MD, Roman M Sydorak MD, Talar Tejirian MD, Stanley T Lau MD, Kaiser Permanente, Los Angeles Medical Center

Purpose: Transinguinal laparoscopy offers a safe and effective method for evaluating the contralateral groin during unilateral inguinal hernia repair (UIHR). The purpose of this study is to determine whether laparoscopic contralateral groin exploration (LCGE) is cost effective.
Methods: A retrospective review of all children who underwent UIHR and LCGE from 2006-07 by a single surgeon was performed. Cost analysis comparing the time to perform the LCGE and time to repair the contralateral patent processus vaginalis (CPPV) to the cost saved by preventing future operation for a contralateral inguinal hernia repair was calculated based on Medicare reimbursement.
Results: 81 patients underwent UIHR with planned LCGE. 78 (96.3%) had successful LCGE. 8 patients (10.3%) had a CPPV and underwent contralateral open repair. Cost analysis shown below.
Cost for LCGE:
Time for UIHR + LCGE(n=78):37 minutes
Time for UIHR alone (n=105):31 minutes
Time for LCGE:6 minutes
Cost for LCGE ($20/min):$120
Total cost for LCGE (78 x $120):$9360
Time to repair CPPV:11 minutes
Cost to repair CPPV ($20/min):$220
Surgeon fee to repair CPPV:$245
Total cost to repair CPPV (8 x $465):$3720
TOTAL ($9360 + $3720):$13080
Cost for return trip to OR for hernia repair:
Hospital/OR reimbursement:$1954
Surgeon fee:$491
Anesthesia fee:$220
TOTAL 8 x ($1954+$491+$220):$20440
Conclusion: Lapraocsopic contralateral groin exploration at the time of unilateral inguinal hernia repair is cost effective.

S057

LAPAROSCOPIC PYELOPLASTY FOR REPAIR OF URETEROPELVIC JUNCTION OBSTRUCTION IN CHILDREN, Manuel Lopez MD, François Michel MD, Emmanuelle Guye MD, François Varlet PhD, Department of Pediatric Surgery, University Hospital of Saint Etienne-France

PURPOSE: To report our initial experience with laparoscopic pyeloplasty (LP) in children with pelvi-ureteric junction (PUJ) obstruction, to describe the evolution and to evaluate the results for theses patients.
MATERIALS AND METHODS: Between May 2005 and September 2008, we retrospectively reviewed the records of 30 consecutive infants and children with unilateral PUJ obstruction, who underwent LP. The patient was placed in a ¾ lateral position with three ports. The PUJ was resected and the anastomosis made using absorbable sutures. A JJ stent was inserted by laparoscopy in a majority of patients. Follow-up included clinical and ultrasound assessment, and isotope renography at 6 months.
RESULTS: LP was feasible in 28 of 30 patients (93%). The procedure could not be completed by laparoscopy in two patients, the main reason being difficulty in completing the anastomosis. Stent insertion was successful in 27 cases of them. An aberrant crossing vessel was found in four patients. For two of them we held up the aberrant crossing vessel and PUJ by two to three not-absorbable sutures without tension without the needed pyeloplasty. For the others two cases we performed a LP enabled ureteric transposition.
There were 3 postoperative complications; pyelonephritis in two patients and one patient required operative intervention for PUJ leakage, and underwent nephrostomy with a further uneventful course. The mean operative time was 130 minutes (range 70 to 270 min), in the last thirteen cases after we use the stay sutures the mean operative time was reduce about 90 min, without convertions. The average hospital stay was 4 days (1-8) days.
Mean follow-up was 18 months (range 6 to 40 months). A total of 28 patients that underwent UPJ were asymptomatic after removal of the double JJ stent, showing reduction of the degree of hydronephrosis in all patients, and had also improved PUJ drainage on isotope renography or sonography.
CONCLUSIONS: LP is effective and safe in children with minimal morbidity and gives excellent short-term results. The feasibility is also excellent in patients younger than 1 year. The trans-abdominal approach revealed good exposition without a disadvantage for the patient.

S058

SURGICAL MANAGEMENT OF OVARIAN DISEASE IN INFANTS, CHILDREN AND ADOLESCENTS: A 15-YEAR REVIEW, Brett Michelotti BS, Indranil Sau MD, Sonia Perez-Bertolez,Timothy D Kane, Children's Hospital of Pittsburgh of UPMC, Pittsburgh, Pennsylvania, USA

Background: We reviewed our experience with the management of ovarian disease in children to evaluate the surgical indications, results, and outcomes for pediatric age groups.
Methods: This IRB-approved (#7060026) retrospective review included all patients who underwent surgical management of ovarian disease from January 1, 1992 - July 10, 2007. Patients with ectopic pregnancy, or known pelvic inflammatory disease were excluded. Demographics, clinical signs and symptoms, diagnosis, surgical outcomes were obtained. Statistical analysis included comparison of means, paired t-test, chi-squared test, and multivariate analysis where indicated.
Results: There were a total of 221 patients with a mean age of 12.8

years (range 3 weeks- 20 years). There were 211 (95.5%) benign diagnoses and 10 (4.5%) malignant. There were 156 simple or hemorrhagic cysts (70.5%), and 46 mature teratomas (20.8%). Three morbidities (1.3%) were associated with surgery and no mortalities. Operative outcomes for benign disease were compared between MIS and open cases over the entire time period as well as within three consecutive 5-year time intervals.
Time Period Total Cases # Blood Loss (cc) LOS(days) Operative Time (min)
MIS v Open
1992-2007 148 v 73*10.4 v 71.4* 1.9 v 4.5* 84 v 127*
1992 - 1996 15 v 36* 21.0 v 81.4* 2.1 v 5.1* 103.5 v 123.2
1997 – 200145 v 16*10.0 v 52.5* 1.9 v 4.1* 100.7 v 147.6*
2002 - 2007 81 v 16* 9.5 v 81.3* 1.8 v 4.0* 73.1 v 123.1*
*P<0.05 considered significant- # for 12 cases, interval time of surgery could not be determined
Conclusions: There was a notable a shift toward the management of benign ovarian disease via minimally invasive surgery (MIS) over the course of three different 5-year intervals. This approach was associated with shorter hospital stay, less operative blood loss, and shorter operative times when compared to an open approach. When indicated, laparoscopic surgery should be performed for presumed benign ovarian disease in children.

S059

THE ROLE OF GASLESS LAPAROSCOPY IN NEWBORNS WITH NECROTIZING ENTEROCOLITIS: PRELIMINARY EXPERIENCE, Giovanna Riccipetitoni MD, Claudio Vella MD, Enrica Caponcelli MD, Ernesto Leva MD, Massimo Garriboli MD, Department of Pediatric Surgery – Children's Hospital – V. Buzzi – Milan – (Italy)

INTRODUCTION A limited number of newborns affected by necrotizing enterocolitis (NEC) and progressive clinical deterioration may have not specific surgical indications.
Laparoscopy can give useful informations on intestinal viability avoiding unnecessary laparotomy or deciding for an early surgical operation. We report our preliminary experience in 4 cases treated during the last year.
MATERIAL AND METHODS The study includes 4 newborns, 3 males and 1 female with abdominal distension and clinical sepsis not responding to aggressive medical treatment; none had radiological evidence of perforation. The gestational age ranged from 28 to 34 weeks, weight from 990 gr to 1550 gr; the median age at laparoscopy was 13 days (range 7 – 20 days).
A gasless laparoscopy with gentle lift up of the abdominal wall was carried out in the Intensive Care Unit, using a 3 mm umbilical telescope.
RESULTS A right colon perforation was detected in 3 cases, localized left colon pneumatosis in 1 case.
In the last patient we inserted a drain under laparoscopic direct vision, the remaining 3 cases underwent to laparotomy. Two cases with colonic perforation were treated performing resection and primary anastomosis, one case had a diverting stoma. All the newborns well tolerated the procedure and they were discharged preserving a normal intestinal function.
CONCLUSION Diagnostic laparoscopy is a safe and useful procedure in the management of critical NEC cases without typical radiological findings.
It gives good information for a correct timing of laparotomy avoiding unnecessary surgical procedures.

S060

NEW TRENDS IN REDUCTION OF INTUSSUSCEPTION IN CHILDREN : A MINIMAL INVASIVE VISION, H Steyaert PhD, J Lauron MD, JS Valla PhD, Lenval Foundation for Children

Background: The use of barium or air enema affords both confirmation and complete reduction of intussusception (ISS) in around 80 % of the patients. In case of failure a laparotomy is mostly conducted on an emergency basis. In order to assess the feasability and the potential advantages of a laparoscopic approach in case of surgery authors conducted a prospective survey of all patients seen for ISS at the Lenval Institution during a height year period.
Material and Methods: All children managed at our institution for ISS between 06/06/2000 and 06/06/2008 were introduced in a survey concentrating on anamnesis (duration of symptoms), radiological reduction (number of attempts) and operative results. In case of operation all children were first approached by laparoscopy.
Results: during that period 241 patients were included; 197 (82%) were radiologically reduced. 7 (16%) of the operated patients were reduced just at laparoscopic examination (after induction of general anesthesia). 5 patients (11%) needed a conversion for several reasons: doubt about perfect reduction (1), triple ISS not seen during the first laparoscopy (1), technical problem (1), bowel necrosis (2).
Discussion: management of ISS is evolving. Success rate of radiological treatment may be increased with the help of anesthesiological sedation and level of X rays decreased by the use of an ultrasound control during air reduction. Surgical management is also evolving in countries were ISS is well known by paediatricians an seen quite soon. Laparocopy has to become the second level treatment : because several cases are just reduced during induction of anesthesia; because the "pushing" method is not more a dogma looking to the results of laparoscopic reduction and because of , even in case of complicated cases, laparoscopy may solve the problem or decrease the length of the incision.
Conclusion: authors propose a new algorythm for the management of ISS that has to be adapted to local conditions and recommand strongly a laparoscopic approach in case of operation.

S061

COMPUTER-AIDED WORKFLOW COMPARISON OF LAPAROSCOPIC VERSUS ROBOT-ASSISTED NISSEN FUNDOPLICATION IN INFANT PIGS, Alexandra Krauss MS, Thomas Neumuth PhD, Robin Wachowiak MD, Bernd Donaubauer MD, Werner Korb PhD, Oliver Burgert PhD, Oliver J Muensterer PhD, University of Leipzig,Pediatric Surgery, Innovation Center Computer Assisted Surgery, Anesthesia and Intensive Care Medicine, Leipzig, Germany; Pediatric Surgery, Children's Hospital of Alabama, Birmingham, Alabama

Background: A decade ago, the DaVinci robot was introduced as a tool that facilitates dissection and knot-tying due to its 3-dimensional endoscopic vision and additional degrees of freedom when moving the instruments. To date, however, no objective data exists on whether robotic surgery is indeed superior to conventional laparoscopy.
Objective: This study compares conventional laparoscopic Nissen fundoplication (CLNF) versus robot-assisted Nissen fundoplication (RANF) in terms of speed, safety, accuracy and efficiency using computer-based workflow analysis in an infant pig model.
Methods: CLNF was performed in 12, RANF in 13 pigs (weight 7-10,8 kg). Based on synchronized intraoperative movie recordings, the surgical workflow was segmented into temporal phases (preparation, dissection, reconstruction, conclusion). All actions were recorded in a virtual timeline and the time necessary to perform these actions was compared by t-test. Quality of knot-tying was evaluated by an objective skill scoring system (composite index, Chang et al. 2003). To test the efficacy of CLNF and RANF, Cardia Yield Pressures (CYP) were determined pre and post fundoplication. The incidence of complications was compared using the fisher exact test.
Results: No difference in the average time required to complete the preparation, dissection, and conclusion phases of the operation was found. The reconstruction phase took longer in RANF compared to CLNF (2836 +/- 642 vs. 2005 +/- 608 seconds, respectively, p=0.004). The composite index as a measure of suturing quality was more favorable for CLNF compared to RANF (117 +/- 13.4 vs. 109 +/- 23, respectively, p=0.02). The average postoperative rise in CYP was similar in both groups. The incidence of workflow-interrupting hemorrhage was comparable, but pneumothorax occurred more frequently during CLNF compared to RANF (p=0.04). More suture broke during robot-assisted operations (p=0.002).
Conclusions: The robot provides no clear advantage in operating speed compared to conventional laparoscopy for Nissen fundoplication in this model. In fact, the reconstruction phase took longer in the robot-assisted compared to the laparoscopic operations. Conversly, less pneumothoraces occurred during RANF, possibly due to the improved, 3-dimensional visualization of the hiatus during dissection. RANF and CLNF were equally efficient. For robotic surgery to manifest its full potential, more complex operations may have to be evaluated.

S062

LAPAROSCOPIC MANAGEMENT OF INTUSSUSCEPTION IN PEDIATRIC PATIENTS, Jason D Fraser MD, Pablo Aguayo MD, Susan W Sharp PhD,Daniel J Ostlie MD, George W Holcomb MD, Shawn D St. Peter MD, The Children's Mercy Hospital

Introduction: Minimally invasive approaches are beginning to be employed in the management of pediatric patients with intussusception who fail radiographic reduction. Successful laparoscopic reduction has been documented, but the utility of laparoscopy for more complex cases is less well documented.

Therefore, we reviewed our experience with laparoscopy in patients with radiographically irreducible intussusception to document the safety and effectiveness of this approach.
Methods: We conducted a retrospective review of all of the patients who had a radiographically irreducible intussusception treated via the laparoscopic approach at a single institution from 1998-2008.
Results: A total of 22 patients were identified with an average age was 2.8 years. Average length of stay was 2.67 days with a median of 2 days. Mean follow-up was 80 days. Twenty of these were able to be managed entirely laparoscopically or via extension of the umbilical incision, while two necessitated conversion using a right lower quadrant incision. Ten patients (46%) had a bowel resection of which 5 were an ileocecectomy and 5 were segmental small bowel resection. There were four Meckel's diverticula resected. One patient returned with obstructive symptoms and underwent an adhesiolysis for post-operative small bowel obstruction. There were no other complications noted.
Conclusions: Our data suggest that laparoscopy is a safe and effective means to manage pediatric intussusception, even in the event when bowel resection is necessary.

S063

SHORT TERM NATURAL HISTORY OF THE STANDARD APPROACHES FOR GASTROSTOMY TUBE PLACEMENT IN THE PEDIATRIC PATIENT, Jason D Fraser MD, Todd A Ponsky MD, Pablo Aguayo MD, Scott Boulanger MD, Robert Parry MD, Neil Nixdorf MD, Jennifer DiLuciano RN, Patti Smith RN, Susan W Sharp PhD, George W Holcomb MD, Daniel J Ostlie MD, Shawn D St. Peter MD, The Children's Mercy Hospital and Rainbow Babies and Children's Hospital

Introduction: Gastrostomy placement is a common procedure in the pediatric population. Standard approaches of tube placement include open, laparoscopic and percutaneous endoscopic methods. Placement of the gastrostomy in relation to the fundus and the anterior abdominal wall is crucial to ensure adequate comfort and functionality. Misplacement may require repositioning of the gastrostomy, the rate of which has not been well documented. We therefore have reviewed our experience with gastrostomy tube placement to determine the short-term natural history of placement based on approach and to establish a cohort to determine the long-term natural history.
Methods: We conducted a retrospective review of all pediatric patients who underwent percutaneous endoscopic, laparoscopic, or open gastrostomy placement at two institutions from 2000-2008.
Results: There were a total of 1544 patients who underwent gastrostomy tube placement during this time period. The distribution of procedures performed is listed in Table 1. There were 3 (0.2%) gastrostomy tubes that required repositioning to a new site due to encroachment upon the rib margin. Two were open and one was PEG (p=0.55). Eighteen of 35 patients who had an open fundoplication following gastrostomy (10 open and 8 PEGs) had the gastrostomy taken down during the operation compared to 4 of 24 patients (P=0.01) who underwent laparoscopic fundoplication following gastrostomy (3 lap and 1 PEG).
Table 1. Distribution of procedures performed.

	Lap (%)	Open (%)	Total (%)
Fundo with G-tube	419 (50)	413 (50)	832 (54)
G-tube only	278 (65)	149 (35)	427 (28)
PEG			285 (18)
Total	697 (55)	562 (45)	

Conclusions: This data demonstrates that the need for gastrostomy tube repositioning is rare in the short term regardless of approach, although a takedown of the gastrostomy is more likely when an open fundoplication is performed placement.

S064

LAPAROSCOPIC TOTAL COLECTOMIES IN CHILDREN, Michel FRANCOIS MD, Manuel LOPEZ MD, Emmanuelle Guye MD, S. Irtan MD, A Bonnard MD, P De Lagausie PhD,H Staeyert MD, J-S Valla PhD,M Demarche MD, P Erpicum MD, H Lardy PhD,M Robert PhD,G podevin PhD,Y Héloury PhD,O Reingberg PhD,P Montupet MD, H Martelli PhD,J-F Colombani MD, D Weil MD, C Piolat PhD,F Varlet PhD, University hospital of Saint Etienne and GECI. France

Purpose: To report our experience with laparoscopic total colectomie (LTC) in children, to describe the evolution and to evaluate the results for theses patients.
Material and methods: Between 1995 and 2008, 11 centers of paediatric surgery in French languages countries retrospectively reviewed the records of 44 cases of LTC and were divided in two groups. Group A : 10 cases with total colonic hirschsprung disease, the mean age was 13 months old , and group B: 34 cases with inflammatory colitis (IC) and family adenomatous polyposis (FAP), the mean age was 13 years old.
Results: In the group A: LTC was feasible in 10/10 cases. The technique used in all cases was Duhamel's procedures, without protective ileostomy, except one who had an anastomotic leakage during the peritoneal lavage. In this group the mean operative time was 3.8hs.
There were 6 postoperative complication; 1 functional bowel obstruction in immediate postoperative period, 1 small bowel obstruction, 3 partial obstructions, and 1 persistent diarrhea. The average hospital stay was 12 days. Mean follow-up was 3.8 years, 5 children had 2 or 3 stools by day, 1 had 4, 1 between 6 to 8 and 1 between 8 and 10 by day, with soiling for the 2 last cases.
In the group B: LTC was feasible in 33/34. In 22 cases a small laparotomy was associated. An ileorectal anastomosis was performed in 16 patients and an ileoanal anastomosis in 18 patients, with a J pouch in 12 and a protective ileostomy in 5. In this group the mean operative time was 7 hours.
5 per-operative complications occurred (15%): 1 anastomotic twist necessitating an immediate redo, 1 impossible pull through (ileostomy), 1 ureteral perforation with EndoGIA*, 1 duodenal perforation and 1 colonic perforation.
There were 11 immediate postoperative complications (32%): anastomotic leakages (2), small bowel obstructions(3); functional obstruction(1),anastomotic twist (1), 1 urinoma (1), anastomotic stenosis (AS) (2) and parietal infection(1).
Twelve patients (37.5%) had delayed complications: AS(4), small bowel obstruction(1), pouchitis(2) and persistent rectal inflammatory diseases (5). The average hospital stay was 14 days. Mean follow-up was in this group was 4.3 years: 13 patients who had 5 stools or more by day and soiling in 4.
Conclusion: LTC is feasible in children; the morbidity is frequent especially in cases of IC and FAP.

S065

ROBOTIC THYMECTOMY IN CHILDREN, Franklin C Margaron MD, Claudio Oiticica MD, David Lanning MD, Virginia Commonwealth University

Minimally invasive techniques for thymectomy in children with juvenile myasthenia gravis are desired due to the morbidity associated with median sternotomy. A cervical open approach, a left thorascopic approach, and others have been advocated. Complete radical thymectomy is required to achieve maximal improvement. Anatomically, the thymus is relatively large in the small mediastinal space in children and the improved maneuverability of the robotic technique presents definite advantage over standard thorascoscopy. Robotic extended thymectomy has been shown to be feasible and safe in adults, with good outcomes. We present four children who underwent 3 port robotic thymectomy from the left chest using the da Vinci surgical robot. Ages of the children were 2, 3, 6, and 14 years. Only one patient had placement of an interval chest tube which was removed without complication on post operative day one. All four children were able to be discharged home on post operative day one. Operative times ranged from 2 hours 46 minutes to 3 hours 10 minutes (avg 2 h 59 minutes). There were no intraoperative or postoperative complications and all had improvements in their symptoms at last follow up. The da Vinci robotic surgical system with its 3D imaging and articulating instruments can be used to safely perform a complete thymectomy in children with minimal morbidity.

S066

ROBOTIC SURGERY FACILITATES LEARNING CURVE IN MIS, Juan Camps MD, Trey Bradley MD, Palmetto Health Children's Hospital

Background: Minimal invasive surgery has become a routine and accepted tool to perform surgery in pediatric patients. The use of robotics in pediatric surgery has been recently added to the surgical armamentarium. The aim of the study is to show the learning curve of using robotics compared to laparoscopic technique in a common pediatric surgical procedure.
Methods: All surgical cases have been performed by the same pediatric surgeon. Since Nissen fundoplication and gastric tube placement are very common surgical procedures in pediatrics, both procedures are compared in a chronological consecutive manner to evaluate the learning curve in the Robotic surgical group. In the

Nissen Fundoplication group, laparoscopic (A) = 8 cases and Robotic (B) = 8 cases. In the Nissen Fundoplication with a Gastric tube placement group, Laparoscopic (C) = 7 cases and Robotic (D) =7. Age range in years is similar in the groups, laparoscopic Group A= 3.38 and Group B=4.75, Robotic Group C=0.86 and Group D=0.71. To minimize the laparoscopic learning curve, Groups A and C are chosen after 100 consecutives cases in laparoscopic Nissen Fundoplication have been performed.

Results: All cases were performed and completed without any immediate or late surgical complications. Despite of diverse complexity of the laparoscopic group, there is no significant statistical variation in surgical average time of cases performed with laparoscope. Group A = 1.37 hrs or R2 = 0.029, Group C = 2.18 hrs or R2 = 0.187. In the Robotic cases, there is a significant statistical improvement in the learning curve decreasing the surgical time just after a few cases are done. Group B = 2.22 hrs or R2= 0.502, Group D = 3.06 hrs or R2 = 0.724.

Conclusion: The use of Robotic in pediatric patients facilitates the learning curve even after only few robotic surgical cases have been performed. Robotic equipment provides better space perception and optics with a high definition 3D vision. Intuitive and increased maneuverability of instruments is another important factor to improve the learning curve.

S067

A NEW PLATFORM FOR BASIC AND AVANCED ENDOSCOPIC SKILLS TRAINING, M Lima MD, C Melchiorri,G Ruggeri MD, G De Novi,T Gargano MD, Pediatric Surgery – University of Bologna, Italy Faculty of Engineering – University of Bologna, Italy

Introduction. The applications of Minimally Invasive Surgery (MIS) are rapidly expanding. Surgical education is quickly changing, several factors including budget constraints and medico-legal concerns limit opportunities for pediatric trainees. New methods of skills training such as low fidelity bench trainers and virtual reality simulators offer new avenues for surgical education. While many surgeons feel that the use of minimally invasive techniques eliminates force feedback and tactile sensation, the importance of haptics in MIS has not been fully evaluated. Moreover, there is considerable interest in the development of haptic simulators for MIS even though the importance of force feedback remains poorly understood.

Methods. We present a new innovative laparoscopic training solution. The Laplab is an haptic simulators for MIS designed to exercise and test the skills of surgeons. It allows to test new instruments and use modern Graphic Processing Unit and the haptic devices low cost (Sensible Phantom). Moreover this software is usable by mid-low cost personal computer.

Through the use of force feedback impulse devices in VR simulators, one should be able to create a more realistic theatre in which the novice surgeon can learn operative skills.

Conclusion. Surgical simulation is an exciting area of surgical education. The future is bright as advancements in computing and graphical capabilities offer new innovations in simulator technology. Simulators must continue to undergo rigorous validation studies to ensure that time spent by trainees on virtual reality simulators will translate into improved surgical skills in the operating room.

S068

DEVELOPMENT OF A NEW 2.4 MM LAPAROSCOPE FOR MICROLAPAROSCOPY IN CHILDREN., Salmai Turial MD, Miriam Luise Knab,Veronika Engel MD, Felix Schier MD, University Medical Centre, Department of Pediatric Surgery, Mainz

Purposes: Recently, a prototype laproscope of 2.4 mm in diameter was developed in cooperation with Karl Storz Tuttlingen, Germany. Our experiences with this new prototype scope are reported and the preliminary results of prospectively collected data are presented.

Description: Between November 2007 and March 2008 a new prototype scope 0°, 2.4 mm in diameter and 18cm of length was developed in cooperation with Karl Storz Tuttlingen, Germany specifically for this microlaparoscopy study group at our department. All data concerning the intraabdominal illumination, depth perception, parallaxes, shadowing and light reflexes on tissue, as well the influence of different light cables were collected perioperatively in the theater.

Results: The prototype scope was used since March 2008 in a variety of microlaparoscopic approaches in 113 children (aged from 3 weeks to 17 years, Median: 2.8 years, and in one 31-year-old woman). Among the procedures performed were 76 (67%) inguinal hernia repairs, 12 (10%) diagnostic microlaparoscopies for acute or chronic abdominal pain, 5 (4%) ovarian cyste unroofings or detorsions of ovaries, three cases each of microlaparoscopically-assisted pull-throughs for Hirschsprung's disease, microlaparoscopically-assisted gastrostomies and VP-shunt disfunctions, two cases each of pyloromyotomies, varicocele ligations, intussusceptions, treatments of urachal remnant, Nissen fundoplication and a transperitoneal pyeloplasty. All procedures were completed successfully. There was no need to exchange the 2.4 mm scope for a 5 mm scope. No complications occurred due to the use of 2.4 mm scope. The new 2.4 mm scope provides very good results in all technical parameters, and the image quality is close to the 5 mm scopes. Although, this scope passes through the miniports, however, insufflation can no longer be provided though the same trocar due to the tight fit of the scope in the miniport trocar.

Conclusion: Based on our preliminary results, it seems that the use of the 2.4 mm prototype scope is safe and feasible. Technologically, it provides nearly identical qualities to the 5 mm scopes, and it still fits through the miniports.

In the very near future, this new 2.4 mm scope will be series-produced and be available beginning from Febuary 2009 commercially.

S069

THE "ENDO-PAED-TRAINER": WHY A LAPAROSCOPIC TRAINING DEVICE IS INDISPENSABLE IN PEDIATRIC SURGERY, Markus Duersch MD, Bertram Reingruber MD, Department of pediatric surgery - Regensburg

Off-patient laparoscopic training for operators at all levels of experience has become well established to enhance skills and test new techniques and instruments. What we especially need in pediatric surgery is to prepare for the individual case. Variations in disease, the patient's age, size and comorbidity make the requirements different than for adult laparoscopic training. The skills to be taught are of a more general nature and emphasis needs to be placed on working with a multidisciplinary surgical team rather than on learning skills specific to a particular organ.

Our Endo-Paed-Trainer consists of a human torso the size of a 4-year-old child. There are flexible lids covering the abdominal and thoracic cavities which maintain tension in convexity and can be perforated by trocars. Porcine organs are mounted inside. Special features include the possibility of intubation and ventilation of an airtight trachea-lung specimen, an abdominal specimen including esophagus, stomach, small and large intestines as well as liver, pancreas and its excretory ducts with the possibility of attaching a blood circulation.

A scorecard system has been developed and validated for various skills and levels of experience to assess the aptitude of the individual candidate and monitor progress.

Regular periodic standardized in-house training rounds have been established at three levels of skills and experience (in line with the proposed quality assurance certificate of the German Society of Pediatric Surgery). Special situations are rehearsed as well. These include:

- the special case, preoperative on-site briefing of the team: surgeon, assistant, scrub nurse, anesthetist, anesthetic nurse. Issues to be discussed include placement of the patient, placement of trocars and positioning of surgeon, assistant, scrub nurse.
- interdisciplinary working with pediatric gastroenterologists
- new instruments

Examples of scorecards for individuals and groups are presented.

The laparoscopic training device offers far more than just organ-specific training as is usually done in workshops. Preparation for the individual case is good for the patient and saves time; the scorecard is a strong motivator of young surgeons and is a source of additional experience for advanced operators.

In our department of pediatric surgery, the Endo-Paed-Trainer has become an essential device not only for laparoscopic surgery but for the whole range of endoscopic and minimally invasive procedures in children of all ages.

S070

A NOVEL TRANSORAL ESOPHAGEAL ANASTOMOSIS DEVICE (EAD): TOWARD A NOTES APPROACH TO ESOPHAGEAL ATRESIA REPAIR, Zachary J Kastenberg BS,Pablo Garcia MS,Sanjeev Dutta MD, Multidisciplinary Initiative for Surgical Technology Research – Stanford University/SRI International, Palo Alto, CA, USA

BACKGROUND: A major technical impediment to minimal access repair of esophageal atresia (EA) is creation of the anastomosis, which prevents many surgeons from utilizing this approach. We are developing a device that greatly facilitates thoracoscopic esophageal anastomosis, and in the future may comprise one component of a

natural orifice transluminal endoscopic surgery (NOTES) approach to EA.
METHODS: The EAD is a comprehensive catheter-within-a-catheter instrument that is distally equipped with a novel mechanism for achieving end-to-end anastomosis. After the surgeon frees the esophageal segments from their plural encasement using traditional thoracoscopic instruments, the EAD is positioned transorally across the proximal esophageal pouch into the distal esophageal segment under thoracoscopic guidance. The surgeon then manipulates the EAD using controls at the patient's mouth to approximate the esophageal segments prior to actuating the anastomotic mechanism. This presentation will describe the device and demonstrate its function in a tissue model.
FUTURE DIRECTIONS: The EAD is undergoing feasibility testing in a piglet model. Outcome measures include: (1) anastomotic burst strength and (2) anastomotic leak rates in necroscopy and survival protocols. To achieve the long-term goal of developing a completely transoral repair of EA with tracheoesophageal fistula (TEF), additional procedural steps will need to be addressed including: (1) accessing the thoracic cavity transorally, (2) dividing the TEF, and (3) exposing the esophageal limbs from their pleural encasings.

S071

COMPARATIVE PERFORMANCE EVALUATION OF FORCE TRIVERSE– MODE VS. STANDARD ELECTROSURGICAL MODES, Hannah K Swayze MD, Arlen K Ward,Myron St. Louis MD, David Tashjian MD, Kevin P Moriarty MD, Department of Surgery, Baystate Children's Hospital, Pioneer Valley Life Sciences Institute, Springfield, Massachusetts

Purpose: Standard electrosurgical devises offer three options for surgical division of tissue; 1)cut , 2)fulgurate, 3)blend. The full cut mode utilizes a continuous duty cycle that offers swift tissue division with little or no hemostasis. The fulgurate mode utilizes an intermittent duty cycle providing higher levels of hemostasis with resultant increased levels of thermal spread and reduced cutting speed. A new electrosurgical device Force TriVerse– (Valleylab/ Covidien, Boulder, CO) utilizes a closed loop control system with a RF output that is continuously monitored and adjusted due to changing tissue impedance. The objective of this study was to evaluate the performance of the Force TriVerse– mode compared to the standard cut and fulgurate modes.
Methods: After obtaining IACUC approval 11 (30 – 60 kilograms) female porcine were anesthetized. A total of 174 sequential, 15 cm incisions were performed with an EDGE coated, spatula tipped electrosurgical blade (Valleylab/Covidien, Boulder, CO). A robotic devise was employed to provide a constant force (0.12 lbs) and a constant tissue depth advancement (3/16 inch) for each incision. A Force Triad Generator (Covidien/Valleylab,Boulder, CO) was used for the cut, fulgurate and TriVerse– modes. All three modes were tested at 30, 45 and 60 Watts. Drag on the electrosurgical blade was measured while maintaining a constant velocity of 10 m/sec. Instantaneous velocity measurements were taken every 0.01 seconds. Statistical analysis was performed using the student's t-test.
Results: The TriVerseTM mode does not demonstrate a statistically difference in drag when compared to cut or fulgurate modes at 30, 45 or 60 Watts. The cut mode demonstrated a statistically significant difference in drag compared to fulgurate at 30 watts. (p=0.039).
Conclusions: The TriVerseTM mode did not offer a decrease in drag when incising
skin versus fulguration. Standard cut mode had statistically significantly less drag than the fulgurate mode at 30 watts.

S072

SERIAL INTESTINAL LENGTHENING USING A RE-DEPLOYABLE INTRALUMINAL SPRING DEVICE, Shant Shekherdimian MD, Mohanchandra Panduranga PhD,Gregory Carman PhD,James Dunn MD, University of California, Los Angeles

Background: Short bowel syndrome results in inadequate nutrition and hydration. Current treatments are fraught with significant morbidity and mortality, while experimental techniques are limited by their reliance on extra-abdominal devices, space constraints within the abdominal cavity, and the need to isolate segments of bowel.
Description: A compressed spring made from biocompatible material and capable of being re-compressed endoluminally is implanted into a de-functionalized (but not isolated) segment of small intestine and the bowel is allowed to lengthen. Subsequently, the spring is serially recompressed and deployed, lengthening adjacent intestinal segments. Once adequate length has been achieved, the spring is removed and de-functionalized intestinal segment reattached to the in-continuity bowel.
Preliminary Results: Using the proposed spring device, we have successfully been able to lengthen intestinal segments 4-fold. Furthermore, we have demonstrated increased intestinal enzymatic activity in lengthened segments.
Conclusion: The feasibility of serial re-deployments and re-implantation of lengthened intestine remain to be determined. If successful, the proposed device will have the capability to lengthen intestinal segments without the need to isolate them and without any exterior components. Furthermore, serial lengthenings may be performed eliminating limitations due to the unidirectional lengthening capability of prior devices. Finally, it may be possible to implant, re-deploy and ultimately remove this device endoscopically, eliminating the need for surgical intervention.

S073

TREATMENT OF URETEROPELVIC JUNCTION OBSTRUCTION IN CHILDREN WITH A LAPAROSCOPIC VASCULAR SLING TECHNIQUE AND PELVIC PEXY: A CASE SERIES, Kris Milbrandt MD, Sarah Wong BS, Anthony Cook MD, Alberta Children's Hospital, Calgary, Alberta, Canada

Background: The optimal treatment for UPJ obstruction in children has not been settled. Of particular discussion is the role that anterior crossing vessels have in either causing an external mechanical type obstruction at the UPJ region or are innocent bystanders. Treatments in the past have included endopyleotomy, open or laparoscopic dismembered pyleoplasty, and recently a vascular slinging technique to move these vessels out of the way. We describe our case series of patients utilizing a vascular sling technique in combination with a renal pelvis pexy with excellent results to date.
Results: Three patients have been treated with a laparoscopic vascular sling procedure where we mobilize the crossing lower pole vessels, anchor them to the lateral Gerota's fascia over the kidney, and pexy the renal pelvis down to the psoas muscle to splay open this region and relieve the obstruction. Intraoperative video and pictures are included in the technique section. Average operating time was 122 mins including time for cystoscopy, pyelogram, and stent placement. Intraoperative blood loss was minimal and no complications occured postoperatively. Patients were discharged from hospital, on average, within 2.2 days. Follow-up imaging after stent removal has demonstrated excellent relief of the mechanical obstruction and relief of symptoms at one year.
Conclusion: The laparoscopic vascular sling procedure(LVS) with renal pelvis pexy appears to be an attractive solution to those patients with evidence of an external compression from crossing vessels. Short term follow up has been encouraging but longer term outcomes will need to be verified.
INDEX WORDS: UPJ obstruction, crossing vessels, vascular sling, pediatric

S074

FUNCTIONAL OUTCOME AFTER LAPAROSCOPIC DISMEMBERED PYELOPLASTY IN CHILDREN, Philipp O Szavay MD, Tobias Luithle MD, Joerg Fuchs MD, Department of Pediatric Surgery and Urology, Children's Hospital, University of Tuebingen

Introduction: Laparoscopic or retroperitoneoscopic pyeloplasty for uretero-pelvic-junction (UPJ) obstruction in children have become routine procedures. Purpose of this study was to evaluate functional outcome, i.e. differential renal function of patients who had undergone laparoscopic dismembered pyeloplasty.
Patients and Methods: Between March 2004 and October 2008 70 children underwent laparoscopic dismembered pyeloplasty. Median follow-up was 24 months (1-48). We reviewed differential renal function with diuretic renography before as well as 3 and 12 months after operation. Data were compared to 30 patients undergoing open pyeloplasty between February 2003 and June 2006.
Result: In the laparoscopic group median age at operation was 20 months (1-178). Median operating time was 140 minutes (95-220). Intra- or perioperative complications occurred in 4 patients. In one patient a minor perforation of the colon lead to severe septic peritonitis. Mean differential renal function of the operated kidney was 46% preoperatively, as well as 3 months and one year after operation. No significant difference could be noticed ($p > 0.05$). In the open pyeloplasty group median age at operation was 7.5 months (2-180). Median operating time was 115 minutes (50-280). In this group no intra- or perioperative complications occurred and differential renal function was preserved in all patients.
Conclusion: In terms of preservation of differential renal function the laparoscopic approach is as effective as standard open surgery.

Operating times for laparoscopic pyeloplasty are competitive. As described in literature, complications such as perforation of the bowel may occur. Therefore we conclude that laparoscopic pyeloplasty requests large experience in laparoscopic pediatric urology.

S075

IS BALLOON BURST PYELOPLASTY A USEFUL ALTERNATIVE TO OPEN OR LAPAROSCOPIC PYELOPLASTY?, Boma Adikibi MD, Rachel M Hall MD, A. Graham Wilkinson MD, Gordon A. MacKinlay MD, Royal Hospital for Sick Children, Edinburgh.

Introduction: We review our experience of endoluminal balloon dilatation for pelvi-ureteric junction obstruction over 13 years.
Methods: A retrospective review was performed on all patients that underwent balloon dilatation in our institution. We utilised a drainage score derived from the MAG3 diuretic renography converting the time to half counts to a numerical value ranging from 1- a T1/2 <15mins to 6 -a rising curve at 55 minutes.Ultrasonography was used to measure the anterior posterior diameter of the renal pelvis (APD) before and after intervention.
Results: There were 50 endoluminal balloon dilatations performed in 44 patients since 1995. 31 patients were male.The age range was 5 months to 18 years and 6 months with a median of 5 years and 8 months.There were 29 primary procedures performed on 28 patients. The pre-balloon median APD was 30 mm (range 6.7-75 mm). The median MAG 3 score prior to intervention was 4 (range 1-6). Pre-operative imaging is incomplete for 5 patients.
We have complete post operative imaging for half the patients and this demonstrates a reduction in the median post procedure MAG 3 score to 2 (range 1-4) and the median APD to 21mm (range 9-43). 20% required further surgical intervention.There were 21 balloon dilatations performed on 16 patients who had recurrent PUJO after treatment.
The previous treatment entailed 12 open pyeloplasties, 8 endoluminal balloon dilatations, 4 nephrostomies and 1 retroperitoneoscopic pyeloplasty.
The pre-procedure median APD and MAG 3 score was 38mm and 5 respectively with ranges of 18-70 and 4-6. The median MAG 3 score fell to 3 (range 1-3) after intervention. The APD also decreased to a median of 19mm (range 8-32).57% required subsequent intervention. Half of the patients (6) had repeat balloon dilatation. Of the remaining six patients 2 required an open pyeloplasty and 2 subsequently had nephrectomies performed.
Conclusion: Our results demonstrate that balloon dilation for PUJO is effective with a decrease in the MAG3 drainage score and the APD. Overall 36% of patients required further intervention. The majority of these patients (66%) had recurrent PUJO after previous treatment, most commonly with open pyeloplasty . 50% of the patients who required further intervention in the primary group had significant reduction in function at the time of intervention.

S076

LAPAROSCOPIC MANEUVER FOR ORCHIDOPEXY IN HIGH INTRA-ABDOMINAL TESTES WHEN CREMASTERIC ARTERY IS PRESENT: A TECHNICAL REPORT, Claudio De Carli MD, Michael Leonard MD, Marcos Bettolli MD, Luis Guerra MD, University of Ottawa, Children's Hospital of Eastern Ontario. Dept of Surgery - Divisions of Paediatric Urology and General Surgery

Introduction: Preservation of the testicular blood supply is crucial for the management of intra-abdominal testes during laparoscopic orchidopexy. Independent of the preferred technique (Fowler-Stephens or primary descent), the complementary blood supply is essential for testicular survival. The deferential and cremasteric arteries are both responsible for the testicular collateral circulation. However, cremasteric artery (CA) is underestimated by the majority of surgeons. Anatomy study in fetus demonstrated the presence of CA in 72 % of the cases. Dissections in pediatric cadavers revealed the existence of large-caliber anastomosis between the CA and vasal-testicular system in 50% of the specimens examined. We report a case of a high intra-abdominal testis (HIT) associated with presence of CA. Our primary aim is to describe the most adequate surgical approach for laparoscopic orchidopexy and preservation of the CA.
Methods and patient: Using a 3-port technique, 5 mm instruments and a 0 degree scope, abdominal exploration was carried out in a 2 year-old boy with left non-palpable testicle. The testicle was found in a high intra abdominal position next to the left iliac vessels and the internal inguinal ring was not open. Dissection of the testicular and deferential arteries was performed to achieve primary testicular descent. The CA was identified running parallel and anterior to the deferential vas, arising from the inferior epigastric artery and ending at the lower pole of the testicle. The deferential artery was seen between the umbilical ligament and the bladder and joining the deferential vas. Primary tension-free orchidopexy was achieved performing the Prentiss maneuver while preserving the CA.
Conclusion: In the presence of HIT, surgeons should be aware of the CA as part of the testicular collateral circulation. A careful dissection of the spermatic cord allows for the identification and preservation of the CA, which may improve testicular survival in HIT. The Prentiss maneuver was used to avoid compression and strangulation of the CA around the epigastric vessels while descending the testicle.

S077

LAPAROSCOPIC EXTRAVESICAL REIMPLANTATION FOR VESICO-URETERAL REFLUX., Manuel Lopez MD, Emmanuelle Guye MD, Michel François MD, François Varlet PhD, Department of Pediatric Surgery, University Hospital of Saint Etienne-France

INTRODUCTION: Laparoscopy may have a place in the treatment of vesico-ureteral reflux (V.U.R). We report our initial experience in the treatment of V.U.R by laparoscopic extravesical transperitoneal approach (L.E.T.A) to describe the evolution and to evaluate the results and benefits of this technique for theses patients.
MATERIALS AND METHODS: Between August 2007 and October 2008, 14 children (20 ureters) with V.U.R and deterioration of renal function on isotope renography (8 unilateral and 6 bilateral) were treated with L.E.T.A (Lich-Gregoir technique). The mean age was 48.2 months (range 12-62), and there were 11 females and 3 male. Two patients had a double total collector system associated with reflux in a lower system. One of them with a little ureterocele and another with complete deterioration of upper polar rein function.
RESULTS: The mean surgical time was 70 minutes in unilateral and 120 in bilateral V.U.R. All procedures were successfully completed laparoscopically and the reflux was corrected in all patients, at the same time, 1 heminephrectomy and 1 ureterocele were removed by laparoscopy and endoscopy. We had 1 ureter perforation with leakage fifteen days after postoperative and underwent a redo-procedure. The mean hospitalisation was 24 hours. The follow-up was ranging 6-20 months, without recurrence of RVU.
CONCLUSION: L.E.T.A for R.V.U is a safe and effective approach even in unilateral, bilateral simultaneous and duplex ureters, with success rates similar to the open technique, and a dramatic reduction in postoperative stay.

S078

OUR EXPERIENCE OF A SINGLE PORT LAPAROSCOPIC APPENDECTOMY IN CHILDREN, Takashi Nogami BA, Makoto Yagi BA, Yuko Udatsu BA, Hideki Yoshida MD, Yuji Morishita MD, Hitoshi Shiozaki MD, Harumasa Ohyanagi MD, Division of Pediatric surgery, Department of Sugery, Kinki University of Medicine

[Background and purposes] Laparoscopic appendectomy (LA) has become popular for the treatment of acute appendicitis. Since LA was first described, its modification has been reported many times. Also, a single-port LA has announced from several institutions. We introduce our simple technique of a single-port LA.
[Materials and Methods] A single port LA was attempted for 22 patients (8 boys and 13 girls). Their age ranged 4 years to 15 years. Under general anesthesia, a 12-mm trocar was inserted through umbilicus. The finger part of latex surgical gloves covered the orifice of the trocar to prevent air leak, when a 5-mm camera and a 5-mm forceps were inserted into the trocar at the same time. The appendix was grasped and dissected from the surrounded tissues with a single grasper or a dissector. The grasped appendix was withdrawn into the trocar and extracted from the abdominal wall with the trocar. The appendix was removed using a conventional procedure outside of the abdominal cavity.
[Results] Laparoscopic appendectomy was completed in 13 cases through a single port. Additional trocar was required in 8 complicated cases.
[Conclusions] This unique method further improves minimal invasiveness of LA because of using a single port. This technique is a safe and highly minimally invasive procedure with excellent cosmetics and cost effectiveness.

S079

ENDOSCOPIC TREATMENT OF DUODENAL WEBS ON PEDIATRIC PATIENTS, F. yankovic MD, F. saitua MD, C castillo MD, C navarrete MD, Luis Calvo Mackenna hospital, Clinica Alemana de santiago

Introduction: Partial duodenal obstruction due to duodenal webs

is an infrequent condition, seen mostly on newborn patients. Open surgery is the standard management. We report four pediatric cases of duodenal webs treated by endoscopic surgery. **Patients and methods:** From March 2007 to June 2008, two new born and one 14 years old child, with diagnose of duodenal webs, received endoscopic treatment. Under general anesthesia, endoscopy was performed. After fenestrated membrane visualization, a 12, 15 or 20 mm. hydrostatic balloon was used for web dilatation. Then, using a needle knife sphincterotome, we performed 2 or 3 cuts in the rest of the membrane, opposite to the Vater ampulla. **Results:** All three patients were successfully treated. Mean surgical time was 50 minutes. Oral fluids started on the same day. All patients were discharged without complications and all of them are asymptomatic (mean follow up of 5 month). **Conclusion** Endoscopic treatment of duodenal webs seems to be a valid minimal invasive therapeutic option. The procedure is a safe and effective, reduces surgical time, postoperative fasting time and length of hospitalization.

S080

RIGID NOTES: THE TRANSURETHRAL APPROACH IN FEMALE PIGLETS, Martin L Metzelder MD, Joachim F Kuebler MD, Gertrud Vieten PhD, Jan Gosemann MD, Benno M Ure PhD, Department of Pediatric Surgery, Hannover Medical School, Hannover, Germany

Background: Natural Orifice Transluminal Endoscopic Surgery (NOTES) has been introduced to reduce scars and the surgical trauma. The feasibility of this technique in children is not known. The aim of our animal study was to determine the feasibility of various procedures via a transurethral assisted approach.
Materials and Methods: Specially designed Aesculap-Braun© instruments and Endoligasure © were used in 12 anesthetized and mechanically ventilated female piglets (mean weight 15.2kg; range: 14 - 17). A modified 12mm trocar including a 30 degree optic and a working channel was used for the umbilical approach and for CO2 insufflation (8mm Hg, Flow 5L/min.) Subsequently, a 3mm trocar including a 2mm optic was introduced via the urethra and the dome of the urinary bladder into the abdominal cavity. The endpoint of the study was the feasibility of nephroureterectomy (n=8) and bilateral tuboovarectomy (n=4).
Results: All nephroureterectomies and bilateral tuboovariectomies were performed successfully. At the end of the procedures the urinary bladder was safely closed with Endoloops© via the umbilical "Two in one system". Intracorporal suturing, knotting and placement of Endoclips© during nephrectomy were time consuming due to restricted motion of the "Two in one system". The use of a vessel sealing device allowed a safe, fast and easy nephroureterectomy.
Conclusions: Modifications of instruments and approaches are mandatory for NOTES, and they have to be tested in animal models before being used in infants and children. We showed that nephrectomy and tuboovarectomy can be performed safely via a transurethral and umbilical approach in female piglets. The use of vessel sealing devices is essential in "Two in one systems" with limited view and range of motion.

S081

SCARLESS ABDOMINAL SURGERY: SINGLE INCISION LAPAROSCOPIC SPLENECTOMY, CHOLECYSTECOMY, AND APPENDECTOMY, Sanjeev Dutta MD, Division of Pediatric Surgery, Lucile Packard Children's Hospital, Stanford University

Introduction: Single Incision Laparoscopic Surgery (SILS; aka Single Port Access (SPA)) involves performing abdominal operations by placing multiple wristed laparoscopic instruments through a single small incision hidden in the umbilicus. The primary goal is to avoid any visible scarring. Experience with SILS appendectomy, cholecystectomy, and splenectomy is described.
Methods: A retrospective review was conducted of 18 consecutive inpatient SILS procedures (12M:6F; age range 2 to 17 yrs.) from May to September of 2008. Outcome measures included need for conversion, operative time, cosmetic outcome, and complications.
Results: There were 4 total splenectomies, 2 combined splenectomy/cholecystectomies, 2 isolated cholecystectomies, and 10 appendectomies performed. All procedures were completed successfully without need for conversion to standard laparoscopy or open surgery. A patient with a 28 cm spleen had complete resection using SILS, but specimen removal was through a Pfannenstiel incision due to lack of an adequately sized endobag. Mean operative time was 90 min for splenectomy, 67 minutes for cholecystectomy, 165 minutes for combined splenectomy/cholecystectomy, and 35 min for appendectomy. Mean hospital stay was 1 day for appendectomy, 1 day for cholecystectomy, and 2.5 days for splenectomy. One splenectomy patient received 1 unit PRBC transfusion. All families were very pleased with the cosmetic outcome.
Conclusions: SILS is feasible for a variety of pediatric general surgical conditions, allowing for scarless abdominal operations. This early experience suggests that outcomes are comparable to standard laparoscopic surgery but with improved cosmesis. Surgeons performing SILS should have a firm foundation in advanced minimal access surgical skills, and a cautious, gradated approach to attempting the various procedures. Technological refinements will further enable SILS. Further studies will confirm these findings and determine if there are any benefits in terms of pain or recovery.

S082

EXPERIENCE WITH MODIFIED SINGLE PORT LAPAROSCOPIC PROCEDURES (SPA) IN CHILDREN, Steven S Rothenberg MD, The Rocky Mountain Hospoital for Children

Purpose: To determine the safety and efficacy of limited access laparoscopic procedures in children using a modified single port access (SPA) technique.
Methods: A number of different basic laparoscopic procedures were attempted using a modified 8mm operating endoscope with a 4mm 6 degree lens and an incorporated 3mm operating channel. Most cases also involved a single 3mm stab wound or port for an additional operating instrument. Procedures performed included Appendectomy - 5, Cholecystectomy - 3, Enterolysis -1, Ovarian cystectomy - 1, and ingunal heria repair -10. Patients ages ranged from 10 months to 16 years and weight from 7 to 60 kg.
Results: All procedures were completed successfully. There were no operative or post-operative complications. All patients were done as day surgery or 23 hour observation. Operative times were longer then standard laparoscopic procedures for the author, but no direct comparrison was made.
Conclusion: A modified SPA technique appears to be a safe and viable alternative to standard laparoscopic approach. Visualization and safe tissue manipulation is more difficult. The addition of a single 3 mm instrument allows for easier dissection, triangulation, and almost invisible scar and may be more beneficial then creating a 20mm incision in the umbilicus to allow for the insertion of multiple instruments

S084

PRELIMINARY EXPERIENCE WITH SINGLE INCISION LAPAROSCOPIC SURGERY IN CHILDREN, Todd A Ponsky MD, Scott Boulanger MD, Walter Chwals MD, Edward Barksdale MD, Robert Parry MD, Rainbow Babies and Children's Hospital, Case Western Reserve University

Introduction: Single incision laparoscopic surgery (SILS) has recently been described in adults. Here we report our preliminary experience of SILS in children.
Methods: A retrospective review was performed of the operative database at Rainbow Babies and Children's Hospital in Cleveland, Ohio from 3/2008 to 11/2008 looking for all cases that were performed through a single laparoscopic incision.
Results: A total of 38 SILS cases were performed. These included: cholecystectomy, splenectomy, intussusception reduction, gastrostomy tube placement, and appendectomy. Two appendectomies were converted to traditional 3-port laparoscopy for mesoappendix bleeding and a long appendiceal stump. There was one umbilical wound infection after an appendectomy (erythema that responded to antibiotics). There were no other complications.
Conclusion: Preliminary experience with single incision laparoscopic surgery in children appears to be safe and effective. Greater numbers and a prospective trial will be necessary to assess the true benefit of this approach.

Single Incision Laparoscopic Procedures

Procedure	N	Age(yr)/Wt(kg)	OR Time
Chole.	5	13.3y / 59kg	1:48
Splenectomy	1	16y / 53kg	3:53
Intussusception	1	1.67y / 12kg	0:35
Gastrostomy	7	1.51y / 7kg	0:35
Appendectomy	22	10.6y / 45.8kg	0:43

S085

TRANSUMBILICAL LAPAROSCOPIC ASSISTED APPENDECTOMY (TULAA) IN CHILDREN – FIRST EXPERIENCES., Robert Bergholz MD, Thomas Krebs MD, Katharina Wenke MD, Altona Children's Hospital, UKE Medical School, University of Hamburg, Germany

BACKGROUND: Aim of our study was to evaluate, whether transumbilical laparoscopic assisted appendectomy (TULAA) is successful and safe in children with appendicitis.

MATERIAL AND METHODS: From September to October 2008, children with appendicitis were selected for laparoscopy via umbilical incision (10mm port, 0°-videsocope, integrated instrument channel). It was intraoperatively decided whether to proceed with TULAA or change to a three-port approach. In TULAA, after freed from adhesions, the appendix was grasped and pulled through the umbilical incision. Disinflation of the capnoperitoneum allowed exteriorization and ligation of the appendix as in open appendectomy. After reposition of the coecum into the abdominal cavity, the laparoscope was re-introduced to check for any damage. The abdomen was irrigated with Ringer's-solution, drains were put in when necessary and the ileum was inspected for Meckel's diverticulum. Cephalosporines and metronidazole were given for antibiotic prophylaxis.

Patients were evaluated prospectively for age, sex, time to first and full oral intake, operative time, duration of hospital stay and complications.

RESULTS: 44 children with appendicitis were operated on: a cohort of 6 patients (4 female, 2 male) with TULAA. Median operative time was 72 minutes (range 53-93 minutes). There were no intraoperative or postoperative complications and no conversions. Time to first oral intake was one day, and all patients were on full oral feeds on postoperative day 3. Median duration of hospital stay was 5 days (range 4-6 days). The learning curve showed a decrease in operative time. Adaptation to the 0°-videoscope and the partial blocking of the visual field when operating an instrument in the working channel was the most demanding and time consuming part of the procedure. Because only one instrument can be used, inspecting the small intestine to exclude Meckel's diverticulum was nearly impossible, even in extreme Trendelenburg position.

DISCUSSION: TULAA is a safe and successful alternative to three-port laparoscopic appendectomy in children. It wields the advantage of reducing the costs for surgery, because no stapling or endo-loop devices are needed. The postoperative course is similar as expected in traditional three-port or conventional appendectomy. Any additional procedure is harder to perform with only one instrument at hand. Performing larger scale controlled trials should be encouraged.

S086

A HOMEMADE GRASPER FOR "SINGLE CONVENTIONAL PORT" LAPAROSCOPIC APPENDECTOMY: SWING POYLPROPYLENE SUTURE INTRODUCED THROUGH A SINGLE VASCULAR NEEDLE, Feza M Akgur MD, Mustafa Olguner MD, Gulce Hakguder MD, Oguz Ates MD, Department of Pediatric Surgery, Dokuz Eylul University, School of medicine, Izmir, Turkey

Purpose: In "single conventional port" intracorporeal laparoscopic appendectomy (SCP-ILA), the appendix is hung with the aid of a transabdominal SLING suture passed using needle holder and surgical needle. SLING suture replaces the second port and does not cause any scar. To facilitate the transabdominal SLING suture placement we had developed a new technique: transabdominal SWING suture introduced through a single vascular needle.

Materials and methods: During January 2008 - November 2008, 67 patients (38 boys, 29 girls) underwent SCP-ILA. An 11 mm "conventional umbilical port" through which a 10 mm scope (0o) with a parallel eye piece and 6 mm working channel was inserted. The appendix was grasped and dissected from the surrounding tissues. A 16G vascular needle was inserted percutaneously from right lower quadrant into the peritoneal cavity, a folded USP 0 or 1 polypropylene suture was passed through the vascular needle and the needle was withdrawn. Thus a SLING was formed, which we call it a SWING regarding its swinging capabilities. Grasped appendix was placed within this SWING suture and traction was applied on the suture to hang the appendix. Appendix hanging position was changed by releasing the SWING suture and repositioning the appendix as required. After dissection of the mesoappendix with hook cautery, the base of the appendix was ligated. The appendix was extracted together with the trocar.

Results: The patients aged 5-17 years (mean 8.2 ± 3.2). SCP-ILA was performed successfully in all the patients and no complications observed. Transabdominal SWING suture facilitates the introduction of the SLING suture especially in obese patients. It also, with its swinging capability, enables the repositioning the appendix. Previously we used a "non-conventional double lumen 11 mm port" through which 5 mm scope and a 5 mm instrument were passed separately. Usage of a "single conventional port" through which a single 10 mm side wieving scope with a 6 mm working channel is inserted provides easier control ofthe camera movements. Keeping the target in the middle of the view and adjusting zoom in-zoom out positions are easier as the camera moves parallel with the working instrument, surgeon only controls zoom.

Conclusion: In SCP-ILA, LA can be performed without the necessity of a cameraman as surgeon can control the camera movements by him/herself (single surgeon therapeutic laparoscopy through single conventional port). New homemade transabdominal SWING suture facilitates the introduction of the SLING suture especially in obese patients. It also, with its swinging capability, enables the repositioning the appendix as required

2009 Video Abstracts

V001

LAPAROSCOPIC EXCISION OF LARGE HEPATIC CYST, Parissa Tabrizian MD, Adheesh Sabnis MD, Peter Midulla MD, Mount Sinai School of Medicine

We describe a case of a 2 month old, 3kg full term female who was found to have a large intra-abdominal cystic lesion of unknown origin on prenatal ultrasound. The cyst was found to originate from the inferior left lateral segment of the liver and was successfully resected laparoscopically with the use of the Harmonic Scalpel. Hepatic cysts are rare in the pediatric population and their optimum treatment unclear. In a large series of 400 cases, only 12 were reported in children under 2 years of age. They account for 10 % of benign hepatic lesions in children. Congenital liver cysts are benign and result from isolated aberrant biliary ducts. Failure of complete excision of the cyst has been associated with high recurrence rate. This has been attributed to failure in ablating the secreting lining of the cyst wall. Laparoscopic hepatic cyst excision was first described in 1991 by Paterson-Brown and Garden using a Nd-YAG laser. This technique has been well described in the adult population. However, there is a paucity of literature in the treatment of neonatal liver cysts. Our approach consisted of a laparoscopic en bloc resection of the hepatic cyst. We recommend this technique as safe and feasible.

V002

INTRATHORACIC KIDNEY: MIS APPROACH, Mario Riquelme MD, Arturo Aranda MD, Enrique Villarreal MD, San Jose Hospital, ITESM University, Monterrey, Mexico

Introduction: This case is of a 3 year old female, with the past medical history of having recurrent respiratory infections and two hospital admissions for pneumonia. She is evaluated with Chest X rays and an elevation of the right diaphragm is noted. On CT Angio, the right kidney is seen in a very upward position, above the left lobe of the liver, with a very thin displastic diaphragm. The kidney hilum is oriented down and inward. The renal artery is long, and travels diagonally after arising from the abdominal aorta.
Materials and Methods: The patient is selectively intubated. Then, she is positioned in right lateral position. With the right lung down, three trocars, 5mm each, are placed. Gentle insufflation up to 5mmHg is achieved. The diaphragmatic defect is observed, with the kidney occupying the lower and posterior area of the thoracic cavity. We assessed the diaphragm and encountered a very thin, flexible, soft tissue. Then, we proceeded to perform a diaphragmatic placation using Polyester suture 2-0. The needle is straightened in order to facilitate its entrance thru the trocar. So, the plication is started with this stitch and doing intra-corporeal knot tying. Sequential stitches are placed and intermittently we stopped in order to assess the operation and to see how far down the kidney was being pushed down towards an abdominal position. A total of eleven stitches were placed in order to achieve the desired degree of plication. At the end of the operation, clips are placed in some suture knots in order to have an easy follow-up of the repair area on chest X rays.
Results: Patient recovered well and was discharged home in postoperative day three. On follow up she has remained asymptomatic. And, on X rays, the repaired area looks intact.
Conclusion: The use of MIS provides a very good approach to perform diaphragmatic plication, without any downsides.

V003

THORACOSCOPIC PATENT DUCTUS ARTERIOSUS LIGATION IN VERY LOW BIRTH WEIGHT INFANTS UTILIZING A NOVEL RETRACTOR, Jeffrey R Lukish MD, The National Naval Medical Center and Walter Reed Army Medical Center

INTRODUCTION: Patent ductus arteriosus (PDA) ligation is a potentially life saving procedure that is often required in very low birth weight infants (VLBW). Thoracoscopy is an ideal approach. However, thoracoscopic PDA ligation has only been reported in infants greater than 1500 grams, there is no data documenting a technique that could be utilized in VLBW infants. We present a technique utilizing a novel retractor that allows safe PDA ligation in these neonates.
METHODS: This infant is a 740 gram neonate who developed perforated necrotizing enterocolitis 4 days prior to this operation. He was treated with drain placement and is stable. He was not a candidate for medical therapy. He underwent a left thoracoscopic PDA ligation. A thoracostomy tube was not utilized.
RESULTS: This infant recovered uneventfully and post operative echo confirmed ligation of the PDA with no ductal flow. Post operative chest xray did not show a pneumothorax. The operative time of this procedure was 25 minutes.
CONCLUSIONS: Our technique is minimally invasive and provides superior visualization of the patent ductus arteriosus and surrounding anatomic landmarks. Utilizing this novel retractor, thoracoscopic PDA ligation is safe and feasible in even the smallest infants.
The ease and practicality of thoracoscopy utilizing this retractor may facilitate the performance of more advanced thoracoscopic procedures in very low birth weight infants.

V004

LAPAROSCOPIC BILATERAL GONADAL RESECTION AND HERNIOPLASTY IN 46 XY DSD FEMALE RAISED PATIENTS . HOW WE DO IT., M Bailez MD, A Ruesmann MD, Diagnosis and Treatment Argentine Institute . Buenos Aires .Argentina

Diagnosis and Treatment Argentine Institute . Buenos Aires .Argentina
Most of DSD 46xy patients raised as females require early gonadal (usually testicles) resection. Quite a number of these patients have a concomitant inguinal hernia.
Aim : The aim of this video is to show different technical details of a simultaneous laparoscopic treatment.
Surgical Technique : Two patients undergoing this procedure are shown to illustrate our preferred surgical strategies.Their ages were 3 and 6 months old. One had a testicular dysgenesis and the other a CAIS (complete androgen insensitivity syndrome).
A 4 mm 30 degree lens in the umbilicus was used in both.A3mm port for a Maryland dissector was used for the surgeon's left hand and a short 5mm for the left.
.Different instruments were used for devascularization : a 5 mm bipolar sealer in one and a bipolar Robi(a variant that lets you grab the tissue and dissect with a Kelly like tip) We avoid changing instruments optimizing its use in every maneuver: for example when we introduce the Robi we dissect grab and fulgurate all the gonadal vascular supplies in both sides and then change to scissors.
Open processus vaginalis were closed with a laparoscopic suture in 2 different ways: a complete dissection of the peritoneum surrounding the inguinal ring before placing the suture was done in one and a closure stich at the time of gonadal resection in the other .
Both gonads were removed gently through the 5 mm port .

V005

ROBOTIC RESECTION OF A MEDIASTINAL NEUROBLASTOMA, John J Meehan MD, Seattle Children's Hospital

This video is an example of using robotic surgery to resect a solid chest tumor and also an introduction of a new 8.5 mm 3-D camera. A 5 month old boy presented with new onset lower extremity paralysis. Workup revealed a large mass in the right chest that was traversing into the spinal column through a nerve foramina creating spinal cord impingement. The initial size of the tumor was 7.4 x 4.2 x 7.4 cm. Biopsy confirmed a neuroblastoma and he underwent chemotherapy with a reasonable reduction in tumor size. His paralysis also resolved during chemotherapy. The tumor shrunk to a size of 6.2 x 1.8 x 4.9 cm and surgery was planned using robotic technology. The child was now 8 months old and 7.3 kg in weight. A new 8.5 mm 3-D camera was used in this procedure along with two 5 mm robotic ports. Additionally, one 5 mm handheld accessory port was needed for suctioning and assisting in retraction. The video will demonstrate the highlights of the case including positioning of the robot and trocar placement. No difficulties were noted with this new 3-D camera and the visualization was excellent. The tumor was resected en bloc and a chest tube was left in place. A small chylous leak was noted during feeding which delayed his discharge but this resolved after about 48 hours. He went home on post-op day number 4.
Summary: Robotic technology affords excellent mobility for resecting solid mediastinal tumors even in small children. The addition of the 8.5 mm 3-D camera improves visualization and is a reasonable sized camera for thoracic procedures even in the small chest of an infant.

2009 Video Abstracts

V006

SINGLE SITE LAPAROSCOPIC SPLENECTOMY IN A CHILD, Todd A Ponsky MD, Scott Boulanger MD, Rainbow Babies and Children's Hospital, Case Western Reserve University

Background: Laparoscopic splenectomy was described in 1993 by Tulman et al. This has become the preferred technique for spleen removal as it leads to less pain, better cosmetic outcome, and shorter hospital stay than the open approach. Here we describe a single-site laparoscopic splenectomy in a child.
Case: This patient is a 12 year old male with idiopathic thrombocytopenic pupura (ITP) that has been refractory to 6 months of aggressive medical therapy. The decision was made to perform a laparoscopic splenectomy through a single incision in the umbilicus. One umbilical skin incision was created through which two 5mm and 1 12mm ports were placed through the fascia. The splenectomy was performed using flexible, reticulating instruments. At the completion of the case the three incisions were connected to create one 15mm fascial incision. There was minimal blood loss and no intra-operative or post-operative complications. The patient is doing well with no visible scar 1 months post-operatively.
Conclusion: Single Site Splenectomy is feasible. A larger series will be necessary to assess safety, pain reduction, and cost-efficiency.

V007

MODIFIED SINGLE PORT CHOLECYSTECTOMY IN A CHILD, Steven S Rothenberg MD, The Rocky Mountain Hospital For Children

Purpose: There is a great deal of interest in NOTES and Single Port Access surgery in adult MIS, however the applications in the pediatric population are still unclear. This video represents one of our initial attempts at a modified SPA procedure in a child.
Methods: A 9 year old male with a 4 month history of RUQ abdominal pain and a work-up consistant with biliary dyskenesia underwent laparoscopic cholecystectomy. The patient weighed 34 Kg. The procedure was performed using a special modified 8mm operating laparoscope with a built in 4mm 6 degree telescope and a 4mm operating channel. A second 3mm port was placed in the epigastrium for a second operating 3mm instrument.
Results: The procedure was completed successfully laparoscopically without complication. Operative time was 38 minutes. The patients was discharged the following morning on Ibuprofen for pain, on a regular diet, and with no activity restrictions.
Conclusion: This procedure demonstrates that a more limited access laparoscopic cholecystectomy is safe and viable in children. While this is not a true single port procedure we feel it may be more acceptable and beneficial then creating a 15 or 20mm umbilical incision which in a child can result in significant pain and perhaps more cosmetic abnormality then a single 3mm epigastric port.

V008

LAPAROSCOPIC REPAIR OF TRAUMATIC ABDOMINAL WALL HERNIA FROM HANDLEBAR INJURY, Erin E Rowell MD, Anthony C Chin MD, Children's Memorial Hospital

INTRODUCTION: A 14 year old boy presents after flipping and falling over the handle bar of his bicycle. He was seen at an outside hospital and discharged home. He was subsequently seen in our emergency room with persistent complaints of pain. A CT scan revealed disruption of the muscles of the upper right abdominal wall containing the hepatic flexure with a small amount of intraperitoneal free fluid. The patient was prepared for a diagnostic laparoscopy for repair of a traumatic abdominal wall hernia and possible hollow viscus injury.
METHODS: The procedure was approached with a laparoscopic technique using 3 ports (2-5mm and 1-12mm) and 2 separate stab incisions. The traumatic hernia was repaired utilizing interrupted sutures placed with an ENDO CLOSE- (Covidien, Mansfield, MA) trocar site closure device. The mesenteric defect in the colon was repaired with intracorporeal sutures.
RESULTS: The patient recovered well and was discharged home. He had complete resolution of his symptoms. Follow-up revealed no abdominal wall defect and resolution of his symptoms.
CONCLUSION(S): Laparoscopic repair of a traumatic abdominal wall defect and exploratory laparoscopy following trauma is feasible and safe in the pediatric patient. It should be considered as an alternative approach to an exploratory laparotomy for trauma injuries in a stable patient with potentially less morbidity.

V009

THORACOSCOPIC REPAIR OF AN H-TYPE TEF IN AN YEAR OLD FEMALE, Steven S Rothenberg BA,Kristen Shipman BA, The Rocky Mountain Hospital for Children

Purpose: To show and describe the technique of thoracoscopic repair of an H-type fistula.
Methods: An 8 year old female with a long history of recurrent respiratory infections and reactiove airway disease was found to have an H-type fistla on Barium swallow, and was confirmed by bronchoscopy. The patient then underwent thoracoscopic ligation and division of the H-type TEF. The procedure was performed through 3 -5mm ports.,
Results: The procedure took 85 minutes. There were no intra or post-operative complications. No chest tube was left in.A contrast swallow on post-op day 1showed to leak and oral feedswere resumed. The patient was discharged on post-op day number 2.
Conclusion: This video demonstrates thet thoracoscopic repair of an H_type fistula is a safe and effective technique. The thoracoscopic approach offers excellent visualization, allows for precise dissection, and avoids the morbidity of a large neck incision.

V010

EXTRAPERITONEAL SPLENOPEXY FOR WANDERING SPLEEN, Earl C Downey BA, University of Utah Department of Surgery, Division of Pediatric Surgery

Wandering spleen prediposes to torsion and ischemia and can be symptomatic. Splenopexy prevents torsion. A technique utilizing laparoscopy is presented that illustrates a simple and effective method for splenopexy using placement of the spleen in an extraperitoneal position.

V011

LAPAROSCOPIC TREATMENT OF A RECTOVAGINAL FISTULA. FEASIBILITY ANDTECHNICAL DETAILS OF A RARE ANORECTAL MALFORMATION.(ARM), M Bailez MD, E Paz MD, V Dibenedetto MD, Pediatric Surgery Garrahan Children's Hospital. Buenos Aires .Argentina

Introduction: We have previously presented our experience with the laparoscopic treatment of selected ARM like bladder neck and prostatic fistulas in males and high rectocloacal fistulas in females. Encouraged by its excellent visualization of pelvic structures and magnification and our functional results we decided to use it in the reconstruction of 2 females with a very unusual ARM (a rectovaginal fistula)
The aim of this video is show the feasibility and technical details of this procedure.
Surgical Technique: Patients were .A 4mm 30 degrees 20 cn lens was inserted in the umbilicus using the transumbilical approach . Two working ports were used :1 left 3mm one inserted at the medial edge of the colostomy and 1 5 mm one at the right lower quadrant .A transparietal stich was used to suspend the uterus to the anterior abdominal wall.The fistula was dissected and visualized clearly , sutured with 5/0 absorvable suture and divided in its vaginal ending. An external and laparoscopic muscle stimulators were used to localize the anal site and the pelvic floor muscles. A 1cm vertical incision was made and proximal dissection under laparoscopic vission achieved. A low profile Step Verres needle with radially expanding sheat was placed into the perineal wound and passed through under laparoscopic vission and a blunt trocar replaced the needle into the sheat. The rectum was grasped and gently guided down while distending its descent channell.It was sutured to the surrounding muscles as in the open procedure and anoplasty done in the usual way using 5 /0 sutures.

V012

LAPAROSCOPIC REPAIR OF A HIGH UROGENITAL SINUS AND DUPLEX VAGINA, Joerg Fuchs MD, Guido Seitz MD, Monika Schroeder MD, Juergen F Schaefer MD, Steven W Warmann MD, University Childrens Hospital, Dpt of Pediatric Surgery, Tuebingen, Germany

Introduction The association of high urogenital sinus and duplex vagina is a rare and complex variant of urogenital malformations. By now the total urogenital mobilisation and the Pena procedure have been proposed as approach for surgical correction. Here we present the minimally invasive vaginal pullthrough for correction of this condition.

Patient and Methods: The girl suffered from hydrometrocolpos immediately after birth. Diagnostic workup revealed a duplex vagina opening with a single orifice into the proximal dorsal urethra at the level of the bladder neck. The dilated vagina caused bilateral ureteral compression. The initial management consisted of vaginal drainage. At three months of age the surgical correction was performed. The presented video highlights the initial cystoscopy as well as the definite operative procedure.
Results: We performed a laparoscopy in which the uterus and vagina were separated from the posterior bladder and bladder neck. The fistula to the urethra was transsected and the urethra was sutured with interrupted stiches. An expandable trocar was introduced from the vestibulum into the pelvis and the vagina was pulled through. The vaginal septum was resected externally before the anastomosis between vagina and vestibulum was realised. The postoperative course was uneventful, a urethral stenosis was excluded by voiding urethrography.
Conclusions: Laparoscopic vaginal pullthrough, for high urogenital sinus may serve as an alternative approach in selected cases. In the presented patient the combination with vaginal duplication did not cause further complications in the course of the patient. The presented approach has never been described before in this malformation.

V013

LAPAROSCOPIC REMOVAL OF A GASTRIC TRICHOBEZOAR IN A PEDIATRIC PATIENT, Charles M Leys MD, Jason D Fraser MD, Shawn D St. Peter MD, The Children's Mercy Hospital, Kansas City, MO

Trichobezoars from the ingestion of hair typically develop into a large spherical foreign body within the stomach. Due to the frequently large size, endoscopic removal is usually not feasible beyond diagnosis. Likewise, the size often has forced surgeons to remove these trichobezoars via laparotomy. Laparoscopic removal of gastric trichobezoars has been reported, but the concern with this technique is complete removal of the large bezoar without spillage of hairs in the peritoneal cavity may be difficult. As such, most of the reports are laparoscopic-assisted but still utilize an extended incision to facilitate direct removal from the peritoneal cavity. In this video, we demonstrate complete laparoscopic removal of a giant trichobezoar in a 10 year old child without spillage, using piecemeal removal through the umbilical incision without extending the incisions.

V014

LAPAROSCOPIC CHOLECYSTECTOMY AND CONCOMITANT SPLENECTOMY - FOUR WORKING PORTS AND A 5 MM BIPOLAR SEALER., M Bailez MD, A Ruesmann MD, N Tamburri MD, Diagnosis and Treatment Argentine Institute . Buenos Aires . Argentina

Aim: To show how to enhance the use of ports to acomplish 2 different procedures in a single patient.To describe the technical details of the splenectomy completely done with a 5 mm bipolar sealer.
Case:9 years old girl refered for an elective splenectomy and cholecystectomy due to hereditary spherocytosis and gallbladder stones.
Surgical technique: We use the standard setting for a laparoscopic splenectomy adding only 1 on the rigth side for the gallbladder fundus : a 10mm umbilical port for the lens, 2 5mm ones in the supraumbilical mid line and 1 in each side, lateral to the umbilicus. Gallbladder hilium is exposed by holding the fundus towards the diafragm needing some workup with the 30 degrees lens to adapt the different work angle of the surgeon´s left hand. The surgeon´s rigth and left hands are placed in the supraumbilical ports. Cystic artery is dissected and sealed with the bipolar device. A Roeder knot is placed in the proximal end of the cystic duct while a transient seal is applied to the distal one .
Cholecystectomy is completed with monopolar hook using the Valleylab mode of the energy platform.The surgeon uses the supraumbilical lower port for his left hand and the left lateral port for his rigth hand to complete the splenectomy .The assistant uses the top supraumbilical one to place the suction probe to elevate the spleen.Disection and sealing of vessels using both hands starts in the lower pole and continues with the gastric vessels, leaving the splenic hilium for the final part. Surgeon uses only 2 instruments, a Maryland type one and the bipolar sealer, in either hand during all the procedure. An accesory spleen is resected.Principal splenic arteries and veins are carfully dissected and separately sealed.The final posterior attachments are freed and the spleen is placed in an endo bag and exteriorized through the umbilicus .

V015

LAPAROSCOPIC DISMEMBERED PYELOPLASTY AND REPAIR OF AN INFUNDIBULO-PELVIC STENOSIS IN A HORSESHOE KIDNEY, Florian Obermayr MD, Philipp O Szavay MD, Joerg Fuchs MD, Department of Pediatric Surgery, Children's Hospital, University of Tuebingen

Introduction: Laparoscopic dismembered pyeloplasty for ureteropelvic junction (UPJ) obstruction is considered to be a routine procedure in many pediatric centers. UPJ obstruction is known to be associated with horseshoe-kidney and several reports on successful laparoscopic repair in such cases exist.
Case description: The case of a 9 month old girl with Turner´s syndrome is reported. A horseshoe kidney with grade IV hydronephrosis on the left side was diagnosed by ultrasound, in the neonatal period. MAG3-diuretic renography and dynamic MRI-nephrography showed a differential renal function of 31% and 69% on the left and right side respectively. No drainage from the left renal pelvis could be demonstrated.
Result: Laparoscopy showed a combined UPJ obstruction and an infundubulo-pelvic stenosis with massive dilatation of the upper pole calices on the left side of the horseshoe-kidney. Laparoscopic dismembered pyeloplasty and additional infundibulo-pelvic anastomosis was performed. No intraoperative complications occurred. The immediate postoperative course was uneventful. Unobstructed drainage and an improved differential renal function on the left side (38%) could be demonstrated on MAG3 diuretic renography 6 weeks postoperatively.
Conclusion: In conclusion, laparoscopic repair of complex malformations of the upper urinary tract such as a combined UPJ obstruction and an infundubulo-pelvic stenosis in a horseshoe-kidney is feasible and leads to good functional outcome in selected cases.

V016

LAPAROSCOPIC INGUINAL HERNIA INVERSION AND LIGATION IN FEMALE CHILDREN, Aaron M Lipskar MD, Samuel Z Soffer MD, Richard D Glick MD, Nelson G Rosen MD, Stephen E Dolgin MD, Andrew R Hong MD, Schneider Children's Hospital, North Shore-Long Island Jewish Health System

Inguinal herniorrhaphy is the most commonly performed operation in the pediatric population. Traditionally, these operations are performed via a groin incision and a high ligation of the hernia sac. A laparoscopic approach to pediatric female inguinal hernias has been described involving hernia inversion and ligation. We present a video describing the instrument placement and the detailed steps of this relatively straightforward procedure. The operation is performed with only one trocar, placed at the umbilicus in order to allow for a 5mm, 30-degree telescope. Two additional 3mm incisions are made in the flanks at the level of the umbilicus. The pelvis is first inspected carefully in order to delineate the anatomy and define the pathology. Using 3mm graspers, the hernia sac is inverted and the round ligament is bluntly freed from its attachments to the labia. The hernia sac is then ligated using 0-PDS pre-tied loops and resected. We have performed 135 laparoscopic inguinal hernia inversion and ligations in female children ranging from 1 month to 18 years of age in the past 5 years. We have had no peri-operative complications or conversions to open. We have had 1 recurrence in our series that occurred in our first case when we did not resect the hernia sac. We subsequently routinely resect the sac and consider this to be critical in preventing recurrence. An additional benefit of the laparoscopic approach is the ability to diagnose and treat bilateral disease. We believe that a laparoscopic technique involving inversion and ligation of the hernia sac is safe and effective in the pediatric female population.

2009 Poster Abstracts

P001

THORACOCSOPIC AND LAPAROSCOPIC PLACEMENT OF A PLEURO-PERITONEAL SHUNT IN A PATIENT WITH CONGENITAL LYMPHEDEMA AND A SYMPTOMATIC PLEURAL EFFUSION, Joanne E Baerg MD, Harry Ou MD, Loma Linda University Children's Hospital

INTRODUCTION: We present a case of endoscopy-guided placement of a pleuro-peritoneal shunt in a patient with congenital lymphedema, multiple abdominal lymphoceles, an episode of spontaneous bacterial peritonitis and recurring symptomatic pleural effusions.
CASE: A fifteen year old boy with congenital lympedema, had undergone multiple thoracenteses and chest tubes for a left pleural effusion. An incision was made in the posterior axillary line at the sixth intercostal space. The pleural portion of the shunt was placed in good position guided by the five millimeter, thirty-degree camera. The shunt and pump chamber were tunneled under the skin. A 5mm incision was made in the left upper quadrant, a purse string suture was placed in the posterior rectus sheath and the 5mm port was inserted into the abdomen under direct vision.
Pneumoperitoneum was obtained to a pressure of 13 mm Hg and the camera was inserted. A frozen abdomen, with significant adhesions, was identified. With laparoscopic guidance, an area was dissected in which to place the shunt. Immediate good shunt function was observed.
DISCUSSION: This previously unreported use of endoscopy to successfully place a pleuro-peritoneal shunt, allowed a patient to be discharged from hospital free of oxygen and external tubes. Information was obtained about the patient's abdomen which will guide future therapy.

P002

NEPHRECTOMY IN CHILDREN: WHAT'S THE ROLE?, G. Mattioli,S. Costanzo,P. Buffa,G.M. Ghiggeri,V. Jasonni, Dept of Surgery, Urology and Nephrology - G.Gaslini Institute - University of Genova, Italy.

Background and aim of the study. Indications for nephrectomy in children are not well established and a lot has changed. The aim of our study is to critically analyze the indications and the surgical strategies for children who underwent nephrectomy and to discuss about the role of endoscopic approach.
Patients and methods. Data about demographics, diagnosis, technical details and hystopathological analysis of patients who underwent nephrectomy in the period 2003-2008 were reviewed.
Results. A total of 76 patients, 42 males and 34 females, underwent a nephrectomy or heminephrectomy in the period of study. The mean age was 4.12 years (11 days - 23 years). 70 nephrectomies and 6 heminephrectomies were performed. Endoscopic approach was contraindicated in case of cancer. Postoperative surgical specimens showed: 23 renal hypodisplasias (hydronephrotic/pyelonephritis), 22 Wilms' tumours, 10 multicistic displastic kidneys (no cases with neoplastic degeneration), 8 neuroblastic tumours, 7 duplex systems, 2 cystic nephromas, 1 high grade malignant lymphoma, 1 congenital mesoblastic nephroma, 1 renal carcinoma, 1 post-traumatic kidney. No major surgical-related complications occurred.
Discussion. The main indication for nephrectomy in children is cancer. Renal hypodisplasia, particularly when symptomatic (abdominal pain, hypertension, UTI), is another indication, but there are no clear guidelines in literature about it. MCDK is not recognized as a real indication for nephrectomy, according to recent studies. More studies are advocated to better define this topic.
References. Cambio AJ, Evans CP, Kurzrock EA. Non-surgical management of multicystic dysplastic kidney. BJU Int. 2008 Apr;101(7):804-8

P003

THE RESPIRATORY ADVANTAGES OF LAPAROSCOPIC FUNDOPLICATION WITH NEUROLOGICALLY IMPAIRED CHILDREN AND NORMAL CHILDREN, Makoto Komura MD, Tadashi Iwanaka MD, Yoshihiro Kitano MD, Hiroo Uchida MD, Hiroshi Kawashima MD, Tetuya Ishimaru,Yujirou Tanaka MD, Teturou Kodaka MD, Masahiko Sugiyama MD, Yutaka Kanamori MD, Kaori Satou MD, Mariko Yoshida MD, Department of Pediatric Surgery, Graduate School of Medicine, University of Tokyo

Laparoscopic fundoplication (LF) is replacing the open approach in the treatment of children with gastroesphageal reflux. LF has become the standard of care for the management of symptomatic gastroesophageal reflux disease (GERD). The postoperative respiratory advantages seem obvious but unclear. We hypothesized that LF provides postoperative respiratory advantages in neurologically impaired children and normal children.
One-hundred twenty-seven LFs were performed between June 1997 and October 2008 at Saitama Children's Medical Center, Saitama, and University of Tokyo Hospital, Tokyo, in Japan. The charts of all LFs from 1997 were reviewed. Median age of the patients was 13 years old.?@There were 103 (81%) neurologically impaired children and 24 (19%) neurologically normal with GERD. These patients were treated by a LF and followed up for a median of 8.6 years postoperatively. Conversion to open surgery was necessary in two patients, and these cases were excluded from this study. Clinical data regarding age at surgery, presence of neurological handicap, period of neurologically impaired condition, swallowing disturbance, feeding style, scoliosis, preoperative tracheostomy and/or laryngotracheal diversion, symptoms related to reflux (digestive or respiratory, including recurrent lung infections and reactive airway diseases), concomitant surgical procedures, complications, and results were retrospectively collected. Also necessity of postoperative tracheostomy and/or laryngotracheal diversion was discussed.
LF was safe procedure with acceptable complication indices. Ultimately control of typical gastroesophageal reflux symptoms was achieved. Overall the respiratory symptoms were improved in the majority of patients without swallowing disturbance. LF combined with tracheostomy or laryngotracheal diversion was beneficial for neurologically impaired children with swallowing disturbance.

P004

LAPAROSCOPIC APPROACH OF THE INGUINAL HERNIA IN CHILDREN: RESECTION WITHOUT LIGATION, Carlos Garcia Hernandez MD, Lourdes Carvajal Figueroa MD, Juan Carlos Dueñas Ramirez, Hospital Infantil Privado

Background: The laparoscopic treatment of the inguinal hernias in children has many advantages; however its use has been limited due a high recurrence rate. Until now all the procedures include the ligature of the hernia sac, however the physiopathology of the inguinal hernia in children it is just the persistence of the peritoneum vaginal processes and it is not an aponeurotic defect; therefore it can be treated just with the resection of the hernia sac.
Material and methods: By performing a transperitoneal approach of three ports with 3mm instrumental, the peritoneum vaginal process can be localized. The process on male subjects differs from the process in female subjects, as the process in males consists in a dissection of the spermatic way and it afterwards a total resection is performed. In the case of the female subjects the only resection occurs in the hernia sac, creating a denudated area of peritoneum that unites together after removing the neumoperitoneum.
Results: In the period that goes from January 2006 to September 2008, a number of 115 patients were treated, with ages that varied from 1 month to 14 years. In this period a number of 152 resections of the hernia sac were performed. After a period of 2 years of observation just one case of recurrence has occurred. No elements of the spermatic cord were damaged.
Conclusion: The resection of the sac It is a different way to resolve the inguinal hernia in children, without the use of sutures according to the physiopathology of this disease in children. The resection of the hernia sac is an easy technique that allows taking advantage of the minimal invasion in the treatment of the inguinal hernia on children, with very low rate of recurrence

P005

LAPAROSCOPIC INTUSSUSCEPTION REDUCTION: A MULTI CENTRE STUDY, N C Featherstone MD, H Dixon,J Dearden,N Rahman MD, K W Chan MD, K H Lee MD, P Tam MD, J I Curry MD, M Haddad MD, S A Clarke MD, Paediatric Surgery, Chelsea & Westminster Hospital, London; Paediatric Surgery, Prince of Wales Hospital, Hong Kong; Great Ormond Street, London

Background: Intussusception is a common paediatric surgery emergency. Several centres have reported success with the laparoscopic approach. We present the findings from a multi centre study.
Methods: A retrospective case note review of all intussuceptions presented to three surgical centres was carried out over a 10 year period. The method of reduction, success rates, recurrence and length of stay were analysed.
Results: Of 532 intussusceptions there were 112 operative reductions. 23 / 31 (74%). underwent a successful laparoscopic reduction. Failure was directly related to need for resection. Length of stay was significantly shorter (P = 0.02) for those undergoing

laparoscopy (median 5 days: range 3-10) compared to open surgery (median 7 days range 5-28).
Conclusion: Laparoscopic reduction can be successfully used as the first line treatment for patients who require operative intervention. It is safe and results in a significantly shorter hospital stay.

P006

MICROLAPAROSCOPIC INGUINAL HERNIA REPAIR IN CHILDREN AND INFANTS – OUR EXPERIENCES IN 180 CASES, Salmai Turial MD, Ruth Freudenberger,Kathrin Krause,Barbara Goldinger,Veronika Engel,Felix Schier MD, Medical University Centre, department of pediatric surgery, Mainz, Germany

Purpose: The aim of this prospective feasibility study was to determine the value and safety of the microlaparoscopy for inguinal hernia repair in children. We also report the preliminary results of a recently developed 2.4 mm prototype scope, specifically developed for the present study.
Methods and Patients: This study included 180 consecutive children (129 boys and 51 girls, ages ranged from one day to 15 (average 2.8) years) undergoing microlaparoscopy (the exclusive use of 2 mm instrument sets and small diameter scopes (1.7 mm to 1.9 mm in diameter)) for inguinal hernia repair. All data related to patients and procedures were prospectively collected. The technical observations concerning the scopes and light lines were noted in the operating theatre and all procedures were documented by video recording.
Results: A total of 256 inguinal hernia sacs were closed (104 unilateral, 76 bilateral, 5 recurrences from previous open herniotomy or conventional laparoscopic herniorrhaphy). The operative time ranged form 7 to 15 min. (average 11 min.) for the unilateral hernias and from 12 to 20 min. (average 15 min) for the bilateral hernias respectively. No complications occurred due to the exclusive use of 2 mm instruments and small diameter scopes. All microlaparoscopy procedures were performed successfully. There were no intraoperative or late postoperative complications noted (follow up 32 to 3 (median 13.5) months). In the final 44 cases, we used a recently developed 2.4 mm prototype scope. The 1.7 to 1.9 mm scopes provide less indirect depth perception. The new 2.4 mm scope provides very good results in all technical parameters, and the image quality is nearly identical to the 5 mm scopes. The reason for the poor light quality of small diameter scopes was not the scope itself in 60% of the cases, but an insufficient light line. Its seems that defects of old and overused light lines are hardly noticeable with 5 mm scopes, but that they make a big difference when using small diameter scopes.
Conclusion: Based on our preliminary results, the microlaparoscopic hernia repair in children is feasible, safe and effective.

P007

LAPAROSCOPIC REMOVAL OF INTRAPERITONEAL FOREIGN BODIES, Burak Tander MD, Unal Bicakci MD, Riza Rizalar MD, Ender Ariturk MD, Ferit Bernay MD, Ondokuz Mayis University, Department of Pediatric Surgery, Samsun, 55139 Turkey

Aim: We report two children with intraabdominal foreign bodies treated laparoscopically.
Case1: 7 year old boy was admitted with a history of foreign body ingestion. The repeated abdominal X-rays showed the ingested metalic jewel persisting at the right lower quadrant. The abdominal CT indicated the foreign body within the appendiceal lumen. The patient underwent a laparoscopic appendicectomy using 5 mm telescope and instruments. The foreign body was found within the appendiceal lumen.
Case 2: 2 ½ years old girl was admitted with a history of bilateral pelvic osteotomy by Kirschner wire due to the developmental dysplasia of the hip. Abdominal X-ray indicated the right Kirschner wire was migrated into the peritoneum. The patient underwent a laparoscopic exploration of the peritoneum using 5 mm telescope and instruments. The Kirschner wire was found within the abdomen on the right side covered by the omentum. It has been removed laparoscopically and no injury to the abdominal organs was noted.
Conclusion: Laparoscopy is an effective and safe method for the diagnosis and treatment of the intraabdominal foreign bodies both ingested and migrated.

P008

LAPAROSCOPIC RETRIEVAL OF INTESTINAL FOREIGN BODIES, Suzanne M Yoder MD, Saundra M Kay MD, Steven S Rothenberg MD, Rocky Mountain Hospital for Children

Background/Purpose: Ingested foreign bodies are a common problem in the pediatric population. Though most pass uneventfully, occasionally a complication, such as obstruction or enteric fistula, may result due to properties of the ingested object. Laparoscopy, often in combination with fluoroscopy, can be used to treat those foreign bodies that have failed to pass and their resultant complications.
Methods: A retrospective review was conducted of all patients treated for retained foreign body from February 2007 to February 2008. Patient data, preoperative evaluation, operative techniques and post-operative course were analyzed.
Results: There were 4 patients with a mean age of 5.56 years (range 9m-17y) and mean weight of 20.7 kg. The retained intestinal foreign bodies included an endoscopy capsule, magnets, batteries, and a screw. One patient had known Crohn's disease. Two patients had witnessed ingestions of foreign bodies. Three of the patients presented with signs and symptoms of at partial bowel obstruction. All patients had preoperative imaging that revealed the foreign body.
Flouroscopy was used to help localize the foreign body in 3 out of 4 patients. One patient underwent attempted colonoscopic removal of the foreign body prior to proceeding to laparoscopy. One patient required only a simple appendectomy to treat the retained foreign body. Two patients underwent laparoscopic bowel resection and re-anastomosis. Two patients had enteric fistulas related to magnet ingestion. Mean operative time was 72.5 minutes. There were no conversions in this series.
Average time to full feeds was 3.5 days with one patient being discharged 6 hours after their procedure.
Conclusion: A laparoscopic approach to retained intestinal foreign bodies is a safe and effective way treat obstructions and fistulas caused by these foreign bodies. Flouroscopy is a helpful adjunct to this approach and though never a substitute for running the bowel, allows for quick confirmation and localization of the problem.

P009

NOVEL TECHNIQUE FOR MANAGEMENT OF ESOPHAGEAL STRICTURES: USE OF UROLOGIC DILATORS, DOUBLE-J STENTS AND A SAFE ANTEROGRADE MITOMYCIN-C DELIVERY SYSTEM, Gustavo A Villalona MD, Mohammad Sarhan MD, Rajinder P Gandhi MD, Department of Pediatric Surgery, Harlem Hospital Center, College of Physicians and Surgeons, Columbia University, New York

Background: Current management of esophageal strictures using multiple dilations is the standard of care for symptomatic relief and cure. Diverse arrays of techniques have been developed with similar success rates. In this study we suggest the use of urologic dilators as a safe, alternative method for management of esophageal strictures. We also present a novel technique for safe anterograde Mitomycin-C delivery.
Case Report: Patient with a history of a severe, recurrent esophageal stricture secondary to tracheo-esophageal fistula repair, treated using Amplatz urologic dilators and double-J stent as a mechanical temporizer for an esophageal stricture at risk for complete re-stenosis. An anterograde Mytomicin-C delivery system was also employed successfully.
Technique description: Under general anesthesia a flexible endoscope was passed into the proximal esophagus to visualize the stricture. A glide wire was passed through the stricture and its placement was confirmed by fluoroscopy. The endoscope was then removed and a series of urologic dilators sizing from 12Fr to 32Fr, were passed through the stricture under fluoroscopic vision. Following this, Mitomycin-C soaked neuro-sponges were passed through an endo-esophageal tube utilizing an endoscopic snare into the upper esophagus under direct visualization. This tube was then retracted exposing the stricture to Mitomycin-C. Finally a double-J stent was left in place for further dilation sessions and to prevent complete stenosis.
Discussion: Urologic dilators are a novel and simple technique for the treatment of esophageal strictures. This patient has had over 75 dilation procedures using this technique with no complications. Initially, steroid injections were used, however Mitomycin-C was recently introduced due to its known anti-fibrotic properties.

P010

THE LAPAROSCOPIC TREATMENT OF HYDATID CYSTS IN CHILDREN, Martin L van Niekerk MD, Heine van der Walt MD, University of Pretoria, South Africa

Introduction: Hydatid cyst is a parasitic disease caused by the tapeworm Echinococcus granulosis and Echinococcus alveolaris. In pediatric patients hydatid cysts are mainly found in the lungs and in the liver. Although medical therapies and percutaneous drainage have been suggested for the treatment of these cysts, surgery is still the best therapy. Laparoscopic treatment of hydatid cysts in children remains controversial, mainly because of the lack of large series in the literature. We report on five patients with hydatid cyst of the liver, which we treated laparoscopically.
Patients and method: Five children between the ages of 4 and 17 years presented each with a hydatid liver cyst. The size of the cysts ranged from 4 cm to 8 cm. All patients had chest X-rays, abdominal sonography and hydatid serology before operation. A three-port technique was used. The area around the cyst was packed with H2O2 swabs. The cyst was punctured with a thick endoscopic ovarian cyst needle, and as much as possible of the content was aspirated. H2O2 was injected into the cyst. The dome of the cyst was removed and suction debridement of the cyst was done. The cavity was rinsed with H2O2. No complications were observed during or after the operation of any of the patients. Average operation time was 55 minutes and average hospital stay two days.
Conclusion: Laparoscopy provides an excellent approach in the treatment of hydatid cysts of the liver, and results in excellent cosmesis, short operative time and rapid recovery.

P011

THE LAPAROSCOPIC INSERTION OF A BUTTON COLOSTOMY AS A VENTING STOMA ENHANCES THE NUTRITIONAL STATUS OF CHILDREN WITH AFRICAN DEGENERATIVE LEIOMYOPATHY., Colin Lazarus,Trollip Leigh,Milind Chitnis,Mie Elsen,Itayi Simango, Eastern Cape Paediatric Surgical Service, East London, South Africa.

BACKGROUND: African Degenerative Leiomyopathy, an uncommon condition primarily affecting the colon and rectum of children of Southern, Eastern and Central Africa, manifests as gross gaseous abdominal distension, an inability to evacuate flatus and faeces, anorexia and malnutrition with death in adolescence or early adult life. Surgical intervention has previously been recommended only in the management of complications such as colonic volvulus.
PATIENTS AND METHODS: We have placed a MIC-KEY skin level device (button) laparoscopically as a colostomy in six children with this disease. A size 8 feeding tube passed through the button is used many times each day to deflate the colon or to instill antegrade enemas to evacuate stool.
Qualitative nutritional scores (appetite, food intake, pain, nausea, vomiting or diarrhoea) and quantitative measurements (triceps and subscapular skin fold thicknesses and mid arm circumference measurement) determined at the time of the surgery has been compared to the status 4-18 months (mean 13.3 months) after the insertion of the button.
RESULTS: All patients have demonstrated an improvement in both quantitative and qualitative scores. Qualitative scores improved from a mean of 12/25 to a mean of 18/25. Increases in the mid arm circumference and triceps and subscapular skin fold measurements were demonstrated in all patients.
CONCLUSION: The nutritional status of children with African Degenerative Leiomyopathy has been improved following the laparoscopic insertion of a button colostomy as a venting stoma. The quality of life of the six patients has enhanced with this intervention.

P012

LAPAROSCOPIC CORRECTION FOR HIGH ANORECTAL MALFORMATIONS., Miguel Guelfand MD, Pedro-Jose Lopez MD, Marcela Santos MD, Andrea Poblete MD, Hospital Exequiel G. Cortes - Santiago - CHILE

High Anorectal malformations are known for the difficulty that have to achive the site of the rectal fistula (Bladder, Prostatic urethra). Sometimes requiring a sagital and an abdominal approach at the same time. Laparoscopic correction of this type of malformation allows less dissection, mobilization and a fantastic view and control of the fistula.
We present 3 cases of males with high anorectal malformations (Rectal-prostatic urethra fistula) that were corrected with a 3 trocar laparoscopic technique. All of them were managed at newborn with a colostomy and correction of the malformation in the first 3 months of life. Two patients were fully corrected laparoscopiclly and one had a sagital approach due to the anatomy of the malformation. In this case the laparoscopic mobilization and dissection of the fistula helped in the good outcome. All of the patients were corrected with no further problems.
Laparoscopic correction of high anorectal malformations is a safe an effective technique, even in patients that needs sagital approach.

P013

MODIFIED LAPAROSCOPIC HILL GASTROPEXY A PHYSIOLOGIC ALTERNATIVE TO NISSEN PROCEDURE IN PEDIATRIC AGE, Salvatore Fabio Chiarenza MD, Maria Grazia Scarpa MD, Lorenzo Costa MD, Barbara Romanato MD, Luciano Musi MD, DEPT PEDIATRIC SURGERY S. BORTOLO HOSPITAL VICENZA ITALY

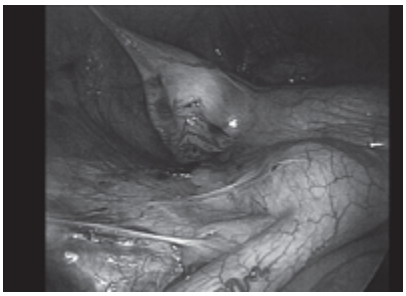
INTRODUCTION: the open Hill repair for gastroesophageal reflux disease (GERD) is an established and effective antireflux procedure since '60 (Hill, Ann Surg; 1967) in general surgery. This technique was modified and performed laparoscopically by Snow in 1990. In this paper we report on our preliminary experience on 24 pediatric patients who underwent laparoscopic Hill-Snow repair.
AIMS: the aims are: 1) to restore normal anatomical and physiological antireflux mechanism at the gastro- esophageal junction; 2) not to alter the normal cardial anatomy;3) to evaluate the feasibility of laparoscopic Hill technique in pediatric age;4) to minimize, especially in neurologically normal patients, sympthoms related to other traditional procedures such as fundoplicatio (Nissen, Toupet, etc).
METHODS: we performed modified laparoscopic Hill repair in 24 pediatric patients (5 months to 10 years, average and median 3 yrs) requiring antireflux surgery for severe gastroesophageal reflux, associated with hiatal hernia. All patients underwent laparoscopic procedure with :1) freeing of the abdominal esophagus; 2) retroesophageal cruroplasty;3) posterior esophagocardiopexy down to the origin of the crura; 4) re-creation of the angle of His. Operative time ranged from 95 to 195 min. No mortality or serious intraoperative or postoperative complications have occurred. Discharge was usually at the 4th p.o. day. Patients re-starter to eat solids after 2 weeks, only two patients complained of a mild dysphagia that lasted 15 and 25 days respectively.
RESULTS: duration of follow up ranges from 1 to 26 months. All patients had an gastroesophageal contrast study 6 months after operation, while 4 patients underwent esophagogastroscopy 1 years after the procedure. One had recurrence of reflux (cerebral palsy). At the moment 2 patients have gastrointestinal symptoms, 3 patients have dysphagia, none of them have gas bloat syndrome or other related symptoms.
CONCLUSIONS AND DISCUSSION: authors conclude from these preliminary results that laparoscopic Hill repair, already used in general surgery for gastroesophageal reflux, can be performed safely with excellent functional results in children, since it restores the normal anatomical and physiological antireflux mechanism and especially because it minimizes the risks of dysphagia and/or gas air bloat syndrome or others sympthoms related to other procedures such as fundoplicatio (Nissen, Toupet, Thal etc). The technique is still young and the number of operated patients is limited, so its final evaluation is not possible until long-term re sults are available.

P014

AN UNUSUAL CAUSE OF RECURRENT ABDOMINAL PAIN IN A 17 YEAR-OLD GIRL: EXTRALUMINAL LYMPHANGIECTASIA OF THE CECUM MANAGED BY LAPAROSCOPY, Claudio F De Carli MD, Marcos Bettolli MD, University of Ottawa, Children's Hospital of Eastern Ontario. Division of Paediatric General Surgery, Ottawa. ON. Canada

Introduction: Recurrent abdominal pain (RAP) is a common problem in children. The prevalence in the pediatric population has been reported as high as 34%, with an organic pathology responsible for 45% of cases. We report a rare cause of RAP in a 17 year-old girl.
Methods and patient: A 17 year-old female, with a history of RAP during the last 2 years and acute right lower quadrant abdominal pain during the last 2 days, presented to the emergency department. The patient was stable and had a normal white cell count. Abdominal ultrasound showed a round, heterogeneous structure with hyperechoic and hypoechoic components, increased hyperemia, and a small amount of free fluid. This was suggestive of an early perforated appendicitis. The ovaries were normal. Diagnostic laparoscopy was undertaken. A cystic-like structure was found subserosally on the antimesenteric face of the cecum. Subsequent

laparoscopic dissection revealed a firm, extraluminal cystic lesion. Removal of the cyst was achieved without entering the cecum. A macroscopically normal appendix was not removed. Histopathology confirmed an encystic extraluminal lymphangiectasia with internal hemorrhage. There were no intraoperative complications and recovery was uneventful. The patient remains free of symptoms at 1-year follow up.
Conclusion: To our knowledge, this is the first report of an extraluminal lymphangiectasia of the cecum as a cause of RAP. Laparoscopy was a valuable tool for diagnosis and treatment. Given the unusual nature of this finding, the authors felt it reportworthy.



P015

HIV AND RECTOVAGINAL FISTULAE IN CHILDREN: AN OMINOUS MARRIAGE, Beelke D'hondt MD, Martin L Van Niekerk MD, Ernst Muller MD, Mariza De Villiers MD, Department of Pediatric Surgery, University of Pretoria, South Africa

Introduction: The incidence of HIV/AIDS related surgical conditions in sub- Saharan African children has been rising over the last decade. The instauration of a successful treatment however has proven to be a challenging task.
Methods and procedures: This retrospective study involves twenty girls aged five months to five years who attended our hospital over a period of four years with a rectovaginal fistula and associated immune deficiency. Nineteen girls were HIV positive by enzyme-linked immunosorbent assay and or polymerase chain reaction and one girl was HIV negative but suffered from a non specified immunodeficiency disorder.
The surgical treatment was modified over time because of primarily poor results. Initially a colostomy was performed without attending to the fistula. Later a primary resection of the RV (rectovaginal) fistula without defunctional colostomy was tried, but with poor outcome. Currently a defunctional colostomy is performed. Anti-retroviral treatment (ART) is then started for a minimum of four weeks prior to resection of the RV fistula. Closure of the colostomy follows three to six months later.
Results: Twenty immunocompromised girls who presented with associated RV fistula were treated by two different surgeons. No immediate mortality was related to the fistula per se but twelve children developed some degree of morbidity, mainly local perineal sepsis due to the existing fistula or fistula recurrence. Recurrence of the fistula occurred in ten girls, with a decreasing incidence when ART was started before attempting any closure of the RV fistula. Stomal prolapse was encountered in two cases.
Conclusion: HIV/AIDS related rectovaginal fistulae in children are difficult to treat. Our current treatment with defunctioning colostomy, followed by ART for a minimum of four weeks and subsequent resection of the RV fistula has proven to be successful, although the morbidity related to the underlying condition can be major. Different treatment options should be considered, with the main focus set on improving the recurrence rate after fistula excision.

P015

INTRA-ABDOMINAL ABSCESS FORMATION AFTER LAPAROSCOPIC APPENDECTOMY FOR PERFORATED APPENDICITIS., Juan Camps MD, Tamsin Durand MD, Cayce Cohen MD, M Yost PhD, Palmetto Health Children's Hospital/ USC-SOM

Background: Intra-abdominal abscess (IAA) formation is a postoperative occurrence after appendectomy for perforated appendicitis. It necessitates a second procedure for drain placement. In pediatrics, this requires sedation and increases length of stay, making it a significantly morbid event. The purpose of the study is to identify preoperative predictive values in those patients with postoperative IAA. Postoperative IAA formation seems to occur in perforated appendicitis regardless of surgical technique; open versus laparoscopic, drain or no drain. The incidence of IAA formation in open appendectomy with intra-operative drain placement is 12,5% versus no drain placement of 21,7. In the open technique, IAA rates range from 10% to 38%, averaging 16%. Our experience with the laparoscopic technique is consistent with these numbers 16.1%.
Methods: Our study group included 35 children under the age of 18 years who were treated for perforated appendicitis at our institution between May 2003 and June 2008. All children in the study group had their operations performed by the same surgeon using the laparoscopic technique without a drain placement. All were initially treated with the same 2 antibiotics; clindamycin (10mg/kg/8hrs) and gentamicin (5mg/kg/24hrs). A retrospective chart review was done to determine how many patients developed intra-abdominal abscess. A number of other predictive variables were reviewed in the initial assessment: WBC, Bands, days of symptoms, CT scan findings, temperature, diffuse or localize pain, age, and sex.
Results: Repeat CT scan revealed intra-abdominal abscess formation in nine of the children (9/35, 25.7%). Six patients (6/35, 17.1%) had a percutaneous drainage tube placed by interventional radiology. No abdominal reoperations were required. The average length of stay was 11.00 days in the group requiring drain placement and 6.90 days in the group without drain placement, which was a statistically significant difference (p=0.002).
Conclusion: IAA formation after appendectomy for perforated appendicitis is a common occurrence. After evaluation of the data, there were not predictive values that suggested which patient would need a drain. IAA formation is arguably a natural progression of this disease process which cannot be avoided in certain patients.

P016

LAPAROSCOPIC RESECTION OF A RECTAL SARCOMA, Lardy M Hubert PhD, Benchellal M Zine, Dommange M Florence MD, Boscq M Monique BA,Chapet M Sophie MD, Machet M Marie Christine MD, Robert M Michel MD, Chru Tours

Outcome of soft tissue sarcomas depend on initial localisation and surgical resectability. Rectal localisation is very rare and the difficulty lies in proper diagnosis. The treatment demands a multidisciplinary approach.
We report the case of a neuroectodermal sarcoma of the rectum treated by neoadjuvant chemotherapy then by coloproctectomy followed by adjuvant radiotherapy and chemotherapy.
Clinical history begins by red blood rectal bleeding and constipation. Examination and rectal touch revealed an endoluminal mass infiltrating the right lateral wall of the rectum. The coloscopy showed a polypoid, crumbly, bleeding mass and the biopsy a neuroectodermal sarcoma of the rectum confirmed by molecular biology. Extension bilan was negative. The patient was treated according to the EURO EWING 99 protocol. MRI post chemotherapy assessment showed an important tumor decline of the endoluminal part of the tumor but no effect on the wall of the rectum. After 6 courses of chemotherapy, the patient had a laparoscopic coloprotectomy with coloanal anastomosis and a protective temporary ileostomy.
Pathology of the resection showed an 11 % remainder of the initial tumour with healthy safety therapeutic margins. However, the patient received a neoadjuvant chemotherapy and radiotherapy after bilateral laparoscopic ovariopexy. Restoration of the continuity of the gastrointestinal tract followed a surgical intervention 8 months after the first operation.
Tumours of the rectum in children are rare and difficult to diagnose. In our case, the rectal touch enabled a diagnosis with certainty. Treatment of these tumors demands a multidisciplinary approach and the collaboration of adult surgeons who are used to these type of tumors. Protective ileostomy is required and enables simple restoration of gastrointestinal tract continuity and a better tolerance of radiotherapy. With more than 2 years since the last chemotherapy, this patient seems to have a favourable outcome although more than 10 % of the tumour remained after neoadjuvant chemotherapy.

P017

HEM-O-LOCK'S USE FOR LAPAROSCOPIC CHOLECYSTECTOMY... BE CAREFUL! A CASE OF BILE LEAKEAGE RESULTING FROM CLIP'S EROSION, H Steyaert MD, F Obadia MD, JS valla PhD, Lenval Foundation for Children

background : bile leakage (BL) is the most common complication after laparoscopic cholecystectomy (LC) (1.4% to 4%). In adults mortality rate iafter such a complication turns around 3 to 12%. BL may be due to several causes.

Case report : we describe the case of a 5 years old girl who presented with BL 9 days after an uneventfull LC for a symptomatic lithiasis (hypercholesterolemy). At re-operation we found an erosion of the choledocus due to a clip used closing the cystic artery. Running suture of the choledocus and wrapping of the clip in an haemostatic tissue was conducted with success true the same laparoscopic way.
Discussion: in adult litterature case reports descirbing complications of clips after LC are numerous. Main complication is the migration of the clip in the choledocus causing a lithiasis; however, acute bile leackage is also rarely described. Mostly a Roux-Y operation is proposed dealing with such a complication.
Conclusion: in children, were fat is mostly not a problem, the use of simple absorbable suturing material will be the best method in order to avoid this potentially serious complication.
Roux-Y operation may probably be avoided if closure of the leack is done microscopically (or laparoscopically). Indeed, stenosis may be a concern in such small choledocus

P018

LAPAROSCOPIC DUODENODUODENOSTOMY FOR DUODENAL OBSTRUCTION IN NEWBORNS, Suolin LI MD, Meng LI,Yingchao LI, Department of Pediatric Surgery, 2nd Hospital of Hebei Medical University, Shijiazhuang, 050000,China.

Objective The aim of this study was to evaluate the feasibility and indication of laparoscopically assisted duodenoduodenostomy for neonates with congenital duodenal obstruction.
Methods From May 2004 to Feburary 2008, 6 newborns with duodenal obstruction underwent exploratory laparoscopy. With a lower-pressure pneumoperitoneum of 5-8 mmHg and a suspending suture for right liver elevator, the procedure was performed using 3 cannulas of 3.3mm to 5.5mm diameter. Under the laparoscopic vision, the cause of duodenal obstruction was diagnosed and a sutured anastomosis was performed after the duodenum mobilized.
Results Findings at laparoscopy included duodenal diaphragm in 3 cases, annular pancreas in 2 cases, and preduodenal portal vein in 1 case. Three cases with duodenal diaphragmatic stenosis were encountered a partial excision of the diaphragm after vertical incision of the anterior part of duodenum followed laparoscopically by a transverse suture. A diamond-shaped side-to-side duodenoduodenal anastomosis was successfully carried out in 2 cases of annular pancreas through a laparoscopic approach, but a duodenojejunostomy was converted to mini-laparotomy during the laparoscopic course of a preduodenal portal vein. The average operative time was 102¡À16.5 min (85¡ª135 min). Visualization was excellent, and there were no intraoperative complications. Feedings were started on postoperative day 3 to 5. All cases were on full feedings after 8 to 10 days. Follow-up upper gastrointestinal tests showed no evidence of stricture or obstruction.
Conclusions The duodenoduodenostomy with laparoscopy can be performed in neonates securely and appropriated for a full-term newborn with tolerance CO2 pneumoperitoneum. It provides an excellent and micro-invasive way to evaluate and treat congenital duodenal obstruction.

P019

PYLORIC STENOSIS WITH NARROW RING LIKE ORIFICE: DIAGNOSTIC GASTROSCOPY AND LAPAROSCOPIC PYLOROPLASTY, Baran Tokar MD, Huseyin Ilhan MD, Ahmet Unlu MD, Umut Alici MD, Dilsad Demet MD, Eskisehir Osmangazi University School of Medicine, Department of Pediatric Surgery, Eskisehir Turkey

Hypertrophic pyloric stenosis is a well known entity in infants. Pyloric stenosis without hypertrophic pylorus is an unusual pathology and may cause chronic partial gastric obstruction findings. We present a 5-year-old female patient admitted with chronic abdominal distension, halitosis and vomiting with a heavy offensive smell. Radiological investigations and gastroscopy were performed for diagnosis.
Abdominal X-ray and upper gastrointestinal system (GIS) contrast study showed a grossly dilated stomach resulting abdominal distension. No contrast passage was observed from stomach to duodenum. Pylorus was not hypertrophic on ultrasound examination. Gastroscopy was performed, and a pyloric stenosis with narrow ring like orifice and retained solid food particles in a dilated stomach were observed. Gastric antral biopsies were taken and pylorus was catheterized to visualize radiologically the distal continuity of the stenotic orifice. Contrast study showed no pathology in the distal part. Endoscopic dilatation had been tried twice in another hospital and was not successful. During gastroscopic evaluation, we found very rigid ring like orifice, and did not try dilatation. Since there were chronic partial obstruction symptoms for more than 3 years and our findings were significant, we performed laparoscopic Heinecke-Mikulicz pyloroplasty. The patient did well postoperatively and she is now 14 months of the follow up.
Pyloric stenosis without hypertrophy causes partial obstruction symptoms and signs. Subtle symptoms may not alert the family in the early phase. Radiological investigations for upper GIS and gastroscopy are crucial for the diagnosis. Laparoscopic pyloroplasty prevents a morbid upper abdominal incision, and provides a better postoperative pain management and early postoperative discharge.

P020

LEARNING CURVES IN PEDIATRIC LAPAROSCOPY, HOW MANY IS ENOUGH? THE AMSTERDAM EXPERIENCE IN LAPAROSCOPIC PYLOROMYOTOMY, M.W.N. Oomen MD, L.T. Hoekstra MD, R. Bakx MD, H.A. Heij MD, Department of Paediatric Surgery, Emma Children´s hospital, Academic Medical Centre, Amsterdam, The Netherlands

Objective: Few (large) studies have been published regarding the surgical outcomes of open versus laparoscopic pyloromyotomy in the treatment of hypertrophic pyloric stenosis. The question arises which technique is better in terms of postoperative complications. The aim of this study was to compare the postoperative complications rate following open pyloromyotomy (OP) via umbilical incision with laparoscopic pyloromyotomy (LP) for infantile hypertrophic pyloric stenosis. The learning curve after introduction of LP was analysed by comparing the number of complications in the first half of the LP procedures with the second half of the LP procedures.
Method: A retrospective analysis was performed in 209 patients with an infantile hypertrophic pyloric stenosis. Between 2002 and 2008, 138 infants underwent OP compared with 71 infants were an LP was performed.
Results: There was a significant difference in median operating time between the OP (33 min) and LP (40 min) group. Median hospital stay after surgery in OP patients was 3 days and in LP patients 2 days (p=0.002). The postoperative complication rate was not significantly different between the OP group (27.5%) and the LP group (22.5%, p=.434). In the first 35 LP-procedures, complications were seen in 31.4% of the patients, while this rate decreased to 14.3% in the second 35 LP-procedures (p=0.088). Among these complications there were two perforations and three conversions in the first LP group, while in the second LP group one perforation was observed.
Conclusion: There was a decrease in number of complications between the first group of the LP patients and the second group of LP patients indicating a learning curve effect. Not only the complication rate was lower in the second LP group, but there was also a decrease in severe complications. This indicates that the learning curve for the laparoscopic pyloromyotomy involves at least 35 procedures. Next to that a significant difference in median operating time and hospital stay was seen between the OP and LP patients. Further research by means of a randomized clinical trial is needed to justify LP as the standard of care.

P021

EARLY EXPERIENCE WITH LAPAROSCOPIC-ASSISTED PULL-THROUGH FOR HIRSCHSPRUNG'S DISEASE, Tim J Bradnock MD, Rania Kronfli MD, Emma Stormer MD, Gregor Walker MD, Graham Haddock MD, Atul Sabharwal MD, The Royal Hospital for Sick Children, Glasgow

Introduction/ Aim In 2001 our unit began using laparoscopy in the management of Hirschsprung's disease. The aim of this study was to review our experience using this approach. Methods Patients were identified from a prospective theatre database and case-notes reviewed retrospectively. Collected data included demographics, investigations, operative management and complications. Results 25 patients (20 male) were identified with a median follow up of 39 months (range 1-81 months). 23 were born at term with a median birth weight of 3.7kg. Median age at presentation was 10 days (range 1-751 days). Most (18/25) presented in the neonatal period. All patients underwent suction rectal biopsy prior to definitive surgery and most (23/25) had a contrast enema. Median time from histological diagnosis to surgery was 22 days (range 5-65 days). During this time, all patients were managed as inpatients with rectal washouts, avoiding the need for stoma formation. Median weight at surgery was 4.2kg (range 3.1- 13Kg) and median age was 39 days (range 12-828 days). All patients had a primary Soave-Boley pull-through after laparoscopic biopsies and frozen section analysis. In the early part of this series (6 patients), laparoscopy was used for

intra-operative biopsies only with purely endorectal mobilisation. Subsequently, a combination of laparoscopic and endorectal mobilisation was employed. There were 3 conversions to an open procedure - 2 for difficulties in mobilisation, 1 for dense pelvic adhesions due to recurrent enterocolitis. The intention at surgery was to pull though >5cm of bowel above a ganglionic biopsy but on histologic review the median length of normal bowel excised was 3.6cm (range 0-10.5cm) and 6 patients had abnormal proximal resection margins. 4 patients had a transition zone pull-through; 3 remain well, 1 required redo pull-through. 1 had an aganglionic resection margin following an error in intra-operative frozen section analysis and required further biopsies and ileostomy formation. The final patient had features of intestinal-neuronal dysplasia but remains well with no constipation. There were no anastomotic leaks. 3 patients had major peri-operative complications (2 urethral injuries during endorectal dissection, 1 colonic trauma during laparoscopic mobilisation). 6 patients had strictures - 4 anastomotic, 2 muscle cuff. All were managed with elective dilatations only. Median time to discharge was 7 days (range 3-33 days). Median age at follow up was 3.1 years (range 0.1- 6.8 years). 16 patients had a stool frequency of <3 per day. 10 patients have been admitted with post-operative enterocolitis (recurrent in 4).
Conclusion This retrospective review represents the early part of our experience with laparoscopic-assisted pull-through for Hirschsprung's disease. Future work will involve a prospective cohort study to assess long term bowel function in these patients.

P022

PERCUTANEOUS ENDOSCOPIC VERSUS OPEN GASTROSTOMY IN CHILDREN: COMPLICATIONS AND OUTCOME, Hannu Lintula MD, Inka Hämynen,Hannu Kokki MD, Matti Eskelinen MD, Department of Paediatric Surgery, Kuopio University Hospital, Kuopio, Finland
Background: Percutaneous endoscopic gastrostomy (PEG) is the preferred route for long-term enteral feeding. Open gastrostomy (OG) is recommended in children with previous intra-abdominal surgeries. The aim of our study was to compare outcomes of PEG versus OG in children.
Methods: The medical records of all children who had either PEG or OG over a 18-year period (1990-2008) were reviewed. PEG was performed only in children without previous intra-abdominal surgeries. All children in the OG group had previously undergone at least one intra-abdominal operation.
Results: Fifty-six children underwent PEG and 13 children underwent OG. One PEG was converted to OG. The PEG and OG groups were comparable in terms of age, height, weight, indications for tube placement, and hospital stay. The median procedure time was 20 minutes (range, 4 to 65 minutes) in the PEG group and 35 minutes (range, 10 to 50 minutes) minutes in the OG group (P=0.003). There were no procedure-related deaths. There was one major peroperative complication in the PEG group related to the blind puncture of the left liver lobe. The puncture of the liver resulted in a small haematoma which resolved spontaneously. Twenty-seven of 56 children (48%) in the PEG group and 5 of 13 children (39%) in the OG group experienced stoma-related late minor complications (localized infection, peri-gastrostomy leak, granulation tissue) (P=NS). Severe gastro-oesophageal reflux necessitating fundoplication was detected in 14 children (25%) in the PEG group and in 7 children (54%) in the OG group (N=0.042). Four children (8%) in the PEG group and one child (8%) in the OG group required later surgical interventions related to the gastrostomy (P=NS). One patient (2%) in the PEG group underwent gastrostomy revision due to migration of the gastrostomy site to the costal margin. One patient (2%) in the PEG group developed gastric mucosal prolapse requiring surgical debridement at the time of conversion to a button. Two patients (4%) in the PEG group required surgery for closure of a persistent gastrocutaneous fistulae after discontinuation of their button gastrostomies. One child (8%) in the OG group developed a gastrostomy site abscess which was treated by surgical drainage.
Conclusion: PEG is a safe and effective technique for establishing enteral feeding in children without previous intra-abdominal surgeries, with outcomes comparable to that of OG.

P023

LAPAROSCOPIC SPLENECTOMY: THE COMBINED SCOTTISH EXPERIENCE, Charles Keys MD, Boma Adikibi MD, Gordon A MacKinlay MD, Fraser D Munro MD, Gregor Walker MD, Atul Sabharwal MD, RHSC Edinburgh, RHSC Glasgow

Laparoscopic Splenectomy: The Combined Scottish Experience
Introduction: Laparoscopic splenectomy was first carried out in Edinburgh in 1998. In 2005 surgeons from this centre collaborated with surgeons in Glasgow to establish laparoscopy as the technique of choice for splenectomy there. We present the combined Scottish data.
Methods: Retrospective casenote review of all patients including demographics, indications for splenectomy, whether cholecystectomy was also performed, major complications and outcome.
Results: A total of 40 patients have undergone laparoscopic splenectomy in the two centres. The first five cases in Glasgow were carried out in collaboration with surgeons from Edinburgh. In the first 4 of these the Edinburgh surgeons were present in Glasgow and for the fifth the procedure was observed by a telemedicine link-up. The median age at surgery was 12years (range 3-18), female: male ratio 3:2. The most common indication was hereditary spherocytosis (31/40). Laparoscopic cholecystectomy was carried out simultaneously in 19 patients. Conversion to an open procedure occurred in 2 cases, both for bleeding. Complications occurred in 2 patients; one bile leak which required a drain and subsequent stent, and one episode of post operative pancreatitis which was managed conservatively.
Conclusion: Laparoscopy is now the standard technique for splenectomy in children in Scotland. It is a safe and effective procedure with acceptable complication rates. Through collaboration of surgeons it is now carried out independently in two centres.

P024

THE IDEAL GASTROSTOMY: A PERSONAL ODYSSEY, Steven Z Rubin BA,Larissa Bertok BA, Children's Hospital of Eastern Ontario

Gastrostomy (G) may be essential in maintaining nutrition. Historically G-tube insertion included laparotomy, percutaneous endoscopic gastrostomy (PEG), radiologically guided pigtail insertion. The incidence of major complication including misplacement into the peritoneal cavity, intestine fistula formation, peristomal infection, has progressively decreased to 5%. The advent of laparoscopy may further reduce complications. This paper reports an experience over the past 28 years with gastrostomies in childhood and the evolution to laparoscopic assisted gastrostomy.
Methods: Two hundred children referred for gastrostomy insertion at the Alberta Children's Hospital and the Children's Hospital of Eastern Ontario were included. Only major complications are discussed. G-tube insertion as part of another abdominal procedure is excluded
Techniques: Open G-tube involved a Stamm Gastrostomy. PEG utilized a flexible gastroscope and a retrograde percutaneous technique. (Insertion of a pigtail G-tube was done by radiology.) In the past 3 years laparoscopic assisted PEG is the routine. Laparoscopic pigtail insertion is an alternative. A two port technique is used. The umbilical port (Hasson) is placed for the camera. A second port in the right midabdomen accommodates an atraumatic grasper.
Results: Gastrostomy 1980-2008
OpenPEGlaparoscopyLaparoscopic assisted
Patients601201030
Complications3 colonic fistulas4 displacement into tract. 10 Peristomal cellulitis. 4 open conversions
Conclusions: Laparoscopy precise anatomical gastric placement of the G-tube avoids the gastrocolic omentum and the transverse colon. Technically related placement complications can thus be avoided. Peritoneal contamination is minimized. In the larger child the surgeon can choose between laparoscopic assisted PEG or pigtail catheter insertion In newborns and infants where gastroscopy may prejudice the airway, laparoscopic-guided pigtail gastrostomy is an attractive option..

P025

OBLIGATION TO OPEN SURGICAL EXPERIENCE FOR LAPAROSCOPIC SURGERY: AN URBAN LEGEND, Hulya Ozkan-Ulu MD, Mine Fedakar-Senyucel MD, Bilal Alper MD, Gulnur Gollu MD, Berktug Bahadir MD, Aydin Yagmurlu MD, Department of Pediatric Surgery, Ankara University School of Medicine

Many, who are in over against laparoscopic surgery, utter the need of open surgical experience is mandatory for laparoscopic surgery. It was aimed to confute this argument at least for laparoscopic appendectomy with the data obtained from a University Hospital. All of acute appendicitis was managed by laparoscopic appendectomy since 2002. There was no conversion to open during this period, and all of the residents start performing appendectomy via laparoscopy and never performed open appendectomy. Four of the residents completed their training and after having board certification of pediatric surgery, went to different parts of the country for compulsory employment. Laparoscopic surgery facilities,

the number of appendectomies they performed (lap vs open), need for assistance, technical difficulties and complication rate was interrogated.
The median time spent in compulsory employment was 18 months (6 - 30 months). Just one of the surgeons has laparoscopic system and equipment in her hospital and still performing all of the appendectomies via laparoscopic surgery. Rest of the surgeons, where none of them have had experience in open appendectomy, had no laparoscopic system. The median number of appendectomies performed by these surgeons was 78. Hence, all of these surgeons were the only pediatric surgeons in their hospital; they were performing all of their operations with the scrub nurse, so they had no possibility to obtain surgical assistance and never needed, at least for appendectomies. There were only two minor wound infections observed, during this time period. They announced no technical difficulties for the operation.
To conclude, there is no need for open surgical experience to perform laparoscopic surgery in laparoscopic appendectomy r vice versa. Surgical principles do not differ whether in laparoscopic or open surgery.

P026

LAPAROSCOPIC EVALUATION OF CHILAIDITI'S SIGN IN A SEVEN MONTH OLD, Haluk B Guvenc MD, Kemal Rasa MD, Oktay Karadeniz MD, Anadolu Medical Center, Department of Pediatric Surgery, Kocaeli, Turkey

Chilaiditi's sign is an incidental radiographic finding, associated with intestinal disposition located between liver and right diaphragm. The prevalence ranges from 0.025% to 0.28%. The differential diagnoses include pneumoperitoneum, subphrenic abscesses, and diaphragmatic hernias. We present the youngest patient and discuss the aspects of this rare entity.
A 7-month-old male was admitted with an incidental diagnosis of right diaphragmatic hernia. Reevaluation of his thorax CT, obtained at the age of 4 months due to respiratory tract infection revealed Chilaiditi's sign, which was confirmed by repeat roentgen study. On examination he was free of any signs and symptoms of intestinal obstruction. Parental consent was obtained to perform a diagnostic laparoscopy in order to evaluate the anatomical details and possible treatment. Under laparoscopic examination one-half the length of the transverse colon was found lying anteriorly in the space between the hemidiaphragm and the right lobe of liver without any anomalous fixation. The most prominent finding was the lack of muscle fibers and almost transparent appearance of the medial aspect of the right hemidiaphragm. Any surgical correction was regarded as unnecessary. The patient is doing well and under follow-up.
Chilaiditi's sign is considered as an acquired rather than a congenital condition according to the published series. An anterior abdominal wall colopexy is advocated due to the reported rare possibility of colonic volvulus. The presentation of our case may bring new insight into the etiology and treatment of this rare entity.

P027

LAPAROSCOPIC SPLENECTOMY. GOLD STANDARD IN THE TREATMENT OF CHILDREN WITH HEMATOLOGICAL DISEASES., Rocio Barraza MD, Gilberto Ungson MD, Juan Manuel Noriega MD, Alejandro Ruiz MD, Maria Del Carmen Gonzalez MD, Children's Hospital of Sonora State and Institute of Health of Sonora State

BACKGROUND: The objective of this study is to confirm that the laparoscopic splenectomy is the surgical technique gold standard in children with hematological diseases.
METHODS: We retrospectively reviewed the clinical files of 8 patients that were taken to laparoscopic splenectomy from September 2005 to October 2008 with surgery indications by hematological diseases.
RESULTS: We operated 8 patients with ages between 5 to 15 years. 6 women, 2 men. 5 with diagnosis of spherocytosis and three with idiopathic thrombocytopenic purple.
In any patient was necessary conversions to open surgery.
The mean operating time was 150 minutes.
The weight of spleen was 70 to 550 grams
The mean time to resume normal diet were 2 days.
To this date all patients are asymptomatic and free of transfusions. One patient has platelet count of 800,000, is under medical treatment with aspirin protect.
CONCLUSIONS: The laparoscopic splenectomy is the surgical technique gold standard in the treatment of children with haematological diseases, because is a surgery with low incidence of complications, including in patients with to big spleen.
In our study the help from a general surgeon, with great experience in laparoscopic surgery was fundamental for excellent results in all the patients.

P028

LAPAROSCOPIC TREATMENT TO INCARCERATED INGUINAL HERNIA IN CHILDREN., Qiu Yun MS,Li GuiBin MD, Li Long MD, The 5th Central Hospital of TianJin China

Objective: To evaluate the value of laparoscopic approach in treating with children suffered from incarcerated inguinal hernia.
Method: The patients with incarcerated inguinal hernia received laparoscopic surgery were analyzed retrospectively between January 2004 and August 2008. The operation was given after unsuccessful manual reduction or suspected visceral ischemic damage. The hernial content was reduced by external manual pressure and internal pulling by forceps. Hernia was repaired and intestine was observed in laparoscopy to confirm that whether it has necrosis or ischemia.
Results: In all 10 patients reduction and repair were successful by laparoscopic treatment. No complication occurred. **Conclusions:** Laparoscopic treatment for inguinal incarcerated hernia in children has more graces of less trauma, discovering delitescent hernia of opposite side,observing for intestine tube by using laparoscope and few complication.

P029

LAPAROSCOPIC-ASSISTED DUODENOJEJUNOSTOMY FOR SMA SYNDROME: REPORT OF TWO CASES, Makoto Yagi PhD, Haruhiko Imamoto PhD, Hideki Yoshida MD, Yuko Udatsu PhD,Takashi Nogami PhD, Division of Pediatric Surgery, Department of Surgery, Kinki University School of Medicine, Osaka-Sayama, Japan

[Background and purposes] Superior mesenteric artery (SMA) syndrome is a rare acquired disorder, recognized as weight loss, vomiting, nausea, and postprandial pain, due to compression and partial obstruction of the third part of the duodenum by the SMA. When conservative therapy fails, then laparotomy with duodeno-jejunostomy or lysis of the ligament of Treitz is indicated. In this paper, we report two cases who underwent laparoscopic-assisted duodenojejunostomy.
[Patients and methods] First case was a 20-year old adolescent, weighing 19kg, with severely neurological impairment, complicated by gastroesophageal reflux and gastric volvulus. Second case was a nine year old boy. A 5-cm duodenojejunostomy was performed by using an Endo-GIA through a small incision at the right upper quadrant in the both cases, after preparing duodenum and jejunum laparoscopically. In the first case, a Nissen fundoplication and a gastropexy were added laparoscopically.
[Results] There was no intraoperative complication in both cases. .A gastrograffin study revealed no leak with patency of the duodenojejunal anastomosis. They showed the improvements of the symptoms, postoperatively.
[Conclusions] A laparoscopic-assisted duodenojejunostomy is a feasible and an alternative option for treating SMA syndrome in the patients who have a small abdominal cavity.

P030

SUBMUCOSAL FIBRIN GLUE INJECTION FOR CLOSURE OF RECURRENT TRACHEOESOPHAGEAL FISTULA, H Neville MD, Y Zhuge MD, J Farra BS,W Thompson MD, J Sola MD, University of Miami

Purpose: To report a case of successful endoscopic closure of a recurrent tracheoesophageal fistula (RTEF) utilizing submucosal injection of fibrin glue.
Case Report: Tracheoesophageal fistula (TEF) is a common congenital anomaly. One of the most serious complications after surgical repair is RTEF, the incidence of which has been reported from 5-20% of patients. Open surgical repair of RTEF is technically challenging and associated with high levels of morbidity, mortality and recurrence. In this case, a 37 week EGA female presented at birth with respiratory distress and excessive secretions. The patient was diagnosed with TEF and underwent primary surgical repair. On POD 7, the patient clinically deteriorated, required intubation, and was found to have a RTEF on barium swallow. We report the successful closure of RTEF in this infant utilizing an endoscopic approach in which fibrin glue was injected into the submucosa of the lateral walls of the fistula until the lumen was occluded. The technique offers a new and innovative approach to the endoscopic closure of RTEF. Submucosal injection eliminates the possible complication of the

fibrin glue plug becoming dislodged and aspirated. Our technique is simpler and safer in that it does not require diathermy or laser coagulation to de-epithelialize the tract, and thereby eliminates the potential injury to the esophagus and trachea. The patient has been followed 9 months and is without recurrence.
Conclusion: RTEF is a serious complication after repair of TEF. When recognized early, endoscopic closure utilizing submucosal injection of fibrin glue provides a safe alternative to traditional approaches.

P031

LAPAROSCOPIC APPENDECTOMY (LA) VERSUS OPEN APPENDECTOMY (OA): A RETROSPECTIVE STUDY IN CHILDREN., Andrea Franchella MD, Patrizio Mondini MD, Ciro Andolfi MD, Operative Unit of Pediatric Surgery, Arcispedale S. Anna, Ferrara, Italy

OBJECTIVE: to compare open appendectomy (OA) with laparoscopic appendectomy (three-trocar and TULAA) for length of hospitalization, length of operation, length of canalization, complications, intra-operative diagnosis of other pathologies, LA to OA conversion rate.
MATERIALS AND METHODS: the authors retrospectively reviewed a series of 501 appendectomies (124 OA and 377 LA) performed on children and adolescents (median age 11 years). For the patients operated using laparoscopy, a three-trocar procedure was employed in 107 (21.4%), a two-trocar procedure in 19 (3.8%) and a TULAA procedure in 251 (50.1%). In the open surgery, a McBurney incision was employed in 124 patients (24.8%). The 19 "two-trocar procedure" patients were excluded from the study. 26 patients (6 three-trocar and 20 TULAA) were converted from LA to OA. The statistics include: one way analysis of variance; Kruskal-Wallis analysis; Box & Wisker analysis; chi-square test; linear regression analysis.
RESULTS: Median hospital stay was 2.4 days for TULAA, 3 days for three-trocar LA and 3.9 days for OA ($p<0.05$). Median duration of surgery was 52 minutes for TULAA, 85 minutes for three-trocar laparoscopy and 72 minutes for OA ($p<0.05$). Median length of canalization was 1.1 days for TULAA, 1.3 days for three-trocar LA and 1.7 days for OA ($p<0.05$). Complications were recorded in 3 LA cases with three-trocar (3%), 5 OA cases (4%) and only 1 TULAA (0.4%) ($p<0.05$). Intra-operative diagnosis of concomitant pathologies (ovarian cysts, endometriosis, patency of peritoneal-vaginal duct, fallopian tube torsion) occurred in 4 OA cases (3.2%), in 32 TULAA cases (13.9%) and in 10 three-trocar LA cases (10%) ($p<0.05$). The conversion rate was 5.6% (6 cases) for three-trocar LA and 8% (20 cases) for TULAA; the authors observed a considerable decrease in the conversion rate, which declined to 0% overall for 2007. The surgical skill improvement is positive related with reduction of length of operation ($p<0.05$).
CONCLUSIONS: We conclude that in clinical settings where laparoscopic surgical expertise and equipment are available and affordable, LA seems to be an effective and safe alternative to OA; moreover, laparoscopic transumbelical appendectomy in our series seems to be a simple option, even for less-skilled laparoscopic surgeons.

P032

THORACOSCOPIC REPAIR OF ESOPHAGEAL DUPLICATION – CASE REPORT, Piotr Czauderna MD, Macieji Murawski MD, From Department of Surgery and Urology for Children and Adolescents, Medical University of Gdansk, Poland

Introduction: Esophageal duplication cyst (EDC) is an unusual congenital anomaly. It comprises about 0.5 to 2.5% of all esophageal lesions. It is usually diagnosed in infancy or early childhood. EDC is often asymptomatic and poses diagnostic challenge. Surgical excision is recommended at the time of diagnosis whether or not symptoms are present. We report a case of 17-year-old boy with EDC treated thoracoscopically.
Case report: 17-year-old boy was admitted to the pediatric surgery unit with diagnosis of solid tumor of posterior mediastinum. Initially he presented with dysphagia. At gastroscopy extrinsic compression of the esophagus was noted. Patient underwent successful thoracoscopic excision of EDC. The postoperative course was uneventful and he was discharged after 3 days.
Conclusions: Duplication cyst should be completely excised whenever possible, because of the risk of potential complications such as respiratory distress, bleeding, or infection. Thoracoscopic surgery is currently the procedure of choice. It is safe and effective, although it may be difficult to perform.

P033

LAPAROSCOPIC RESECTION OF GIANT OVARIAN CYSTS IN ADOLESCENT GIRLS., Andrzej Golebiewski MD, Leszek Komasara MD, Maciej Murawski MD, Marek Krolak MD, Mariusz Sroka MD, Piotr Czauderna MD, From Department of Surgery and Urology for Children and Adolescents, Medical University of Gdansk, Poland

Laparoscopic resection of giant ovarian cysts reaching above the level of umbilicus is difficult due to limited working space and risk of cyst rupture. In 2006-2007 three girls 12-yrs of age were treated because of giant ovarian cysts. In all cases cysts had benign features in abdominal CT and hormonal profile. Median cyst size was 22 cm (+/-5). At the onset of operative procedure the cyst was punctured percutaneously under ultrasonographic (US) control: 3-5 liters of serous fluid was evacuated. Laparoscopic cyst resection followed with its evacuation in a bad through enlarged umbilical incision. Abdominal cavity was irrigated with saline. No conversion was required. No intra- and postoperative complications occurred. Mean operative time was 73 minutes (+/-15). Hospital stay was 3 days. Microscopic examination showed mature teratoma in 2 cases and mucous cyst in 1. Follow-up US examination and tumor markers were normal. Laparoscopic excision of giant ovarian cysts preceded by their percutaneous puncture under US control is safe and effective providing malignant condition is ruled out by preoperative investigations and cyst spillage is prevented by adequate surgical technique.

P034

LAPAROSCOPIC VERSUS OPEN APPENDECTOMY IN CHILDREN WITH PERFORATED APPENDICITIS, Tobias Luithle MD, Philipp Szavay MD, Joerg Fuchs MD, Department of Pediatric Surgery, Children`s Hospital, University of Tuebingen, Germany

Purpose: Laparoscopic appendectomy in children is well accepted for the treatment of non- complicated appendicitis. The treatment of complicated appendicitis especially in the case of perforation remains controversial. The aim of the study was to evaluate the role of laparoscopic treatment of perforated appendicitis in comparison with open surgery.
Methods: We reviewed the medical records of all children admitted to our hospital with the diagnosis of perforated appendicitis between July 2002 and October 2008. Demographic data, white blood cell (WBC) count, level of serum C-reactive protein (CRP), length of stay, operative time and complications were analyzed.
Results: Among 548 patients with appendicitis, 82 (15%) patients were operated on for perforated appendicitis. Forty-eight appendectomies were performed laparoscopically (LA), in 6 patients the operation was converted to open surgery. Thirty-four patients underwent open appendectomy (OA). There were no significant differences in age, sex ratio, WBC, CRP, length of hospital stay or operative time between both groups ($p > 0.05$). Altogether 9 complications occurred in the LA group (18.8%) and 6 in the OA group (17.6%) with no significant difference between these groups ($p > 0.05$). Intra-abdominal abscess was the most common complication in both groups.
Conclusions: Laparoscopic appendectomy is a safe option for the treatment of perforated appendicitis in children. In our patients no increased risk of postoperative complications as suggested in previous studies could be seen. We therefore recommend the laparoscopic approach to all patients presenting with perforated appendicitis.

P035

LAPAROSCOPIC RESECTION OF NEONATAL INTRAABDOMINAL PULMONARY SEQUESTRATION. A TWO CENTER EXPERIENCE, Miguel Guelfand MD, Steven Rothenberg MD, Patricio Varela,Mabel Ortega MD, Clinica Las Condes - Santiago CHILE

Pulmonary sequestration (PS) is a rare lung malformation (0.15 – 6.4% of all lung malformations). PS situated below the diaphragm are even less frequent. We present 5 cases of laparoscopic resection of an intraabdominal PS in 4 neonates and 1 infant, all with pre-natal diagnosis.
Direct blood supply from the Aorta and abnormal vascularization were identified in all cases. The patients weight ranged from 3.5 to 5 kilograms and operation time was 45 to 75 minutes. In all cases a laparoscopic 3-trocar (3 and 5mm) technique was used for uncomplicated, complete resection of the masses. Patients were uneventfully discharged within days of minimally invasive surgery. Laparoscopic resection of PS was safe and effective, with unsurpassed exposure of the anatomy of the lesion and vascular supply.

P036

AN APPROACH TO THE ACQUISITION OF MINIMALLY INVASIVE SURGICAL (MIS) SKILLS FOR PAEDIATRIC PATIENTS IN A THIRD WORLD SETTING., Colin Lazarus,Milind Chitnis,Itayi Simango,Mie Elsen, Eastern Cape Paediatric Surgical Service, East London, South Africa.

BACKGROUND. The Eastern Cape Paediatric surgical service based at the East London Hospital Complex serves 3.5 million people of a predominantly rural and under resourced province of South Africa. In establishing a paediatric MIS service, obstacles to the training of junior staff included:
1.Lack of simple "box trainers" or more sophisticated virtual reality training (VRT) devices.
2.Lack of a commonly performed paediatric MIS procedure such as acute appendicitis in which to acquire initial MIS operative experience (complicated appendicitis being the norm at the time of presentation in this community).
APPROACH. 1. Funding was obtained from the Department of Health of the Eastern Cape for the development of a surgical skills laboratory at the East London Health Resource Centre. Components of the laboratory include:
a. A laparoscopic box trainer with a mounted joy stick (3-Dmed) used for the training of intracorporeal suturing and knot tying.
b. A VRT with a basic skills module (LapSim Surgical Science) which has the capacity to monitor training in hand-eye co-ordination, suturing, knot tying, clip applying and other tasks.
c. Development of a paediatric MIS textbook, journal and DVD library.
d. Internet access to Websurg.
2. The use of laparoscopic inguinal herniotomy, laparoscopic hydrocele repair and the laparoscopic management of impalpable undescended testes as initial procedures for paediatric surgical MIS skills acquisition.
IMPLICATIONS. 1. Trainees are required to have obtained a defined standard on the VRT before being allowed to operate on children.
2.Skills acquisition by trainees to an acceptable standard requires a major investment in mentoring time.
INITIAL EXPERIENCE. 1.8 students have completed their laboratory training; their average time taken to achieve the exam standard was 11 hours.
2.12 students are currently undergoing training.
3.Skills learned appear to be transferable to the OR with an improved learning curve and fewer complications.
4.Students enjoy the experience of simulated training.

P037

MINIMALLY INVASIVE SURGERY IN PEDIATRIC IMMATURE OVARIAN TERATOMAS, Amos Loh MD, Yee Low MD, Chan-Hon Chui MD, Anette S Jacobsen MD, KK Women's and Children's Hospital

INTRODUCTION: The use of minimally invasive surgery (MIS) for pediatric immature ovarian teratomas can offer benefits in diagnostic approach, staging, and resection. While excision alone is effective treatment, there may be potential for tumor spill and port-site recurrence. We present our experience with use of MIS in these tumors. We also use these cases to illustrate MIS-related considerations in the management of immature ovarian teratomas, and highlight treatment options for unexpected malignancies.

METHODS: Of twelve cases of immature ovarian teratomas between 1998 and 2005, four had MIS approaches adopted in their management. One had grade 3 disease with peritoneal gliomatosis, and the rest were grade 1. Cystectomy was attempted when preoperative imaging and tumor markers showed low suspicion of malignancy.

RESULTS: Prior tumor rupture in one and spillage during attempted laparoscopic cystectomy in two others necessitated conversion. In the fourth case, laparoscopic cystectomy was performed for suspected contralateral recurrence subsequently. Tumor size ranged from 9-15cm in diameter. At follow-up of median 4.8 years (range: 2.4 - 8.1), all patients are alive and disease free. No significant complications were encountered perioperatively.

CONCLUSION: Use of MIS, particularly laparoscopic cystectomy in immature ovarian teratomas is controversial. These cases taken from our early experience with MIS reflect the value of preoperative case selection, the technical challenges of laparoscopic cystectomy, and the satisfactory outcome of these lesions despite spillage.

P038

LAPAROSCOPIC TREATMENT OF A CASE OF COMPLEX DOUBLE CONGENITAL DIAPHRAGMATIC HERNIA, Giovanna Riccipetitoni MD, Claudio Vella MD, Massimo Garriboli MD, Enrica Caponcelli MD, Giorgio Fava MD, Department of Pediatric Surgery – Children's Hospital – V. Buzzi – Milan – (Italy)

Although congenital diaphragmatic hernia is well detected in the antenatal period sometimes the diagnosis occur late. In fact, there are diaphragmatic defects which remain asymptomatic for years. We present a rare case of complex diaphragmatic defects in a 2 year old boy treated laparoscopically.
Case report
A 2 years old child was admitted to our institution for anemia, failure to thrive, gastro-intestinal disturbance, abdominal pain and pectus carinatum. The first diagnostic step included a chest X ray that showed a gastric and bowel displacement inside the thorax. An MRI showed two diaphragmatic defects: a large Larrey Morgagni Hernia (LMH), which contained the transverse colon, cecum and part of the ileum and a posterior paraesophageal defect occupied by the stomach. No respiratory symptoms were observed.
We performed the surgery with a laparoscopic approach.
A 10 mm telescope port was inserted by open umbilical approach. Four operating ports were placed: two in the right and left subcostal position (3mm and 5 mm trocars) and two in the left and right lower abdomen.
The stomach and the part of the herniated bowel were reduced in the abdominal cavity; anteriorly we found a very large defect (LMH) which was closed using a Gore-Tex dual mesh prosthetic patch (PP) measuring 70mmx80mm. The Gore-Tex patch was fixed on the border of the diaphragmatic wall using 5 mm titanium helical fastner. The posterior diaphragmatic defect was treated by direct suture and an oesophageal new hiatus was created. A concomitant Thal Fundoplicatio was performed to prevent gastroesophageal reflux.
24 hours after surgery a right pneumotorax due to abdominal air migration in the chest required a drain with no sequels; no other surgical complications occurred.
Conclusion: In the literature there are several reports of laparoscopic treatment of LMH and few experience of mininvasive approach to posterior diaphragmatic hernia. The case of associated defects like our patient seems exceptional and we didn't found any reports of laparoscopic one stage correction. The experience in this case allows us to affirm that also these complex diaphragmatic anomalies may be successfully treated laparoscopically.

P039

PARAOVARIAN CYSTS IN CHILDREN, Baran Tokar MD, Umut Alici MD, Dilsad Demet MD, Eskisehir Osmangazi University School of Medicine, Department of Pediatric Surgery Eskisehir Turkey

Purpose: Paraovarian cyst (POC) develops from peritoneal inclusions, tube epithelium or Wolfian remnant. POC should be considered if, on ultrasound, the ovary could be shown separately, tuba settling on the cyst and a fine thin wall of the cyst with mesenchymal vessels are observed. POCs are rarely found in children. Torsion of the cyst may occur, and it is known that large cysts have tendency to have torsion.
Methods: We retrospectively reviewed our video record of patients who had been operated for POC, ovarian cyst or torsion (n=24).
Results: We found a case with a solitary POC and three cases with POC associated with an ovarian cyst (n=4). Of these 4 cases, two had torsion of POC, one with paraovarian microcyst torsion and the other one with torsion of large POC just near the fallopian tube. The patient having microcyst torsion also had an ovarian cyst with 4 cm diameter. In both cases, POCs were excised laparoscopically. In other two patients, POCs were microcystic, multiple and silent.
Conclusion: Since paraovarian cysts do not have a pedicle, and expand into the broad ligament, torsion is usually not expected. The incidence of torsion was reported between 2.1% to 16%. Preoperative diagnosis is very difficult for silent and microcystic POC and also POC that needs surgical intervention is rare in children. In this study, we would like to state that a physician who operates children for ovarian pathologies should recognize POC and have a high index of suspicion for torsion of POC.

P040

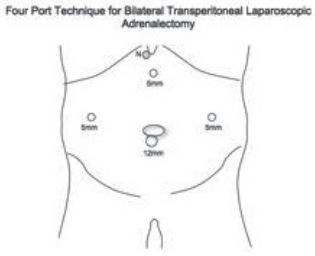
ASPIRATED OR INGESTED FOREIGN BODIES: CLUES ON X-RAY JUST BEFORE THE ENDOSCOPIC EVALUATION, Baran Tokar MD, Huseyin Ilhan MD, Dilsad Demet MD, Umut Alici MD, Tamer Kaya MD, Eskisehir Osmangazi University, School of Medicine, Department of Pediatric Surgery and Radiology, Eskisehir Turkey

Background: There is a significant risk for foreign body (FB) aspiration or gastrointestinal (GI) tract ingestion in children under 3 years of age. Complications caused by lodgment of aspirated or ingested FB are associated with significant morbidity and mortality. **Methods:** The medical records 501 children who underwent bronchoscopy for suspected FB aspiration (n=292), or endoscopic or surgical exploration of ingested GI tract FB (n=209) between 1994 and 2008 were reviewed. Results: The majority of the patients were between 1 and 3 years of age. Plain chest x-rays revealed radiopaque FB in 15, 7 % of all patients with FB aspiration. Emphysema, pneumonia and atelectasis were the other significant findings determined on chest x-ray. Plain X-rays revealed radiopaque FBs in 87 % of all patients with FB ingestion in GI tract. Coin was the most common FB determined as an object ingested and entrapped in GI tract (61,2 %). Fluoroscopic examination performed for the differential diagnosis of non-radiopaque FB ingestion or in patients with an underlying disease or esophageal stricture as a complication. Complications were determined in delayed cases. **Conclusion:** A plain x-ray provides an early diagnosis and guidance for the forthcoming investigations and exploration. Regardless of radiological findings, when FB aspiration or ingestion is the suspected diagnosis in a patient with a strong history and significant clinical findings, an early endoscopic examination or exploration should be considered. Morbidity and mortality increase with a delayed intervention.

P041

FOUR PORT TECHNIQUE FOR BILATERAL TRANSPERITONEAL LAPAROSCOPIC ADRENALECTOMY, Tim J Bradnock MD, Atul Sabharwal MD, Gordon MacKinlay MD, The Royal Hospitals for Sick Children, Glasgow and Edinburgh

Introduction To minimise scarring without compromising exposure and ergonomics, we have modified our approach to bilateral adrenalectomy and report a four port technique. Case Report A 6-year old girl with Cushing's syndrome was referred for bilateral adrenalectomy. She was positioned supine with supports under her left flank to elevate the operative field by 40 degrees. A 12mm infraumbilical port with a 5mm downsizer was established using the Hassan technique. For the left adrenalectomy, 5mm working ports were established in sub-xiphisternal and left upper quadrant (LUQ) as shown. A further 5mm port was sited in the right upper quadrant (RUQ) to enable the use of an endopledget to aid omental retraction.



Following excision, the adrenal was removed directly via the 12mm port with the camera at the RUQ port. Padding under the left flank was then moved to the right side and the patient positioned 40 degrees right side up. No further ports or repositioning of the patient were required for right adrenalectomy. A Nathanson liver retractor (N) was used. An endopledget, this time passed via the LUQ port site, was again used to optimise operative field exposure. The right adrenal was removed as before. Operative time was 4 hours. Post-operatively she made a good recovery and was fit for surgical discharge at 48 hours. **Conclusion:** We present a simplified four port technique for bilateral adrenalectomy which minimises anterior abdominal wall scarring without compromising operative field exposure.

P042

SIMPLE TECHNIQUE FOR UMBILICAL FASCIAL CLOSURE USING A GROOVED DIRECTOR, Richard Carter MD, David Lanning MD, Virginia Commonwealth University Health System

Closure of the umbilical fascial defect after laparoscopic surgery can be challenging particularly with an obese child and a when a 10mm trocar is used. A simple and reliable technique is important to minimize hernias, bowel injury, or excessive tissue damage. Our aim is to describe a quick, simple, and durable technique to close the fascia at the umbilical port site.

Under direct vision a standard grooved director is placed through the fascial defect and used to lift and stabilize the fascial edges while a figure of eight suture is placed using 2-0 or 0 absorbable, braided suture. Prior to tying the suture, an effort is made to ensure that the underlying omentum is clear of the fascial edges. After this technique had been used in over 100 patients without any complication, many of which had small umbilical hernias, it then became our method of choice for small (<1cm) umbilical hernia repairs. For this, a vertical incision is made in the middle of the umbilical skin and the adherent hernia sac is entered. The fascial defect is closed with the grooved director as described and the hernia sac is left in place. The skin incisions are reapproximated with interrupted, absorbable monofilament sutures with the knots buried prior to covering with skin glue. At least 100 umbilical fascial closures and 2 dozen small umbilical hernias have been repaired with this technique without any disruptions or recurrences.

We have found the use of the grooved director to aid in umbilical fascial closure after port placement or small umbilical hernias as a simple, safe, and effective technique particularly in the obese patient. Use of this instrument allows for closure of fascial defects under direct vision, without injury to underlying viscera, with accurate and durable apposition of fascial edges.

P043

TECHNIQUE FOR LAPAROSCOPIC APPENDECTOMY SPECIMEN RETRIEVAL, Richard Carter MD, David Lanning MD, Virginia Commonwealth University Health System

Background: Laparoscopic appendectomy has become a well accepted technique and is routinely used for children with early appendicitis. Children have little discomfort, tolerate oral intake quickly, and can be discharged home with minimal time in the hospital. Further refinements of the laparoscopic technique can lead to decreased operative times and tissue defects as well as improved patient outcomes. One of the advantages of using a laparoscopic approach is being able to place a gangrenous or perforated appendix into an endocatch bag prior to its removal. However, there are very few recommendations in the literature for removing the appendix from the peritoneal cavity. Most surgeons try to pull the endocatch bag through the umbilical defect, which traps the appendix at the bottom of the bag. Retrieval often requires opening or stretching the fascia and the skin. There is risk of rupturing the bag and appendix which may contaminate the wound or peritoneal cavity. We describe our technique for retrieval of the appendix following laparoscopic appendectomy that allows for a relatively uncomplicated specimen extraction.

Methods: Once the mesoappendix has been cauterized with the Maryland forceps and divided, 2 endoloops are placed at the base of the appendix. A third endoloop is placed distal to the first 2 endoloops with enough space to allow for the appendix to be transected with endoshears. The third endoloop is then cut at least 6 cm away from the knot thus leaving a long tail. An endocatch bag is inserted into the peritoneal cavity through a 10mm dilating trocar and opened completely with an instrument. The appendix is placed in the bag with the cut end just inside the bag and the long tail of the third endoloop exiting the bag. Once the bag is closed, the end is brought into the tip of the trocar and the trocar removed to expose the top of the bag through the fascial defect. The endoloop tail is grasped and pulled along with the bag, allowing the appendix to be delivered through the fascial defect in a linear fashion. If necessary, the appendix and bag can be grasped together with a large clamp and delivered.

Conclusions: We believe that this technique allows for delivery of the appendix through the fascial defect in a linear fashion instead of being bunched up at the bottom of an endocatch bag. Even when using a 10mm trocar that dilates instead of cuts the fascia, large appendices (13 to 14mm in diameter) can be safely and quickly extracted without having to further open the skin or fascia.

P044

CASE REPORT: SUBCUTANEOUS ENDOSCOPICALLY ASSISTED LIGATION (SEAL) OF RECURRENT SLIDING INGUINAL HERNIA IN A PEDIATRIC PATIENT WITH MARFAN's SYNDROME., Justin D Manley MD, Rupa Seetharamaiah MD, Christopher J Blewett MD, David E Sawaya MD, University of Mississippi Medical Center

Objectives: A literature review of subcutaneous endoscopically assisted ligation herniorrhaphy and case report of its use in Marfan's patient with recurrent inguinal hernia.
Case Presentation: 21 month old male had open bilateral inguinal hernia repair by high ligation at 6 weeks of age. Subsequently, the patient was diagnosed with Marfan's and suffered a recurrence of the right inguinal hernia. On physical examination the hernia was easily reducible. The technique of subcutaneous endoscopically assisted ligation of the internal ring was chosen for repair. We felt that this technique would be the most technically feasible given previous repair. Diagnostic laparoscopy was performed with a 5mm camera in the umbilical port. A sliding hernia with appendix in the canal was noted. This was reduced with a grasper placed in a 3mm port in the LLQ. The internal ring was encircled with non-absorbable suture avoiding the vas and vessels. No complications occurred during surgery. Follow-up showed no recurrence.
Conclusions: Subcutaneous Endoscopically Assisted Ligation (SEAL) closure of recurrent sliding inguinal hernia in children appears to be safe and effective. Laparoscopic inguinal hernia repair has several advantages over open inguinal herniorrhaphy. These advantages include evaluation of the contralateral inguinal canal, decreased risk of injury to the cord structures, identification of rare hernia types, diagnostic and therapeutic for recurrent hernias and decreased OR time.

P045

SURGERY THROUGH NATURAL ORIFICES, PASTOR ESCARCEGA-FUJIGAKI MD, GUILLERMO HERNANDEZ-PEREDO -REZK MD, ULISES LEAL -QUIROGA MD, SANTIAGO HERNANDEZ -GOMEZ MD, ROCIO BARRAZA- LEON MD, ABIMAEL BAÑUELOS- MONTANO MD, ALEJANDRO DEL ANGEL- AGUILAR MD, CEMEV, "DR. RAFAEL LUCIO" XALAPA,VER. MEXICO.

INTRODUCTION: The fenestrated duodenal membrane has a prevalence of 1: 10, 000 to 1: 40,000 births; symptoms could be present or not since birth. The surgery technique mostly used is the duodenoctomy, resection of the membrane through Mickulics closure. The purpose for this presentation is to show three cases of patients with duodenal membrane resolved by endoscopy: two of them with previous surgeries.
CASE 1. Male patient 47 years old started with persistent vomits since birth .The first surgery procedure reported duodenal bridle which was resected, having a torpid evolution. A second surgery is done in which intraluminal occlusion is found in the third portion of the duodenum and a laterolateral duodenoyeyunanastomosis is done. The patient continued with vomits. The Upper GI series showed occlusion at duodenal level. The upper GI endoscopy showed obstruction of 80% of the anastomoses and a prevaterian fenestrated duodenal membrane. The membrane was resected and fulgurated. Surgery time was 90 minutes. Oral ingestion was started next day with a satisfactory evolution; the follow up at two year with UPPER GI endoscopy showed a proper contrast barium passage.
CASE 2. Male patient 5 days old with vomits, was diagnosed as having duodenal atresia, and a Kimura duodenumduodenum anastomoses was done .The patient continued vomiting, an Upper GI series and endoscopy were done finding an obstruction in the second portion of the duodenum as a result of a non fenestrated duodenal membrane. A second laparotomy was carried out and a longitudinal incision in the membrane was done. thirty day after surgery started vomiting. Endoscopy was practiced finding a duodenal membrane with a central orifice and electro fulguration was done .The next day oral ingestion was initiated without problems. Follow up upper endoscopy at two year and ten months was normal.
CASE 3. Male patient 2 years and 2 months old vomiting since birth. Upper GI series done; the findings were gastromegaly and an important dilation of the first and second portion of the duodenum. An upper GI endoscopy was carried out finding a duodenal fenestrated membrane which could be incised and was fulgurated with a papilotome; the surgery time was of 100 minutes. Follow up at one year with upper GI contrast barium showed a satisfactory passing.
CONCLUSION. We have the consideration that when fenestrated duodenal membrane is suspected upper GI endoscopy must be done for being less invasive helping in the diagnosis and treatment ; besides being a secure and effective procedure , reducing surgery time and days of hospitalization

P046

ROBOTIC NISSEN FUNDOPLICATION WITH GASTROSTOMY PRESERVATION IN NEUROLOGICALLY IMPAIRED CHILDREN, Franklin C Margaron MD, Claudio Oiticica MD, Juan Villalona MD, David Lanning MD, Virginia Commonwealth University

Robotic fundoplication has equivalent safety profiles, hospital stay, and time to alimentation compared to laparoscopic fundoplication but is not indicated for routine repair due to higher cost, decreased availability, and longer procedure time. Robotic surgery does offer key advantages over standard laparoscopy by employing internally articulating arms, a stable camera platform, and 3D imaging. Children presenting for initial or redo fundoplication after feeding gastrostomy are a subset of patients that may benefit from the robotic approach. Minimal dissection of the phrenoesophageal ligament in combination with four anchoring sutures from the esophagus to the crura has been shown to lead to less wrap herniation in children. This technique is particularly difficult in standard laparoscopy without dislodgement of the gastrostomy, particularly if there are abundant adhesions or an accessory left hepatic artery to preserve. We present 15 children with neurologic impairment and previous gastrostomy who underwent Nissen fundoplication using the da Vinci surgical robot. Ages ranged from 1 to 16 years old (avg 8 years) and operative times ranged from 2 hours 39 minutes to 7 hours 50 minutes (avg 4 hours 23 minutes). All patients underwent a floppy Nissen fundoplication after crural closure and placement of 4 anchoring stitches to the crura. Six patients (40%) had redo Nissens and 5 (33.3%) had replaced left hepatic arteries. Six patients underwent repair of a hiatal hernia and two had biologic mesh placed. Four children underwent extensive lysis of adhesions (>1hr). There were no conversions to open or intraoperative complications. One child had laparoscopic revision of the gastrostomy site because the prior PEG had been placed through the transverse mesocolon. Post-operative complications included one child with a small pneumothorax, which resolved on oxygen, one child with post-op ileus requiring TPN, one child with respiratory compromise requiring oxygen support overnight, and one child with post op bleeding requiring transfusion but no reoperation. All children were doing well at latest follow up. The da Vinci surgical robot can be used to safely perform fundoplications in patients with gastrostomy tubes. The articulating instruments allow for the placement of 4 crural tacking sutures while preserving the gastrostomy even in the presence of a replaced left hepatic artery.

P047

TOTAL COLECTOMY WITH J POUCH USING LIGASURE ADVANCE. (VIDEO), Maria M Bailez MD, Carlos MD, Garrahan Children´s Hospital. Buenos Aires .Argentina

Laparoscopic total colectomy and concomitant J pouch is a time consuming procedure even after the learning curve period. Strategies to shorten operative time include the use of hemostatic devices to divide the mesentery and incise peritoneal attachments . Ligasure advance is a 5 mm instrument that includes a totally hand-activated monopolar cautery tip in a bipolar sealer with dissection and cutting capabilities. It can only be used with the new generator platform that provides the Valleylab mode for monopolar cautery and a faster bipolar sealing (Forcetriad)
The aim of this video is to show the advantage of its use for this procedure .
A 9 years old patient with an adenomatous poliposis underwent a total proctocolectomy and a J pouch. Four ports were used avoiding avoiding changing instruments as much as possible . The surgeon started mobilization of the sigmoid , standing on the right side using a Maryland dissector in her left hand and the hemostatic device in her right one . The assistant standing on the left side ,used a grasper for traction of the colon. They shifted position while the dissection was carried from distal to proximal colon. A linear stapler was used at the rectosigmoid junction to facilitate proximal colectomy. After exteriorization of the complete devascularized colon through the right lower quadrant port and creation of the extracorporeal J pouch , proctectomy was completed everting the rectum through the anus . Ileoanal anastomosis was performed by means of a circular

endostappler under laparoscopic vision.An ileostomy was left.The advantages observed with the instruments shown in the video were: the possibility of incising the peritoneal reflection sharply (by means of the monopolar cautery tip) ,blunt dissection ,safe sealing and cutting with the same instrument completely hand activated with less fog – smoke effect.

P048

HEAD-MOTION-CONTROLLED VIDEO GOGGLES: PRELIMINARY CONCEPT FOR AN INTERACTIVE LAPAROSCOPIC IMAGE DISPLAY (I-LID), Sara Glick,Kenneth Silverman, Harvey F Silverman PhD, Jermey T Aidlen MD, Francois I Luks MD, Brown University and Alpert Medical School of Brown University

BACKGROUND: Light-weight, low-profile and high-resolution head-mounted displays (HMD) now allow personalized viewing of a laparoscopic image. The advantages include unobstructed viewing regardless of position at the operating table and the possibility to customize the image (enhanced reality, picture-in-picture, etc.). The bright image display allows use in daylight surroundings and the low profile of the HMD provides adequate peripheral vision. Theoretical disadvantages include reliance for all on the same image capture and anti-cues (reality disconnect) when the projected image remains static despite changes in head position. This can lead to discomfort and even nausea.
METHODS: We have developed a prototype of interactive laparoscopic image display (i-LID) that allows hands-free control of the displayed image by changes in spatial orientation of the operator's head. The prototype consists of a HMD, a spatial orientation device and computer software to enable hands-free panning and zooming of a video-endoscopic image display. The spatial orientation device uses magnetic fields created by a transmitter and receiver, each containing 3 orthogonal coils. The transmitter coils are efficiently driven, using USB power only, by a newly-developed circuit, each at a unique frequency. The HMD-mounted receiver system links to a commercially available PC-interface PCI-bus sound card (M-Audiocard Delta 44). Analog signals at the receiver are filtered, amplified and converted to digital signals, which are processed to control image display.
RESULTS: The prototype uses a proprietary static fish-eye lens and software for distortion-free reconstitution of any portion of the captured image. Left-right and up-down motions of the head (and HMD) produce real-time panning of the displayed image. Motion of the head toward, or away from, the transmitter causes real-time zooming in or -out, respectively, of the displayed image.
CONCLUSION: This prototype of interactive head-mounted display allows hands-free, intuitive control of the laparoscopic field, independent of the captured image.

P049

SINGLE PORT THORACOSCOPIC APICAL WEDGE RESECTION FOR SPONTANEOUS PNEUMOTHORAX: A PROMISING NEW TECHNIQUE IN THE PEDIATRIC POPULATION, Timothy J Fairbanks MD, Keith A Thatch MD, Matthew L Moront MD, L. Grier Arthur MD, Shaheen J Timmapuri MD, Rajeev Prasad MD, St. Christopher's Hospital for Children, Drexel University College of Medicine

OBJECTIVE: Primary spontaneous pneumothorax is a condition that often presents in otherwise healthy children and adolescents. Patients who have a recurrence, persistent pneumothorax or air leak, bilateral disease, and/or large bullae can be considered for a minimally invasive thoracoscopic intervention. The advantages of thoracoscopy over open thoracotomy include decreased postoperative pain, improved respiratory function, and better cosmesis. Disadvantages include port site complications such as chest wall paresthesias and chronic pain. Three port thoracoscopy with apical wedge resection is the most commonly utilized technique. Recently, single port surgery for other conditions has gained popularity because of the potential for less postoperative pain, a decreased risk of port site complications, and even better cosmesis. We present a case of a single port thoracoscopic apical wedge resection with mechanical pleurodesis and partial pleurectomy for the treatment of a spontaneous pneumothorax in a pediatric patient.
METHODS: A 17 year old male developed a right-sided spontaneous pneumothorax, which was initially treated with a chest tube. Subsequently, an air leak persisted and the pneumothorax recurred during the same hospitalization. A CT scan revealed numerous apical blebs. The patient was taken to the operating room where the chest tube insertion site alone was utilized to pass a 5mm 30° thoracoscope, a 3mm grasper, and an articulating endoscopic stapler. The apical wedge resection, partial pleurectomy, and pleural abrasion were performed without difficulty. Two chest tubes were left in place through the 3.5cm incision.
RESULTS: The procedure was uncomplicated and technically easy because of the in-line position of the thoracoscope, grasper, and stapler. Postoperatively, the patient's minimal air leak resolved and the chest tubes were then promptly removed. At two month follow-up, there has been no recurrence, and the patient has no persistent pain or paresthesia.
CONCLUSIONS/FUTURE DIRECTIONS: We believe that single port thoracoscopy is safe and ergonomically efficient for the surgical management of primary spontaneous pneumothorax in the pediatric population. Further experience and prospective randomized trials are necessary to evaluate this technique.

P050

MULTIPLE USES OF NATHANSON RETRACTOR, A Najmaldin,E Ameh, Leeds Teaching Hospitals, Leeds, UK

Aims: To highlight multiple uses of Nathanson liver retractor initially introduced for liver retraction during laparoscopic fundoplication.
Methods and Results: Nathanson liver retractor is a useful tool in laparoscopic paediatric surgery. Its main use has been to retract the liver during laparoscopic fundoplication.
In our institution, we have used this instrument safely for a number of other procedures with very good effect. We have found it to be useful in laparoscopic cholecystectomy, choledochal cyst, retroperitoneal and transperitoneal renal and adrenal surgery. We have also used it to retract the lung during thoracoscopic procedures and intestine and pelvic organs during other intra-abdominal procedures. To date we have had no specific complications.
Conclusions: Nathanson retractor has multiple uses in paediatric endoscopic surgery. It is safe, easy to use and cost effective.

P051

ROBOTIC HELLER's CARDIOMYOTOMY AND THE USE OF A BIPOLAR DEVICE, A Najmaldin,N Alizai, Leeds Teachings Hospitals, Leeds, UK

Aims: A growing number of paediatric surgeons recognise laparoscopy as the ideal method for Heller's cardiomyotomy. However, the technique is not without limitations which include: difficult instrumentation within the posterior mediastinum and the risk of mucosal perforation which can be as high as 10%. We report the advantages of the Da Vinci robotic system to treat achalasia using a bipolar forceps.
Methods: Two consecutive children who suffered classical features of achalasia were treated surgically using the Da Vinci robotic system and a bipolar device. The patients were 11 and 13 years old and were both males. Three robotic and one conventional laparoscopic ports and a retractor were used in each case.
Results: Both procedures were completed successfully. The 3 dimensional steady operative view and articulated instruments were a clear advantage high up in the mediastinum. The robotic bipolar forceps allowed for easy and safe manipulation and myotomy. The total operating time including the set up and anti-reflux procedures was 205 minutes. There were no intra-operative or early post-operative complications. The patients were allowed to drink at 24 hours, fed at 72 hours and discharged on 3rd and 4th post-operative days.
Conclusions: The articulated instruments allow for easy and simultaneous retraction and dissection within the confined mediastinal space. The bipolar diathermy forceps allows for easy, precise and safe myotomy

P052

PREOPERATIVE SPLEEN EMBOLISATION MAKES LAPAROSCOPIC SPLENECTOMY A SAFER PROCEDURE IN CHILDREN, E. Van Der Veken MD, M. Laureys MD, L. Divano MD, C. Lerminiaux MD, A. Ferster MD, C. Devalck MD, M. Dassonville MD, Hôpital des Enfants Reine Fabiola,ULB-VUB,Brussels,Belgium ; Hôpital Brugmann,ULB-VUB,Brussels,Belgium

1/Objective : some series mention up to 68% intraoperative transfusions and important conversion rates due to hemorrhagic complications during laparoscopic splenectomy. We therefore eleborated a well defined protocol, associating interventional radiology and laparoscopic surgery.
2/ Description of protocol:
First step : under general anesthesia an experienced radiolgist performs a spleen embolisation : by a Seldinger technique a 2.7 French microcatheter is brought into the splenic artery. Through this

catheter and after dilution in iodinated contrast medium 150 to 250 microns calibrated poly-vinyl-alcohol microparticles are injected in the distal portions of the two major division branches of the splenic artery, until visual stagnation is obtained. Then several platinum coils (3 to 6mm diameter)are implanted in the proximal splenic artery untill a complete stop of the injected contrast is observed at the level of the proximal splenic artery.

Second step : with the child still under general anesthesia immediate laparoscopic splenectomy is performed using 3 or 4 single ports. After complete dissection the spleen is placed in an endobag, fractionned and removed through a slightly enlarged umbilcal incision.

3/Preliminary Results :

Between januari and october 2008 we performed laparoscopic splenectomy in 3 children with hypersplenism due to sickle cell anemia (1) or spherocytosis (2). Age varied from 3 to 6 years, weights from 13 to 19 kg. Indication for splenectomy was made according to clinical and biological data and after multidisciplinary consensus. One of the children suffering from spherocytosis also presented gallstones and the gallbladder was removed during the same operation.

We applied the protocol as described in the 3 patients. In all cases the spleen was completely necrosed at laparoscopy and dissection and manipulation of the spleen were faster and safer, causing no bleeding at all. Operating times were :

95 minutes, 125 minutes and 180 minutes for the combined procedure (splenectomy and cholecyctectomy). Blood losses were between 5 and 20 ml. One patient showed a slight elevation of pancreatic enzymes with normalisation within 5 days.There were no other postoperative complications.

4/ Conclusion : preoperative spleen embolisation followed by immediate laparoscopic splenectomy seems to be a safe procedure and facilitated laparoscopic splenectomy in these 3 patients. Further data on a larger series are needed to make singificant conclusions.

P053

LAPAROSCOPIC PYLOROMYOTOMY TRAINING USING HAPTIC FEEDBACK IN A VIRTUAL SIMULATION MODEL, Shabnam Parkar MD, Dean Mohamedally PhD,Munther Haddad MD, Chelsea & Westminster Hospital, London, UK

Introduction: Existing solutions for training in laparoscopy are limited due to the capabilities and accuracy of current training tools, the main disadvantage being the lack of tangible feedback. Currently, training in laparoscopy for surgical trainees occurs in vitro using rigid instruments. These cannot accurately simulate the detailed surgical techniques needed in actual operations. Secondly, current laparoscopic training does not incorporate measured improvements in technique.

Objective: To present a practical application of the trainee's response time, accuracy and technique to the benefit of peer review using a haptic laparoscopic pyloromyotomy model. Facilitating the advancement of haptic simulacra training in this field, we present a solution that combines experienced surgical recordings augmented with clinically relevant temporal haptic data.

Method: Our empirical design involves 45 participants separated into novices, junior trainees and experienced surgeons via a questionnaire assessment. Using the laparoscopic pyloromyotomy model, they will use two specially designed haptic instruments and view their application in 3D format. The initial phase involves teaching the technical aspects of the operation via a simulated demonstration conducted by a consultant. This serves as the benchmark for the trainee's approach. They will then undergo a series of simulations themselves that serve to advance their technical prowess. After assessing the results of 15 simulated runs we shall provide an empirical analysis of the trainee's capabilities over time.

Conclusion: This prototype provides a unique and innovative basis for teaching laparoscopy to surgical trainees in an anatomically realistic model with the advantage of tangible haptic control and feedback.

P054

14 GAUGE ANGIOCATHETER: THE ASSIST PORT, Jim M Hotaling MD, Stephanya Shear MD, Thomas S Lendvay MD, Seattle Children's Hospital, Seattle WA

Introduction: Minimally invasive techniques have emerged as standard of care for some pediatric reconstructive urology. In an effort to minimize required ports for Robotic-Assisted Laparoscopic (RAL) surgeries in children, we describe a novel technique for RAL pyeloplasties and orchiopexies using a 14 gauge (G) angiocatheter as an assist port in concert with various readily-available cystoscopic equipment.

Methods: After insertion of 3 robotic ports and docking the da Vinci® Surgical System (Intuitive Surgical, Sunnyvale, CA, USA) a 14G angiocatheter was placed through the abdominal wall under direct vision. The 14G angiocatheter was than used to facilitate stent placement, provide a port for semi-flexible cystoscopic graspers and to evacuate cautery smoke. Closure of the renal pelvis during pyeloplasties was facilitated by using a 14G angiocatheter for antegrade JJ ureteral stent placement by Seldinger technique. A 14G angiocatheter was also used for smoke evacuation by periodically venting a Luer-lock capped angiocatheter placed through the anterior abdominal wall. In addition, we have used standard 3Fr semi-flexible cystoscopic grapsers placed through the angiocatheter for tissue and suture tail retraction as well as used the graspers for pointing out anatomic landmarks during resident training. At the end of each case, the 14G angiocatheter was removed under direct vision prior to undocking the robot. A video comprising intra-operative footage from RAL outlines this technique.

Results: A 14G angiocatheter was used as an assist port in 17 RAL urologic procedures, 16 RAL dismembered pyeloplasties and 1 robotic orchiopexy. The 14G angiocatheter was used to facilitate stent placement, provide an assistant port for cystoscopic graspers and to evacuate smoke. No complications occurred as a result of 14G angiocatheter placement such as site bleeding or ecchymosis post-operatively.

Conclusions: The 14G angiocath technique uses existing equipment, requires no closure and can be placed anywhere on the abdominal wall. It allows RAL dismembered pyeloplasty to be performed with only 3 ports instead of traditional 4 and is very versatile and easily adaptable to nearly any robotic surgery. This is the first described method in the urologic literature of using a 14G angiocatheter to maximize bedside assistance while minimizing port placement in pediatric RAL surgery.

P055

THORACOSCOPIC REPAIR OF CONGENITAL DIAPHRAGMATIC EVENTRATION AND EXTRALOBAR LUNG SEQUESTRATION., Melanie c Clark MD, Boma B Adikibi MD, Gordon A MacKinlay MD, Fraser D Munro, Royal Hospital For Sick Children, Edinburgh

The association between congenital diaphragmatic hernia (CDH) and extralobar lung sequestration (ELS) is a recognised but rare phenomenon. The literature has scattered cases reports of this condition, but none having been performed through the minimal invasive route.

A male infant was antenatally diagnosed with congenital cystic adenomatoid malformation. He was born vaginally at term, he required no resuscitation. A CXR on day one of life revealed cystic changes at the base of the left lung. Six months of age he had a CT scan and USS of his chest, which reported a projection from the left hemidiaphragm in keeping with a diaphragmatic eventration containing kidney and spleen. He remained clinically asymptomatic. At 19 months old he was admitted for thoracoscopic repair of eventration. At the time of surgery the left lung was deflated to reveal a posterolateral diaphragmatic defect plugged by an ELS with a large feeding vessel coming form the aorta. The ELS was dissected from the diaphragm using monopolar diathermy and the large feeding vessel was occluded using plasma Kinetic forceps. The diaphragmatic defect was closed using six interrupted 2/0 ethibond sutures. The ELS was removed from the chest through an extended port site. Three 5mm ports were used. The lung was inflated, no chest drain was inserted. The operation time was 1 hour 20 minutes. The patient made a rapid recovery and was discharged home 2 days later. The pathology confirmed the findings of an ELS. The patient has been seen regularly in the 16 months post surgery. He has remained well, asymptomatic, with barely visible scars and complete symmetry of his chest. The thoracoscopic approach was beneficial over the open approach for this child, enabling him to benefit from reduced post operative pain, reduced hospital stay, early mobilisation and minimal scarring, without an increased operative time, despite the unexpected operative findings.

This case reveals the versatility of thoracoscopic surgery in complex, rare and unexpected thoracic pathology.

P056

THE THORACOSCOPIC APPROACH TO AN H-TYPE TRACHEOESOPHAGEAL FISTULA, Martin L van Niekerk MD, University of Pretoria, South Africa

Introduction: H-type Tracheoesophageal fistulae (TEF) make up 4% - 5% of esophageal congenital abnormalities. H-type TEF can occur anywhere from the cricoid to the carina. Thirty percent of cases are below T2. Previously the approach for this subgroup was via a thoracotomy. During the past decade minimal invasive surgery has become very useful for the treatment of many pediatric thoracic conditions. This poster presents our experience with the thoracoscopic repair of an H-type TEF at the level of T3 in a 5-day-old baby.
Patient and method: A 2,8 kg male baby presented at our institution with coughing, choking and cyanosis during feeds. An H-type TEF without associated anomalies was diagnosed by esophagography.
A three-port technique was used. Carbon dioxide insufflation at a pressure of 5 mm Hg and a flow of 0,1 L/min was used to collapse the R lung. The posterior pleura was opened and the fistula identified. The fistula was tied off at the trachea and was resected. The opening in the esophagus was sutured with interrupted Vicryl stitches. Oral feeding was given 3 days post op, with no clinical signs of leaking.
Discussion: The thoracoscopic approach allows for excellent access and easy identification and resection of a fistula.
Conclusion: This method is feasible and easy to achieve. It offers important advantages over the classic open technique.

P057

VIDEO-ASSISTED PARAVERTEBRAL BLOCK IN PEDIATRIC THORACOSCOPIC SURGERY, Nicola 1 Zadra MD, Paola 2 Midrio MD, Franca 1 Giusti MD, Piergiorgio 2 Gamba MD, 1 Anesthesia and Intensive Care Unit, Padua Hospital - 2 Department of Pediatrics, Pediatric Surgery, University of Padua ITALY.

Video-assisted thoracic surgery (VATS) is improperly considered minimally invasive and it can be associated with severe postoperative pain. A continuous paravertebral block (PVB) provides good pain relief after thoracotomy in children (1). Recently a video-assisted approach to PVB has been proposed in adults (3) and we used this technique in two children (4 and 10 yrs old) undergone VATS for lung resection.
Surgical procedures were managed under general anesthesia with one lung ventilation. At the end of surgery, with the nondependent lung still collapsed, a scrubbed anaesthesiologist performed a percutaneous paravertebral block at T6-T7 level. Under direct thoracoscopic view the correct position of the needle's tip, the injection of the local anesthetic solution, and the passage of the catheter beneath the pleura were easily controlled. Children were rapidly extubated in the operatory room. For postoperative pain control they received oral paracetamol and a continuous paravertebral infusion of L-Bupivacaine (0.25-0.3 mg/kg/h) for 24 and 48 hrs respectively. Postoperative pain was assessed every 4 hrs with CHEOPS and patients remained pain free without rescue analgesics until discharge.
Continuous PVB is effective to provide postoperative analgesia after VATS in children. The video-assisted approach is easier and safer as it allows the direct view of the block, otherwise blindly performed.
REFERENCES
1.Eng J, Sabanathan S. Continuous paravertebral block for post-thoracotomy analgesia in children. J Pediatr Surg 1992, 5:556-557.
2.Feltracco P, Ori C. A new look at the paravertebral block: a percutaneous video assisted technique. RAPM 2007, 32: 538-539.

P058

PERIOPERATIVE OUTCOME OF SURGERY FOR ESOPHAGEAL ATRESIA (EA) WITH TRACHEO-ESOPHAGEAL FISTULA (TEF): IS THE THORACOSCOPIC APPROACH JUSTIFIED?, Philipp O Szavay MD, Sabine Zundel MD, Tobias Luithle MD, Monika Girisch MD, Joerg Fuchs MD, Department of Pediatric Surgery, Department of Pediatric Cardiology and Critical Care, Children's Hospital, University of Tuebingen

Introduction: Thoracoscopic approach for repair of EA with TEF has become a standard procedure in many pediatric surgical centers. Still, there are critical considerations of disciplines also in charge for these infants, such as neonatologists and pediatric intensive care physicians. Aim of our investigation was to clearly define the perioperative outcome and complication rate in children undergoing thoracoscopic versus open surgery.
Patient and Methods: We reviewed patient records of 60 newborns undergoing surgery for EA and TEF between March 2002 and September 2008. Mean gestational age was 35 weeks, mean weight was 2380 g. There were 28 girls and 32 boys. 32 children had associated anomalies.
Results: There were 20 children undergoing a thoracoscopic procedure. In the first 8 cases the operation was converted to open thoracotomy. Reasons for conversion were increasing hypoxia, bad sight and laceration of the lung in one case. Another 30 children were operated through a thoracotomy and in 10 newborns a cervical esophagostomy was performed due to long-gap EA. All children but those with the cervical esophagostomy were provided with a chest drain disregarding the type of approach. Mean operation time/ minutes was 136 in the thoracoscopic and 113 in the thoracotomy group, with no significant difference (p>0.05). Mean ventilation time postoperatively/hours was 87 in the thoracoscopic and 94 in the open group respectively with no significant difference (p>0.05). Complications such as pneumothorax despite drainage, mediastinitis, insufficiency of the anastomosis and dislocation of a clip for the tracheo-esophageal fistula were noticed in 4 children undergoing thoracoscopy and in 6 patients of the thoracotomy group. Again, there was no significant difference (p>0.05).
Conclusion: Despite skeptical considerations thoracoscopic repair of EA with TEF is justified due to a comparable outcome to open surgery, competitive operating times, decreased trauma to the thoracic cavity and improved cosmesis. Complication rates are not higher than in children operated on through a thoracotomy. However a learning curve has to be taken into account and large experience in minimal invasive surgery is mandatory for this procedure.

P059

AN UNUSUAL COMPLICATION OF 3MM NEEDLE HOLDER IN THORACOSCOPIC DIAPHRAGMATIC HERNIA REPAIR, A Bandi MD, M Haddad, SA Clarke MD, Chelsea & Westminster Foundation NHS Trust, Imperial College London

A 2 day old male infant underwent an uneventful primary thoracoscopic repair of a left sided diaphragmatic hernia. The case was completed using 3mm instruments (Karl Storz). At the first post operative review an opacification was noted in the central abdominal field on routine chest x-ray. On CT (image provided) the lesion was confirmed as being in the left costophrenic angle and possibly metallic.
A trace was made of the instrument which had been sent back for handle problems and subsequently destroyed. No mention had been made of the missing fragment. The fragment is presumed to be the 0.2mm tungsten carbide alloy plate on the anterior 2/3rds of the jaw of the 3mm needle holder, the absence of which is difficult to see with the naked eye. (image supplied). The Medicines and Health Regulatory Agency have confirmed the substance to be biocompatible and of low risk to the patient.
The family were fully informed and the patient remains well with no complications. No plans have been made to remove the fragment .

P060

INTRATHORACIC COMPRESSION PROCEDURE (ITCP) FOR PECTUS CARINATUM., P Varela MD, F yankovic MD, S Montedonico MD, H Herice MD, Hospital Luis Calvo Mackenna. Universidad de Chile

Introduction: Pectus carinatum (PC),is the second most common chest wall deformity. Open surgical cartilages resection techniques have been the standard procedures.
Objective: To report our early experience using a minimally invasive surgery previously reported by Abramson.
Methods: from September 2007 to September 2008, 5 pediatric male patients (average age: 14 y.o.) with severe PC, were treated in our institution with this technique. The procedure uses a intrathoracic steel compression bar and two stabilizers. The bar is placed at the level of the maximum sternal protrusion through a 2.5 cm skin incision at the mid axillary line and passed trough a tunnel under the pectoral muscles above the sternum. After having achieved the correction of the deformity, the bar is fixed to the ribs using two stabilizers.
Results: All procedures were completed successfully. Operative mean time was 90 min. All patients were discharged four days after surgery. One patient needed a redo intervention for stabilizer replacement. Post operative results were satisfactory for surgeon and patients in all cases.
Conclusions: This is an initial report for a new minimal invasive technique for PC treatment. We support the ITCP as a valid

therapeutic option, for patients with PC deformities. Long-term follow-up is necessary to evaluate the effectiveness of this minimally invasive procedure.

P061

FLEXIBLE CYSTOURETHROSCOPY IN THE PEDIATRIC POPULATION, Jeffrey S Palmer MD, Glickman Urological and Kidney Institute, Cleveland Clinic Children's Hospital

Objectives: The flexible cystoscope is the standard endoscope used for adult cystourethroscopy. However, the technology has lagged for the pediatric population. A flexible cystoscope designed specifically for the pediatric population that is short in length and small in diameter would enable this procedure to be performed in children. We evaluated a prototype flexible pediatric cystoscope to determine the feasibility of flexible cystourethroscopy (CUS) in the pediatric population.
Methods: We evaluated all children less than 13 years of age undergoing attempted flexible CUS. The endoscope was a prototype 5-French pediatric cystoscope (Olympus) with upward and downward active deflection capability. Patients first underwent flexible CUS and then underwent semirigid CUS with a 7.5 or 10-French pediatric cystoscope in order to validate the flexible CUS findings. A successful flexible CUS required accurately diagnosing all lesions noted on semirigid CUS and clear visualization of specific endoscopic landmarks (including visualization of all of the ureteral orifices and the dome of the bladder). Also, easy of use of the flexible cystoscope and quality of image were also noted.
Results: Sixteen children (9 girls and 7 boys) between 7 months and 11.9 years of age underwent flexible CUS. All patients successfully underwent flexible CUS with 100% accuracy confirmed by semirigid CUS. The quality of the image was clear in all cases. The flexible cystoscopy was considerably easier to use in the females than in the males due to anatomic reasons. No postoperative complications occurred including acute urinary tract infection or urethral/bladder trauma.
Conclusions: This feasibility study demonstrates that the prototype flexible pediatric cystoscope can be performed with clear imaging and with similar accuracy.

P062

LAPAROSCOPIC VARICOCELECTOMY TO TREAT VARICOCELE RECURRENCE, Jeffrey S Palmer MD, Glickman Urological and Kidney Institute, Cleveland Clinic Children's Hospital

Objectives: One of the complications associated with open surgical techniques to treat varicoceles is recurrence. We evaluated the efficacy and safety of lymphatic-sparing laparoscopic varicocelectomy to correct varicocele recurrence after open varicocelectomy in the pediatric population.
Methods: We evaluated all children less than 18 years of age undergoing laparoscopic varicocelectomy after either an open subinguinal or inguinal varicocelectomy. A three-port technique is used with one infraumbilical port and one port in the midclavicular line bilaterally at the level of the umbilicus. An incision is made in the posterior peritoneum over the spermatic cord vessels. The vessels are dissected away from the lymphatics with minimal manipulation, and then the artery/veins are double ligated with clips and transected. Patients are monitored postoperatively for varicocele recurrence and hydrocele formation. A successful varicocelectomy is defined as no varicoceles palpable in the standing position with Valsalva.
Results: Eight boys 10.0 and 16.7 years of age underwent laparoscopic varicocelectomy. All patients underwent successful varicocelectomy. No postoperative complications occurred including hydrocele formation, infection, or testicular atrophy after at least 6 months of follow-up.
Conclusions: Lymphatic-sparing laparoscopic varicocelectomy is an effective and safe technique to treat varicocele recurrence after open surgery. Postoperative varicocele recurrence and hydrocele formation were not noted.

P063

LYMPHATIC-SPARING LAPAROSCOPIC VARICOCELECTOMY IS EFFECTIVE AND SAFE, Jeffrey S Palmer MD, Glickman Urological and Kidney Institute, Cleveland Clinic Children's Hospital

Objectives: Complications associated with open varicocelectomy techniques include varicocele recurrence and hydrocele formation. These complications have also been noted with laparoscopic varicocelectomy. We determined the effectiveness and safety of lymphatic-sparing laparoscopic varicocelectomy in the pediatric population.
Methods: We evaluated all children less than 18 years of age undergoing laparoscopic varicocelectomy for grade 3 varicoceles. A three-port technique is used with one infraumbilical port and one port in the midclavicular line bilaterally at the level of the umbilicus. An incision is made in the posterior peritoneum over the spermatic cord vessels. The vessels are dissected away from the lymphatics with minimal manipulation, and then the artery/veins are double ligated with clips and transected. Patients are monitored postoperatively for varicocele recurrence and hydrocele formation. A successful varicocelectomy is defined as no varicoceles palpable in the standing position with Valsalva.
Results: Forty-eight boys between 10.0 and 17.6 years of age underwent laparoscopic varicocelectomy. No patient needed to be converted to an open varicocelectomy. All patients underwent successful varicocelectomy. No postoperative complications occurred including hydrocele formation, infection, or testicular atrophy after at least 6 months of follow-up.
Conclusions: Lymphatic-sparing laparoscopic varicocelectomy is an effective and safe technique to treat varicoceles. Postoperative varicocele recurrence and hydrocele formation were not noted.

P064

TYPE IV POLYORCHIDISM WITH AN UNUSUAL PRESENTATION, Baran Tokar MD, Umut Alici MD, Dilsad Demet MD, Eskisehir Osmangazi University School of Medicine, Dept of Pediatric Surgery, Eskisehir Turkey

Polyorchidism is a rare pathology with less than 100 cases reported up to date. There are 4 types and type IV is the rarest one which is a complete duplication of the testis, epididymis and vas. In reported locations, only 5% of the supernumerary testis is located retroperitoneally. We present a case having type IV unilateral polyorchidism with a proximal testis located in abdomen. A 5-year -old boy who had laparoscopy and then inguinal exploration for a left nonpalpable testis is presented. The right testis was in the scrotum. Laparoscopic intraabdominal exploration followed by inguinal exploration was performed for the left side. In laparoscopic exploration, an intraabdominal testis with its vas and vessels was determined on the left side. The testis was very mobile, and could be easily transferred down into the scrotum. Pulling the left testis toward the right inguinal canal orifice was performed to test feasibility of the testis for orchidopexy. As a second step, inguinal incision was done to explore the inguinal area and to make orchidopexy. Inguinal exploration showed another testis with its own epididymis, vas and vessel. This testis was atrophic. The diagnosis was type IV polyorchidism on the left side. Orchiectomy was done for the distal inguinal atrophic testis. Orchidopexy was performed for the proximal abdominal testis.
The primitive gonadal ridge is an elongated structure in fetus, polyorchidism may occur with transverse fragmentation of the gonodal ridge. A complete separation of the testes and drainage system is very unusual presentation in polyorchidism, and it needs duplication of both the genital ridge and the mesonephric duct. If the testicular quality is poor, orchiectomy should be done in the supernumerary testis.

P065

EARLY ENDOSCOPIC INCISION OF URETEROCELE DETECTED BY PRENATAL ULTRASOUNDS: TEN YEARS EXPERIENCE, Lucia Virardi MD, Maria Grazia Scuderi MD, Elena Camarda MD, Salvatore Arena MD, Vincenzo Di Benedetto PhD, Pediatric Surgery - University of Catania- Italy

Aim: Prenatal ultrasonography has resulted in a drammatic increase in the number of infants detected with asymptomatic urophatology, allowing treatment before the potencial consequences of urinary sepsys. The aim of this study is to show our experience after ten years of endoscopic incision of ureterocels (EIU).
Methods: From 1998 to 2008, 27 children with ureterocele have been observed in our department. 18 cases were detected by prenatal ultrasounds and confirmed in the first few days of life. In all cases the ureterocele have been incised in the first two week after the diagnosis as treatment of choise andin one day surgery.
Results: EIU has resulted in a drammatic decompression of the ureteroceles in 100% of cases (1 bilateral). Reflux in the upper pole was created in 60% of cases while upper pole preservation was achieved in 100%.

Surgical recostruction of bladder neck and excision of ureterocele was done in 60% of cases, while 40% of cases had only EIU procedure.
Conclusions: we believe that EIU procedure must be considered the treatment of choise for asymptomatic patients with ureteroceles detected by prenatal ultrasounds. Moreover endoscopic procedure has permitted a totally recovery of the upper pole in our series though 60% of patients undergone secondary surgical procedure.

P066

OPEN VS MINIMALLY INVASIVE PYELOPLASTY IN CHILDREN: A COMPARATIVE ANALYSIS, Sarah Marietti MD, Christina Kim MD, Connecticut Children's Medical Center

The use of minimally invasive surgery in pediatrics is constantly expanding. In the past, pyeloplasty had been performed exclusively with an open approach. Both standard laparoscopy and robotic surgery are options to perform the same surgery with a minimally invasive approach (MIS). We share our experience with both open and MIS pyeloplasty in children.
Between January 2004 and April 2008, our practice performed 18 open and 28 MIS pyeloplasties. We looked at length of operation, postoperative pain management, rate of complications, length of hospital stay, and postoperative results.
Operative time was clearly longer in the MIS group with total OR time of 543 min versus 241 min respectively. 67% of open patients had an epidural versus 0% of the MIS patients. There was no statistically significant difference in complications between the two groups There were no intraoperative complications in either group.. There were no postoperative complications in the open group and 1 in the MIS group (urine leak). The hospital stay was shorter in the MIS group. 97% pts in the MIS group were discharged by postoperative day 2 versus only 39% of the open group. Postoperative imaging was improved in 89% of the open group and 83% of the MIS group.
Our experience shows low complications and good results with MIS pyeloplasties. Although our operative time for MIS is higher, it does not factor in the additional step of cystoscopy and stent placement that did not occur in the open population. When we assessed operative time with experience, we saw shorter operative times with more experience. Our results reinforce the belief that both standard laparoscopy and robotic approaches to pyeloplasty provides quicker recovery with comparable surgical results.

P067

HYDROCELE IN THE PEDIATRIC PATIENTS: INGUINAL OR SCROTAL APPROACH OR LAPAROSCOPIC CORRECTION?, Hiroo Takehara MD, Hisako Kuyama MD, Department of Pediatric Surgery and Pediatric Endosurgery, Tokushima University Hospital,

Indirect inguinal hernia or communicating hydrocele is the most frequent operation performed on children by pediatric surgeons and urologists. Hydrocele is generally treated with the traditional inguinal approach or the scrotal approach. We describe our experience with LPEC (laparoscopic percutaneous extraperitoneal closure method) for hydrocele caused by the patent processus vaginalis.
We have performed 850 LPECs in 670 children with inguinal lesions (575 cases with inguinal hernia, 95 cases with hydrocele of the cord or scrotum). There were no occurrences of hydrocele after LPECs for 755 hernias. Of these 95 patients, 50 (2-15 years of age) had communicating hydrocele, 45 (1-9 years of age) had noncommunicating hydrocele including 6 with abdominoscrotal hydrocele.
The laparoscopic correction of hydrocele involves high-circuit suturing of the processus vaginalis, as in LPEC for inguinal hernia. The distal part of the noncommunicating hydrocele is left open laparoscopically via the internal inguinal ring, or a percutaneous puncture, or a small incision in the scrotum. No recurrence was observed in 50 communicating hydroceles treated with LPEC. Of 45 noncommunicating hydroceles treated with LPEC and additional drainage, one abdominoscrotal type complicated with thickened wall of hydrocele developed to recurrence because of insufficient celotomy for concealed hydrocele.
These results suggest it is unnecessary to dissect the processus vaginalis and hydrocele from the spermatic cord and vessels with inguinal approach or the scrotal approach. The advantages of this strategy by LPEC are not only simple and minimally invasive closure, but also a lower risk of injury to the spermatic duct or vessels and complete closure of the communication between the peritoneal cavity and the hydrocele to a greater or lesser degree.

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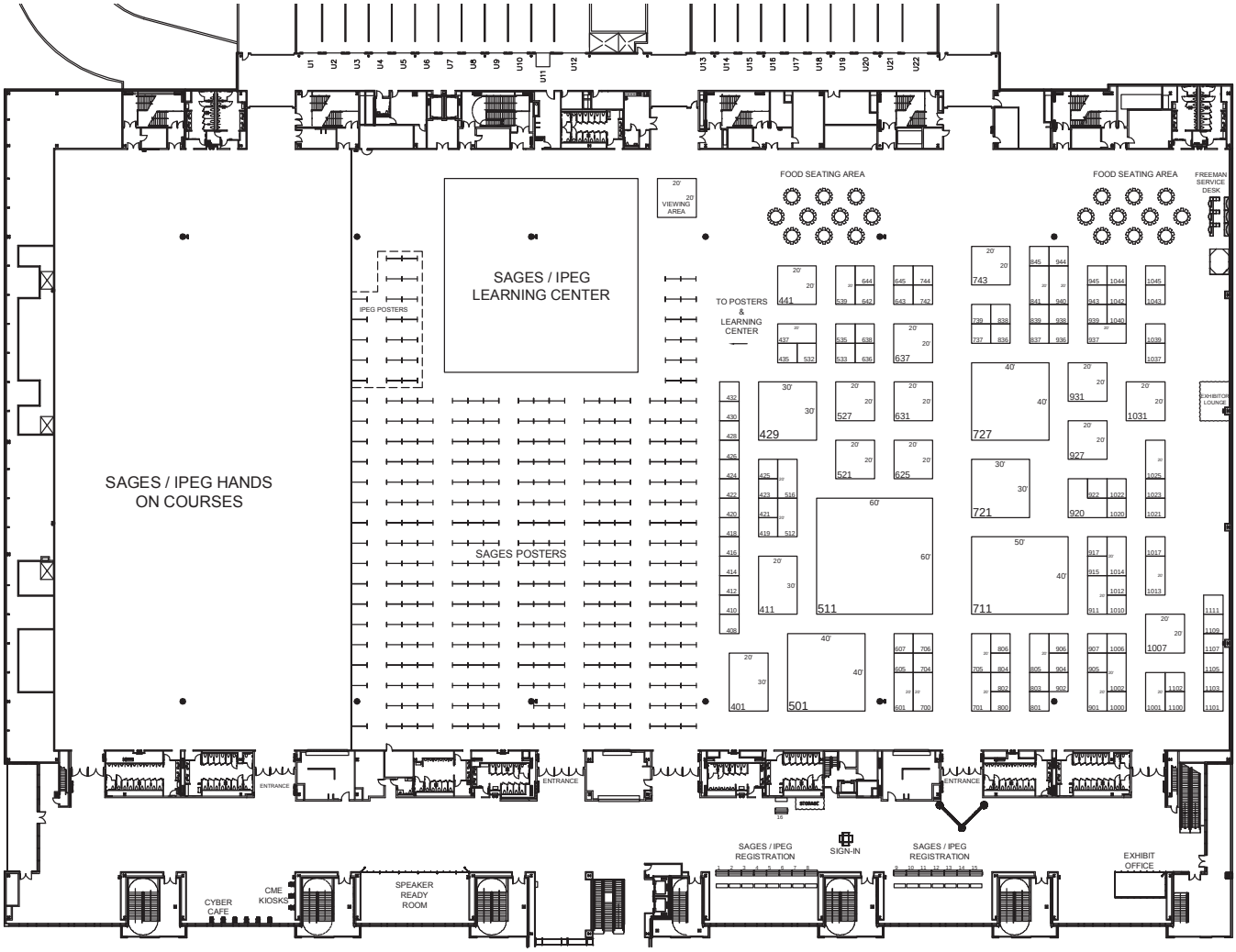

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Website: www.cookmedical.com

Cook Medical was one of the first companies to help popularize interventional medicine, pioneering many of the devices now commonly used worldwide to perform minimally invasive medical procedures.

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Website: www.covidien.com

Covidien is a leading global healthcare company that creates innovative solutions for better patient outcomes and delivers value through clinical leadership and excellence. Covidien manufactures a range of industry-leading products in five segments including Surgical and Energy-based Devices.

CROSPON INC. #839

701 Palomar Airport Road, 3rd Floor
Carlsbad, CA 92011
Tel: 760-931-4801 Fax: 760-931-4804
Website: www.endoflip.com

Crospon's first product, EndoFLIP® (Endolumenal Functional Lumen Imaging Probe) is an imaging tool which measures the dimensions and distensibility of hollow organs in the alimentary tract. EndoFLIP® may be used to assist in the diagnosis of Gastroesophageal Reflux Disease (GERD), for GERD surgery assessment, and for measurement in Bariatric surgery.

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Warwick, RI 02886
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Website: www.davol.com

Bard Davol, the market leader in hernia repair, offers a broad range of unique synthetic and biologic implants for laparoscopic and open approaches. Additionally, the NEW SorbaFix™ Fixation System provides strong, consistent, and reliable fixation with fully absorbable fasteners.

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The Netherlands
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Website: www.simendo.eu

SIMENDO® is a laparoscopy training simulator for the simple and advanced basic skills. The SIMENDO is an innovative tool that supports a complete validated training curriculum with a very useful scoring system. The SIMENDO can be applied from the moment you received the system and is a great answer if you are looking for an effective and easy training solution. The simulator is compact, light-weighted and can be transported in a small suitcase.

EAGLE SURGICAL PRODUCTS LLC #425

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ENDOCONTROL #1037

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Tel: +33 4 7663 7583 Fax: +33 4 7654 9561
Website: www.endocontrol-medical.com

EndoControl is an innovative company specialized in robotic assistance for minimally invasive surgery. ViKY® our main product, is a compact motorized endoscope holder for laparoscopic surgery which role is to maintain and move the endoscope according to surgeon orders with a footswitch control.

ENDOGASTRIC SOLUTIONS #920

555 Twin Dolphin Drive, Suite 620
Redwood City, CA 94065
Tel: 650-226-2225 Fax: 650-226-2201
Website: www.endogastricsolutions.com

EndoGastric Solutions, (EGS) is the pioneer in incisionless surgical procedures for the treatment of upper gastrointestinal diseases. TIF (Transoral Incisionless Fundoplication) with EGS' EsophyX™ device creates a valve between the stomach and esophagus, reduces hiatal hernia, and restores the anatomy to reduce/prevent gastroesophageal reflux.

ETHICON ENDO-SURGERY, INC. #711

4545 Creek Road
Cincinnati, Ohio 45242
Tel: 800-USE-ENDO Fax: 800-873-3636
Website: www.ethiconendo.com

Ethicon Endo-Surgery, Inc. develops and markets advanced medical devices for minimally invasive and open surgical procedures. The company focuses on procedure-enabling devices for the interventional diagnosis and treatment of conditions in general and bariatric surgery, as well as gastrointestinal health, plastic surgery, orthopedics, gynecology, and surgical oncology.

GENERAL SURGERY NEWS #907

545 West 45th Street
New York, NY 10036
Tel: 212-957-5300 Fax: 212-957-7230
Website: www.generalsurgerynews.com

General Surgery News is a monthly newspaper designed to keep general surgeons abreast of the latest developments in the field. The publication features extensive meeting coverage, analysis of journal articles, educational reviews, and information on new drugs and products.

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One McGuire Road
Lexington, MA 02421
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Website: www.gidynamics.com

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GORE & ASSOCIATES #401

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Flagstaff, AZ 86003
Tel: 928-779-2771 / 800-437-8181
Website: www.goremedical.com

Gore Medical Products Division has provided creative therapeutic solutions to complex medical problems for three decades. The extensive Gore Medical family of products includes vascular grafts, endovascular and interventional devices, surgical materials for hernia repair, soft tissue reconstruction, staple line reinforcement, and sutures for use in vascular, cardiac and general surgery.

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Website: www.haptica.com

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Tel: 973-240-1200
Website: www.hraresearch.com

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Tel: 800-929-4709 Fax: 301-984-2104
Website: www.immersion.com

Immersion's Medical line of business designs, manufactures, and markets computer-based surgical simulation training systems worldwide. The medical and surgical simulators integrate proprietary computer software and tactile feedback robotics to create highly realistic medical simulations that help train clinicians. The company's key product lines are the Virtual IV system, Endoscopy AccuTouch® simulator, CathLabVR surgical simulator, and LaparoscopyVR surgical simulation system.

INTUITIVE SURGICAL, INC. #429

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Sunnyvale, CA 94086
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Website: www.intuitivesurgical.com

Intuitive Surgical, Inc. is the global technology leader in robotic-assisted, minimally invasive surgery. The Company's da Vinci® Surgical System enables general surgeons to offer a new, minimally invasive approach to patients.

JLJ MEDICAL DEVICES INT'L #915

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Website: www.JLJMedicalDevices.com

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Website: www.lapforceps.com

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Website: www.lexionmedical.com

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LifeCell is a leading provider of hernia repair and breast reconstruction products including AlloDerm® and Strattice®. LifeCell Tissue Matrices support tissue regeneration through rapid revascularization, cell repopulation and white cell migration; may help to optimize aesthetic outcomes in breast applications; and may minimize the risks of some complications. LifeCell is launching Strattice for breast plastic surgery revisions in 2009.

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Website: www.richardwolfusa.com

Richard Wolf Medical Instruments (RWMIC) manufactures and distributes laparoscopic and thoracoscopic instruments. RWMIC also manufactures scopes, insufflators and a complete line of instruments and optics designed specifically for bariatric and colorectal surgery. RWMIC offers the only stereoscope on the market, designed specifically for Transanal Endoscopic Microsurgery.

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Website: www.salix.com

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SANDHILL SCIENTIFIC #806

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Toll-Free: 800-468-4556 Fax: 303-470-2975
Website: www.sandhillsci.com

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Website: www.sierrainst.com

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SURGICAL PRODUCTS MAGAZINE #804

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Surgical Products, a monthly product news magazine, is the leading source of new product information to 60,000 surgeons and other medical and purchasing professionals in hospitals and surgi-centers across the country. Surgical Products magazine is available in both hard and digital editions. The publication is also complemented by a stable of online offerings including a monthly e-newsletter, e-product showcase and custom-designed, audience-directed E-Marketing blasts.

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Website: www.suturtek.com

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SYNAPSE BIOMEDICAL INC. #532

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