12th ANNUAL MEETING OF THE BRITISH ASSOCIATION OF PAEDIATRIC ENDOSCOPIC SURGEONS

and

1ST ‘INAUGURAL’ MEETING OF THE EUROPEAN SOCIETY OF PAEDIATRIC ENDOSCOPIC SURGEONS

Scientific Conference
Simulation Workshop

Chelsea, London
2-4 November 2011

London soon not only plays host for the Olympic Games, but also the 12th annual congress of the British Association of Paediatric Endoscopic surgeons (BAPES) as well as the inaugural meeting of the European Society of Paediatric Endoscopic Surgeons (ESPES).

The scientific conference will be hosted at Stamford Bridge, home to the world famous Chelsea Football Club
**WELCOME ADDRESS**

Dear Colleagues and Friends

I am delighted to welcome you to the 12th BAPES Annual Scientific Conference and this year BAPES is honoured to welcome the European Society of Paediatric Endoscopic Surgeons (ESPES) for its first scientific congress. We also welcome SIVI from Italy and members of other European associations and I hope that you will agree that the full scientific programme that has been put together will provide ample opportunity to share knowledge, expertise and ideas.

I would like to thank the local organizing committee, especially Mr Simon Clarke. Mr Munther Haddad and Mr Alastair Dick of BAPES, and Mr Azad Najmaldin and Professor Zachariou of ESPES for the days of hard work they have spent to bring all things together for this meeting.

London is a truly cosmopolitan city and Chelsea exemplifies this. The venue of Chelsea FC, a world famous football club is a fantastic location for this international conference and will provide a once in a lifetime opportunity to go behind the scenes of this institution. Our annual dinner will provide an opportunity to meet many new colleagues and get to know them perhaps more informally. I encourage you to attend this event on Thursday evening.

I would also like to thank our sponsors and industry representatives, especially Karl Storz and Covidien for their continuing help and support for this conference.

I wish you all an enjoyable few days and hope to be able to chat with many of you personally during the meeting.

**Henrik Steinbrecher**

President of BAPES

**ADDRESS ON BEHALF ESPES**

Dear All

It is a pleasure to welcome you all to the first ESPES and 12th BAPES Scientific Meeting which promises to be a fantastic educational and social programme for all minimal invasive surgeons, trainee doctors and allied specialists and scientists as well as nurses, technicians and industry throughout Europe and beyond.

ESPES ‘European Society of Paediatric Endoscopic Surgeons’ was born in late 2010, after many years of deliberation and consultation within the European scene and as a natural response to ever increasing challenges that have resulted from the European rule of integration in respect of healthcare, employment, finances, education and training. Our constitution dictates close collaboration with all European and non-European national and international professional organisations and this joint meeting, with BAPES represents the first of many to come.

The first day ‘Wednesday 2 November’ will be the BAPES simulation workshop. The joint scientific meeting will continue throughout Thursday 3 and Friday 4 November covering all aspects of minimal invasive surgery as well as advances of technology and educational and training matters. There will also be keynote lectures and interesting mini-symposia ‘debate - for and against’ on various controversial aspects of our practice. The general meeting of ESPES members on Thursday afternoon will provide an opportunity to all Europeans to shape the future of our new society.

We are grateful to Henrik Steinbrecher, Simon Clarke and other executive and non-executive members of BAPES for welcoming ESPES and facilitating our ‘inaugural meeting’ in London.

We are grateful to all sponsors, industry partners and those who have helped and will help towards organising this special occasion.

We look forward to seeing you all in London in November 2011.

**Azad Najmaldin**
COMMITTEES

Organisation
Simon Clarke
Alastair Dick
Ciro Esposito
Marie-Klaire Farrugia
Munther Haddad
Manuel Lopez
Azad Najmaldin
Henrik Steinbrecher
Zacharias Zachariou

Abstract Selection
Alastair Dick
Ciro Esposito
Manuel Lopez
Azad Najmaldin
Henrik Steinbrecher
Thomas Tsang
Zacharias Zachariou

Prize Selection
Naved Alizai
Emir Haxhija
Alex Lee

REGISTRATION

https://bapes.conference-services.net/directory.asp

www.bapes.org.uk
www.espes.org

FACULTY - CONGRESS

Naved Alizai
Nyi Ade-Ajay
Mohammed Choudhry
Simon Clarke
Joe Curry
Alastair Dick
Marie-Klaire Farrugia
Hugh Grant
Munther Haddad
Graham Haddock
Phil Hammond
Lara Kitteringham
Alex Lee
Sean Marven
Mark Powis
Atul Sabharwal
Mike Stanton
Henrik Steinbrecher
Thomas Tsang
Juan de Agustin
Raimundo Beltra
Vincenzo di Benedetto
Fabio Chiarenza
Vladimir Cingel
Hasan Dogruyol
Ciro Esposito
Stefan Gfrörer
Emir Haxhija
Manuel Lopez
Luciano Musi
Azad Najmaldin
Macel Oancea
Dariusz Patkowski
Amuyla Saxena
Alessandro Settimi
Zacharias Zachariou
PROGRAMME AT A GLANCE

PRECONGRESS WORKSHOP - WEDNESDAY 2 NOVEMBER 2011

CHELSEA & WESTMINSTER CLINICAL PRACTICE CENTRE
CHELSEA & WESTMINSTER HOSPITAL, LONDON

Simulation is playing an increasingly important role in paediatric minimal access surgery and this year we are hosting the workshop in the Simulation centre within the hospital. The format will have some changes to previous years with the emphasis on expert operative demonstration, tissue simulation, instruction and feedback. (Details of workshop to found in additional webpage)

SCIENTIFIC CONFERENCE - THURSDAY 3 & FRIDAY 4 NOVEMBER 2011

DRAKE SUITE, WEST STAND, CHELSEA FOOTBALL CLUB, LONDON

Topics include Upper & Lower Gastrointestinal, Hepatobiliary, Thoracic, Neonatal, Urology, Oncology, Recent Advances, Revalidation and Simulation

Thursday 3rd November 2011

08.15 - 10.00 Registration
10.00 - 10.05 Opening remarks (BAPES/ESPES)
10.05 - 11.05 SESSION 1 (FREE PAPERS)
11.05 - 11.30 Coffee & Exhibition
11.30 - 12.30 SESSION 2 (FREE PAPERS)
12.35 - 13.05 KEY NOTE SPEAKER I
13.05 - 14.00 Lunch & poster viewing
14.00 - 15.00 SESSION 3 (DEBATE I - CONTROVERSIAL TOPIC)
15.00 - 15.20 Coffee & Exhibition
15.20 - 16.00 SESSION 4 (FREE PAPERS)
16.00 - 17.30 ESPES ANNUAL GENERAL MEETING (MEMBERS ONLY)
18.30 - TOUR OF STADIUM & MUSEUM
19.30 - BAPES/ESPES - COCKTAIL RECEPTION & CONGRESS DINNER
BLUE ELEPHANT ROYAL THAI RESTAURANT, FULHAM

Friday 4th November 2011

09.00 - 10.00 BAPES ANNUAL GENERAL MEETING (MEMBERS ONLY)
10.00 - 11.05 SESSION 5 (FREE PAPERS)
11.05 - 11.30 Coffee & Exhibition
11.30 - 12.30 SESSION 6 (FREE PAPERS)
12.30 - 13.30 Lunch & poster viewing
13.30 - 14.00 POSTER PRESENTATION
14.00 - 14.30 KEYNOTE SPEAKER II
14.30 - 15.35 SESSION 7 (FREE PAPERS)
15.35 - 15.55 Coffee & Exhibition
15.55 - 16.25 KEYNOTE SPEAKER III
16.25 - 17.15 SESSION 8 (DEBATE II - CONTROVERSIAL TOPIC)
17.15 - 17.25 PRIZE PRESENTATIONS
STORZ BEST PAPER PRESENTATION PRIZE £500
COVIDIEN BEST INNOVATION/NEW IDEA TRAVELLING FELLOWSHIP PRIZE £750
17.25 – 17.30 CLOSING REMARKS

SOCIAL PROGRAMME

For those interested architectural tours are available on Friday 4 November and Saturday 5th of the Chelsea and Knightsbridge area as well and as a tour of the Olympic Park. For more details on how to book please enquire at conference registration desk.
Keynote Lecture I - Laparoscopic Hepatobiliary Surgery

Professor Pascale De Lagausie MD, PhD
Professor of Paediatric Surgery, Hôpital de la Timone, Marseille, France

Professor Pascal de Lagausie qualified as Doctor of Medicine at the Paris University in 1993 and obtained his PhD thesis at the Kremlin Bicêtre in Paris in 2003. He is currently Professor of Paediatric Surgery in Marseille. He has published over 120 scientific articles and has presented and lectured on minimally invasive surgery at numerous national and international conferences. He is an ongoing faculty member in EITS for advanced course in paediatric laparoscopy in Strasbourg at IRCAD and has been a faculty member laparoscopy meetings for BAPES and EUPSA in the past. He has taken part in many live operating demonstrations as surgeon and a number of his operations have been published as video lectures. We welcome him to this conference and look forward to hearing about his experience and learning from his expertise.

Keynote Lecture II - Emerging Technologies and Platforms for Robotic Assisted Minimally Invasive Surgery

Professor Guang-Zhong Yang, PhD, FREng
Director, Hamlyn Centre for Robotic Surgery, Imperial College London, UK

Ph.D. in Computer Science from Imperial College London, UK and is director and co-founder of the Hamlyn Centre for Robotic Surgery, Deputy Chairman of the Institute of Global Health Innovation, Imperial College London, UK. Professor Yang also holds a number of key academic positions at Imperial – he is Director and Founder of the Royal Society/Wolfson Medical Image Computing Laboratory, co-founder of the Wolfson Surgical Technology Laboratory, Chairman of the Centre for Pervasive Sensing. Professor Yang's main research interests are in medical imaging, sensing and robotics. In imaging, he is credited for a number of novel MR phase contrast velocity imaging and computational modeling techniques that have transformed in vivo blood flow quantification and visualization. These include the development of locally focused imaging combined with real-time navigator echoes for resolving respiratory motion for high-resolution coronary-angiography, as well as MR dynamic flow pressure mapping for which he received the ISMRM I. Rabi Award. He pioneered the concept of perceptual docking for robotic control, which represents a paradigm shift of learning and knowledge acquisition of motor and perceptual/cognitive behavior for robotics, as well as the field of Body Sensor Network (BSN) for providing personalized wireless monitoring platforms that are pervasive, intelligent, and context-aware. He is a Fellow of the

Keynote Lecture III - Laparoscopic Assisted Surgery In Hirschsprung’s Disease

Professor Vincenzo Jasonni, MD
Professor, Department of Paediatric Surgery, Giannina Gaslini Institute, University of Genoa, Genoa, Italy

Vincenzo Jasonni was born in Bologna on the 5th of August 1942 and graduated with laudem in Medicine and Surgery at University of Bologna. Since the 1st of August he worked as assistant at the School of Pediatric Surgery of University of Bologna. He attended some Italian and foreign Pediatric Surgery Department including “The Hospital for Sick Children” in London (UK), the “Childhood heart surgery Department” in Bergamo, the “Children’s Hospital” in Boston and Providence (USA), “The Hospital for Sick Children” in Toronto (Canada). He acted as teacher for Medicine and Surgery in Pediatric Surgery, General Surgery, and Paediatrics at the University of Bologna and Chieti between 1957 and 1984. Since the 1st of August 1979 he worked as the head of the Unit of Pediatric Surgery at “Ospedale Civile di Pescara”. He is full Professor in Pediatric Surgery since 1985. He started is professorship in Pescara-Chieti University “G. D’Annunzio”. Between 1979 and 1991 he directed the Division of Pediatric Surgery of Pescara and performed more than 10000 surgical procedures in children. Since 1991 he is the chief of the Division of Pediatric Surgery of Giannina Gaslini Institute in Genoa and Professor of Pediatric Surgery for Medicine and Surgery students at the University of Genoa. Since 1996 he is the chief of the School of Specialisation in Pediatric Surgery of the University of Genoa. He is Member of the BAPS (British Association of Pediatric Surgeons) Council, he has been past president of the MAPS (Mediterranean Association of Pediatric Surgeons), IPEG (International Pediatric Endosurgery Group), and SIUP (Italian Society of Pediatric Urology). He is President of the SICP (Italian Society of Pediatric Surgery) in 1989-1991. His clinical and basic research activity focused on Congenital digestive diseases, with specific regard to Hirschsprung’s disease, Intestinal Dysganglionoses, and Gastroesophageal reflux. He is Author of more than 500 publications on Journals, Abstracts, Textbooks and Monographies. His Impact Factor is well above 200 and his Normalised Impact Factor is well above 350.
PROGRAMME

Thursday 3rd November 2011

08.15 - 10.00  Registration

10.00 - 10.05  OPENING REMARKS BAPES/ESPES

10.05 - 11.05  SESSION 1 (FREE PAPERS - GASTROINTESTINAL)

Chairmen: Navid Alizai, Fabio Chiarenza

10.05 - 10.15  (01) The Role of Laparoscopy in the Treatment of Duodenal Obstruction in Term and Preterm Infants. Christine Burgmeier, Felix Schier
University Centre Mainz, Mainz, Germany

Complejo Hospitalario Materno Infantil Insular Canarias, Las Palmas, Spain

10.19 - 10.29  (03) Laparoscopic Sleeve Gastrectomy and Roux-Y Gastric Bypass Intervention Improves Hyperuricemia in Extremely Obese Children Following 12 Month of Treatment. Andreas Oberbach, Thomas Inge, Nadine Schlichting, Stefanie Lehmann, Holger Till
University of Leipzig, Leipzig, Germany

10.29 - 10.36  (04) Laparoscopic Nissen Fundoplication in Children Less than Five Kilograms with Gastroesophageal Reflux Disease. Gonul Kucuk, Ufuk Ates, Gulnur Gollu, Aydin Yagmurlu
Ankara University, Ankara, Turkey

10.36 - 10.43  (05) Laparoscopic Fundoplication in Children with Previous Ventriculoperitoneal Shunts. Rainer Kubiak, Clare Skerritt, Hugh W Grant
John Radcliffe Hospital (JRH), Oxford, UK

11.05 - 11.30  Coffee & Exhibition

11.30 - 12.30  SESSION 2 (FREE PAPERS - UROLOGY)

Chairmen: Varadarajan Khalidasan, Manuel Lopez

11.30 - 11.40  (09) Laparoscopic Transperitoneal Pyeloplasty in Children from Age of 3 years: Our Clinical Outcomes Compared with Open Surgery. Fred Toorn, van der, Joop Hoek, van den, Katja Wolffensbuttel, Jeroen Scheepe
Sophia Children's Hospital, Rotterdam, The Netherlands

Southampton University Hospitals, Southampton, UK

11.47 - 11.54  (11) Laparoscopic Fixation of the Urinary Tract at PSOAS Muscle for the Treatment of Extrinsic Compression of the UPJ. - Julio Justo Baez, German Dupertuis, Ricardo Rassi, Candelaria Blanco, Manuel Aznar, Camilo Mercado Luna, Jose Courel
Hospital Infantil de Cordoba, Cordoba, Argentina
Southampton General Hospital, Southampton, UK

(13) Paediatric Robotic Assisted Pyeloplasty in a Solitary Kidney. Gloria Pelizzo, Luigi Avolio, Piero Romano, Federico Scorletti, Claudia Filisetti, Ilaria Goruppi, Alessandro Raffaele
IRCCS Fondazione Policlinico S.Matteo, Pavia, Italy

(14) The Success and Limitation of Robotic Assisted Intravesical Ureteric Reimplantation. Jun-Hong Lim, Nicholas Gattas, Azad Najmaldin
Leeds Teaching Hospital, Leeds, UK

Leeds Teaching Hospital, Leeds, UK

(16) Minimally Invasive Treatment of Urachal Remnants: the Experience of two Italian Centers. Salvatore Fabio Chiarenza, Mirko Bertozzi, Lorenzo Costa, Antonino Appignani
1 Ospedale S. Maria della Misericordia - Università degli Studi di Perugia, Perugia, 2 Ospedale S. Bortolo, Vicenza, Italy

1 Dep. Paed. Surgery, 2 Dep. Nephrology, Ondokuz Mayis University, Samsun, Turkey

(18) Combined Laparoscopic and Cystoscopic Injection of STS for Bladder Venous Malformation: A Novel Technique. Sinha CK, Barnacle A, Mushtaq I, Cherian A
GOSH, London, UK

KEY NOTE LECTURE I - PROFESSOR PASCALE DE LAGAUSIE (FRANCE)
LAPAROSCOPIC HEPATOBILIARY SURGERY
INTRODUCTION: HENRIK STEINBRECHER

Lunch, Poster Viewing & Exhibition

SESSION 3 (DEBATE I)
CHAIRMAN: ATUL SABHARWAL

THIS HOUSE BELIEVES THAT NEONATAL MINIMAL ACCESS SURGERY SHOULD BE COMMON PLACE IN 2011

Coffee & Exhibition

SESSION 4 (FREE PAPERS – NEONATAL)
Chairmen: Mark Powis, Hasan Dogruyol

(19) Laparoscopy in Neonates in Bangladesh: Technical Challenge and Experience in Chittagong. Jofruil Hannan, Mozammel Hoque
Chattagram Maa-O-Shishu Hospital Medical College, Chittagong, Bangladesh

(20) Results from a Laparoscopic Assisted Transanal Endorectal Pullthrough Service. Max Pochi, Janet McNally
Bristol Children’s Hospital, Bristol, UK

1 Catania University, Catania, 2 Bortolo Hospital, Vicenza, Italy
15.44 - 15.51 (22) Thoracoscopic Repair of Long-gap Oesophageal Atresia: Successful Primary Anastomosis in Delayed Single-step Correction. Stefan Gfrörer, Henning C Fiegel, You-Jung Bak, Anne-Kathrin Schulz, Udo Rolle
JW Goethe University Frankfurt, Germany

15.51 - 15.58 (23) Thoracoscopic Treatment of Tracheo-Oesophageal Malformations: Experience of a Single Centre. Salvatore Fabio Chiarenza1, Lorenzo Costa1, Elena Carretto1, Rosaria Mazzotto2, Raffaele Bonato2, Luca Vecchiato1, Massimo Bellettato1
1Dep. Paed. Surgery, 2Dep. Anwaesthesiology, 3Dep. Paediatrics, S. Bortolo Hospital, Vicenza, Italy

16.00 - 17.30 ESPES ANNUAL GENERAL MEETING (MEMBERS ONLY)

18.30 - 19.30
TOUR OF STADIUM & MUSEUM (groups will be assigned with registration)
BAPES/ESPES COCKTAIL RECEPTION & CONGRESS DINNER
Blue Elephant Royal Thai Restaurant, Fulham
Dress Code – Smart Casual

Friday 4th November 2011

09.00 - 10.00 BAPES ANNUAL GENERAL MEETING (MEMBERS ONLY)

10.00 - 11.05 SESSION 5 (FREE PAPERS - General)
Chairmen: Mike Stanton, Marcel Oancea

10.00 - 10.10 (24) Technical Difficulties in Laparoscopic Approach of the Hydatid Disease in Children. Marcel Oancea, Lorena Vatra, Anna Kadar
"M.S.Curie" Emergency Hospital for Children, Bucharest, Romania

Leeds Children's Hospital, Leeds UK

10.14 - 10.18 (26) Endoscopic Drainage and Cystoduodenostomy Procedure in a Patient Presenting with a Pancreatic Pseudocyst. Ufuk Ates1, Gonul Kucuk2, Kubilay Cinar2, Berktug Bahadir2, Mehmet Bektas2, Gulnur Gollu1, Meltem Bingol-Kologlu1
1Dep. Paed. Surgery, 2Dep. Gastroenterology, Ankara University, Ankara, Turkey

10.18 - 10.28 (27) The Role of Minimally Invasive Surgery in Paediatric Trauma. Stewart Cleeve, Niall Jones, Ashwini Joshi, Simon Phelps, Devesh Misra, Mamta Vaidya, Harry Ward
The Royal London Hospital, London, UK

Akdeniz University, Turkey

10.38 - 10.45 (29) Open versus Laparoscopic Appendectomy in Paediatric Population: Review and Meta-analysis. Ciro Esposito1, Ida Giurin1, Andres Calvo2, Francesca Alickio2, Carlos Suarez2, Alessandro Settini2
1Federico II University of Naples, Naples, Italy, 2Hospital of Nino Jesus, Cordoba, Argentina

10.45 - 10.52 (30) Appendicitis in Children under 5 years of Age. Gregory Shepherd, Sivasankar Jayakumar, Ashok Rajimwale, Ross Fisher, George Ninan, Shawqui Nour
University Hospitals of Leicester, Leicester Royal Infirmary, Leicester, UK

10.52 - 10.59 (31) Laparoscopic Abdominal Lymphangioma Excision: Our Experience. Claudio Vello, Federica Marinioni, Enrica Coponcelli, Gianluca Monguzzi, Giovanna Riccipetitoni
"V.Buzzi" Children's Hospital, Milan, Italy

Complejo Hospitalario Materno Infantil Insular Canarias, Las Palmas, Spain
11.05 - 11.30 Coffee & Exhibition

11.30 - 12.30 SESSION 6 (FREE PAPERS - Thoracic )
Chairmen: Juan de Agustin, Munther Haddad

11.30 - 11.40 (33) Thoracoscopic Lobectomy in Paediatric Age: Experience of a Single Centre. Francesca Grandi, Paola Midrio, Nicola Zadra, Luisa Meneghini, Costanza Tognon, Salvatore Metrangolo, Maurizia Grazzini, Piergiorgio Gamba
1Dep. Paed. Surgery, 2Dep. Anaesthesia and Intensive Care, University of Padua, Padua, Italy

Birmingham Children's Hospital, Birmingham, UK

11.50 - 11.57 (35) Thoracoscopy after Previous Operations in the Chest- is it a Problem? Dariusz Potkowski, Sylwester Gerus, Katarzyna Swiatek, Anna Antczak, Marcin Polok
Wroclaw Medical University, Wroclaw, Poland

11.57 - 12.04 (36) Modified Nuss Procedure for the Repair of Pectus Excavatum: Lessons Learned from our Experience. Cindy Gomes Ferreira, Francesca Astra Borutto, Anne Schneider, Isabelle Lacreuse, Isabelle Kauffmann, Raphael Moog, François Becmeur
Hôpitaux Universitaires de Strasbourg, Strasbourg, France

12.04 - 12.11 (37) Initial Experience with Paediatric Thoracoscopic Resection of Congenital Lung Lesions. Munther Haddad, Ram Nataraja, Shamshad Syed, Muhammad Choudhry
Chelsea & Westminster NHS Foundation Trust, London, UK

12.11 - 12.18 (38) Lessons Learned During Thoracoscopic Repair of Congenital Diaphragmatic Eventrations in Children: a Monocenter Experience. Cindy Gomes Ferreira, Francesca Astra Borutto, Anne Schneider, Isabelle Lacreuse, Isabelle Kauffmann, Raphael Moog, François Becmeur
Hôpitaux Universitaires de Strasbourg, France

12.18 - 12.25 (39) The Experience with a Simplified Technique of Laparoscopic Anterior Diaphragmatic Hernia Repair in Infants using Extracorporeal Knotting. Mahmood Saeda, Ahmad Khaleghnejad Tabari
1Pediatric Surgery Research Center, Mofid Children's, 2 Milad General Hospital, Social Security Organization, Teheran, Iran

12.25 - 12.30 (40) Needle Plication of the Diaphragm. Juan C. de Agustin
Hospitales Universitarios Virgen del Rocío, Seville, Spain

12.30 - 13.30 Lunch & Exhibition

13.30 - 14.00 POSTER PRESENTATION (2 minutes per poster)
Chairmen: Thomas Tsang, Stefan Gfrorer, Raimundo Beltra

(P01) Fate of Impalpable Testis: 5 Years Single Centre Experience; A Retrospective Descriptive Study. Tariq O. Abbas, Ahmed Hayati, Adel Ismail, Mansour Ali
1Dep. Paed. Surgery, 2Dep. Urology, Hamad General Hospital, Doha, Qatar

Chattagram Maa-O-Shishu Hospital Medical College, Chittagong, Bangladesh

(P03) Single Working Port and Extracorporeal Knotting in Laparoscopic Repair of Hernia in Children. Ahmad Khaleghnejad Tabari, Mahmood Saeda, Alireza Mirshemirani, Mohsen Rouzrokhi
1Pediatric Surgery Research Center, Mofid Children's, 2 Milad General Hospital, Social Security Organization, Teheran, Iran

(P04) Laparoscopic Cardiomyotomy for Oesophageal Achalasia in two Children with Triple-A Syndrome. Rebecca Kuenzel, Cora Städler, Thomas Boemers
Cologne Children's Hospital, Cologne, Germany
(P05) Laparoscopic Anterior Gastropexy in Gastric Volvulus. Gonul Kucuk, Ufuk Ates, Gulnur Gollu, Berktug Bahadir, Aydin Yagmurlu
Ankara University, Ankara, Turkey

Ospedale S. Maria della Misericordia, Università degli Studi di Perugia, Perugia, Italy

(P07) Long-Term Outcomes Following Laparoscopic Inguinal Hernia Repair Under-taken in Patients Under the Age of 1 Year. Alexander Cho, Thomas Tsang,
Norfolk & Norwich University Hospital, Norwich, UK

(P08) Gas Embolism during Paediatric Laparoscopy; A Rare but Dramatic Complication. Costanza Tognon, Francesca Grandi, Luisa Meneghini, Salvatore Metrangolo, Maurizia Grazzini, Stefania Michelon, N. Zadra, Piergiorgio Gamba
1Dep. Anaesthesiology, 2Dep. Paed. Surgery, University of Padua, Padua, Italy

(P09) Laparoscopic Inguinal Herniorrhaphy versus Open Inguinal Herniotomy in Children. Boyang Liu, Ashwini Joshi, Niall Jones
Royal London Hospital, London, UK

(P10) Use of Skin Glue for Wound Closure in Minimal Invasive Procedures (Laparoscopy and Thoracoscopy) in Children; an Audit. Oskar Zgraj, John Gillick
Children's University Hospital, Temple Street, Dublin, Ireland

(P11) Retrograde Pyelonephrolithotomy in Children: A New Dimension. Elizabeth Kidger, Abid Qazi, Azad Najmaldin
Leeds Teaching Hospitals NHS Trust, Leeds, UK

(P12) Port Site Splenunculus after Laparoscopic Splenectomy. Alexandra Scarlett, Yew-Wei Tan, Jo Ponnampalam, Timothy Barker, Azad B Mathur
Norfolk and Norwich University Hospital, Norwich, UK

(P13) Laparoscopic Treatment of UPJ Obstruction in Ectopic Pelvic Kidneys. Antonio Marte, Maurizio Prezioso, Lucia Pintozzi, Silvia Cavaiuolo, Sandra Coppola, Micoela Borrelli, Pio Parmeggiani
2nd University of Naples, Naples, Italy

(P14) The Molecular Quantic Resonance Generator in Paediatric Minimal Invasive Surgery; A Preliminary Report. Salvatore Fabio Chiarenza, Lorenzo Costa, Alessandro Carabaich
S. Bortolo Hospital Vicenza, Vicenza, Italy

(P15) Long-Term Outcome of Laparoscopic Anterior Fundoplication in Children. Rainer Kubiak, Elena Böhm-Sturm, Daniel Svoboda, Lucas Wessel
University Center Mannheim, Mannheim, Germany

14.00 - 14.30  KEY NOTE LECTURE II - PROFESSOR GUANG-ZHONG YANG (UNITED KINGDOM)
EMERGING TECHNOLOGIES AND PLATFORMS FOR ROBOTIC ASSISTED MINIMALLY INVASIVE SURGERY
INTRODUCTION: AZAD NAJMALDIN

14.30 - 15.35  SESSION 7 (FREE PAPERS - GENERAL)
Chairmen: Vladimir Cingel, Gordon Mackinlay

Bratislava University Children's Hospital, Bratislava, Slovakia


15.07 – 15.11 (45) Age is No Barrier for Single Incision Paediatric Endoscopic Surgery! Augusto Zani, Anil Dhawan, Ashish Desai King’s College Hospital, London, UK

15.11 - 14.18 (46) Incarcerated Inguinal Hernia Management - Laparoscopic or Open? Pankaj Kumar Mishra, K Burnand, A Minocha, MS Kulkarni, AB Mathur, T Tsang Norfolk Norwich University Hospital, Norwich, UK

15.18 - 15.28 (47) Conventional Inguinal Herniotomy done by Laparoscopy: is it the Way to go? Paul Phillipe, Monika Glass, Beatrice Ferdilus, Julien Coquay, Stefan Giseke, Lucas Matthyssens Centre Hospitalier de Luxembourg, Luxembourg

15.28 - 15.35 (48) Is Laparoscopic Inguinal Hernia Repair Comparable to the Open Technique in a Neonatal Population? Benjamin Alin, J Church, J Fishman, M Choudhry, MJ Haddad SA Clarke Chelsea and Westminster Hospital, London, UK

15.35 - 15.55 Coffee & Exhibition

15.55 - 16.25 KEY NOTE LECTURE III - PROFESSOR VINCENZO JASONNI (ITALY) LAPAROSCOPIC ASSISTED SURGERY IN HIRSCHSPRUNG’S DISEASE INTRODUCTION: ZACHARIAS ZACHARIOU

16.25 - 17.15 SESSION 8 (DEBATE II) CHAIRMAN: AZAD NAJMALDIN PANEL: PROFESSOR MARK DAVENPORT, LONDON DR ALEX BARNACLE , LONDON DR AYDIN YAGMURLU, ANKARA GASTROSTOMY INSERTION: THE SEARCH FOR AN IDEAL TECHNIQUE!

17.15 - 17.25 PRIZE PRESENTATIONS STORZ BEST PAPER PRESENTATION PRIZE £500 COVIDIEN BEST INNOVATION/NEW IDEA TRAVELLING FELLOWSHIP PRIZE £750

17. 25- 17.30 CLOSING REMARKS Ciro Esposito
ORAL ABSTRACTS
(01) The Role of Laparoscopy in the Treatment of Duodenal Obstruction in Term and Preterm Infants.
Christine Burgmeier, Felix Schier
University Centre Mainz, Mainz, Germany

Introduction: There are a lot of possible causes for duodenal obstruction, like annular pancreas, duodenal atresia, duodenal membrane and Ladd’s bands. In this retrospective study we investigated the underlying aetiology of preterm and term infants presenting with intrinsic duodenal obstruction. The aim of this study was to evaluate the role of laparoscopy and diagnostic laparoscopy in duodenal obstruction.

Methods: In this retrospective study we reviewed all infants undergoing laparoscopic and open repair of a clinically diagnosed duodenal obstruction. Altogether, we identified eighteen term and preterm infants, nine of them were male and nine of them were female. Six of the eighteen patients were born prematurely. We evaluated gestational age, birth weight, gestational age at surgery and weight at surgery.

Results: In nine of eighteen cases we diagnosed annular pancreas intraoperatively. Two patients presented duodenal atresia, one evolved duodenal obstruction due to Ladd’s bands and one due to duodenal membrane. We discovered intestinal malrotation in four of eighteen children. Twelve infants underwent laparoscopic repair, ten of these children had laparoscopic duodenoduodenostomy and one of them had a laparoscopic transection of Ladd’s bands. In one patient we performed a laparoscopic resection of a duodenal stenosis. In six cases we started with laparoscopy and had to convert to an open procedure. In four patients the descending part of the duodenum was invisible and two patients presented with further intestinal anomalies. In two patients we initially started with an open procedure due to poor general condition and expected extensive intestinal atresia.

Conclusion: Laparoscopy enables visualisation and immediate surgical correction of duodenal obstruction in term and preterm infants. Only in cases of poor visualisation or critical condition of the infant open surgical repair is inevitable.

(02) Vascular Compression of the Duodenum (Wilkie’s disease): Laparoscopic Treatment.
Raimundo Beltrá, Luis Sanchis, Micaela Germani
Complejo Hospitalario Materno Infantil Insular Canarias, Las Palmas, Spain

Introduction: Wilkie’s disease (vascular compression of the duodenum; aorto-mesenteric clamp) is a rare anomaly, its appearance during childhood being even more rare. When conservative medical treatment fails, it is essential to undergo surgical correction.

Case: 13 years-old patient who presents a few-days history of uncontrollable vomiting, bilious almost always, and accompanied by abdominal pain. Imaging studies (ultrasound, helical CT) show mayor close of the aorto-mesenteric angle, which causes marked duodenal stenosis. We put the child on conservative hyper-caloric nutrition, with total parenteral nutrition firs and with enteral feeding via transpyloric tube afterwards, which initially made her gain 2 kgs of weight. Repeated attempts to remove the probe and provide oral feeding were unsuccessful, and again presented bilious vomiting in large quantities. Therefore, the necessity of surgical intervention was determined. Through a laparoscopic approach we performed transmesocolic duodeno-jejunal anastomosis, which achieved a complete relief of symptoms.

Discussion: Duodenal occlusion due to vascular compression can be a serious problem, which sometimes makes it absolutely necessary to undergo a corrective surgical treatment. When this happens, the surgical technique widely advocated is the gastrointestinal transit derivation by means of a side-to-side duodeno-jejunal anastomosis. Traditionally performed through a laparotomy, the Pediatric Endosurgery trends now are to do it by laparoscopy.

Conclusions: Treatment by laparoscopy is the technique of choice to solve the duodenal occlusion due to vascular compression disease (Wilkie), when conservative medical treatment has failed.

(03) Laparoscopic Sleeve Gastrectomy and Roux-Y Gastric Bypass Intervention Improves Hyper-uricemia in Extremely Obese Children Following 12 Month of Treatment.
Andreas Oberbach, Thomas Inge, Nadine Schlichting, Stefanie Lehmann, Holger Till
University of Leipzig, Leipzig, Germany

Aim: Serum uric acid (sUA) is supposed to play a major role in the pathogenesis of hypertension, insulin-resistance (IR) and obesity, as well as the development of renal and cardiovascular diseases (CVD) in childhood. The present study investigated for the first time the association between sUA concentrations and weight loss following laparoscopic sleeve gastrectomy (LSG) and Roux-Y gastric bypass (RYGBP).

Methods: In a prospective study 10 children with morbid obesity underwent either LSG (n=5) or RYGBP (n=5) in adolescents (age 14-17). LSG (n=5) or RYGBP (n=5). Pre- and 12 months post intervention the serum concentration of UA was assessed. A normal weight control group (NWPG) consisted of age and gender was matched. sUA were correlated with changes in SDS-BMI, excess weight loss (EWL) and parameters of lipid- and glucose metabolism.
Results: sUA were significantly increased in patients with extremely obesity compared to RG. sUA data correlated with age, SDS-BMI, fasting plasma glucose, fasting plasma insulin, homeostasis model assessment index, systolic blood pressure, triglycerides, atherogenic index of plasma, γ-glutamyltransferase, growth hormone, follicle-stimulating hormone and Insulin-like growth factor-binding protein 3. After 12 months a significantly lower SDS-BMI, HOMA-IR and sUA were present in all treatment groups. Changes of body weight, SDS-BMI and excess weight loss were significantly correlated with changes of sUA.

Conclusion: For the first time it could be shown in adolescents that laparoscopic bariatric surgery improved hyperuricemia within 12 months. Such changes correlated with the amount

(04) Laparoscopic Nissen Fundoplication in Children Less than Five Kilograms with Gastroesophageal Reflux Disease.

Gonul Kucuk, Ufuk Ates, Gulnur Gollu, Aydin Yagmurlu
Ankara University, Ankara, Turkey

Introduction: The number of minimal invasive procedures performed in the neonatal period and infancy has increased as the laparoscopic experience of pediatric surgeons increased and also smaller instruments have been developed with the improvements in technology. Aspiration, caused by muscle weakness and swallowing dysfunction, and death are frequently encountered in infants with gastroesophageal reflux disease especially in neurologically impaired patients. The aim is to present patients less than five kilograms who have undergone laparoscopic Nissen fundoplication.

Patients and Methods: The charts of patients less than five kilograms who have undergone laparoscopic Nissen fundoplication between November 2007 and May 2011 were retrospectively reviewed. Demographic data of the children, comorbidities, operating times, presence of early and late complications, feeding time were evaluated. Twelve children who were diagnosed as gastroesophageal reflux disease with the aid of upper gastrointestinal contrast studies and 24-hour pH monitoring were undergone laparoscopic Nissen fundoplication. The median age of the patients was four months (1month-12months). Eight of the patients were male and four of the patients were female. One of the children had been in the neonatal period because of proximal esophageal atresia and distal tracheoesophageal fistula. Ten of the children were neurologically impaired. The children were undergone laparoscopic Nissen by using 3mm instruments through three ports. The mean body weight of children was 3.4kg (2.4-5kg). Simultaneous laparoscopic gastrostomy was performed in ten children and simultaneous tracheostomy in one child. Mean operating time was 76minutes (30-180minutes).

Results: There was no perioperative complication. Mean feeding time postoperatively was 1day (0-3days). One of the patients had ileus and was undergone briedectomy. Another patient was undergone laparotomy and revision of gastrostomy because of dislocation of gastrostomy on postoperative ninth day.

Conclusion: Laparoscopic Nissen fundoplication can also be safely performed in infants as in adults and children as the surgeons gain experience. It may be life-saving procedure especially in neurologically impaired children by decreasing complications related to aspiration and sudden death syndrome.

(05) Laparoscopic Fundoplication in Children with Previous Ventriculoperitoneal Shunts.

Rainer Kubiak, Clare Skerritt, Hugh W. Grant
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Purpose: To assess the feasibility and outcome of laparoscopic fundoplication (LF) in children who have had previous ventriculoperitoneal (VP) shunt placement.

Patients and Methods: All children with previous VP shunt placement were extracted out of a total of 354 prospectively collected laparoscopic fundoplications performed at our institution between July 1998 and March 2011. In addition further data of these patients (i.e. from case notes of other specialities) were obtained. The subset of children with VP shunts was compared with those who underwent LF without shunts.

Results: A total of eleven children (6M;5F) with a VP shunt in situ at the time of LF were identified (3.1%). Eight children underwent a laparoscopic Nissen fundoplication and 3 had a Thal fundoplication. The median age at LF was 3.6 years (range, 0.9-13.9). Weight at the time of surgery ranged from 5.8-39.9 kg (median 12.5 kg). The duration for the LF (without gastrostomy placement) was 105 minutes (range, 80-140). Although in 6 patients (55%) moderate to severe adhesions were documented at the time of LF, only one child required conversion to open surgery due to adhesions to the liver and minor bleeding. None of the children had evidence of post-operative shunt dysfunction or -infection related to the laparoscopic procedure. There was no significant difference of this group of patients compared with the main cohort regarding operating time, conversion to open surgery or intra-operative complications.

Conclusions: Our data suggest that laparoscopic fundoplication is safe in children with previous VP shunt placement. Although one can expect a considerable amount of adhesion in approximately half of these patients the rate for conversion to open surgery should be low.
Objective/Aim: Laparoscopic assisted gastrostomy insertion is increasingly preferred over the percutaneous endoscopic gastrostomy (PEG) insertion as it avoids visceral injury. The current techniques are associated with peri-gastrostomy leakage and skin excoriation. Our novel laparoscopic gastrostomy (LG) technique has shown to reduce these risks.

Method: Retrospective review between 11/2008-12/2010 of demographic and clinical outcomes of patients who underwent PEG and LG.

Laparoscopic technique: One 5 mm optical port (umbilical), one stab incision for 5mm instrument (left lumbar). Three stab incisions are made around the gastrostomy site. Trans-abdominal sutures are inserted through incisions from skin to the anterior stomach wall. The needle is withdrawn through the same incision. Seldinger technique is used to puncture the stomach in the middle of these sutures and a balloon gastrostomy tube inserted with a peel away sheath. The sutures are tied and buried subcutaneously thus fixing the stomach to the anterior abdominal wall.

Results: 70 patients were included (PEG:n=30; LG:n=40). No significant difference in median age [PEG: 5.1(range 2.0-16.5), LG: 5.8 (range 0.3-16.8) years] or comorbidity between the two groups. All PEG patients required 2 or more general anaesthetics, 98% of LG patients required only 1 anaesthetic. Median time to using the gastrostomy was 24 (range 0-48) hours in the PEG and 4 (range 4-72) hours in LG group (p<0.01). Incidence of gastrostomy-related major complications was 5/30 (17%) for PEG and 2/40 (5%) for LG (p=0.01). Major complications in the PEG group were PEG plate migration, small bowel perforation and tube dislodgement. In the LG group persisting gastric bleeding and tube migration into the pylorus occurred. Minor complications (leakage and infection) were observed in 6/30 (20%) of PEG and 5/40 (8%) of LG patients. In each group one patient had a procedure conversion to laparotomy. No gastrostomy-related mortality.

Conclusions: This laparoscopic modification avoids visceral injury, fixes the stomach to the abdominal wall and avoids 2nd anaesthesia for changing to a button. Importantly, our experience has been encouraging as it has reduced peri-gastrostomy leakage and excoriation compared to previous techniques.

Introduction: Laparoscopic gastrostomy is now well established in paediatric surgical practice and develops to reduce the number of serious post operative complications reported after PEG.

Methods: A retrospective case notes review was performed.

Results: From October 1999 to September 2011, 114 children were operated on with a gastrostomy. There were 66 boys and 48 girls. The mean age at operation was 28 months (range 1 month to 16 years). Indications for operation were in all cases severe problems with oral feeding with poor weight gain and also severe vomiting, suggesting gastro-oesophageal reflux. Other indications were anoxic brain injury, facial cleft, chromosomal and metabolic abnormalities, myopathies and unclassified neurological disorders. Fifty three patients had primary button, 59 had laparoscopic aided endoscopic gastrostomies. Two patients had MIC-KEY tube insertion. Nineteen patients had concomitant and 3 had late laparoscopic anti reflux procedure. There were no intra operative complications. The nutritional status improved remarkably in the majority of patients. However, there were no early or late post operative complications such as peritonitis, haemorrhage, intestinal obstruction or gastro enteric fistula formation.

Conclusion: Laparoscopic assisted gastrostomy placement is easy safe and effective procedure. In our series, we did not have any major complication related to gastrostomy placement reported by others in the standard literature.

Aim of the study: Laparoscopic splenectomy is the gold standard for the removal of spleen in both adults and children. This audit is a retrospective review of SCH records, regarding laparoscopic splenectomies and related transfusion requirements, postoperative sepsis and prophylactic antibiotic therapy.

Patients and method:
Retrospective study of the hospital records from January 2002 to September 2010 for the patients who underwent laparoscopic splenectomy.

Results: 24 cases laparoscopic splenectomies, 11 f (46%) and 13 m (54%), elective admissions. In one case a single port technique has been used.
Reason for splenectomy: uncompensated haemolysis 18 cases (76%), thrombocytopenia 4 cases (16.66%) and splenic cyst 2 cases (8.3%).
Underlying condition: hereditary spherocytosis 14 cases (58%), splenic epidermoid cyst 2 cases (8%), autoimmune haemolytic anaemia 4 cases (17%) and chronic ITP 4 cases (17%).

Preoperative transfusion requirement was necessary in 10 cases, most of them multiple (with RBC), one with platelets. One case with postoperative sepsis (pneumonia) and postoperative bleeding, requiring 2 Units blood transfusion. In 3 of the cases a Pfannenstiel incision to remove the spleen was performed (12.5%) one case was hand assisted laparoscopic splenectomy.

Concomitant laparoscopic cholecystectomy and splenectomy was performed in 3 cases (12.5%). There were 7 cases with gallbladder pathology (29%). In 4 of the cases accessory spleens were found (17%). One case with recurrent ITP secondary to splenosis required re-intervention after 2 years for the removal of splenunculi, laparoscopic/converted to open. Time from the start of surgery until PACU varied from 95 minutes to 365 minutes with a median of 191.5 minutes. For the division of the splenic hilum a Stapler was used in 3 cases (13%), 2 of them with partial splenectomies for splenic cyst, and Ligasure in 21 cases (87%). Types of retrievers to remove the spleen: Endobag 9 (39%), Endocatch II 12 (53%), hand assisted laparoscopic splenectomy 1 (2%), Lapsac (Cook)1 (2%). Incidents: 2 of the Endocatch bags ruptured. All patients were discharged on prophylactic antibiotic (Penicillin).

Hospital stay varied between 1 and 10 days with an average of 3.33 days.

Conclusions: Laparoscopic splenectomy in children is safe. Division of the splenic hilum with Stapler may be quicker than with vessel sealing technology. The ideal bag retrieval system has yet to be developed. Single port technique may become the future standard.

(09) Laparoscopic Transperitoneal Pyeloplasty in Children from Age of 3 years: Our Clinical Outcomes Compared with Open Surgery.

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Objective: To report our clinical outcomes of laparoscopic pyeloplasty (LP) in children compared with open pyeloplasty (OP) and with literature findings. An additional objective is to describe a novel LP training model.

Patients and methods: In a prospective study the outcomes of 57 consecutive transperitoneal LP in children from age of 3 years were analyzed and compared with a matched historic control group of OP and with series of LP in literature. Matching criteria were age (within 3 years), gender, preoperative renographic relative function (within 10%), preoperative pain and aberrant crossing vessels. Outcome measures were operative time, hospital stay, complications, ultrasonographic dilatation and renographic drainage. Successful result was defined as resolution of symptoms, no conversion or re-operation, improved hydronephrosis and/or improved renographic drainage. We developed and used a simple and inexpensive model to train and improve our LP anastomotic suturing performance.

Results: Mean operative time was 177 (SD 50.5) minutes in the LP-group and 108 (SD 25.6) minutes in the OP-group (p=0.001). Operative time was significantly reduced during the first 30 LP-procedures. Mean hospital stay was 1.2 (SD 0.46) days in the LP-group and 6.7 (SD 1.2) days in the OP-group (p<0.001). Improvement in renographic drainage was observed more often after LP than after OP (98% vs 83%; p=0.01). A successful result was reported in 56 (98%) LP-patients and in 54 (95%) OP-patients (p=0.298). Our LP series demonstrate a high success rate compared to literature data.

Conclusions: Our LP results in a similar success rate and a more often improved renographic drainage in comparison to OP. Furthermore, our LP demonstrates a clearly short hospital stay and favorable outcomes compared to literature. The longer operative time in LP is significantly reduced during the first 30 LP-procedures. Based on these outcomes we regard LP as standard treatment for repair of UPJ-obstruction in children from the age of 3 years. Our LP model provides an inexpensive and valid simulation of the ureteropelvic anastomosis in a child. We believe that our training efforts in the LP-model have strongly contributed to the significant reduction in operative time and these favorable outcomes.

(10) Laparoscopic Transmesocolic right Pyeloplasty.

Saravanakumar Paramalingam, Henrik Steinbrecher

Southampton University Hospitals, Southampton, UK

Introduction: Transperitoneal laparoscopic surgery for pelvi-ureteric junction obstruction (PUJO) of the right kidney is traditionally approached by liberally mobilising the right colon. On the left, a transmesocolic approach is often used. We describe our experience with right sided transperitoneal pyeloplasty and the laparoscopic transmesocolic right pyeloplasty (LTRP) performed by a single paediatric urologist between August 2007- September 2010.

Method: A retrospective review of notes and video footage (consent obtained) of 8 patients.

Results: All patients presented symptomatically (pain, haematuria, urine infection) and were investigated with ultrasound scan and MAG-3 renogram. Mean age and weight at time of surgery was 13.9 years (10- 16 years) and 55.7 kg (29.2- 83.2kg). Five patients had the colic mobilisation approach (4 with very minimal supracolic not lateral mobilisation). A
floppy looping hepatic flexure allowed this. Three had the transmesocolic approach, all having a lower pole crossing vessel. One of these previously had a laparoscopic assisted retroperitoneal pyeloplasty where a crossing vessel was not identified but who had recurrent symptoms. Mean operating time was 206 minutes (165-255 minutes). All patients had laparoscopic placement of a ureteric stent. There were no conversions or complications in either group. 3 patients did not require patient controlled opioid analgesia (PCA). In those who did, it was for less than 24 hours. Mean follow up was 3.5 months (1-8 months). Renal function was preserved or improved and drainage had improved in 5 patients. 3 patients are awaiting post-operative follow up studies.

**Conclusion:** LTRP is a very viable option in patients with thin mesentery or when the retrocolic approach may be unnecessary or unsuitable.

(11) **Laparoscopic Fixation of the Urinary Tract at PSOAS Muscle for the Treatment of Extrinsic Compression of the UPJ.**

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**Objectives:** As many as 50% of the cases of ureteropelvic junction obstruction are associated with a crossing vessel.In 1996 Sampaio found that 65% of normal ureteropelvic junctions had an anteriorly crossing vessel. Alternatively obstruction caused at least partially by crossing vessels may result in intermittent hydronephrosis that tend to occur in older children, rather than in newborns, and they often symptomatic at diagnosis. The laparoscopic transposition of lower poles is a good surgical option that eliminate the need to violate the collecting system. Herein we report an alternative technique with laparoscopic retroperitoneal division of the crossing vein and relocation of the pelvis and ureter fixed to the psoas muscle.

**Materials and methods:** Five patients 7 to 15 years old (mean age 11) were included underwent laparoscopic retroperitoneal fixation of the pelvis an the ureter to psoas muscle. which were previously released from the site of compression by the polar vessel, without division of the crossing vein and no need of relocation of the crossing artery. Patients underwent diagnostic renal sonography, doppler sonography, 99mTc DTPA diuretic renal scan and nephrotomography. All patients had had repeat painful episodes associated with intermittent moderate hydronephrosis with no caliceal dilatation and a well preserved cortex, poor renal drainage with preserved split function. The surgical technique consists initially in the release of the UPJ compressed by the polar vessel with subsequent fixation of the pelvis and ureter in its entire length to the soas muscle, with lasix test that confirming the permeability of the urinary tract.

**Results:** From April 2009 to May 2011, 5 patients (4 females and 1 male) underwent to laparoscopic ureteropelvic psoas fixation by retroperitoneal approach. Mean age of the sample was of 11 years (r:7-15 years). Four cases (80%) were left handed. The surgical time average was of 74 min (r: 50-100) with no significant bleeding. There were no intra-surgical complications. The analgesic requirements were minimum, the period of hospitalization was of 24 hours for all patients. No drains were left. The follow up was made with renal ecography 1, 3, and 6 months after surgery and a renal scintigraphy was performed after one year with symptom resolution and radiographic improvement in hydronephrosis and drainage with preserved renal function.

**Conclusion:** Crossing vessels causing extrinsic UPJO may be present in more than 50% of older patients, primarily adults with obstructed kidneys. Older children and adolescents who have UPJO are probably the pediatric patient population best served by laparoscopic or robotic assisted surgery for this type of obstruction. Based on the original description in 1949 by Hellström, LTRP or the vascular hitch is an attractive surgical option because it eliminates the need to violate the collecting system. In this initial report we propose as a therapeutic alternative, the initial release of the ureteropelvic junction of vascular compression with subsequent fixation of the pelvis and ureter to the soas muscle by retroperitoneal approach that could be a good option for a possible correction of extrinsic UPJO, as the procedure does not disrupt the lower pole vessels or the urinary system to relieve the UPJO, avoiding by the other hand the management of vascular pedicle as well as the approach to the abdominal cavity.

(12) **Laparoscopic Pyeloureterostomy: a Novel Approach to Pelviureteric Junction Obstruction in a Pelvic Kidney.**

**Joanna Stanwell,** Henrik Steinbrecher

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**Introduction:** Pelviureteric junction obstruction (PUJO) commonly occurs in pelvic, horseshoe and crossed ectopic kidneys due to the abnormal positioning of kidney and pelvis. Pyeloureterostomy to the contralateral kidney may be a preferred technique to achieve dependent drainage of urine in selected cases. Though laparoscopic pyeloureterostomy has been used successfully to treat lower moiety PUJO, we could find no reports of its use in pelvic kidney PUJO.

**Patients and Methods:** We report successful treatment of an 11 year old boy with a pelvic kidney PUJO using laparoscopic pyeloureterostomy. He presented with left sided abdominal pain, 2cm pelviccalyceal dilatation of his pelvic kidney, a MAG3 renogram confirming a normal right kidney and a left pelvic kidney contributing 31% function with obstructed drainage. Cystoscopy and bilateral retrograde pyelography demonstrated close proximity of the left PUJ to the right distal ureter in a configuration amenable to pyeloureterostomy. Laparoscopy via a supraumbilical 5mm camera port
with three secondary 5mm instrument ports allowed the posterior peritoneum overlying the pelvic kidney to be divided using the Harmonic scalpel. Adjacent incisions between the left pelvic and right ureter were made, marked by stay sutures and a 1.5cm pyeloureterostomy was performed using continuous 5-0 Vicryl full thickness sutures along the posterior anastomosis. A transanastomotic 4.7Fr 8-22cm ureteric stent was placed laparoscopically and positioned before completing the anastomosis anteriorly with interrupted 5-0 Vicryl sutures. Post-operative recovery was uneventful. The ureteric stent was removed 6 weeks later.

**Results:** He has remained pain and infection free since the operation. Follow up ultrasonography at 1, 3 and 6 months showed no dilatation, scarring or calculi and MAG3 renography at 6 months demonstrated good drainage from both the right and pelvic left kidneys.

**Conclusion:** Laparoscopic pyeloureterostomy provides a safe minimally invasive approach to correct PUJO in a pelvic kidney.

(13) Paediatric Robotic Assisted Pyeloplasty in a Solitary Kidney.
Gloria Pelizzo, Luigi Avolio, Piero Romano, Federico Scorletti, Claudia Filisetti, Ilaria Goruppi, Alessandro Raffaele
IRCCS Fondazione Policlinico S.Matteo, Pavia, Italy

**Purpose:** Since its inception, robotic assisted laparoscopic pyeloplasty (RALP) has rapidly become one of the most common procedures performed in children. We report the feasibility of RALP as a safe technique in child with a congenital hydronephrotic solitary kidney.

**Materials and methods:** A 4-year-old boy with prenatal diagnosis of congenital single kidney and hydrourephrosis was conservatively treated. He showed a slow but progressive dilatation of the pelvis with normal function at renal scan; when dilatation increased to 44 mm he underwent to RALP (da Vinci Surgical System Intuitive Surgical, Sunnyvale, CA). Three robotic (8 and 5 mm) and one assistant ports were used. Transperitoneal Anderson-Hynes pyeloplasty was performed with interrupted suture; a double J stent was inserted to protect anastomosis.

**Results:** The procedure was completed in 90 minutes without intraoperative and postoperative complications. The child was discharged on postoperative day 2.

Conclusions: This technique provides several advantages over conventional laparoscopic surgery in urologic reconstructive operations, with the main advantage being simplification and precision of exposure and suturing with a 3-dimensional view. Pyeloplasty is feasible and safe with only 2 operative instruments also in complicated cases as children with solitary kidney.

(14) The Success and Limitation of Robotic Assisted Intravesical Ureteric Reimplantation.
Jun-Hong Lim, Nicholas Gattas, Azad Najmaldin
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**Introduction:** Robotic technology is increasingly being employed to assist in a variety of surgical procedures. It is ideally suited to facilitate minimal invasive or conventional open procedures that are deemed challenging. We present our early experience of robotic intravesical ureteric reimplantation with a video illustrating the technique.

**Methods:** All children who had ureteric reimplantation from April to July 2011 were included in this prospective study. The indication for surgery included: recurrent infection with reflux and scarring (2 patients, 3 ureters); recurrent pyelonephritis and reflux following deflux injection (1 patient, 2 ureters); recurrent infection with ureterocoele and lower moiety reflux (1 patient, 2 ureters) and obstructed ureter 1. Reflux were grade 3-5 in all but 1 who had a symptomatic grade 1 following deflux injection. The bladder was distended with saline. An open technique was used to insert the primary 12 mm port and 2 further 5mm working ports under vision. Saline was replaced by CO2 (pressure 8-12mmHg, flow 0.5-1litre/min). Cohen reimplantation was performed using the DaVinci™ system. A urinary catheter and ureteric stents were used in all. Patients were followed up with an ultrasound scan at 1 and 4 months.

**Results:** There were 8 ureters in 5 patients (age 26 months - 7 years). One patient with obstructed megaureter was converted to open technique because of limited working space and relatively large instruments. The remainder had successful reimplantation. The mean total operating time was 225 minutes (range: 152-257) and console time 113 minutes (range: 80-150). No patients required postoperative morphine and all discharged at post operative day 1. The catheter and stent were removed at post operative day 7. There were no other complications.

**Conclusion:** This early experience support the view that robotic assisted intravesical reimplantation is feasible and safe. Long term results are awaited. Compared with our experience in conventional laparoscopy the ergonomic of tissue handling and suturing were easier, but greater technical challenges can arise from limited working space and size of instruments.
(15) Management of Nephrolithiasis in Children: the Effectiveness of Miniature Access Sheath for PCNL.

Tze Wah, Henry Irving, Elizabeth Kidger, Azad Najmaldin
Leeds Teaching Hospital, Leeds, UK

**Aim:** Experience with minimal invasive techniques in the management of paediatric urolithiasis is limited. We report our initial experience of MINI percutaneous nephrolithotomy (PCNL) in a paediatric population using a miniature nephroscope through an 16F metal access sheath, and to assess its efficacy and safety in this age group.

**Patients and methods:** All paediatric patients who underwent PCNL from August 2007 to September 2010 using a 14F miniature nephroscope through an 16F metal access sheath for renal stone extraction were evaluated. Patient’s demographic details, procedural information (puncture site, stone burden, X-ray screening and total procedural times) and post treatment outcomes (stone clearance rate and complications) were prospectively documented.

**Results:** A total of 23 MINI PCNLs were performed in 12 patients (9 boys and 3 girls). Patients age ranged from 1.6 to 14.6 years (mean 4.76). The median stone burden was 3.44 (1.5 to 6.2 cm) and there were eleven ‘Staghorn’ stones. The procedure was primary via a single puncture in 19 patients and secondary using a pre-existing nephrostomy tract in 4 patients. Access was successful in all the primary and 2 of the secondary cases- making a total of success rate 91.3%. Stones were fragmented using Holmium laser and/ or lithoclast and fragments were sequentially removed by various stone grasping devices. The mean procedural X-ray screening time and total renal extraction period were 4.5 minutes (range 2.09 to 8.2 minutes) and 109.4 minutes (range 20 to 180 minutes) respectively. The primary stone free rate was 83.6%, which increased to 90.5% after treating the residual fragments. Post operative hydrothorax developed in 1 patient who required a chest drain. Symptoms of chest infection and positive urine culture were detected in 1 and 2 patients respectively. These patients were treated with antibiotics.

**Conclusions:** Our initial experience supports previous reports that MINI PCNL is safe and effective in the management of renal stones in children.


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**Objectives:** Urachal remnants are rare congenital anomalies generally treated with open surgery. In the last decade laparoscopic treatment of these anomalies became more frequent. The Authors report an experience of two Italian centers about minimally invasive treatment of remnants.

**Patients and methods:** Eight children, 5 males and 3 females (age from 1 to 11 years) with urachal remnants underwent minimally invasive surgery:

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<thead>
<tr>
<th>Case</th>
<th>Sex</th>
<th>Age (years)</th>
<th>Symptoms and signs</th>
<th>Diagnosis</th>
<th>Treatment</th>
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<td>1</td>
<td>Umbilical spillage</td>
<td>laparoscopy</td>
<td>Videoassisted removal</td>
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<td>2</td>
<td>m</td>
<td>7</td>
<td>Acute abdominal pain and stranguria</td>
<td>US, CT and laparoscopy</td>
<td>Videoassisted removal</td>
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<td>Asymptomatic</td>
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<td>Recurrent umbilical infection</td>
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<td>5</td>
<td>m</td>
<td>8</td>
<td>Acute abdominal pain and urinary frequency</td>
<td>Laparoscopy</td>
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<td>recurrent abdominal pain</td>
<td>US, Laparoscopy</td>
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<td>8</td>
<td>f</td>
<td>14</td>
<td>recurrent abdominal pain, stranguria and urinary tract infection</td>
<td>US, Laparoscopy</td>
<td>Laparoscopic removal</td>
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**Results:** In all cases radical excision was accomplished easily. Operative time ranged from 40 to 90 minutes. Intra- or post-operative complications and recurrences did not occur and the cosmetic results were very good.

**Conclusions:** Minimally invasive surgery for urachal remnants is reliable, diagnostic and therapeutic at the same time. In case of complicated urachal cysts we used both videoassisted and laparoscopic procedure with same good results. The minimally invasive treatment of urachal remnants allows a radical excision with all advantages of this procedure.
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Aim: Laparoscopic insertion of peritoneal dialysis catheter has been a popular method in recent years. Many technical modifications have been described. In this video, we aimed to evaluate the technical details of a modified method of catheter insertion.

Case Report: Fifteen years old girl with spina bifida had an indication of peritoneal dialysis due to chronic renal failure. After diagnostic laparoscopy, the site of the cather on the abdominal wall has been marked with help of the cuffs of the catheter. An incision was made and a subcutaneous tunnel was performed. The guidewire of the catheter set was placed through the tunnel into the abdominal cavity. Thereafter, a dissector and the catheter itself have been placed through the same tunnel. The catheter was placed to the Douglas pouch. An optic forceps made for bronchoscopy was replaced and inserted through the umbilical port. The catheter was placed its final position. The omentum was grasped by the optic forceps and taken out through the trocar. The omentum was excised. No complication has been encountered.

Conclusion: The use of optic forceps for the laparoscopic insertion of peritoneal dialysis catheter facilitates the dissection. It reduces the need for additional trocar and provides appropriate position of the catheter.

(18) Combined Laparoscopic and Cystoscopic Injection of STS for Bladder Venous Malformation: A Novel Technique. Sinha CK, Barnacle A, Mushtaq I, Cherian A
GOSH, London, UK

Aim: To report the first case of venous malformation of bladder treated with Sodium Tetradecyl Sulphate (STS 3% as foam) using combined cystoscopic and percutaneous trans-peritoneal injection under laparoscopic guidance.

Case presentation: This was a seven-year-old boy, who presented to the local paediatric surgery centre at the age of four with long standing history of frank intermittent haematuria. Except for a few episodes of urine tract infections, all other investigations were normal. Few episodes of significant frank haematuria required blood transfusions. Magnetic Resonance Imaging revealed a mass with significant vascularity of bladder wall. He underwent partial cystectomy for the mass, but there were several other areas of the bladder involved by vascular malformations. Histopathology confirmed the lesion as venous malformation extending into detrusor muscle with no evidence of malignancy. Frank episodic haematuria continued. At our centre, cystoscopic injection of STS was carried out initially with limited success. The yield of this intervention was limited by poor vision due to blood and the use of the STING telescope. On the next occasion along with the cystoscope a laparoscope was inserted into the peritoneal cavity through the umbilicus to view the serosal surface of the bladder. Areas of malformation were clearly delineated by the laparoscopic view with the aid of trans-illumination from the cystoscope. The affected areas were then injected by using a STING needle introduced percutaneously through the anterior abdominal wall under laparoscopic guidance. The response was quite satisfactory. Following this we have administered electively four further injections of STS (at 6 week intervals) via the cystoscope. In the most recent cystoscopy, there has been an excellent response with near complete resolution of these lesions.

Conclusion: We believe in difficult circumstances especially with poor cystoscopic views, the laparoscopic view and its role to guide along with trans-illumination is a useful adjunct for sclerotherapy of bladder venous malformation.

(19) Laparoscopy in Neonates in Bangladesh: Technical Challenge and Experience in Chittagong. Jafarul Hannan, Mozammel Hoque
Chattagram Maa-O-Shishu Hospital Medical College, Chittagong, Bangladesh

Introduction: Pediatric Minimally Invasive Surgery is a relatively newer concept in Bangladesh and started just about 6 years ago. It took some time to gather sufficient expertise to start in the neonates. However, due to resource constraints we are to practice with conventional equipments and still performing some advanced procedures. We are one of the pioneers in neonatal laparoscopy in Bangladesh and this article will review the common procedures that we perform.

Materials and methods: From 7, October 2005 to 30, June 2011, 1953 cases underwent laparoscopic/thoracoscopic procedures in our department of which 117 were neonates. We use conventional 5 mm 30° telescope & single chip camera. All the cases were done under general endotracheal anaesthesia. We insert first trocar by open method and keep CO₂ pressure below 8 mmHg. We use counter traction with silk bites during introduction of 2nd and subsequent trocars. Age, sex, indications, operative procedures, complications and outcomes are evaluated retrospectively.

Results: Age of the patients ranged from 3 days to 30days, males predominant (1: 0.56). Laparoscopy-assisted pull-through for Hirschprung’s disease was the commonest procedure (71) followed by Pyloromyotomy (21), Inguinal hernia repair (15), Ovarian cystectomy (06) and Diaphragmatic hernia repair (03). Six cases needed conversion (5 Georgeson’s and one Pyloromyotomy). Port-site infection occurred in 5 early cases and incisional hernia in one of pyloromyotomy. Six cases of Georgeson’s operation developed sepsis needing colostomy and three (2.56% of total neonates) of them died.
Follow up was from 3 months to 5 years. Twenty three out of 60 successful Georgeson’s operations had peri-anal excoriation persisting for initial 2-3 weeks. Forty six cases are now having normal bowel habits, seven having constipation, five occasional soiling and two fecal incontinence. One (6.66%) inguinal hernia recurred. Overall 70% had uneventful outcomes and 9.4% had serious complications including death.

**Conclusions:** Laparoscopy can be done in neonates using basic instruments with reasonable outcomes.

(20) Results from a Laparoscopic Assisted Transanal Endorectal Pullthrough Service.

**Max Pacht, Janet McNally**
Bristol Children’s Hospital, Bristol, UK

**Introduction:** A single surgeon service was set up in 2006. Patients undergo laparoscopic biopsies and a laparoscopic assisted trans-anal endorectal pull through (LA-TERPT) procedure using the technique described by Georgeson in 1995.

**Patients and Methods:** A retrospective case note review of procedures undertaken between March 2006 and July 2011 was performed and results compared against published series of LA-TERPT.

$n=32$; 10 female, 23 males. Mean age at surgery: 114 days. Mean weight: 5.66kg. Mean age and weight at surgery were comparable to published groups, along with complications of surgery. Mean hospital stay was 3.2, range 2-7 days and mean time to full feeds was 1.9, range 1-5 days. Only 6 (18%) of patients received post-operative opioid analgesia. Our mean follow up was 17.8 months.

**Results:** 4 patients are taking laxatives and 1 receives bisacodyl suppositories. 9% of our patients have soiling ranging from an occasional smear to large volume loose stool. Of the 11 patients who are 3 years or over, 3 had soiling. Of these, one was a patient who had a delayed diagnosis at the age of 3 years and one has possible internal sphincter achalasia and undergoes botulinum injections. Soiling and continence are difficult to compare given the different scoring methods used within the series’, but these figures compare favourably to a soiling rate of 60% in Isihara’s and 23% at 4 years in Fujiwara’s series’. Our enterocolitis rate at a mean of 1.2 is skewed due to one patient who had 12 readmissions. 14 patients had at least 1 readmission (43%). We do not formally grade the severity of suspected enterocolitis, but the majority of readmissions would fall within grade 1 as defined in Elhalaby’s papers. Our practice is to assume enterocolitis until proven otherwise and this is reflected in the figures. Only 1 patient (3%) went on to have a further Duhamel procedure 12 months after the LA-TERPT because of an inability to pass spontaneous stool and occasional diarrhoea.

**Conclusion:** We conclude that LA-TERPT is feasible and safe for all paediatric general surgeons and has a short learning curve. Our series has comparable outcomes to published data.


**Maria Grazia Scuderi, Fabio Chiarenza, Luciano Musi, Vincenzo Di Benedetto**

1Catania University, Catania, 2S. Bortolo Hospital, Vicenza, Italy

**Purpose:** Laparoscopic-assisted anorectal pull-through (LAAP) to repair high and intermediate anorectal malformation, proposed by Geogeson, is considered a valid alternative to posterior sagittal anorectoplasty. This technique provides excellent exposure of the anatomy, good visualisation of the fistula, a precise placement of the rectum inside the sphincter complex without dividing the muscle and with a very small dissection of the perineum.

**Materials and Methods:** 9 patients with high anorectal malformation underwent Georgeson laparoscopic anorectal pull-through from April 2009. Six patients had recto-vesical fistula, while three had recto-prostatic fistula. Two patients had associated aoesophageal atresia type III, treated at bird.

All patients were treated with distal left colostomy at bird. Only two of these patients had prenatal diagnosis. The mean age at LAAP was 6.9 month (range 3 – 18 month) the mean weight was 7.1 Kg (range 5 - 9 Kg). The fistula was identified and closed by clips or Vicryl stichs in 6 cases, in the other 3 cases the fistula was only sectioned.

**Results:** In all cases the dissection of the fistula and the pull-through was carried out successfully, and the postoperative period was uneventfully, and patients started to be fed in the first or second day after procedure. Anorectal dilatation is begun two weeks after surgery.

In our series we had three mucosal rectum prolapse (33.3%) and two persistent constipation (22.2%). No anastomotic stricture was described. All patients, had a stool frequency of < 4 per day and no patients had postoperative enterocolitis.

**Discussion:** Laparoscopic-assisted anorectal pull-through have equivalent early outcome when compared to be posterior sagittal anorectoplasty, but the mininvasive approach favorise a good estetical result, less perineal and pelvic scarring and avoid muscle complex section with reduction of incontinence.
Introduction: The thoracoscopic repair of long gap esophageal atresias is technically demanding. Some surgeons advocate the early repair with gastric pull up, others recommend traction of the esophageal ends and delayed thoracoscopic anastomosis in cases where a primary anastomosis cannot be achieved.

Patients: We describe two consecutive cases of long gap esophageal atresias, where we performed a thoracoscopic esophageal anastomosis (without gastric pull up) at the age of 8 weeks post partum (37 weeks gestational age, 1900 g, tetralogy of Fallot) and at the age of 12 weeks post partum (31 weeks gestational age, 1370 g, vacterl-association). A notably tension was tolerated by the esophageal ends during completion of the anastomosis without intraoperative rupture or postoperative leakage.

Results: One patient needed repetitive esophageal dilatations postoperatively. Neither of both developed a gastroesophageal reflux. Both patients were solely orally nourished when discharged. Conclusion: We believe the treatment schedule consisting of a postnatal placement of a gastrostomy followed by an early enteral nourishment in combination with a suction tube in the upper esophagus until a single step thoracoscopic anastomosis is performed at the age of approximately 8 weeks is an excellent alternative to the so far described procedures.

Aim: to assess the feasibility of the toracoscopic approach to correct esophageal atresia evaluating the potential advantages and limitations of this minimally invasive technique.

Patients and Method: In the Dept of Pediatric Surgery of Vicenza in the last 16 months we have successfully operated 4 newborns with tracheo-esophageal malformations. Three patients were affected from esophageal atresia with distal esophagotracheal fistula (type III b) while one patient had an esofago-tracheal cleft (length 2 cm) without esophageal atresia, laryngeal atresia, renal agenesis and labiopalatoschisis. The median weight was 2,7 kg (range 2,2-3,5 kg). The patients were stabilized and operated within 36 hours from birth. All the patients were placed in a 45 degree prone and left-lateral position; main surgeon stood on the left side. Three 5-5 mm trocars were placed in the fourth, fifth, and sixth-eight intercostal space, respectively, between the anterior and posterior axillary line. The CO2 pressure ranged from 3 to 5 mm Hg. In all 3 patients affected from esophageal atresia the fistula was closed by two endoclips (1 cm branch length). In the patient with tracheo-esophageal cleft we utilized double running suture because the defect was too long for clips. In the three patients with esophageal atresia an end-to-end anastomosis was accomplished completely thoracoscopically with eight to nine interrupted stitches of 5-0 PDS. All the patients had a chest tube. No operative complications were encountered.

Results: Primary correction was accomplished thoracoscopically in all cases, and no conversion was required. The tracheo-esophageal cleft needed a further thoracoscopic closure after 2 month for a fistula recurrence. At postoperative day 5-6, a barium swallow study, confirming absence of leaks; then oral feeding was started. Chest tube was removed within post-operative day 8. The cosmetic results were excellent in all cases. At medium follow-up 8 month (range 5-11 month), all patients were without symptoms except for one (tracheo-esophageal cleft and laryngeal atresia) who had laryngeal stent and swallowing problem that required feeding by gastrostomy

Discussion and Conclusion: Despite our initial surgical experience, the thoracoscopic approach of tracheo-esophageal malformations is absolutely feasible in the neonate. However the presence of a skilled laparoscopic surgeon is essential to reduce the possibility of esophageal injury, and further complication. Patient position and pulmonary collapse (CO2) plays an important role in achieving a good visual field during the procedure and a good outcome. According our experience and literature reports thoracoscopic approach guarantees optimal cosmetic results and seems to prevent the development of chest wall deformities.

Background: The paper presents authors’ experience in laparoscopic approach in paediatric hydatid disease. The aim of the paper is to reveal the applicability, advantages, limits and indications of the laparoscopic approach of this disease.

Materials and Methods: 47 patients diagnosed with hydatid disease were operated on between 2000 and 2011: 38 intraabdominal and 9 intrathoracic hydatid cysts, in children aged between 3 and 17 years (mean age=11 years). Two patients were operated on thoracoscopically, one of them presenting a hepatic hydatid cyst evacuated in the pleural...
cavity. 16 patients with intraabdominal hydatid disease (hepatic, peritoneal, renal) were operated on laparoscopically. Conversion to open surgery was needed in 8 cases due to cyst localisation, the complexity of the lesion, intraoperative incidents or irrelevant imagistic findings. Biliary fistulas were noted 10 days after surgery in 2 of the laparoscopically operated patients. One of the patients (no drainage in the first operation) needed reintervention.

**Results:** Operating time in laparoscopic procedure was 45-60min longer than in classical interventions. Mean hospitalization period was 10 days (12 days for the classical operations). There were no complications in the postoperative outcome, except 2 cases with biliary fistulas due to late elimination of the perilesional necrotic biliary tissue.

**Conclusions:** The laparoscopic approach of the hydatid disease may achieve all the surgical goals: inactivation, evacuation, prevention of the fistulas, reducing the restant cavity. The time of hospitalization depends on the complexity of the associated biliary lesions. There are obvious advantages of the laparoscopic approach concerning immediat and late clinical postoperative outcome.

**(25) Robotic Surgery Facilitates Minimally Invasive Complete Excision of Perinatal Diagnosed Liver Cysts.**

*Michael Dawrant, Azad Najmaldin, Naved Alizai*

Leeds Children’s Hospital, Leeds UK

**Aims:** Liver cysts are increasingly being detected during pre and post natal ultrasound scans. Simple liver cysts are not excised unless they become symptomatic. Most cysts remain asymptomatic. Resection of mesenchymal hamartomas is necessary because of their malignant potential. The recommended treatment of choice is a complete resection. We review our experience of robotic assisted resection of perinatally diagnosed liver cysts and the technique is demonstrated in a video.

**Methods:** We prospectively collected the data and reviewed the notes for children who underwent robotic assisted minimal access excision of liver cysts. The da Vinci surgical system (Intuitive Surgical, Sunnyvale, California) was used with a 12mm umbilical camera port (3D), two 8mm working ports and a conventional accessory laparoscopic 5mm port. A Nathanson retractor was used in 2 patients. Complete excision was achieved in all cases using either monopolar or bipolar dissection.

**Results:** Over a 12 Month period (June 2010 to May 2011), three children were treated with robot assisted minimal access resection of liver cysts at age 3, 3 and 8 years. One child had a liver cyst detected antenatally while in the other two the cysts were detected incidentally during postnatal follow up ultrasounds for antenatally diagnosed renal anomalies. The liver cysts were located in segments 4, 5 and 6. The cyst in segment 4 was behind the Calot’s triangle and the medial half of the gall bladder. During its excision the gall bladder was preserved. All of the children made a good post-operative recovery with minimal pain relief. No patient required an epidural. All patients were allowed and were able to eat and drink as soon as they recovered from anasthesia. The hospital stay was 1, 2 and 5 days respectively. Histology of the cysts has confirmed the cysts to be a mesenchymal hamartoma in two cases and a simple liver cyst in one. The simple liver cyst was excised because of progressive enlargement and abdominal pain.

**Conclusion:** Robot assisted minimal access liver cyst excision can reduce the need for postoperative analgesia and hospital stay by a significant margin. Robotic assistance facilitates safe, minimally invasive resection of select paediatric liver cysts.

**(26) Endoscopic Drainage and Cystoduodenostomy Procedure in a Patient Presenting with a Pancreatic Pseudocyst.**

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**Aim:** To describe technical details of endoscopic cystoduodenostomy procedure in patient presented with pancreatic pseudocyst

**Case:** Eleven –year –old morbidly obese patient presented with severe abdominal pain and vomiting episodes for 2 months duration. He had a previous history of trauma complicated with right humeral fracture and abdominal pain. He was hospitalized for abdominal pain in another hospital and abdominal ultrasonography (USG) done after trauma showed no abnormality. However abdominal USG and CT done during this admission revealed a 7cm cyst located in the head of pancreas causing duodenal compression. Blood chemistry revealed elevated liver function tests with normal amylase and lipase levels. Fine needle aspiration biopsy was performed and 50cc turbid fluid with elevated amylase level was aspirated. Biopsy showed erythrocyte laden macrophages and few PNL. There were no epithelial cells or mucoid secretions. The cyst shrunk to 2cm diameter after aspiration but enlarged to 8cm diameter in one month follow up. Therefore endoscopic drainage and cystoduodenostomy was carried out.

**Results:** Endosonography was performed and showed that there was no vascular structure between cyst wall and duodenum .There were no muscular structure or epithelial lining in the cyst wall consistent with duodenal duplication. After identification of ampulla and the cyst bulge above ampulla, puncture of the bulge was done with double lumen needle knife sphincterotomy in which guidewire was already placed. Guidewire was advanced into the cyst and after
dilatation of the tract with 12F balloon, 10F double pigtail catheter was placed. Control USG revealed completely shrank cyst. The patient was discharged the day after the procedure and doing well during 6 months of follow-up.CT scan done at 3 month follow-up showed no evidence of the cystic lesion

**Conclusion:** Endoscopic drainage and cystostuddonostomy is a minimally invasive, effective and safe approach in the management of pancreatic pseudocysts in children.

(27) The Role of Minimally Invasive Surgery in Paediatric Trauma.

*Stewart Cleeve, Niall Jones, Ashwini Joshi, Simon Phelps, Devesh Misra, Mamta Vaidya, Harry Ward*

The Royal London Hospital, London, UK

**Introduction:** Many cases of paediatric trauma can be managed non-operatively. The use of minimally invasive surgery (MIS) in paediatric trauma has been described in recent years, but its role is not fully defined.

**Aim:** To assess the use of MIS in paediatric trauma at our centre.

**Method:** All cases of paediatric trauma over a 4 year period (2008-2011) were retrospectively reviewed using a contemporaneously maintained database. Data regarding: age, sex, injury, injury severity score (ISS), open or MIS and outcome was collected and is presented as median (range).

**Results:** Over the 4 year period, 532 cases of paediatric trauma were managed in our centre. The median age was 10 years (3 months to 18 years), 72% (384/532) were male and ISS was median 4 (0 to 75). Operative management was required in 12% (64). Abdominal or thoracic injuries were present in 16% (10/64). The table shows these 10 patients. Overall mortality at 24 hours was 1.5% (8/532) and 2.6% (14/532) at 28 days.

<table>
<thead>
<tr>
<th>Region</th>
<th>Age</th>
<th>Sex</th>
<th>Mechanism</th>
<th>O/L</th>
<th>Injury</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
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<td>15</td>
<td>Male</td>
<td>Penetrating</td>
<td>Open</td>
<td>Left lung, pericardium</td>
<td>Survive</td>
</tr>
<tr>
<td>Thorax</td>
<td>14</td>
<td>Male</td>
<td>Penetrating</td>
<td>Open</td>
<td>Right ventricle,</td>
<td>Died</td>
</tr>
<tr>
<td>Abdomen</td>
<td>2</td>
<td>Male</td>
<td>Blunt, RTA</td>
<td>Open</td>
<td>Pelvis, perineal, limb</td>
<td>Survive</td>
</tr>
<tr>
<td>Abdomen</td>
<td>13</td>
<td>Male</td>
<td>Penetrating</td>
<td>Open</td>
<td>Liver, mesentry</td>
<td>Survive</td>
</tr>
<tr>
<td>Abdomen</td>
<td>10</td>
<td>Male</td>
<td>Penetrating</td>
<td>Open</td>
<td>Jejunal perforation</td>
<td>Survive</td>
</tr>
<tr>
<td>Abdomen</td>
<td>14</td>
<td>Male</td>
<td>Penetrating</td>
<td>Lap to open</td>
<td>Portal vein, hepatic artery, IVC</td>
<td>Died</td>
</tr>
<tr>
<td>Abdomen</td>
<td>3</td>
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<td>Blunt, RTA</td>
<td>Open</td>
<td>Splenic avulsion</td>
<td>Survived</td>
</tr>
<tr>
<td>Abdomen</td>
<td>4</td>
<td>Female</td>
<td>Blunt, RTA</td>
<td>Open</td>
<td>Jejunal perforation</td>
<td>Survived</td>
</tr>
<tr>
<td>Abdomen</td>
<td>15</td>
<td>Male</td>
<td>Penetrating</td>
<td>Lap</td>
<td>No internal injury</td>
<td>Survived</td>
</tr>
<tr>
<td>Abdomen</td>
<td>9</td>
<td>Male</td>
<td>Penetrating</td>
<td>Open</td>
<td>Gut evisceration</td>
<td>Survived</td>
</tr>
</tbody>
</table>

**Conclusion:** Over the period analysed, MIS has a limited role in the management of children with trauma at our centre.

(28) Benign Ovarian Masses in Children: Comparison of Open and Laparoscopic Approaches.

*Gungor Karaguzel, Selim Demirezen, Cem Boneval, Mustafa Melikoglu*

Akdeniz University, Turkey

**Aim:** There are different management protocols to treat ovarian lesions in childhood. In this study, we aimed to evaluate our patients with benign ovarian tumors with special regard to management methods applied.

**Materials and Methods:** In the last 5-year period, the case notes of 44 children who underwent surgery because of benign ovarian tumor were reviewed. Each patient’s file was searched for demographical data, clinical findings, diagnostic tools, surgical method, pathological diagnosis and morbidity. All patients were preoperatively evaluated with ultrasonography (US). Persisting simple cysts measured as >4cm in infants or >5cm in older children in diameter and complex cysts/complicated cases regardless of size of the mass underwent open surgery (OS) or laparoscopic surgery (LS).

**Results:** Patients’ ages varied between 6 days and 17 years. Twenty three patients presented with acute abdomen in our series. Preoperative US showed simple ovarian cyst in 16 cases, complex cyst in 27 cases, and purely solid lesion in one case. Cystectomy only with or without detorsion was performed in 28 cases, oophorectomy with cystectomy in 12 cases, salpingo-oophorectomy in 2 cases and detorsion only in 2 patients. Diagnostic categories based on histopathological examination were follicular cyst (n=24), corpus luteum cyst (n=12), mature cystic teratoma (n=5), paraovarian cyst (n=2), hemorrhagic necrosis (n=1). Mean follow-up period was 21±14 months, ranged from 6 to 38 months. 26 Patients enrolled in LS group (18 were emergent) and 18 patients in OS group (4 were emergent). Time interval between admission and initial symptoms was less then 24 hours in 3 patients of OS group and 9 patients of LS group. While eight patients had complex cyst in LS group, there were 10 patients with complex cyst in OS group. Ovarian lost rate was 61% (11 cases) in OS group versus 12% (3 cases) in LS group. Mean duration of hospital stay was 2.2±1.9 days in LS group and 4.6±4.3 days in OS group. There was neither recurrence nor conversion to open surgery. Two patients from LS group were operated on later because of contralateral ovarian cyst. Late follow up period was complicated by intermittent abdominal pain in two patients (one from each group) who required no surgical intervention.
Conclusion: Although indications and methods for surgery are controversial in benign ovarian masses, LS with sparing the ovary considerably replaced OS in our series especially in emergency cases. However ovarian loss rate remained markedly high in OS group which may be affected by late admission and/or case selection. Additionally, patients should be carefully followed from the points of abdominal symptoms and cyst development in the contralateral side.

(29) Open versus Laparoscopic Appendectomy in Paediatric Population: Review and Meta-analysis. Ciro Esposito¹, Ida Giurin², Andres Calvo³, Francesca Alicchio⁴, Carlos Suarez⁵, Alessandro Settini⁶
¹Federico II University of Naples, Naples, Italy, ²Hospital of Nino Jesus, Cordoba, Argentina

Background: This study aims to use meta-analysis to compare the results of laparoscopic and open appendectomy in a pediatric population.

Methods: A literature search was performed using Medline, Cochrane, and Pubmed databases on all studies published during the last 14 years (between 1997 and 2010). Comparative studies of laparoscopic versus open appendectomy in pediatric population were included in our studies. Data concerning, operative time, length of hospital stay, postoperative complications, postoperative pain and surgical trauma were recorded.

Results: We recorded 47 studies, but 26 of these were excluded from our analysis because they were neither relevant nor concerned adolescent population. The 21 analyzed studies showed a population of 123,628 children and adolescents (age 0-18 years) who underwent appendectomy by laparoscopic (LA - 42,213, 34.1%) and open techniques (OA - 81,415, 65.9%). Meta-analysis showed that patients undergoing LA presented a lower incidence of surgical wound infection, lower incidence of postoperative ileus, a lower use of analgesics in postoperative period, an earlier resumption to normal diet, a shorter hospitalization and a more rapid recovery to resume normal activities compared with patients undergoing OA. On the contrary this study, comparing LA versus OA in children, failed to identify any major difference between the 2 techniques in terms of intrabdominal abscesses formation. As for operative time, our meta-analysis shows a significant reduced operative time in the open appendectomy versus laparoscopic appendectomy in complicated appendicitis, but in simple appendicitis the operative time seems to be the same.

Conclusions: Meta-analysis and literature analysis showed that the LA presents several advantages compared to OA. Considering the superior cosmetic results of LA compared to OA and all the advantages, our study shows that, today, it is acceptable to perform an appendectomy using open surgery only in hospitals without laparoscopic experience.

(30) Appendicitis in Children under 5 years of Age. Gregory Shepherd, Sivasankar Jayakumar, Ashok Rajimwale, Ross Fisher, George Ninan, Shawqui Nour
University Hospitals of Leicester, Leicester Royal Infirmary, Leicester, UK

Aim: To examine the presentation, investigation, histological diagnosis and outcome of patients who underwent acute appendicectomy in children aged 5 years and under, over a 2 year period.

Material and Methods: This is a retrospective case note review of all children aged 5 years and under who underwent emergency appendicectomy for suspected appendicitis at Leicester Children’s Hospital, Leicester, UK between January 2007 and December 2008. The histology was reviewed along with the results of investigations.

Results: During the 2 year period, 272 patients underwent emergency appendicectomy for a clinical diagnosis of appendicitis. Of these, 23 patients were 5 years of age or less (7%). There were 11 boys and 12 girls. 3 had perforated appendicitis (13%), 13 had non-perforated appendicitis (57%). 6 had normal appendicectomies (26%), of which 2 had Meckel’s Diverticulitis (9%) and 1 had enterobius vermicularis infestation (4%). Symptoms and signs were similar amongst both those with and without histological signs of appendicitis. Half of patients had pain for more than 48hrs. 20 patients had blood sampling to assess their inflammatory markers (87%). 6 patients with inflamed appendices had a normal white cell count (26%). The average CRP for a non-perforated appendicitis was almost double that of a perforated appendicitis. Ultrasound was performed in 8 cases (35%) with variable accuracy. The average time to operation from admission was 16 hours, with an average stay of 4 days in hospital post operation due to antibiotic prescription. 1 patient had an intra-abdominal collection post perforated appendicitis (4%) and one patient had an incisional hernia (4%).

Discussion: Accurate diagnosis of acute appendicitis in this age group remains challenging. Because of this challenge, adjuncts to clinical assessment are employed more frequently but their accuracy remains poor. This diagnostic difficulty contributes to a delay in treatment and a longer hospital stay, although the rate of postoperative complication remains low. Meckels diverticulitis is an important differential of acute abdominal pain in this age group. The low incidence of acute appendicitis in very young children means that it is often overlooked. A high index of suspicion may aid earlier diagnosis and thereby reduce morbidity and length of hospital stay.
Laparoscopic Abdominal Lymphangioma Excision: Our Experience.
Claudio Vello, Federica Marinoni, Enrica Caponcelli, Gianluca Monguzzi, Giovanna Riccipetitoni
"V.Buzzi" Children's Hospital, Milan, Italy

Introduction: Most of the abdominal lymphangioma (AL) are asymptomatic however, patients may occasionally be referred with acute abdominal pain because of intestinal obstruction or peritonitis caused by infected cysts, hemorrhage, or torsion. The first choice treatment is complete surgical resection, but the recurrence rate due to incomplete resection is high, and laparotomy is related to risk of adhesions. The authors report their experience with the laparoscopic approach in the treatment of abdominal lymphangioma in elective surgery.

Material and Methods: Between July 2007 to August 2011, 8 cases of AL come to our attention: 4 underwent to emergency laparotomy for acute abdominal pain, while the last 4 patients underwent to elective laparoscopic excision (February 2009 – august 2011). Our retrospective study examined 4 consecutive operations for AL in 4 patient aged between 4 months to 14 years treated with elective laparoscopic surgery. In 1 case the AL was detected at ultrasound follow-up for left hydrenephrosis antenatally diagnosed. In 2 cases the AL was incidentally discovered after ultrasound for chronic abdominal pain and in 1 case the patient come to our institution with recurrent adrenal cystic lesion.

Results: In all the cases the AL excision was completed without need of laparotomic conversion. 3/4 cases had mesenteric localization. In one of those patients a minimal video assisted ileal resection was required because of firm adhesion between the mass and the intestinal wall. The procedures were free of intra and post-operative complications and the average operating time was 90 minutes.

Follow-up ranges between 1 to 25 months: no recurrence of disease has occurred. The cosmetic outcome is excellent.

Conclusions: In selected cases laparoscopic excision of AL is a feasible, safe and effective procedure. Moreover, even when is not possible to perform the entire resection laparoscopically, the exteriorization of the lymphangioma and the adjoining bowel through the umbilical incision has many evident advantages: it avoids wide laparotomy, it reduced the risk of adhesion and it improve the esthetical result.

Giant Mesenteric Cystic Lymphangioma: Laparoscopic Treatment.
Santiago Guindos Rúa, Raimundo Beltrá Picó, Caridad Hernández, Adam Mol
Complejo Hospitalario Materno Infantil Insular Canarias, Las Palmas, Spain

Introduction: mesenteric cystic lymphangioma is a rare entity. Although benign, it could cause several complications, so surgery is mandatory once diagnosis is performed.

Case report: we report the case of a 21 months old girl who presented with abdominal pain and distension. Ultrasounds exam showed huge abdominal multicystic mass, suggesting lymphangioma.

Through a laparoscopic approach we performed a minimally invasive surgical treatment, emptying the cysts and excising the malformed mesentery with 18 cm of the adjacent bowel loop. The patient was discharged after 5 days and stays uneventfully after 2 months follow up.

Discussion. Further experience in advanced endosurgical techniques will allow us to offer better solutions to surgical problems in childhood, as we show in our video treating a giant multicystic abdominal lymphangioma.

Thoracoscopic Lobectomy in Paediatric Age: Experience of a Single Centre.
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1Dep. Paed. Surgery, 2Dep. Anaesthesia and Intensive Care, University of Padua, Padua, Italy

Purpose: The series of thoracoscopic lobectomies in our pediatric population in the last 5 years, both for benign and malignant pathologies, are herein presented.

Materials and methods: Between 2007 and 2011, 18 patients underwent thoracoscopic lobectomy with the following diseases: 11 congenital lung malformations, 4 cases of chronic interstitial lung disease, 2 cases of aspergilloma, and 1 malignant lesion.

Results: In congenital lung malformations, we performed a lobectomy in 10 cases of CCAM and 1 intra-lobar sequestration. The average age of these patients at surgery was 13.6 months.

In 4 cases of chronic interstitial lung disease (2 isolated, 1 associated with autoimmune hemolytic anemia and hypothyroidism and 1 associated with microdeletion of chromosome 3 and bronchial abnormalities) a lobectomy was performed. The average age of these patients was 2.12 years. In 2 cases of fungal lesions, appeared in oncologic patients aged 9 and 19 years, during chemotherapy, we performed a lobectomy and a lobectomy with atypical resection, respectively. In 1 case of metastases from Wilms’ tumor in a 6 year-old patient, a bilobectomy and atypical resection were performed. All lobectomies were performed with Ligasure® device, EndoGia® and clips. The average length of surgery was 141.6 minutes. All patients were operated under general and local anesthesia, single lung ventilation, and CO2 at low pressure. The rate of conversion from thorascopy to thoracotomy was of 22.2% (3 CCAM, 1 metastatic lesion).
Conclusions: The thoracoscopic approach, both for benign and malignant thoracic and lung diseases, is becoming a valid and safe alternative to the traditional one because of its known benefits: reduced need for anesthetic drugs, faster resumption of feeding, shorter hospital stay, and unquestionably better esthetic results.

(34) Thoracoscopic Resection of Foregut Duplications.
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Aim: To present our experience with thoracoscopic resections of foregut duplications (FD) and highlight their presentation, surgery and outcome.

Methods: Retrospective cohort study assessing: antenatal diagnosis, symptoms, radiological features, surgical management and outcomes.

Results: 29 patients with FD (mean age 3.2 yrs, range 0.02-11.8) were managed from 1997-2011. The diagnosis was antenatal in 9 (5 symptomatic) and postnatal in 20 (19 symptomatic and 1 incidental). The cyst location was 3 cervical, 2 cervico-thoracic, 23 thoracic and 1 thoraco-abdominal. Presenting symptoms were varied and related to FD site and included: recurrent infections 8, stridor 5, respiratory distress 4, dysphagia 3, chronic cough 3, neck swelling 2 and failure to thrive 1. Thoracoscopic excision was performed in 17 cases (7 antenatal, 9 non-infected postnatal and 1 incidental). Thoracopy failed in one due to adhesions from previously failed thoracotomy excision. Thoracotomy was performed in 1 antenatal and 8 late presenting cases because of symptoms and CT findings. A cervical approach was used in 3. Laparoscopy was required in 1 case for excision of an intra-abdominal component. In 1 case in addition to thoracoscopic excision of FD a cervical laminoplasty was performed to excise an intra-spinal neuroenteric component. Histologically, epithelium identified 14 bronchogenic, 8 oesophageal, 5 mixed, 1 gastric, 1 neurogenic. Surgical complications included: undiagnosed cervical cyst 1, chylothorax and oesophageal leak with stricture 1, failure to completely excise cyst at initial open operation by another surgeon 1, phrenic nerve palsy requiring diaphragm plication 1, transient hoarse voice 1, neurological sequelae secondary to neurosurgical neuroenteric cyst management.

Conclusion: Antenatally diagnosed foregut duplications are amenable to thoracoscopic resection while infected cases tend to require conversions or an open procedure. Presenting symptoms can be varied and dependent on the position of the duplication cyst.

(35) Thoracoscopy after Previous Operations in the Chest- is it a Problem?
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Introduction: The number of surgical procedures using minimally invasive techniques is growing instantly. The establishing adequate space is essential for any surgery using minimally invasive techniques. The previous surgery and possible adhesions may be a contraindication for such a procedure.

Aims: This study evaluates safety and efficacy of the performed rethoracoscopies in patients with previous surgical history in the chest.

Materials and method: From January 2008 to August 2011, 20 rethoracoscopies after previous operative procedures have been performed in our institution. A retrospective review of medical documentation was performed.

Results: Rethoracopy was performed in 14 patients aged 8 days to 8 years. Five patients were after open surgical procedures, in the others thoracotomy was performed as the first procedure. The main disease was long gap esophageal atresia in 7 cases, recurrent tracheo-esophageal fistula (TEF) in 6 cases (in 3 cases it was missed upper fistula), pleuritis in 2 cases. In three cases 2 rethoracoscopies, in one case 4 rethoracoscopies were performed. In each case it was possible to place trocars and to make adequate operative space. There were no adhesions at the site of previous trocars location. There were 3 esophageal anastomosis, 4 esophageal lengthening, 6 TEF closure, 2 closure of upper esophageal pouch perforation, 2 pleural debridement. One failed TEF closure was converted to open procedure.

Conclusion: Previous surgical history in the chest is not a contraindication for thoracoscopy. Rethoracoscopy is feasible and efficient.

(36) Modified Nuss Procedure for the Repair of Pectus Excavatum: Lessons Learned from our Experience.
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Introduction: Since its publication by Nuss in 1998, minimally invasive repair of pectus excavatum (MIRPE) gained significant popularity among patients and surgeons. While this technique spread all over the world very quickly, some severe complications emerged in the literature: pericardial or cardiac injuries during the retrosternal dissection before
place the Nuss bar, as well as cardiac lacerations during bar removal. As indications for MIRPE are primarily cosmetic, it seems important to modify this procedure to make it safer.

**Material and methods:** From the analysis of a life-threatening incident in our series, as well as the study of the complications reported in the literature, we could imagine some tricks to help preventing major operative accidents during Nuss procedure.

**Results:** We propose a modified technique for the Nuss procedure. Since May 2011, 6 patients were operated with this new technique. A bilateral latero-thoracic approach is done on the mid axillary line at the level of the intercostal space where the bar is introduced later on. A third incision of 2cm is done right underneath the xyphoid. This last incision helps dissecting the retrosternal space with a finger. It also helps opening the pleura on both sides before introducing the dissector device to fully visualise and guide the bar during its positioning. Bilateral thoracoscopy is required. During dissection, the sternum may be lifted with a retractor through the third incision. The dissector passes the retrosternal space not only under direct thoroscopic vision, but also with a tactile control: the finger may protect the anterior mediastinum guiding the dissector in the retrosternal space. The bilateral thoracoscopy visualise the tip of the dissector during the hole procedure, as well as the bar during its placement. The operative technique for bar extraction was also modified: the bar is turned of 180° before mobilizing it. We also undo the curve of the bar on its left side before extraction that is done very slowly with absolute control to avoid any laceration of the anterior mediastinum.

**Conclusion:** With help of the lessons learned from our own experience, as well as the data found in the literature, we suggest a safer modified operative technique of a procedure mainly done for cosmetic reasons. Six patients have already benefited from this modified technique. Nonetheless, a greater number of patients is necessary to prove the safety of this modified procedure.

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**37 Initial Experience with Paediatric Thoracoscopic Resection of Congenital Lung Lesions.**

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**Introduction:** Congenital lung lesions (CLL) are a rare disorder and include congenital cystic adenomatoid malformations (CCAMs) and bronchopulmonary sequestrations (BPSs). Surgical interventions have been typically via the open approach with a thoracotomy, however since the onset of minimally invasive surgery the thoroscopic approach has been gaining popularity. Our aim was to analyze our initial experience with this technique.

**Methods:** Prospectively collected data retrospectively analysed over a 12 month period. Patients were analysed for patient demographics, the type of CLL & laterality, pre-operative investigations, operative technique, chest tube placement & duration, length of hospital stay, histopathological analysis (Stoker classification), potential complications and follow-up outcome.

**Results:** During the study period (Aug 2010-July 2011) 5 paediatric patients underwent thoracoscopic resection of a CLL with a mean age of 21.2 months. All patients were investigated with a pre-operative CT scan, had a left sided lesion, and underwent a successful thoracoscopic resection with chest drain placement. The median duration of chest drain placement was 2 days (range: 1-3 days), and the length of stay 3 days (range: 2-4 days). 2 patients had a residual pneumothorax on removal of the chest drain although these were not clinically significant. There were no other complications. Histopathological analysis revealed 4/5 (2 upper lobe & 2 lower lobe) of lesions were consistent with a Type 1 CCAM and 1/5 a possible Type 1 or BSP. At the time of surgery 2/5 lesions were noted to have an abnormal blood supply however. At a median follow up of 2 months all patients were thriving with fully expanded residual lungs on chest radiographs.

**Conclusions:** Our initial experience reveals that thoracoscopic resection of a paediatric CLL is a safe and feasible technique resulting in a low complication rate and also short hospital stay.

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**38 Lessons Learned During Thoracoscopic Repair of Congenital Diaphragmatic Eventrations in Children: a Monocenter Experience.**

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**Objective:** In 2005, we reported our preliminary experience of thoracoscopic repair of congenital diaphragmatic eventration. This procedure seems effective and safe. Good functional results are quickly observed in the immediate post-operative period. The experience of the last 6 years have allowed us to learn some lessons: we discuss different technical difficulties during procedure, the persistent recurrence risk and the techniques that should be avoided.
**Patients and Methods:** Thoracoscopy was performed through 3 ports. Diaphragmatic repair consisted in the plicature and the suture with an interrupted suture (Ethibond 2/0) or in the resection and the suture of diaphragmatic dome with help of an endostapler. In one case, the repair was done through laparoscopic approach. We report the data of patients treated from 1995 until 2011. Age at surgery, sex, procedure’s details (side, number of trocarts, surgical duration, and drainage) and post-operative outcomes (short- and long-time complications) are analysed.

**Results:** Eight patients (5 male and 3 female) aged from 3 months to 7 years underwent thoracoscopy for six right evntention and two left evntention. Two patients needed a second surgery for recurrence: one by thoracoscopy and one by laparoscopy converted to laparotomy. At last, we record 10 surgical procedures: OP I: 7 plicatures, one of which needed the use of a non absorbable patch, and 1 resection/suture by endostapler (Endo GIA white stapler); OP II: 1 plicature and 1 resection/suture by endostapler (Endo GIA white stapler). In 8 patients, a thoracic drain was left for the first 24 post-operative hours. Two patients were exsutfiliated at the end of the procedure. One conversion was recorded.

**Discussion:** Our review underlines the limits of this technique. The resection/suture of the diaphragn by endostapler seemed to be an interesting alternative at the beginning of our experience: One patient showed an excellent result after redo-procedure with endo-stapler. The other patient needed a second surgery 3 months after resection/suture by endostapler as he presented a thoracic evisceration of the intra-abdominal content.

**Conclusion:** Taking in consideration the benefits of thoracoscopy, especially in terms of functional outcomes, we still need to consider the possibility to introduce modifications in our surgical technique to improve the results.

(39) The Experience with a Simplified Technique of Laparoscopic Anterior Diaphragmatic Hernia Repair in Infants using Extracorporeal Knotting.

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**Purpose:** Although laparoscopic repair of anterior diaphragmatic hernia in older children has been accepted as the method of choice, there are still some concerns about routine use of it in infants because of their small working space. We report our experience with the simplified endoscopic repair of this type of hernias in infants with one or two working-ports using extracorporeal knotting.

**Patients and Methods:** Since Aug 2009 to Feb 2011, three infants with anterior diaphragmatic hernia operated laparoscopically using 5-mm 30° telescope inserted by open technique via umbilicus and one (or two according to severity of adhesions and access difficulties) working-port in the both sides of umbilicus and after meticulous reduction of the herniated viscera (transverse colon in two and left liver lobe in one), the parasternal diaphragmatic defect (two left, one bilateral), repaired with 3-4 separate 2/0 silk stitches. The needle introduced into the abdomen over the hernia and getting a bite of the posterior rim of the defect with a U-stitch, the needle brought-out through the abdominal wall at the same entrances point, and tieing extracorporeally.

**Results:** Three infants (4-months 5-kg , 7-months 6-kg, 8-months 8-kg male), who presented with persistent respiratory symptoms and had documented retrosternal hernias on chest X-ray, underwent laparoscopic repair. The mean operative time was 40 minutes. We had no intra-operative complication and there was no problem with CO2 pneumoperitoneum. All patients discharged on the third postoperative day and followed by control X-ray at 1, 3 and 6 months. Our first patient had normal control CXR at 3-months postoperatively, but his 6-mo postoperative X-ray showed a small asymptomatic recurrent. At laparotomy we found a small neglected right-sided parasternal defect, along with the healed previously repaired left-sided defect.

**Conclusion:** Considering the small working space and to overcome the difficulties of intracorporeal knotting in small infants, we recommend this simplified laparoscopic technique using extracorporeal knotting for all parasternal hernias even in infants and small children. We also recommend checking the other side to rule out bilateral case.

(40) Needle Plication of the Diaphragm.

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**Introduction:** Paediatric surgeons rarely perform Plication of the diaphragm. Simplification methods can expand this field into our specialty.

**Aim:** A new method of minimally invasive surgery of the diaphragm and preliminary results are presented.

**Methods:** Two 3 mm ports and an epidural single needle permit fully plication of the diaphragm. Lateral decubitus position is used. A wide-angle camera and grasping forceps allow 75% visualisation of the diaphragm. The needle is inserted from posterior to anterior aspect of the thorax in order to avoid the mediastinal organs. The diaphragm is punctured at several intervals and a nonabsorbable suture is threaded through its lumen. The suture is retrieved through the forceps port and a external sliding knot allows plication of the diaphragm. Several similar sutures are needed to
obtain complete down position and full lung expansion. Demographic and hospital variable data are retrospectively analysed. Thoracic radiographs are obtained for postoperative controlled. Follow up and final results are evaluated.

**Results:** Four patients were operated by this method since May 2011. They were between 1 month and 1 year of age at the time of surgery. Diagnosis was eventration of the diaphragm in one and postoperative phrenic palsy in 3 (two transposition of the great arteries, and one tetralogy of Fallot) Three required mechanical ventilation. Mean operating time was 70 minutes and follow up showed complete expansion of the lung. Early extubation of the patient was done after this procedure.

**Conclusions:** Needle plication of the diaphragm is a very simple and reproducible surgical method. It replaced our standard VATS and thorascopic previous methods used in 29 patients treated in our Department.

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(41) **Our Early Experiences with SILS Procedures in forty Children.**

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**Introduction:** The SILS procedure (Single Incision Laparoscopic Surgery) is the latest significant advancement in laparoscopic surgery that is performed through a single small incision in the umbilicus. The primary goals of SILS are avoidance of visible scarring and minimizing surgical trauma.

**Aim:** We present our first experiences of 40 cases (31 females and 19 males) treated with SILS since February until August 2011.

**Methods and results:** A total of 40 SILS procedures were performed in children aged 5 to 17 years. They included appendectomy (n=17), cholecystectomy (n=10), cystectomy with preservation of ovarian tissue (n=4), marsupialisation of ovarian cyst (n=2), oophorectomy for benign tumor (n=2), splenectomy (n=2), diagnostic laparoscopy (n=2) and Nissen fundoplication (n=1). In 38 patients we used custom made port (SILS silicone device from Covidien) and in two children we created access using transfascial technique. Three SILS operations were performed with flexible Olympus telescope and two (1 cholecystectomy, 1 ovarian cystectomy) using articulating instruments. All SILS procedures were successfully performed without any intraoperative complications or need for conversion. An average operating time was longer like in conventional laparoscopy. Postoperative complications included: 1 umbilical infection, 1 wound haematoma, 1 marginal skin incision necrosis and 11 wound seroma.

**Conclusion:** Our early experiences with SILS procedures in children suggest that it is safe and effective with less postoperative pain and excellent cosmetic result. On the other hand it requires experienced.

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(42) **Single-Incision Laparoscopic Surgery (SILS): Single-Centre Experience with an Emphasis on Complications.**

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**Background:** Recently Single Incision Laparoscopic Surgery (SILS) gained wider acceptance in children, mostly due to technologic developments. The primary SILS goals are avoiding visible scarring and minimizing surgical trauma.

**Methods:** A retrospective review was performed on patients operated on using SILS in our department from November 2009 to August 2011.

**Results:** There were 20 procedures: 4 appendectomies, 7 cholecystectomies, 2 splenectomies, 1 combined splenectomy/cholecystectomy, 3 adrenalectomies, 1 nephrectomy, 1 varicocelectomy and 1 liver biopsy. There was 1 conversion to standard laparoscopy during bilateral adrenalectomy due to anatomical aspects. Mean operative time was 80 minutes for appendectomy, 112 for cholecystectomy, 240 minutes for splenectomy, 210 minutes for combined splenectomy /cholecystectomy, 158 minutes for adrenalectomy, 120 minutes for nephrectomy, 60 for varicocelectomy, and 165 for liver biopsy (with additional thorascopic resection of posterior mediastinum mass). The complications were: (1) wound infection in 2 patients, (2) severe intra-abdominal bleeding from splenic vessels originally sealed by Ligasure device, which occurred 24 hours postoperatively and required laparotomy (there were no signs of intraoperative or immediate postoperative bleeding), and (3) bile duct injury after cholecystectomy that required endoscopic stent placement and clip removal from right hepatic bile duct. All complications were managed successfully and did not affect long term patients' outcome.

**Conclusions:** Single-incision laparoscopic approach in children population is technically feasible but challenging. Prospective data are needed to prove that SILS is superior to standard laparoscopy.
Does the Loss of Haptic Feedback Matter in Robotic Surgery?

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Aims: While the da Vinci robotic system offers many benefits, it suffers from a total loss of haptic feedback, requiring the surgeon to rely on visual cues. Anecdotal evidence suggests that this drawback sometimes results in surgical errors. This study aims to highlight the consequences of the lack of haptics in clinical practice using the da Vinci system.

Methods: Standard robotic transperitoneal reduction Anderson-Hynes pyeloplasty was studied, because it involves delicate dissection and suturing. The author had some prior experience. The technique and instrumentation was kept similar throughout. Thirty-two consecutive children were recruited from August 07 to November 09 (age 3 months – 15 years, mean 7.4). Signs of acute/chronic inflammation were present in 38%, unusual anatomy in 20% and lower pole vessels in 22%. The incidence of damage to tissues, bleeding, braiding or breaking of sutures, early and late complications, and console operating time were recorded. All patients were followed up regularly.

Results: There were no conversions or bleeding. Console time remained relatively long and static throughout (mean = 151 minutes; first ten = 158 mins, last ten = 150 mins). Minor damage to the edge of the pelvis was recognised in 3 (9%) with all being in inflamed kidneys and during the first half of the study. Two of these required minor adjustments. There were a total of 793 sutures, with 732 being interrupted (97.5% - 5/0 vicryl; mean 23/patient - 4.5/needle) and 61 continuous (96.7% - 4/0 vicryl, mean 3cm long suture line - 1.9/patient). Braiding and breaking of sutures occurred in 3 (0.38%) and 20 (2.6%) respectively. There was no significant correlation between the rates of braiding/breaking and the nature/size of sutures (3/61 continuous vs 20/732 interrupted; 5/79 - 4/0 vicryl vs 18/716 - 5/0 vicryl). However the vast majority of breakage occurred during the first half of the study (19 - first vs 4 - last). The average hospital stay was 2 days. One patient developed recurrent obstruction and no other complications.

Conclusions: In robotic surgery, the lack of haptic feedback may relate to inadvertent surgical errors. However the risks are low and probably insignificant and can be reduced further with experience. The relatively long operating time may be a relevant factor and worthy of investigation.

A Systematic Review of Single-Port versus Multi-Port Laparoscopic Appendectomy in Children.

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Background: Single port laparoscopic appendectomy has been described in the literature as an alternative to conventional multi port laparoscopic surgery for over a decade. Reported advantages include reduced post operative pain, faster recovery time and improved cosmesis. Disadvantages may include cost and ergonomics. The efficacy of single port access in children is as yet unproven

Aims: To carry out a systematic review of the literature using data from available trials to ascertain how paediatric single port laparoscopic appendectomy is comparable to multi port laparoscopic appendectomy. The end points of the review were safety and feasibility, post operative analgesic requirement and cost.

Selection Criteria: A review of the literature was conducted using PUBMED, EMBASE and COCHRANE up to August 2011 using a wide range of keywords. Initial Inclusion criteria were the requirement of randomisation with blinding in a clinical trial. No such clinical trials were identified in a paediatric population. Inclusion criteria were then expanded to all papers involving children and single incision laparoscopic appendectomy for acute appendicitis.

Main results: A total of 22 studies were identified, reporting 1526 single port laparoscopic appendicectomies. Of 22, one was a clinical prospective non-randomised trial, 19 were case series and two were reviews. All 19 case series reported single port appendectomy to be a safe and feasible procedure when compared to conventional laparoscopic surgery. Seven different methods for single port appendicectomy were described using a variety of ports and extraction techniques. 5/19 papers described an improved cosmesis, two showed reduced post operative stay with only paper describing reduced post operative pain. Conversion rates from single to multi port ranged between 0-17%. None of the papers described cost as being a significant disadvantage.

Conclusion: Single incision laparoscopic appendicectomy in a paediatric population is mostly based on preliminary experiences. The heterogeneity of single port techniques also makes comparisons difficult. The cost of a single port is significantly more than standard multi port and previous claims by single port proponents of reduced in patient stay, pain control and cosmetic superiority must be therefore be answered by a prospective blinded randomised control trial.
(45) Age is No Barrier for Single Incision Paediatric Endoscopic Surgery!

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**Background:** Single Incision Paediatric Endoscopic Surgery (SIPES) is an evolving surgical approach that currently has still a limited role in children. Some authors believe that in small patients with a small umbilicus SIPES is not feasible and might be associated with suboptimal cosmetic outcome. Herein, we present the first case of SIPES performed in an infant.

**Case report:** A 413 male neonate, with unremarkable prenatal history, suddenly developed HSV type 1 infection, resulting in acute liver failure. At 19 days of life, he received an intra-peritoneal infusion of alginate-encapsulated hepatocytes (42 ml infused). According to the treatment protocol, at 10 weeks following the hepatocyte transplant, the patient underwent a peritoneal lavage. Surgery was carried out using the Olympus TriPort™ Access system. Operative time was 66 minutes. No intraoperative or postoperative complications occurred and the infant was discharged on day 2 post-op. The child was reviewed at a follow-p clinic appointment and the cosmetic result was judged excellent by parents and physicians.

**Conclusion:** SIPES is feasible, safe and cosmetically advantageous even in small infants with a small umbilicus. Further studies are needed to evaluate this technique on more patients and more complex surgical procedures.

(46) Incarcerated Inguinal Hernia Management - Laparoscopic or Open?

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**Purpose:** To compare the outcomes of management of incarcerated inguinal hernia by open versus laparoscopic approach.

**Methods:** Retrospective analysis of incarcerated inguinal hernia managed from January 2002 to July 2011. Four consultants based study. Manual reduction was attempted in all and failure was managed by emergency surgery.

**Results:** The Laparoscopy group had 27 patients, smallest patient being 2.08 kg. Four patient failed manual reduction and underwent emergency laparoscopic surgery, of these 3 had small bowel strangulation which were reduced laparoscopically, were dusky in colour initially but changed to normal colour subsequently under vision. The 4th patient required appendectomy for strangulated appendix. One patient had and concomitant repair of umbilical hernia and one patient had laparoscopic pyloromyotomy at the same time. One patient had testicular atrophy, one had hydrocoele and one had recurrence of hernia on the asymptomatic side. The open surgery group had 45 patients; smallest being 2.49 Kg. Eleven patient had failed manual reduction requiring emergency surgery, of these 2 required resection and anastomosis of small intestine. One patient in this group had concomitant repair of undescended testis. There was no recurrence in this group, one had testicular atrophy and seven had metachronous hernia.

**Conclusions:** The laparoscopic approach for incarcerated inguinal hernia is safe with good outcome. It allows relatively easy reduction of the strangulated contents because of the stretching of the deep ring by the pneumoperitoneum. In the laparoscopic approach the hernial contents are examined in more physiological condition within the peritoneal cavity without any traction on mesentry or the constricting effect of the deep ring and hence may reduce the chance of vascular compromise. The contra lateral side is examined and managed at the same time avoiding the metachronous hernias.

(47) Conventional Inguinal Herniotomy done by Laparoscopy: is it the Way to go?

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**Introduction:** Inguinal hernias and related anomalies are amongst the most common surgical conditions in children. Their repair classically involves an inguinal approach with or without opening of the inguinal canal, separation of the patent processus vajinalis (PPV) from the vas deferens and the spermatic vessels, and its ligature and division at the internal ring. It was natural for the endoscopic surgeons to address this entity. Nonetheless, most of the numerous reports have advocated techniques that significantly differ from the standard operation: mostly, no or only partial division of the PPV. Since 1997, we have used a three 3mm-trocars technique that involves dissecting from the spermatic cord and dividing circumferentially the PPV at the internal ring, resecting a segment of it and closing it with non-absorbable suture tied intracorporeally. We updated our previously published series.
Material and methods: The prospectively recorded data of 623 (883 patent PPV) children, 2 months to 14 years of age, were reviewed. There were 381 boys. All were reviewed after 4 to 6 weeks and 382 by telephone call at 12 to 60 months.

Results: There were no significant intraoperative complications and no conversions. The operative time ranged from 7 to 55 minutes (mean 24 for unilateral cases). To date, only three recurrences (< 0.5%) have been diagnosed. In each of those, changes in the original technique (non absorbable suture) might have contributed to the failure. As a diagnostic tool, laparoscopy showed an open contralateral PPV in 27% of asymptomatic patients, which was closed. More importantly 4 direct and 17 femoral hernias were diagnosed and repaired, an incidence higher than expected. Neither testicular malposition nor atrophy was seen.

Conclusion: This technique reproduces the time tested standards of paediatric hernia repair. It thus have all the potential to improve the unacceptably high recurrence rate reported by others while better protecting the vas and the spermatic vessels.

(48) Is Laparoscopic Inguinal Hernia Repair Comparable to the Open Technique in a Neonatal Population?

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Aim: Laparoscopic inguinal hernia repair (LR) is increasingly reported. Potential benefits include diagnosis of metachronous inguinal hernia. Early reports suggest a higher rate of hernia recurrence. The aim of our study was to assess and compare the LR against the open repair (OR) in a neonatal population.

Method: A retrospective data collection of all neonatal inguinal hernia repairs took place at our centre from January 2005 to September 2011. Three procedures were reviewed: LR, OR with hernioscopy and OR without hernioscopy. Primary outcome measure was recurrent inguinal hernia. Secondary outcome measure was re-presentation with a metachronous hernia. Statistical analysis was carried out using Fisher’s Exact Test.

Main Results: We identified 108 neonates who underwent an inguinal hernia repair of which 23 were laparoscopic. There were 30 bilateral hernias of which 6 were repaired laparoscopically. Median follow-up period was 6 weeks (range: 0-188). Median weight for both groups was similar (LR vs. OR: 3.4kg (range: 2.1-5.3kg) vs. 3.1 kg (range: 1.6-4.6kg)). In the LR group there was a 71% contralateral PPV detection rate and 41% in the OR group with hernioscopy. There were no perioperative complications in either group. There was 1 recurrence in the LR group and 2 in the OR without hernioscopy group. This was not a statistically significant difference. 6 patients (15%) who had OR without hernioscopy, 1 patient (10%) who had OR with hernioscopy, and 0 patients who had LR represented with metachronous hernia. This was not statistically significant.

Conclusion: Laparoscopic inguinal hernia repair in the neonatal population is feasible and safe. In our series, post-operative recurrence is comparable to that of the open repair. There is a likely over diagnosis of contralateral patent deep ring with the laparoscopic repair. Intra-operative assessment of the contralateral side did not significantly reduce the number of patients representing with a metachronous hernia but did reduce the number of patients needing a second operation.

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Background: Undescended testis is one of the most common urological problems in children, affecting about 1% of boys at age 1 year. Of these, about 20% have a non-palpable testis with a very high probability that the testis is absent. This may have a significant impact on the possibility of malignancy in these testes, as well as on the later fertility of these subjects.

Methods: We retrospectively analyzed the demographic and clinical findings, as well as immediate and 6 month outcomes, in 91 patients diagnosed with impalpable undescended testes between January 2006 and December 2010.

Results: Of the 91 patients, 9 had bilateral and 82 had unilateral impalpable testes. All 100 testes were managed laparoscopically. The largest group of intraabdominal testes in this series, 39, was in the region of the internal ring; in these, laparoscopic exploration and standard open orchiopexy resulted in a 95% success rate. The total success rate was 83.3%.

Conclusion: Laparoscopy is extremely useful in both the diagnosis and treatment of impalpable testes. Objectively measured mobility of the testis towards the contralateral internal inguinal ring is an excellent intraoperative indicator for type of orchiopexy. Standardization of management may increase the success rate of orchiopexy.

Introduction: Laparoscopic excision has now become the standard treatment option for benign ovarian cysts. Various methods of cyst treatment like ultrasound-guided cyst aspiration, fenestration, unroofing are described. Stripping is an effective and popular technique practiced by the surgeons for ovarian cyst excision. Use of electro-cautery in the residual ovarian bed is blamed for the reduction of ovarian reserve. Our method of laparoscopic stripping technique without use of electro-cautery in the remaining ovarian tissue after stripping is described.

Materials and Methods: From January 1, 2006 to December 31, 2010 twenty six cases were considered for laparoscopic stripping ovarian cystectomy and studied retrospectively. The simple cysts of 5 cm or more in diameter were included in the study. Using mono-polar hook cautery a flap was marked and raised on cyst wall and serous fluid sucked out. A plane was then created between inner and outer linings of the cyst wall and inner lining peeled off. Amount of fresh blood oozed in the operative field was measured in each case. Warm normal saline wash then given and the stripped lining brought out through supra-umbilical port. Patients were followed up at 15 days, 1 month, 3 months, 1 year and then yearly with Ultrasonogram at 3 months and 1 year. Age, operative time and outcome, blood loss and complications were recorded.

Results: Age ranged from 3.5 to 16 years (average 10.40 years). Presenting complaints included: abdominal pain (11), abdominal swelling (8) and palpable abdominal lump (7). Average operative time was 40.30 minutes. Amount of blood loss ranged from 10 to 36 ml and amount of sero-sanguinous fluid collected in the drainage bag ranged from 30 to 70 ml. There was no intra or post-operative complication. Follow up period ranged from 3 months to 4 years. There was no recurrence of cyst confirmed by ultrasonography at 3 months and 1 year.

Conclusions: Avoiding use of electro-cautery during ovarian cystectomy by stripping technique can prevent damage and reduction in ovarian reserve.

Purpose: The superiority of laparoscopic repair of inguinal hernia in children with less tissue handling and easy exploration of contra-lateral side is accepted by many paediatric surgeons. The objective of this study is to report our simplified technique of extracorporeal knotting with single working port in repair of inguinal hernia.

Patients and Methods: Eighty two inguinal hernia repair done in 65 patients from April 2006 to May 2010. Single 3mm working trocar at right pararectal line and purse string closure of internal ring by 3o Vicryl suture entering through small stab incision in either side and out the same incision and extracorporeal knotting is our simplified technique. Five mm telescope through umbilical trocar by open technique.
**Results:** Sixty five cases, 47 males and 17 females underwent operation by this technique. 82 hernia repairs, 38 in right, 10 in left and 17 bilateral. Three cases of unilateral were recurrence of previous open repair. The mean age was 10 months (4 months to 6 years). The mean operative time was 20 minutes in unilateral, 34 minutes in bilateral. There was no operative complication and conversion. All patients were followed at least 6 months to one year. There were 3 recurrences one in girl and two in boys that repaired by open technique. The cosmesis of scar was excellent.

**Conclusion:** This modified single working port laparoscopic repair of hernia with extracorporeal knotting make the repair very simple with excellent cosmesis. The long term result should be evaluated with larger group and longer follow up.

(P04) Laparoscopic Cardiomyotomy for Oesophageal Achalasia in two Children with Triple-A Syndrome.  
*Rebecca Kuenzel, Cora Städtler, Thomas Boemers*  
Cologne Children’s Hospital, Cologne, Germany

**Introduction:** The autosomal-recessive hereditary Triple-A Syndrome is characterized by the triad of adrenocorticotropic hormone (ACTH)-resistant adrenal insufficiency, alacrimia and achalasia of the cardia. Although frequently alacrimia is the earliest feature, the most common manifestations are achalasia and adrenocortical insufficiency. As the disease progresses, neurological symptoms occur, such as polyneuropathy, amyotrophy and optic atrophy. The treatment of alacrimia consists of supplementing artificial tears, the adrenocortical insufficiency is treated by glucocorticoid- and mineralocorticoid-medication. There are different approaches for the therapy of the achalasia: endoscopic dilatation, as well as surgical and laparoscopic pylomyotomy, with or without fundoplication.

**Patients and Methods:** In the past 5 years we treated two patients with Triple-A Syndrome (2 and 13 years old) concerning their achalasia. In one child we performed a laparoscopic cardiomyotomy in combination with a hemifundoplication according to Thal, the other underwent a simple cardiomyotomy without fundoplication. Both children are persistently free of complaints. Laparoscopic cardiomyotomy is an appropriate procedure for treatment of achalasia in children with Triple-A Syndrome.

(P05) Laparoscopic Anterior Gastropexy in Gastric Volvulus.  
*Gonul Kucuk, Ufuk Ates, Gulnur Gollu, Berktug Bahadir, Aydin Yagmurlu*  
Ankara University, Ankara, Turkey

A four-month old boy who had been operated for jejunoileal atresia in the neonatal period presented with vomiting and failure to thrive (weight: 2300g, <3 percentile). The upper gastrointestinal contrast studies of the infant revealed organoaxial volvulus of the stomach. Laparoscopic anterior gastropexy was performed successfully. The aim is to emphasize the feasibility of minimal invasive surgery in gastric volvulus cases even with very low body weight by demonstrating the surgical technique details of this case.

*Mirko Bertozzi, Marco Prestipino, Niccolò Nardi, Elisa Magrini, Antonino Appignani*  
Ospedale S. Maria della Misericordia, Università degli Studi di Perugia, Perugia, Italy

**Objectives:** Ramstedt’s pyloromyotomy is still the procedure of choice for infantile hypertrophic pyloric stenosis (IHPS). Recent literature reports many comparisons between various open approaches and laparoscopic one. The purpose of this preliminary experience is to show a new approach to IHPS: the single port laparoscopic assisted pyloromyotomy. (SPLAP)

**Methods:** 23 infants underwent SPLAP. The approach to the abdominal cavity is performed through a right circumbical incision with an extended sheath incision, then a 10 or 12 mm trocar with pneumatic anchorage is inserted and, after the pneumoperitoneum is established, an operative telescope is introduced. Once the operative telescope is inserted the pylorus is easily located, then grasped with an atraumatic grasp and exteriorised through the umbilical incision. At this point conventional Ramstedt’s pyloromyotomy is performed and once the pylorus is reintroduced in the abdomen, a new pneumoperitoneum is created to check the mucosal integrity and haemostasis.

**Results:** In all 23 cases an adequate pyloromyotomy has been performed in a good ranging time without any intra or postoperative complications, achieving excellent early cosmetic results. We underline that in nine patients, the SPLAP was performed “gas-less”.

**Discussion:** In our 23 cases we performed the SPLAP with a right semicircular incision that provides an almost invisible unique scar and a cosmetic outcome with a very high overall satisfaction. The introduction of the operative laparoscope eased a quick detection of the pylorus also in patients with distended bowel. In our short series, using the right semicircular umbilical approach, there were no difficulties to exteriorize the pylorus. No serosal injury occurred
and the extended sheath incision seems effective. During the laparoscopic assisted pyloromyotomy we perform an open Ramstedt’s procedure to avoid an inadequate pyloromyotomy. The check of the mucosal integrity, as much as the bleeding control, may be performed outside or inside the abdominal cavity through the air test, avoiding any unrecognised perforation that expose the patients to a second operation or to the risks of systemic sepsis. The SPLAP is performed for the most part in open technique and in 14 patients we use the pneumoperitoneum only to identify the pylorus and to check the final mucosal aspect and any bleeding, avoiding all the disadvantages of a prolonged pneumoperitoneum in infants. In other nine patients of our series we performed the technique “gas-less”.

**Conclusions:** The feasibility of SPLAP obtained in this small sample suggests that this procedure may be an excellent alternative to open or laparoscopic pyloromyotomy as long as it acts as intermediary between the two techniques, taking advantages from both.

(P07) Long-Term Outcomes Following Laparoscopic Inguinal Hernia Repair Undertaken in Patients Under the Age of 1 Year.

**Alexander Cho, Thomas Tsang,**

Norfolk & Norwich University Hospital, Norwich, UK

**Aim:** To determine long-term outcomes following laparoscopic inguinal hernia repair undertaken in paediatric patients under the age of 1 year

**Methods:** Patients <1 year of age were identified from a prospective database of patients undergoing laparoscopic inguinal hernia repair performed by a single paediatric surgeon between Nov 2003 and Oct 2010. All patients underwent closure of deep inguinal ring with 4/0 prolene and the contra-lateral side was closed if felt to be open. Long-term outcome was obtained via case-notes, cross-referencing with electronic hospital records (to identify patients re-referred a different clinician) & telephone consultation to parents.

**Results:** 114 patients under 1 year of age were identified (93 male, 21 female). Corrected age at time of surgery: mean = 15.5 weeks (range = 3 to 42 weeks). Weight at surgery: mean = 5.26kg (range = 1.9 to 9.82kg). Laterality: Right=70, Left=36, Bilateral=8. Contra-lateral asymptomatic open deep inguinal ring = 32 patients. 18 cases were done on the emergency list. Average clinic follow-up was 4 months. There was only 1 recurrence (an asymptomatic side closed 3 years previously) and 2 conversions (loss of pneumoperitoneum & unable to progress). Early complications included: 2 residual stitches, 1 umbilical & 1 port-site infection. 5 patients had a small umbilical hernia that did not require further intervention. 5 patients had post-operative intermittent groin swellings that self-resolved by 6 months. 6 patients required orchidopexies ranging from 1 to 4 years post-hernia surgery (3 patients were noted to have an undescended testis at time of hernia surgery). Telephone feedback even for those operated >4 years ago revealed little further information but supported parental satisfaction.

**Conclusion:** Laparoscopic inguinal hernia for patients <1 year is effective with a 0.8% of risk of recurrence. If asymptomatic at 4 months review, they can safely discharged back to the GP though it may be prudent for interval testicular examination in males.

(P08) Gas Embolism during Paediatric Laparoscopy; A Rare but Dramatic Complication.

**Costanza Tognoni**, **Francesca Grandi**, **Luisa Meneghini**, **Salvatore Metrangolo**, **Maurizia Grazzini**, **Stefania Micheloni**, **N. Zadra**, **Piergiorgio Gamba**

1Dep. Anaesthesiology, 2Dep. Paed. Surgery, University of Padua, Padua, Italy

**Introduction:** Air embolism is a possible complication during head or neck surgery and in main laparoscopic surgical procedures. In this paper, we report a case of gas embolism during laparoscopy in a pediatric patient, discussing the regarding literature.

**Materials and Methods:** A female patient, aged 12, underwent a laparoscopic biopsy of the hepatic hilum lymph nodes for a suspected recurrence of lymphoma. Before surgery, the patient had already been treated with chemotherapy and had a central venous catheter (CVC). Her anesthetic evaluation was ASA 3. After 20 minutes from the beginning of laparoscopic procedure, with the patient in anti-Trendelenburg position, we noticed a sudden drop in end-tidal CO2 (35 to 10 mm Hg), rapid collapse of saturation (from 98% to 30% to 0%), fast fall in blood pressure (35/10 mmHg), tachyarhythmia (160-180 b/m) with changes in ECG ST segment. In the strong suspicion of air embolism, we immediately proceeded to halt CO2 injection, to place the patient in Durant’s position, to aspirate foamy blood from the CVC, to hyperventilate with 100% O2 and to perform cardiopulmonary resuscitation with continuous infusion of amine. After stabilization of the patient, laparoscopy restarted, detecting an accidental injury of a mesocolic vessel probably due to repeated trocar’s replacement. So laparoscopy was suspended, converted into laparotomy and surgical procedure was concluded without any other problems.
Results: After surgery, the patient was transferred to our PICU for 48 hours: continuous monitoring and inspections of ECG, chest X-ray, acid-base balance assessments and blood tests showed no systemic and/or cerebral damages.

Discussion: Blood’s high capacity to transport CO2 can make CO2 highly soluble in the blood itself without systemic consequences, thanks to the bicarbonate buffer system, hemoglobin and other plasma proteins. However, air embolism is frequent during laparoscopy in animal models, as reported in literature. In humans, the lethal dose of CO2 during embolism is equal to 3-5 ml/kg. Air embolism during laparoscopy is very rare in children: only 5 cases of injury are reported as a result of umbilical vessels’ damage after placement of the Verres needle. Conclusions: Air embolism during a laparoscopic procedure is a fearful complication to consider especially in case of a sudden hemodynamic and respiratory instability of patient. No pediatric deaths have been reported in the literature until now.

(P09) Laparoscopic Inguinal Herniorrhaphy versus Open Inguinal Herniotomy in Children.
Boyang Liu, Ashwini Joshi, Niall Jones
Royal London Hospital, London, UK

Background: Open inguinal herniotomy (OIH) is the gold-standard management of paediatric inguinal hernias. Laparoscopic inguinal herniorrhaphy (LapIH) is an alternative approach which offers several theoretical advantages including the detection and repair contralateral patent processus vaginalis (PPV), easier reduction of hernia contents, and avoids damage to local anatomical structures.

Aims: The aim of the present study was to evaluate the hernia recurrence rate and complication rate of LapIH compared to OIH. Secondary aims include looking at duration of operations, length of hospital stay, prevalence of asymptomatic contralateral PPV at unilateral LapIH, and rate of metachronous hernia development following OIH.

Method: This is a retrospective case note study on consecutive paediatric hernia patients of 2 surgeons at a London hospital between 2008 and 2010 with follow-up of 9 to 33 months. Length of hospital stay, surgical complications, recurrent and metachronous hernia rate were gathered from patient notes and follow-up clinic letters.

Results: 76 OIH and 59 LapIH patients were studied. LaIH was associated with hernia recurrence rate of 6.3% (female preponderance, p = 0.03), and acquired hydrocele rate of 3.2%. No hernia recurrence and 1 case of acquired cryptorchidism was observed post OIH. PPV was identified and prophylactically repaired in 24.5% of patients with unilateral hernias undergoing laparoscopic repair. Unilateral OIH was associated with metachronous hernia development in 4.9% of cases.

Conclusion: LapIH is an effective means of preventing metachronous hernia development, however recurrence rates are higher in female patients. The risk of hydrocele in our study was higher than values in the current literature.

(P10) Use of Skin Glue for Wound Closure in Minimal Invasive Procedures (Laparoscopy and Thoracoscopy) in Children; an Audit.
Oskar Zgraj, John Gillick
Children's University Hospital, Temple Street, Dublin, Ireland

Introduction: Use of skin glue reduces operative time and cost of wound closure in adult minimal access surgery practice. It has similar complication rate to intra-dermal absorbable suture technique.

Aim: To assess complication rate and cosmetic effect of laparoscopic and thoracoscopic wounds closed with skin glue. Compare with data available in literature.

Methods: Laparoscopic and thoracoscopic wounds closed with N-butylcyaanoacrylate skin adhesive between 2008 and 2011 were assessed. Wound infection and dehiscence rate as well as cosmetic result were noted. Patients’ charts, outpatients visits and telephone survey were used to gather data.

Results: Thirty two procedures (77 wounds) were identified as closed with skin glue. Response rate was 87.5% (28 procedures – 67 wounds). There was one (1.5%) wound infection and two wounds (3%) have dehisced. All patients/parents were satisfied with cosmesis.

Conclusion: On the basis of gathered data we conclude that it is safe to continue to use skin glue as routine wound closure technique.

(P11) Retrograde Pyelonephrolithotomy in Children: A New Dimension.
Elizabeth Kidger, Abid Qazi, Azad Najmaldin
Leeds Teaching Hospitals NHS Trust, Leeds, UK

Introduction: PCNL and ESWL are standard techniques for pyelonephrolithotomy in adults and Paediatric patients. With the introduction of smaller and more refined scopes intraluminal approach has been reported as an alternative
approach in adult practise. In children, however, information on this technique is extremely limited. We report our early experience in children and the technique is demonstrated in a short video.

**Materials and Methods:** This is a retrospective study of retrograde intraluminal lithotripsy in children from January 2006 to August 2011. All patients who underwent retrograde pyelonephrolithotomy were reviewed. Some patients had prior or subsequent, ipsilateral or contralateral percutaneous nephrolithotomy (PCNL) or extra corporeal shock wave lithotripsy (ESWL), with or without ureteroscopy. Size 6-7.5 rigid or size 9 flexible scope was used in all patients. Laser with or without flexible grasping forcep was used to fragment and retrieve stones respectively. All patients had end flushing catheter and bladder catheter for 48 hours.

**Results:** There were 23 procedures, 5 flexible and 18 rigid in 13 patients. Six were female and 7 male, 7 had unilateral stones and 6 had bilateral. Two patients had nephrocalcinosis out of which one had small bowel atresia, biliary atresia, twice liver transplant and had developed stenosis of portal vein. Two patients had cystine, three had oxalate stones, three had infectious stones and 5 had unknown cause. Median age was 9 years (3-16 years). Size of stone varied from 3-23 mm (mean 10mm). There were no operative or early post operative complications. Residual stone load was common in stag horn stones and nephrocalcinosis requiring further episodes of retrograde, PCNL or ESWL. Oxalate and cystine stones pose specific difficulty to obtain stone clearance.

**Conclusion:** With the availability of small calibre rigid and flexible scopes, now retrograde nephrolithotomy is an option. The technique is safe, alleviates the need for interventional radiologist and produces good result. This technique is particularly attractive for grown up children, female patients and those who have underlying metabolic cause for stone formation.

(P12) **Port Site Splenunculus after Laparoscopic Splenectomy.**

**Alexandra Scarlett, Yew-Wei Tan, Jo Ponnampalam, Timothy Barker, Azad B Mathur**

Norfolk and Norwich University Hospital, Norwich, UK

A nine-year-old boy with Wiscott-Aldrich Syndrome (WAS) and associated thrombocytopenia underwent laparoscopic splenectomy at the age of three. Subsequently he developed a 1x2cm bluish, firm lesion under the left iliac fossa port site scar. This incision had been extended for spleen retrieval. An ultrasound scan was suggestive of a haemangioma, however clinically it was suspicious of a subcutaneous splenunculus. The lesion was excised and histopathology confirmed the diagnosis of subcutaneous splenunculus. We present this case to highlight the risk of seeding during laparoscopic splenectomy and the need for vigilance due to the complications that may ensue.

(P13) **Laparoscopic Treatment of UPJ Obstruction in Ectopic Pelvic Kidneys.**

**Antonio Marte, Maurizio Prezioso, Lucia Pintozi, Silvia Cavaiuolo, Sandra Coppola, Micaela Borrelli, Pio Parmeggiani**

2nd University of Naples, Naples, Italy

**Aims:** To assess the feasibility and safety of a laparoscopic approach to UPJ obstruction (UPJO) in ectopic pelvic kidneys.

**Material and Methods:** In a retrospective analysis we selected 15 children, aged 6months to 17 years, 13 males, 2 females, who had been treated in our Department between January 2004 and June 2011. 9 patients presented ureteropelvic junction obstruction (in 3 cases pelvic stones coexisted) with normal/moderately reduced (≥25%) relative function at radionuclide scan (MAG3), 3 nonfunctioning kidneys associated or not to hypertension, 2 Ectopic nephrogenic rests (ENR). The evaluation of each patient involved the medical history, ultrasound examination, VCG, MAG3 diuresis renogram and MRI in some cases. Of the patients presenting UPJO, 5 underwent dismembered pyeloplasty with pyelolithotomy, if required, and 4 pelvic derotation with straightening of the uretero-pelvic junction.

A previous cystoscopic placement of a Double J stent was utilized. This facilitated the identification and dissection around the pelvis. With the patient in Trendelenburg position we utilized an umbilical trocar and two trocar in the right and left iliac fossae; an additional trocar, when required, was inserted more cephalad on the midclavicular line contralaterally to the lesion. The derotation of ureteropelvic junction was obtained by freeing the kidney’s lower pole and by placing intraperitoneally the junction protected with a Double J stent. This was obtained by suturing the peritoneum behind the ureteropelvic junction resulting in a forward rotation of the major axis of the kidney and a straightening of the junction. The 5 patients presenting nonfunctioning ectopic kidneys underwent laparoscopic nephrectomy. While the removal of ENR resulted easy, the removal of nonfunctioning kidneys was more difficult due to the complex vascular situation and for their embryonic disposition.

**Results:** The operating time varied between 40 to 200 minutes. No patient required conversion to open surgery. The hypertension resolved after nephrectomy in all cases. 2 cases of dismembered pyelooplasty required a placement of Double J stent due the recurrence of symptoms. The pelvic derotation showed an improvement of diuretic MAG3 renogram and the function remained stable.
Conclusion: The UPJO in ectopic pelvic kidneys present a large spectrum of presentation. The laparoscopic approach provides good surgical exposure, and operative times are acceptable compared to those of laparoscopic procedure in anatomically normal kidneys. It has also proved a very useful tool in the non-functioning kidney nephrectomy thank to the help of magnification in the identification of numerous aberrant vessels that are quite often found in the pelvic kidneys. The derotation of the pelvis seems a useful procedure in moderate obstruction even if a longer follow-up is needed.

(P14) The Molecular Quantic Resonance Generator in Paediatric Minimal Invasive Surgery; A Preliminary Report. Salvatore Fabio Chiarenza, Lorenzo Costa, Alessandro Carabaich
S. Bortolo Hospital Vicenza, Vicenza, Italy

Introduction: The Molecular Quantic Resonance Scalpel (Vesalius®) is a particular (monopolar /bipolar) device that works with a special patented spectrum of frequencies. The technology is based on the quantic molecular resonance theory now utilized in surgery. The cut is not a consequence of the high heat produced in the tissue, as happens for the standard electro/radio-surgical units, but it is caused by the breakage of the molecular bonds and it is therefore obtained without temperature raise. During the coagulation, instead of collapsing the vessels thus necrotizing the area as the electro/radio-surgical units are doing, the molecular resonance generator is producing some waveforms out of resonance in a way to raise the temperature up to 63/65°C; this temperature is enough to activate the fibrinogen protein denaturisation, transform it into fibrin, thus obtaining the only blood coagulation without damaging the vessels. As a consequence, the tissue temperature during the cut function never exceeds 45/50°C, resulting in complete absence of necrosis. For many years this device is utilized in several surgical specialties (Pediatric, Plastic, Maxillo Facial, Gynaecology, etc) but only in open surgery. We report our experience in the use of this kind of energy in pediatric minimally invasive surgery.

Material and Methods: We retrospectively (3 years) analyzed more than 147 patients with different pathologies (varicocele, hyatal hernia, adesiolysis in bowel occlusion, oesophageal atresia, pulmonary resections, etc) We have adopted mainly bipolar energy both in intestinal tissue than in the vessels or in parenchimatous organs. No evident scars, no burns, no carbonization of tissues no thermal diffusion were noted. About vessels coagulation, neither hemorrhages or trombosis of the nearest vascular structures were. No intraoperative or post-operative complications were reported.

Conclusions: for many years the molecular quantic resonance scalpel is safely used in open surgery. According our experience this kind of energy can also be used in pediatric endoscopic surgery with several advantages: delicate dissection, precise coagulation, no thermic diffusion with lower risk of near tissue lesions.

(P15) Long-Term Outcome of Laparoscopic Anterior Fundoplication in Children. Rainer Kubiak, Elena Böhm-Sturm, Daniel Svoboda, Lucas Wessel
University Center Mannheim, Mannheim, Germany

Background: In the literature there is increasing evidence that laparoscopic Nissen fundoplication is superior in resolving symptoms of gastro-oesophageal reflux (GOR) compared with Thal fundo-plication, particularly in neurologically impaired children. The aim of our study was to assess the long-term outcome and control of symptoms after laparoscopic anterior fundoplication (LAF).

Patients and Methods: For this retrospective review all children (n=54) who underwent a LAF at out hospital between August 1999 and July 2008 (minimum follow-up of 3 years) were contacted by mail service in order to obtain written consent to participate in a detailed telephone interview. The response rate was 72% (n=39), of which finally 36 patients (67%) were reached and included. The follow-up time ranged from 3.1 to 11.1 years (median 6.6).

Results: There were 21 males and 15 females. One-third (n=12) of the children had underlying neurological disorders (ND). The median age at the time of LAF was 6.1 years (range, 1.6-16.9). The duration of surgery was 143 minutes (range, 95-224). There were 2 conversions to open surgery due to continuous bleeding in one and poor visibility caused by dilated bowel loops in another. Intra-operative difficulties not requiring conversion included bleeding in 1 and severe adhesions in 2. Five patients (2 with ND) required redo-fundoplications (13.9%), after which all improved clinically. Another 5 children were re-started on anti-reflux medications because of recurrence of symptoms. Seven patients (19.4%, all neurologically normal) underwent between 1-3 endoscopies with dilations for post-operative dysphagia. There was one death (2.8%) which was not related to the LAF.

Conclusions: Although LAF is a safe procedure, in the long-term the recurrence of symptoms meriting redo-fundoplication is relatively high. Our results should be viewed even more critically since the amount of neurologically impaired patients, who are more prone to failure after fundoplication, is comparatively low in this series. The high incidence of post-operative dysphagia in children without ND suggests that this problem is underestimated in children with neurological impairment, possibly because of a lack of communication skills.
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