CANADIAN ASSOCIATION of
PAEDIATRIC SURGEONS

35th

Annual Meeting

NIAGARA-ON-THE-LAKE
September 18-21, 2003
Thirty-fifth Annual Meeting

CANADIAN ASSOCIATION of
PAEDIATRIC SURGEONS

September 18-21, 2003

Queen’s Landing Inn & Conference Resort
Niagara-On-The-Lake (Ontario)
CANADA
This event is approved as an accredited group learning activity as defined by the Maintenance of Certification Program of the Royal College of Physicians and Surgeons of Canada
SCIENTIFIC AND SOCIAL PROGRAM

Thursday, September 18, 2003

12:00 - 17:00  Meeting of CAPS Council (Executive) – Scarlet Executive Boardroom
17:00  Registration
19:00 - 22:00  Welcoming Reception – Grand Georgian Ballroom and Atrium

Friday, September 19, 2003

07:00 - 12:00  Registration
07:00 - 07:45  Continental Breakfast
07:45 - 08:00  President’s Welcome – Grand Georgian Ballroom
08:00 - 10:00  Scientific Session ONE
10:00 - 10:15  Refreshment Break
10:15 - 11:15  Scientific Session TWO
11:15 - 12:15  Fred Mac Leod / JPS Lecture, Dr. Scott Adzick
12:15 - 12:30  Box Lunch Break
12:30 - 13:30  Video Presentations

Saturday, September 20, 2003

06:00 - 07:45  Specialty Committee in Pediatric General Surgery Meeting (Somerset Rm)
06:00 - 07:45  Publications Committee Meeting – Scarlet Executive Boardroom
07:00 - 12:00  Registration
07:00 - 07:45  Continental Breakfast
07:30 - 12:00  Exhibits
07:45 - 09:45  Scientific Session THREE
09:45 - 10:00  Refreshment Break
10:00 - 11:30  Scientific Session FOUR
11:30 - 12:30  "2 minutes / 2 slides"
12:30 - 14:30  CAPS Members Business Meeting (Luncheon) – Imperial Room
18:00  Presidential Reception / Banquet – Hillebrand Estates

Sunday, September 21, 2003

07:00 - 09:00  Registration
07:00 - 07:45  Continental Breakfast
07:30 - 11:00  Exhibits
07:45 - 09:45  Scientific Session FIVE
09:45 - 10:00  Refreshment Break
10:00 - 11:00  Scientific Session SIX
11:00 - 11:15  Resident prizes for excellence in clinical and basic science research and President’s Closing Remarks
Doctor Maria Di Lorenzo
1954 – 2003

We are deeply sorrowed by the premature departure of our colleague and friend Doctor Maria Di Lorenzo who died on August 16th 2003, at 4 pm.

Doctor Di Lorenzo completed her medical studies at Sherbrooke University after obtaining her bachelor's degree in biochemistry at McGill University. She did her general surgery training at University of Montreal and completed her fellowship in pediatric surgery at Sainte-Justine Hospital in June 1987. Maria was on staff at Sainte-Justine Hospital since 1988. After 5 years of practice, she started a Ph.D. in digestive physiology at the University of Ottawa, which she obtained with high distinction in 2000. Maria was an active member of the Canadian Association of Paediatric Surgeons since 1988. She occupied many functions within the organization that she loved and believed in. Two days before she died, she was still worrying about the work of the publication committee which she was chairing.

Doctor Di Lorenzo was an exceptional teacher and was a remarkable surgeon. Her clinical duties were always conducted with only the well-being of her patients in mind, and with great attention to details. She was extremely demanding of herself, and was a dedicated and much appreciated teacher both at Sainte-Justine Hospital and at the University of Montreal. She was truly a role model. With her premature death, the surgery department of Sainte-Justine Hospital lost one of its most prolific academicians. The Canadian Association of Paediatric Surgeons also lost one of its most involved and dedicated members. We will never forget the contribution of Doctor Maria Di Lorenzo to our Association. Bon Voyage Maria!
PRESIDENT'S WELCOME

Welcome to members and guests of the Canadian Association of Pediatric Surgeons to the 35th annual meeting of our organization. This year we’re at Niagara-on-the-Lake which will be a beautiful setting for us to enjoy an escape to natural beauty and cultural enrichment as well as the valued scientific and academic sessions. Dr. Brian Cameron from Hamilton and Dr. Jack Langer from Toronto have collaborated to show off their beautiful corner of this country.

Dr. Ken Shaw and the Program Committee have made every effort to give attendants to this meeting an opportunity for an unhurried appreciation of what Niagara-on-the-Lake has to offer. With the Shaw Festival, local wineries, and the beauty of Niagara Falls, the right balance of work and relaxation should leave us all richer for this meeting.

I wish you all the best and look forward to sharing with you the best that CAPS has to offer.

Sincerely,

Mike Giacomantonio, M.D., F.R.C.S.(C)
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., Rm 4122
Hamilton, Ontario
L8N 3Z5
Telephone (905) 521-2100 ext 75231
Fax (905) 521-9992
E-mail: fitzger@mcmaster.ca
## PRESIDENTS

<table>
<thead>
<tr>
<th>Years</th>
<th>Name</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>1967-1973</td>
<td>Harvey Beardmore</td>
<td>Montreal</td>
</tr>
<tr>
<td>1973-1975</td>
<td>Colin Ferguson*</td>
<td>Winnipeg</td>
</tr>
<tr>
<td>1975-1977</td>
<td>Jim Simpson*</td>
<td>Toronto</td>
</tr>
<tr>
<td>1977-1979</td>
<td>Sam Kling</td>
<td>Edmonton</td>
</tr>
<tr>
<td>1979-1981</td>
<td>Pierre-Paul Collin</td>
<td>Montreal</td>
</tr>
<tr>
<td>1981-1983</td>
<td>Barry Shandling</td>
<td>Toronto</td>
</tr>
<tr>
<td>1983-1985</td>
<td>Gordon Cameron</td>
<td>Hamilton</td>
</tr>
<tr>
<td>1985-1987</td>
<td>Stanley Mercer</td>
<td>Ottawa</td>
</tr>
<tr>
<td>1987-1989</td>
<td>Alex Gillis</td>
<td>Halifax</td>
</tr>
<tr>
<td>1991-1993</td>
<td>Sigmund H. Ein</td>
<td>Toronto</td>
</tr>
<tr>
<td>1993-1995</td>
<td>Angus Juckes</td>
<td>Regina</td>
</tr>
<tr>
<td>1995-1997</td>
<td>Jean G. Desjardins</td>
<td>Montreal</td>
</tr>
<tr>
<td>1997-1999</td>
<td>David P. Girvan</td>
<td>London</td>
</tr>
<tr>
<td>1999-2002</td>
<td>Ray Postuma</td>
<td>Winnipeg</td>
</tr>
<tr>
<td>2002-2004</td>
<td>Mike Giacomantonio</td>
<td>Halifax</td>
</tr>
</tbody>
</table>

* indicates deceased

## SECRETARY-TREASURERS

<table>
<thead>
<tr>
<th>Years</th>
<th>Name</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>1967-1974</td>
<td>Barry Shandling</td>
<td>Toronto</td>
</tr>
<tr>
<td>1974-1978</td>
<td>Gordon Cameron</td>
<td>Hamilton</td>
</tr>
<tr>
<td>1978-1983</td>
<td>Frank M. Guttman</td>
<td>Montreal</td>
</tr>
<tr>
<td>1989-1995</td>
<td>Ray Postuma</td>
<td>Winnipeg</td>
</tr>
<tr>
<td>1995-2002</td>
<td>Salam Yazbeck</td>
<td>Montreal</td>
</tr>
<tr>
<td>2002-</td>
<td>Peter G. Fitzgerald</td>
<td>Hamilton</td>
</tr>
</tbody>
</table>
FOUNDING MEMBERS

ALLEN Michael
ASHMORE Phillip
BEARDMORE Harvey
CAMERON Gordon
COLLIN Pierre-Paul
DESIJARDINS 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”.

CAPS 36th
ANNUAL MEETING
October 21-24, 2004
Fort Garry Hotel
Winnipeg, Manitoba

Winnipeg
Embrace the spirit • Vivez l’esprit

PLAN TO JOIN US!
GUEST LECTURER

DR. SCOTT ADZICK

Surgeon-in-Chief, The Children’s Hospital of Philadelphia
C. Everett Koop Professor of Pediatric Surgery; Professor of Pediatrics; and Professor of Obstetrics & Gynecology, University of Pennsylvania School of Medicine
Director, Pediatric General and Thoracic Surgery
Director, The Center for Fetal Diagnosis and Treatment

Dr. Adzick graduated from Harvard Medical School in 1979. He completed his General Surgery Residency at the Massachusetts General Hospital and his Pediatric Surgery Fellowship at the Boston Children’s Hospital.

Dr. Adzick is a central figure in the field of Pediatric Surgery. He has authored, or co-authored, 354 papers, 69 chapters, 8 books and has been on the editorial board of eight journals. Dr. Adzick has been the recipient of numerous prestigious awards.

Dr. Adzick is a talented surgeon, a tireless researcher and a pioneer in the expanding field of fetal surgery.

The Canadian Association of Pediatric Surgery is pleased to invite

DR. SCOTT ADZICK

to give the Fred MacLeod / JPS Annual Lecture.

The visit by Dr. Scott Adzick is made possible with the financial support of the W. B. Saunders Company.
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. Each award is $500.

WINNERS OF THE 2002 RESIDENT BEST PAPER AWARDS

BEST CLINICAL RESEARCH PAPER

Dr. M. PROCTOR

Correlation Between Radiographic Transition Zone and Level of Aganglionosis in Hirschsprung’s Disease: Implications for Surgical Approach
M. Proctor, J. Traubici, J. Langer, G. Gibbs, S. Ein, P. Kim
Hospital for Sick Children
Toronto (Ontario) CANADA

BEST BASIC SCIENCE RESEARCH PAPER

Dr. V. SOLARI

Expression of Heme Oxygenase and Endothelial Nitric Oxide Synthase in the Lung of Newborns with Congenital Diaphragmatic Hernia and Persistent Pulmonary Hypertension
V. Solari, A. Piaseczna-Piotrowska, P. Puri
Children’s Research Centre and Our Lady’s Hospital for Sick Children
Dublin, IRELAND

CONGRATULATIONS DRs. PROCTOR AND SOLARI!
THE CANADIAN ASSOCIATION OF PAEDIATRIC SURGEONS WOULD LIKE TO ACKNOWLEDGE THE FINANCIAL SUPPORT OF THE FOLLOWING SPONSORS

Astra Zeneca

Harcourt Health Sciences

W.B. Saunders Company

Stryker Canada

Baxter Corporation

W. Lorenz

Elsevier
VISIT OUR WEBSITE

www.caps.ca
PROGRAM SCHEDULE
PROGRAMME DÉTAILLÉ

ABBREVIATIONS

O  original 8-minute paper
R  resident’s paper
C/T 4-minute case/technique report

O,R  Adjudicated
C/T  Not adjudicated

[Speaker ready room: Ivory Room]
THURSDAY, SEPTEMBER 18, 2003

Queen's Landing Inn & Conference Resort

12:00 - 17:00  Meeting of CAPS Council (Executive)
                Scarlet Executive Boardroom

17:00  Registration
       Lobby of Grand Georgian Ballroom

19:00 - 22:00  Welcoming Reception
               Queen's Landing Inn & Conference Resort,
               Grand Georgian Ballroom and Atrium
FRIDAY, SEPTEMBER 19, 2003

Queen’s Landing Inn & Conference Resort

07:00 - 12:00  Registration
               Lobby - Grand Georgian Ballroom

07:00 - 07:45  Continental Breakfast
               Lobby - Grand Georgian Ballroom

07:45 - 08:00  Welcome and Opening Ceremony
               President, Dr. Michael Giacomantonio
               Grand Georgian Ballroom

08:00 - 10:00  Scientific Session I
               Grand Georgian Ballroom

10:00 - 10:15  Refreshment Break
               Lobby - Grand Georgian Ballroom

10:15 - 11:15  Scientific Session II
               Grand Georgian Ballroom

11:15 - 12:15  Fred Mac Leod / JPS Lecture
               Doctor Scott Adzick
               Grand Georgian Ballroom

12:15 - 12:30  Box Lunch

12:30 - 13:30  Video Presentations
               Grand Georgian Ballroom
7 :45-8 :00  President’s Welcome
Dr. Michael Giacomantonio

SCIENTIFIC SESSION ONE
Grand Georgian Ballroom

1  8:00  OR  IS SURGERY NECESSARY FOR INCIDENTALLY DETECTED ADRENAL MASSES IN CHILDREN?
Peter Masiakos, J. Ted Gerstle, Timothy Cheang, Sandra Viero, Peter C.W. Kim and Paul W. Wales
Division of General Surgery and Department of Pathology, The Hospital for Sick Children, Toronto, CANADA

2  8:12  OR  SURGERY IS THE MAINSTAY OF TREATMENT IN CHILDREN WITH ADRENOCORTICAL TUMORS
Jessica N. Stewart, Hélène Flageoke, Nancy Gagné and Petr Kavan
Montreal Children’s Hospital, McGill University Health Center, Quebec, CANADA

3  8:24  OR  ASSOCIATION BETWEEN SURGICAL MARGINS AND LONG-TERM OUTCOME IN ADVANCED HEPATOBLASTOMA
B. J. Dicken and G. M. Lees
University of Alberta Hospital, Alberta, CANADA

4  8:36  OR  CT-VOLUME OF WILMS’ TUMOR CAN PREDICT WEIGHT
S. Al-Shanafey, S. Lum Min, M. Schmidt, M. Yhap, N. Yanchar
IWK Health Centre, Nova Scotia, CANADA

5  8:48  CR  RARE RENAL TUMOR IN A CHILD
R. Wilson, A.W. Juckes, T.S. Goh, M. Haq, Q. Li and S. Himidan
Regina Qu’appelle Health Region, Saskatchewan, Pediatric Outpatient, Saskatchewan, CANADA
GASTRO-INTESTINAL STROMAL TUMOR ARISING FROM THE STOMACH: A REPORT OF THREE CHILDREN
M. Durham, K. W. Gow, B. M. Shehata, R. R. Ricketts
Emory University and Children's Healthcare of Atlanta, Georgia, USA

INCIDENCE OF MALPOSITION IN 500 CONSECUTIVE CENTRAL VENOUS CATHETERS
I. C. Naumann, H. Paulin, M. A. Helmrath, R. Glick, M. L. Brandt
Michael E. DeBakey Department of Surgery, Texas, USA

BACTERIAL CONTAMINATION OF CENTRAL VENOUS LINES DURING INSERTION: A DOUBLE BLINDED RANDOMIZED CONTROLLED TRIAL
N. Hall, N. Ade-Ajayi, D. Roebuck, T. Kleidon, J. Hartley, A. Pierro
Department of Paediatric Surgery, Radiology and Microbiology, Institute of Child Health and Great Ormond Street Hospital, London, UNITED KINGDOM

TRAINEE SUPERVISION DURING SURGERY HAS A MAJOR IMPACT ON PATIENT OUTCOME
M. M. Chowdhury, L. Spitz, A. Pierro
Institute of Child Health and Great Ormond Street Hospital, London, UNITED KINGDOM

THE TWO WEEK PEDIATRIC SURGERY ROTATION: IS IT TIME WASTED?
S. Dutta, P. W. Wales, A. Fecteau
Hospital for Sick Children, Toronto, CANADA

10:00 – 10:15 REFRESHMENT BREAK
11 10:15 OR  
META-ANALYSIS OF LAPAROSCOPIC VERSUS OPEN PYLOROMYOTOMY  
N. Hall, J. Van der Zee, H. Tan, A. Pierro  
Department of Paediatric Surgery, Great Ormond Street Hospital and the Institute of Child Health and The University of Adelaide and Department of Paediatric Surgery  
London, UNITED KINGDOM and North Adelaide, AUSTRALIA

12 10:27 CR  
HYPERTROPHIC PYLORIC STENOSIS AND ATROPINE: WHEN TO USE IT?  
S. Al-Shanafey, H. Mohsin, M. Giacomantonio  
IWK Health Centre,  
Nova Scotia, CANADA

13 10:35 CR  
LAPAROSCOPIC CYSTOGASTROSTOMY FOR THE TREATMENT OF PEDIATRIC RETROGASTRIC PANCREATIC PSEUDOCYSTS  
S. Cabbabe, K. W. Gow, K. W. Heiss, M. E. Wulkan  
Emory University and Children's Healthcare of Atlanta, Georgia, USA

14 10:43 CR  
GASTROSTOMY IN NEONATES WITH ESOPHAGEAL ATRESIA: COMPARISON OF OPEN VERSUS PERCUTANEOUS TECHNIQUES  
D. Aziz, P. Chait, F. Kreichman, J. C. Langer  
Hospital for Sick Children,  
Toronto, CANADA

15 0:55 O  
IS SURGERY NECESSARY FOR ASYMPPTOMATIC TETHERED CORD IN ANORECTAL MALFORMATION (ARM) PATIENTS?  
S. E. Tuijia, D. Aziz, J. Drake, P. Wales and P. C. W. Kim  
Hospital for Sick Children,  
Toronto, CANADA
16  11:03  CR  PORTAL-MESENTERIC THROMBOSIS AS A COMPLICATION OF APPENDICITIS IN CHILDREN
E. A. Vikis, J. J. Murphy, E. M. Webber

11:15 – 12:15  FRED MACLEOD/JPS LECTURE

12:15 – 12:30  BOX LUNCH BREAK

VIDEO PRESENTATIONS
12:30 – 13:30

1  ROBOTIC ASSISTED LEFT HEMICOLECTOMY IN A 9 YEAR OLD BOY WITH TURCOT'S SYNDROME
John J. Meehan, MD, Anthony Sandler, MDChildren’s Hospital of Iowa, University of Iowa Hospitals and ClinicsIowa City, Iowa

2  LAPAROSCOPIC RESECTION AND HEPATICO-DUODENOSTOMY OF TYPE I CHOLEDOCHAL CYST
H.L. Tan, K.R. Shankar, W.D.A. FordThe University of Adelaide & Department of Pediatric SurgeryWomen’s and Children’s Hospital, Adelaide, South Australia

3  EXPERIENCE WITH LAPAROSCOPIC ADRENALECTOMY IN CHILDREN
Z. Habib, P. Kadambar, L. Rossi, A. Al RabeeahKing Faisal Specialist Hospital & Research CentreRiyadh, Saudi Arabia

4  THORACOSCOPIC REPAIR OF A RIGHT CONGENITAL DIAPHRAGMATIC HERNIA
John J. MeehanChildren’s Hospital of Iowa, University of Iowa Hospitals and ClinicsIowa City, Iowa
SATURDAY, SEPTEMBER 20, 2003

Queen’s Landing Inn & Conference Resort

06:00 - 08:00  Specialty Committee in Pediatric General Surgery Meeting
               Somerset Room

06:00 - 08:00  Publications Committee Meeting
               Scarlet Executive Boardroom

07:00 - 12:00  Registration
               Lobby - Grand Georgian Ballroom

07:00 - 07:45  Continental Breakfast
               Lobby - Grand Georgian Ballroom

07:45 - 09:45  Scientific Session III
               Grand Georgian Ballroom

09:45 - 10:00  Refreshment Break
               Lobby - Grand Georgian Ballroom

10:00 - 11:30  Scientific Session IV
               Grand Georgian Ballroom

11:30 - 12:30  “2 minutes / 2 slides”
               Grand Georgian Ballroom

12:30 - 14:30  CAPS Members Business Meeting
               Imperial Ballroom

18:00 - 22:00  Presidential Reception / Banquet – Hillebrand Estates
SCIENTIFIC SESSION THREE
Grand Georgian Ballroom

17  7:45  T  A “PLASTIC” SUTURELESS ABDOMINAL WALL CLOSURE IN GASTROCHISIS
A. Sandler, J. Lawrence, J. Meehan, L. Phearman, R. Soper
Division of Pediatric Surgery, University of Iowa, Iowa, U.S.A.

18  7:57  O  ROUTINE CESAREAN DELIVERY DOES NOT IMPROVE THE OUTCOME OF INFANTS WITH GASTROCHISIS
P. S. Puligandla, A. Janvier, E. Mok, S. Bouchard, J-M. Laberge, H. Flageole
The Montreal Children’s Hospital, Quebec, CANADA

19  8:09  O  NEONATAL SHORT BOWEL SYNDROME: POPULATION-BASED ESTIMATES OF INCIDENCE AND MORTALITY RATES
P. W. Wales, N. de Silva, J. Kim, L. Lecce, A. Moore
Divisions of General Surgery, Neonatology and Gastroenterology, The Hospital for Sick Children, Toronto, CANADA

20  8:21  OR  HEREDITARY MULTIPLE INTESTINAL ATRESIA: THIRTY YEARS AFTER
A. Bilodeau, P. Prasil, R. Cloutier, G. Roy, Suzanne Leclerc, J. Péloquin
Centre Hospitalier de l’Université Laval, Quebec, CANADA

21  8:33  OR  MECONIUM OBSTRUCTION IN EXTREMELY LOW BIRTH WEIGHT INFANTS: GUIDELINES FOR DIAGNOSIS AND THERAPY
S. Emil, T. Nguyen, J. Sills, G. Padilla
University of California, Irvine Medical Center and Miller Children’s Hospital, California, USA
22 8:45 CR VOLVULUS: POTENTIAL LETHAL OUTCOME OF ROUX-EN-Y JEJUNOSTOMY IN CHILDREN
J. Ryckman, P. J. Wolfson, S. G. Murphy, A. I. Dupont
Hospital for Children, Delaware, USA

23 8:53 OR SPONTANEOUS PNEUMOMEDIASTINUM: ARE WE OVER-INVESTIGATING
J. Chapdelaine, M. Beaunoyer, D. St-Vil, D. Bérubé,
P. Daigneault, A. Ouimet
Hôpital Sainte-Justine, Québec, CANADA

24 9:05 OR MODERATE HYPOTHERMIA ATTENUATES HEPATIC APOPTIC SIGNALING FOLLOWING INTESTINAL ISCHAEMIA-REPERFUSION
E. J. Parkinson, P. Townsend, A. Stephanou, S. Eaton,
D. Latchman, A. Pierro
Department of Paediatric Surgery, Institute of Child Health,
London, UNITED KINGDOM

25 9:17 OR LAPAROSCOPY BLUNTS THE POST-OPERATIVE METABOLIC RESPONSE TO SURGERY
M. McHoney, S. Eaton, D. P. Drake, E. M. Kiely,
L. Spitz, A. Pierro
Institute of Child Health and Great Ormond Street Hospital, London,
UNITED KINGDOM

26 9:29 OR MONOCYTE HLA-DR EXPRESSION IS DEPRESSED IN CHILDREN FOLLOWING MAJOR SURGERY
M. McHoney, N. Klein, S. Eaton, A. Pierro
Institute of Child Health and Great Ormond Street Hospital,
London, UNITED KINGDOM

9:41 – 10:00 REFRESHMENT BREAK
27  10:00  O  AVOIDING UNNECESSARY LABORATORY TESTS IN BLUNT TRAUMA  
Department of Pediatric Surgical Services, Kiwanis Trauma Center, Women's and Children's Hospital of Buffalo, Department of Surgery, SUNY @ Buffalo, New York, U.S.A.

28  10:12  OR  UNDERSTANDING WORK RELATED INJURIES IN CHILDREN  
W. T. McClellan, A. Ducatman, S. Islam and P. F. Ehrlich  
Departments of Surgery, Pediatrics and Occupational Medicine and the Center for Rural Emergency Medicine, West Virginal University School of Medicine, West Virginia, U.S.A.

29  10:24  OR  FEMALE SURVIVAL ADVANTAGE FOLLOWING TRAUMA IS NOT OBSERVED IN CHILDREN  
The Children's Hospital, Department of Pediatric Surgery, The University of Colorado Health Sciences Center, Colorado, U.S.A.

30  10:36  OR  A PROSPECTIVE ALCOHOL INTERVENTION STUDY WITH ADOLESCENTS AT A LEVEL I PEDIATRIC TRAUMA CENTER: IMPLICATIONS FOR INJURY PREVENTION  
S. Swisher-McClure, A. Haque, J. Helmkamp, W. Manley and P. F. Ehrlich  
Departments of Surgery, Pediatrics and the Center for Rural Emergency Medicine, West Virginia University School of Medicine, West Virginia, U.S.A.
MONITORING PERFORMANCE: IMPACT OF TRAUMA VERIFICATION AND REVIEW
W. T. McClellan and P. F. Ehrlich
Departments of Pediatric Surgery and the Center for Rural Emergency Medicine, West Virginia School of Medicine, West Virginia, U.S.A.

OK-432 SCLEROSIS: FIRST LINE THERAPY FOR MACROCYSTIC LYMPHANGIOMAS
M. Henry, B. Smith, Stanford University, California, U.S.A.

CORE EXCISION OF THE FORAMEN CEUC FOR RECURRENT THYROGLOSSAL DUCT CYST (TGDC) AFTER SISTRUNK OPERATION
A. K. Sattar, R. McRae, S. Mangray, K. Hansen, F. I. Luks
Divisions of Pediatric Surgery, Otorhinolaryngology and Pediatric Pathology, Hasbro Children’s Hospital and Brown Medical School, Providence, Rhode Island, U.S.A.

SAME-DAY SURGERY FOR THYROGLOSSAL DUCT CYST EXCISION: A SAFE ALTERNATIVE
J. Bratu, J-M. Laberge
Division of Pediatric Surgery, The Montreal Children’s Hospital, McGill University Health Center, Quebec, Canada

“2 MINUTES – 2 SLIDES” PRESENTATIONS
11:30 – 12:30

1 LAPAROSCOPIC MANAGEMENT OF SMALL BOWEL OBSTRUCTION IN CHILDREN
O. Bawazir, A. Hong
Alberta Children’s Hospital, Calgary, Alberta

2 TWIN-TWIN TRANSFUSION (TTTS) WITH CARDIAC AND PERSISTENT INTESTINAL COMPLICATIONS
R. Postuma, J. Beckles
Winnipeg Children’s Hospital, Winnipeg, Manitoba

3 THYROIDECTOMY FOR GRAVE’S DISEASE IN A 2 YEAR OLD
M. Beaunoyer, J. Chapdelaine, D. St-Vil, C. Deal, P. Crock
Hôpital Sainte-Justine, Montréal, Québec
4 MASSIVE GASTROINTESTINAL BLEEDING SECONDARY TO JEJUNAL GASTRIC HETEROTOPIA
S. Emil, J.C. Jimenez, B. Steinmetz University of California, Irvine Medical Center, Orange, California Miller Children’s Hospital, Long Beach, California

5 LAPAROSCOPIC EXTRACTION OF A GIANT GASTRIC TRICHOBEZOAR IN A CHILD
A. Zigman Kaiser Permanente, Department of Surgery, Portland, Oregon

6 RECURRENT PANCREATITIS IN THE SETTING OF CONGENITAL DUODENAL ATRESIA: A CASE REPORT
Jugenburg, N. Wiseman Department of Surgery, University of Manitoba, Manitoba, Winnipeg

7 BRACHIAL ARTERY PSEUDOANEURYSM IN A 6-WEEK-OLD INFANT
J. Mykytenko, T.F. Dodson, E.L. Patrick, K.W. Gow Emory University and Children’s Healthcare of Atlanta, Atlanta, Georgia

12:30 – 14:30 CAPS BUSINESS MEETING
18:00 EVENING AT THE WINERY
SUNDAY, SEPTEMBER 21, 2003

Queen’s Landing Inn & Conference Resort

07:00 - 09:00  Registration
Lobby - Grand Georgian Ballroom

07:00 - 07:45  Continental Breakfast
Lobby - Grand Georgian Ballroom

07:45 - 09:45  Scientific Session V
Grand Georgian Ballroom

09:45 - 10:00  Refreshment Break
Lobby - Grand Georgian Ballroom

10:00 - 11:00  Scientific Session VI
Grand Georgian Ballroom

11:00 - 11:15  Resident prizes for excellence in clinical and research presentations.
President’s Closing Remarks.
Grand Georgian Ballroom
35  7:45  OR  BILATERAL OVARIAN TORSION
  M. Beaunoyer, J. Chapdelaine, S. Bouchard,
  A. Ouimet
  Department of Surgery, Hôpital Sainte-Justine,
  Québec, CANADA

36  7:57  OR  OVARIAN TORSION IN CHILDREN: IS
  OOPHORECTOMY NECESSARY?
  D. Aziz, V. Davis, L. Allen, J. C. Langer
  Hospital for Sick Children and University of Toronto,
  Ontario, CANADA

37  8:09  OR  SURVIVAL IN CONGENITAL DIAPHRAGMATIC
  HERNIA: THE EXPERIENCE OF THE
  CANADIAN NEONATAL NETWORK
  P. J. Javid, T. Jaksic, E. D. Skarsgard, S. Lee and The
  Canadian Neonatal Network, Children's Hospital
  Boston and Harvard Medical School, Boston;
  Children's and Women's Hospital of British Columbia,
  University of British Columbia, Massachusetts U.S.A.
  and Vancouver, CANADA

38  8:21  OR  A POPULATION-BASED DATABASE IS NEEDED
  TO ESTABLISH BENCHMARKING FOR
  CLINICAL OUTCOMES FOR CONGENITAL
  DIAPHRAGMATIC HERNIA (CDH)
  *The Ontario Congenital Anomlies Study Group:
  *B. Cameron, McMaster University, L. Scott, London
  Health Center, *J. Bass, Children's Hospital of Ontario,
  D. Poenaru, Queen's University,*N. Grace, North York
  General Hospital,* D. Mah, P. Masiakos, P. Wales, D.
  Bohn, P. Kim, Hospital for Sick Children, Ontario,
  CANADA
VENO-VENOUS EXTRACORPOREAL MEMBRANE OXYGENATION (VV-ECMO): DOES ROUTINE, CEPHALIC JUGULAR VENOUS DRAINAGE IMPROVE PATIENT OUTCOME?
E. D. Skarsgard, D. Salt, S. K. Lee, and the Extracorporeal Life Support Organization (ELSO) Department of Surgery and pediatrics, British Columbia’s Children’s Hospital, the Centre for Health Innovation and Improvement (CHII), and the University of British Columbia, Vancouver, CANADA

PULMONARY ELASTIN EXPRESSION IS DECREASED IN THE NITROFEN INDUCED RAT MODEL OF CONGENITAL DIAPHRAGMATIC HERNIA
G. B. Mychaliska, S. M. Officer, C. K. Heintz, and R. A. Pierce Divisions of Pulmonary and Critical Care Medicine and Pediatric Surgery, Washington University School of Medicine, Minnesota, U.S.A.

CONGENITAL LOBAR EMPHYSEMA: HISTOLOGIC SPECTRUM OF RADIOLOGIC DIAGNOSIS
J. Chapdelaine, M. Di Lorenzo, M. Beaunoyer, L. Garel, L. Olligny, D. Saint-Vil Hôpital Sainte-Justine, Québec, CANADA

IS A ROUTINE CHEST RADIOGRAPH NECESSARY AFTER CHEST TUBE REMOVAL IN NON-PULMONARY THORACIC SURGERY?
R. J. Hendrickson, T. A. Janik, B. S. Janik, and J. S. Janik The Children’s Hospital, The University of Colorado Health Science Center, Department of Pediatric Surgery, Colorado, U.S.A.

A BY-FORCE ENDOTRACHEAL INTUBATION FOR LONG-SEGMENTAL CONGENITAL TRACHEAL STENOSIS TO OVERCOME CHOKING BEFORE DELAYED SURGICAL REPAIR
S. Takamizawa, E. Nishijima, C. Tsugawa, T. Muraji, S. Satoh, Y. Tatekawa, K. Kimura Department of Surgery, Kobe Children’s Hospital, Kobe, JAPAN
MINIATURE ACCESS PECTUS EXCAVATUM REPAIR: LESSONS WE HAVE LEARNED
G. Zallen, P. L. Glick, J. Tantoco, M. D. Pearl, and H. Richard
Women’s and Children’s Hospital of Buffalo,
Department of Pediatric Surgery, New York, U.S.A

9:45 – 10:00 REFRESHMENT BREAK
IS THE USE OF LAPAROSCOPY TO DETERMINE PRESENCE OF CONTRALATERAL PATENT PROCESSUS VAGINALIS JUSTIFIED IN CHILDREN OVER 2 YEARS OF AGE?
A. Bhatia, K. W. Gow, K. E. Heiss, M. E. Wulcan, Emory University and Children’s Healthcare of Atlanta, Georgia U.S.A.

TREATMENT OF POSTOPERATIVE ANAL ANASTOMOTIC STRCTURE WITH TOPICAL MITOMYCIN C.
A. Zigman, Department of Surgery, Kaiser Permanente, Oregon, U.S.A.

PRENATAL DIAGNOSIS OF INTRATHORACIC STOMACH (GASTRIC HERNIATION)
A. Al-Assiri, N. Wiseman, M. Bunge
Departments of Pediatric Surgery and Radiology, Children’s Hospital of University of Manitoba, Manitoba, CANADA

THE EFFECTS OF LOCAL SUSTAINED RELEASE OF FIBROBLAST GROWTH FACTOR ON TESTICULAR BLOOD FLOW AND MORPHOLOGY IN SPERMATIC ARTERY AND VEIN LIGATED RATS
F. Güler, M. Bingöl-Kologlu, A. Ya-Murlu, C. Güven, N. Has-Re, Ö. Küçük, S. Aytaç, H. Dindar
Department of Pediatric Surgery, Division of Pediatric Urology, Departments of Histology, Nuclear Medicine and Radiology, Ankary University, Faculty of Medicine, Ankara, and Department of Chemistry, Faculty of Arts & Sciences, Middle East Technical University, Ankara, TURKEY
IDENTIFICATION OF TRANSFORMING GROWTH FACTORS ACTIVELY TRANSCRIBED DURING THE PROGRESS OF LIVER FIBROSIS IN BILIARY ATRESIA USING A CYTOKINE EXPRESSION ARRAY

Departments of Pediatric Surgery, Pathology and Surgery, Chang Gung Memorial Hospital and the Graduate Institute of Clinical Medicine, Chang Gung University, Kaohsiung Hsien, TAIWAN

11:00 – 11:15

RESIDENTS’ PRIZES

PRESIDENT’S CLOSING REMARKS
ABSTRACTS

RÉSUMÉS

ABBREVIATIONS

O   original 8-minute paper
R   resident’s paper
C/T 4 minute case/technique report

O,R  Adjudicated
C/T  Not adjudicated
ISSURGERY NECESSARY FOR INCIDENTALLY DETECTED ADRENAL MASSES IN CHILDREN?

Peter Masiakos¹, J. Ted Gerstle¹, Timothy Cheang¹, Sandra Viero²,
Peter C.W. Kim¹ and Paul W. Wales¹
Division of General Surgery¹ and Department of Pathology²,
The Hospital for Sick Children, Toronto, Canada

Background: No guidelines exist for the management of incidental adrenal masses (IAM) in children. Our aim was to determine if a subset of IAM could be safely observed.

Methods: A retrospective analysis of all adrenal masses either resected or biopsied between 1990-2002 (n=91). IAM was defined as a solitary adrenal mass discovered by either physical examination (n=6; 23.1%) or diagnostic imaging for other indications (n=20; 76.9%), without metastases or biochemical activity.

Results: Twenty-six (28.6%) IAM were detected [mean age 4.6 years; (range: antenatal - 17 years); 11 males, 15 females]. Pathologic diagnoses included: neuroblastoma (7), ganglioneuroma (6), adrenocortical adenoma (4), adrenal cyst/pseudocyst (3), adrenal hemorrhage (3), ganglioneuroblastoma (1), nodular cortical hyperplasia (1), teratoma (1). Eight masses were malignant (30.8%). Two of the five masses discovered on antenatal ultrasound were neuroblastoma. In comparing the benign to malignant lesions, there was no significant difference in mean size (4.8cm vs 4.3cm, p=0.57), radiologic characteristics, or mode of presentation. Malignant lesions occurred more frequently in younger children (mean age 1.2 yrs vs 6.2 yrs, p=0.03).

Conclusions: No clear guidelines can be established to predict benign IAM in children. Given the high proportion of malignant lesions, we recommend that all pediatric IAM should be resected.

Senior author:
Paul W. Wales
Division of General Surgery, Rm 1526
The Hospital for Sick Children
555 Univeristy Avenue
Toronto, Ontario M5G 1X8
Tel: (416) 813-7654 x.1490
Fax: (416) 813-7477
E-mail: paul.wales@sickkids.ca
SURGERY IS THE MAINSTAY OF TREATMENT IN CHILDREN WITH ADRENOCORTICAL TUMORS

Jessica N. Stewart, Hélène Flageole, Nancy Gagné, and Petr Kavan
Montreal Children’s Hospital, McGill University Health Center

Background: Adrenocortical tumors (ACTs) are rare in the pediatric population. The pathogenesis, prognostic indicators and management of these tumors are unclear due to its rarity. This case series presents our center’s surgical experience over 29 years.

Methods: The records of children treated for ACTs from 1974-2003 were reviewed. Information on age, sex, presenting symptoms, pathology, stage, treatment and outcome was obtained.

Results: Nine children were treated for ACTs. The median age at presentation was 29 months (range 5mo-11yrs). Endocrine dysfunction was found in 8. Four presented with virilization, four with both virilizing and cushingoid symptoms and one patient with Beckwith-Wiedemann syndrome was identified during routine screening. One was an adenoma and eight were carcinomas. Of the carcinomas, three were stage-I, four were stage-II and one was stage-IV. The mean tumor weight was 125g (range 42g to 336g) with a mean volume of 139 mL (range 30 mL to 626 mL). All patients had complete excision of the tumor. Spillage occurred in two cases. Lymph node sampling was done in 7 patients. Two patients received chemotherapy because of tumor size and nodal involvement. All patients are well including those with spillage. The patient with stage-IV disease has been off chemotherapy for seven months.

Conclusions: Our study shows that complete resection continues to be the mainstay of treatment for ACTs. The role of adjuvant chemotherapy remains unclear since most of the children in our series were effectively treated with surgical resection only. Patients should be enrolled in multicenter trials to assess the added value of chemotherapy.

Senior author:
Dr Petr Kavan
Montreal Children’s Hospital
2300 Tupper, suite C-402
Montreal, Quebec, Canada
H3H 1P3
Sponsoring CAPS member: Dr. Hélène Flageole
ASSOCIATION BETWEEN SURGICAL MARGINS AND LONG-TERM OUTCOME IN ADVANCED HEPATOBLASTOMA

B. J. Dicken, MD., D. L. Bigam, MD, FRCS, G. M. Lees, MD, FRCS
University of Alberta Hospital, Edmonton, Alberta

Background: Many patients with hepatoblastoma present with unresectable disease. Neoadjuvant therapy has improved resectability rates to as high as 75%. Despite this improvement, many patients will be left with tumors that are of borderline resectability. We hypothesize that favorable outcomes may be achieved even with resection margins less than 1 cm thus sparing the need for liver transplantation.

Methods: Between 1981 and 2003, 24 patients age < 16 with a diagnosis of hepatoblastoma were identified. The clinical characteristics, pathological resection margins and survival status were reviewed.

Results: Eighteen (75%) of the patients were alive and well with no evidence of recurrence at last follow-up. Thirteen (54.2%) had negative resection margins, while 10 (41.7%) had resection margins < 1 cm. Eleven (45.8%) presented with a PRETEXT III tumors. There was no significant difference in survival between resection margins <1 cm and ≥1 cm (p= 0.127 [RR=1.54; 95% CI 0.91-2.61]). Thirteen patients (54.2%) presented with synchronous pulmonary metastatic disease, where survival was significantly worse (p= 0.024 [RR=1.75; 95% CI 1.11-2.75]). Subgroup analysis confirmed that margins < 1 cm did not significantly affect survival after controlling for pulmonary metastatic disease (p= 0.56; [RR=1.60; 95% CI 0.71-3.63]).

Conclusion: Our results show that surgical resection with margins < 1 cm is associated with survival that is equivalent to resection with margins ≥ 1 cm. We suggest that an aggressive attempt at resection is justified and spares the need for liver transplantation in patients with advanced hepatoblastoma.

Senior author:
Dr Gordon Lees
8440 – 112 St. University of Alberta Hospital
Edmonton, Alberta
T6G 2B7
Phone: (780) 433-3107
Fax: (780) 433-0289
E-mail: gml@telusplanet.net
CT-VOLUME OF WILMS' TUMOR CAN PREDICT WEIGHT

S. Al-Shanafey, S. Lum Min, M. Schmidt, M. Yhap, N. Yanchar
IWK Health Centre, Halifax, Nova Scotia, Canada

Introduction: Wilms' tumor weight is a randomization criterion in NWTS group trials. We hypothesized that a simple calculation of tumor volume based on a preoperative computed tomographic (CT) examination could predict tumor weight. We further hypothesized that tumor weight may be altered depending on the surgical technique used; specifically it may diminish from what would be expected if the renal artery is ligated before the vein.

Methods: We reviewed charts and CT images of patients with Wilms' tumors who were treated at our institution between 1985 and 2002. Tumor volume was calculated as: V = 0.523 x d (long axis) x d (short axis) x d (cranio-caudal). Weight and calculated tumor volume were correlated using linear regression. Comparisons were drawn between cases where the renal artery was documented to have been ligated before the vein and those where the vein was ligated first.

Results: Complete data of tumor weight and volume could be determined in 25/49 patients. These were highly correlated overall (n = 25, R= 0.98), and in the artery-first (n = 7, R = 0.96) and vein-first (n=7, R = 0.99) subgroups. Mean ratio of weight/volume was 1.8 when the renal artery was ligated first and 1.2 when the vein was ligated first.

Conclusion: Wilms' tumor weight can be predicted from the calculated volume. Our limited data do not support our hypothesis that tumour weight is altered depending on the surgical technique used. This indicates that post-resection weight is a reliable indicator of tumor bulk and a valid predictor by which therapy may be based.

Senior author:
Dr Natalie Yanchar MD, MSc, FRCSC
IWK Health Centre
5850 University Avenue
P. O. Box 3070
Halifax, NS B3J 3G9
Canada
Tel.: (902)470-8194
Fax: (902)470-7260
E-mail: Natalie.Yanchar@iwk.nshealth.ca
RARE RENAL TUMOR IN A CHILD

Rob Wilson, A.W Juckes, T.S. Goh, M. Haq, Q. Li and S. Himidan

Background: We present a case of renal spindle cell sarcoma (SS) initially misdiagnosed as inflammatory myofibroblastic tumor (IMT). Both are rare entities. We discuss several pitfalls encountered in making the correct diagnosis and suggest some changes for future management

Case report: A 5-year-old boy presented with a right-sided renal mass. Initial diagnosis of Wilms tumor was made. Nephrectomy was carried out. A national Wilms tumor pathologist in a major center diagnosed the tumor as IMT, and accordingly no further treatment was given.

Ten months later he presented with a mass occupying the left hemithorax with marked mediastinal shift and compromise. Biopsy was similar to the original renal tumor.

Review of the initial kidney lesion and the chest mass slides by a POG pathologist with experience in IMT revealed both to be SS. Salvage chemotherapy was attempted but the tumor showed evidence of growth during treatment. Resection was carried out. The patient died of brain metastases.

Conclusion: SS of the kidney is a rare entity. Differentiation from the more common Wilms tumor and the rare IMT is essential. An experienced pathologist and the utilization of genetic testing are mandatory in order to place these patients in the correct management protocol.

Senior author:
Sharifa Himidan
Pediatric outpatient.
1440, 14th Avenue
Regina, SK
S4P 0W5
E-mail: shimidan39@hotmail.com
GASTRO-INTESTINAL STROMAL TUMOR
ARISING FROM THE STOMACH: A REPORT OF THREE CHILDREN

Megan Durham, MD, Kenneth W. Gow, MD,
Bahig M. Shehata, MD, Richard R. Ricketts, MD
Emory University and Children’s Healthcare of Atlanta,
Atlanta, Georgia, USA

Background: Gastrointestinal stromal tumor (GIST) is an intestinal mesenchymal
tumor that behaves in an aggressive fashion. It has been commonly described in
adults, but has been rarely described in children.

Methods: We review the presentation, workup, operative records, pathologic
specimens, and outcomes of three consecutive children in our institution with
GIST what have originated from the stomach.

Results: All three children presented following upper gastrointestinal bleeding
from the tumor. The first is a ten-year-old girl who underwent partial gastrectomy
but developed a recurrence eight years later requiring a second resection. She
subsequently developed a hepatic metastasis sixteen years after the initial
diagnosis, requiring a third resection. The second patient is a nine-year-old female
who had an antrectomy with a Billroth I reconstruction and was found to have a
synchronous liver metastasis that was also resected. She is currently involved in
a clinical trial with the new agent, Imatinib Mesylate. The third child is a four-year-
old boy who has recently undergone a partial gastrectomy to remove a GIST and
has no signs of metastatic disease at this time.

Conclusions: GIST is an unusual tumor that has been rarely described in children.
When these lesions arise in the stomach, the clinical presentation is upper
gastrointestinal bleeding. Adequate diagnosis can be made with endoscopy and
biopsy. GIST requires resection and close observation for hepatic metastases.
Current studies are underway to determine the potential role of Imatinib Mesylate
in the treatment of pediatric cases of GIST.

Senior author:
Richard R. Ricketts, MD
2040 Ridgewood Drive, NE
Atlanta, GA, 30322
Tel: 404-727-3779
Fax: 404-727-2120
E-mail: Richard.ricketts@oz.ped.emory.edu

kenneth.gow@oz.ped.emory.edu
INCIDENCE OF MALPOSITION IN 500 CONSECUTIVE CENTRAL VENOUS CATHETERS

J.C. Naumann, H. Paultin, M. A. Heimrath, R. Glick, M. L. Brandt,
Michael E. DeBakey Department of Surgery,
Houston, TX

Purpose: Malposition of central venous catheters is a recognized problem in adults, occurring in as many as 60% of patients. The incidence of catheter malposition in children has not previously been reported.

Methods: Initial post-operative chest x-rays from 500 consecutively placed central lines were evaluated for line position. Fluoroscopy was used for all lines placed in the operating room.

Line position was grouped as follows:
- **Optimal:** junction of the superior vena cava (SVC) and the right atrium (RA).
- **Acceptable:** SVC
- **Sub-optimal:** proximal or distal to SVC
- **Unacceptable:** all suboptimal catheters excluding proximal RA

Results: 500 catheters were placed in 433 patients. There were 116 percutaneous lines, 224 tunelled catheters, 124 Ports and 16 PICC lines. Catheter tip position was optimal in 77/500 (15%), acceptable in 195/500 (39%) and suboptimal in 228/500 (46%). 95 of the 228 suboptimal catheters had the catheter tip in the proximal RA. 133 (27%) catheters were in an unacceptable position. One pt had a post-operative pneumothorax (0.2%).

Conclusions: These data suggest that catheter malposition occurs frequently in children, despite the use of intraoperative fluoroscopy. The post-operative pneumothorax rate is low in children undergoing placement of central venous lines.
BACTERIAL CONTAMINATION OF CENTRAL VENOUS LINES DURING INSERTION: A DOUBLE BLIND RANDOMISED CONTROLLED TRIAL

N. Hall, N. Ade-Ajayi, D. Roebuck, T. Kleidon, J. Hartley, A. Pierro
Departments of Paediatric Surgery, Radiology and Microbiology
Institute of Child Health and Great Ormond Street Hospital
London, United Kingdom

Background: Static electricity within sterile packaging may result in bacterial contamination of central venous lines prior to insertion. To prevent this, some surgeons inject saline into the pack before opening it. This trial was designed to determine the effect of this procedure.

Method: Double blind randomised controlled trial of 47 central venous lines comparing injection of 2ml of sterile saline into the pack prior to opening with no injection. Five centimetre lengths cut from the tip of the line before and after subcutaneous tunnelling were sent for microbiological culture.

Results: Eight lines (17%) showed evidence of bacterial contamination prior to insertion into the vein. Two (4.2%) were contaminated prior to tunnelling and seven (14.9%) afterwards. One line was contaminated before and after tunnelling. All but one of the contaminating bacteria were coagulase negative staphylococci. There was no significant difference in the contamination rate between lines from packs that had been injected (5/25) and those that had not (3/22), p=0.56.

Conclusions: Just under one fifth of lines are contaminated with bacteria prior to insertion into the vein. The clinical significance of this is unknown. There is no evidence to support the practise of injecting the line pack prior to opening.

Senior author:
Professor A. Pierro
Department of Surgery
Institute of Child Health
30 Guilford Street
London WC1N 1EH
United Kingdom
Tel: +44 207 905 2641
Fax: +44 207 404 6181
E-mail: a.pierro@ich.ucl.ac.uk
TRANEES SUPERVISION DURING SURGERY HAS A MAJOR IMPACT ON PATIENT OUTCOME

Moti M. Chowdhury, Lewis Spitz, Agostino Pierro
Institute of Child Health and Great Ormond Street Hospital,
London, United Kingdom

Purpose: To quantify outcomes of surgical trainees relative to consultants.
Methods: Studies comparing outcomes of operations performed by consultants versus supervised trainees (STs) or unsupervised trainees (UTs) were identified in MEDLINE, EMBASE and Cochrane databases. Meta-analysis was performed for complication rate, mortality rate and operative time using MetaView (Cochrane Collaboration). For dichotomous variables, the odds ratio (OR) and 95% confidence intervals (CI) was calculated. For the continuous variables, the weighted mean difference (WMD) and 95% CI was calculated.
Results: Twenty-nine articles were identified, which examined 26 different procedures. There were no randomised studies.
Consultant vs. supervised trainees: Operations performed by STs were associated with 21% fewer complications (OR = 0.79 (CI 0.67-0.92); p=0.002), comparable mortality rate (OR = 0.98 (CI 0.84-1.14); p=0.78) and longer operative times (WMD = 6.29 minutes (CI 2.42-10.16); p=0.001) compared to consultants.
Consultant vs. unsupervised trainees: Operations performed by UTs incurred twice as many complications (OR = 2.33 (CI 1.38-3.94); p=0.001) and 28% higher mortality (OR = 1.28 (CI 1.01-1.63); p=0.04) compared to consultants.
Conclusions: Supervised surgery can promote trainee experience without compromising patient outcome. Trainees should not perform major operations unsupervised until adequate competency is demonstrated. These data are relevant for training and medico-legal issues.

Senior author:
Professor Agostino Pierro MD FRCS FAAP
Surgery Unit
30 Guilford Street
London WC1N 1EH
UK
Telephone: +44 (0)20 7905 2641/2175
Fax: +44(0)2074046181
E-mail: a.pierro@ich.ucl.ac.uk
THE TWO WEEK PEDIATRIC SURGERY ROTATION: IS IT TIME WASTED?

S. Dutta, P. W. Wales, and A. Fecteau,
Hospital for Sick Children, Toronto

Background: With increasing medical school emphasis on generalist training and decreasing enrollment in surgical residency, we assessed the adequacy of a 2-week Pediatric Surgery rotation on meeting the learning and competency objectives outlined in The Canadian Association of Pediatric Surgeons’ Self-directed Evaluation Tool.

Methods: Prospective survey of 39 clinical clerks. An anonymous self-assessment scale measuring competency objectives (medical and psychosocial) was administered Pre- and Post-rotation. Also, exposure to Pediatric Surgical conditions from a list of “essential” and “nonessential” learning objectives was measured. Statistical analysis was performed using paired t-test with significance at 0.05 level.

Results: Response rate: 77% and 54% for the competency and learning objectives, respectively. Students reported improvement in medical (p<0.00001; 95%CI 1.30, 1.90) and psychosocial (p=0.00036; 95%CI 0.64,1.28) competency objectives after the rotation. Almost all “essential” learning objectives were met. Overall, students reported an increased awareness of the breadth of Pediatric Surgical practice (p<0.0001; 95%CI 2.06,3.18).

Conclusions: A 2 week rotation in Pediatric Surgery appears adequate in fulfilling most competency and learning objectives, but discussion is needed about how to best assess student competency, which topics are considered essential and the long-term effect on recruitment to the profession.

Senior author:
Dr. Annie Fecteau
Dept. of General Surgery
The Hospital for Sick Children
555 University Ave.
Toronto, Ontario, Canada
M5G 1X8
Ph: 416 813 6402
Fax: 416 813 7477
E-mail: annie.fecteau@sickkids.ca
META-ANALYSIS OF LAPAROSCOPIC VERSUS OPEN PYLOROMYOTOMY

N. Hall, J. Van der Zee, H. Tan, A. Pierro
Department of Paediatric Surgery
Great Ormond Street Hospital and the Institute of Child Health
London, UK
&
The University of Adelaide and Department of Paediatric Surgery
Women’s & Children’s Hospital
North Adelaide, South Australia

Purpose: To determine which approach to pyloromyotomy is better.
Methods: Meta-analysis of all studies (n=7) comparing laparoscopic pyloromyotomy (LP) with open pyloromyotomy (OP) for infantile hypertrophic pyloric stenosis. OP and LP were compared in terms of operating time, efficacy, recovery time and complications. Weighted mean difference (WMD) and 95% confidence intervals for continuous variables and relative risk (RR) for dichotomous data were calculated.
Results: No prospective randomised controlled trials were identified. Five studies were retrospective reviews. 345 infants underwent OP and 230 underwent LP. There were no demographic differences between the groups. There was no difference in operating time (WMD 0.31 min (-1.75, 2.37), p=0.8). Time to full feeds (WMD 9.47 hours (7.93, 11.01), p<0.00001) and post-operative length of stay (WMD 7.95 hours (4.37, 11.53), p=0.00001) were longer following OP. Incomplete pyloromyotomy was more common with LP, (RR 0.36 (0.07, 1.93), p=0.2) and the complication rate higher (RR 0.66 (0.4, 1.08), p=0.1).
Conclusions: OP is associated with fewer complications and higher efficacy although these differences are not statistically significant. Recovery time, measured by time to full feeds and post-operative stay is significantly shorter following LP. A prospective randomised controlled trial is warranted to fully investigate these and other outcome measures.

Senior author:
Professor A. Pierro
Department of Surgery
Institute of Child Health
30 Guilford Street
London WC1N 1EH
United Kingdom
Tel: +44 207905 2641
Fax: +44 207 404 6181
E-mail: a.pierro@ich.ucl.ac.uk
HYPERTROPHIC PYLORIC STENOSIS AND ATROPINE: WHEN TO USE IT?

S. Al-Shanafey, H. Mohsin, M. Giacomantonio
IWK Health Centre, Halifax, Nova Scotia, Canada

For long time, pyloromyotomy has been regarded the treatment of choice for hypertrophic pyloric stenosis (HPS), and the medical management of this entity became historical. Recently, use of atropine in the management of HPS has reemerged with reported reasonable success. Although atropine seems to be safe and has been used successfully, its role has not yet been clarified. We used atropine successfully to manage a case of HPS that developed in a neonate 3 weeks after repair of his giant omphalocele with silastic silo. The clinical course including symptoms and radiological progression is presented. We chose the medical option because of the difficult access and the fact that a surgical procedure at this stage would disturb the omphalocele repair, and probably be hazardous to the patient. We believe as a result of this success that the medical management of HPS with atropine may have a role at least when the surgical option is not possible or is risky.

Senior author:
Dr Michael Giacomantonio MD, FRCSC
IWK Health Centre
5850 University Avenue
P.O. Box 3070
Halifax, NS B3J 3G9
Canada
Tel: (902) 470-8114
Fax: (902) 470-7260
E-mail: saud132@hotmail.com
LAPAROSCOPIC CYSTOGASTROSTOMY FOR THE TREATMENT OF PEDIATRIC RETROGASTRIC PANCREATIC PSEUDOCYSTS

Samer Cabbabe, MD, Kenneth W. Gow, MD, Kurt E. Heiss, MD, Mark E. Wulkan, MD
Emory University and Children’s Healthcare of Atlanta, Atlanta, Georgia, USA

Background: Pancreatic pseudocysts are common sequelae of pancreatitis and pancreatic trauma. The management is based on the size and presence of symptoms. Those that require intervention are often drained with several options available. Recently, the use of laparoscopic cystogastrostomy has been described to minimize the extent of surgery. This technique is considered a novel approach in children.

Methods: We describe two children who had pancreatic pseudocysts successfully treated using laparoscopic cystogastrostomy. The first was an eleven-year old girl who suffered blunt abdominal trauma from a bicycle handbar. The second patient was a seven-year old girl who had idiopathic pancreatitis. Briefly, a port was placed into the peritoneal cavity while two ports were placed through the abdominal wall and anterior wall of the stomach into the stomach to allow approach to the posterior wall of the stomach. Using bovie electrocautery, the pseudocyst was entered to thereby drain the pseudocyst. Since the cysts were adherent to the posterior wall of the stomach, no sutures were needed to allow continued drainage.

Results: Both children tolerated the surgery well with resolution of their pancreatic pseudocysts. The patients were each discharged on the fourth post-operative day on a low-fat diet. Neither child has had any recurrences of pancreatitis or further need for intervention.

Conclusions: Laparoscopic cystogastrostomy is a safe and effective alternative choice for a minimally invasive management of children who have pancreatic pseudocysts traditionally treated by open cystogastrostomy.

Senior author:
Mark E. Wulkan, MD
2040 Ridgewood Drive, NE
Atlanta, GA, 30322
Telephone: 404-727-3779
Fax: 404-727-2120
E-mail: mark.wulkan@oz.ped.emory.edu
GASTROSTOMY IN NEONATES WITH ESOPHAGEAL ATRESIA: COMPARISON OF OPEN VERSUS PERCUTANEOUS TECHNIQUES

Dalal Aziz, Peter Chait, Felix Kreichman, Jacob C. Langer  
Hospital for Sick Children,  
Toronto, Canada

**Background:** Neonates with esophageal atresia (EA) may require a gastrostomy prior to definitive repair. We compared the standard open operation to a new image-guided percutaneous technique developed for gastrostomy placement in these infants.

**Methods:** We retrospectively reviewed all neonates with EA who underwent gastrostomy placement between 1992 and 2003. Open gastrostomy was done through a laparotomy using a Stamm technique. Percutaneous tubes were inserted by interventional radiology under fluoroscopic guidance. Patients with pure EA and a gasless abdomen underwent a novel approach using a transhepatic needle to instil air into the stomach, followed by gastrostomy insertion using fluoroscopy.

**Results:**

<table>
<thead>
<tr>
<th></th>
<th>Open (n=25)</th>
<th>Percutaneous (n=14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type A/Type C</td>
<td>40%/60%</td>
<td>21%/79%</td>
</tr>
<tr>
<td>Mean age at insertion (days)</td>
<td>3 ± 5</td>
<td>5 ± 8</td>
</tr>
<tr>
<td>Mean weight at insertion (kg)</td>
<td>2.14 ± 0.54</td>
<td>2.35 ± 1.03</td>
</tr>
<tr>
<td>Minor leak, infection, or displacement</td>
<td>64%</td>
<td>36%</td>
</tr>
<tr>
<td>Gastric perforation requiring reoperation</td>
<td>8%</td>
<td>0%</td>
</tr>
<tr>
<td>Age at tube removal (mo)</td>
<td>13 ± 19</td>
<td>8 ± 10</td>
</tr>
</tbody>
</table>

**Conclusion:** Percutaneous gastrostomy insertion is a safe technique for neonates with EA, and can be used even in children who have a gasless abdomen, such as those with pure EA. This technique does not require laparotomy, and appears to be associated with a lower rate of complications.

**Senior author:**  
Jacob C. Langer, MD  
Rm 1526, Hospital for Sick Children  
555 University Ave, Toronto, ON M5G 1X8  
Phone: 416-813-6405  
Fax: 416-813-7477  
E-mail: jacob.langer@sickkids.ca
ISSURGERY NECESSARY FOR ASYMPTOMATIC TETHERED CORD IN ANORECTAL MALFORMATION (ARM) PATIENTS?

Sascha E. Tuuha, Dalal Aziz, James Drake, Paul Wales, and Peter C.W. Kim
Hospital for Sick Children,
Toronto, Canada

Background: Evidence supporting routine surgery for asymptomatic tethered cord (TC) in patients with ARM is at best speculative. We therefore examined whether untethering is indicated for asymptomatic TC in patients with ARM.

Methods: A retrospective analysis of all patients with ARM (n = 139) between 1992 and 2002 was conducted. During the same period, 435 patients had surgery for TC.

Results: TC was detected radiologically in 22/139 (16%); 8 patients with a low conus, and 14 with a low conus with and thickened filum. Seven out of 22 patients underwent untethering; 2 prophylactic (9%) and 5 for neuro/motor function deficits (23%). All 5 symptomatic patients had significant clinical improvement in their neuro/motor functions following surgery. However, bowel and urinary functions remained unchanged in all 7 patients with a mean follow up of 6.4 years (Range: 4 to 8 years). Fifteen radiologically diagnosed TC patients remain asymptomatic with a mean follow up of 2.7 years (Range: 8 months to 10 years).

Conclusions: Neuro/motor functions clearly improved with surgery in symptomatic patients. However, bowel and urinary functions remained unchanged following surgery. Only five ARM patients with TC required surgery while prophylactic surgery appears to have minimal benefit. Expectant conservative approach in the management of asymptomatic TC patient appears to be safe.

Senior author:
Peter C. W. Kim
Hospital for Sick Children
555 University Avenue, Room 1526
Toronto, M5G 1X8
Tel: 416-813-6357
Fax: 416-813-7477
E-mail: peter.kim@sickkids.ca
PORTAL-MESENTERIC THROMBOSIS AS A COMPLICATION OF APPENDICITIS IN CHILDREN

E. A. Vikis, J. J. Murphy, E. M. Webber
Department of Surgery, BC's Children's Hospital
and the University of British Columbia,
Vancouver, British Columbia, Canada

Background: Portal vein thrombosis (pyelephlebitis) is a known complication of appendicitis. Due to its rarity, the literature regarding this condition in the pediatric population is limited and hence recommendations for clinical management of this problem remain to be established. Herein we describe three cases of complicated appendicitis at our institution.

Methods: The records of three children managed for appendicitis complicated by portal vein thrombosis were reviewed.

Results: All three patients presented with prolonged clinical features consistent with complicated appendicitis. Ultrasound in two cases and CT imaging in the third case demonstrated portal vein thrombosis. Coexisting coagulation disorders were excluded. All three patients underwent aggressive antibiotic and anticoagulation therapy while in hospital. The three patients received different treatments for their appendicitis: one underwent immediate appendectomy, one had percutaneous drainage of an abscess with interval appendectomy, and the third was managed non-operatively. No thromboses progressed and in one patient there was complete resolution four weeks after discharge. After discharge from hospital, all patients did well irrespective of the treatment with no long-term sequelae.

Conclusion: The rarity of portal vein thrombosis complicating appendicitis makes it difficult to define appropriate treatment regimens. We believe that early recognition, and treatment with antibiotics and anticoagulation with appropriate follow-up are all important features in the management of portal circulation thromboses in complicated appendicitis.

Senior author:
Webber, EM
K0-123, 4480 Oak Street
Vancouver, British Columbia
V6H 3V4 (604)875-3744 fax (2721)
E-mail: emwebber@interchange.ubc.ca
A "PLASTIC" SUTURELESS ABDOMINAL WALL CLOSURE IN GASTROCHISIS

Anthony Sandler, MD, John Lawrence, MD, John Meehan, MD, Laura Phearman, RN and Robert Soper, MD
Division of Pediatric Surgery, The University of Iowa Hospitals, Iowa City, IA

Background: Several techniques are described for closure of the gastroschisis abdominal wall defect. We describe a technique that allows for spontaneous closure that is simple, cosmetic and minimizes intra-abdominal pressure following bowel reduction.

Methods: Under either general anesthetic or conscious sedation, the gastroschisis bowel is decompressed and the bowel is primarily reduced. The gastroschisis defect is covered with the umbilical cord tailored to fit the opening and two Tegaderm® dressings reinforce the defect ("plastic closure"). Intra-gastric pressure is monitored during and after the procedure. If primary reduction is not possible the bowel is reduced daily via a spring-loaded silo (Bentec Medical, Ca). Following reduction of the bowel the defect is allowed to close spontaneously using the "plastic closure" technique. We prospectively treated a cohort of patients with gastroschisis that included simple to complicated cases using this technique.

Results: Ten consecutive children with gastroschisis were managed in which six children had a primary reduction and simple closure of their defect using the "plastic closure". In the remaining four children, the "plastic closure" was used either primarily or secondarily to silo placement, despite the need for repair of complex intestinal anomalies. The average times to first feed and discharge were 12.5 and 28.3 days respectively. Six of the 10 children (60%) developed small umbilical hernias and only one underwent operative repair at 13 months of age.

Conclusions: The "plastic closure" of gastroschisis is simple, safe and cosmetically appealing. Intra-abdominal pressures are well controlled and the umbilical position remains centrally located in this sutureless technique. Umbilical defects can occur, but are observed for spontaneous closure like most primary umbilical hernias.

Senior author:
Anthony Sandler, MD
Department of Surgery,
The University of Iowa Hospitals and Clinics,
Iowa City, IA 52242
Phone: 319-356-1766
Fax: 319-356-8378;
E-mail: anthony-sandler@uiowa.edu
Routine Cesarean Delivery Does Not Improve the Outcome of Infants with Gastrochisis

P. S. Puligandla, A. Janvier, E. Mok, S. Bouchard, J-M. Laberge, and H. Flageole
The Montreal Children’s Hospital and Hopital Ste-Justine
Montreal, Quebec, Canada

Background: The optimal mode of delivery for infants with gastrochisis is controversial. We compared the outcomes of infants with gastrochisis born vaginally (VD) or by cesarean section (CS).

Methods: A retrospective analysis of infants with gastrochisis between 1990-2000 was performed. Assessment included: patient demographics, respiratory distress, method of closure, number of surgeries, presence of atresia, feeding parameters, parenteral nutrition days (TPN), time to full feeding (FPO), mortality, and length of stay (LOS). Subgroup analyses were performed for those infants requiring cesarean section for fetal distress. Student’s t-test/ANOVA or Chi square/Fisher Exact tests were used for statistical analysis.

Results: 113 patients were studied (85 VD and 28 CS). No statistical difference existed between the VD and CS groups for perinatal complications, method of closure, number of surgeries (1.6 each), TPN (40.1 vs 48.0 days), FPO (40.0 vs 49.0 days), mortality (7.1% each) and LOS (52.8 vs 64.4 days). CS was associated with increased stenosis (25.0 vs 5.8%, P=0.009), gastrointestinal dysfunction (28.5 vs 10.8%, P=0.032), and respiratory distress (17.8 vs 3.5%, P=0.022). Differences did not persist when infants undergoing CS for fetal distress were excluded from the analysis.

Conclusion: The routine use of CS for infants with gastrochisis is not supported by our results since equivalent outcomes were observed with both modes of delivery. CS may be a necessary intervention for fetal distress.

Senior author:
Dr. H. Flageole
Montreal Children’s Hospital
2300 Tupper Street, Rm C-1129
Montreal, QC H3H 1P3
NEONATAL SHORT BOWEL SYNDROME: POPULATION-BASED ESTIMATES OF INCIDENCE AND MORTALITY RATES

Paul W. Wales¹, Nicole de Silva¹², Jae Kim²³, Loreto Lecce² and Aideen Moore²
Divisions of General Surgery¹, Neonatology³ and Gastroenterology³,
The Hospital for Sick Children, Toronto, Canada

Background: Congenital or acquired neonatal short bowel syndrome (SBS) carries a significant morbidity and mortality. No accurate population estimates of incidence and mortality exist due to differences in definition, follow-up, and regional referral patterns.

Methods: A retrospective cohort study was performed involving 175 surgical neonates admitted to our institution from January 1, 1997 to December 31, 1999 and followed until July 1, 2001. Institution and population-based estimates of incidence and mortality were performed using postcensal population figures (1997) from Statistics Canada.

Results: The overall incidence of SBS was 22.1/1000 NICU admissions (95%CI=15.3, 28.9) and 24.5/100,000 live births (95%CI=12.1, 36.9). The incidence was much greater in premature infants (<37 weeks). The SBS case fatality rate was 37.5% (95%CI=22.5, 52.5) and the cause-specific and proportional mortality rates (for children <4 years old) were 2.0/100,000 population/year (0.4-3.6/100,000/year) and 1.4% (0.3-2.6%), respectively.

Conclusions: Patients with neonatal SBS pose a complex management challenge and are responsible for a significant cost to the health care system. To our knowledge, this study represents the first population-based estimates for neonatal SBS incidence and mortality rates. Accurate estimates will assist clinicians in counseling parents, allocating resources, as well as, planning clinical trials.

Senior author:
Paul W. Wales
Division of General Surgery, Rm 1526
The Hospital for Sick Children
555 University Avenue
Toronto, Ontario M5G 1X8
Phone: (416) 813-7654 x.1490
Fax: (416) 813-7477
E-mail: paul.wales@sickkids.ca
**Hereditary Multiple Intestinal Atresia: Thirty Years After**

Audrey Bilodeau, Pascale Prasil, Raymond Cloutier, Guy Roy, Suzanne Leclerc, Jean Péloquin.
Centre Hospitalier de l’Université Laval. Sainte-Foy, Qc, Canada

**Background:** Hereditary multiple intestinal atresia (HMIA) is an unusual form of intestinal atresia with a presumed autosomal recessive mode of inheritance. The aim of this study is to review our experience with this disease, thirty years after its first description.

**Methods:** All cases of HMIA treated since 1979 at our institution were reviewed with a special focus on genetic profile, prenatal diagnosis, radiological and surgical findings, pathological report and outcome.

**Results:** Sixteen cases were identified. Only two patients were siblings (one newborn and one aborted fetus) and close consanguinity was proven in one other case. Bowel obstruction was suspected on prenatal ultrasound in six patients but HMIA could not be diagnosed specifically. Radiological, surgical and pathological findings were compatible with the standard description of this disease in the literature. All patients died except one who is currently in palliative care. Mean survival was 45 days.

**Conclusion:** Thirty years after its first description, HMIA is still a disease without reliable prenatal diagnosis and effective surgical therapy. An autosomal recessive mode of inheritance is suspected but spontaneous mutation is not excluded. Until accurate in utero diagnosis becomes available, children with HMIA should be oriented towards palliative care.

**Senior author:**
Dr Pascale Prasil
Department of Pediatric Surgery, suite 2211
Centre Hospitalier de l’Université Laval
2705 Laurier Boulevard
Sainte-Foy (Québec)
Canada, G1V 4G2
Phone: (418) 654-2259
Fax: (418) 654-2247
E-mail: pascaleprasil@hotmail.com
MECONIUM OBSTRUCTION IN EXTREMELY LOW BIRTH WEIGHT INFANTS: GUIDELINES FOR DIAGNOSIS AND THERAPY

Sherif Emil, MD,CM, Thang Nguyen, MD, Jack Sills MD, Guadalupe Padilla, MD
University of California, Irvine Medical Center, Orange, California
Miller Children’s Hospital, Long Beach, California

Background: Although meconium obstruction, without cystic fibrosis, in extremely low birth weight infants has been previously described, guidelines for diagnosis and therapy are still unclear.

Methods: All premature infants presenting with meconium obstruction over a five year period were retrospectively reviewed. Patients with colonic meconium plugs or cystic fibrosis were excluded.

Results: Seven patients were identified. Average birth weight and gestational age were 874 grams and 27.7 weeks, respectively. All were products of high risk pregnancies, and six (86%) were delivered by emergent Caesarian section. All patients had distended abdomens without peritonitis. Abdominal films showed multiple distended intestinal loops without air-fluid levels in all cases. Four patients (57%) had contrast enemas, all showing microcolon. Non-operative therapy, consisting of rectal irrigations and N-acetylcysteine per orogastric tube, succeeded in three patients who were obstructed for less than 10 days and failed in one patient obstructed for 12 days. Four patients, all obstructed for more than 10 days, were operated. Operations performed were enterotomy and evacuation of meconium (2), ileostomy (1), and initial peritoneal drainage for perforation followed by bowel resection for an intussusception with meconium as a lead point (1). All patients survived with intact bowel function.

Conclusions: Severely premature neonates with meconium obstruction can be diagnosed by their typical clinical and plain radiographic characteristics, without need for a contrast enema. Non-operative treatment is successful early in the course of the obstruction. In the absence of an intestinal complication, simple enterotomy and meconium evacuation effectively treats long-standing obstruction.

Senior author:
Sherif Emil, MD,CM
Division of Pediatric Surgery
UCI Medical Center
Building 53; Route 81
Orange, CA 92868
Telephone: (714) 456 8581
Fax: (714) 456-8931
E-mail: semil@uci.edu
VOLVULUS: POTENTIAL LEthal OUTCOME OF ROUX-EN-Y JEJUNOSTOMY IN CHILDREN

Jon Ryckman M.D., Philip J. Wolfson M.D. and Stephen G. Murphy M.D.
A.I. Dupont Hospital for Children
Wilmington, Delaware  U.S.

Background: In the pediatric population with neurologic disorders, anatomic abnormalities or metabolic disturbances, feeding access can be life-sustaining. Jejunal access may be the preferred route in a subset of patients, especially those with recalcitrant gastro-esophageal reflux after fundoplication. The Modified Maydl Roux-en-Y jejunostomy was developed to reduce the complication rate of jejunostomy. The literature supports a minimal morbidity rate with this technique. In the pediatric population, no deaths related to the procedure have been reported. We identified two patients with a lethal outcome.

Methods: Retrospective chart review

Results: Two patients presented with symptoms of small bowel obstruction after previously undergoing a Roux-en-Y jejunostomy. At laparotomy, both patients were noted to have a volvulus of the small bowel around the Roux-en-Y loop. Both patients died as a result of this complication.

Conclusion: Lethal small bowel volvulus as a complication of Roux-en-Y jejunostomy has not been previously reported in the pediatric populace. We report two lethal outcomes. In children with Roux-en-Y jejunostomies presenting with symptoms of intestinal obstruction, we strongly recommend hypervigilance and urgent investigation to exclude small bowel volvulus.

Senior author:
Stephen G. Murphy M.D.
A. I. Dupont Hospital for Children
Department of Surgery,
1600 Rockhund Road,
Wilmington, Delaware 19899  U.S.
Tel.: (302) 651-5999
Fax: (302) 651-5990
E-mail: smurphy@nemours.org
SPONTANEOUS PNEUMOMEDIASTINUM:
ARE WE OVER-INVESTIGATING?

J. Chapdelaine, M. Beaunoyer, D. St-Vil, D. Bérubé, P. Daigneault, A. Ouimet
Hôpital Sainte-Justine, Montréal, Québec

Background: Spontaneous pneumomediastinum (SPM) is uncommon in pediatrics. With the evolving concern about risk of radiation in children, we analysed if an extensive radiological workup influence management and outcome.

Method: In a retrospective study from 1991 to 2003, 54 patients were diagnosed with SPM. Charts were reviewed for demographics, predisposing factors, presentation, investigation and evolution. Pneumomediastium in the neonatal period or related to pneumothorax, barautrauma or trauma were excluded.

Results: Of 54 cases, 26 (48%) where bronchospasm related, 12 (22%) had respiratory infection and 8 (15%) were idiopathic. Foreign bodies inhalation and other causes accounted for 7.5% respectively. No oesophageal perforation where identified. Presentations included: dyspnea (64%), sub-cutaneous emphysema (60%), cervical or chest pain (42%), coughing (42%) and Hamman sign (10%). Antero-posterior chest film was diagnostic in all cases except one. Mean chest x-rays per hospitalisation was 3.2. Only 3 patients subsequently developed pneumothorax and none required pleural drainage. Of the 8 patients with idiopathic SPM, 5 underwent a barium swallow and 2 had chest CT scan which where all normal.

Conclusion: Over 70% of SPM are related to bronchospasm or respiratory infection. Idiopathic SPM deserve some attention because of the concern about oesophageal perforation although most investigation will be negative. SPM is usually a self-limited condition and prognosis is related to the underlying disorder. Consequently, with clinical improvement, aggressive investigation and follow-up x-ray is rarely warranted.

Senior author:
Dr. Dickens St-Vil
Hôpital Sainte-Justine
3175, Chemin Côte Sainte-Catherine
Montréal (Québec)
H3T 1C5
Tel.: (514) 345-4688
Fax: (514) 345-4964
E-mail: dickens_saint-vil@ssss.gouv.qc.ca
MODERATE HYPOTHERMIA ATTENUATES HEPATIC APOPTOTIC SIGNALLING FOLLOWING INTESTINAL ISCHAEMIA-REPERFUSION

Institute of Child Health
London, United Kingdom

Background: Moderate hypothermia throughout intestinal ischaemia-reperfusion (IIR) injury reduces multiorgan dysfunction. Signal transducers and activators of transcription (STAT) proteins are pivotal in apoptosis.

Purpose: To study the mechanism of hypothermic protection during IIR.

Methods: Adult rats underwent intestinal ischaemia (60min) and reperfusion (60min) or sham (120min) at either normothermia (36-37°C) or moderate hypothermia (31-33°C). 4 groups (n=6) were studied: 1) normothermic sham (NS); 2) normothermic IIR (NIIR); 3) hypothermic sham (HS); 4) hypothermic IR (HIIR). Western blotting measured phosphorylated (p-) and total (T-) hepatic STAT-1 and STAT-3, normalised to tubulin (mean±SEM).

Results: There were no differences in T-STAT-1 (NS 0.92±0.19; NIIR 0.88±0.18; HS 0.88±0.15; HIIR 0.92±0.20). T-STAT-3 significantly increased following normothermia (NS 0.69±0.06; NIIR 0.86±0.06, p<0.05) but was unaltered following hypothermia (HS 0.65±0.05; HIIR 0.66±0.04). In NIIR, there was a significant increase in p-STAT-1 (NS 0.38±0.15; NIIR 0.54±0.13, p<0.05) and a highly significant increase in p-STAT-3 (NS 0.46±0.04; NIIR 0.82±0.10, p<0.001). There were no differences between sham and HIIR in either p-STAT-1 (HS 0.33±0.15; HIIR 0.39±0.15) or p-STAT-3 (HS 0.36±0.03; HIIR 0.42±0.04).

Conclusions: Moderate hypothermia acts by decreasing hepatic STAT activation, supporting the potential therapeutic role of hypothermia in regulating apoptosis. Modulation of STAT activation may also provide novel therapeutic targets.

Senior author:
Prof. Agostino Pierro
Department of Paediatric Surgery
Institute of Child Health
30 Guilford Street
London, UK. WC1N 1EH
Tel: 02079052175
Fax: 02074046181
E-mail: a.pierro@ich.ucl.ac.uk
LAPAROSCOPY BLUNTS THE POSTOPERATIVE METABOLIC RESPONSE TO SURGERY

M. McHoney, S. Eaton, D. P. Drake, E. M. Kiely, L. Spitz, A. Pierro
Institute of Child Health and Great Ormond Street Hospital for Children,
London, U.K.

Background: The metabolic response to laparoscopy in children has not been characterised. We performed a randomised controlled trial to test the hypothesis that laparoscopy in children blunts the metabolic response to Nissen fundoplication.

Methods: Children undergoing Nissen fundoplication were randomized to laparoscopy (n=14) or open (n=15) surgery. Intraoperative and postoperative analgesia were standardised, with nurses blinded to patient allocation. Resting energy expenditure (REE, measured by indirect calorimetry, mean±SEM) was measured preoperatively, 4h and 24h postoperatively. Time points were compared using repeated measures ANOVA.

Results: There were no differences in age and proportion of neurological impaired children between groups. In the open group, REE decreased significantly from 45.0±3.9 Kcal/Kg/day preoperatively to 38.3±1.7 at 24h (p<0.05). Laparoscopy caused no significant changes in REE (preop. 40.9±3.2 vs. 24h 40.0±3.9). The magnitude of the REE change did not correlate with length of operation or opiates given. In both groups respiratory quotient fell postoperatively indicating increased fat utilization (open: preop 0.79±0.01, 24h 0.71±0.01; p<0.001; laparoscopy: preop 0.76±0.02, 24h 0.71±0.01; p<0.001).

Conclusions: There is a hypometabolic response to open Nissen fundoplication in children, which is abolished by laparoscopy. This randomised controlled trial supports the hypothesis that laparoscopy blunts the whole body response to operative stress.

Senior author:
Prof Agostino Pierro
Department of Surgery, Institute of Child Health,
30 Guilford Street, London
WC1N 1EH
Tel: +44(0) 2079052175
Fax: +44(0) 2074046181
E-mail: a.pierro@ich.ucl.ac.uk
MONOCYTE HLA-DR EXPRESSION IS DEPRESSED IN CHILDREN FOLLOWING MAJOR SURGERY

M. McHoney, N. Klein, S. Eaton, A. Pierro
Institute of Child Health and Great Ormond Street Hospital for Children, London, U.K.

Background: Monocyte HLA-DR expression is necessary for antigen presentation and stimulation of T-cells. The aim of this study was to characterise monocyte HLA-DR response to major surgery in children.

Methods: We studied 20 children undergoing major elective surgery. Operative stress score (OSS) was recorded. HLA-DR expression was measured preoperatively, immediately after surgery, 24 and 48h postoperatively, using flow cytometry. HLA-DR expression is expressed as mean fluorescence intensity (MFI) and percentage (%) of monocytes expressing HLA-DR (mean±SD). Data were compared using repeated measures ANOVA.

Results: There was an immediate decrease in HLA-DR postoperatively in both % expression (preop 93.5±6.1; end op 82.8±17.9; 24h 67.9±20.3; p<0.0001 vs. preop) and MFI (preop 50±23.6; end op 31.6±12; 24h 18.2±9.4; p<0.0001 vs. preop). At 48h there was partial recovery in HLA-DR but was still significantly lower than preoperative (% 77.2±14.4, p<0.001; MFI 23.9±11.1, p<0.001). Patients who had OSS <10 recovered at 48h (% 78.7±14.8, MFI 25.5±11.1), whereas in patients with OSS >10 (severe surgical stress), expression continued to decrease at 48h (% 66.4±0.1, MFI 14.0±0.1).

Conclusions: Surgery decreased patient monocyte function. HLA-DR depression was related to magnitude of surgical trauma, implying that immunoparesis follows surgery. This may predispose to postoperative infection.

Senior author:
Prof Agostino Pierro
Department of Surgery, Institute of Child Health
30 Guilford Street, London
WCIN 1EH
Tel: +44(0) 207905 2175
Fax: +44(0) 207404 6181
E-mail: a.pierro@ich.ucl.ac.uk

Ethiopia - Stephen Valence
Transportation major
Black lion Hospital
2 pediatric surgeons
AVOIDING UNNECESSARY LABORATORY TESTS IN BLUNT TRAUMA

Bayani B. Tecson, MD, Jorge R. Beltrán, MD, Garret S. Zallen, MD, Michael G. Caty, MD, Guy F. Brisseau, MD
Department of Pediatric Surgical Services, Kiwanis Trauma Center, Women’s and Children’s Hospital of Buffalo, Department of Surgery, SUNY @ Buffalo, Buffalo, NY, USA

Background: Current protocols mandate a battery of laboratory tests on all traumatized patients. It is unclear whether these affect patient care and we hypothesize that many are unnecessary.

Methods: A 1-year retrospective analysis of all laboratory tests in blunt trauma patients requiring trauma team activation.

Results: There were 202 patients, 39% female and 61% males aged (6m-18 yr). A total of 4419 tests were ordered on admission and 2468 within the first 24 hours (mean, 34 tests/pt). The prevalence of laboratory abnormalities was 8.8%, which had a low correlation with intraabdominal injuries ($r^2 <0.49$). Organ “specific” tests also failed. ALT and AST were elevated in 55% of patients with liver injuries and had a 67% false positive rate. The hemoglobin was decreased in only 31% of patients with splenic injuries. A low hemoglobin, however, had a 67% false positive rate. Hematuria was negative in patients with GU injuries and had a 100% false positive rate. Initial, nor repeat blood tests diagnosed any new injuries.

Imaging of patients was determined prior to laboratory results becoming available. This was based on history and abdominal physical having a sensitivity of 96%, and a NPV of 99%.

Conclusions: Protocol driven laboratory tests in pediatric blunt trauma do not contribute to diagnostic yield or effect clinical management. Rather, it leads to unnecessary expense of time and money ($160,000/year). Laboratory analysis should be individualized and based on clinical indications rather than protocols.

Senior author:
Guy F. Brisseau, MD
Department of Pediatric Surgery
The Women and Children’s Hospital of Buffalo
219 Bryant Street,
Buffalo, NY, U.S.A. 14222
Telephone: 716-878-7874
Fax: 716-888-3850
E-mail: gfbrisseau@kaleidahealth.org
UNDERSTANDING WORK RELATED INJURIES IN CHILDREN

W. T. McClellan 1, A. Ducatman 3, S. Islam 3, and P. F. Ehrlich 1,2,4
Departments of Surgery 1, Pediatrics 2, Occupational Medicine 3 and the Center for Rural Emergency Medicine 4, West Virginia University School of Medicine, Morgantown, West Virginia

Purpose: It is estimated that 42% of children are employed in some capacity. However, little data exists that defines the nature, extent and consequences of occupational injuries in children. Traditional assessment of work-related injury is coupled with disability payments based on salary, which give little insight into etiology and severity. We hypothesize that the risk, pattern, and severity of occupational injuries in young workers are unique.

Methods: Claims from 1996-2000 were analyzed from the West Virginia Bureau of Workers Compensation. Data on gender, industry, etiology, time, payments and body part injured were extracted. To define the significance of an injury, child and adult groups were subdivided into injuries that required surgery (i.e. serious injuries). CPT codes for general anesthesia and surgical procedures were cross-referenced with the claims to ensure group designation. Descriptive statistical analysis and relative risks (RR) were used to compare groups (95% confidence intervals).

Results: There are 30,000 young workers/yr in West Virginia. Between 1996-2000, 364,063 claims were submitted, 14,093 in workers <19. The injury claim rate for children was 9.3% (8.9% adults). 270 claims in children required surgery vs. 20,036 adults. Serious injuries in children: occur more often in males 2.2x(CI95%, 2.0-2.3); occur mainly in the evening (16-24hrs), (48% vs. 23.13%, p<0.05); and in July/August (26.5 vs. 18.4 p<0.001). Falls were the main mechanism of injury. The RR of falls resulting in a serious injury in children were 2.3x(1.7-3.2) vs. adults. Fingers 1.70x(1.55-1.77) and hands 1.64x(1.56-1.72) were injured proportionately more often in children. Lacerations 3.4x(2.72-4.37), fractures 1.4x(1.06-2.02) and amputations 3.75x(2.18-6.47) frequently resulted in general anesthetic procedures and the RR of these injuries were increased vs. adults. Service (restaurant), followed manufacturing, construction and agriculture were the main injury-related occupations in children. In these industries the RR of a surgical injury in a child was markedly elevated versus adults (Construction 2.0x[1.4-2.78], Manufacturing 1.75x[1.01-2.0], Agriculture 1.8x[1.05-3.21].)

Conclusions: For any job category, injuries in children have unique features, tend to be more serious requiring a surgical intervention proportionately more frequently. A repetitive pattern of injury involves falls, hand trauma and increased severity. In formulating workplace safety programs, we should incorporate specific strategies for young workers

Senior author:
P. F. Ehrlich
4070 HSC-N PO BOX 9238
Department of Surgery, WVU
Morgantown WV 26508
Phone: 304 293 2380
Fax: 304 293 4711
E-mail: pehrlich@hsn.wvu.edu
FEMALE SURVIVAL ADVANTAGE FOLLOWING TRAUMA IS NOT OBSERVED IN CHILDREN

R. J. Hendrickson, MD, D. D. Bensard, MD, J. S. Janik, MD,
D. A. Partrick, MD and F. M. Karrer, MD
The Children’s Hospital/The University of Colorado Health Science Center
Department of Pediatric Surgery
Denver, Colorado

Purpose: Adult women less than 50 years of age demonstrate a survival advantage following traumatic injury when compared to adult men of equal age. We hypothesized if gender differences in adult trauma are due to hormonal influences then these differences should not be observed in pediatric trauma.

Methods: The National Pediatric Trauma Registry was queried for survival of male and female children stratified according to moderate to severe injury (ISS > 15) and age (puberty: 0-12 years; pubescence: 13-18 years). To assess differences in infectious complications the Childrens Hospital Trauma Registry was utilized.

Results: In children aged 0–12 years (n=4878) with an ISS >15, survival was 84% for males and 83% for females (p=0.55); and aged 13-18 years (n=1759), survival was 84% for males and 83% for females (p=0.47). In children aged 0-12 years (n=488) with an ISS>15, infectious complications was 11% for both males and females (p=0.99); and aged 13-18(n=45) 11% for males and 22% for females(p=0.33).

Conclusions: Pediatric females do not demonstrate reduced mortality or infectious complications when compared to males of equivalent age and injury severity. These data suggest that the protective effects observed in premenopausal adult females are present only after completion of sexual maturation.

Senior author:
Richard J. Hendrickson
The Children’s Hospital
Department of Pediatric Surgery
1056 E. 19th Avenue, B323
Denver, Colorado 80218
Tel: 303-861-6530
Fax: 303-764-8077
E-mail: hendrickson.richard@tchden.org
Sponsoring CAPS member: Joseph S. Janik, MD
A PROSPECTIVE ALCOHOL INTERVENTION STUDY WITH ADOLESCENTS AT A LEVEL I PEDIATRIC TRAUMA CENTER: IMPLICATIONS FOR INJURY PREVENTION

Departments of Surgery, Pediatrics and the Center for Rural Emergency Medicine, West Virginia University School of Medicine, Morgantown, West Virginia

Purpose: Alcohol is a significant cofactor for traumatic injury in adolescents. While 40% of all motor vehicle-related deaths and half of all trauma center (TC) admissions are alcohol-related, few studies have addressed this observation in adolescents. A prevention strategy that reduces alcohol use in adolescents therefore may reduce injury. A recent study with adults (18-39) at a Level I TC demonstrated a reduction in injury prevalence, frequency, and amount of alcohol consumption of patients screened for alcohol problems who underwent a brief intervention. The purpose of this study was to evaluate the feasibility of performing an alcohol intervention study with adolescents.

Methods: This prospective feasibility study conducted at a Level I TC in the emergency department (ED) from September to December 2002. Eligible study participants were between ages 11 and 17, consumed alcohol in the last year and consented to participate with concurrent parental assent. Eligible patients were screened with the Alcohol Use Disorders Indentification Test (AUDIT) and considered screen-positive (SP) with a score > 4 out of a possible 40. SP children then underwent a brief 15 minute intervention. Feasibility was evaluated through approach, accrual, and SP rates, compared to rates from our identical adult studies.

Results: Thirty of 270 potential adolescents were approached in the ED with 10/30 meeting eligibility criteria and 70% (7/10) consented to participate. 43% (3/7) were SP and received a brief intervention. Median times for obtaining consent, screening, and intervention were 3.5 and 18.5 minutes respectively. In a companion ED study among 18-39 year olds, 60% met eligibility criteria, 83% consented and 43% were SP and receiving counseling. Median times for consent, screening, and intervention were 4.4, and 14 minutes respectively. Conclusions: Although fewer adolescents were approached and met study criteria, consent and SP rates were similar to those in adults. It is feasible to conduct alcohol intervention with adolescents in acute care settings. Critical issues to consider in future studies include attention to alcohol and injuries and conducting the study in settings more conducive to capturing larger numbers of adolescents.

Senior author:
P. F. Ehrlich
4070 HSC-N PO Box 9238
Department of Surgery, WVU
Morgantown WV 26508
Phone: 304-293-2380
Fax: 304-293-4711
E-mail: pehrlich@hsc.wvu.edu
MONITORING PERFORMANCE: IMPACT OF TRAUMA VERIFICATION AND REVIEW

W.T. McClellan, and P. F. Ehrlich,
Departments of Pediatric Surgery and the Center for Rural Emergency Medicine,
West Virginia University School of Medicine

Purpose: Recognized trauma centers (TC) require designation and/or verification either by national or regional authorities. This is to ensure the highest quality of care for the injured child. Quality can be monitored through care indicators (CI). In 1999 our institution committed to formal level 1 pediatric TC designation, achieved it in 2000 and has maintained this designation. The purpose of this study document changes this process had on patient care through changes in CI from pre-designation through 4 post verification times frames.

Methods: Forty-seven distinct CI’s are monitored monthly through data generated from the trauma registry. 6 distinct time periods were identified. PRE (Jan, Jun, Oct 97) trauma care without monitoring, VER (Nov99-Sept00) preparation for verification, and 4 post verification periods, P1 (Jan-Jun01), P2 July-Dec01), P3 Jan-Jun02), P4 July-Sept02).

Results: Between 1997 to 2002 trauma admissions increased from 200/yr to 313/yr, mortality rate and ISS distributions remained unaltered. Significant changes in specific CI are shown in the table.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Pre (Jan, Jun, Oct 97)</th>
<th>Ver (Nov 99-Sept 00)</th>
<th>P1 (Jan-Jun 01)</th>
<th>P2 (July-Dec 01)</th>
<th>P3 (Jan-Jun02)</th>
<th>P4 (July-Sept 02)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED time &lt;120 min</td>
<td>21% p&lt;0.05 vs. VER</td>
<td>NC 76%</td>
<td>NC 76%</td>
<td>NC 82%</td>
<td>NC 81%</td>
<td>NC 71%</td>
</tr>
<tr>
<td>Hourly charting</td>
<td>49% p&lt;0.05 vs. VER</td>
<td>90%</td>
<td>74% NC</td>
<td>99% NC</td>
<td>63% p&lt;0.05</td>
<td>57% p&lt;0.05</td>
</tr>
<tr>
<td>CNS charting</td>
<td>4% p&lt;0.05 vs. VER</td>
<td>92%</td>
<td>89% NC</td>
<td>81% NC</td>
<td>74% p&lt;0.05</td>
<td>58% p&lt;0.05</td>
</tr>
<tr>
<td>ICU (c7 days)</td>
<td>94%</td>
<td>91% NC</td>
<td>91% NC</td>
<td>55% p&lt;0.05</td>
<td>100% NC</td>
<td>38% p&lt;0.05</td>
</tr>
<tr>
<td>Laparotomy &lt;2hrs</td>
<td>100%</td>
<td>NC 100%</td>
<td>NC 100%</td>
<td>NC 98%</td>
<td>NC 99%</td>
<td>NC 100%</td>
</tr>
<tr>
<td>Temperature monitoring</td>
<td>90%</td>
<td>88% NC</td>
<td>92% NC</td>
<td>95% NC</td>
<td>90% NC</td>
<td></td>
</tr>
<tr>
<td>Weight monitoring</td>
<td>68%</td>
<td>75% NC</td>
<td>75% NC</td>
<td>82% p&lt;0.05</td>
<td>91% p&lt;0.05</td>
<td></td>
</tr>
<tr>
<td>Fluid monitoring</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>15% (3-17)</td>
<td>8.5% p&lt;0.05</td>
</tr>
</tbody>
</table>

*All data is compared to Ver time frame (ANOVA); NC = no change; NT = not tested.

There was a strong pair-wise correlation (p<0.005, Cronbach alpha 0.8) between CNS charting and acquisition of head CAT scans. PICU duration of stay increased in both the (summer) P2 and P4 time periods. Pre-hospital and ED fluid monitoring remains unsatisfactory.

Conclusion: Statistically significant changes in patient care indicators were noted to improve during the trauma center designation process and other key deficiencies were identified and addressed. However maintaining these improvement requires constant monitoring or standards may revert below accepted standards.

Senior author:
P. F. Ehrlich
4070 HSC-N PO BOX 9238
Department of Surgery, WVU
Morgantown WV 26508
Phone: 304 293 2380; Fax: 304 293 4711
E-mail: pehrlich@hsc.wvu.edu
OK-432 SCLEROSIS: FIRST LINE THERAPY FOR MACROCYSTIC LYMPHANGIOMAS

Marion Henry, Baird Smith,
Stanford University
California, USA

Purpose: OK-432 (Picibanil) has been proposed for treatment of recurrent or unresectable lymphangiomas. Traditionally, surgical excision has been considered first line therapy but this may be accompanied by significant morbidity. The purpose of our study was to evaluate our experience using OK-432 sclerosis as first line therapy for macrocystic lymphangiomas.

Methods: The charts of 16 children (ages: 2 months to 10 years) treated by sclerotherapy since 1996 were reviewed. Most had pre-operative gadolinium-enhanced MRI scanning. All had intra-lesional injection of 1-2mg OK-432. If the lesion did not resolve, repeat injection was considered.

Results: Ten children had macrocystic lesions; all underwent substantial regression—some became invisible, others minimally visible—parents and children were happy; none requested further therapy. Microcystic lesions were unchanged. Mixed lesions demonstrated some shrinkage and occasional migration. No complications occurred.

Conclusions: OK-432 sclerosis should become first line therapy for macrocystic lymphangiomas. In our small experience, 100% of patients had a response so favorable that parents became happy with the lesion’s appearance and further surgery was avoided. Microcystic and mixed lesions respond less often, although the later may show some improvement.

Senior author:
Baird Smith
#206, 780 Welch Road
Stanford, CA 94305-5733
Tel.: 650 723-6439 (wk)
650-725-5577 (home)
E-mail: basmith@stanfordmed.org
CORE EXCISION OF THE FORAMEN CECUM FOR RECURRENT THYROGLOSSAL DUCT CYST (TGDC) AFTER SISTRUNK OPERATION

Abida K. Sattar, Robert McRae, Shamlal Mangray,
Katrine Hansen, Francois I. Luks
Divisions of Pediatric Surgery, Otorhinolaryngology and Pediatric Pathology,
Hasbro Children’s Hospital and Brown Medical School
Providence, RI

Background: Recurrence rate for thyroglossal duct cysts after a Sistrunk operation is 5%, compared with 20% if the hyoid cartilage is not removed. However, few guidelines exist when a lesion recurs following an adequate Sistrunk operation.

Case report: A 2-year-old boy was referred for recurrent thyroglossal duct cyst following complete and adequate resection. Re-exploration of the wound and wider excision of the midline cervical tissues failed to treat the problem. Using a combined transoral/cervical approach, a core of tongue around the foramen cecum was removed. A cystic structure was found at pathological examination. The child remains asymptomatic 24 months later.

Conclusion: If thyroglossal duct cysts recur despite an adequate Sistrunk operation, an intralingual remnant should be suspected. Transoral excision of tongue tissue around the foramen cecum may offer a cure.

Senior author:
Francois I. Luks, M.D.
Division of Pediatric Surgery
2, Dudley Street, Suite 180
Providence, RI 02905, USA
Tel: (401) 421-1939
Fax: (401) 868-2319
E-mail: Francois_Luks@brown.edu
SAME-DAY SURGERY FOR THYROGLOSSAL DUCT CYST EXCISION: A SAFE ALTERNATIVE

Ioana Bratu, Jean-Martin Laberge
Division of Pediatric Surgery, The Montreal Children’s Hospital,
Montreal, Quebec, Canada

Background: The goal of this study is to assess what factors affect length of stay in patients operated on for a thyroglossal duct cyst (TDC), and whether same-day surgery is a safe alternative to an admission.

Methods: All charts of patients with TDC excisions at one children’s hospital from 1995 to 2001 were reviewed retrospectively. Chi-square tests and multiple logistic regression were used as statistical tests, with p<0.05 considered significant.

Results: 100 children were operated on for TDC, with a mean age of 6 years. 46% of patients had same-day-surgery, with a median length of stay (LQS) of 4 hours, while the other 54% were admitted overnight after TDC excision, with a median LOS of 24 hours. There was only one hospital re-admission for a patient with same-day surgery at 36 hours post-operation for wound hematoma that resolved with nonoperative treatment. Factors that significantly affected LOS were:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Odds Ratio for same-day surgery</th>
<th>Odds Ratio for admission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pediatric General Surgeon</td>
<td>12</td>
<td>-</td>
</tr>
<tr>
<td>Drain</td>
<td>-</td>
<td>16</td>
</tr>
<tr>
<td>Start of operation after 1 pm</td>
<td>-</td>
<td>8</td>
</tr>
</tbody>
</table>

Conclusions: Same-day surgery is safe for routine TDC excisions. There must be a shift in surgical behaviour if the trend towards an increase in outpatient services for TDC excisions is to occur.

Senior author:
Jean-Martin Laberge, M. D.
Division of Pediatric General Surgery
The Montreal Children’s Hospital
2300 Tupper Street
room C-1129
Montreal, QC, H3H-1P3
Phone: 514-412-4400, ext 24497
Fax: 514-412-4341
E-mail: jean-martin.laberge@muhc.mcgill.ca

42 Chest tube wound
BILATERAL OVARIAN TORSION

M. Beaunoyer, J. Chapdelaine, S. Bouchard, A. Ouimet
Hôpital Sainte-Justine, Montréal, Québec

Background: Pediatric ovarian torsion (OT) is a serious condition, especially in cases of asynchronous bilateral ovarian torsion (ABOT). We sought to evaluate the predisposing factors for ABOT.

Methods: We retrospectively reviewed the charts of patients with OT between 1980 and 2002. Data collected included age at presentation, type and duration of symptoms, ultrasound findings, interval to surgery, procedures, pathology report and follow-up.

Results: Seventy-five patients had OT confirmed at surgery, four of which had ABOT. The mean age was 10 years. The mean duration of complaints and interval to surgery were 56 and 33 hours respectively. Thirty-five patients had simple tubo-ovarian torsion, including all the patients with ABOT (11.4%); and 40 had an ovarian pathology. The patients with ABOT underwent salpingo-oophorectomy at the first episode. They presented earlier for the second episode and had a shorter interval to surgery where detorsion with oophoropexy was performed. Follow-up ultrasound showed vascularisation and follicles in the remaining ovary.

Conclusion: The diagnosis of OT is often delayed, mainly when a solid tumor is suspected. Oophoropexy of the contralateral ovary should be considered especially in patient with simple tubo-ovarian torsion without a pathologic ovary to prevent a potentially devastating recurrence in the contralateral ovary.

Senior author:
Dr. Alain Ouimet
Hôpital Sainte-Justine
3175, Chemin Côte Sainte-Catherine
Montréal, (Québec)
H3T 1C5
Tel.: (514) 345-4688
Fax: (514)345-4964
E-mail: chirpedmtl@point-net.com
OVARIAN TORSION IN CHILDREN: IS ООPHORECTOMY NECESSARY?

Dalal Aziz, Victoria Davis, Lisa Allen, Jacob C. Langer
Hospital for Sick Children and University of Toronto
Toronto, Ontario, Canada

Background: Most pediatric surgeons perform oophorectomy in girls presenting with ovarian torsion in which the ovary appears necrotic.

Method: All children with ovarian torsion on the gynecology and general surgery services between 1988 and 2002 were reviewed.

Results: There were 36 torsions in 33 children. Seventeen underwent detorsion ± ovarian cystectomy and 19 had oophorectomy (mean age 10 years in both groups). Torsion was suspected preoperatively in 94% of the detorsion cases and in 47% of the oophorectomy patients. Median time from presentation to surgery was significantly lower in the detorsion than the oophorectomy group (median 14 vs 27 hours, p=0.04). Postoperative complications and length of stay were similar between the two groups. Despite the ovary being judged intraoperatively as moderately to severely ischemic in 53% of the detorsion cases, follow up sonogram or ovarian biopsy available in 14 of the 17 cases showed normal ovary with follicular development in each case.

Conclusion: Simple detorsion was not accompanied by an increase in morbidity, and all patients studied had functioning ovarian tissue on follow up despite the surgeon’s assessment of the degree of ovarian ischemia. We conclude that detorsion is the procedure of choice for most cases of ovarian torsion in children.

Senior author:
Jacob C. Langer, MD
Rm 1526, Hospital for Sick Children
555 University Ave
Toronto, ON M5G 1X8
Phone: 416-813-6405
Fax: 416-813-7477
E-mail: jacob.langer@sickkids.ca
SURVIVAL IN CONGENITAL DIAPHRAGMATIC HERNIA: THE EXPERIENCE OF THE CANADIAN NEONATAL NETWORK

Patrick J. Javid, MD1; Tom Jaksic, MD, PhD1; Erik D. Skarsgard, MD2; Shoo Lee, MD, PhD2; and the Canadian Neonatal Network
1Children’s Hospital Boston and Harvard Medical School, Boston, USA,
2Children’s and Women’s Hospital of British Columbia,
University of British Columbia, Vancouver, Canada

Background: The Canadian Neonatal Network prospectively collects data from 17 pediatric hospitals accounting for 75% of neonatal ICU beds nationwide. The purpose of this study was to 1) analyze the database to compare survival rates of neonates with congenital diaphragmatic hernia (CDH) to predicted outcomes and 2) assess whether institutional CDH volume was associated with improved survival.

Methods: Actual survival rates for CDH patients born during a 22-month period were determined from the registry. Predicted survival rates were calculated using the CDH Study Group logistical regression equation. Actual survival was compared to predicted using chi-square analyses. Survival rates were stratified by institutional CDH volume and compared using binomial analysis.

Results: Of 20,500 admissions, 88 cases of CDH were recorded. 73 of 88 (83%) neonates with CDH survived to discharge while the predicted survival rate was 62.3% (p<.001). Three centers were considered “high-volume” with >12 CDH diagnoses, and 11 were considered “low-volume” centers. Actual CDH survival was significantly greater at high- versus low-volume centers (90% vs 77%, p<.01).

Conclusions: From these prospective data, survival rates of Canadian neonates with CDH are significantly better than predicted by the CDH Study Group equation. High-volume centers in Canada have a significantly higher CDH survival than low-volume centers.

Senior author:
Tom Jaksic MD, PhD
Children’s Hospital Boston
300 Longwood Avenue, Fegan 3
Boston, MA 02115
Phone: 617-355-8097
Fax: 617-738-0864
E-mail: tom.jaksic@tch.harvard.edu
Sponsoring CAPS member: Tom Jaksic MD, PhD
A POPULATION-BASED DATABASE IS NEEDED TO ESTABLISH BENCHMARKING FOR CLINICAL OUTCOMES FOR CONGENITAL DIAPHRAGMATIC HERNIA (CDH).

The Ontario Congenital Anomalies Study Group*

**Background:** We hypothesize that recent single or multi-institution-based reports of improved survival of CDH patients are biased by patient selection, practice and referral patterns. We report here, a population-based analysis of the clinical outcomes of CDH in the province of Ontario for 1996.

**Methods:** A retrospective analysis of cross-sectional data from the Bureau of Vital Statistics of Ontario and all five pediatric surgical institutions in Ontario for 1996 was performed.

**Results:** Twenty-four CDH-associated deaths were registered in Canada in 1996. Fourteen out of 24 occurred in Ontario (58.3%). Of 30 institutionally identified CDH in Ontario, 10 patients died (33.3%). CDH-associated infant mortality was 6.6/100,000 live births in Canada as compared to 10/100,000 live births for Ontario (Relative risk: 1.4, confidence interval: 0.5, 3.7, p>0.01). Neonatal death (<28 post-natal days) accounted for the majority, 13/14 (71%) of deaths. Three out of 14 (21%) CDH-associated deaths however, were not accounted by the institutional-based reporting. In addition, institutional-based survival rates for CDH varied from 50 to 81%.

**Conclusions:** Our results further suggest the existing bias associated with institutional-based reporting and database of CDH. The "Hidden mortality" associated with CDH is still present. A population-based database is needed to establish the benchmarking for CDH.

*The OCASG:
- McMaster University: Brian Cameron
- London Health Science Center: Leslie Scott
- Children’s Hospital of Ontario: Juan Bass
- Queen’s University: Dan Panaccru
- North York General Hospital: Noel Grace
- Hospital for Sick Children: Douglas Mah, Peter Masiakos, Paul Wales, Desmond Bohn, and Peter C. W. Kim

**Senior author:**
Peter C. W. Kim
Hospital for Sick Children
555 University Avenue, Rm 1526
Toronto, Ontario, M5G 1X8
Tel: 416-813-6357
Fax: 416-813-7477
E-mail: peter.kim@sickkids.ca
VENO-VENOUS EXTRACORPOREAL MEMBRANE OXYGENATION (VV-ECMO): DOES ROUTINE, CEPHALIC JUGULAR VENOUS DRAINAGE IMPROVE PATIENT OUTCOME?

Erik D. Skarsgard, MD, Doug Salt RN, CCRP, Shoo K. Lee, MBBS, PhD and the Extracorporeal Life Support Organization (ELSO) Dept of Surgery and Pediatrics, BC’s Children’s Hospital, the Centre for Health Innovation and Improvement (CHII), and the University of British Columbia, Vancouver, Canada

Background: Extracorporeal membrane oxygenation (ECMO), may be life-saving for infants and children with severe cardiorespiratory failure, and when possible, veno-venous bypass through a jugular double lumen cannula, can be expected to provide satisfactory bypass for most patients. Some ECMO centres favour routine placement of a cephalic jugular cannula for the theoretical benefits of augmented (desaturated) venous return, reduction of atrial recirculation and cerebral venous decompression. The purpose of this study was to query the ELSO registry for patients who had undergone VV-ECMO and compare outcomes for patients with a double lumen cannula only (VVDL), and those who had both a double lumen and cephalic jugular cannula (VVDL+V).

Methods: With institutional review board (IRB) approval, the ELSO registry was queried from January 1, 1990 to December 31, 2001, and all patients undergoing VV ECMO via either the “VVDL” or “VVDL+V” modes were identified. Group comparisons by age, diagnosis, hours on bypass, mean flow rates (Q) at 4 and 24 hours, complications (including neurologic and cannula-specific), need for conversion to veno-arterial (VA) ECMO and survival were performed. A similar analysis was performed on a congenital diaphragmatic hernia (CDH) patient subgroup. Student’s t-tests were used to compare means between groups, with p-values of <.05 considered significant.

Results: The query generated a total of 2471 patients: 2379 (96.3%) VVDL+V, and 92 (3.7%) VVDL+V, for which results are summarized in Table 1 and Figures 1,2. The 2 groups (including the CDH subgroup) were comparable and there were no significant differences in outcome between groups.

Conclusion: The theoretical benefits of routine placement of a cephalic jugular cannula during VV ECMO via a jugular double lumen cannula are not substantiated by critical analysis of ELSO data.

Table 1: Group Characteristics

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>GA (d)</th>
<th>Age (d)</th>
<th>WT (kg)</th>
<th>Hrs on bypass</th>
<th>Qmax (ml/min/kg)</th>
<th>VV h/oVA</th>
<th>Discharged Alive</th>
</tr>
</thead>
<tbody>
<tr>
<td>VVDL</td>
<td>2379</td>
<td>39.5±1.8</td>
<td>6.45±3.3</td>
<td>3.45±0.5</td>
<td>137±45</td>
<td>109±44</td>
<td>12±44</td>
<td>2067 (82%)</td>
</tr>
<tr>
<td>VVDL+V</td>
<td>92</td>
<td>39.4±1.9</td>
<td>10.8±4.5</td>
<td>3.40±0.5</td>
<td>153±65</td>
<td>112±54</td>
<td>102±45</td>
<td>174 (7.3%)</td>
</tr>
</tbody>
</table>

Figure 1: Complications

Figure 2: Diagnoses
PULMONARY ELASTIN EXPRESSION IS DECREASED IN THE NITROFEN INDUCED RAT MODEL OF CONGENITAL DIAPHRAGMATIC HERNIA.

G. B. Mychaliska, S. M. Officer, C. K. Heintz, R. A. Pierce
Divisions of Pulmonary and Critical Care Medicine and Pediatric Surgery, Washington University School of Medicine, St. Louis, MO, USA

Background: Babies with congenital diaphragmatic hernia (CDH) suffer from pulmonary hypoplasia and pulmonary hypertension. Since the lungs are developmentally immature, we hypothesized that elastin deposition would be reduced and disorganized in the nitrofen rat model of CDH.

Methods: Time-dated pregnant Sprague-Dawley rats were fed 100mg of nitrofen on day 9 of gestation. Control rats did not receive nitrofen. We analyzed three groups of rats: 1) control, 2) nitrofen no CDH, and 3) nitrofen induced CDH. On day 21.5 (term 22 days), the fetuses were delivered by cesarean section and the fetal lung was harvested. Elastin content, mRNA expression and distribution was assessed with desmosine analysis, northern blot analysis, and Hart’s staining, respectively.

Results: The mean desmosine content in pmD/pmP ± standard deviation was 30±6.8 (Control, n=10), 25.1±10.1 (Nitrofen, no CDH, n=10), and 21.6±6.4 (nitrofen induced CDH, n=10). The comparison between CDH and controls was statistically significant (p=0.026). Northern blot analysis demonstrated decreased mRNA expression in the CDH sample. Hart’s staining demonstrated developmentally immature nitrofen induced CDH lungs with less elastin deposition and disorganized distribution.

Conclusion: Pulmonary elastin expression is decreased and disorganized in the nitrofen induced rat model of CDH. The decreased expression appears to be regulated at the level of transcription.

Senior author:
Richard A. Pierce, Ph.D.
Divisions of Pulmonary and Critical Care Medicine
Barnes-Jewish Hospital
216 South Kingshighway Blvd.
St. Louis, MO 63110
USA
Phone: (314) 454-8284
Fax: (314) 454-8605
E-mail: rpierce@im.wustl.edu
Sponsoring CAPS member: Jacob C. Langer, M.D.
CONGENITAL LOBAR EMPHYSEMA: HISTOLOGIC SPECTRUM OF A RADIOLOGIC DIAGNOSIS

J. Chapdelaine, M. Di Lorenzo, M. Beaunoyer, L. Garel, L. Oligny, D. St-Vil
Hôpital Sainte-Justine, Montréal, Québec

Background: Congenital lobar emphysema (CLE) is characterized by unilobar alveolar distension secondary to bronchomalacia or absent cartilage. Little information is available regarding the histologic spectrum of this entity, in particular as it correlates with radiologic diagnosis.

Method: In a retrospective chart review from 1995 to 2001, 52 patients were identified with emphysema. Nine patients with CLE were reviewed.

Results: Mean age at diagnosis was 23.5 months (range: 11d-10y). Male/female ratio was 2/1. All but one had respiratory symptoms. Of 8 chest CTs, 7 were suggestive of CLE. Of 5 lobectomies, 2 had CLE and pulmonary lymphangiomatosis, one isolated lymphangiectasia, one bronchial atresia and one normal lobe. CT failed to diagnose lymphangiectasis, was suggestive of CLE in one each of isolated lymphangiectasia and one normal lung, and identified one of two external vascular compressions. Follow-up (mean: 18.5 months, range 1-67 months) was uneventful except for one case of pulmonary disgenesis. No polylobar involvement was identified.

Conclusion: Preoperative diagnosis of CLE is not as straightforward as the literature suggests. Despite experienced pediatric radiologists, only one of five diagnoses was consistent with pathological findings. Differential diagnoses of CLE should include lymphangiectasis, non-surgical extrinsic vascular compression or even normal lung. A high index of suspicion should be maintained and judicious investigation is recommended.

Senior author:
Dr. Maria Di Lorenzo
Hôpital Sainte-Justine
3175, Chemin Côte Sainte-Catherine
Montréal, Québec
H3T 1C5
Tel.: (514) 345-4688
Fax: (514) 345-4964
E-mail: maria_di_lorenzo@ssss.gouv.qc.ca
IS A ROUTINE CHEST RADIOGRAPH NECESSARY AFTER CHEST TUBE REMOVAL IN NON-PULMONARY THORACIC SURGERY?

R. J. Hendrickson, MD, T. A. Janik, B. S. and J. S. Janik, MD
The Children's Hospital/The University of Colorado Health Science Center
Department of Pediatric Surgery
Denver, Colorado

Background: Chest tubes are routinely inserted for: pneumothoraces, large pleural effusions and post-thoracic procedures. Traditionally, a chest radiograph (CXR) is obtained following chest tube removal. The purpose of this study was to determine the clinical efficacy of a routine CXR following chest tube removal in spinal exposure patients.

Methods: This was a retrospective analysis of post chest tube removal CXRs in 200 consecutive patients undergoing thoracic or combined thoracolumbar exposure for spinal surgery from January 1999 – March 2003.

Results: Age range was: 2 - 27 years old. Chest tube removal occurred at a range from 1 - 12 days (mean = 4 days ). CXRs after chest tube removal were officially dictated by radiology as: apical pneumothorax (76), small effusion (19) and significant pneumothorax (5). No patient had clinical evidence of respiratory or hemodynamic compromise. All patients were managed conservatively without another tube thoracostomy.

Conclusion: The value of a routine follow-up CXR is defined by the yield of results which would prompt further valuable or necessary interventions. The results of this study demonstrated that children who do not have primary surgical lung disease, may not require routine post chest tube removal CXR.

Senior author:
Richard J. Hendrickson, MD
The Children's Hospital
Department of Pediatric Surgery
1056 E. 19th Avenue, B323
Denver, Colorado 80218
Tel: 303-861-6530
Fax: 303-764-8077
E-mail: hendrickson.richard@tchden.org
Sponsoring CAPS member: Joseph S. Janik, MD
A BY-FORCE ENDO TRACHEAL INTUBATION FOR LONG-SEGMENTAL CONGENITAL TRACHEAL STENOSIS TO OVERCOME CHOKING BEFORE DELAYED SURGICAL REPAIR

S. Takamizawa, Eiji Nishijima, Chikara Tsugawa, Toshihiro Muraji, Shiiki Satoh, Yukihiro Tatekawa, Ken Kimura
Department of Surgery, Kobe Children’s Hospital, Kobe, Japan

Background: Younger infants with long-segmental congenital tracheal stenosis (LSCTS) cannot survive from choking until the definitive tracheoplasty is safely performed. We attempted a by-force endotracheal intubation in 8 patients and succeeded in overcoming the fatal disaster. The technique is reported.

Methods: Under general anesthesia, a small sized tube (2.0 to 2.5 mm of internal diameter) is introduced endotracheally by force over a stylet throughout the stenotic region. The procedure is monitored by fluoroscopy. In patients with the extremely small trachea, a balloon dilation is proceeded. The endotracheal tube can be replaced every 2 months with a larger sized tube until a 3 mm tube can be introduced.

Results: Eight patients underwent this technique for the LSCTS involving 50 to 85% of trachea. A mean body weight and age of the patients was 3.1 kg (range, 1.9 to 6.3kg) and 87 days (range, 7 days to 4 months). Four patients underwent a slide-tracheoplasty after the body weight and age reached 4.0 kg and 119 days. One of those patients died of choking 20 days after operation. Another patient died from cardiac disease before tracheoplasty. Three patients are currently waiting for surgery.

Conclusions: Our experience indicates that this is a life saving procedure for choking infants from LSCTS in whom a definitive operation cannot be safely performed.

Senior author:
Eiji Nishijima, Chikara Tsugawa
Department of Surgery, Kobe Children’s Hospital
1-1-1, Takakuradai, Suma-ku, Kobe,
654-0081 Japan
Telephone: +81-78-732-6961
Fax: +81-735-0910
E-mail: Shigeru.Takamizawa@mb7.seikyou.ne.jp
Sponsoring CAPS member: Ken Kimura
MINIATURE ACCESSPECTUS EXCAVATUM REPAIR:
LESSONS WE HAVE LEARNED

G. Zallen, MD, P. L. Glick, MD, J. Tantoco, MD, R. H. Pearl, MD.
Women’s and Children’s Hospital of Buffalo
New York, USA

Background: Pectus Excurvatum (PE) is the most common chest wall deformity seen in children. Miniature Access Pectus Excurvatum Repair (MAPER) was introduced as an alternative to the standard open repair (Ravitch) in 1998. The procedure avoids the extensive dissection, cartilage resection, and osteotomy used in the traditional repair and is appealing to pediatric surgeons, pediatricians, parents, and patients. This study describes our experience with the procedure, specifically the complications we encountered and lessons we have learned.

Methods: All patients with pectus excavatum who underwent MAPER from 1998 to present were included in the study.

Results: Fifty-three children underwent repair. Our pre-operative evaluation consists of an echo-cardiogram and PI-T’s with exercise (with and without bronchodilators). The mean operative time is 106 minutes and mean blood loss is less than 13 cc. The average length of hospital stay is 4.1 days. Return to “normal” activities ranged from 2 to 7 weeks. Follow-up ranges from 2 months to 3.5 years. Late complications include: 3 bar displacements, 4 broken wires, 4 re-explorations for wound problems, 3 wound infections, and 1 death due to cardiac arrhythmia 3 years after bar placement. Lessons we have learned to facilitate the procedure and minimized complications include: anesthesia using an epidural pain catheter (intra-op and post-op for 3 days), a double lumen endotracheal tube for selective ventilation, bilateral thoracoscopy using 70 degree angled scopes for visualization, precise positioning of the bar next to the defect, accurate bar bending in relation to the chest deformity, use of a special wire passer, # 6 wires around the ribs to secure the bar in place, and use of two bars for Marfan’s patients for adequate repair. Post-operatively we leave the bars in for three years and have had no recurrences.

Conclusion: Since the first description of the MAPER was published over four years ago, the treatment of PE has changed dramatically. We feel that the MAPER is superior to the open technique, but these patients require significant support during the time their bars are in place and occasionally require re-operation to fix bar complications. However, with the lessons we have learned, complications have been minimized and long term results have been improved.

Senior author:
Phillip L. Glick
Women’s and Children’s Hospital of Buffalo,
Department of Pediatric Surgery,
219 Bryant St.,
Buffalo, NY 14222.
Tel.: (716) 878-7484
Fax: (716) 888-3850.
E-mail: glicklab@aol.com
Sponsoring CAPS member: Richard. H. Pearl
IS THE USE OF LAPAROSCOPY TO DETERMINE PRESENCE OF CONTRALATERAL PATENT PROCESSUS VAGINALIS JUSTIFIED IN CHILDREN OVER 2 YEARS OF AGE?

Amina Bhatia, MD, Kenneth W. Gow, MD, Kurt E. Heiss, MD, Mark E. Wulcan, MD
Emory University and Children's Healthcare of Atlanta, Atlanta, Georgia, USA

Purpose: Contralateral inguinal hernia exploration in cases of unilateral inguinal hernia remains a controversial topic. We have been employing the in-line laparoscopic technique of contralateral evaluation for unilateral inguinal hernia in children less than 2 years old. Due to the ease of the procedure and lack of morbidity we decided to expand the use of this procedure up to age 8 years in January 2000. The purpose of this study is to evaluate if the incidence of contralateral hernia in children over 2 years old justifies the procedure.

Methods: This is a retrospective study of all children who underwent contralateral exploration for unilateral inguinal hernia exploration over a 20-month period. The procedure was routinely offered to all patients up to age 8 years. During the repair, the contralateral inguinal ring was examined laparoscopically using the in-line technique for the presence of a contralateral hernia. The incidence of contralateral hernia was determined and the results were stratified by age. Patients who underwent unilateral inguinal hernia repair without laparoscopic contralateral exploration or bilateral inguinal hernia repair without laparoscopic contralateral explorations were excluded from the study.

Results:
Please see Table 1 below:

<table>
<thead>
<tr>
<th>Age</th>
<th>Unilateral Hernia with Exploration</th>
<th>Contralateral Hernia Detected</th>
<th>Percent Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 2</td>
<td>171</td>
<td>65</td>
<td>38</td>
</tr>
<tr>
<td>2-8</td>
<td>101</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>&gt; 8</td>
<td>12</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>284</td>
<td>85</td>
<td>30</td>
</tr>
</tbody>
</table>

There were no complications for any of the hernia explorations.

Conclusions: Laparoscopic contralateral exploration is safe and effective. Due to the low morbidity, the risk benefit ratio warrants its use in children up to 8 years old. Our sample size is too small to make any meaningful statements about children over 8 years old.

Senior author:
Mark E. Wulcan, MD
2040 Ridgewood Drive, NE
Atlanta, GA, 30322
Telephone: 404-727-3779
Fax: 404-727-2120
E-mail: mark.wulcan@oz.ped.emory.edu
TREATMENT OF POSTOPERATIVE ANAL ANASTOMOTIC STRICTURE WITH TOPICAL MITOMYCIN C.

Andrew Zigman
Kaiser Permanente Department of Surgery
Oregon, USA

Purpose: To describe a pharmacologic adjunct in the treatment of anal anastomotic stricture.

Methods: Case report of therapeutic technique.

Results: A 20 month-old boy was referred with anal anastomotic stricture following anorectoplasty for imperforate anus. The child developed a hard, ring-like circumferential anal stricture measuring 11 millimeters in diameter. After a 3-month futile trial of anal dilations the patient underwent dilation under anesthesia and application of topical Mitomycin C, an alkylating antibiotic antineoplastic agent. At age 3 years, more than one year later, there is no trace of the fibrous anastomotic ring and the anus admits a 17 millimeter dilator.

Conclusions: This report suggests that topical Mitomycin C may have a role in the treatment of postoperative anal anastomotic strictures.

Author:
Andrew Zigman, MD, CM
Kaiser Permanente Department of Surgery,
9427 Barnes Road
Portland, Oregon, USA 97225-6606
Office phone: 503-203-2175
Office fax: 503-203-2109
E-mail: zigpedisurg@hotmail.com
PRENATAL DIAGNOSIS OF INTRATHORACIC STOMACH
(GASTRIC HERNIATION)

A. Al-Assiri, MD, N. Wiseman, MD, and M. Bunge, MD
Pediatric Surgery and Radiology Departments of Children’s Hospital
University of Manitoba, Winnipeg, Manitoba

Abstract: Intrathoracic stomach is a rare and serious congenital abnormality. The anomaly may be complicated by gastric volvulus and can lead to ischemic gastric infarction in the neonate. If diagnosed antenatally, post neonatal management can be planned in advance so as to minimize or eliminate secondary morbidity. This anomaly must be differentiated from the more common congenital diaphragmatic hernia, as associated pulmonary hypoplasia is common in the latter and rare with gastric herniation. We report an infant born to a mother with Marfan’s syndrome with the antenatal diagnosis of intrathoracic stomach. The ultrasound and MRI features of this congenital abnormality are described. A review of the literature would indicate that this is the fourth such reported case and in the patient described the outcome was satisfactory.

Key words: Intrathoracic stomach, antenatal diagnosis, Marfan’s syndrome.

Senior author:
N. Wiseman, MD, FRCSC, FACS
Children’s Hospital
840 Sherbrook Street
Winnipeg, Manitoba R3A 1S1
Phone: (204) 787-2682
Fax: (204) 787-2028
E-mail: nwiseman@exchange.hsc.mb.ca
THE EFFECTS OF LOCAL SUSTAINED RELEASE OF FIBROBLAST GROWTH FACTOR ON TESTICULAR BLOOD FLOW AND MORPHOLOGY IN SPERMATIC ARTERY AND VENILIGATED RATS

F. Güler, M. Bingöl-Kologlu, A. Ya-Murlu, C. Güven, N. Has-Re, Ö. Küçük, S. Aytaç, H. Dindar

Department of Pediatric Surgery, Division of Pediatric Urology, Departments of Histology, Nuclear Medicine and Radiology, Ankara University, Faculty of Medicine, Ankara, and Department of Chemistry, Faculty of Arts & Sciences, Middle East Technical University, Ankara, Turkey

Background: A study was carried out to evaluate the effects of local and sustained release of fibroblast growth factor (FGF) on testicular blood flow, and morphology after ligation of spermatic artery and vein.

Methods: Forty male Wistar-Albino rats weighting 300 ± 20g were randomly allocated into 5 groups consisting of 8 rats each as follows: G-S (Sham), G-C (Control) and G-T<sub>0,85</sub>, G-T<sub>1,70</sub>, G-T<sub>2,55</sub>. Following the ligation of left spermatic artery and vein, 1 cm<sup>2</sup> of unloaded, 0.85 mg, 1.70 mg and 2.55 mg of FGF-loaded gelatin films were sutured on left epididymis in G-C, G-T<sub>0,85</sub>, G-T<sub>1,70</sub>, G-T<sub>2,55</sub> respectively. After thirty days, bilateral capsular (CBF) and intratesticular (IBF) blood flows were evaluated by colored doppler ultrasonography (CDUS) and testicular blood flow (TBF) by <sup>133</sup>Xe clearance technique. Tunica albuginea and intertubular tissues were studied for the increase of peritesticular and intratesticular vessels. Mean (ipsilateral) of the intertubular vascular structure counts, seminiferous tubular diameters, testicular biopsy scores and Leydig cell scores of each groups were recorded and compared.

Results: CBF was present in all animals of G-S, G-T<sub>0,85</sub>, G-T<sub>1,70</sub>, G-T<sub>2,55</sub> groups in CDUS, while in G-C group it was detected in 62% of the rats (p<0.05). However, IBF was present in only 25% of the G-C rats and this percentage was increased from 50% up to 87.5% for treatment groups, and 100% for G-S rats, respectively. <sup>133</sup>Xe clearance showed that TBF were significantly decreased in G-C compared to G-S (p<0.05). In G-T<sub>2,55</sub>, TBF were significantly increased, but still could not reach the level of G-S. While mean testicular weights were significantly decreased for controls (G-C), G-T<sub>0,85</sub> and G-T<sub>1,70</sub> almost no difference was observed between G-T<sub>2,55</sub> and G-S. Although slight increase in vascular structures of tunica albuginea was present G-C rats, significant increase was observed in treatment groups. The mean number of intertubular vascular structures was significantly increased in treatment groups when compared with G-S and G-C (p<0.05). Mean seminiferous tubular diameters and Leydig cell scores were decreased in G-C, but significantly increased in treatment groups (p<0.05). Mean testicular biopsy scores were increased in treatment groups compared to G-C but could not reach to sham levels.

Conclusions: Ligation of spermatic artery and vein has detrimental effects on the ipsilateral testicular blood flow and morphology. These effects may be reversed by local application of FGF.
IDENTIFICATION OF TRANSFORMING GROWTH FACTORS ACTIVELY TRANSCRIBED DURING THE PROGRESS OF LIVER FIBROSIS IN BILIARY ATRESIA USING A CYTOKINE EXPRESSION ARRAY

The Department of Pediatric Surgery, Pathology and Surgery, Chang Gung Memorial Hospital and the Graduate Institute of Clinical Medicine, Chang Gung University, Taiwan

Background: Transforming growth factor (TGF) gene family has been implicated in the pathogenesis of liver fibrosis. The role of TGF-\(^\alpha1\), TGF-\(^\alpha2\) and the three receptors T\(^\beta\)R-I, T\(^\beta\)R-II, T\(^\beta\)R-III in the progress of liver fibrosis in biliary atresia (BA) has not been completely elucidated. A cytokine array was used to identify TGF genes that are actively involved in the progress of liver fibrosis in BA.

Methods: We used a commercially available R&D System’s human Cytokine Expression Array that contained 375 cytokine cDNAs to compare the cytokine expression in the liver of three patients with BA at the time of Kasai’s procedure (KP), with that of three patients at the time of liver transplantation (LT). Two liver samples from the children without liver disorders were used to serve as a control (CO). Real-time quantitative RT-PCR (qRT-PCR) was used to confirm the levels of the transforming growth factors that were differentially expressed among the five liver samples in each of the three groups.

Results: Both TGF-\(^\alpha1\) and TGF-\(^\alpha2\) increased in expression in the liver during the progress of liver fibrosis from CO through KP to LT in both the array and qRT-PCR, however, only TGF-\(^\alpha2\) showed significant difference among group in analysis of variance (ANOVA) of the results of qRT-PCR (P=0.054 for TGF-\(^\alpha1\) and 0.001 for TGF-\(^\alpha2\)). There was a 3.1 fold increase in expression in LT compared with CO (P<0.016). All the three TGF-\(^\alpha\) receptors did not increase in expression with the progress of liver fibrosis. T\(^\beta\)R-III actually decreased significantly to 0.6 fold in LT compared with CO (P<0.011).

Conclusion: This study identified TGF-\(^\alpha2\) as the most actively transcribed TGF gene during the progress of liver fibrosis in BA. We also found that T\(^\beta\)R-III decreased significantly from CO to LT and it might serve as a negative regulator of liver fibrosis in BA.

Senior author:
Jiin-Haur Chuang, MD
123, Ta-Pei Road, Niao-Sung Hsiang,
Kaohsiung Hsien, TAIWAN
Tel.: +886-7-7317123 #8127
Fax: +886-7-7311696
E-mail: jhchuang@adm.cgmh.org.tw
Friday - C.O.6. link on CAPS site.
(Mike 6c)
- Archives next year
- Clock up front
- Audio record for Web site
- State of meeting for CAPS sale
- Paper 3 - As author been present?
- Table Monitors
- Digital/Display Archives

2004 Theme - ? Problem Solving
Ken Shaw (IDEO) (David Smith)
- ? Minimal invasive
- (Ti trial) - paper #11

McLeod / JPS lecture (1st time)
Prospector

Skagard: CAPSNet

HALL: NET (trial)

Stephen - Ethiopian women

Name tags - for Sponsors

Hospitality Room + Breakfast
ASSOCIATION CANADIENNE de
CHIRURGIE PÉDIATRIQUE

35ième

Réunion Annuelle

NIAGARA-ON-THE-LAKE
18-21 Septembre 2003
Trente-cinquième Congrès Annuel

ASSOCIATION CANADIENNE de
CHIRURGIE PÉDIATRIQUE

18-21 Septembre 2003

Queen’s Landing Inn & Conference Resort
Niagara-On-The-Lake (Ontario)
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 18 septembre 2003

<table>
<thead>
<tr>
<th>Heure</th>
<th>Activité</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:00 - 17:00</td>
<td>Réunion du Conseil de l’ACCP</td>
</tr>
<tr>
<td>17:00</td>
<td>Inscription</td>
</tr>
<tr>
<td>19:00 - 22:00</td>
<td>Réception de Bienvenue – Queen’s Landing Inn &amp; Conference resort</td>
</tr>
</tbody>
</table>

### Vendredi, le 19 septembre 2003

<table>
<thead>
<tr>
<th>Heure</th>
<th>Activité</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:00 - 12:00</td>
<td>Inscription</td>
</tr>
<tr>
<td>07:00 - 07:45</td>
<td>Petit Déjeuner</td>
</tr>
<tr>
<td>07:45 - 08:00</td>
<td>Mot de Bienvenue et Ouverture du Congrès</td>
</tr>
<tr>
<td>08:00 - 10:00</td>
<td>PREMIÈRE Session Scientifique</td>
</tr>
<tr>
<td>10:00 - 10:15</td>
<td>Pause-Santé</td>
</tr>
<tr>
<td>10:15 - 11:15</td>
<td>DEUXIÈME Session Scientifique</td>
</tr>
<tr>
<td>11:15 - 12:15</td>
<td>Fred MacLeod Lecture / JPS Lecture, Dr. Scott Adzick</td>
</tr>
<tr>
<td>12:15 - 12:30</td>
<td>Lunch avec les membres de la tribune</td>
</tr>
<tr>
<td>12:30 - 13:30</td>
<td>Présentations de Vidéos</td>
</tr>
</tbody>
</table>

### Samedi, le 20 septembre 2003

<table>
<thead>
<tr>
<th>Heure</th>
<th>Activité</th>
</tr>
</thead>
<tbody>
<tr>
<td>06:00 - 07:45</td>
<td>Réunion du Comité de Spécialité en chirurgie générale pédiatrique</td>
</tr>
<tr>
<td>06:00 - 07:45</td>
<td>Réunion du Comité de Publications</td>
</tr>
<tr>
<td>07:00 - 12:00</td>
<td>Inscription</td>
</tr>
<tr>
<td>07:00 - 07:45</td>
<td>Petit Déjeuner</td>
</tr>
<tr>
<td>07:45 - 09:45</td>
<td>TROISIÈME Session Scientifique</td>
</tr>
<tr>
<td>09:45 - 10:00</td>
<td>Pause-Santé</td>
</tr>
<tr>
<td>10:00 - 11:30</td>
<td>QUATRIÈME Session Scientifique</td>
</tr>
<tr>
<td>11:30 - 12:30</td>
<td><strong>2 minutes / 2 diapos</strong></td>
</tr>
<tr>
<td>12:30 - 14:30</td>
<td>Déjeuner d’affaire des Membres</td>
</tr>
<tr>
<td>18:00</td>
<td>Banquet du Président – Hillebrand Estates</td>
</tr>
</tbody>
</table>

### Dimanche, le 21 septembre 2003

<table>
<thead>
<tr>
<th>Heure</th>
<th>Activité</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:00 - 09:00</td>
<td>Inscription</td>
</tr>
<tr>
<td>07:00 - 07:45</td>
<td>Petit Déjeuner</td>
</tr>
<tr>
<td>07:45 - 09:45</td>
<td>CINQUIÈME Session Scientifique</td>
</tr>
<tr>
<td>09:45 - 10:00</td>
<td>Pause-Santé</td>
</tr>
<tr>
<td>10:00 - 11:00</td>
<td>SIXIÈME Session Scientifique</td>
</tr>
<tr>
<td>11:00 - 11:15</td>
<td>Scientifique Prix du résident pour la meilleure présentation clinique et expérimentale. Mot d’adieu du président</td>
</tr>
</tbody>
</table>


C’est avec une immense tristesse que nous vivons le décès du Docteure Maria Di Lorenzo survenu le 16 août 2003, à 16 heures.


En plus de son esprit brillant qui en faisait une académicienne exceptionnelle, Docteure Di Lorenzo était une excellente chirurgienne et a toujours exercé ses activités cliniques avec un très grand souci du détail dans l’intérêt de ses petits patients. Très exigeante avec elle-même, elle était une enseignante exceptionnelle tant à l’hôpital Sainte-Justine qu’à l’Université de Montréal.

MOT DE BIENVENUE DU PRÉSIDENT

Je souhaite la bienvenue aux membres et aux invités de l’Association canadienne de la chirurgie pédiatrique (ACCP) à l’occasion de la 35e assemblée générale annuelle de notre organisation. Cette année, notre réunion aura lieu à Niagara-on-the-Lake. Dans ce cadre splendide, nous pourrons profiter des beautés naturelles et des richesses culturelles de la région tout en assistant à des sessions éducatives et scientifiques de grand intérêt. Le Dr Brian Cameron de Hamilton et le Dr Jack Langer de Toronto ont travaillé en collaboration pour nous faire connaître cette magnifique région de notre pays.

Le Dr Ken Shaw et le Comité des programmes ont déployé beaucoup d’efforts pour donner aux participants la possibilité d’apprécier pleinement les attractions touristiques de Niagara-on-the-Lake. Grâce au Festival Shaw, aux caves vinicoles et à la beauté des chutes du Niagara, nous devrions parvenir à une bonne harmonie entre travail et relaxation et sortir très enrichis de cette réunion.

Je vous souhaite à tous de passer un agréable moment et je me ferai un plaisir de partager avec vous ce que l’ACCP a de mieux à offrir.

Cordialement,

Mike Giacomantonio, M.D., F.R.C.S.(C)
Président, Association canadienne de la chirurgie pédiatrique
AU SUJET DE L’ASSOCIATION CANADIENNE
DE LA CHIRURGIE PÉDIATRIQUE

L’Association canadienne de la chirurgie pédiatique 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 pédiatiques ne soit pas unique, elle exerce un rôle crucial dans les questions relatives aux traumatismes pédiatiques.

L’Association canadienne de la chirurgie pédiatique 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 des autres membres de la communauté qui s’intéressent à des aspects apparentés des soins pédiatiques et qui travaillent dans ces domaines.

LE FOND POUR L’ÉDUCATION : Pour l’aider à remplir ses engagements en matière d’éducation sur les sujets relatifs à la chirurgie pédiatique, l’association a créé un fonds pour l’éducation. Ce fonds a été établi et continue à exister grâce à la générosité des dons faits par des individus et des associations, de nature médicale ou autre, concernés 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 :
Peter Fitzgerald, M.D.
Secrétaire-trésorier de l’ACCP
McMaster Children’s Hospital
1200, rue Main Ouest, bureau 4E2
Hamilton, Ontario
L8N 3Z5
Téléphone (905) 521-2100 Poste 75231
Télécopieur (905) 521-9992
Courriel : fitzger@mcmaster.ca
PRÉSIDENTS

1967-1973  Harvey Beardmore  Montréal
1973-1975  Colin Ferguson*  Winnipeg
1975-1977  Jim Simpson*  Toronto
1977-1979  Sam Kling  Edmonton
1979-1981  Pierre-Paul Collin  Montréal
1981-1983  Barry Shandling  Toronto
1983-1985  Gordon Cameron  Hamilton
1985-1987  Stanley Mercer  Ottawa
1987-1989  Alex Gillis  Halifax
1989-1991  Jacques C. Ducharme  Montréal
1991-1993  Sigmund H. Ein  Toronto
1993-1995  Angus Juckes  Regina
1995-1997  Jean G. Desjardins  Montréal
1997-1999  David P. Girvan  London
1999-2002  Ray Postuma  Winnipeg
2002-2004  Mike Giacomantonio  Halifax

* décédé

SECRÉTAIRES-TRÉSORIERS

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

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

* décédé

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.
CAPS 36ième Réunion Annuelle
21-24 Octobre 2004
Fort Garry Hotel
Winnipeg, Manitoba

Winnipeg
Embrace the Spirit • Vivez l’esprit

Joignez-vous à nous!
CONFERENCIER INVITE

DR SCOTT ADZICK

Chirurgien en chef près l'Hôpital Pédiatrique de Philadelphie
C. Everett Koop Professeur en Chirurgie Pédiatrique;
Professeur en Pédiatrie; et Professeur en Gynécologie et en Obstétrique,
La Faculté de Médecine de l'Université de Pennsylvanie
Directeur de la Chirurgie Thoracique et Pédiatrique Générale,
Directeur du Centre des Diagnostics et des Traitements Fœtaux

Dr Adzick a été diplômé en 1979 par la Faculté de Médecine de Harvard. Il a passé son internat en Chirurgie Générale à l'Hôpital Général de Massachusetts ainsi que sa confrérie en Chirurgie Pédiatrique à l'Hôpital de Pédiatrie de Boston.

Dr Adzick est l'une des figures les plus réputées dans le domaine de la Chirurgie Pédiatrique. Il est l'auteur et le coauteur de 354 mémoires, 69 chapitres, 8 livres et il fait partie du Conseil Éditorial de huit journaux. Plusieurs prix prestigieux lui ont été décernés.

Dr Adzick est un chirurgien doué, un infatigable chercheur et un pionnier dans le domaine croissant de la chirurgie fœtale.

L'Association Canadienne de Chirurgie Pédiatrique est heureuse d'inviter

DR SCOTT ADZICK

afin de donner la Conférence Annuelle: Fred MacLeod/JPS.

C'est grâce à l'aide financière de la W. B. Saunders Company que nous recevons le Dr Scott Adzick.
PRÉSENTATIONS DES RÉSIDENTS


PRIX POUR LES MEILLEURES COMMUNICATIONS DES RÉSIDENTS 2002

MEILLEUR TRAVAIL CLINIQUE

Dr M. PROCTOR

Correlation Between Radiographic Transition Zone and Level of Aganglionosis in Hirschsprung's Disease: Implications for Surgical Approach
M. Proctor, J. Traubici, J. Langer, G. Gibbs, S. Ein, P. Kim
Hospital for Sick Children
Toronto (Ontario) CANADA

MEILLEUR TRAVAIL EXPÉRIMENTAL

Dr V. SOLARI

Expression of Heme Oxygenase and Endothelial Nitric Oxide Synthase in the Lung of Newborns with Congenital Diaphragmatic Hernia and Persistent Pulmonary Hypertension
V. Solari, A. Piaseczna-Piotrowska, P. Puri
Children’s Research Centre and Our Lady’s Hospital for Sick Children
Dublin, IRELAND

FÉLICITATIONS AUX DRS. PROCTOR ET SOLARI !
Online registration/payment
Demographics on-line - www.cps.ca
Sponsors for Arlene - soon
M.O.C. = U of Manitoba
? Cost of A/V
Paper 37 - CN database - US
Sponsorship = $7  & 40 - longer
Powerpoints on Net / Abstracts
Internet connection / capability
Magwell - special - Chris
Dan Remann - next year - Col Sx & Border
Tribute to Maria di Lorenzo
Welcome page from President
Marketing of Meeting - how was it now
Sept 30-Oct 3
Post Conf.
- Aboriginal / Inuit
- Churchill
- oldest Med. School