CANADIAN ASSOCIATION of
PAEDIATRIC SURGEONS

38th Annual Meeting

Calgary
September 7 - September 10, 2006
Thirty-eighth Annual Meeting

CANADIAN ASSOCIATION of
PAEDIATRIC SURGEONS

September 7 - September 10, 2006

Hyatt Regency Hotel
Calgary, Alberta

CANADA
This event is an Accredited Group Learning Activity (Section 1) as defined by the Maintenance of Certification program of The Royal College of Physicians and Surgeons of Canada, approved by Canadian Association of General Surgeons.

Educational Objectives

The Annual meeting of the Canadian Association of Paediatric Surgeons is intended to provide 3 days of comprehensive continuing education in the field of pediatric general and thoracic surgery. Specifically, the objectives are to:

- Present current updates on advances in clinical pediatric surgery
- Present current updates on advances in the pathophysiology of pediatric surgical disorders
- Provide for group discussion on controversial issues in pediatric general and thoracic surgery through:
  - Discussion of presented scientific papers
  - Interactive panel discussion on the management of prenatally diagnosed but postnatal asymptomatic lung lesions.

Over the 2 and a half days of the meeting, the breadth of pediatric general and thoracic surgery topics will be covered through presentation of original works by trainees, professional colleagues and allied health care workers involved in the field. The works will acquaint participants with the latest clinical and basic science research findings and trends influencing the clinical practice of pediatric surgery, as well as reacquaint participants with interesting pediatric surgical entities. Controversial topics will invite participatory discussion by the delegates.

A panel of 4 members of the CAPS Program Committee has chosen the abstracts presented, based on what is commonly relevant to the practice of pediatric surgery. Input for subsequent meetings and how to improve this one will be solicited from the delegates at the conclusion of the meeting.
SCIENTIFIC AND SOCIAL PROGRAM

Thursday, September 7, 2006
10:00 - 17:00  Meeting of CAPS Council (Executive)
               Herald Rm, Hyatt Regency
18:30 - 20:30  Welcoming Reception – Calgary TELUS Convention
               Centre

Friday, September 8, 2006
06:30 - 08:00  Publication Committee – Walker Rm, Hyatt Regency
07:00 - 07:50  Continental Breakfast
07:50 - 09:30  President’s Welcome / Scientific Session ONE
               Glen 210/202, South Building,
               Calgary TELUS Convention Centre
09:30 - 10:00  Refreshment Break
10:00 - 11:00  Scientific Session TWO
11:00 - 11:30  CAPSNet Meeting
11:40          Box lunch available
12:00 - 13:00  Two minutes: two slides & videos
13:00 - 13:30  Break
13:30 - 15:00  Scientific Session THREE

Saturday, September 9, 2006
06:30 - 08:00  Specialty Committee Pediatric General Surgery Meeting
               Walker Room, Hyatt Regency
06:30 - 08:00  Ethics Committee Meeting – Neilson 4, Hyatt Regency
07:00 - 08:00  Continental Breakfast
08:00 - 09:30  Scientific Session FOUR
09:30 - 10:00  Refreshment Break
10:00 - 11:12  Scientific Session FIVE
11:12 - 11:30  Refreshment Break
11:30 - 12:15  CAPS Panel Debate – Long gap esophageal atresia
12:15 - 14:15  CAPS Members Business Meeting (Luncheon)
               – Doll Rm, Hyatt Regency
15:00 - 16:20  CAGS/CAPS Symposium
17:30 (pick-up at hotel)  Presidential Reception / Banquet – Heritage Park

**Dress is casual**

Sunday, September 10, 2006
07:00 - 08:00  Continental Breakfast
08:00 - 09:30  Scientific Session SIX
09:30 - 10:00  Refreshment Break
10:00 - 11:00  Scientific Session SEVEN
11:00          President’s Closing Remarks
PRESIDENT’S WELCOME

Welcome to the Calgary, Alberta CAPS 2006 Meeting.

This year, Pediatric Surgeons from Canada and abroad will meet in Calgary, Alberta; Canada’s Foothills to the Rockies, where Western hospitality abounds. For the first time, we will be meeting with the Canadian Surgery Forum and look forward to a mutually beneficial interaction. Thank you Dr. David Sigalet for local arrangements, which I am sure will make our Western experience memorable.

We are once again grateful to Dr. Natalie Yanchar’s Program Committee for compiling an outstanding and sure to be stimulating scientific program. To the attendees; please compliment our Program with your comments, questions and criticisms.

Thank you to Dr. Charles Stolar for becoming our JPS-McLeod lecturer. We look forward to your Pediatric Surgical insights and to your lecture on “Congenital Diaphragmatic Hernia”. CAPS will strive to be your worthy host.

A special thanks to Dr. Harvey Beardmore who brought CAPS into being 40 years ago. Your foresight has given Canada a proud organization, which continues to work hard to better the surgical care of children.

Dr. Peter Fitzgerald; Mr. Secretary/Treasurer, thank you for the solid work you do to keep CAPS afloat.

Thanks also to all our committee chairs and members for their hard work.

Please come and enjoy CAPS 2006.

N. Wiseman, MD FRCSC,FACS
President, Canadian Association of Pediatric Surgeons
ABOUT THE CANADIAN ASSOCIATION OF
PEDIATRIC SURGEONS

The Canadian Association of Pediatric Surgeons was granted its charter in 1967. Its goal is to improve the surgical care of infants and children in Canada. Its areas of interest include all aspects of general and thoracic pediatric surgery with recognition of its unique responsibility to infants born with congenital anomalies and children with malignancies. While its responsibility to pediatric trauma is not unique, it assumes a pivotal role in issues related to pediatric trauma.

The Canadian Association of Pediatric Surgeons presents an opportunity, particularly through its annual meetings, to share information concerning diagnosis, treatment, and research with regards to its areas of interest. In addition, it assumes responsibility to participate in the education of not only its members, but other members of the community interested in and involved in related aspects of pediatric care.

EDUCATION FUND: To help achieve its responsibility to education for issues related to pediatric surgery, the Association has an education fund. This fund was established and continues to exist through the generosity of donations from individuals and groups, both medical and non-medical, interested in the surgical care of children. The Association solicits annual donations to the fund to maintain an adequate working capital to support the annual education programming endorsed by the CAPS membership. This fund is registered with the federal government and all contributions are fully tax-deductible. It is audited annually.

Donations may be sent to:

Peter Fitzgerald, M.D.
CAPS Secretary-Treasurer
McMaster Children’s Hospital
1200 Main St. W., Room 4E2
Hamilton, ON L8N 3Z5
Telephone: (905) 521-2100, ext. 75231
Fax: (905) 521-9992
E-mail: fitzger@mcmaster.ca
PRESIDENTS

1967-1973  Harvey Beardmore  Montreal
1973-1975  Colin Ferguson*  Winnipeg
1975-1977  Jim Simpson*  Toronto
1977-1979  Sam Kling  Edmonton
1979-1981  Pierre-Paul Collin  Montreal
1981-1983  Barry Shandling  Toronto
1983-1985  Gordon Cameron  Hamilton
1985-1987  Stanley Mercer  Ottawa
1987-1989  Alex Gillis  Halifax
1991-1993  Sigmund H. Ein  Toronto
1993-1995  Angus Juckes  Regina
1995-1997  Jean G. Desjardins  Montreal
1997-1999  David P. Girvan  London
1999-2001  Ray Postuma  Winnipeg
2001-2003  Mike Giacomantonio  Halifax
2003-2005  Salam Yazbeck  Montreal
2005-  Nathan Wiseman  Winnipeg

* indicates deceased

SECRETARY-TREASURERS

1967-1974  Barry Shandling  Toronto
1974-1978  Gordon Cameron  Hamilton
1978-1983  Frank M. Guttman  Montreal
1989-1995  Ray Postuma  Winnipeg
1995-2002  Salam Yazbeck  Montreal
2002-  Peter G. Fitzgerald  Hamilton
FOUNDING MEMBERS

ALLEN Michael
ASHMORE Phillip
BEARDMORE Harvey
CAMERON Gordon
COLLIN Pierre-Paul
DESJARDINS Jean G.
DUCHARME Jacques C.
DUVAL* Frederick
FALLIS James
FERGUSON* Colin
GILLIS Alex
GUTTMAN Frank M.
JUCKES Angus
KARN* Gordon
KENNEDY Richard
KLIMAN Murray
KLING Samuel
MARSHALL Donald
MARSHALL* Russell
MERCER Stanley
MURPHY David
OWEN* Herbert
SHANDLING Barry
SHRAGOVITCH* Israël
SIMPSON* James
STEPHENS* Clinton
TURCOT* Jacques

* indicates deceased

1st ANNUAL MEETING was held January 22, 1969 in VANCOUVER
THE COATS OF ARMS
OF THE
CANADIAN ASSOCIATION OF PAEDIATRIC SURGEONS

Heraldic Blazon

Per pale gules and purpure, dexter a scalpel erect entwined by a serpent, sinister a child standing, all argent.
Crest: On the three maple leaves slipped gules and blacked purpure, the date 1967.
Motto: “Je le pensay, Dieu le guarit”.

Description

The red and purple of the arms are also the colours of the Royal College of Physicians and Surgeons of Canada and represent the blood met in surgery - arterial and venous. The scalpel with the healing serpent of Aesculapius, and the figure of a well child combine to symbolize the practice of Paediatric Surgery.

The crest is the Canadian maple leaf and the founding date of the Association (1967).

The Motto is a quotation from Ambroise Pare, a father of modern surgery. The sixteenth-century French translates, “I treated him, God cured him”.
RESIDENTS’ PAPERS

The papers presented by Surgical Residents are adjudicated by a panel of members from the Publication Committee. There are two award categories: the best Clinical paper and the best Experimental paper. Selection will be made only from the Original Papers Category.

WINNERS OF THE 2005 RESIDENT BEST PAPER AWARDS

BEST CLINICAL RESEARCH PAPER

Dr. M. Emran

ETHIBLOC SCLEROTHERAPY FOR TREATMENT OF LYMPHANGIOMAS IN CHILDREN

M. Emran, J. Dubois, S. Yazbeck, A. Al-Jazeeri, A. Butter
Sainte Justine Hospital
Montreal, Quebec

Dr. MARIA DELORENZO
BEST BASIC SCIENCE RESEARCH PAPER

Dr. S. T. Johnson

ACETYLCSTEINE INCREASES GLUTATHIONE STORES AND IMPROVES SYSTEMIC HEMODYNAMICS IN A NEONATAL MODEL OF HYPOXIA-REOXGENATION

S.T. Johnson, P-Y. Cheung M. Emara, L. Obaid, G. Less, D. Bigam
University Hospital
Edmonton, Alberta
SEMINARS IN PEDIATRIC SURGERY PRIZE

Dr. A. Nasr

ASSESSMENT OF RESIDUAL POST-TREATMENT MASSES IN HODGKIN'S DISEASE AND THE NEED FOR SURGICAL BIOPSY IN CHILDREN

A. Nasr, J. Stulberg, S. Weitzman, J.T. Gerstle
Hospital for Sick Children
Toronto, Ontario

JOURNAL OF PEDIATRIC SURGERY SUBSCRIPTION PRIZE

G. Stefanutti

MODERATE HYPOTHERMIA : A RESCUE THERAPY IN NEONATAL INTESTINAL ISCHEMIA AND REPERFUSION INJURY

G. Stefanutti, E. Parkinson, A. Pierro, S. Eaton
Institute of Child Health
London, United Kingdom

BEST POSTER

Dr. G. Miyano

PNEUMONPERITONEUM PREVENTS INTRAPERITONEAL ADHESIONS AFTER LAPAROTOMY IN RATS

G. Miyano, A. Yamataka, T. Doi, M Okawada, Y. Takano,
H. Kobayashi, G.L. Lane, T. Miyano
Juntendo University School of Medicine
Tokyo, Japan
THE CANADIAN ASSOCIATION OF PAEDIATRIC SURGEONS WOULD LIKE TO ACKNOWLEDGE THE FINANCIAL SUPPORT OF THE FOLLOWING SPONSOR

Elsevier

ABBREVIATIONS

O      original 7-minute paper
R      resident’s paper
C/T    4-minute case/technique report
P      poster presentation

O, R, P Adjudicated
C/T    Not adjudicated
THURSDAY, SEPTEMBER 7, 2006

Hyatt Regency Hotel,
Calgary TELUS Convention Centre

10:00 - 17:00  Meeting of CAPS Council (Executive)
               Herald Rm, Hyatt Regency Hotel

07:00 - 20:30  Registration/Exhibits

18:30 - 20:30  Welcoming Reception
               Calgary TELUS Convention Centre
FRIDAY, SEPTEMBER 8, 2006
Hyatt Regency Hotel,
Calgary TELUS Convention Centre

06:30 - 08:00  Publication Committee – Walker Rm, Hyatt Regency

07:00 - 07:50  Continental Breakfast

07:50 - 09:30  President’s Welcome / Scientific Session ONE
Glen 210/202, South Building, Calgary TELUS Convention Centre

09:30 - 10:00  Refreshment Break

10:00 - 11:00  Scientific Session TWO

11:00 - 11:30  CAPSNet Meeting

11:40  Box lunch available

12:00 - 13:00  Two minutes : two slides & videos

13:00 - 13:30  Break

13:30 - 15:00  Scientific Session THREE
Scientific Session I

8:00-8:12  1  OR  THE CONTRAST ENEMA FOR THE DIAGNOSIS OF HIRSCHSPRUNG'S DISEASE; PREDICTORS OF A FALSE POSITIVE RESULT
Giovanny Casadiego¹, Ivan R. Diamond¹,³, Jeffrey Traubici², Paul W Wales¹,³
¹Division of General Surgery, ³Department of Medical Imaging, ³Population Health Sciences.
The Hospital for Sick Children, Toronto, Canada
5 minute discussion

8:12-8:24  2  OR  POSTOPERATIVE HIRSCHSPRUNG'S ENTEROCOLITIS AFTER MINIMALLY INVASIVE SWENSON PROCEDURE
Singh R, Cameron BH, Fitzgerald PG, Walton JM, Borenstein SH, Farrokhyar F
McMaster Children’s Hospital, McMaster University, Hamilton, ON, Canada
5 minute discussion

8:24-8:36  3  OR  ILEAL EXCLUSION FOR REFRACTORY SYMPTOMATIC CHESTASIS IN ALAGILLE SYNDROME
Biren P. Modi MD¹, Matthew Suh MD¹, Maureen Jonas MD², Craig Lillehei MD¹, Heung Bae Kim MD¹
¹Department of Surgery and ²Division of Gastroenterology and Nutrition, Children’s Hospital Boston and Harvard Medical School, Boston, MA, USA
5 minute discussion

8:36-8:48  4  OR  A ROLE FOR LAPAROSCOPIC APPROACH IN TREATMENT OF BILIARY ATRESIA AND CHOLEDOCHAL CYSTS
Gudrun Aspelund, Mohammed Zamakhshary, Simon C. Ling, Peter C.W. Kim
Divisions of General Surgery and Gastroenterology, Hospital for Sick Children, Toronto, Canada
5 minute discussion
3 minute discussion
University of Manitoba, Winnipeg, Canada
Division of Pediatric General Surgery, Children's Hospital, Winnipeg
Mortality Mortis-Bouliet, Joon Breaux
REPRODUCTION AND THE APPEARANCE OF CHALLENGE
CAUDAL DURATION SYNDROME: A CASE

5 minute discussion
Amera, Turkay
Parastology, Amir University School of Medicine, Department of Pediatric Surgery, and Pediatric Clinic, Medical Bingal-Kolniglu
Rahman Varun, Yalzip, Tsung Anh, Aylin Heter
INTERSTITIAL CELLS OF THE UTERINE GASTROESOPHAGEAL SCISSION: EFFECTS OF INTERUETERN TREATMENT

5 minute discussion
Hospital, London, United Kingdom
Department of Pediatric Surgery, Kings College
Sean Devane, Northwestern, Mark, Mark Daventry
Paul Clarbour, Jackiel, Michael, Charles, DiminÔ
IMPROVE OUTCOMES IN GASTROESOPHAGEAL SCISSION
DOES BIRTH GESTATIONAL AGE AT DELIVERY

5 minute discussion
Children's Hospital, Montreal, Quebec, Canada
1 The Division of Pediatric Surgery, The Montreal Pulmonary, Kenneth, and Jean Martin, Labert
Alien Asheron, Wendy, Sue, Helene, Female, Pramod, S.
INVESTIGATING
ARTISAN: DO WE ALWAYS NEED TO

OR
CHOLESTASIS ASSOCIATED WITH SMALL BOWEL

OR

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OR

OR

OR
Scientific Session II

10:00-10:12  9  OR  NATIONAL PROSPECTIVE EPIDEMIOLOGICAL STUDY OF NECROTIZING ENTEROCOLITIS
Clare M Rees, Simon Eaton, Agostino Pierro
Department of Paediatric Surgery, Institute of Child Health, London, UK
5 minute discussion

10:12-10:24  10  OR  COMPARATIVE STUDY BETWEEN WINDOW AND NON-WINDOW OSTOMIES IN NOENATES WITH NEC AND ISOLATED SMALL BOWEL PERFORATIONS
Benjamin McConchie, Parkash Mandhan, Stuart Brown, Askar Kukkady, Udaya Samarakkody
Department of Paediatric Surgery, Waikato Hospital, Hamilton, New Zealand
5 minute discussion

10:24-10:36  11  OR  TIMING OF GLUCAGON-LIKE PEPTIDE-2 STIMULATION AND INTESTINAL ADAPTATION
Tatsuru Kaji,1,2 Laurie E. Wallace1, Hiroaki Tanaka1, David L. Sigalet1
1Gastrointestinal Research Group, University of Calgary, Calgary, Alberta, Canada and 2Kagoshima University, Kagoshima, Japan
5 minute discussion

10:36-10:48  12  OR  THE OPTIMAL TIMING OF INTESTINAL TRANSPLANTATION FOR CHILDREN WITH INTESTINAL FAILURE: A MARKOV ANALYSIS
Steven R. Lopushinsky, Robert A. Fowler, Annie H. Fecteau, David R. Grant, Paul W. Wales.
Division of General Surgery, Hospital for Sick Children, University of Toronto
5 minute discussion
10:48-11:00 13:00 13:30
00-13:30
11:00-11:30
11:40
12:00-13:00
13:00-13:30

BREAK

Two minutes: two slides & videos
Box lunch available
CAPSNet Meeting

5 minute discussion
The Hospital for Sick Children, Toronto, Canada
Improvement of Intellectual Function and Treatment (GIFT)
Bench and Paul W. Wales for the Group for the
Leanne M. Diamond, Nicole de Silva, Lee H. Kim, Paul B.
Experience
Rehabilitation Program: Preliminary Multi-disciplinary International
Establishment of the First Canadian Neonatal Short Bowel Syndrome Outcomes
Scientific Session III
Poster Presentations

13:30-13:36  14 PR  IS VAGAL INNERVATION REQUIRED FOR THE INTESTINAL TROPHIC EFFECTS OF GLUCAGON-LIKE PEPTIDE 2
Hiroaki Tanaka1,2, Laurie E. Wallace1, Tatsuru Kaji1, David L. Sigalet1
1Gastrointestinal Research Group, University of Calgary, Calgary, Alberta, Canada and 2Kurume University of Medicine, Japan
3 minute discussion

13:36-13:42  15 PR  SHH SIGNALLING DURING THE DEVELOPMENT OF URINARY BLADDER IN ETU-EXPOSED FETAL RATS
Parkash Mandhan, Qi Bao Quan, Spencer Beasley and Michael Sullivan
Children’s Developmental Genetics Research Group
Department of Surgery and Paediatrics, University of Otago, Christchurch, New Zealand
3 minute discussion

13:42-13:48  16 PR  MOTORIZED RECREATION FOR CHILDREN – NOT SOMETHING TO PLAY AROUND WITH
Natalie L Yanchar, Cory Russell
Division of Pediatric General Surgery, IWK Health Centre, Dalhousie University, Halifax, Nova Scotia, Canada and Canadian Hospitals Injury Reporting and Prevention Program, IWK Health Centre
3 minute discussion

13:48-13:54  17 PR  THE “SEE ME WALK” PROGRAM: A SIMPLE INJURY PREVENTION PROGRAM WITH GREAT POTENTIAL FOR DECREASING THE BURDEN OF PEDIATRIC INJURY IN LOW INCOME COUNTRIES
A. Mihailovic1, C. Nansamba2, P. Coyte3, A. Howard4,
1Dept of Surgery, University of Toronto  2Injury Control Center, Mulago Hospital, Uganda. 3Department of Health Care, Technology and Place, University of Toronto. 4Hospital for Sick Children, University of Toronto
3 minute discussion
13:54-14:00  18 PR  EMERGENCE OF COMMUNITY ACQUIRED MRSA SOFT-TISSUE INFECTIONS
Max Olesevich MD, Alfred Kennedy MD
Pediatric General Surgery, East Tennessee Children’s Hospital, Knoxville, TN, USA
3 minute discussion

14:00-14:06  19 PR  AMBIGUOUS GENITALIA: AN OVERVIEW OF 17 YEARS EXPERIENCE
Göllü, R Vargin Yıldız, Mine Fedakar Denyüce, A Yağmurlu, M Bingöl-Koloobuf, T Aktuğ, H Gökçora, H Dindar
Department of Pediatric Surgery, School of Medicine, Ankara University, Ankara, Turkey
3 minute discussion

14:06-14:12  20 PR  NECROTISING ENTEROCOLITIS AND ISOLATED INTESTINAL PERFORATIONS: PREDISPOSING FACTORS AND OUTCOMES
Michael Singh, Anthony Owen, Sobbia Gull, Antonino Morabito, Adrian Bianchi
Neonatal Surgical Unit, St Mary’s Hospital, Manchester, England
3 minute discussion

14:12-14:18  21 PR  LAPAROSCOPIC OVARIAN TISSUE PRESERVATION IN MINORS WITH RISK OF OVARIAN FAILURE FOLLOWING CHEMO/IRRADIATION FOR PRIMARY MALIGNANCY
Elad Feigin, Ronit Abir, Benjamin Fisch, Dragan Kravarusic, Ran Steinberg, Shmuel Nitke, Galia Avrahami, Elena Dlugy, Enrique Freud
Department of Pediatric Surgery, Schneider Children’s Medical Center of Israel
Infertility and IVF Unit, Department of Obstetrics and Gynecology, Rabin Medical Center
Institute of Pediatric Oncology, Schneider Children’s Medical Center of Israel,
Sackler School of Medicine, University of Tel Aviv, Tel Aviv, Israel
3 minute discussion
14:18-14:24  22 PR  STRUCTURES FOLLOWING REPAIR OF OESOPHAGEAL ATRESIA AND TRACHEO-ESOPHAGEAL FISTULA
Ori Ron, Simon Clarke, Joe Curry, Edward Kiely,
Agostino Pierro, Lewis Spitz, Derek Roebuck,
David Drake
3 minute discussion

14:24-14:30  23 PR  PHYSIOLOGICAL BENEFITS OF PREFORMED SILOS IN THE MANAGEMENT OF GASTROCHISIS
J Allotey, I Njere, P Charlesworth, N Ade-Ajayi, S Patel,
M Davenport
Department of Paediatric Surgery, King’s College Hospital, London, UK
3 minute discussion

14:30-14:36  24 P  LAPAROSCOPY IMPROVES THE MANAGEMENT OF RECURRENT GROIN HERNIAS IN CHILDREN
Paul Beaudy, Ahmed Abdalwahab, Erik Skarsgard,
Geoff Blair
Department of Surgery, British Columbia’s Children’s Hospital, Vancouver, B.C.
3 minute discussion

14:36-14:42  25 PR  CUMULATIVE DOSES OF ADJUNCT 131 TREATMENT DEPEND ON LOCATION OF RESIDUAL THYROID TISSUE AFTER TOTAL THYROIDECTOMY IN DIFFERENTIATED THYROID CANCER (DTC)
M.A. Emran, D. St-Vil, R. Lambert, C. Huot, S. Turpin
Divisions of Pediatric General Surgery, Medical Imaging and Endocrinology CHU Sainte-Justine,
Montreal (Quebec) Canada
3 minute discussion

14:42-14:48  26 P  MAGNETIC COMPRESSION REVISION ANASTOMOSIS FOR ANASTOMOTIC STENOSIS AFTER ESOPHAGO-ESOPHAGOSTOMY FOR LONG GAP ESOPHAGEAL ATRESIA: A CASE REPORT
S. Takamizawa, E. Yamanouchi, T. Muraji, E. Nishijima,
S. Satoh, J. Tsugawa,
Department of Surgery, Kobe Children’s Hospital, Kobe, Department of Radiology, St. Marianna University, Yokohama Seibu Hospital, Yokohama
3 minute discussion
SATURDAY, SEPTEMBER 9, 2006
Hyatt Regency Hotel,
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17:30          Presidential Reception / Banquet
               – Heritage Park
              **Dress is casual**
Scientific Session IV

8:00-8:12    27 OR    INFLAMMATORY MARKERS FOR ACUTE APPENDICITIS IN CHILDREN: ARE THEY HELPFUL?
Vittorina Ghirardo, Giorgio Stefanutti, Piergiorgio Gamba
Paediatric Surgery Unit, University of Padova, Padova, Italy
5 minute discussion

8:12-8:24    28 OR    APPENDICITIS IN THE OBESE CHILD
Dafydd A. Davies, Natalie L. Yancher
Division of Pediatric General Surgery, IWK Health Centre, Dalhousie University, Halifax, Canada
5 minute discussion

8:24-8:36    29 OR    LAPAROSCOPIC VERSUS OPEN REDUCTION OF INTUSSUSCEPTION IN CHILDREN: A SINGLE INSTITUTION COMPARATIVE EXPERIENCE
Karen A. Bailey, Paul W. Wales, J. Ted Gerstle
Division of General Surgery, Hospital for Sick Children, Toronto, Ontario, Canada
5 minute discussion

8:36-8:48    30 OR    EVALUATION OF SURGICAL APPROACHES TO PYLOROMYOTOMY: A SINGLE-CENTRE EXPERIENCE
Esmacel Tagi, M.D., John Boutros, M.D., Sébastien Dubé, Pramod Puligandla, M.D., Hélène Flageole, M.D., and Jean-Martin Laberge, M.D.
Division of Pediatric General Surgery, Montreal Children Hospital, McGill University Health Centre, Montreal, Canada
5 minute discussion
8:48-9:00  31 OR  A COMPARISON OF TUBE THORACOSTOMY VERSUS BULB SUCTION DRAINS IN THORACIC SURGERY
Tsao K, Valusek PA, St. Peter SD, Ostlie DJ, Andrews WS, Snyder CL, Sharp RJ, Holcomb GW III
Children's Mercy Hospital, Kansas City, Missouri USA
5 minute discussion

9:00-9:12  32 OR  A CONTEMPORARY EVALUATION OF SURGICAL OUTCOME IN NEONATES AND INFANTS UNDERGOING LUNG RESECTION
A. Aspirot, P.S. Puligandla, S. Bouchard^1, W. Su, H. Flageole and J-M. Laberge
The Divisions of Pediatric Surgery, The Montreal Children's Hospital and Hôpital St-Justine^1, Montréal, Québec, Canada
5 minute discussion

9:12-9:24  33 OR  TRACHEAL OCCLUSION UPREGULATES LATE GESTATION LUNG-1 (LGL1), BUT NOT SONIC HEDGEHOG (SHH) EXPRESSION IN THE FETAL RAT
Robert Baird^1,^3, Nasir Khan^1, Katia Nadeau^2 Pramod S. Puligandla^1, Neil B. Sweezey^4, Feige Kaplan^2,^3, Hélène Flageole^1 and Jean-Martin Laberge^1
^1 Dept. of Pediatric Surgery, Montreal Children's Hospital, MUHC, ^2 Dept. of Human Genetics, McGill University, Montreal, ^3 Montreal Children's Hospital Research Institute, ^4 Hospital for Sick Children, Toronto
5 minute discussion

9:24-9:36  34 OR  CLINICAL IMPACT OF OPTICAL IMAGING WITH 3D RECONSTRUCTION OF TORSO TOPOGRAPHY IN COMMON ANTERIOR CHEST WALL ANOMALIES
Dragan Kravarusic^1, Philippe Poncelet^2, Janet L. Ronksy^2, Ali AlAssiri^1, David Sigalet^1
^1 Pediatric surgery department, Alberta Children's Hospital, University of Calgary, Calgary, Alberta, Canada T2T 5C7, ^2 Department of Mechanical and Manufacturing Engineering, University of Calgary, Calgary (AB), Canada T2N 1N4
2 minute discussion

9:30-10:00  BREAK
Saturday, September 9, 2006

Scientific Session V

10:00-10:12  35 OR  EXTRA HEPATIC PORTAL VEIN OBSTRUCTION (EHPVO) RESULTS IN HEPATOCYTE PROLIFERATION BUT A DECREASE IN PROTEIN-C SYNTHESIS
Bill Chiu, Hector Melin-Aldana, Srikumar Pillai, Jose M. Hernandez, and Riccardo A. Superina
Department of Surgery, Children’s Memorial Hospital, Chicago, IL, USA
5 minute discussion

10:12-10:24  36 OR  PRIMARY LIVER CANCERS IN CHILDREN: APPRAISAL OF AN INSTITUTIONAL OUTCOME
Tuan H. Pham, MD, PhD1, David M. Nagorney, MD1,
Corey W. Iqbal, MD1, Abdalla E. Zarroug, MD1, Jarrod Wall, MD, PhD1, Michael B. Ishitani, MD1,2,
Christopher Moir, MD1.
1. Department of General and Pediatric Surgery, Mayo Clinic, Rochester, MN, USA.
2. Department of Transplantation Surgery, Mayo Clinic, Rochester, MN, USA
5 minute discussion

10:24-10:36  37 OR  OUTCOMES OF RETROPERITONEAL SARCOMAS IN CHILDREN
Tuan H. Pham, MD, PhD, Corey W. Iqbal, MD, Abdalla E. Zarroug, MD, Antony Joseph, MBBS, John H.
Donohue, MD, Christopher Moir, MD.
Department of General and Pediatric Surgery, Mayo Clinic, Rochester, MN, USA.
5 minute discussion

10:36-10:48  38 OR  TOTAL THYROIDECTOMY WITH ROUTINE ADJUVANT I131 THERAPY DOES NOT ALTER OVERALL SURVIVAL IN PATIENTS WITH WELL DIFFERENTIATED THYROID CANCER (WDTC)
M.A. Ali Emran, C. Huot, R. Lambert, L. Oligny, D. St-Vil
Divisions of Pediatric General Surgery, Medical Imaging and Endocrinology CHU Sainte-Justine,
Montreal (Quebec) Canada
5 minute discussion
10:48-11:00  39 OR  CLINICAL PATHWAYS AND RESOURCE UTILISATION IN THE MANAGEMENT OF MINOR HEAD TRAUMA IN CHILDREN
M. Beaudin, D. St-Vil, A. Ouimet, C. Mercier
Division of Pediatric General Surgery, CHU Sainte-Justine, Montreal (Quebec) Canada
5 minute discussion

11:00-11:12  40 OR  IMPACT OF WAIT-TIME ON OUTCOMES IN INFANT INGUINAL HERNIAS
Li Ern Chen MD², Mohammed Zamakhshary MD, MEd FRCSC¹, Gudrun Aspelund MD¹, Robert P. Foglia MD², Douglas E. Coplen MD², Jacob C. Langer, MD, FRCSC¹
¹Division of Pediatric Surgery, Hospital for Sick Children, Toronto Ontario, ²Division of Pediatric Surgery, St Louis Children’s hospital in Missouri
5 minute discussion

11:12-11:30  BREAK


12:15-14:15  CAPS Business Meeting and Lunch (members only)

15:00-16:20  CAGS/CAPS Symposium: Community Surgeons Symposium: Ask the Expert - The Pediatric Surgical Patient as an Adult

15:00  INTRODUCTION: N. Wiseman, Winnipeg Children’s Hospital, Winnipeg

15:10  CONGENITAL DIAPHRAGMATIC HERNIA (CDH): NEONATAL TO ADOLESCENCE: tba

15:20  CONGENITAL DIAPHRAGMATIC HERNIA (CDH): AS THE ADULT: G. Gelfand, Division of Thoracic Surgery, University of Calgary, Calgary

15:30  DISCUSSION

15:40  HIRSCHSPRUNG’S DISEASE: NEONATAL TO ADOLESCENCE TO ADULTS: J. Langer, Hospital for Sick Children, Toronto
15:50  ANORECTAL MALFORMATIONS: NEONATAL TO ADOLESCENCE TO ADULTS: G. Blair, British Columbia Children’s Hospital, Vancouver

16:00  HIRSCHSPRUNG’S DISEASE AND ANORECTAL MALFORMATIONS IN ADULTS: D. Buie, Foothills Hospital, Calgary

16:10  DISCUSSION
SUNDAY, SEPTEMBER 10, 2006
Hyatt Regency Hotel,
Calgary TELUS Convention Centre

07:00 - 08:00  Continental Breakfast
08:00 - 09:30  Scientific Session SIX
09:30 - 10:00  Refreshment Break
10:00 - 11:00  Scientific Session SEVEN
11:00          President’s Closing Remarks
Scientific Session VI

8:00-8:12  41  O  AMNIOEXCHANGE FOR FETUSES WITH GASTROSCHISIS: IS IT EFFECTIVE
Paola Midrio, Giorgio Stefanutti, Michele Mussap, Elisa Zolpi, Piergiorgio Gamba
Paediatric Surgery Unit, University of Padova, Padova, Italy
5 minute discussion

8:12-8:24  42  O  DISTRIBUTION OF INTERTESTINAL CELLS OF CAJAL IN OESOPHAGEAL ATRESIA
Paola Midrio, Aleksandra Strojna, Rita Alaggio, Luciano Giacomelli, Sara Pizzi, Piergiorgio Gamba
Paediatric Surgery Unit, University of Padova, Padova
5 minute discussion

8:24-8:36  43  O  INTRAVENOUS VASOACTIVE INTESTINAL POLYPEPTIDE LOWERS PVR/SVR RATIO IN A NEONATAL PIGLET MODEL OF PULMONARY ARTERIAL HYPERTENSION
Sam Haydar, J. Fernando Sarti, Joseph N. Graziano, Enrique R. Grisoni
Banner Children’s Hospital at Banner Desert Medical Center, Mesa, Arizona, USA
5 minute discussion

8:36-8:48  44  T  FETAL ALERT NETWORK (FAN): AN INTEGRATED NETWORK OF POPULATION-BASED FETAL CARE; LINKING CONCEPTION TO OUTCOME
Peter CW Kim, Fetal Alert Network*, Ontario
5 minute discussion

8:48-9:00  45  O  URINARY GLYOCOSAMINOGLYCAN LEVELS IN INTESTINAL ISCHAEMIA
N. Ade-Ajayi
Department of Paediatric Surgery, King’s College Hospital, London.
5 minute discussion
9:00-9:07  46  C  THE TWO STEP: AN APPROACH TO REPEATING A SERIAL TRANSVERSE ENTEROPLASTY  
P E Ehrlich MD MSc., G Mychalisha MD, and  
D H Teitelbaum MD  
Departments of Pediatric Surgery, University of  
Michigan, Ann Arbor, Michigan  
3 minute discussion

9:07-9:19  47  O  PREEMPTIVE REGIONAL ANALGESIA IN UBILICAL HERNIA REPAIR IS IT REALLY IMPORTANT?  
R. Bilk, W. Cohn  
The Dep. of Ped. Surgery, Safra Children hospital  
Sheba Medical center and Asuta medical center,  
Sackler school of medicine, Tel-Aviv university, Israel  
5 minute discussion

9:19-9:26  48  O  AESTHETICS: THE GROIN CREASE INCISION FOR INGUINAL HERNIA REPAIR IN GIRLS  
Lall A, Morabito A, Bianchi A  
Department of Pediatric Surgery/Urology, Royal  
Manchester Children Hospital, Manchester, United  
Kingdom  
5 minute discussion

9:26-10:00  BREAK
Scientific Session VII

10:00-10:12  49  O  LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING IN ADOLESCENT: SAFETY AND EFFICACY
Ayed R. AlQahtani, FRCSC, FACS
Division of Pediatric Surgery, King Saud University,
Riyadh, Saudi Arabia
5 minute discussion

10:12-10:24  50  T  MONITORING DIAGNOSTIC ACCURACY AND COMPLICATIONS. A REPORT FROM CHILDREN ONCOLOGY GROUP HODGKIN’S LYMPHOMA STUDY
PF Ehrlich MD MSc, D L Friedman MD, C Schwartz MD
Department of Pediatric Surgery and University of Michigan, Ann Arbor, Michigan, Fred Hutchinson Cancer Research Center, University of Washington and Department of Pediatrics, Brown University, Rhode Island, USA, Children Oncology Group Hodgkin’s Lymphoma study section
3 minute discussion

10:24-10:36  51  T  EXCISION OF LARGE CYSTIC OVARIAN TUMORS: COMBINING MIS TECHNIQUES AND CANCER SURGERY- THE BEST OF BOTH WORLDS
PF Ehrlich MD MSc; D H Teitelbaum; RB Hirschl and FRescorla
Departments of Pediatric Surgery, University of Michigan Ann Arbor, Michigan and Department of Pediatric Surgery, JW Riley Hospital, Indianapolis, Indiana
5 minute discussion

10:36-10:48  52  T  CANADIAN-TRAINED PEDIATRIC SURGEONS: A CROSS-BORDER SURVEY OF SATISFACTION AND PREFERENCES
Sherif Emil¹, Jean-Martin Laberge²
¹Division of Pediatric Surgery, University of California Irvine, Irvine, California, USA & ²Division of Pediatric Surgery, McGill University, Montreal, Quebec, Canada
5 minute discussion

11:00  President’s Closing Remarks
# ABSTRACTS

## ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>original 7-minute paper</td>
</tr>
<tr>
<td>R</td>
<td>resident's paper</td>
</tr>
<tr>
<td>C/T</td>
<td>4-minute case/technique report</td>
</tr>
<tr>
<td>P</td>
<td>poster presentation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>O, R, P</td>
<td>Adjudicated</td>
</tr>
<tr>
<td>C/T</td>
<td>Not adjudicated</td>
</tr>
</tbody>
</table>
THE CONTRAST ENEMA FOR THE DIAGNOSIS OF HIRSCHSPRUNGS DISEASE: - PREDICTORS OF A FALSE POSITIVE RESULT.

Giovanny Casadiego, Ivan R. Diamond¹,³, Jeffrey Traubici², Paul W Wales¹,³
¹Division of General Surgery, ²Department of Medical Imaging,
³Population Health Sciences.
The Hospital for Sick Children, Toronto, Canada

Purpose: To examine predictors of a false positive (FP) result on contrast enema (CE) for the diagnosis of Hirschsprungs Disease (HD).

Methods: Retrospective analysis, over a 5-year period (1999-2004), of infants (<6 months of age) with suspected HD undergoing rectal biopsy following abnormalities identified on CE [transition zone (TZ), abnormal rectosigmoid ratio, microcolon, retained contrast, or mucosal irregularity].

Results: One-hundred and thirty infants underwent rectal biopsy following an abnormal CE. The FP rate was 48.5% (66 diagnosed with HD). Age > 30 days (OR = 3.4; 95% CI = 1.1 – 10.3) and absence of TZ (OR = 6.3; 95% CI = 2.6 – 15.3) were independently associated with an increased risk for FP on multiple variable logistic regression. A history of bilious emesis decreased the probability of FP (OR = 0.2; 95% CI = 0.06 – 0.5). The following table demonstrates FP rates for various combinations of age, TZ, and bilious emesis.

<table>
<thead>
<tr>
<th>Transition Zone</th>
<th>Bilious Emesis</th>
<th>Age &lt; 30 days</th>
<th>Age &gt; 30 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td></td>
<td>2/18 (11%)</td>
<td>0/3 (0%)</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>14/48 (37.5%)</td>
<td>8/12 (67%)</td>
</tr>
<tr>
<td>N</td>
<td>Bilious Emesis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y</td>
<td></td>
<td>4/10 (40%)</td>
<td>-</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>21/28 (75%)</td>
<td>10/10 (100%)</td>
</tr>
</tbody>
</table>

Conclusions: TZ, age, and bilious emesis are important predictors of FP in those with suspected HD and CE abnormalities. With a 100% incidence of FP, infants > 30 days of age with neither bilious emesis nor a TZ may represent a subpopulation in whom rectal biopsy can be avoided.

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POSTOPERATIVE HIRSCHSPRUNG’S ENTEROCOLITIS
AFTER MINIMALLY INVASIVE SWENSON PROCEDURE

Singh R, Cameron BH, Fitzgerald PG, Walton JM,
Borenstein SH, Farrokhlyar F
McMaster Children’s Hospital, McMaster University,
Hamilton, ON, Canada

Background:
Our preferred minimally invasive technique of Swenson procedure has evolved from laparoscopic (LapSwen) to Swenson transAnal Pullthrough (SWAP). We studied the incidence of postoperative Hirschsprung’s enterocolitis (HEC) over the past decade.

Methods:
Fifty-two children reviewed had a primary Swenson pullthrough procedure. Two cohorts (25 LapSwen (1995-1998) and 27 SWAP (1998-2006)) were compared.

Results:
Median age at diagnosis (13 days LapSwen, 4 days SWAP) and median age at surgery (4.1 months LapSwen, 3.3 months SWAP) were both younger in the SWAP group. Postoperative HEC occurred in 12% (16% LapSwen, 7.4% SWAP). The incidence of Down’s syndrome and preoperative HEC did not differ between the two cohorts. Three children with HEC were *Clostridium difficile* positive. Long-term function in the 36 children over 4 years of age was excellent in 22%, good in 50%, fair in 11% and poor in 17%.

Conclusion:
Our incidence of postoperative HEC (12%) is low and we have seen a trend towards fewer cases after the SWAP procedure. Early diagnosis, preoperative rectal irrigations, and routine postoperative anal dilatation may be contributing to the elimination of HEC as a significant risk after surgery for Hirschsprung’s Disease.

Sponsoring CAPS member: Dr. B.H. Cameron

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ILEAL EXCLUSION FOR REFRACTORY SYMPTOMATIC CHOLESTASIS IN ALAGILLE SYNDROME

Biren P. Modi MD\textsuperscript{1}, Matthew Suh MD\textsuperscript{1}, Maureen Jonas MD\textsuperscript{2}, Craig Lillehei MD\textsuperscript{1}, Heung Bae Kim MD\textsuperscript{1}

\textsuperscript{1}Department of Surgery and \textsuperscript{2}Division of Gastroenterology and Nutrition, Children’s Hospital Boston and Harvard Medical School, Boston, MA, USA

**Background:** Alagille syndrome (AGS) can result in pruritic self-mutilation and disabling xanthomatous disease. Few data exist for the use of ileal exclusion in this setting.

**Methods:** Three AGS patients with symptomatic cholestasis despite maximal medical management underwent an ileal exclusion procedure. For each, small bowel length was measured and the terminal 15\% of ileum was excluded using stapled division and ileocecral anastomosis. Symptom scores were collected after IRB approval and are presented here as mean (range). Pruritus/xanthomas were graded as follows: 0=none, 1=mild scratching/minimal, 2=active scratching/moderate, 3=abrasions/disfiguring, 4=mutilation/disabling.

**Results:** Mean follow-up was 24 months (4-35). Pruritus score decreased from 3.33 (3-4) to 0.33 (0-1). Xanthoma score decreased from 3.67 (3-4) to 1.67 (1-2). All patients were maintained on nutritional supplements pre- and post-operatively without a change in management. No patients experienced diarrhea or dehydration post-operatively. There were no complications.

**Conclusions:** Ileal exclusion effectively decreases refractory pruritus and xanthoma burden in AGS. This procedure offers the advantages of reversibility, avoidance of a stoma, and technical ease. Ileal exclusion should be considered for symptomatic AGS refractory to medical management as an alternative to external biliary diversion or liver transplantation.

**Sponsoring CAPS Member:** Tom Jaksic, MD, PhD

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A ROLE FOR LAPAROSCOPIC APPROACH IN TREATMENT OF BILIARY ATRESIA AND CHOLEDOCHAL CYSTS

Gudrun Aspelund, Mohammed Zamahkshary, Simon C. Ling, Peter C.W. Kim
Divisions of General Surgery and Gastroenterology, Hospital for Sick Children, Toronto, Canada

Background: Advantages of laparoscopic surgery for biliary atresia (BA) and choledochal cysts (CC) are not clearly defined. We present our laparoscopic versus open approach for BA and CC.

Methods: A retrospective comparison of consecutive operations for BA and CC from January 2000 to March 2006 was performed. We evaluated pre- and intraoperative factors and outcomes. Mann-Whitney test was used for comparison.

Results: 43 portoenterostomies/hepaticojejunostomies were performed, including 7 laparoscopic and 36 open. Patients with CC were older than BA patients. There was no difference in outcomes for the laparoscopic vs. open groups.

<table>
<thead>
<tr>
<th></th>
<th>BA Lap (n=5)</th>
<th>Open (n=24)</th>
<th>CC Lap (n=2)</th>
<th>Open (n=12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at OR (weeks)</td>
<td>9.8 (4.5)</td>
<td>10 (2.3)</td>
<td>244 (197)</td>
<td>234 (286)</td>
</tr>
<tr>
<td>Operative time (min)</td>
<td>329 (65)</td>
<td>301 (77)</td>
<td>391 (66)</td>
<td>281 (63)</td>
</tr>
<tr>
<td>Bowel function (day)</td>
<td>2.0 (0.7)</td>
<td>2.7 (1.2)</td>
<td>4.5 (0.7)</td>
<td>3.8 (1.0)</td>
</tr>
<tr>
<td>Hospital stay (day)</td>
<td>9.2 (4.0)</td>
<td>11 (5.6)</td>
<td>12.5 (7.8)</td>
<td>6.8 (3.0)</td>
</tr>
<tr>
<td>Complications (n)</td>
<td>3</td>
<td>10</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Transplant (n)</td>
<td>1</td>
<td>10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Follow-up (months)</td>
<td>9.2</td>
<td>40</td>
<td>2.1</td>
<td>37</td>
</tr>
</tbody>
</table>

Means (standard deviation)

Conclusions: Our initial experience indicates that the laparoscopic approach is technically feasible and effective, with a low morbidity and comparable outcome to the open operation. Longer follow up with larger patient cohorts is needed.

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CHOLESTASIS ASSOCIATED WITH SMALL BOWEL ATRESIA: DO WE ALWAYS NEED TO INVESTIGATE?

Ann Aspirot, Wendy Su, Helene Flageole, Pramod S. Puligandla, Kenneth Shaw, and Jean-Martin Laberge
The Division of Pediatric Surgery
The Montreal Children’s Hospital, Montréal, Québec, Canada

Background/Purpose: Cholestasis occurs frequently in patients with small bowel atresia (SBA), and is often attributed to prolonged parental nutrition (TPN). When severe or prolonged, patients may undergo unnecessary intensive/invasive investigation. We characterized cholestasis and analysed the pertinence of investigating this patient population.

Methods: Patients with SBA between 1996-2005 were retrospectively reviewed. Demographics, location of atresia, operative findings, complications, investigations, resumption of feeding/TPN, and follow-up were examined. Cholestasis was evaluated for incidence, severity, duration, and evolution.

Results: Fifty-five patients (29 male: 26 female) with a median gestational age and birthweight of 36 weeks and 2025g respectively were reviewed. Care was withdrawn for 2 patients prior to repair. For the remaining 53 patients, SBA occurred in duodenum (DA) 18, jejunocolic (JIA) 32, and multiple (MA) 3. Forty-five percent (24/53) developed cholestasis (direct/total bilirubin > 20%). All patients with short bowel (4) and 60% (6/10) of patients with delay (> 14 days postop) of enteral feeding had cholestasis. Ten patients (36%) proceeded with in depth cholestatic evaluations, with 8 (28%) undergoing liver biopsy. No patient had biliary atresia. No deaths were related to isolated cholestasis/cirrhosis. Cholestasis resolved spontaneously in all the survivors (median duration = 56 days).

Conclusions: SBA is frequently associated with postoperative cholestasis that will resolve with time. We recommend a more selective and expectant approach to SBA-associated cholestasis to minimize unnecessary investigations.

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DOES EARLY GESTATIONAL AGE AT DELIVERY IMPROVE OUTCOME IN GASTROSCHISIS?

Paul Charlesworth, Jackie Allotey, Gabriel Dimitrou, Sean Devane, Niyi Ade-Ajayi, Mark Davenport
Department of Paediatric Surgery, Kings College Hospital, London, United Kingdom

Introduction: Early elective delivery of antenatally-diagnosed gastroschisis has been proposed as a strategy to minimise post-natal morbidity. This hypothesis was tested.

Methods: Single-centre retrospective review of all gastroschisis infants born over a 12-year period. Data are medians (range).

Results: 112 infants were identified and divided according to gestational age: Group A (<35 weeks), Group B (35 – 37 weeks), and Group C (>37 weeks). Median birth weight was 1.6 (0.9 - 2.6); 2.1 (1.7 - 2.9) and 2.6 (1.0 - 3.7) kg respectively.

<table>
<thead>
<tr>
<th></th>
<th>Group A n=19</th>
<th>Group B n=33</th>
<th>Group C n=60</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ventilation (days)</td>
<td>5 (1-25)</td>
<td>5 (1-24)</td>
<td>5 (1-22)</td>
<td>n.s.</td>
</tr>
<tr>
<td>Time to start feeds (d)</td>
<td>12 (6-40)</td>
<td>13 (5-40)</td>
<td>11 (3-35)</td>
<td>n.s.</td>
</tr>
<tr>
<td>Time to full feeds (d)</td>
<td>31 (17-90)</td>
<td>22 (13-77)</td>
<td>24 (10-105)</td>
<td>n.s.</td>
</tr>
<tr>
<td>Hospital Stay</td>
<td>50 (18-250)</td>
<td>28 (2-192)</td>
<td>29 (5-270)</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

Six infants died (Gp A, n = 3, Gp B, n = 3: P = 0.02).
NEC was noted in 7 infants (Gp A, n = 3, Gp B, n = 1, Gp C, n = 3: P = 0.16).

Conclusion:
- There is no evidence that early gestational age improves outcome in gastroschisis.
- Early gestational age is associated with a prolonged hospital stay.

Sponsoring CAPS member: Prof Agostino Pierro

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EFFECTS OF INTRAUTERINE TREATMENT
ON INTERSTITIAL CELLS OF CAJAL IN GASTROSCISIS

Rahsan Vargun Yıldız, Tanju Aktug, Aylin Heper*, Meltem Bingöl-Kologlu
Department of Pediatric Surgery and *Department of Pathology
Ankara University School of Medicine, Ankara, TURKEY

Background: An experimental study was performed to investigate the effects of amnio-allantoic fluid exchange and intrauterine bicarbonate treatment on intestinal damage and interstitial cells of Cajal (ICC), in gastrochisis.

Methods: Thirteen-day-old fertilized chick eggs were randomly allocated into 4 groups as control, gastrochisis, gastrochisis + amnio-allantoic fluid exchange and gastrochisis + bicarbonate treatment groups. In the treatment groups, amnio-allantoic exchange and bicarbonate treatment was performed for 3 days. Specimens were processed for H&E and c-kit immunohistochemistry on the 18th day of incubation. Mean muscular thickness, and density of ICC were measured.

Results: Mean muscular thickness was significantly increased in gastrochisis group. Labeling intensity, morphology and localization of the ICC were similar in all groups. Mean ICC density was significantly decreased in gastrochisis group when compared with controls (p<0.01) and it was increased after amnio-allantoic fluid exchange treatment, (p<0.01).

Conclusion: The decrease of ICC density encountered in damaged intestinal loops of gastrochisis was improved with intrauterine treatment. The beneficial effects of amniotic exchange on intestinal motility may depend on both prevention of intestinal damage and restoration of ICC density. ICC density might be a comparable numeric parameter both to predict intestinal motility disorders in gastrochisis and to compare the effectiveness of intrauterine treatment methods.

Sponsoring CAPS member: Natalie L. Yanchar

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CAUDAL DUPLICATION SYNDROME: A CASE REPORT AND THERAPEUTIC CHALLENGE

Melanie Morris-Boucher, Ioana Bratu
Division of Pediatric General Surgery, Children’s Hospital, University of Manitoba, Winnipeg, Canada

Background: Caudal duplication syndrome is an extremely rare condition in the pediatric population. With less that 90 reported cases in the literature surgical management becomes individualized due to anatomic variance.

Methods: We report a unique case of caudal duplication and a structured literature review.

Results: A baby boy was born full term with a prenatal diagnosis of dextrocardia and situs inverus. At birth an imperforate anus was noted with two perineal dimples, diphallus with meconium passage per both penises, 4 cm omphalocele, as well as multiple vertebral abnormalities. At 24 hours of life, he underwent a loop colostomy and closure of omphalocele, with realization that he had a duplicated colon from cecum to both fistulae. At 3 months of life he underwent an abdominal perineal pullthrough with side to side union of the duplicated distal colon and rectum. At 6 months of age, closure of colostomy with side to side union of proximal duplicated colon was performed. One year later he is doing well. The urologist are following and contemplating the best course of action with regard to his genitourinary anomalies.

Conclusion: The common goal of therapy in the literature remains directed at relieving symptoms than to restore normal anatomy. Caudal duplication presents reconstructive GI and GU challenges and encompass a multidisciplinary approach.

Sponsoring CAPS member: Ioana Bratu

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NATIONAL PROSPECTIVE EPIDEMIOLOGICAL STUDY
OF NECROTIZING ENTEROCOLITIS

Clare M Rees, Simon Eaton, Agostino Pierro
Department of Paediatric Surgery, Institute of Child Health,
London, UK

Background/Purpose: There is scant epidemiological data on necrotizing enterocolitis (NEC), so we conducted a national study to characterise prevalence, surgical management and mortality.

Methods: A prospective cross-sectional survey was performed in the UK requesting data from 158 NICUs during 2 winter months; 51% of questionnaires were returned. Data are reported with 95% confidence intervals and compared by \( c^2 \)-test for trend.

Results: 1) Prevalence: 89 infants were diagnosed with NEC (45% Bell stage I, 18% Stage II and 37% Stage III) from a total of 5300 NICU admissions, a prevalence of 1.7% [1.4-2.0]. In infants <1000g birthweight, the prevalence was 13% [10-16] and <26 weeks gestation, 12% [8-17]. Prevalence decreased significantly with increasing birthweight (p<0.0001) [Figure] and increasing gestation (p<0.0001).

2) Surgery: 27 infants received surgical procedures; peritoneal drain in 6 (followed by laparotomy in 5) and in 21, laparotomy alone.

3) Mortality: 15 infants died with NEC out of a total 126 deaths, thus accounting for 12% of NICU mortality. Five (33%) infants with NEC died without surgery.

Conclusions: Prevalence of NEC in the UK is high and comparable to published series in other countries from the 1990s. There is a hidden mortality in patients who do not receive surgery.

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COMPARATIVE STUDY BETWEEN WINDOW AND NON-WINDOW OSTOMIES IN NEONATES WITH NEC AND ISOLATED SMALL BOWEL PERFORATIONS

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Purpose: Bowel perforations in the neonatal period usually occur due to necrotizing enterocolitis (NEC) or intestinal obstruction. Perforation in the absence of these conditions is called isolated small bowel perforation (ISBP). Depending on the clinical condition of the infant and the extent of disease, a number of surgical options are available one of which is exteriorization. Since 1996, we have adopted a technique of ‘window’ ostomy, where the site of the bowel perforation is sutured to the abdominal wall to form a enterocutaneous fistula. The aim of this study was to compare the outcome of ‘window’ ostomies with other ostomies in neonates with NEC and ISBP.

Methods: We retrospectively reviewed all cases of NEC and ISBP from Jan 1996 to March 2006. The patients who required surgical intervention were included in this study and divided into window and non-window ostomy groups. We collected multiple data as study variables; general features, site of small bowel perforation, operative time, post-operative morbidity, TPN requirements, growth and development, and outcome.

Results: There were 11 patients in each group, 65% were male. Small bowel perforation was identified in distal ileum (12), Mid ileum (8), proximal ileum (1) and jejunum (1). Comparing the two groups, we found statistically significant differences in the operative time, duration of TPN, establishment of full enteral feed and post-operative weight gain. However there was no difference between morbidity and mortality.

Conclusion: We conclude that window ostomy is a quick and workable technique of bowel exteriorization in focal NEC and ISBP.

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TIMING OF GLUCAGON-LIKE PEPTIDE-2 STIMULATION AND INTESTINAL ADAPTATION

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Background: Previous studies have shown that treatment with Glucagon-like Peptide-2 (GLP-2) augments adaptation in short bowel syndrome (SBS). This study investigated the effects of variation in timing of GLP-2 administration using a total parenteral nutrition (TPN)-supported model of SBS.

Methods: Rats underwent 90% small intestinal resection and venous catheterization. There were 3 groups (n=8/group): Control (TPN alone), TPN+GLP-2(1st) [treatment in first week with GLP-2 (10μg/kg/h, iv), followed by TPN alone week 2 and TPN+GLP-2(2nd) [first week without GLP-2 treatment, followed by peptide treatment (10μg/kg/h, iv)]. On day 14, animals were sacrificed and harvested tissues were processed for morphological analysis, crypt cell proliferation (CCP), apoptosis (caspase-3) and glucose transporter (SGLT-1).

Results: Bowel length, weight and width were significantly increased in TPN+GLP-2(1st) compared to control and TPN+GLP-2(2nd) (p<0.01). Villus height, Crypt depth, Ileum surface area and CCP were significantly increased in both GLP-2 treatment groups compared to control (p<0.01). SGLT-1 was significantly increased in TPN+GLP-2(2nd) compared to control and TPN+GLP-2(1st) (p<0.05).

Conclusion: Intestinal growth is maximally stimulated by early treatment with GLP-2. However, delayed treatment still increased nutritional absorptive capacity. This suggests that early treatment with GLP-2 following surgical resection will be most effective and may have clinical benefits.

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THE OPTIMAL TIMING OF INTESTINAL TRANSPLANTATION FOR CHILDREN WITH INTESTINAL FAILURE: A MARKOV ANALYSIS

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Division of General Surgery, Hospital for Sick Children, University of Toronto

Background: Historically, intestinal transplantation has been reserved for patients suffering significant morbidity secondary to parenteral nutrition (PN). Given substantial improvements in transplant outcomes, the two therapies are now approaching equipoise, making the timing of transplantation controversial.

Methods: A Markov analytic model was constructed to determine life expectancy (LE) and quality-adjusted life years (QALY) in a theoretical cohort of 4-year old subjects for two treatment strategies: (1) standard care – PN and transplantation listing according to accepted guidelines; and (2) early listing for isolated small intestine transplantation. We assessed the effects of uncertainty in key variables by performing one- and two-way sensitivity analyses.

Results: Early listing for intestinal transplantation was associated with greatest life-years (13.16 LY) and quality-adjusted life-years (10.51 QALY) as compared to standard care (12.89 LY, 9.75 QALY). The unadjusted analysis was sensitive to the development of PN-associated liver disease (threshold = 11% per year), and to the probability of liver disease specific mortality. Early listing for transplantation was indicated up to a rejection rate of 35% per year.

Conclusions: Our results demonstrate that early transplantation for intestinal failure is favored within certain threshold values, and that quality of life needs to be considered more critically in the decision.

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NEONATAL SHORT BOWEL SYNDROME OUTCOMES AFTER EMBRACEMENT OF THE FIRST CANADIAN MULTI-DISCIPLINARY INTESTINAL REHABILITATION PROGRAM: PRELIMINARY EXPERIENCE

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Background: A multidisciplinary intestinal rehabilitation team has existed for 3 years (since Jan. 2003). Our goal was to compare preliminary outcomes of neonates with short bowel syndrome (SBS) before (PreGIFT) and after (PostGIFT) establishment of our formalized intestinal failure program.

Methods: Retrospective analysis of our intestinal failure registry comparing PreGIFT (1997-1999) to PostGIFT (2003-2005) outcomes. Chi square, T-test, Mann-Whitney U and Log Rank tests were performed. Alpha was set at 0.05 and trend at 0.1.

Results: GIFT has managed 64 patients since 2003. Fifty four patients are neonates (31 males (57.4%), mean birth weight 2253 ± 144 gms, mean Gestational age 33.5±0.7 wks, median age at surgery 4 days (interquartile range 2-17)). The table below summarizes patient outcomes:

<table>
<thead>
<tr>
<th></th>
<th>PreGIFT (n=40)</th>
<th>PostGIFT (n=54)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residual Small Bowel Length (cm)</td>
<td>73 ± 7</td>
<td>92 ± 6</td>
<td>0.03</td>
</tr>
<tr>
<td>Residual Colon Length (cm)</td>
<td>33 ± 2</td>
<td>39 ± 2</td>
<td>0.04</td>
</tr>
<tr>
<td>Ileocecal valve preserved (%)</td>
<td>88 (70.0)</td>
<td>46 (85.2)</td>
<td>0.07</td>
</tr>
<tr>
<td># Bowel Lengthening Procedures</td>
<td>0</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Median Septic Events/mo hospitalized</td>
<td>0.5 (0.3-1.0)</td>
<td>0.3 (0.0-0.6)</td>
<td>0.01</td>
</tr>
<tr>
<td>Weaned from Parenteral Nutrition (%)</td>
<td>25 (62.5)</td>
<td>35 (64.8)</td>
<td>0.82</td>
</tr>
<tr>
<td>Median Days to 100% Feeds</td>
<td>71 (50-116)</td>
<td>76 (46-118)</td>
<td>0.80</td>
</tr>
<tr>
<td>Patients tolerating &gt;50% Feeds (%)</td>
<td>28 (70.0)</td>
<td>44 (81.5)</td>
<td>0.19</td>
</tr>
<tr>
<td>Cholestasis (%)</td>
<td>25 (62.5)</td>
<td>43 (79.6)</td>
<td>0.07</td>
</tr>
<tr>
<td>Liver Failure (%)</td>
<td>10 (25.0)</td>
<td>13 (24.1)</td>
<td>0.95</td>
</tr>
<tr>
<td>Days to Liver Failure</td>
<td>253 ± 42</td>
<td>246 ± 62</td>
<td>0.92</td>
</tr>
<tr>
<td>Days from Liver Failure to Death</td>
<td>35 ± 10</td>
<td>71 ± 30</td>
<td>0.32</td>
</tr>
<tr>
<td>Days from cholestasis to transplant assessment</td>
<td>157 ± 39</td>
<td>78 ± 25</td>
<td>0.08</td>
</tr>
<tr>
<td>Received transplant (of those listed) (%)</td>
<td>0/8 (0)</td>
<td>4/11 (36.4)</td>
<td>0.05</td>
</tr>
<tr>
<td>Mortality (all cause) (%)</td>
<td>15 (37.5)</td>
<td>18 (33.3)</td>
<td>0.84</td>
</tr>
<tr>
<td>Mortality (liver failure) (%)</td>
<td>9 (22.5)</td>
<td>6 (11.1)</td>
<td>0.14</td>
</tr>
<tr>
<td>Follow-up (days)</td>
<td>591 ± 68</td>
<td>489 ± 48</td>
<td>0.21</td>
</tr>
</tbody>
</table>

Conclusions: Analysis of preliminary outcomes of GIFT program suggests: 1) Natural history of neonatal SBS remains unaltered in certain respects (adaptation time, incidence and time to liver failure), 2) Increased awareness has led to improved bowel preservation and decreased septic episodes, and 3) Improved communication and integration with transplant service has resulted in earlier assessment, increased rate of transplantation and a trend to lower mortality from liver failure.

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IS VAGAL INNERVATION REQUIRED FOR THE INTESTINAL TROPHIC EFFECTS OF GLUCAGON-LIKE PEPTIDE 2?

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Background: GLP-2 is an endogenous intestinotrophic hormone; its receptor and effects appear to be restricted to the Enteric, Central Nervous systems. We have shown that systemic GLP-2 affects satiety, and CNS activity via a vagal pathway. We hypothesized that vagal input may be required for the intestinotrophic effects of GLP-2.

Methods: A TPN supported rat model was used: Sham+TPN+GLP-2, Vagotomy+TPN, Vagotomy+TPN+GLP-2. (n=8/group, GLP-2 dose 10μg/kg/hr with TPN). Animals were treated for 5 days, and then euthanized; endpoints were intestinal gross morphology, microscopic morphology, nutrient transporter expression (SGLT-1, GLUT2, and GLUT5, by western blot) and cell proliferation (crypt proliferation and apoptosis, by immunostaining).

Results: The Vag+TPN+GLP-2 group showed typical intestinal trophic effects of GLP-2, with increased bowel length, weight, villous height, crypt depth, and crypt cell proliferation (all p<0.05 vs. Vag+TPN and equivalent to the sham+OR+TPN+GLP-2). Crypt depth showed an additive effect in the Vag+TPN+GLP-2 group (p<0.05) vs. Sham+TPN+GLP-2).

Conclusions: These results suggest that the intestinal trophic effects of GLP-2 do not require vagal input, and some effects are amplified by vagotomy. These findings further define the mechanism by which GLP-2 is acting on the gut, and may be useful in planning studies in humans.

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**SHH SIGNALLING DURING THE DEVELOPMENT OF URINARY BLADDER IN ETU-EXPOSED FETAL RATS**

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**Background:** Urinary bladder is developed from the anterior part of cloaca and abnormal partition and transformation of cloaca results in urinary and anorectal malformations. The objective of this study was to determine the expression pattern of *shh* in the developing urinary bladder in ETU exposed fetal rats.  

**Methods:** Pregnant Sprague-Dawley females were administered 1% ETU (125 mg/kg) on the tenth day of gestation (D10). Embryos were collected from D12-D16 and D21. Cloacal development was viewed with histology and this was followed by obtaining the cloaca (D12-13), developing urinary bladder (D14-16) and developed urinary bladder (D21) from each embryo. Dissected tissues were snap frozen, highly purified RNA was isolated and first strand cDNA was synthesized. Qualitative and quantitative PCR were done to determine the expression pattern of *shh* during each time point.  

**Results:** Serial histology sections from experimental group embryos suggested that abnormal cloacal separation results in variety of anorectal malformation associated with urinary fistula and small bladder. RT-PCR analysis (from CD12-16 and CD21) revealed expression of shh transcripts during the process of urinary bladder development in fetal rats. Relative quantification demonstrated that *shh* expression show time-dependent changes during the cloacal separation & urinary bladder development.  

**Conclusion:** Our results suggest that in ETU-exposed fetal rats, abnormal cloacal development results in anorectal malformation associated with urinary fistula. *Shh* is active during the process of cloacal separation and urinary bladder development. *Shh* down regulation during this process may contribute for occurrence and association of lower urinary tract and anorectal malformations.  

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MOTORIZED RECREATION FOR CHILDREN - NOT SOMETHING TO PLAY AROUND WITH

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Objectives: To compare childhood injuries from motorized recreation (MR) to those from bicycling and motor vehicle crashes (MVCs).

Methods: Utilizing CHIRPP data, (Canadian Hospitals Injury Reporting and Prevention Program), injuries in children (<16yrs) treated in participating Canadian emergency departments from MR (all-terrain vehicles [ATVs], dirt bikes [DBs] and snowmobiles [SMs]) were compared to those from bicycling and MVCs over an 11-year period.

Results: 41,600 cases were analyzed (71.9% bicycling, 1.1% DB, 1.0% SB, 2.7% ATVs, 23.3% MVCs). MR and MVC-related injuries, compared to bicycling, more frequently involved the head, spine, trunkal region, deep soft-tissues and internal organs (p<0.0001 for all comparisons) and were more often multi-system (2.9% of MR, 2.6% of MVCs vs. 0.6% of bicycling, p<0.0001). Fracture/dislocations and involvement of the hip and lower extremities occurred more frequently with MR (49.4% and 38.0%, respectively), than bicycling (32.2% and 23.9%, respectively, p<0.0001). MR and MVC cases required admission to hospital 3.3 and 1.7 times, respectively, more frequently than bicycling (p<0.0001), with ATV injuries bearing the highest admission rates (36.1%).

Conclusions: Although ATVs, DBs and SMs may be considered recreational for children, their associated injury patterns and severity, and utilization of health care resources more closely resemble those from MVCs than bicycling. Policy to reflect this must be developed and acknowledged by the public, industry and legislative bodies.

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THE "SEE ME WALK" PROGRAM: A SIMPLE INJURY PREVENTION PROGRAM WITH GREAT POTENTIAL FOR DECREASING THE BURDEN OF PEDIATRIC INJURY IN LOW INCOME COUNTRIES

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Background: 30% of pediatric surgical admissions in Africa are due to pedestrian injury. Testing prevention initiatives in this environment is imperative for addressing this epidemic and directing resources. "See-Me-Walk" is a collaborative research to action initiative.

Methods: The program consisted of three components: 1) distribution of reflective bands 2) educational brochures and 3) road safety lessons. Data on the use and efficacy of the reflectors in 11,600 children was collected from teachers in 40 primary schools before and after program implementation.

Results: Effectiveness: 2 pedestrian injuries were reported over the 3 month pilot period compared with 30 prior (OR=15.03)(CI: 3.53, 62.93)(p=0.0001). Acceptability: 75% of children were initially wearing the reflectors daily. By the end of 10 wks this number leveled at 55%. The entire program cost only $3000 US to implement.

Conclusions: Trauma and injury are costly to treat and often account for the majority of health care resource spending in the developing world. The pilot intervention presented in this paper reflects a potentially cheap, simple and effective effort that could drastically reduce the impact of these injuries on children and the health care systems of low income countries.

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EMERGENCE OF COMMUNITY ACQUIRED MRSA
SOFT-TISSUE INFECTIONS

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Purpose: Our objective is to describe the incidence of community acquired
methicillin-resistant Staphylococcus aureus (MRSA) and its treatment in East
Tennessee.

Methods: A retrospective chart review of 245 patients treated with incision and
drainage of a soft tissue infection from March 2000 to September 2005 was completed
after East Tennessee Children’s Review Board gave consent. 40 patients were
excluded as no cultures were completed during their hospital stay.

Results: The most common organism cultured was community acquired MRSA,
33% (67/205). Non-community acquired MRSA accounted for 4% (9/205). The age
of patients ranged from 1 month to 21 years, average 7.2 years. Stratified by year,
the incidence of positive cultures for community acquired MRSA has increased
159% since 2004 and 868% since 2003. Additionally, the average age of patients
affected has decreased from 8.3 years in 2000 to 6.1 years in 2005.

Conclusions: Community Acquired MRSA has emerged as the dominant source
of soft tissue infections regardless of site requiring incision and drainage in East
Tennessee. This has caused a change in the choice of empiric antibiotic use in our
region. These infections now account for the third most common reportable disease
to the Department of Health in east Tennessee.

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AMBIGUOUS GENITALIA: AN OVERVIEW OF
17 YEARS EXPERIENCE

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Aim: The newborn with abnormal genital development presents a difficult diagnostic and
treatment challenge for the pediatric surgeon providing care. The purpose of this study
was to evaluate the results of surgical treatment for children with ambiguous genitalia.

Methods: The records of 85 patients managed surgically for ambiguous genitalia in our
unit from 1988 to 2005 were reviewed retrospectively. Age at surgery, operative procedures,
and outcome were recorded. The mean age at surgery was 4.4 years, and follow-up period
averaged 7 years.

Results: There were 42 (49%) genotypic girls with congenital adrenal hyperplasia (CAH)
in female pseudohermaphroditism (FPH) group. Among the 24 (28%) genotypic boys in
male pseudohermaphroditism (MPH) group 9 (38%) had testosterione biosynthetic defects
or hCG unresponsiveness, 11 (46%) had either complete or parsiyel androgen insensitivity
syndrome or 5 alpha-reductase deficiency, 2 (8%) had dysgenetic MPH and 2 (8%) had
isolated MIF deficiency. There were 7 (8%) patients were in the true hermaphroditism
(TM) group and 6 (7%) patients in gonadal dysgenesis group and 3 (3%) patients with
Mayer-Rokitansky syndrome. All patients but 5 with FPH underwent clitoroplasty and
vaginoplasty. 12 patients with MPH were given a female sex assignment and underwent
gonadectomy and vaginoplasty and the remaining 12 patients were given male sex assignent
and underwent orchiopexy and hypospadias repair. All patients with gonadal dysgenesis
and 4 patients with TH were raised as girls and 3 patients with TH were raised as boys.
Ovotestes were removed and gonads and Mullerian structures were either remained or
removed due to given sex assignment. Of the 62 patients reared as females, 36 (58%)
required perineal vaginoplasty, 14 (22%) had pull-through vaginoplasty, and 12 (20%) had
colovaginoplasty. Eighteen (29%) patients with feminization procedures and 8 (34%) of
23 patients with masculinization procedures experienced complications and required redo
operations. Vaginal stenosis was the most common complication.

Conclusion: It is important that a definitive diagnosis be determined as quickly as possible
so that the appropriate treatment plan can be established to minimize medical, psychological
and social complications in patients with ambiguous genitalia.

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NECROTISING ENTEROCOLITIS AND ISOLATED INTESTINAL PERFORATIONS; PREDISPOSING FACTORS AND OUTCOMES.

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Background: To compare the predisposing factors for and surgical outcomes of Necrotising Enterocolitis (NEC) and Isolated Intestinal Perforations (IIP).

Methods: 64 neonates undergoing surgery for NEC (44) or IIP (20) were reviewed retrospectively (peritoneal drainage excluded). Primary outcome measures were surgical complications and mortality. Secondary outcome measures were predisposing factors for NEC and IIP.

Results: There was no statistically significant difference between NEC and IIP in: Gestational Age (GA), Birth Weight (BW), Surgical Complications and Mortality (table). Significant predisposing factors were lack of enteral and shorter duration of feeding in IIP (table).

<table>
<thead>
<tr>
<th></th>
<th>NEC</th>
<th>IIP</th>
<th>Odds Ratio</th>
<th>95% CI</th>
<th>P</th>
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</thead>
<tbody>
<tr>
<td>GA (median_weeks)</td>
<td>29</td>
<td>27</td>
<td>-3.8 to 0.71</td>
<td>0.177</td>
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<tr>
<td>BW (median_g)</td>
<td>925</td>
<td>945</td>
<td>-43.3 to 395.7</td>
<td>0.928</td>
<td></td>
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<tr>
<td>Surgical Complications</td>
<td>18</td>
<td>5</td>
<td></td>
<td>0.219</td>
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</tr>
<tr>
<td>Deaths</td>
<td>17</td>
<td>5</td>
<td></td>
<td>0.287</td>
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<tr>
<td>Enteral Feed</td>
<td>28</td>
<td>5</td>
<td>0.190</td>
<td>0.058 to 0.622</td>
<td>0.006</td>
</tr>
<tr>
<td>Duration Feeding</td>
<td>4</td>
<td>0</td>
<td>0.775</td>
<td>0.632 to 0.952</td>
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</tr>
<tr>
<td>(median_days)</td>
<td></td>
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<tr>
<td>UAC</td>
<td>15</td>
<td>7</td>
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<tr>
<td>UVC</td>
<td>12</td>
<td>4</td>
<td>0.667</td>
<td>0.185 to 2.4</td>
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<tr>
<td>Indomethacin</td>
<td>11</td>
<td>3</td>
<td>0.529</td>
<td>0.130 to 2.156</td>
<td>0.374</td>
</tr>
<tr>
<td>Cardiac Disease</td>
<td>19</td>
<td>9</td>
<td>1.076</td>
<td>0.372 to 3.12</td>
<td>0.892</td>
</tr>
</tbody>
</table>

Conclusion: Enteral feeding was the only significantly different predisposing factor. The surgical outcomes and mortality are similar in NEC and IIP.

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LAPAROSCOPIC OVARIAN TISSUE PRESERVATION IN MINORS WITH RISK OF OVARIAN FAILURE FOLLOWING CHEMO/IRRADIATION FOR PRIMARY MALIGNANCY

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Background: In female minors considered to be long-term cancer survivors, aggressive chemotherapy and irradiation treatment may lead to gonadal failure and infertility. The putative aim of this technique is to restore fertility either by transplantation of the frozen-thawed ovarian tissue or further into the future by in-vitro maturation of the frozen-thawed oocytes, followed by routine in vitro fertilization.

Methods: Retrospective date base review of Ethics Board approved procedure for ovarian tissue cryopreservation performed in female patients undergoing chemo/irradiation for diagnosed malignancy.

Results: Between 1998-2006, 22 females (median age 13.9) underwent ovarian tissue preservation. Eleven patients had hematological cancer, seven had bone tumors, two had ovarian tumors, two intra-cranial lesions. Ten girls were planned for future chemotherapy, 11 already had some form of chemotherapy given. Ten girls underwent bone marrow transplant. Twenty-one underwent laparoscopic harvesting of ovarian tissue and in one patient the ovary was preserved during repair of inguinal hernia. All children had a benign operative and postoperative course.

Conclusions: Since human ovarian tissue containing primordial follicles has been reported as successfully cryopreserved, we believe that this new approach is safe, may enable parenthood and serve in improving future quality of life.

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STRICTURES FOLLOWING REPAIR OF OESOPHAGEAL ATRESIA AND TRACHEO-oesophageal FISTULA

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Background: To report the development and management of oesophageal strictures following repair of oesophageal atresia (OA) and/or tracheo-oesophageal fistula (TOF), and to relate stricture formation to gastro-oesophageal reflux (GOR).

Methods: Retrospective review of all patients at a single institution treated with primary repair of OA or TOF, who survived the neonatal period from 2000–2004. Of 85 patients identified 76 were reviewed. Strictures requiring dilatation, fundoplication, tension at the primary oesophageal anastomosis and GOR were recorded. Differences were analysed by Fisher's exact test.

Results: 32 patients (43%) Developed Strictures

28 Anastomotic
4 Distal
2 Congenital
2 GOR

GOR and Anastomotic Tension Related to Stricture Development

![Chart showing GOR and Anastomotic Tension Related to Stricture Development]

GOR management:
- H2 Blockers (n=22)
- PPI (n=11)
- Prokinetic (n=20)
- Fundoplication (n=7)

Stricture management:

Dilatations per patient, median (range)
- All Patients with Stricture (n=32): 3 (1 - 8)
- Pre-fundoplication (n=7): 2 (1 - 5)
- Post-fundoplication (n=6): 0 (0 - 2)

Conclusion:
1) GOR increases risk of oesophageal strictures.
2) Strictures were not associated with tension at the primary anastomosis.
3) Most strictures are anastomotic and are managed with medication for GOR and dilatations.
4) Fundoplication in 6 of 7 patients reduced the need for repeated dilatation.

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PHYSIOLOGICAL BENEFITS OF PREFORMED SILOS IN
THE MANAGEMENT OF GASTROSCHISIS

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Background: Gastroschisis is traditionally managed by primary closure or delayed closure
after surgical silo placement. Bedside insertion of preformed silos (PFS) and delayed closure
has become more widespread with varied reports regarding outcome.

Aim: To identify differences in outcome of infants managed with PFS compared with
traditional closure techniques (TC).

and Jan. 2006. Outcome indices: time ventilated, maximum mean airway pressure (MAP),
\( FIO_2 \) and inotrope requirements in first 2 days post-abdominal wall closure; fluid requirement
and urine output (UO) in first 3 days of life; time to first and full feeds, parenteral nutrition
duration; length of stay (LOS) and complications. Non-parametric tests used for analysis
and results expressed as medians, \( p < 0.05 \) regarded as significant.

Results:

<table>
<thead>
<tr>
<th></th>
<th>Ventilation (days)</th>
<th>MAP (d 0) (mmHg)</th>
<th>MAP (d 1) (mmHg)</th>
<th>( FIO_2 ) (d 0) (%)</th>
<th>( FIO_2 ) (d 1) (%)</th>
<th>UO (d 0) (ml/kg/hr)</th>
<th>UO (d 1) (ml/kg/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PFS n=13</td>
<td>4</td>
<td>8</td>
<td>8</td>
<td>30</td>
<td>21</td>
<td>1.1</td>
<td>1.98</td>
</tr>
<tr>
<td>TC n=40</td>
<td>4</td>
<td>10</td>
<td>8</td>
<td>40</td>
<td>35</td>
<td>0.45</td>
<td>1.8</td>
</tr>
<tr>
<td>P value</td>
<td>0.16</td>
<td>.02</td>
<td>0.70</td>
<td>0.03</td>
<td>0.01</td>
<td>0.01</td>
<td>0.95</td>
</tr>
</tbody>
</table>

Inotrope support was required in 17/40 (43%) of TC versus 0/13 (0%) in PFS \( p=0.005 \). There was no difference in time to full feeds \( p=0.38 \), LOS \( p= (0.9) \) or proven septic episodes \( p=0.71 \). No deaths or episodes of NEC were seen in either group.

Conclusion: PFS use is associated with:
- Reduction in pulmonary barotrauma
- Improved early renal function and tissue perfusion consistent with reduced abdominal compartment syndrome

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LAPAROSCOPY IMPROVES THE MANAGEMENT OF RECURRENT GROIN HERNIAS IN CHILDREN.

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Background: Laparoscopy has been shown to be a useful tool in identifying unexpected types of hernia in adults, and contra lateral hernias in children. The purpose of this paper is to present our experience with a laparoscopic approach to recurrent groin hernias in children and in doing so demonstrate its utility in 1) more accurately characterizing the type of recurrence; 2) eliminating unnecessary groin exploration; and 3) performing a laparoscopic repair.

Methods: Chart review of patients with recurrent groin hernias presenting since 1996.

Results: Eleven children with clinically confirmed or suspected recurrent inguinal hernias were identified. Laparoscopy changed management of seven patients, including two patients in whom the recurrence was repaired laparoscopically. Three children had laparoscopic confirmation of the clinically identified hernia followed by open repair. In one child in whom laparoscopy could not be used due to previous abdominal surgeries, a clinically evident hernia could not be clearly identified during groin exploration, which may illustrate the benefit of laparoscopy.

Conclusions: A laparoscopic approach to children with recurrent inguinal hernia repair importantly alters management in a large proportion of patients. We propose that laparoscopic exploration should be routinely used where possible in these patients.

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CUMULATIVE DOSES OF ADJUNCT I\textsuperscript{131} TREATMENT DEPEND ON LOCATION OF RESIDUAL THYROID TISSUE AFTER TOTAL THYROIDECTOMY IN DIFFERENTIATED THYROID CANCER (DTC)

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Purpose: Review the outcome after adjunct post-op I\textsuperscript{131} therapy in patients with DTC treated with total thyroidectomy (excluding medullary thyroid carcinoma).

Methods: Retrospective chart review: management protocol is total thyroidectomy with cervical nodes sampling I\textsuperscript{131} whole body scan (WBS) 3 weeks post-op to document residual thyroid tissue or tumor. Adjunct treatment consists of I\textsuperscript{131} (100-125 mci/1.73 m\textsuperscript{2}). Patients are considered disease free if 3 consecutive I\textsuperscript{131} WBS are negative.

Results: 21 patients, 14 females and 7 males, with a mean age of 13.6 years were treated. WBS post-op revealed uptake in the thyroid bed (TB) in 10 patients, cervical lymph nodes (CLN) in 9 patients and in CLN and lungs in 2 patients. Mean number of treatment and cumulative doses of I\textsuperscript{131} are described below.

<table>
<thead>
<tr>
<th>Number of patients</th>
<th>TB</th>
<th>CLN</th>
<th>Lungs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (years)</td>
<td>13.9 ± 1.8</td>
<td>13.3 ± 2.6</td>
<td>8.5</td>
</tr>
<tr>
<td>Number I\textsuperscript{131} therapy</td>
<td>1.4</td>
<td>2.55</td>
<td>3.5</td>
</tr>
<tr>
<td>Mean dose (mci)</td>
<td>122 ± 53</td>
<td>357 ± 182</td>
<td>523.5</td>
</tr>
<tr>
<td>Survival (%)</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Disease free survival (%)</td>
<td>100</td>
<td>66</td>
<td>0</td>
</tr>
</tbody>
</table>

* p < 0.004 (T-test)

Conclusion: Patient with residual thyroid tissue in the thyroid bed required a significant less number of treatment and doses of I\textsuperscript{131} compared to patients with cervical node metastasis with a 100% disease free survival. The best management of immediate post-op residual cervical nodes (surgical excision vs I\textsuperscript{131}) remained to defined. The efficacy of I\textsuperscript{131} therapy in patients with lung metastasis remain controversial.

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MAGNETIC COMPRESSION REVISION ANASTOMOSIS FOR ANASTOMOTIC STENOSIS AFTER ESOPHAGEOSEPHAGOSTOMY FOR LONG GAP ESOPHAGEAL ATRESIA: A CASE REPORT

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Background/Purpose: Multistaged extrathoracic esophageal elongation (ETEE) technique has a great advantage to treat a long gap esophageal atresia (LGEA) patient by preserving patients' swallowing ability by continuous sham feeding through an esophagostomy. However, a frequent development of an anastomotic stenosis after definitive procedure is an annoying sequela. We successfully treated a patient for such an anastomotic stenosis by magnetic compression revision anastomosis technique (MCRA).

Methods: Case report of therapeutic technique.

Results: A 23 month-old boy underwent esophagoesphagostomy for LGEA after multistaged ETEE technique. He was complicated with esophageal stenosis refractory to balloon dilatations. At 33 months of age, the patient underwent an MCRA by intraesophageal placement of a pair of two cylindrical Samarium-cobalt rare-earth magnets, 15 mm in diameter×5 mm in thickness with 3200 gauss, compressing the scar tissue of the anastomosis. Two magnets were retrieved 33 days after procedure. Subsequent balloon dilatations were performed for 3 months for preventing re-stenosis. This patient is normally eating by mouth six months after MCRA.

Conclusion: This is the first report of a successfully treated young individual for esophageal stenosis by MCRA. MCRA is a less invasive, safe and technically easy for the treatment of postoperative esophageal stenosis.

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INFLAMMATORY MARKERS FOR ACUTE APPENDICITIS IN CHILDREN: ARE THEY HELPFUL?

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Background/Purpose. Diagnosis of acute appendicitis in children remains challenging, and the role of blood tests in the decision-making process is still unclear. We prospectively evaluated if routine inflammatory markers could contribute to exclude the presence of acute appendicitis in children.

Methods. Pre-operative WBCC (white blood cell count) and CRP (C-reactive protein) were prospectively tested in children undergoing surgery for suspected appendicitis. Surgery was indicated on the basis of clinical findings and/or ultrasound scan, but WBC count and CRP values were ignored during the decision-making process. Sensitivity of individual markers and their combinations were assessed.

Results. 100 children (55 males, 45 females) with a mean age of 9.34 (SD=3.54) years had a pathologically confirmed appendicitis. A perforated appendix was found in 23% of cases. Elevated WBCC alone had a sensitivity of 0.6 (CI: 0.506-0.694). Sensitivity of elevated CRP alone was 0.86 (CI: 0.926-0.793). Combination of both elevated WBCC and CRP had a sensitivity of 0.98 (CI: 1.0-0.953).

Conclusion. WBCC or PCR values alone do not appear to provide any useful additional information to the surgeon. However, the sensitivity of the two combined tests is extremely high and normal values of both WBCC and CRP are very unlikely in pathologically confirmed appendicitis.

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APPENDICITIS IN THE OBESE CHILD

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Background: Few studies examine the surgical challenges of obese children. We hypothesize that obesity affects the presentation, diagnosis, surgery and postoperative course in children with appendicitis.

Methods: Chart review of all children treated for appendicitis over 6 years.

Results: 282 patients included 56 moderately obese (MO) and 31 very obese (VO) (>1.5 and >2 standard deviations above the mean weight for age, respectively). Groups were similar in age, gender, presentation, perforation rate and surgical management. Compared to non-obese (NO) cases, median operative time was higher in both the MO (58.5 minutes, p=0.049) and VO groups (64 minutes, p=0.015), and remained significantly higher when stratifying for perforated/non-perforated and open/laparoscopic cases. More obese children were in hospital >5 days (NO=24.6%, MO=28.6% [p=0.49], VO=41.9% [p=0.021]); this was most evident with non-perforated cases. Amongst perforated cases, higher rates of postoperative wound infections (33% vs 7%, p=0.1), intraabdominal abscesses (67% vs 21%, p=0.03), and significantly longer times to full diet and ambulation contributed to longer stays.

Conclusions: Childhood obesity is associated with longer surgery and hospital stays, and increased risk of postoperative infections. Obesity should be considered an important variable when studying surgical outcomes in children. Pediatric surgeons must play active roles in counseling caregivers and advocating for programs to counter this new childhood epidemic.

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LAPAROSCOPIC VERSUS OPEN REDUCTION OF INTUSSUSCEPTION IN CHILDREN: A SINGLE INSTITUTION COMPARATIVE EXPERIENCE

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Background: The role of laparoscopic surgery in the treatment of intussusception has been controversial. The aim of this study was to review our institution’s experience with the laparoscopic approach (LAP) compared to the conventional open surgical approach (OPEN).

Methods: A retrospective analysis of all patients undergoing surgery for intussusception at our centre from January 2002–February 2006 was undertaken. Statistical assessment included Student’s t-test and Chi-square analysis.

Results:

<table>
<thead>
<tr>
<th></th>
<th>LAP (N=18)</th>
<th>OPEN (N=23)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (months)</td>
<td>22±45</td>
<td>11±32</td>
<td>0.17</td>
</tr>
<tr>
<td>Ileocolic intussusception</td>
<td>13/18 (72%)</td>
<td>15/23 (65%)</td>
<td>0.88</td>
</tr>
<tr>
<td>Enema reduction attempted</td>
<td>13/18 (72%)</td>
<td>17/23 (74%)</td>
<td>1.00</td>
</tr>
<tr>
<td>Operative time (minutes)</td>
<td>136±75</td>
<td>125±48</td>
<td>0.56</td>
</tr>
<tr>
<td>Pathologic lead point</td>
<td>6/18 (33%)</td>
<td>8/23 (35%)</td>
<td>1.00</td>
</tr>
<tr>
<td>Complications</td>
<td>4/18 (22%)</td>
<td>6/23 (26%)</td>
<td>1.00</td>
</tr>
<tr>
<td>Time to full feeds (days)</td>
<td>3.4±2.7</td>
<td>5.6±3.4</td>
<td>0.02*</td>
</tr>
<tr>
<td>Length of stay (days)</td>
<td>4.8±3.5</td>
<td>9.1±7.5</td>
<td>0.03*</td>
</tr>
<tr>
<td>Conversion to open procedure</td>
<td>5/18 (28%)</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

NA=not applicable; *statistically significant

Conclusions: Intussusception can be treated safely and effectively using a laparoscopic approach with a significant decrease in time to full feeds and length of stay. The laparoscopic approach should be considered as the initial approach for all stable patients with intussusception requiring operative intervention.

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EVALUATION OF SURGICAL APPROACHES TO PYLORO-MYOTOMY: A SINGLE-CENTER EXPERIENCE

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Background: To evaluate the outcome of various approaches to pyloromyotomy: supra-umbilical (SU); right-upper quadrant (RUQ) and laparoscopic (LP).

Method: Single-center retrospective review from 1998-2005 (IRB approved), evaluating 192 pyloromyotomies based on surgical approach: RUQ (119), SU (64) and LP (9). Patient demographics, acid-base/electrolyte status on presentation, mean operative time (MOT), post-operative length of stay (LOS) and complications were evaluated.

Results: Patient demographics, acid-base/electrolyte status and MOT were not significantly different. Median LOS was 34, 29, 24.5 hours for SU, RUQ and LP respectively (P= 0.479). The frequency of duodenal/gastric perforations in the SU, RUQ, and LP groups were 1, 4 and 1, respectively. The LP perforation was not recognized intra-operatively resulting in sepsis and multi-organ failure. One patient in the SU group had a late adhesive bowel obstruction requiring laparotomy and bowel resection. Wound infection rates did not differ significantly between groups (SU=4; RUQ=2; LP=1; P= 0.113).

Conclusion: Pyloromyotomy is associated with a low complication rate. Cosmetically SU is superior to the RUQ approach. The added benefits of being able to examine the integrity of the duodenal mucosa intra-operatively and its short learning curve may make it a safer alternative to LP for surgeons still practicing the RUQ approach.

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A COMPARISON OF TUBE THORACOSTOMY VERSUS BULB SUCTION DRAINS IN THORACIC SURGERY

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Background/Purpose: Tube thoracostomy is commonly utilized to evacuate postoperative pneumothorax or pleural effusion following thorascopic (VATS) and open thoracic operations. While traditional chest tubes (CT) are effective, they are stiff and often painful. Bulb suction drains (BD) are soft and usually cause less discomfort. This study examines the efficacy of CT versus BD in the postoperative management of pediatric patients undergoing thoracic procedures.

Methods: A retrospective review was performed of all patients who required non-cardiac, non-traumatic thoracic operations from January 2000 to December 2005. Patients were divided into 2 groups: CT or BD. Patient data included age at operation, indication for surgery, and open/thorascopic approach. Other data included development of post-removal pneumothorax and number of days of drainage. Statistical comparisons between the two groups were made utilizing t-test and Chi-square test where significance was defined as p < 0.05.

Results: During the study period, 194 patients underwent a thoracic operation. Four patients were excluded due to loss of follow-up. Of the remaining 190 patients, 124 (65%) received a CT (59% VATS, 41% open) while 66 (35%) received BD (33% VATS, 66% open). CT patients required on average 5.5 days of drainage compared to 4.4 days in the BD group. A post-removal pneumothorax developed in 6 (5%) patients with CT compared to 4 (6%) patients with BD. In the CT patients with post-pull pneumothorax, 3 patients required placement of additional CT. None of the BD patients required further intervention. None of the comparisons met statistical significance.

Conclusion: Tube thoracostomy remains a mainstay in the post-operative management after thoracic surgery. Soft BD is as efficacious as traditional CT for the evacuation of post-operative pneumothorax and/or effusion.

Sponsoring CAPS member: Dr. David Sigalet

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A CONTEMPORARY EVALUATION OF SURGICAL OUTCOME IN NEONATES AND INFANTS UNDERGOING LUNG RESECTION

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Purpose: Timing and need for resection of asymptomatic congenital lung lesions is controversial. The safety of resection is paramount in decision-making. We evaluated the outcome of all neonates and infants undergoing lung resection.

Methods: All patients ≤12 months of age who underwent lung resection between 1995-2004 in two hospitals were reviewed. Demographic data, indications for surgery, operative procedure, complications, length of stay (LOS) and follow-up were assessed. Chi-square and Student t-test were used for statistical analysis.

Results: Forty-four patients (27 male:17 female) with a median age of 4 months (2 days-12 months) were evaluated. Congenital lesions (41) were the most frequent indication for surgery. Twenty-two patients (50.0%) had cardio-respiratory symptoms/infection pre-operatively. Lobectomy was the most common operation (39/44). Post-operative complications occurred in 10 patients, most commonly prolonged air leak/drainage (7). Fewer complications occurred in asymptomatic patients (3/22 vs. 7/22). Seventy-five % of patients requiring ≥24 hours of ventilation were ≤3 months old. Median LOS was 7 days (2-89 days). Asymptomatic patients had shorter LOS (median 4 days; 2-20 days; p=0.031). Two deaths occurred from underlying heart disease. Mean follow-up of 23 months (0.5-120 months) revealed no subjective reduction in cardio-pulmonary function.

Conclusions: Lung resection is safe and well tolerated in infancy. Surgery should be scheduled before the development of symptoms but after 3 months of age to reduce prolonged post-operative intubation.

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TRACHEAL OCCLUSION UPREGULATES LATE GESTATION LUNG-1 (LGL1), BUT NOT SONIC HEDGEHOG (SHH) EXPRESSION IN THE FETAL RAT

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³ Montreal Children’s Hospital Research Institute
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Background/Purpose: To clarify how tracheal occlusion (TO) affects lung growth, we investigated its effect on two molecular markers of lung development: Sonic Hedgehog (Shh), - expressed during the pseudoglandular stage of lung development, and Late Gestation Lung-1 (LGL1) - maximally expressed during the saccular and early post-natal period.

Methods: Tracheal occlusion was performed on 3-4 fetuses per rat dam on gestational day 19. Groups harvested on fetal day 21 include: Tracheal Occlusion (TO), sham operated controls (Sham), and unoperated controls. Quantitative real-time PCR (RT-PCR), for LGL1 and Shh was performed on lung mRNA (all groups n>4).

Results: Shh mRNA expression was not affected by TO or Sham operation as compared to controls (0.89 95%CI 0.63-1.53, p>0.5) and (0.67 95%CI: 0.38-1.33, p>0.5), respectively. LGL1 mRNA levels were increased in the Sham group (3.39 95%CI 1.63-7.63, p<0.05), and were significantly more upregulated in the TO group (4.69 95%CI: 2.75-9.4, p<0.01).

Conclusion: The unchanged Shh expression profile after TO suggests that the procedure does not promote terminal bronchiole proliferation characteristic of the pseudoglandular stage of lung development. LGL1 upregulation after Sham operation suggests a stress-induced acceleration in late lung development, while the greater increased expression after TO supports a secondary stress-independent mechanism.

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CLINICAL IMPACT OF OPTICAL IMAGING WITH 3D RECONSTRUCTION OF TORSO TOPOGRAPHY IN COMMON ANTerior CHEST WALL ANOMALIES

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Background: Standard modalities to assist in determining the extent of the chest wall developmental deformities include X-ray and CT. We report the use of new optical imaging for the assessment of common chest wall deformities.

Patients and Methods: Ten selected patients (5 pectus excavatum and 5 pectus carinatum) underwent modified chest CT and torso optical imaging. Severity index of the deformity using the Haller Index was calculated from CT scans. A similar severity measurement of deformity was derived from the outline of torso cross-sections (i.e., from skin to skin measurements) obtained from optical images. For pondering the discrepancy in the AP measurement between the two modalities a modified Haller Index (HImod) was developed. We performed a linear regression between indices obtained from CT and optical images.

Results: Torso surface indices correlated well with standard HI (R=0.989) and correlated almost perfectly with the HImod (R=0.998). Adaptation of the HI for pectus carinatum deformity evaluation was effective, and consistent with the torso surface deformity measures.

Conclusions: Torso models from optical imaging provide 3D images of the chest wall deformity without exposure to radiation. This preliminary study showed promising results for the use of torso surface measurement as an alternative index of pectus deformities.

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EXTRA HEPATIC PORTAL VEIN OBSTRUCTION (EHPVO) RESULTS IN HEPATOCYTE PROLIFERATION BUT A DECREASE IN PROTEIN-C SYNTHESIS

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Purpose: EHPVO results in decreased levels of liver-dependent coagulation factors in children. We developed a rat model to test the hypothesis that lower factor levels associated with EHPVO were from diminished synthesis rather than increased consumption.

Methods: Eight rats (experimental group) underwent narrowing of portal vein (PV) and eight underwent sham operations. Liver and spleen mass, serum ALT, bilirubin, ammonia, prothrombin-time, factor-VII, and protein-C were measured before and three months after PV narrowing. Hepatocyte proliferation and apoptosis was quantified using Ki-67 and TUNEL-assays.

Results: PV diameter was 71.13% narrower in experimental animals. Liver mass was unchanged, but proportional spleen mass was higher in the experimental group at three months (0.31±0.05% vs. 0.26±0.04%, p<0.05). Percent apoptotic cells at three months was similar in both groups (0.14±0.08% vs. 0.13±0.07%) but percent proliferating cells was higher in the experimental group (0.63±0.17% vs. 0.34±0.11%, p<0.05). Three month protein-C levels decreased significantly only in the experimental group compared to pre-operative values (12.8±4.4% vs. 7.6±5.1%, p<0.05). Changes in other parameters were not significant.

Conclusions: Our EHPVO model consistently produced PV narrowing. The increase in hepatocyte proliferation seen after EHPVO suggests a liver repair response that is insufficient to maintain normal protein-C synthesis and serum levels.

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PRIMARY LIVER CANCERS IN CHILDREN: APPRAISAL OF AN INSTITUTIONAL OUTCOME

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Background: We reviewed our outcomes in the treatment of primary liver cancer (PLC) over the past three decades.

Methods: An IRB-approved review from 1975-2005 identified patients d’18 years old with histologically confirmed diagnoses of PLC.

Results: Fifty-two patients with PLC consisted of hepatoblastoma (HB) in 46%, hepatocellular carcinoma (HCC) in 42%, and other histologies in 12%. Forty-five patients (87%) underwent major resections: lobectomy (48%), trisegmentectomy (21%) and liver transplantation (6%). Children Oncology Group (COG) stages after treatments were: I-60%, II-11.5%, III-17% and IV-11.5%. Complete gross resection (I and II) was achieved in 71% of patients. Perioperative mortality and morbidity rates were 0% and 29%, respectively. The five-year disease specific survival (DSS) was 62% with complete resection compared to 9% for incomplete resection (p<0.001). Patients treated from 1995-2005 had better five-year DSS (68% vs. 32%) and median survival (117 vs. 27 months) compared to those treated during 1975-1994 (p=0.032). Three patients who underwent transplantation for conventionally unresectable disease are alive.

Conclusion: Complete resection of pediatric PLC remains the cornerstone of treatment. Children treated in the recent decade had improved DSS. Living donor liver transplantation in conjunction with chemotherapy may have an increasing role in the management of locally advanced PLC.

Table 1. Treatment Outcome

<table>
<thead>
<tr>
<th>Disease-specific Survival</th>
<th>Median (month)</th>
<th>5-year (%)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>all patients</td>
<td>49</td>
<td>47%</td>
<td>—</td>
</tr>
<tr>
<td>hepatoblastoma vs. hepatocellular carcinoma</td>
<td>86 vs. 23</td>
<td>55% vs. 30%</td>
<td>0.073</td>
</tr>
<tr>
<td>complete vs. incomplete gross resection</td>
<td>216 vs. 18</td>
<td>62% vs. 9%</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>treated between 1995-2005 vs. 1975-1994</td>
<td>117 vs. 27</td>
<td>68% vs. 32%</td>
<td>0.032</td>
</tr>
</tbody>
</table>

1. Kaplan-Meier method was used for survival analysis. Log-rank was used to test for statistical difference.

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OUTCOMES OF RETROPERITONEAL SARCOMAS IN CHILDREN.

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Background: We review our experience with pediatric retroperitoneal sarcomas.

Methods: An IRB-approved review from 1975-2005 identified patients <18 year old with histologically confirmed retroperitoneal sarcoma.

Results: Twenty-one patients with histologically confirmed retroperitoneal sarcoma were identified with rhabdomyosarcoma (n=7) and fibrosarcoma (n=7) being the most common. Fourteen patients (67%) had locoregional organs involvement. Fifteen patients (71%) underwent primary or secondary surgical resection, another 15 (71%) received neoadjuvant/adjuvant chemotherapy, and 8 patients (38%) received radiation. A multimodal approach (chemoradiation + surgical resection) achieved complete resection in 10 patients (48%). The five-year disease-specific survival (DSS) for patients with complete versus incomplete resection was 90% vs. 36% (p = 0.018), respectively. Low-grade tumors had a significantly better five-year DSS 90% versus 36% when compared to higher grade tumors (p = 0.008). Half of those patients achieving complete resection at their initial operation had a recurrence at a mean time of 88 ± 52 months (range: 3-261 months). Postoperative mortality and morbidity were 0% and 24%, respectively.

Conclusion: Retroperitoneal sarcomas in children should be managed using a multimodal approach including chemotherapy, radiation and surgery. Ability to achieve complete resection and low histologic grade are associated with better survival.

Figure 1. Kaplan-Meier curves showing disease-specific survival for patients with complete (squares) versus incomplete (circles) resection of retroperitoneal sarcoma.

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TOTAL THYROIDECTOMY WITH ROUTINE ADJUVANT I\textsuperscript{131} THERAPY DOES NOT ALTER OVERALL SURVIVAL IN PATIENTS WITH WELL DIFFERENTIATED THYROID CANCER (WDTC)

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Purpose: To compared two periods (I – 1968-1988) (II – 1990-2005) in the management of WDTC (excluding medullary thyroid carcinoma) at the same institution.
Methods: Retrospective chart review overlooking a different management protocol in period I and II. Period I: Thyroid preserving surgery with selective use of adjuvant I\textsuperscript{131} therapy. Period II: Routine total thyroidectomy and I\textsuperscript{131} whole body scan (WBS) followed by I\textsuperscript{131} treatment. Patients are considered disease free if 3 consecutive I\textsuperscript{131} WBS are negative.
Results: 36 patients, 11 boys and 25 girls were treated.

<table>
<thead>
<tr>
<th></th>
<th>Period I</th>
<th>Period II</th>
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<tbody>
<tr>
<td>Number of patients</td>
<td>15</td>
<td>21</td>
</tr>
<tr>
<td>Mean age (years)</td>
<td>13.6</td>
<td>12.7</td>
</tr>
<tr>
<td>Surgical treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• lobectomy</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>• subtotal thyroidectomy</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>• total thyroidectomy</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>Nodal mets (%)</td>
<td>5 (33)</td>
<td>9 (43)</td>
</tr>
<tr>
<td>Lung mets (%)</td>
<td>2 (13)</td>
<td>2 (10)</td>
</tr>
<tr>
<td>Adjunct I\textsuperscript{131} treatment (%)</td>
<td>6 (40)</td>
<td>21 (100)</td>
</tr>
<tr>
<td>Survival (%)</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Disease free survival (%)</td>
<td>-</td>
<td>76</td>
</tr>
</tbody>
</table>

The median number of treatments and cumulative I\textsuperscript{131} doses per patient in period II are 2 (range 1-5) and 200 mci (range 30-763) respectively leading to a disease free survival of 76%.

Conclusion: Total thyroidectomy followed by I\textsuperscript{131} therapy does not improve survival but permits a better follow-up with probably an improved disease free survival without exposing these patients to toxic dose of I\textsuperscript{131} or to an increase in surgical complications.

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CLINICAL PATHWAYS AND RESOURCE UTILISATION IN THE MANAGEMENT OF MINOR HEAD TRAUMA IN CHILDREN

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Purpose: Review management and resource utilisation of patients with minor head trauma since the implementation of a clinical pathway consisted of emergency room (ER) observation, restricted use of plain X-rays, CT scan and in hospital admission.

Methods: Retrospective chart review of all patients seen in ER after a fall of less than 1 m from January 2004 to December 2005.

Results: 417 patients (205 boys and 212 girls) with a mean age of 9.8 months (2 weeks – 32 months) were seen after a documented domestic fall. The neurologic exam was normal in all patients. Of 153 (37%) skull X-rays done, 15 (10%) demonstrated a skull fracture. Thirteen patients (3%) had a head CT scan and only one was positive (0.2%) for an intracranial injury (subdural hematoma and a subarachnoid hemorrhage). Eight patients (2%) required in hospital admission for a mean stay of 1.2 days. No patient was readmitted or reevaluated for a missed injury.

Conclusion: Children rarely sustained significant intracranial injury after a domestic fall. Skull fractures occurred in 10% of these patients. Head CT is rarely positive and should not be used routinely in the overall management. The majority of patients can be discharged after a 6 hours observation in the ER.

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IMPART OF WAIT- TIME ON OUTCOMES IN INFANT INGUINAL HERNIAS

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Introduction: The Canadian Association of Pediatric Surgeons (CAPS) recommends that inguinal hernia (IH) repair preferably be undertaken within a week of diagnosis. Several studies have documented prolonged wait-times (WT) for surgical procedures in Canada. We compared a Canadian vs. an American center in order to determine if there is an increased rate of incarceration and adverse outcomes related to WT.

Methods: Data were collected for children under the age of 2 who presented with IH to either the emergency room or clinic in a Canadian and an American teaching hospital from 2002 to 2003. Univariate and multivariate analyses were performed.

Results: Children in Canada waited longer for hernia repair, and were more likely to present to the emergency department. Incarceration was more prevalent in the Canadian hospital. Only 16% of Canadian children met the CAPS 7 days recommendation.

<table>
<thead>
<tr>
<th></th>
<th>Canada (n=160)</th>
<th>US (n=236)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at 1st consult (mo) **</td>
<td>10.09</td>
<td>6.58</td>
</tr>
<tr>
<td>Time on waitlist (d)**</td>
<td>98.59</td>
<td>27.20</td>
</tr>
<tr>
<td>Incarceration**</td>
<td>41.5%</td>
<td>11.5%</td>
</tr>
<tr>
<td>Preclinical ER**</td>
<td>51.2%</td>
<td>17.3%</td>
</tr>
<tr>
<td>CAPS recommendation*</td>
<td>15.8</td>
<td>29.9%</td>
</tr>
</tbody>
</table>

* p< 0.05 ** p<0.001

Conclusion: Prolonged wait-time for inguinal hernia repair in infants is associated with a significant increase in incarceration. Population-based studies documenting pediatric surgical wait-times and their correlation with morbidity are required, and strategies to shorten wait-time are urgently needed.

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AMNIOEXCHANGE FOR FETUSES WITH GASTROSCHISIS: IS IT EFFECTIVE?

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Background/Purpose: Amniotic fluid (AF) of fetuses with gastroschisis contains inflammatory mediators, gastrointestinal, and urinary waste products. Dilution and removal of such harmful substances have been advocated to prevent damage to the herniated intestine. We evaluated the effectiveness of serial amnioexchange procedures in 7 consecutive fetuses with gastroschisis.

Methods: Amnioexchange was performed by-monthly during the third trimester. AF collected before each procedure was tested for urea, creatinine, cystatin-C, proteins, albumin, bilirubin, biliary acids, PCR, pancreatic amylase, GOT, GPT, GGT, TNF-alfa, IL-2, myeloperoxidase, EGF, TGF-beta.

Results: A total of 24 samples (median: 3 per fetus) were examined. Biochemical or inflammatory markers did not correlate with gestational age, except an increase in myeloperoxidase (marker of neutrophil activity, p=0.036; r=0.460). Similarly, no trend was seen in values from individual patients during the course of amnioexchange treatment. There was no correlation between biochemical or inflammatory markers and clinical outcome, including time to full enteral feeding.

Conclusion: Serial amnioexchanges did not modify the biochemical or inflammatory status of AF, nor appeared to prevent injury to the herniated gut. Since repeated amnioexchanges may carry some risks, their use in fetuses with gastroschisis is not recommended outside the setting of a prospective randomised trial.

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DISTRIBUTION OF INTERSTITIAL CELLS OF CAJAL IN OESOPHAGEAL ATRESIA

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**Background/Purpose:** Alteration of number and structure of interstitial cells of Cajal (ICC), considered the intestinal pacemaker, occurs in several gastrointestinal malformations with altered peristalsis. Presence and distribution of ICC in oesophageal atresia (EA) has not been previously reported.

**Methods:** Nine specimens from upper pouch and fistula of infants with EA and seven age-matched controls were processed for H&E and c-kit immunohistochemistry. C-kit staining was evaluated by two independent observers using a visual score (Low, Medium, High frequency of ICC). Results were validated by morphometry using the CYRES program. Data were analysed using Fisher’s exact test and Student’s t-test.

**Results:** Frequency of ICC in controls-proximal was High (n=5) and Medium (n=2), controls-distal High (n=3) and Medium (n=4); upper pouch High (n=2) and Medium (n=7), fistula Medium (n=3) and Low (n=6). Comparison of proximal/upper (p=0.0006) and distal/fistula (p=0.005) was statistically significant. Morphometry confirmed these results. Three patients, with pathologic pH-study, had a statistically lower frequency of ICC in the fistula compared to patients with normal pH-study.

**Conclusion:** Density of ICC is statistically lower in EA than controls, the lowest density being in patients with abnormal pH-study. These preliminary data may be considered in the pathogenesis of oesophageal dysmotility observed in EA patients.

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INTRA VENOUS VASOACTIVE INTESTINAL POLYPEPTIDE LOWERS PVR/SVR RATIO IN A NEONATAL PIGLET MODEL OF PULMONARY ARTERIAL HYPERTENSION

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Background: Previous studies of vasoactive intestinal polypeptide (VIP) demonstrated its potent vasodilative effects on pulmonary and systemic circulations. This study explores the overall hemodynamic effects of VIP in a neonatal piglet model of pulmonary arterial hypertension (PAH).

Methods: Forty 6-8 week-old piglets were randomized to 4 equally-sized groups; Control, VIP, PAH, and PAH+VIP. Subjects were anesthetized and acutely instrumented to monitor heart rate, cardiac index, right and left atrial, systemic and pulmonary arterial pressures (HR, CI, RAP, LAP, SAP, and PAP respectively), SaO₂ and SVO₂. Pulmonary to systemic vascular resistance ratio (PVR/SVR), and oxygen extraction index (O₂EI) were calculated. PAH was induced in PAH and PAH+VIP groups by the instillation of meconium solution in the trachea. VIP and PAH+VIP groups were infused 100ng/kg/min of VIP intravenously. Control and PAH groups received equal amounts of saline infusions instead.

Results: VIP infusion slightly lowered SAP and PAP without causing any significant changes in PVR/SVR in subjects with normal PAP (0.240 vs. 0.253, p=0.928); however, it markedly decreased PVR/SVR ratio in PAH subjects (0.430 vs. 0.573, p=0.004).

Conclusion: This study suggests an overall pulmonary vasodilatory effect of VIP on PAH subjects, with insignificant hemodynamic effects on subjects with normal PAP.

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FETAL ALERT NETWORK (FAN): AN INTEGRATED NETWORK OF POPULATION-BASED FETAL CARE; LINKING CONCEPTION TO OUTCOME

Fetal Alert Network*, Ontario

Background: Fetal diagnosis and intervention are changing the nature and natural history of many congenital anomalies we treat today. Given the small cohort numbers and complexity of many congenital anomalies, an integrated network of accurate and timely information sharing is essential for evidence-based best clinical practice and outcomes.

Methods: A population-based real-time provincial database by trans-disciplinary team of antenatal care providers consisting of all 5 perinatal centers and affiliated pediatric-subspecialties providing care was established.

Results: 832 cohorts of pregnant women referred for fetal anomalies were registered between April 2, 2005 and March 31, 2006. Maternal characteristics indicate that the mean age was 30±6.2 yr; spontaneously conceived (> 90%); no predisposing genetic history (> 90%). The mean time of initial diagnosis was 21 weeks GA while the mean time of referral was 24.6 wk GA. > 50% of patients had no antenatal screening. Geographical mapping demonstrates regional differences in fetal anomalies prevalence, practice differences and clinical outcomes. Anomalies involving thoracic and abdominal anomalies comprised < 10 %.

Conclusions: Accurate, precise, and real-time collection of fetal care and health systems utilization information establishes a new benchmark, and reveals some critical deficiencies such as lack of antenatal care and delayed referral for fetal anomalies in Ontario.

*Fetal Alert Network (FAN): Rory Windrim, Greg Ryan, Renato Natale, Brian Cameron, Juan Bass, Leslie Scott, Sarah Jones, Des Bohn, Joe Dooley, Mary-agnes Beduz, Mark Walker, Graham Smith, David Chitayat, Ann Summers, Alan Bocking, Patrick Mohide, Stephanie Windsor, Phil Wyatt, Charlotte Etue, Cathy Ottenhoff, Monica Poole, Mandy Weselak, Lindsay Pollard, Loshi Shan, and Peter C. W. Kim

Sponsoring Member: Peter C. W. Kim

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URINARY GLYOCOSAMINOGLYCAN LEVELS IN INTESTINAL ISCHAEMIA

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Background: Delayed diagnosis of intestinal gangrene increases morbidity and mortality. Glycosaminoglycans (GAGs) are widely distributed in neonatal intestine and have been suggested as putative marker for early gut ischaemia.

Methods:
Animals: Male rats underwent laparotomy. Mesenteric arteries occluded in surgical animals (Group A). Controls (Group B) underwent sham laparotomy. Urine sampled prior to intestinal ischaemia (II) and following reperfusion.
Human infants: Infants who underwent laparotomy for intestinal ischaemia and matched controls had urine samples collected.

Results:
Nine rats; (Group A; n = 5, weight 277g. Group B; n = 4, weight 261g). There were no differences in GAG/Cr.
Fourteen infants; 9 underwent laparotomy for intestinal ischaemia, 5 controls. No GAG/Cr differences. On electrophoresis, 7/9 infants with gangrenous bowel had dense Heparan Sulphate (HS) compared to 2/5 with a mild increase.

Conclusions
- Rats and human infants with intestinal ischaemia were not distinguished from controls by urinary GAG/Cr
- Electrophoresis demonstrated increased density of urinary HS in intestinal gangrene compared with controls

Sponsoring CAPS member: Agostino Pierro

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THE TWO STEP: AN APPROACH TO REPEATING
A SERIAL TRANSVERSE ENTEROPLASTY

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Purpose: The STEP procedure is a successful and safe approach to lengthening bowel in children with short bowel syndrome (SBS). However, post lengthening dilatation may occur which can lead to bacterial overgrowth and malabsorption. We addressed this problem in two patients who developed such a problem after a STEP procedure.

Methods: Two infants underwent a STEP procedure at birth and at four months of life for SBS secondary to gastroschisis. Patients' small bowel length was 20 and 32 centimeters (cm) before, and 38 cm and 52 cm after the STEP. Nine and 12 months afterwards the patients developed dilatation of the small bowel and feeding intolerance. A second STEP procedure was undertaken with additional transverse firings of staplers between previously lengthened segments and tapering of redundant blind ending portions of bowel.

Results: At operation the bowel length was 45 cm and 62 cm. The second STEP left the patients with 61 cm and 73 cm of small bowel with a diameter of 1.5 cm. The first patient is doing well 1 month following the surgery, and the second child tolerated increased enteral intake, however, died 1 year later from TPN related liver failure.

Conclusions: This is the first report of a successful application of a second STEP procedure to further lengthen small bowel in SBS patients. Reapplication of the stapler creates small blind ending segments which must be tapered to avoid further stasis.

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PREEMPTIVE REGIONAL ANALGESIA IN UMBILICAL HERNIA REPAIR IS IT REALLY IMPORTANT?

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The value of preemptive regional analgesia and the method to apply it during umbilical hernia repair was studied regarding hemodynamic stabilization and abdominal wall relaxation. Group A(20 patients) received bilateral subcostal regional infiltration with periumbilical infiltration. Group B(20 patients) received bilateral intra rectus abdominis muscle infiltration and periumbilical infiltration. Control group received periumbilical infiltration analgesia at the end of surgery. Preemptive analgesia applied in group A and B 11.15±2.3 minutes prior to surgery start. Level of general anesthesia (MAC=2.8), and surgical technique were identical in all groups. Heart rate(HR), blood pressure(BP), respiratory rate(RR) and abdominal wall relaxation(AWR) were recorded before surgery (base line observation-BLO) and at five additional observation points(OP) through surgery.

Results: a significant raise regarding HR was noted between BLO and all OP within all groups although it was markedly higher in the control group.

<table>
<thead>
<tr>
<th>HR</th>
<th>Control</th>
<th>GroupA</th>
<th>GroupB</th>
</tr>
</thead>
<tbody>
<tr>
<td>OP3−BLO Mean(S.E.)</td>
<td>39.6(4.44)**</td>
<td>5.45(2.07)**</td>
<td>3.85(1.31)**</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Time3 Adj.Mean(S.E.)</th>
<th>Diastolic</th>
<th>Systolic</th>
<th>HR</th>
<th>RR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>68.99(1.70) A<strong>B</strong></td>
<td>113.37(2.19) A<strong>B</strong></td>
<td>122.42(2.94) A<strong>B</strong></td>
<td>48.33(1.04) A<strong>B</strong></td>
</tr>
<tr>
<td>GroupA</td>
<td>56.45(1.22) B**</td>
<td>94.96(1.56) B(ns)</td>
<td>87.96(2.10) B(ns)</td>
<td>40.57(0.75) B(ns)</td>
</tr>
<tr>
<td>GroupB</td>
<td>51.04(1.19) B**</td>
<td>95.22(1.56) B(ns)</td>
<td>86.99(2.09) B(ns)</td>
<td>40.28(0.75) B(ns)</td>
</tr>
</tbody>
</table>

**p<0.01

Abdominal wall relaxation achieved satisfying level through surgery in group A and B and was significantly better than in the control group (p<0.01).

Conclusion: Preemptive analgesia in umbilical hernia repair using rectus abdominis muscle with periumbilical infiltration achieves the best abdominal wall relaxation during surgery and reduced patient’s hemodynamic stress response.

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AESTHETICS: THE GROIN CREASE INCISION FOR INGUINAL HERNIA REPAIR IN GIRLS

Lall A, Morabito A, Bianchi A
Department of Pediatric Surgery/Urology, Royal Manchester Children Hospital, Manchester, United Kingdom

Background: Inguinal hernia in female is a benign condition that carries minimal morbidity and mortality. The Authors describe their experience using the lower groin crease incision.

Methods: A 1 cm incision was made in the natural skin crease between the medial thigh and the body, parallel to the vulva. Blunt dissection in upward direction beneath the subcutaneous tissue, exposes the hernia’s sac and the external inguinal ring, and gives access to the inguinal canal. The hernia’s content is easily inspected and reduced. Tension on the sac, allows the necessary high ligation and division of the patent processus. A wide external inguinal ring can be oversewn under direct vision.

Results: Over the last 14 years, 356 girls underwent hernia repair (148 bilateral; 208 unilateral). The total number of herniotomies was 504. At follow up there has been one recurrence. The scar is imperceptible in the crease.

Conclusion: Herniotomy through the low groin crease incision is safe and effective. Operation time is similar or less compared to the conventional approach. Surgery is performed under direct vision and has the advantage of providing a scarless abdomen because better education and increasing sophistications have lead to a higher aesthetic expectation by the public.

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LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING IN ADOLESCENT: SAFETY AND EFFICACY

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Background: Obesity prevalence is rapidly increasing among children and adolescents worldwide. It is considered one of the most alarming public health issues facing the world today. The adult experience has demonstrated that surgery is the only effective means of achieving persistent weight loss in obese patients. However, little is known about bariatric surgery in children and adolescents. The aim of this study is to evaluate the safety and efficacy of laparoscopic adjustable gastric banding (LAGB) in this group of patients.

Methods: A retrospective review included all children and adolescent who underwent laparoscopic adjustable gastric banding from January 2003 to December 2005.

Results: 51 patients underwent LAGB. Mean age was 16.8 (9-19) years and mean BMI was 49.9 (38-63) kg/m2. Mean excess weight loss was 42% at 6 months and 60% at 1 year follow up. The most prevalent co-morbidities were obstructive sleep apnea, limited physical activities, hypertension, and diabetes mellitus. Band adjustments were performed under fluoroscopic guidance in 5 patients and direct access as a clinic procedure in the remaining. One patient required port repositioning under fluoroscopic guidance. The mean follow-up was 16 (3-34) months. There was no mortality or significant postoperative complications.

Conclusion: The absence of significant nutritional deficiency, the continued adjustability, and potential reversibility of LAGB make it the safest, least invasive and most effective bariatric surgery that can be offered to the young and adolescent population.

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MONITORING DIAGNOSTIC ACCURACY AND COMPLICATIONS: A REPORT FROM CHILDREN'S ONCOLOGY GROUP HODGKIN'S LYMPHOMA STUDY

P F Ehrlich MD MSc, D L. Friedman MD, C Schwartz MD
Department of Pediatric Surgery and University of Michigan Ann Arbor Michigan, Fred Hutchinson Cancer Research Center University of Washington and Department of Pediatrics Brown University Rhode Island USA, Children Oncology Group Hodgkin's Lymphoma study section.

Introduction: Cancer studies mandate quality assurance (QA) programs for clinical trials. Surgeons play two roles in the treatment of lymphoma; diagnosis and central access for therapy. A surgical QA program was embedded as part of the of the Hodgkin's Lymphoma study (AHOD00031) to assess diagnostic accuracy and complications.

Methods: Surgical checklists, operative and pathology reports were reviewed concurrently. Diagnostic technique, success rate, location of biopsy, combined procedures under one anesthetic and complications are reported.

Results: One hundred and eighty-five cases were reviewed with 169 having complete data. Diagnostic techniques included open biopsy (N=148), CT guided core guide biopsy (N=5), thoracoscopic/laparoscopic biopsy (N=10) and Fine Needle Aspirations FNA (N=4). No staging laparotomies were performed. Biopsy sites included cervical (133), mediastinal (18), axillary (7) and other (11). Diagnostic accuracy was 145/148(98.5%) for the open biopsy, 4/5 core biopsies (80%), 6/10 (60%) thoracoscopic/laparoscopic cases and 1/4 FNA (25%). Eighteen had mediastinal disease only, 9 of whom had a thoracoscopic biopsy with a 55% diagnostic accuracy. Inadequate sample was the only reason for a lack of diagnosis. A second open operation was required in these cases for diagnosis. At biopsy, frozen section confirmed a malignancy in 68, 38/68 of these children had central line was placed during the same anesthetic. The most common complication was inadequate sampling. Three wound infections were reported.

Conclusions: Diagnostic accuracy is high and complications low children with Hodgkin's lymphoma. Diagnostic technique should ensure accurate tissue sampling especially when not using an open procedure. When possible central line insertion should be performed under the same anesthetic. FNA does not aid in the management of children with in children with Hodgkin's lymphoma.

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EXCISION OF LARGE CYSTIC OVARIAN TUMORS: COMBINING MIS TECHNIQUES AND CANCER SURGERY - THE BEST OF BOTH WORLDS

P F Ehrlich MD MSc.; D H Teitelbaum; R B Hirschl and F Rescorla
Departments of Pediatric Surgery University of Michigan Ann Arbor Michigan and Department of Pediatric Surgery J W Riley Hospital Indianapolis Indiana

Purpose: Cystic ovarian lesions can be massive and preoperative evaluations cannot distinguish benign from malignant tumors. Up to 57% of malignant ovarian tumors have a cystic component. We present an approach to these neoplasms that adheres to oncologic principles using minimally invasive techniques.

Methods: A 5cm Fannenstiel incision is performed followed by peritoneal washings. The mass is identified and dried. Dermabond® is applied to a 3x3cm of the capsule and to a sterile plastic ultrasound bag. The bag is then applied directly to the exposed capsule. Bioglue™ is then injected into and around the bag/mass interface and allowed to solidify. A veress needle decompresses the cyst and the ovary is delivered out of the peritoneal cavity for either cystectomy or oophorectomy. Routine surveillance of the omentum, lymph nodes, contralateral ovary and peritoneal surface is then performed.

Results: Nine females (mean age 14.1±2 years) were treated. All had normal AFP and HCG. CAT scans demonstrated cystic lesions ranging from 8.9 to 27cm in diameter (17.1±2.6cm²). Operative procedures were: 4 salpingo-oophorectomies and 5 unilateral oophorectomies. In a single case, the contra-lateral ovary had a suspicious lesion which was biopsied. No tumors spills occurred. The pathology included; 2 simple cysts, 3 serous cyst adenomas, 3 mature cystic teratomas, and 1 immature teratoma with grade 2-3 immature elements. Peritoneal washing were negative. All patients were discharged within 48 hrs and are well 9 months-2.5 years post-operatively.

Conclusions: The containment of the ovarian cyst with the application of surgical adhesives and a plastic sleeve offers a significant advancement in our ability to safely treat these lesions. This approach markedly reduces the length of the surgical incision while insuring the prevention of peritoneal contamination of cystic fluid.

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CANADIAN-TRAINED PEDIATRIC SURGEONS: A CROSS-BORDER SURVEY OF SATISFACTION AND PREFERENCES

Sherif Emil, Jean-Martin Laberge
Division of Pediatric Surgery, University of California Irvine, Irvine, California, USA & Division of Pediatric Surgery, McGill University, Montreal, Quebec, Canada

Background: The American and Canadian health care systems impact pediatric surgical practice differently.

Methods: Canadian-trained pediatric surgeons completed a web-based questionnaire. They rated their satisfaction from 1 (most) to 5 (least), with 5 areas: quality of life, compensation, work environment, academics, and patient care. Surgeons who experienced both the American and Canadian systems marked their preferences for each system as it impacted the same areas.

Results: Sixty (64%) of 94 eligible participants responded, 65% practicing in the US and 35% in Canada. US surgeons were significantly more satisfied with quality of care (1.41 vs. 1.86, p = .017), available resources (1.63 vs. 2.52, p < .001), and ability to provide emergency (1.54 vs. 2.62, p < .001) and elective (1.74 vs. 3.05, p < .001) services without impediment. Surgeons in Canada were significantly more satisfied with the reimbursement mechanism (2.62 vs. 3.82, p < .001), medicolegal environment (2.00 vs. 3.92, p < .001), and equitable patient treatment (1.38 vs. 1.80, p = .028). Among 38 surgeons who experienced both systems, 1/4 preferred the Canadian system, 1/4 preferred the American system, and half had no preference.

Conclusions: Surgeons in the US are more satisfied with patient care issues, while those in Canada are more satisfied with work environment, the reimbursement mechanism, and equitable patient treatment. There is no overwhelming preference for either system among surgeons who experienced both.

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ASSOCIATION CANADIENNE de
CHIRURGIE PÉDIATRIQUE

38ième

Réunion Annuelle

Calgary, Alberta

7 septembre - 10 septembre, 2006
Trente-huitième Congrès Annuel

ASSOCIATION CANADIENNE de CHIRURGIE PÉDIATRIQUE

7 septembre - 10 septembre, 2006

Hyatt Regency Hôtel
Calgary, Alberta

CANADA
Cette réunion est accréditée aux fins du maintien de la compétence tel que défini par le Collège Royal des Médecins et Chirurgiens du Canada
PROGRAMME SCIENTIFIQUE ET SOCIAL

Jeudi, le 7 septembre 2006
10:00 - 17:00  Réunion du Conseil de l’ACCP, Herald Rm, Hyatt Regency
18:30 - 20:30  Réception de Bienvenue – Calgary TELUS Centre de Congrès

Vendredi, le 8 septembre 2006
06:30 - 08:00  Réunion du Comité de Publications
07:00 - 07:50  Petit Déjeuner
07:50 - 09:30  Mot de Bienvenue et Ouverture du Congrès / PREMIÈRE Session Scientifique, Glen 210/202, South Building, Calgary TELUS Centre de Congrès
09:30 - 10:00  Pause-Santé
10:00 - 11:00  DEUXIÈME Session Scientifique
11:00 - 11:30  Réunion de CAPSNet
11:40  Déjeuner
12:00 - 13:00  Deux minutes: deux diapos & videos
13:00 - 13:30  Pause
13:30 - 15:00  TROISIÈME Session Scientifique

Samedi, le 9 septembre 2006
06:00 - 08:00  Réunion du Comité de Spécialité en chirurgie générale pédiatrique Walker Rm, Hyatt Regency
06:30 - 08:00  Réunion du Comité de Déontologie - Neilson 4, Hyatt Regency
07:00 - 08:00  Petit Déjeuner
08:00 - 09:30  QUATRIÈME Session Scientifique
09:30 - 10:00  Pause-Santé
10:00 - 11:12  CINQUIÈME Session Scientifique
11:12 - 11:30  Pause-Santé
11:30 - 12:15  Discussion par des experts
12:15 - 14:15  Déjeuner d’affaire des Membres – Doll Rm, Hyatt Regency
15:00 - 16:20  ACCP/ACCG Colloque
18:00  Banquet du Président – Heritage Park

Dimanche, le 10 septembre 2006
07:00 - 08:00  Petit Déjeuner
08:00 - 09:30  SIXIÈME Session Scientifique
09:30 - 10:00  Pause-Santé
10:00 - 11:00  SEPTIÈME Session Scientifique
11:00  Mot de clôture du président
MOT DE BIENVENUE DU PRÉSIDENT

Bienvenue au congrès de l’ACCP à Calgary, Alberta.

C’est à Calgary, en Alberta que se réunissent cette année les chirurgiens pédiatriques du Canada et leur collègues de l'étranger; Nous serons là , au pied des Rocheuses canadiennes , au coeur de la fameuse hospitalité des gens de l'Ouest . Ce sera la première fois que nous nous joindrons au Forum Canadien de Chirurgie et nous sommes convaincus que cela sera à l’avantage mutuel des deux groupes. Un grand merci au Dr David Sigalet , responsable des arrangements locaux ,lesquels seront sans aucun doute une experience western memorable pour tous.

Nous sommes redevables au comité du Dre Natalie Yanchar d’avoir choisi un programme scientifique exceptionnel et très stimulant. J’encourage sincèrement tous les participants à ajouter à la qualité du programme avec leurs commentaires ,leurs questions et leurs critiques.

Je voudrais remercier le Dr Charles Stolar d’avoir accepté d’être notre conférencier JPS-McLeod et nous anticipons avec plaisir ses commentaires et sa conférence sur “La hernie diaphragmatique congénitale”. L’ACCP lui réserve un excellent accueil.

Un merci special au Dr Harvey Beardmore qui fut un des pères de l’ACCP il y a 40 ans. Votre vision d’avenir a permis au Canada d’avoir une organisation fière et qui continue à œuvrer pour améliorer les soins chirurgicaux des enfants.

Merci aussi au Dr Peter Fitzgerald, notre secretaire trésorier qui continue de travailler très fort pour garder l’ACCP en excellent état.

Merci enfin à tous les membres des comités pour leur bon travail.

A bientôt et bon congrès 2006 .

N. Wiseman, MD,FRCSC, FACS.
Président de l’Association Canadienne de Chirurgie Pédiatrique
L’Association canadienne de chirurgie pédiatrique a reçu sa charte en 1967. Son objectif est d’améliorer les soins chirurgicaux aux nouveau-nés et aux enfants du Canada. Elle s’intéresse à tous les aspects de la chirurgie pédiatrique générale et thoracique tout en reconnaissant sa responsabilité unique à l’égard des bébés nés avec des anomalies congénitales et des enfants atteints de tumeurs malignes. Bien que sa responsabilité en matière de traumatismes pédiatriques ne soit pas unique, elle exerce un rôle crucial dans les questions relatives à ces traumatismes.

L’Association canadienne de chirurgie pédiatrique offre la possibilité, particulièrement dans le cadre de son assemblée générale annuelle, d’échanger des informations concernant le diagnostic, le traitement et la recherche liés à ses domaines de travail. De plus, elle assume la responsabilité de participer à l’éducation non seulement de ses propres membres, mais aussi des autres membres de la communauté qui s’intéressent à des aspects apparentés des soins pédiatiques et qui travaillent dans ces domaines.

LE FONDS D’ÉDUCATION : Pour l’aider à remplir ses engagements en matière d’éducation sur les sujets relatifs à la chirurgie pédiatrique, l’association a créé un fonds pour l’éducation. Ce fonds a été établi et continue d’exister grâce à la générosité des individus et des associations, de nature médicale ou autre, intéressées par les soins chirurgicaux aux enfants. L’association sollicite annuellement des dons en faveur de son fonds afin de maintenir un fonds de roulement suffisant pour soutenir les programmes d’éducation approuvés par les membres de l’ACCP. Ce fonds est enregistré auprès du gouvernement fédéral et toutes les contributions sont pleinement déductibles d’impôts. Le fonds fait l’objet d’une vérification comptable annuelle.

Vous pouvez envoyer vos dons à :

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1991-1993  Sigmund H. Ein  Toronto
1993-1995  Angus Juckes  Regina
1995-1997  Jean G. Desjardins  Montréal
1997-1999  David P. Girvan  London
1999-2001  Ray Postuma  Winnipeg
2001-2003  Mike Giacomantonio  Halifax
2003-2005  Salam Yazbeck  Montreal
2005-  Nathan Wiseman  Winnipeg
* décédé

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1974-1978  Gordon Cameron  Hamilton
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1989-1995  Ray Postuma  Winnipeg
1995-2002  Salam Yazbeck  Montréal
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Le premier CONGRÈS ANNUEL eut lieu le 22 janvier, 1969 à VANCOUVER
LES ARMOIRIES
DE
L'ASSOCIATION CANADIENNE DE CHIRURGIE PÉDIATRIQUE

Le Blason

Au gauche, un bistouri droit entouré d’un serpent alors qu’à droite se tient un enfant, tout argent.

Au sommet se trouvent trois feuilles d’érable ainsi que la date 1967.

Devise: “Je le pensay, Dieu le guarit”.

Description

Le rouge et le violet des armoiries sont les couleurs du Collège Royal des Médecins et Chirurgiens du Canada et représentent le sang artériel et veineux vu au cours de la chirurgie. L’association du bistouri avec le serpent guérisseur d’Esculape ainsi qu’avec l’image d’un enfant en bonne santé symbolise la pratique de la chirurgie pédiatrique.

La couronne du blason est la feuille d’érable du Canada et la date de fondation de notre association (1967).

La devise est une citation d’Ambroise Paré, père de la chirurgie moderne.
ACCP 2007
Réunion Annuelle

St. John's, Newfoundland
23 - 26 août, 2007

Joignez-vous à nous!
PRÉSENTATIONS DES RÉSIDENTS

Les présentations faites par les résidents en chirurgie sont jugées par un jury constitué des membres du Comité de Publication. Il y a deux catégories: celui du meilleur travail clinique et celui du meilleur travail expérientical (Prix Maria DiLorenzo).

PRIX POUR LES MEILLEURES COMMUNICATIONS DES RÉSIDENTS 2005

MEILLEUR TRAVAIL CLINIQUE

Dr. M. Emran

ETHIBLOC SCLEROTHERAPY FOR TREATMENT OF LYMPHANGIOMAS IN CHILDREN

M. Emran, J. Dubois, S. Yazbeck, A. Al-Jazeeri, A. Butter
Sainte Justine Hospital
Montreal, Quebec

MEILLEUR TRAVAIL EXPÉRIMENTAL,
PRIX MARIA DI LORENZO

Dr. S. T. Johnson

ACETYLCSTEINE INCREASES GLUTATHIONE STORES AND IMPROVES SYSTEMIC HEMODYNAMICS IN A NEONATAL MODEL OF HYPOXIA-REOXYGENATION

S.T. Johnson, P-Y. Cheung M. Emara, L. Obaid, G. Less, D. Bigam
University Hospital
Edmonton, Alberta
ATTRIBUTION DES PRIX

Seminars in Pediatric Surgery Prix

Dr. A. Nasr

ASSESSMENT OF RESIDUAL POST-TREATMENT MASSES IN HODGKIN’S DISEASE AND THE NEED FOR SURGICAL BIOPSY IN CHILDREN

A. Nasr, J. Stulberg, S. Weitzman, J.T. Gerstle
Hospital for Sick Children
Toronto, Ontario

Journal of Pediatric Surgery Subscription Prix

G. Stefanutti

MODERATE HYPOTHERMIA: A RESCUE THERAPY IN NEONATAL INTESTINAL ISCHEMIA AND REPERFUSION INJURY

G. Stefanutti, E. Parkinson, A. Pierro, S. Eaton
Institute of Child Health
London, United Kingdom

Prix Livre

Dr. G. Miyano

PNEUMONOPERITONEUM PREVENTS INTRAPERITONEAL ADHESIONS AFTER LAPAROTOMY IN RATS

G. Miyano, A. Yamataka, T. Doi, M Okawada, Y. Takano,
H. Kobayashi, G.L. Lane, T. Miyano
Juntendo University School of Medicine
Tokyo, Japan
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