CANADIAN ASSOCIATION of
PAEDIATRIC SURGEONS

31st

Annual Meeting

MONTREAL

September 23-26, 1999
Thirtyfirst Annual Meeting

CANADIAN ASSOCIATION of
PAEDIATRIC SURGEONS

September 23-26, 1999

Delta Montréal
475, avenue Président-Kennedy
Montreal (Quebec) CANADA
H3A 1J7

(514) 286-1986
SCIENTIFIC AND SOCIAL PROGRAM

Thursday, September 23, 1999

09:00 - 17:00  Meeting of CAPS Council (Executive)
17:00         Registration
19:00 - 22:00 Welcoming Reception – Delta Montréal

Friday, September 24, 1999

07:00 - 13:00  Registration
07:00 - 07:55  Continental Breakfast
07:30 - 13:00  Exhibits
07:55 - 08:00  Welcome and Opening Ceremony
08:00 - 10:15  Scientific Session ONE
10:15 - 10:50  Refreshment Break
10:50 - 12:00  Scientific Session TWO
12:00 - 13:00  Fred MacLeod Lecture, Dr. Patricia K. Donahoe
13:00 - 14:15  Lunch
14:15 - 14:45  Scientific Session THREE
14:45 - 15:45  The So-Called "Experts" Panel Quiz

Saturday, September 25, 1999

06:30 - 08:00  Specialty Committee in Pediatric General Surgery Meeting
07:00 - 12:00  Registration
07:00 - 08:00  Continental Breakfast
07:30 - 13:00  Exhibits
08:00 - 10:15  Scientific Session FOUR
10:15 - 10:50  Refreshment Break
10:50 - 12:00  Scientific Session FIVE
12:00 - 13:00  "2 minutes / 2 slides"
13:00         CAPS Members Business Meeting
18:15         Presidential Reception – Jacques Cartier Pier, Montreal’s Old Port
19:00         Presidential Banquet – Le Bateau-Mouche (Upper-Cruise), Montreal’s Old Port

Sunday, September 26, 1999

07:00 - 12:00  Registration
07:00 - 08:00  Continental Breakfast
07:00 - 13:00  Exhibits
08:00 - 10:10  Scientific Session SIX
10:10 - 10:45  Refreshment Break
10:45 - 12:30  Scientific Session SEVEN
12:30         Annual Meeting Adjourns
PRESIDENT'S WELCOME

Dear CAPS members and Guests:

Welcome to Montreal!

Our 31st annual meeting returns to Montreal and we look forward to an informative and stimulating meeting. This last meeting before the new millennium will continue the excellence of our clinical and scientific programs. Geoff Blair and his committee have selected a program which covers a wide range of topics providing ample opportunity for discussion amongst our member and guests.

Salam and Diane Yazbeck, as our local hosts, have again arranged a number of social events including a cruise for our annual dinner on the water surrounding Montreal. It is sure to be a memorable evening.

Montreal is a wonderful city to have our last meeting of this century and we well enjoy the scientific and social program provided.

Again, my thanks to Salam and Diane Yazbeck, Geoff Blair and Arlene Ein for all their efforts in arranging this meeting.

We look forward to meeting all of you and invite you to participate in all of the activities.

Yours sincerely,

David P. Girvan, M.D.
President
Canadian Association of Paediatric Surgeons
ABOUT THE
CANADIAN ASSOCIATION OF PAEDIATRIC SURGEONS

The Canadian Association of Paediatric Surgeons was granted its charter in 1967. Its main aim is to improve the surgical care of infants and children in Canada.

There are three main areas, diagnosis, treatment and research, which are of special concern to the members.

Infants Born with Congenital Abnormalities

Even though the majority of newborn infants who have severe congenital abnormalities can be treated successfully by a surgical operation, often the condition is either not recognized, or if it is diagnosed, the local physician may be unaware of the possibilities for surgical cure. In this situation most of these babies die, or some survive to live a life crippled by their deformity.

Malignancy in Childhood

Cancer is the second most common cause of death in childhood. Surgical removal of the tumor, combined with X-radiation and chemotherapy provided by an aggressive team utilizing new techniques can achieve a cure in over 50% of these patients.

Trauma

Finally, the number one killer of children in North America is accidents. Here again, with modern methods of first aid, transportation, resuscitation, intensive care, and specialized surgical team effort, many of these seriously injured children can be saved.

Education Program

To accomplish an improvement in surgical care for babies and children, the Canadian Association of Paediatric Surgeons has launched an educational program for doctors, nurses and others working in the paediatric health field. To support this program, an educational fund has been established.
EDUCATION FUND

The role of the Education Fund is to promote continuing medical education of the members of the Canadian Association of Pediatric Surgeons, education of medical and surgical specialists, of trainees and of the public about pediatric surgical illnesses and their prevention. Financing for the Education Fund has been obtained from individuals and groups, both medical and non-medical, interested in the surgical care of children, and from foundations. It is the intent of the Association to increase the capital funding to a level where the annual interest will fully support the Education Program.

The Education Fund of the Canadian Association of Paediatric Surgeons is registered with the Federal Government and all contributions are fully tax deductible. The Fund is audited annually.

Donations may be sent to:

Salam Yazbeck, M.D.
CAPS Secretary-Treasurer
Hôpital Sainte-Justine
3175 Côte Ste.Catherine
Montreal (Quebec) CANADA
H3T 1C5

Telephone (514) 345-4688
Fax (514) 345-4964
E-mail Secretary@caps.ca
PRESIDENTS

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

* indicates deceased

SECRETARY-TREASURERS

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

ALLEN Michael
ASHMORE Phillip
BEARDMORE Harvey
CAMERON Gordon
COLLIN Pierre-Paul
DESIARDINS 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
FUTURE C.A.P.S. MEETINGS

32nd Annual Meeting
September 22-24, 2000
Le Château Montebello, OTTAWA

Le Château Montebello, rustic elegance in a world-class resort
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. The Program Committee normally tries to schedule the Residents papers during the first two days of the meeting to enable the awarding of the Residents Prizes during the Presidential Dinner.

WINNERS OF THE 1998 RESIDENT BEST PAPER AWARDS

BEST CLINICAL RESEARCH PAPER

Dr. N.L. YANCHAR

"Long term outcomes of Hirschsprung's disease"
N.L. Yanchar, P. Soucy
The Children's Hospital of Eastern Ontario
Ottawa (Ontario) CANADA

BEST BASIC SCIENCE RESEARCH PAPER

Dr. S.B. SHEW

"The determinants of protein catabolism in neonates on ECMO"
S.B. Shew, T.H. Keshen, F. Jahoor, T. Jaksic
Baylor College of Medicine, ARS/USDA
Children's Nutrition Research Center
Houston, TX USA

CONGRATULATIONS DR. YANCHARD AND DR. SHEW!
BOOK PRIZE

WINNERS OF THE 1998 RESIDENT BEST PAPER AWARDS

BEST CLINICAL RESEARCH PAPER

Dr. K. AL-HARBI

"Poop and scoop: Mucous fistula refeeding in neonates with short bowel syndrome"
Children's Hospital at Hamilton Health Science Corporation
Hamilton (Ontario) CANADA

BEST BASIC SCIENCE RESEARCH PAPER

Dr. P.M. KAUFMANN

"Heterotopic hepatocyte transplantation using three dimensional polymer matrices.
Evaluation of different modalities of hepatotrophic stimulation"
P.M. Kaufmann, S. Uyama, D. Kluth, J.P. Vacanti
Department of Pediatric and General Surgery
University of Hamburg
Hamburg, GERMANY

CONGRATULATIONS DR. AL-HARBI AND DR. KAUFMANN!
# CAPS COUNCIL 1998-1999

## EXECUTIVE

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<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Position (year)</th>
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<tr>
<td>President</td>
<td>D.P. Girvan</td>
<td>Director (3rd year)</td>
<td>N. Grace</td>
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<tr>
<td>Past-President</td>
<td>J.G. Desjardins</td>
<td>Director (2nd year)</td>
<td>P. Soucy</td>
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<tr>
<td>Secretary-Treasurer</td>
<td>S. Yazbeck</td>
<td>Director (1st year)</td>
<td>M. Giacomantonio</td>
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## COMMITTEES

### Archivist

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<th>Archivist</th>
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<th>Constitution and Bylaws</th>
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<td>A. Biir</td>
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<td>J. Bass</td>
<td>J.M. Labelle</td>
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<td>R. Cloutier</td>
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<td>E. Webber</td>
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### Ethics, Moral and Legal Issues

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<th>Membership and Credentials</th>
<th>Nominating</th>
<th>Programs</th>
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<td>L.T. Nguyen</td>
<td>G.K. Blaiz</td>
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<td>T.J. Baskai</td>
<td>J.M. Labelle (Secretary)</td>
<td>A. Wong</td>
<td>R. Poshta</td>
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<td>B. Dahman</td>
<td>S. Yazbeck (Secretary-Treasurer)</td>
<td>M. Grace</td>
<td>A. Womg</td>
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<td>N. Grace</td>
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<td>A. Womg</td>
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### Liaison with American College

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<th>Liaison with</th>
<th>Research</th>
<th>Specialty Committee in Pediatric General Surgery (of the Royal College)</th>
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<tbody>
<tr>
<td>J.M. Labelle</td>
<td>M. Di Lorenzo</td>
<td>S. Ein</td>
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<td>R. Superina</td>
<td>D. Price *(Dalhousie University)</td>
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<td>R. Cloutier</td>
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<td>J. Leager</td>
<td>K. Fillor **(University of Toronto)</td>
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<td>M. Giacomantonio ***</td>
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<td>R. Keith **(Chair, general surgery committee)</td>
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<td>*** Corresponding member</td>
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### Trauma

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<tr>
<td>A. Wang</td>
<td>R. Saioy (1996)</td>
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<td>A. Hayashi (1997)</td>
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<td>S. Rutin</td>
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*Underlined indicates chair of committee*

Please contact the President or Secretary-Treasurer if you are able to serve on any of the above committees or if corrections are necessary in the above information.
PRINTING OF THE PROGRAM BOOKLET AND PART OF THE SOCIAL PROGRAM WERE MADE POSSIBLE WITH THE FINANCIAL SUPPORT OF THE FOLLOWING SPONSORS

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GUEST LECTURER

Doctor Patricia K. DONAHOE, M.D.

Born in Boston, Dr. Patricia K. Donahoe was educated at Boston, Columbia and Harvard Universities. She received her surgical training at Tufts New England Medical Center in Boston and was senior registrar at Alder Hey Children's Hospital in Liverpool, England.

After finishing her training, Dr. Donahoe undertook a two year surgical fellowship in 1969-1970 at Harvard Medical School with Dr. Judah Folkman and in 1970-1971 at the Massachusetts General Hospital in Boston.

Between 1973 and 1988, Dr. Donahoe climbed the academic ladder to hold the Marshall K. Bartlett Professor of Surgery Chair at the Massachusetts General Hospital and Harvard University.

Dr. Donahoe has always been involved in research and has been the recipient of numerous NIH grants. Her productivity in research is demonstrated by the fact that she holds no less than twelve patents. She is well known internationally and the fellowship positions in her laboratory are sought after worldwide.
During the course of her career, Dr. Donahoe has received many prestigious awards and honours. She is on the editorial boards of eight major scientific publications.

She has always been very prolific with over 255 publications including papers, book chapters, books and reviews.

Her major research interests involve fetal biology and genetics as well as the fascinating field of in utero gene therapy.

The Canadian Association of Pediatric Surgery is pleased to invite

**DOCTOR PATRICIA K. DONAHOE**

to give the Fred MacLeod Annual Lecture.

Her talk is entitled

"**HOW DEVELOPMENTAL BIOLOGY CONTRIBUTES TO MODERN PEDIATRIC SURGICAL CARE**".
PROGRAM SCHEDULE

PROGRAMME DÉTAILLÉ

ABBREVIATIONS

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<thead>
<tr>
<th>O</th>
<th>original 8 minute paper</th>
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<tr>
<td>R</td>
<td>resident's paper</td>
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<td>C</td>
<td>5 minute case/method paper</td>
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O.R. Adjudicated
C Not adjudicated
THURSDAY, SEPTEMBER 23, 1999

DELTA MONTRÉAL

09:00 - 17:00  Meeting of CAPS Council (Executive)
               Ravel Room, Plaza level

17:00          Registration
               Foyer, Mezzanine level

19:00 - 22:00  Welcoming Reception
               Opus I Room, Mezzanine level
FRIDAY, SEPTEMBER 24, 1999

DELTA MONTREAL

07:00 - 13:00  Registration
Foyer, Mezzanine level

07:00 - 07:55  Continental Breakfast
Foyer, Mezzanine level

07:30 - 13:00  Exhibits
Opus II Room, Mezzanine level

07:55 - 08:00  Welcome and Opening Ceremony
President, Dr. David P. Girvan

08:00 - 10:15  Scientific Session ONE
Opus I Room, Mezzanine level

10:15 - 10:50  Refreshment Break
Foyer, Mezzanine level

10:50 - 12:00  Scientific Session TWO
Opus I Room, Mezzanine level

12:00 - 13:00  Fred MacLeod Lecture
Doctor Pat Donahoe, Massachusetts General Hospital
"How developmental biology contributes to modern pediatric surgical care"

13:00 - 14:15  Lunch

14:15 - 14:45  Scientific Session THREE
Opus I Room, Mezzanine level

14:45 - 15:45  The So-Called "Expert" Panel Quiz
Opus I Room, Mezzanine level
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<th>Time</th>
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<tbody>
<tr>
<td>08:00</td>
<td>O</td>
<td>THE UNPREDICTABLE CHARACTER OF CONGENITAL CYSTIC LUNG LESIONS</td>
<td>K.K. Roggin, C.K. Breuer, S.R. Carr, A.G. Kurkchubasche,</td>
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<td>C.W. Wesselhoeft Jr., T.F. Tracy Jr., F.I. Luks</td>
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<td>08:00</td>
<td>O</td>
<td>PRIMARY PULMONARY LYMPHANGIECTASIA REVISITED</td>
<td>S. Bouhour, M. Di Lorenzo, S. Youssef, P. Simard, J.G.</td>
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<tr>
<td>08:00</td>
<td>C</td>
<td>UNUSUAL PRESENTATIONS OF BRONCHOGENIC CYSTS</td>
<td>A. Al Rabeaah, S. Al Nasser, S. Al Jadaan, M. Al Namshan,</td>
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<td>08:35</td>
<td>4</td>
<td>PRESSURE-LIMITED VENTILATION IMPROVES SURVIVAL IN NEONATES WITH CONGENITAL DIAPHRAGMATIC HERNIA</td>
<td>S.A. Himidan, S.B. Shaw, T. Jaksic, N. Shimizu, T. Gerstle, D.J. Bohn</td>
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<td>09:10</td>
<td>5</td>
<td>THE EFFECT OF FETAL TRACHEAL LIGATION ON THE DEVELOPING LUNGS IN THE FETAL CHICKEN</td>
<td>J. Rohs, W. Lambrecht, D. Kluth</td>
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<td>6</td>
<td>PRENATAL DIAGNOSIS AND MANAGEMENT OF CONGENITAL LOBAR EMPHYSEMA</td>
<td>O.G. Oluyinka, B. Coleman, N.S. Adzick</td>
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<td>7</td>
<td>COMPLICATIONS OF SPLENIC INJURIES: EXPANSION OF THE NON-OPERATIVE THEOREM</td>
<td>C. Frumiento, D.W. Vanes, K. Sartorelli</td>
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<td>SPLENIC INJURIES IN CHILDREN</td>
<td>S. Al-Shamsi, M. Giacomantione, R. Jackson</td>
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<td>LIFE-THREATENING AIR RIFLE INJURIES TO THE HEART IN THREE BOYS</td>
<td>J.M. DeCos, R.S. Abrams, R.S. Millet, R.J. Touloukian, M.W.L. Gauderer</td>
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<td>O</td>
<td>EFFECT OF GS 26303, AN ENDOTHELIN-CONVERTING ENZYME/NEUTRAL ENDOPETIDASE INHIBITOR, ON NITROFEN-INDUCED CONGENITAL DIAPHRAGMATIC HERNIA IN THE RAT</td>
<td>M. Kavanaugh, D. Khuth, B. Battistini, A. Y. Jeng, S. Jean, L. Fournier, D. Major, R. Cloutier Laval University Hospital Centre, Quebec Heart and Lung Institute, Sainte-Foy (Quebec), Hôtel-Dieu de Lévis, Lévis (Quebec) CANADA Eppendorf University, Hamburg GERMANY Novartis Institute for Bio research, Summit USA</td>
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<td>11</td>
<td>O</td>
<td>SHORT-TERM TRACHEAL OCCLUSION IN FETAL LAMBS WITH DIAPHRAGMATIC HERNIA IMPROVES LUNG FUNCTION, EVEN IN THE ABSENCE OF LUNG GROWTH</td>
<td>Y.K. Wild, G.J. Piatecki, M.E. De Paepe, P.I. Luks Brown University School of Medicine and Hasbro Children's Hospital Providence, RI USA</td>
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<td>12</td>
<td>C</td>
<td>LEIOMYOMA OF THE ESOPHAGUS PRESENTING AS BRONCHIAL OBSTRUCTION IN A CHILD: CASE REPORT AND REVIEW OF THE LITERATURE</td>
<td>D.L. Sigalet, V. Kirk, S. McFadden, G. Gelfand Alberta Children's Hospital Calgary (Alberta) CANADA</td>
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<tr>
<td>Time</td>
<td>Session</td>
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| 10:50 | OR 13   | SPONTANEOUS PNEUMOTHORAX IN CHILDREN: THE ROLE OF TUBE THORACOSTOMY AND VIDEO-ASSISTED THORACOSCOPIC SURGERY  
Montreal Children's Hospital, McGill University Health Center  
Montreal (Quebec) CANADA |
| 10:50 | OR 14   | VIDEO-ASSISTED THORACOSCOPIC THYMECTOMY IN JUVENILE MYASTHENIA GRAVIS  
H. Kotski, P.C.W. Kim, J. Vajsz  
Hospital for Sick Children  
Toronto (Ontario) CANADA |
| 10:50 | C 15    | BREAST CANCER IN A 6 YEAR OLD GIRL  
S. Morzaria, K.W. Gow, J. Davis, J. Fergall Magee, J.J. Murphy III  
British Columbia Children's Hospital  
Vancouver (British Columbia) CANADA |
| 16 | OR | Intestinal Metabolism After Ischaemia-Reperfusion  
P. Veitch, S.R. William, L. Spitz, A. Pierro  
Institute of Child Health and Great Ormond Street Hospital for Children  
London, United Kingdom |
| 17 | OR | Should Malrotation in Children Be Treated Differently According to Age?  
Montreal Children's Hospital, McGill University Health Center  
Montreal (Quebec), Canada |
| 18 | C  | Superior Mesenteric Venous Thrombosis in Malrotation with Chronic Volvulus  
D.S. Walsh, T.M. Crombleholme  
Children's Hospital of Philadelphia  
Philadelphia, PA, USA |

**Discussion**

12:00  **Fred Macleod Lecture**  
Doctor Pat Donahoe  
Massachusetts General Hospital  
"How developmental biology contributes to modern pediatric surgical care"
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<tr>
<td>14:15</td>
<td>OR 19</td>
<td>DIFFERENTIAL SUGAR ABSORPTION AS A MARKER FOR ADAPTATION IN SHORT BOWEL SYNDROME</td>
<td>A. Poole, G.R. Martin, D.L. Sigalit, Alberta Children's Hospital, Calgary (Alberta) CANADA</td>
</tr>
</tbody>
</table>
|      | OR 20   | MARKED MORPHOLOGICAL DIFFERENCES IN THE MYENTERIC PLEXUS BETWEEN MESENTERIC AND ANTIMESENTERIC SIDE OF SMALL BOWEL IN PREMATURE | L. Neeth, P.C.W. Kim, J. Vajsz  
    Children's Research Centre, Our Lady's Hospital for Sick Children, Dublin IRELAND |
|      | C 21    | COMBINED PURE ESOPHAGEAL ATRESIA, DUODENAL ATRESIA, BILIARY ATRESIA AND PANCREATIC DUCTAL ATRESIA: PRENATAL DIAGNOSTIC FEATURES AND REVIEW OF THE LITERATURE | C.R. Pautrier, A.M. Hubbard, B. Coleman, A. Flake,  
    Children's Hospital of Philadelphia, Philadelphia, PA USA |

**DISCUSSION**

**THE SO-CALLED "EXPERTS" PANEL QUIZ**

Quiz Master: Dr. Mario Di Lorenzo
Saturdays, September 25, 1998

DELTA MONTRÉAL

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<tr>
<th>Time</th>
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| 06:30 - 08:00 | Specialty Committee in Pediatric General Surgery Meeting (chairman: Dr. S.H. Ein)  
|             | Brahms Room, Plaza level                                             |
| 07:00 - 12:00 | Registration                                                         
|             | Foyer, Mezzanine level                                               |
| 07:00 - 08:00 | Continental Breakfast                                                
|             | Foyer, Mezzanine level                                               |
| 07:30 - 13:00 | Exhibits                                                             
|             | Opus II Room, Mezzanine level                                        |
| 08:00 - 10:15 | Scientific Session FOUR                                              
|             | Opus I Room, Mezzanine level                                         |
| 10:15 - 10:50 | Refreshment Break                                                   
|             | Foyer, Mezzanine level                                               |
| 10:50 - 12:00 | Scientific Session FIVE                                             
|             | Opus I Room, Mezzanine level                                         |
| 12:00 - 13:00 | "2 minutes / 2 slides"                                               
|             | Opus I Room. Mezzanine level                                         |
| 13:00       | CAPS Members Business Meeting                                        
|             | Concerto Room, Mezzanine level                                       |
| 18:15       | Presidential Reception (Charter in front of the hotel, departure: 17:45)  
|             | Jacques Cartier Pier, Montreal's Old Port                            |
| 19:30       | Presidential Banquet                                                 
|             | Le Bateau-Mouche (Dinner-Cruise), Montreal's Old Port                |
**SATURDAY, SEPTEMBER 25, 1999**

**SCIENTIFIC SESSION FOUR**
Delta Montréal
Opus I Room

**CO-CHAIRMEN**
Dr. R. Postuma
Dr. S. Yazbeck

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<tr>
<td>08:00</td>
<td>OR 22</td>
<td>GASTRIC MOTILITY DISORDERS IN PATIENTS OPERATED FOR ESOPHAGEAL ATRESIA AND TRACHEOESOPHAGEAL FISTULA. LONG-TERM EVALUATION. C. Romeo, S. Baldari, A. Centorrino, F. Proto, G.F. Scalfari, P. Antonuccio, A. Centonze, C. Gentile. Institute of Pediatric Surgery, University of Messina and Institute of Nuclear Medicine, University of Messina. Messina, Italy.</td>
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**DISCUSSION**
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<tr>
<td>08:35</td>
<td>25</td>
<td>THE NATURAL HISTORY AND MANAGEMENT OF NON-PIGMENTED GALLSTONES IN CHILDREN</td>
<td>S. Bruch, S.H. Ein, C. Rocchi, P.C.W. Kim</td>
<td>Hospital for Sick Children</td>
<td>Toronto (Ontario) CANADA</td>
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<td>27</td>
<td>FETUS-IN-FETU PATHOGENESIS, DIAGNOSIS AND SURGICAL MANAGEMENT</td>
<td>R.G. Khadaroo, M.G. Evans, R. Bhargava, E. Phillipos</td>
<td>Walter Mackenzie Centre</td>
<td>Edmonton (Alberta) CANADA</td>
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<tr>
<td>09:10</td>
<td>28</td>
<td>LIVER TRANSPLANTATION IN BILIARY (BA): EXPERIENCE IN 314 CHILDREN</td>
<td>M. Lallier, R. Reding, F. Gennari, K. Paul, M. Janssen, E. Sokal, J.B. Ote</td>
<td>Hôpital Saint-Luc, Université Catholique de Louvain</td>
<td>Brussels BELGIUM</td>
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<td>29</td>
<td>PAST AND FUTURE OF BILIARY ATRESIA</td>
<td>H. Blanchard, A. Carcellier, D. St-Vil, F. Alvarez, A.L. Bensoussan</td>
<td>Hôpital Sainte-Justine</td>
<td>Montreal (Quebec) CANADA</td>
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<td>30</td>
<td>RENAL ARTERY STENOSIS AND PHEOCHROMOCYTOMA: COEXISTENCE AND TREATMENT</td>
<td>A. Camberos, N. Bautista, M. Rubenzik, H. Applebaum</td>
<td>Kaiser Permanente Medical Center</td>
<td>Los Angeles, CA USA</td>
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<td>31</td>
<td>O</td>
<td>COST COMPARISON OF ELECTROCARDIOGRAPHY (ECG) VS FLUOROSCOPY FOR CENTRAL VENOUS LINE (CVL) POSITIONING IN CHILDREN</td>
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<td>S. Tierney, J. Katke, J. Langer</td>
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<td>Washington University School of Medicine</td>
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<td>St. Louis, MO USA</td>
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<td>32</td>
<td>O</td>
<td>LETHAL COMPLICATIONS OF CENTRAL VENOUS CATHETER PLACEMENT</td>
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<td>C.E. Bagwell, J.H. Haynes, A.M. Salzberg, R. Sonnino</td>
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<td>Medical College of Virginia/VCU</td>
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<td>Richmond, VA USA</td>
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<td>33</td>
<td>C</td>
<td>A NOVEL METHOD FOR REMOVING CUFFED CENTRAL VENOUS CATHETERS</td>
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<td>K.W. Gow, G.K. Blair</td>
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<td>British Columbia Children's Hospital</td>
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<td>Vancouver (British Columbia) CANADA</td>
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### SATURDAY, SEPTEMBER 25, 1999

#### SCIENTIFIC SESSION FIVE
Delta Montréal
Opus I Room

**CO-CHAIRMEN**
Dr. K.S. Shaw
Dr. P.C.W. Kim

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<tr>
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</table>
| 10:50 | 34 | OR | EMERGENT ABDOMINAL DECOMPRESSION WITH PATCH ABDOMINOPLASTY (PA) IN THE PEDIATRIC PATIENT | H.L. Neville, K.P. Lally, C.S. Cox
Hermann Children’s Hospital
Houston, TX, USA |
University of Ottawa, Ottawa (Ontario) CANADA |
| | 36 | C | PEDIATRIC PERINEAL IMPALEMENT INJURIES | E.R. Grisoni, E. Hahn, T. Volsko, D. Dudgeon
Rainbow Babies & Children's Hospital
Cleveland, OH, USA |

DISCUSSION
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<tr>
<td>11:25</td>
<td>MANUAL DETORSION IN CASES OF TESTICULAR TORSION: A VIABLE OPTION&lt;br&gt;G. Aziz, S. Yazbeck, L. Garel, J. Dubois, S. Bouchard&lt;br&gt;Hôpital Sainte-Justine&lt;br&gt;Montreal (Quebec) CANADA</td>
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<td>38</td>
<td>LAPAROSCOPIC VS. OPEN SPLENECTOMY IN CHILDREN&lt;br&gt;R.K. Minkes, M. Lagedine, J.C. Langer&lt;br&gt;St.Louis Children's Hospital&lt;br&gt;St.Louis, MO USA</td>
</tr>
<tr>
<td>39</td>
<td>BIG UMBILICAL HERNIA IN BLACK CHILDREN. HOW TO DO IT&lt;br&gt;H. Blanchard, D. St-Vil, A.L. Bensoussan&lt;br&gt;Hôpital Sainte-Justine&lt;br&gt;Montreal (Quebec) CANADA</td>
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**DISCUSSION**

12:00 - 12:00: 2 MINUTES, 2 SLIDES<br>Chair: Dr. G.K. Blair

13:00 - ANNUAL BUSINESS MEETING, LUNCHEON
SUNDAY, SEPTEMBER 26, 1999

DELTA MONTRÉAL

07:00 - 12:00  Registration
              Foyer, Mezzanine level

07:00 - 08:00  Continental Breakfast
              Foyer, Mezzanine level

07:00 - 13:00  Exhibits
              Opus II Room, Mezzanine level

08:00 - 10:10  Scientific Session SIX
              Opus I Room, Mezzanine level

10:10 - 10:45  Refreshment Break
              Foyer, Mezzanine level

10:45 - 12:30  Scientific Session SEVEN
              Opus I Room, Mezzanine level

12:30  Annual Meeting Adjourns
# SUNDAY, SEPTEMBER 26, 1999

**SCIENTIFIC SESSION SIX**  
Delta Montréal  
Opus I Room

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| 08:00 | O 40 | EFFECT OF GROWTH HORMONE, EPIDERMAL GROWTH FACTOR AND INSULIN ON BACTERIAL TRANSLOCATION IN EXPERIMENTAL SHORT BOWEL SYNDROME | L. Eitzamore, P. Aldezabal, M.J. Barrena, J.M. García-Arenzana, C. Ariz, S. Candelas, J.A. Tovar | Hospital Aranzazu, San Sebastian SPAIN  
Hospital Infanta Universitario "La Paz", Madrid SPAIN  
San Sebastian SPAIN |
| 08:10 | O 41 | IMPLICATIONS OF HIV POSITIVE STATUS IN PAEDIATRIC SURGERY. PRELIMINARY STUDY | G.O. Jonceu, M. Kirsten, L. Webber, J.E. Dienel, B. Banieghbal, J. Fonseca | University of Pretoria  
Pretoria REpublic OF SOUTh AFRICA |
| 08:20 | C 42 | GLYCERIN/SALINE SOLUTION FOR ANTERGRADE ENEMA | S. Takamizawa, K. Kimura, A. Sandler, R.T. Soper, L. Phezman | The University of Iowa Hospital & Clinics  
Iowa City, IA USA |
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| 08:35 | 43   | APPENDICITIS IN CHILDREN LESS THAN 3 YEARS OF AGE                                            | J. Allo, J. Shlyansky, J.T. Gerstle, S.H. Ein  
Hospital for Sick Children  
Toronto (Ontario) CANADA |
|       | 44   | A RANDOMIZED, DOUBLE-BLINDED, PLACEBO-CONTROLLED TRIAL                                      | S.K. Mayer, S. Shapiro, I. Lacroix, T. Yandza, S. Carrière, S. Yazbeck, H. Blanchard  
Hôpital Sainte-Justine  
Montreal (Quebec) CANADA |
|       | 45   | LATE NONFUNCTIONING DUODENAL ATRESIA REPAIR                                                  | S.H. Ein, P.C.W. Klm, H. Miller  
Hospital for Sick Children  
Toronto (Ontario) CANADA |

**DISCUSSION**

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| 09:10 | 46   | TRENDS IN BICYCLING RELATED HEAD INJURIES IN CHILDREN AFTER IMPLEMENTATION OF A COMMUNITY BASED BIKE HELMET CAMPAIGN | D. Wesson, L. Spence, X. Hu, P. Paarkin  
Baylor College of Medicine, Houston, TX USA  
University of Toronto, Toronto (Ontario) CANADA |
|       | 47   | LONG-TERM DISABILITY FOLLOWING TRAUMA IN CHILDREN                                            | S. Valadka, D. Paengnari, A. Dueck  
Kingston General Hospital  
Kingston (Ontario) CANADA |

**DISCUSSION**
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<td>48</td>
<td>0</td>
<td>COMPICATIONS OF LAPAROSCOPIC SURGERY FOR ESOPHAGEAL ACHALASIA IN CHILDHOOD</td>
<td>C. Esposito, P. Montpet, S. Cucchiara, B. Roblot-Maigret, O. Borrelli, P. Desruelle</td>
<td>Hôpital Bicètre Université Paris XI and Surgical Center Boulogne Billancourt, Paris FRANCE</td>
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<td>49</td>
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<td>LAPAROSCOPIC SURGERY OF GERD IN CHILDREN: TECHNICAL DIFFICULTIES AND EARLY POST-OPERATIVE COMPLICATIONS IN A SERIES OF 442 CASES</td>
<td>P. Montpet, M. Robert, J.S. Valla, J.L. Michel, A. Le Touze, H. Lardy, V. Rousseau, H. Steyart</td>
<td>Hôpital Bicètre Université Paris XI, Paris; CHU Clocheville, Tours; Hôpital Lerna, Nice FRANCE</td>
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<td>50</td>
<td>C</td>
<td>OUTCOMES OF LAPAROSCOPIC FUNDOPPLICATION AND GASTROSTOMY IN CHILDREN WITH CYSTIC FIBROSIS</td>
<td>C. Motte, B.H. Cameron, C.R. Perez</td>
<td>Geisinger Medical Center Danville, PA USA</td>
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**DISCUSSION**

[10:10] **REFRESHMENT BREAK**
**SUNDAY, SEPTEMBER 26, 1999**

**SCIENTIFIC SESSION SEVEN**
Delta Montréal
Opus I Room

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<th>Dr. J. Bass</th>
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<tr>
<td>10:45</td>
<td>51</td>
<td>PERCUTANEOUS ENDOSCOPIC GASTROSTOMY (PEG) AVOIDS TPN RELATED COMPLICATIONS IN PEDIATRIC CANCER PATIENTS</td>
<td>D.L. Preud'Homme, A.G. Mezoff, M. Miller, D.C. Hitch, Wright State University School of Medicine, The Children's Medical Center, Dayton, OH, USA</td>
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<td>52</td>
<td>STAGING OF WILMS' TUMOR COMPUTERIZED TOMOGRAPHY (CT) CORRELATION WITH PATHOLOGICAL FINDINGS</td>
<td>K.W. Gow, I.F. Roberts, D.H. Jamieson, H. Bray, J. Fergal Magee, J. Murphy III, British Columbia Children's Hospital, Vancouver (British Columbia), Canada</td>
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**DISCUSSION**

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<td>11:10</td>
<td>53</td>
<td>THE ROLE OF TRANSCATHETER ARTERIAL CHEMOEMBOLIZATION (tace) IN UNRESECTABLE MALIGNANT LIVER TUMOUR IN CHILDREN</td>
<td>G.O. Jomescu, G. Gelderman, L. defager, R. Kubheka, D. Mawela, O. Wedi, M. Kruger, University of Pretoria, Pretoria, Republic of South Africa</td>
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<td>54</td>
<td>A NOVEL TECHNIQUE FOR RESECTING &quot;UNRESECTABLE&quot; LIVER TUMORS</td>
<td>R. Superina, D.A. Bambini, R.M. Filler, G.H. Gelssler, Children's Memorial Hospital, Chicago, IL, USA, Hospital for Sick Children, Toronto (Ontario), Canada</td>
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<td>55</td>
<td>NEAR-TOTAL INTESTINAL AGANGLIONOSIS</td>
<td>M.I. Saxton, S.H. Ein, J. Hoehner, P.C.W. Kim, Hospital for Sick Children, Toronto (Ontario) CANADA</td>
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<td>56</td>
<td>SPONTANEOUS GASTRIC PERFORATION IN NEONATES AND ABNORMAL DISTRIBUTION OF INTESTINAL PACEMAKER CELLS</td>
<td>K. Ohehira, A. Yamaoka, H. Kobayashi, T. Miyano, Juntendo University School of Medicine, Tokyo JAPAN</td>
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<td>57</td>
<td>HAEMOPERITONEUM IN THE NEWBORN REPORT OF THREE CASES</td>
<td>K. Chun, D. St-Vil, Children’s Hospital of New Mexico, Albuquerque, NM USA, Hôpital Sainte-Justine, Montreal (Quebec) CANADA</td>
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### DISCUSSION

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### 12:00

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<td>58</td>
<td>TRANSVERSE COLORECTAL TRANSPLANT FOR ESOPHAGEAL REPLACEMENT IN CHILDREN: TEN YEARS' EXPERIENCE IN 136 PATIENTS</td>
<td>O. Reimers, Centre Hospitalier Universitaire Vaudois, Lausanne SWITZERLAND</td>
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<td>59</td>
<td>LONG TERM RESULTS IN CHILDREN WITH GASTRIC TUBE OESOPHAGEAL REPLACEMENT</td>
<td>G.O. Jonescu, G. Aprod, University of Pretoria, Pretoria, REPUBLIC OF SOUTH AFRICA</td>
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<td>60</td>
<td>FETAL DEMISE IN MONOCHORIONIC TWINS Discordant for SACCROCOCCYGEAL TERATOMA</td>
<td>O.O. Okotuye, B. Coleman, N.S. Adzick, A.W. Flake, The Center for Fetal Diagnosis and Treatment, Children's Hospital of Philadelphia, Philadelphia, PA USA</td>
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### DISCUSSION

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### 12:30

ANNUAL MEETING ADJOURNED
ABSTRACTS

RÉSUMÉS

ABBREVIATIONS

O  original 8 minute paper
R  resident's paper
C  5 minute case/technique report
O,R  Adjudicated
C  Not adjudicated
THE UNPREDICTABLE CHARACTER OF CONGENITAL CYSTIC LUNG LESIONS

Brown University School of Medicine and Hasbro Children's Hospital
Providence, RI USA

Background: The spectrum of congenital cystic disease of the lung ranges from hydrops and neonatal respiratory distress to asymptomatic lesions. Operative management is dictated by the presence of symptoms, recurrent infection, and the risk of malignant transformation.

Methods: Since 1995, all consecutive congenital cystic lung lesions were followed for symptoms, operative treatment, and correlation of presumptive with pathologic diagnosis.

Results: Eleven cystic lung lesions were identified. Six were diagnosed with mediastinal shift before 25 weeks of gestation; in four of six, the shift subsequently resolved. Overall, six of eight lesions that were followed serially decreased in size. Two patients were symptomatic in utero; one underwent thoracoamniotic shunting, one pleurocentesis for impending hydrops. Postnatally, these two, and two others required urgent surgery. Three of six asymptomatic patients had elective resection at 1 year and four await operation. In four of the seven operative cases (57%), there was a discrepancy between preoperative and pathologic diagnosis. There were three hybrid CCAM/sequestrations.

Conclusions: At least 70% of congenital cystic lung lesions decreased in size regardless of gestational age or presence of mediastinal shift. Antenatal intervention is therefore rarely indicated. Because of uncertain pathologic diagnosis, even stable asymptomatic lesions should be resected.

Senior author:
Dr. François I. Luks
Division of Pediatric Surgery
2, Dudley Street, Suite 180
Providence, RI 02905 USA
Phone: (401) 421-1939  Fax (401) 444-6603
E-mail: Francois_Luks@brown.edu
PRIMARY PULMONARY LYMPHANGIECTASIA REVISITED

S. Bouchard, M. Di Lorenzo, S. Youssef, P. Simard, J.G. Lapierre
Hôpital Sainte-Justine, Montreal (Quebec) CANADA

Pulmonary lymphangiectasia (PL) is a rare, poorly documented disease characterised by abnormal pulmonary lymphatics. Although case reports have been published, little is known about survivors beyond the neonatal period.

Methods: Retrospective review of histologically proven PL in foetuses, infants and long-term survivors since 1965.

Results: Eleven children (8M:3F) and 8 aborted foetuses (7M:1F) were identified. The foetuses weighed 463.4g (177-681g). Six were aborted between 19 to 24 week’s gestation for multiple malformations or anencephaly, and 2 spontaneously aborted: one with PL only, the other with twin-twin transfusion syndrome. Children with clinical PL were diagnosed between 0 and 11 months of age. Six children died within 10 days of life, five survived (10-122 months). Two deaths occurred after cardiac surgery. Among survivors, the symptomatology and frequency of admissions diminished with time. Symptoms included progressive respiratory distress, chronic cough, recurrent pneumonia, bronchial asthma, and choking. One child with bilateral chylothoraces was diagnosed with Noonan syndrome; 2 patients had minor cardiac malformations. Rapid deterioration occurred with mild respiratory infections. Chest X-ray revealed marked hyperinflation with interstitial infiltrate.

Conclusion: This first long-term study of primary PL will improve parent counselling. Although fatal in the neonatal period, clinical improvement is expected in survivors.

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UNUSUAL PRESENTATIONS OF BRONCHOGENIC CYSTS

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Bronchogenic cysts are rare anomalies seen in pediatric patients. They may present with infection, compression of surrounding structures or be asymptomatic. We report three patients with unusual presentations of bronchogenic cysts. The first patient was referred to us with a diagnosis of left lower lobe (LLL) bronchiectasis. An incidental systolic murmur proved on echocardiogram and MRI to be pulmonary artery compression by a bronchogenic cyst, which was also causing compression of LLL bronchus leading to bronchiectasis.

The second patient had early bronchiectatic changes of LLL due to compression of the corresponding bronchus by a bronchogenic cyst. These changes resolved after resection of the bronchogenic cyst. The third patient had right lower lobe bronchiectasis due to compression of the corresponding bronchus by a large bronchogenic cyst. All patients had successful surgical treatment.

In conclusion, bronchogenic cysts have a wide range of presentations and should be considered in unusual cases of bronchiectasis or pulmonary artery stenosis.

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PRESSURE-LIMITED VENTILATION IMPROVES SURVIVAL IN NEONATES WITH CONGENITAL DIAPHRAGMATIC HERNIA

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Background/Purpose: Survival rates in neonates with congenital diaphragmatic hernia (CDH) may potentially be improved with the use of pressure-limited ventilation (PLV) or "gentle ventilation" in an effort to prevent barotrauma. Hence, a review was performed to evaluate this strategy in a large pediatric center.

Methods: The hospital records for all 55 CDH patients treated between January 1995 and January 1999 were reviewed. At the beginning of this period, PLV (target PIP<30 cm H2O with maintenance of preductal SaO2>90%) was added to a pre-existing uniform therapeutic regimen of delayed surgery and primary salvage with high-frequency oscillatory ventilation (HFOV). No attempt was made to reduce ductal shunting with hyperventilation. Survival was defined as survival to discharge. Data comparisons were made by chi-square analysis.

Results: Prior to the institution of PLV, the overall survival in neonates with CDH from 1981-1994 was 54% (n=223). Since the institution of PLV, the overall survival has increased to 76% in 48 patients (P<0.005). When lethal cardiac anomalies were excluded, survival was 84%. HFOV was used in 27 patients with a survival rate of 59% (n=16). Only 4 patients received ECMO with 2 survivors. An improved survival of 89% was seen in patients diagnosed antenatally (n=27) when compared to 72% in patients diagnosed postnatally (n=28) with P<0.05.

Conclusions: This single institutional review shows a statistically significant improvement in survival with the use of pressure-limited ventilation in neonates with congenital diaphragmatic hernia. Furthermore, antenatal diagnosis was also associated with greater survival perhaps due to earlier transfer to a tertiary care setting.

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5. Session One  Friday  08:35  OR

THE EFFECT OF FETAL TRACHEAL LIGATION ON THE
DEVELOPING LUNGS IN THE FETAL CHICKEN

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Background/Purpose: Fetal tracheal ligation (fTL) can result in huge lungs. We
used this technique to study morphological changes after fTL in chicken
embryos. The following questions should be answered: (1) Is fTL possible in
this model? (2) What is the best timepoint for ligation? (3) What was the
impact of fTL on the lungs?

Methods: In 123 chicken embryos fTL was done indirectly by a tight suture
around the neck after 5 (n=28), 6 (n=24) or 7 (n=72) days of incubation. 20
embryos (controls) were sham operated (egg shell opened only). In 20
embryos, only the amnion was opened. At day 18, surviving fetuses were fixed
in Bouin and processed for histology. Total lung area was assessed by
morphometry and the number of bronchi per area was counted.

Results: Embryos operated at 7 days had the lowest mortality (55%) and the
best occlusion rate (79%). The opening of the amnion alone resulted in an
oligohydramnion with a significant reduction of airway numbers (p<0.05) and
total lung area (p<0.01). This hypoplasia was partly resolved after fTL,
resulting in an significant increase of the above parameters, although normal
lung development could not be observed.

Conclusions: Fetal tracheal ligation is possible in chicken embryos and fetuses
and is effective. However, due to the anatomy of birds, large lungs as seen in
other experimental models could not be observed.

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PRENATAL DIAGNOSIS AND MANAGEMENT OF CONGENITAL LOBAR EMPHYSEMA

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Congenital lobar emphysema (CLE) is a rare anomaly of lung development that usually presents in the neonatal period with respiratory distress and pulmonary lobar hyperinflation. The routine use of prenatal ultrasonography has resulted in the early identification and serial evaluation of congenital lung lesions. CLE can be distinguished from other congenital lung lesions on ultrasonography by the differences in echogenicity and reflectivity. We present two cases of CLE diagnosed at mid-gestation by ultrasonography and ultrafast fetal MRI, along with serial sonographic documentation of their prenatal course. The CLE lesions decreased in size over the course of the pregnancy, similar to that seen with other congenital lung lesions such as cystic adenomatoid malformation and bronchopulmonary sequestration. However, these neonates with CLE demonstrated marked air-trapping and respiratory distress requiring lobectomy in the early neonatal period. These cases provide an insight into the prenatal course of CLE and underscore the need for continued postnatal evaluation of fetuses even those in whom the lesions appear to have resolved in utero. These patients should have ready access to postnatal surgical intervention.

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COMPLICATIONS OF SPLENIC INJURIES:
EXPANSION OF THE NON-OPERATIVE THEOREM

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Purpose: Delayed complications (hemorrhage, abscesses, and pseudoaneurysms) of nonoperative management (NOM) in pediatric spleen injuries are rare, but reportedly result in failure of NOM. This study was undertaken to elucidate the rate of delayed complications and their impact on NOM of splenic injuries.

Methods: 40 children who underwent NOM of splenic injuries over 5 years were reviewed for complications and the success of NOM. All injuries were diagnosed and graded by CT scan. Follow-up imaging studies were obtained as indicated and at 6-12 week post-injury.

Results: NOM was successful in all children, but three (7.5%) developed delayed complications. A 3-year-old with a grade III splenic injury and a distal pancreatic transection, and 13 year old with a grade IV injury developed pseudoaneurysms which were noted on follow-up CT scans (14 days post-injury). The pseudoaneurysms were treated expectantly and resolved spontaneously. A 16 year old (grade IV injury) developed a splenic abscess 8 days post-injury, which was drained percutaneously with CT guidance.

Conclusions: Development of delayed complications may not preclude successful NOM of pediatric spleen injuries. Splenic artery pseudoaneurysms in children appear to resolve spontaneously without intervention.

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SPLENIC INJURIES IN CHILDREN

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Background: For non-operative management of splenic injuries in children, questions remain regarding imaging, length of hospital stay and follow-up. We reviewed our experience concerning these issues over the past fifteen years.

Methods: The charts of all children with splenic injuries (January 1983 - December 1998) were reviewed. All CT scans were reviewed and classified according to degree of splenic injury. Fisher’s exact test, linear regression, and logistic regression models were used to analyze data.

Results: 69 males and 23 females under sixteen years of age were identified. 57 (62%) patients had CT scans; 8 patients underwent laparotomy; 6 patients (6.5%) died. Age, admission hemoglobin, and ICU duration were significantly related to hospital stay (median 8 days). MVA passenger related injuries significantly correlated with mortality. CT class did not correlate with mortality (p-value 0.68) or hospital stay (p-value 0.2). Follow-up data was available for 66 patients, 36 with follow-up imaging. Follow-up imaging did not impact on clinical decisions and no late sequelae were identified.

Conclusion: Motor vehicle accidents and severe associated injury significantly correlated with mortality for splenic injuries. CT appearance did not correlate with outcome (mortality or hospital stay). Follow-up imaging did not impact on clinical care.

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LIFE-THREATENING AIR RIFLE INJURIES TO THE HEART IN THREE BOYS

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Yale-New Haven Children’s Hospital, New Haven, CT USA

Background / Purpose: Air rifles, or BB guns, are generally thought of as childhood toys. Although most injuries are not serious, life-threatening events have been reported. We present three children with BB injuries penetrating the heart, all requiring operative intervention.

Case Reports: Within a one year period, three boys, ages 5, 8, and 15, presented following BB gun shots to the chest. One urgently underwent exclusion of the cardiac apex for a traumatic ventricular septal defect. The second had a right ventricular injury requiring an urgent subxiphoid pericardial window for tamponade. The third underwent window pericardiectomy 24 hours following admission for hemopericardium with thrombus. All recovered uneventfully.

Conclusion: Air rifles are potentially lethal weapons. Increased awareness, supervision, and safety training are needed to decrease their risks.

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10. Session One  Friday  09:45  OR

EFFECT OF CGS 26303, AN ENDOTHELIN-CONVERTING ENZYME/NEUTRAL ENDOPEPTIDASE INHIBITOR, ON NITROFEN-INDUCED CONGENITAL DIAPHRAGMATIC HERNIA IN THE RAT

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Background/Purpose: The prenatal pathophysiology of congenital diaphragmatic hernia (CDH) is not fully understood. Endothelins (ETs) are the most potent vasoconstrictive peptides that also act as pro-mitogenic agents. We hypothesised that they could play a major role during pregnancy in leading to the pulmonary situation found at birth. Therefore, we studied the effect(s) of CGS 26303, a non-selective endothelin-converting enzyme/neutral endopeptidase inhibitor, given from mid-term pregnancy until birth in the rat-nitrofen model.

Methods: Eight pregnant Sprague-Dawley rats were given nitrofen (100 mg/kg p.o.) on day 11.5 of gestation to induce right CDH. CGS 26303 was administered twice a day from day 12 until natural delivery (100 mg/kg/day s.c.). At birth, newborns’ survival was monitored up to 240 min. Quantification of the severity CDH was performed by post-mortem examination and weights of bodies, lungs and livers were recorded. Statistical analyses were performed using the SUDAAN software for the two models (Cox, linear regression) implying clustered data.

Results: Newborns rats delivered from mothers treated with CGS 26303 (n=40) had a mean survival time of 207 ± 11 min vs 168 ± 15 min for those of the untreated group (n=46; p < 0.05). In the treated group, animals with severe CDH (n=8) had a mean survival time of 72 ± 27 min. vs 13 ± 3 min. (p < 0.01), a mean body weight of 4.64 ± 0.13 g vs 5.19 ± 0.09 g (p < 0.01), a mean lungs/body weight ratio of 1.54 ± 0.03 % vs 1.44 ± 0.05 % (p < 0.05) and a mean liver/body weight ratio of 6.30 ± 0.28 % vs 7.77 ± 0.44 % (p < 0.01) compared to those with severe CDH delivered from untreated pregnant rats (n=12).

Conclusions: CGS 26303, given during pregnancy, increased survival at birth and had a beneficial effect in reducing the severity of the anomaly in newborns rats with nitrofen-induced diaphragmatic hernia. These results support the hypothesis that an appropriate treatment during pregnancy could exert an action on the embryologic process of CDH in utero.

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11. Session One     Friday    09:45     OR

SHORT-TERM TRACHEAL OCCLUSION IN FETAL LAMBS WITH DIAPHRAGMATIC HERNIA IMPROVES LUNG FUNCTION, EVEN IN THE ABSENCE OF LUNG GROWTH

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Background: Prolonged tracheal occlusion (TO) accelerates lung growth, but impairs surfactant production. Short-term TO results in less lung growth, but preserves type II cell function. We studied the effects of short-term TO on lung physiology in diaphragmatic hernia.

Methods: Diaphragmatic hernia was created in 9 fetal lambs at 90-95 d. Five were left uncorrected (CDH), four underwent 2-week TO (108-122 d; CDH+TO). Three 4-week-old lambs served as controls. Near term (136 d), fetuses were ventilated for 90-150 min. Pulmonary arterial pressure, postductal blood gases, quasi-static compliance, total lung capacity (TLC) and lung weight/body weight (LW/BW) were measured.

Results: All lambs survived until delivery. Short-term occlusion did not induce lung growth (TLC and LW/BW 6.07 mL/kg and 0.022 in CDH, 4.86 mL/kg and 0.023 in CDH+TO, 36.8 mL/kg and 0.036 in controls, respectively), but compliance tended to increase (0.18 mL/torr in CDH, 0.25 mL/torr in CDH+TO, 1.33 mL/torr in controls). Pulmonary hypertension in CDH (47.4 ± 12.32/35.8 ± 12.19 torr) was corrected by short-term occlusion (20.2 ± 4.0/16.0 ± 4.8 torr in CDH+TO, similar to controls). Best pO₂ and pCO₂ improved after occlusion (CDH: 48.6 ± 6.7 torr and 107.1 ± 34.3 torr, respectively; CDH+TO: 101.5 ± 16.3 torr and 81.9 ± 2.4 torr; control: 291.4 ± 4.7 torr and 37.7 ± 17.3), as did oxygenation index (CDH: 97.2 ± 23.0, CDH+TO: 28.7 ± 3.1, control: 5.6 ± 0.6).

Conclusions: Short-term TO corrects pulmonary hypertension and improves gas exchange and lung compliance in fetal lambs with diaphragmatic hernia, despite failure to produce accelerated lung growth. Inducing lung maturation and correcting the physiologic derangement in diaphragmatic hernia may be more important than achieving lung growth alone.

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LEIOMYOMA OF THE ESOPHAGUS PRESENTING AS BRONCHIAL OBSTRUCTION IN A CHILD:
CASE REPORT AND REVIEW OF THE LITERATURE

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Background: Leiomyomata of the esophagus are rare in children. We report the youngest case documented, which presented with pulmonary and esophageal symptoms.

Case report: A two year old previously well male child presented with respiratory distress. He was found to have complete left main stem bronchial obstruction from and extrinsic mass. Endoscopically this appeared to be an inflammatory mass; biopsy suggested inflammatory pseudo-tumor. An endobronchial dilation was done along with a segmental lung resection and he did well. Subsequent difficulty swallowing prompted review, and esophageal narrowing was noted. At resection a leiomyoma of the mid esophagus, with surrounding inflammatory changes including the left main stem bronchus was found. A primary anastomosis was possible, subsequent antireflux surgery was required but he has since done well. A further 29 previously reported cases of esophageal leiomyoma in children have been described. The average age at presentation is 4 years, with a slight female predominance. Localized lesions are rare and 25% of cases are syndromic. Both swallowing difficulty and pulmonary symptoms are common. Esophageal leiomyoma should be considered in the differential diagnosis of children with swallowing and airway difficulties. Surgical resection is challenging even after the proper diagnosis is made.

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SPONTANEOUS PNEUMOTHORAX IN CHILDREN:
THE ROLE OF TUBE THORACOSTOMY AND VIDEO-ASSISTED
THORACOSCOPIC SURGERY

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Background: Specific guidelines for the treatment of spontaneous pneumothorax (SP) in children are scarce. Management is evolving with new imaging technologies and thoracoscopy (VATS). The objective was to evaluate the usefulness of current therapeutic procedures.

Methods: 53 pneumothoraces in 40 patients were treated over the last 10 years (1989-1998). The mean age was 6 years (range 1 day-17 years). Mean follow-up was 14 months.

Results: Two incidence peaks were noted: newborn (14 pts.) and adolescent (19 pts.). In the newborn group, SP occurred in full-term neonates and two were bilateral. They were treated with simple observation (6) or chest tube (8). There were no recurrences. In the postneonatal group, 73% (19/26) were over 14 years old. Underlying diseases were found in 6: 3 with asthma, 1 each with aspergillosis, pneumonia and CCAM. Bilateral metachronous SP was found in 5 patients and recurrence was found in 6 patients, all aged over 16. CT scan was done in 11 patients, 3 were false negatives, and 1 false positive. Of the 26 postneonatal patients, 5 were observed, 1 had a simple aspiration, 9 were treated only with a tube thoracostomy, 3 patients underwent minithoracotomy and 8 patients required VATS (2 of whom had a persistent air leak which required minithoracotomy). No recurrences occurred after minithoracotomy.

Conclusion: SP in newborns is best managed by observation or chest tube. In many older patients tube thoracostomy is sufficient. The benefits of VATS versus minithoracotomy remain uncertain.

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VIDEO-ASSISTED THORACOSCOPIC THYMECTOMY
IN JUVENILE MYASTHENIA GRAVIS

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Objective: To determine the effectiveness of video-assisted thoracoscopic surgery for thymectomy in patients with generalized juvenile myasthenia gravis (MG).

Background: Video-assisted thymectomy (VAT) has been reported to be as effective as traditional open surgical approaches in adult patients with MG. There is limited data available on this procedure in the pediatric population.

Methods: 14 consecutive patients who underwent thymectomy for generalized MG were analyzed. In six patients (1997-8), VAT was performed, and 6 patients had median sternotomy (MS) (1989-95). 2 patients, one with complicated graft vs. host disease and one in whom no follow-up data were excluded.

Results:

<table>
<thead>
<tr>
<th></th>
<th>VAT</th>
<th>MS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M : F</strong></td>
<td>1 : 5</td>
<td>2 : 4</td>
</tr>
<tr>
<td><strong>Age of Onset of Symptoms</strong></td>
<td>10.5 yr (1.6-14.6)</td>
<td>7.4 yr (1.5-14.8)</td>
</tr>
<tr>
<td>Osgerman</td>
<td>IIA/B : 3</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>III : 3</td>
<td>1</td>
</tr>
<tr>
<td><strong>Duration of Symptoms</strong></td>
<td>0.1 - 3.4 yr</td>
<td>0.1 - 1.4 yr</td>
</tr>
<tr>
<td><strong>Hospital Stay</strong></td>
<td>3 d (2.5-3.5)</td>
<td>6.8 d (2.5-13.5)*</td>
</tr>
<tr>
<td><strong>Complications</strong></td>
<td>0</td>
<td>wound infn, hypertrophic scar</td>
</tr>
<tr>
<td><strong>Follow-up</strong></td>
<td>1.1 yr (0.3 - 1.6)</td>
<td>3.4 yr (0.6 - 8.5)</td>
</tr>
<tr>
<td><strong>Remission (Improved)</strong></td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

*p<0.01 (Student’s t test)*

Conclusions: Preliminary results suggest that VAT is as effective as MS in treating generalized juvenile MG and can be safely performed in children as young as 20 months of age. In addition, VAT is less invasive than the MS approach, significantly shortens the postoperative hospital stay and has superior cosmetic results.

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Primary breast cancer in children is uncommon. A 6 year-old girl presented with a one-year history of an enlarging right breast mass. Ultrasound confirmed a 2-cm cystic lesion. Excisional biopsy revealed a ductal adenocarcinoma (secretory type). Following a negative metastatic work-up, a modified radical mastectomy and axillary node dissection was performed, with disease free survival at 3 years. Our case is noteworthy for several reasons: first, an unexplained breast mass, separate from the breast bud required histologic evaluation. Second, ultrasonography was ideally suited to image the breast. Finally, it is one of the youngest reported cases of pediatric breast cancer.
INTESTINAL METABOLISM AFTER ISCHAEMIA-REPERFUSION

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Purpose: This study explores the effect of ischaemia-reperfusion on various metabolic aspects of the small intestine.

Methods: Intestinal ischaemia was obtained by clamping the superior mesenteric artery in fasting adult male Sprague-Dawley rats. Three groups of animals were studied: A) sham operation for 150 min; B) intestinal ischaemia for 150 min C) 90 min of intestinal ischaemia followed by 60 min of reperfusion. Body temperature was maintained at normothermia (36.5-37.5°C). Concentrations of glucose, glutamine, glutamate, alanine, lactate, phosphocholine (PC), glycerophosphocholine (GPC), phosphocreatine (PCr) and ATP were measured using magnetic resonance spectroscopy from freeze-clamped small intestine extracts.

Results: Intestinal ischaemia alone caused significant drops in glucose, PCr and ATP but caused an increase in amino acids and lactate. Ischaemia and ischaemia-reperfusion decreased membrane metabolites (PC, GPC). After intestinal reperfusion, no recovery of PCr, ATP and amino acids was observed, however, partial recovery of glucose and lactate was detected.

Conclusion: There is no recovery of phosphoenergetics after 90 min of intestinal ischaemia followed by 60 min of reperfusion. Partial recovery of glucose and lactate might be due to diffusion across cell membranes.

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SHOULD MALROTATION IN CHILDREN BE TREATED DIFFERENTLY ACCORDING TO AGE?

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**Purpose:** To better define the mode of presentation, rate of volvulus and operative findings in children under 2 versus over 2 years old with malrotation.

**Method:** We reviewed the charts of all patients with malrotation admitted to our hospital between January 1980 and December 1998, excluding patients having malrotation as a secondary finding.

<table>
<thead>
<tr>
<th>Results</th>
<th># Patients</th>
<th>Asymptomatic</th>
<th>Acute Sx</th>
<th>Chronic Sx</th>
<th>Volvulus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>107</td>
<td>11(10.3%)</td>
<td>54(50.5%)</td>
<td>42(39.3%)</td>
<td>29(27%)</td>
</tr>
<tr>
<td>&lt;2</td>
<td>78</td>
<td>6(7.7%)</td>
<td>48(61.5%)</td>
<td>23(29.5%)</td>
<td>24(30.8%)</td>
</tr>
<tr>
<td>&gt;2</td>
<td>29</td>
<td>5(17.2%)</td>
<td>2(6.9%)</td>
<td>19(65.5%)</td>
<td>5(17.2%)</td>
</tr>
<tr>
<td>Mean age(year)</td>
<td>5.5</td>
<td>1.0</td>
<td>3.8</td>
<td>1.2</td>
<td></td>
</tr>
</tbody>
</table>

UGI was done in 89 patients (6% falsely negative) and a barium enema in 20 patients (40% read as normal). The most common associated anomaly was trisomy 21(6.5%). Volvulus was found at the time of surgery in 29 patients, 5 being over 2 years old. Three presented with acute symptoms and 2 with chronic. Surgery was performed by laparotomy in 103 patients, and by laparoscopy in 3. Mean length of stay was 13.6 days. Mean follow-up was 19 months. Death occurred in 3 patients with necrotic bowel; post-operative bowel obstruction was seen in 4 patients (only 1 required surgery).

**Conclusion:** Children with malrotation > 2 y.o. have a significant risk of volvulus that is not predictable radiologically. They require surgery even if asymptomatic. Laparoscopy allows evaluation of the base of the mesentery and completion of Ladd’s procedure.

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SUPERIOR MESENTERIC VENOUS THROMBOSIS IN MALROTATION WITH CHRONIC VOLVULUS

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Malrotation can be difficult to diagnose after the newborn period due to intermittent symptoms and vague clinical findings, but malrotation with midgut volvulus is usually quite striking in its presentation. Early diagnosis and surgical treatment are essential to prevent acute ischemic infarction of the bowel, though chronic complications are rare. We present an unusual case of mesenteric venous thrombosis secondary to chronic midgut volvulus. A 12 year-old girl presented with an 11 year history of recurrent bouts of abdominal pain evaluated at three other institutions without a diagnosis. At the referring hospital, an episode of bilious emesis associated with abdominal pain prompted a CT scan of the abdomen. This revealed a calcified mass within the superior mesenteric vein (SMV). At laparotomy malrotation with chronic 270-degree volvulus was found with evidence of mesenteric venous hypertension. Segmental SMV occlusion was documented on magnetic resonance angiography. SMV thrombosis is an unusual complication of malrotation with chronic midgut volvulus.

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Differential Sugar Absorption as a Marker for Adaptation in Short Bowel Syndrome

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Purpose: There are no reliable monitoring methods for following patients with Short Bowel Syndrome (SBS). This study examines the use of inert sugar markers (mannitol and lactulose) as indicators of the surface area increases incurring with adaptation.

Methods: Juvenile male rats underwent either transection in intestinal reanastomosis, or resection of approximately 90% of the small bowel, leaving 9 to 10 cm of terminal ileum. Animals were gavaged at day 7 and day 28, and representative histological samples taken at day 28. Day 7 values were calculated from samples taken at initial laparotomy.

Results:

<table>
<thead>
<tr>
<th></th>
<th>Bowel Length</th>
<th>Circumference</th>
<th>Villus Height</th>
<th>Crypt Depth</th>
<th>Villus Density</th>
<th>Surface Area</th>
<th>Mannitol Absorption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controls Day 7</td>
<td>55±8</td>
<td>0.5±0.1</td>
<td>0.41±0.04</td>
<td>0.11±0.02</td>
<td>6.2</td>
<td>605±89</td>
<td>2.0±0.9</td>
</tr>
<tr>
<td>Controls Day 28</td>
<td>58±6</td>
<td>0.5±0.1</td>
<td>0.42±0.05</td>
<td>0.1±0.02</td>
<td>6.3</td>
<td>683±65</td>
<td>3.2±1.05</td>
</tr>
<tr>
<td>Resected Day 7</td>
<td>10</td>
<td>0.5±0.1</td>
<td>0.41±0.04</td>
<td>0.1±0.02</td>
<td>6.2</td>
<td>145±71</td>
<td>1.2±0.8</td>
</tr>
<tr>
<td>Resected Day 28</td>
<td>15.2±3.4*</td>
<td>1.2±0.2*</td>
<td>0.6±0.06*</td>
<td>0.21±0.13</td>
<td>9.8*</td>
<td>532±69*</td>
<td>3.5±1.2*</td>
</tr>
</tbody>
</table>

Data: mean±SD, n=8 at each time point. Gross morphological measurements in cm², microscopic in µm. Mannitol absorption is % gavaged dose. * P<0.05 vs. age matched controls by T-test.

Correlation between mannitol absorption and calculated surface area was excellent.

Conclusion: These results suggests that using inert sugar markers as markers of surface area in adaptation may be useful in following surface area adaptation in patients with SBS.

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MARKED MORPHOLOGICAL DIFFERENCES IN THE MYENTERIC PLEXUS BETWEEN MESENTERIC AND ANTIMESENTERIC SIDE OF SMALL BOWEL IN PREMATURE INFANTS

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Background: The gastrointestinal tract appears morphologically prepared for oral feeding by the end of the second trimester, but many of the physiologic processes required for efficient enteral nutrition are not fully developed until 33-34 weeks gestation. Myenteric plexus is well recognized as an important regulator of peristaltic activity. The aim of this study was to investigate neuron density and morphology of the myenteric plexus in premature infants using whole-mount technique, which produces a three-dimensional picture of neuronal network.

Material and Methods: Full thickness small and large bowel specimens collected at autopsy from six premature babies (gestation age: 26-32 wk) and four full term babies who died of non-gastrointestinal diseases. Whole-mount preparation of the myenteric plexus was made and stained with NADPH-diaphorase and Acetylcholinesterase histochemistry and measured by computer image analysis system.

Results: The neuronal density of myenteric network showed marked differences between the mesenteric side of small bowel (SBM) compared to antimesenteric side (SBA) in premature infants compared to full term newborns. These differences were more pronounced at 26 wk gestation compared to 32 wk gestation. No such differences in neuronal density were seen in the colon (C).

Conclusion: These findings may explain the transitory bowel motility dysfunction frequently seen in the premature infant.

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We recently managed a case of combined pure esophageal, duodenal, biliary and pancreatic ductal atresia in a fetus and newborn with Trisomy 21. The patient was referred after a screening ultrasound at 18 weeks gestation revealed cystic abdominal and chest masses and a chromosome analysis revealed mosaic Trisomy 21. Finding on Level II ultrasound and ultrafast fetal MRI imaging confirmed a massive intraabdominal cyst most consistent with the stomach and duodenum, with extension of the cyst through the esophageal hiatus into the posterior mediastinum. A prenatal diagnosis of combined esophageal atresia without tracheoesophageal fistula and duodenal atresia was considered and confirmed after birth. Following delivery primary repair of the esophageal atresia and a duodenoduodenostomy with a tapering duodenoplasty was performed. The subsequent course was marked by the development of a choledochal cyst, evolution of biliary atresia, and the finding of pancreatic ductal atresia at postmortem. The prenatal diagnostic features of combined pure esophageal atresia and duodenal atresia will be presented with a review of the literature of this association and the reported associated anomalies. Prenatal suspicion of these anomalies warrants karyotype analysis as well as exhaustive pre- and postnatal screening for other anomalies.
GASTRIC MOTILITY DISORDERS IN PATIENTS OPERATED FOR ESOPHAGEAL ATRESIA AND TRACHEOESOPHAGEAL FISTULA. LONG-TERM EVALUATION

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Background/Purpose: Delayed gastric emptying has been put in relation with symptoms of gastroesophageal reflux (GER) in patients with repaired Esophageal Atresia (EA). Aim of the present study has been that to evaluate the incidence and entity of gastric motility disorders in a long-term follow-up of patients operated for EA-Tracheoesophageal fistula (TEF) studying the gastric emptying with scintigraphic technique and comparing the results with the gastric manometric data.

Methods: Eleven patients, age being between 13-23 years, operated for EA-TEF in the period 1975-1985, were studied. The scintigraphic study was undertaken using a standard solid meal. The manometric study was performed using a 2.3 mm probe with four solid state transducers.

Results: Dysphagia was present in about 20% of patients. Dyspepsia was recorded in 40% of the patients. A pathologic reflux was present in two patients. A delayed gastric emptying (T1/2 > 90') was present in 4 patients (36%). Manometric data revealed in 5 patients (45%) alteration of gastric peristaltic activity.

Conclusions: A delayed gastric emptying is frequent in the long-term follow-up of patients operated for EA-TEF. In these patients a reduced antral clearing is also recorded manometrically. Abnormal gastric motility can be considered as an important factor predisposing to symptoms of GER.

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AMINO ACIDS COUNTERACT THE INHIBITORY EFFECT OF FENTANYL ON HEPATOCYTE OXIDATIVE METABOLISM

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Background/purpose: Postoperative hypothermia is common in neonates and can be triggered by fentanyl analgesia. Fentanyl reduces hepatocyte mitochondrial metabolism which is proportional to heat production. We hypothesise that amino acids (AA) counteract the inhibitory effect of fentanyl on neonatal hepatocyte metabolism.

Methods: Hepatocytes were isolated from 11-15 day old Wistar rats and O2 consumption from palmitate was measured polarographically (8 observations per group in each study). Study 1: the effects of palmitate alone (control), palmitate + fentanyl (2 ng/ml = serum analgesic dose), palmitate + fentanyl + AA and palmitate + AA were investigated. Study 2: essential and non-essential AA were tested separately. Study 3: the site of action (intra- or extra-mitochondrial) of AA was investigated using myxothiazol, an inhibitor of mitochondrial respiration.

Results: Study 1: fentanyl inhibited O2 consumption (p=0.006). This inhibition was reversed by addition of AA (figure). Study 2: both essential and non-essential AA reversed the effect of fentanyl (p<0.001). Study 3: there were no differences in O2 consumption in the presence of myxothiazol indicating that AA act intra-mitochondrially.

Conclusions: AA abolish the inhibitory effect of fentanyl on hepatocyte oxidative metabolism and their effect is intramitochondrial. Perioperative administration of AA in neonates may help to prevent hypothermia.

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DELAYED PRESENTATION OF A CONGENITAL RECTOVAGINAL FISTULA ASSOCIATED WITH A RECTOSIGMOID TUBULAR DUPLICATION, SPINAL CORD AND VERTEBRAL ANOMALIES

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Tubular duplication of the rectosigmoid colon is a rare entity. It may be associated with other anomalies or fistulae to the genitourinary tract. A baby girl was investigated at the age of 7 months for progressively worsened constipation, straining and intermittent prolapse of the rectum. She was found to have a pelvic mass. Other anomalies included: hemivertebra $S_1$, spina bifida $S_2, S_3$, abnormal fusion of $S_4, S_5$ and a solitary right kidney. Stool coming from the vagina was noted once. A tubular duplication of the whole rectosigmoid was found with a narrow proximal communication to the colon above. The septum of this duplication was divided using staplers. No rectovaginal fistula could be found despite further investigation including endoscopy and injection with methylene blue. She remained asymptomatic until adolescence. At the age of 14 years she experienced intermittent passage of small amounts of liquid stool per vagina. Barium enema was normal. Repeat endoscopy combining vaginoscopy and rectosigmoidoscopy was required to visualize the rectovaginal fistula. Via a posterior sagittal incision, the fistula was closed by a transrectal approach. She remains asymptomatic 16 months after surgery.

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THE NATURAL HISTORY AND MANAGEMENT OF NON-PIGMENTED GALLSTONES IN CHILDREN

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Purpose: The natural history and management of non-pigmented gallstones in children who do not have hematologic disorder are not clearly defined. To determine issues involved in clinical decision making, including natural history, complications, and surgery, we prospectively studied 74 children with ultrasound documentation of gallstones.

Methods: Patients were categorized into 2 groups, operated and followed. The follow up (mean of 21 months; 3 - 103 months) consisted of routine clinic visits, chart reviews, and telephone questionnaire with the patients or their parents (May, 1990 to December, 1998).

Results:

<table>
<thead>
<tr>
<th></th>
<th>Operated</th>
<th>Followed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>33</td>
<td>41</td>
</tr>
<tr>
<td>Age</td>
<td>12 yr (3 - 18)</td>
<td>11 yr (1 - 17)</td>
</tr>
<tr>
<td>Sex (M:F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;12</td>
<td>7:10</td>
<td>15:4</td>
</tr>
<tr>
<td>≥12</td>
<td>2:14</td>
<td>9:13</td>
</tr>
<tr>
<td>Risk Factors (Prematurity, TPN)</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Symptoms:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typical (RUQ pain, food intolerance)</td>
<td>24*</td>
<td>9</td>
</tr>
<tr>
<td>Atypical</td>
<td>9</td>
<td>22</td>
</tr>
<tr>
<td>Asymptomatic</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Surgery</td>
<td>33</td>
<td>7</td>
</tr>
<tr>
<td>Symptoms Improved</td>
<td>30</td>
<td>34</td>
</tr>
<tr>
<td>Complications</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

* p < 0.01 (Chi-square test)

Conclusion: There were no major predisposing risk factors. The characteristic symptoms consisting of RUQ pain and food intolerance were significant factors in surgical decision making. 82% of the followed patients remained without serious complication or need for surgery. None of patients with asymptomatic gallstones developed symptoms during the follow up period. Pediatric patients with asymptomatic or non-pigmented gallstones associated with atypical symptoms can be safely followed without developing complications.

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PELVIC NEUROBLASTOMA: 
LOW MORTALITY AND HIGH MORBIDITY

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Background/purpose: Cervical and thoracic neuroblastomas have a better outcome than abdominal primaries. The aim of the study was to characterise the results of treatment of pelvic neuroblastomas.

Methods: We reviewed all 284 patients with neuroblastoma treated in our hospital from 1983 to 1998 and identified 17 (6%) with pelvic tumours (12 males; age at diagnosis 6 weeks - 10 years). We used the revised International Neuroblastoma Staging System.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Patients</th>
<th>Complete excision</th>
<th>Survival</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
<td>6</td>
<td>5 (83%)*</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>0</td>
<td>5 (100%)</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>0</td>
<td>5 (100%)</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*1 patient died free of disease of unrelated cause

Results: Six patients had urinary retention and one had leg weakness at presentation. Intraspinal extension of the tumour was present in 7 patients (41%). All patients except one with stage 4 disease underwent tumour excision. All 7 patients with intraspinal tumour survived and only 2 underwent laminectomy. Permanent neurological complications included sciatic nerve palsy (n=2), urinary and faecal incontinence (n=2), neuropathic bladder (n=2), foot drop/leg weakness (n=2).

Conclusions: The survival of non-metastatic pelvic neuroblastoma is good despite incomplete tumour resection. Intraspinal extension is not a negative prognostic factor. Considering the high incidence (47%) of permanent neurological damage after surgery and the generally favourable biological characteristics of these tumours, surgical treatment should not be overaggressive.

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FETUS-IN-FETU PATHOGENESIS, DIAGNOSIS AND SURGICAL MANAGEMENT

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Fetus-in-fetu (FIF) is a rare congenital anomaly with only 69 reported cases. FIF defines a fetus incorporating the well-differentiated tissue of its twin. Our case presented as a meconium pseudocyst. At laparotomy, an irregular 10-limbed mass was found in the retroperitoneum. It was enveloped by an amniotic membrane and contained a vertebral structure - supporting the diagnoses of fetus-in-fetu.

This unique case highlights several important points. First, FIFs are often overlooked in the differential diagnosis of a pediatric abdominal mass. Second, the diagnosis may be confused with meconium pseudocyst. Third, an FIF must be differentiated from a teratoma due to its malignant potential. Since this diagnosis is not made until pathological analysis, all parts of the mass must be removed to prevent malignant recurrence.

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LIVER TRANSPLANTATION IN BILIARY ATRESIA (BA): EXPERIENCE IN 314 CHILDREN

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Between April 1984 and December 1998, 461 children received a total of 551 liver transplant (OLT). Among them, 314 (68.1%) were transplanted for BA (median age at OLT: 1.5 years; range: 0.4-14.5). Overall results and the impact of risk factors on survival were analysed, with minimal patient follow-up of six months. The hepatic graft was whole liver in 123 children (39.2%), reduced-size in 126 (40.1%), split in 16 (5.1%) and living-related donor in 49 (15.6%). Mean (SD) total ischemic time was 567 minutes (272). The donor/recipient ABO match was identical; compatible, and incompatible in 285, 24 and 5 cases, respectively. Primary immunosuppression consisted of CyA (n=236), CyA microemulsion (n=30) and FK506 (n=48) and included azathioprine and/or anti-T cell poly/moноclonal antibodies in 271 and 42 children respectively. Uni/multivariate regression analyses were carried out to identify which of the following risks factors were independently correlated with patient survival: age at OLT, elective/urgent status, ABO- compatibility, sex match; ischemic time, type of graft, immunosuppression and era of OLT. Overall patient and first graft survival rate were 87 and 77% at 1 year and 81 and 71% at 10 years post-OLT, respectively. Retransplantation rate was 51/314 (16.2%). The multivariate analysis identified the following covariates as independently correlated with patient survival: emergency status (p=0.005), ABO-matching (p=0.014), total ischemic time (p=0.006), era of OLT (p=0.002). In contrast, age at OLT, type of liver graft and type of immunosuppression were not independently correlated with patient survival.

These data confirm the negative impact of using ABO-incompatible grafts and of transplanting children in urgent status with clinical deterioration. Accordingly, children with BA requiring OLT should rather be transplanted early enough in a still preserved condition, even below one year and using technical variant, than wait for a size-matched organ with the risk of clinical deterioration.

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PAST AND FUTURE OF BILIARY ATRESIA

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With the advent of liver transplantation the outcome of children with biliary atresia had improved. Is Kasai procedure still valuable option for the treatment of these patients?

Patients: During 25 years, 78 patients with biliary atresia had been treated at St-Justine Hospital (SJH). 49 females (63%) and 29 males.

Results: Three patients had no procedure. 66/75 (88%) patients had undergone a portoenterostomy (Kasai 1). Four patients had modified Kasai (Kasai 2). Three patients had a Suruga and 2 had a portocholecystostomy. 28/70 (40%) patients operated at SJH are considered as long term success. Our follow-up period is from 1-23 years. Nine patients were lost to in follow-up. 47/69 (68%) patients are alive and 22/69 patients died (32%). Among those 78 patients, 30 (39%) needed liver transplantation and one refused. Two transplantations were performed in four patients. Ten patients among the 28 successful Kasai procedure were transplanted (36%) at median age of 9 years (2 1/2-15 years). For transplanted patient the survival is 87% (26/30).

Conclusion: Portoenterostomy continues to be a valuable procedure to treat biliary atresia. When successful, Kasai procedure permits to delay transplantation to an age where morbidity and mortality are lower.

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RENAL ARTERY STENOSIS AND PHEOCHROMOCYTOMA:
CO-EXISTENCE AND TREATMENT

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Purpose: Propose a definitive approach to the evaluation and treatment of co-existing pheochromocytoma and renal artery stenosis.

Methods: A retrospective analysis of the evaluation and management of hypertension in a 14 year old boy.

Results: Secondary causes of hypertension were initially excluded, including intracranial, cardiac and endocrine abnormalities. A renal scan demonstrated right renal function at 39%. Angiography confirmed a 90% subsegmental stenosis, as well as noting a blush suggesting a tumor. A CT scan of the abdomen revealed a right adrenal mass. Serum norepinephrine was 3006 pg/mL (normal < 1109 pg/mL) and 24-hour urinary norepinephrine was 2160 ug (normal < 105 ug/24 hours), suggesting a pheochromocytoma as the right adrenal mass. During the operation for resection, the right subsegmental renal artery was draped around a renal hilar mass; the adrenal gland was normal. The tumor was resected and pathology confirmed a pheochromocytoma. Postoperatively, the patient had some mild hypertension that gradually resolved.

Conclusion: Extra-adrenal pheochromocytomas (Paragangliomas) occur more frequently in children and are most commonly located in the renal hilum. In this location, they may initially present as renal artery stenosis as a result of direct arterial compression, fibrous bands, or catecholamine-induced vasospasm. Our experience supports tumor resection of extra-adrenal pheochromocytomas as the definitive treatment for both conditions.

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COST COMPARISON OF ELECTROCARDIOGRAPHY (ECG) VS FLUOROSCOPY FOR CENTRAL VENOUS LINE (CVL) POSITIONING IN CHILDREN

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Background: Although fluoroscopy is usually used for CVL positioning in children, ECG has been shown to be accurate and avoids unnecessary radiation exposure. We studied whether ECG also has cost advantages.

Methods: All CVL’s placed over 2.5 years were reviewed. Two surgeons routinely used fluoroscopy, and two used ECG. Costs included surgeon and anesthesia fees, OR utilization, and fluoroscopy equipment and personnel.

Results: 287 cases had sufficient data to be included in the study (167 fluoroscopy and 120 ECG). In the ECG group, 12 (10%) were converted to fluoroscopy because an adequate tracing could not be obtained, but were kept in the ECG group for data analysis. The groups were similar with regard to age, sex, indication, previous catheters, and intraoperative or postoperative complications.

<table>
<thead>
<tr>
<th>Time for CVL placement (min)</th>
<th>ECG (n=120)</th>
<th>Fluoroscopy (n=167)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port</td>
<td>46.7 ± 17</td>
<td>55.2 ± 24</td>
<td>NS</td>
</tr>
<tr>
<td>Broviac</td>
<td>30.8 ± 18</td>
<td>34.3 ± 20</td>
<td>NS</td>
</tr>
<tr>
<td>Cost</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Port</td>
<td>$2,880 ± 408</td>
<td>$3,595 ± 357</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Broviac</td>
<td>$2,249 ± 435</td>
<td>$2,923 ± 350</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Conclusions: The ECG technique is less costly than fluoroscopy, despite a 10% conversion rate. At our centre the savings are approximately $700 per case. Because operating room time is similar, the additional cost of fluoroscopy can be attributed to the need for X-ray equipment and personnel.

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LETHAL COMPLICATIONS OF CENTRAL VENOUS CATHETER PLACEMENT

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Background/Purpose: Although complications from central venous catheters are well documented, those of a lethal nature associated with catheter placement are rarely reported.

Methods: A questionnaire was sent to all 643 North American members identified from the APSA registry requesting confidential information regarding such injuries.

Results: Fifty-five respondents identified seventy-six patients. Forty-one cases involved miscellaneous non-acute events; the remaining 34 complications fell into 4 major categories-pneumothorax, hydrothorax, cardiac tamponade and hemothorax. Cardiac tamponade was seen in 10 patients, with symptoms developing within minutes up to 12 hours after the procedure. Nine survived. Three of the 4 cases with only catheter or needle drainage of pericardial fluid resolved without further treatment; 6 children underwent operative drainage. Hemothorax was reported in 20 cases, most often in children aged 1 to 6 years. While symptoms appeared within 30 minutes of a stick in most a significant number became hypotensive in the PICU or later. Of the seventeen children who underwent urgent thoracotomy, 11 survived.

Conclusion: Anecdotal information in this survey warrants heightened awareness for the potentially lethal complications of central venous catheterization. Such procedures should be performed in an appropriate setting, with personnel and equipment to deal with sudden, life-threatening events.

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A NOVEL METHOD FOR REMOVING CUFFED CENTRAL VENOUS CATHETERS

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We describe a technique for removal of any cuffed central venous catheter. First, occluding the line with either a clamp or a ligature, the connector portion of the line is cut off. The remaining catheter is then placed within an engineered, beveled metal tube. By applying gentle traction to the line whilst advancing the metal tube over the catheter, the cuff is easily and quickly separated away from surrounding adherent tissue. This fast and simple method avoids the usual tedious dissection of the cuff and the potential need for counter incisions.

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EMERGENT ABDOMINAL DECOMPRESSION WITH PATCH ABDOMINOPLASTY (PA) IN THE PEDIATRIC PATIENT

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Background/Purpose: Abdominal compartment syndrome (ACS) is the physiologic dysfunction that results from intraabdominal hypertension. We present our experience with PA in pediatric patients for the prevention and treatment of ACS.

Methods: The charts of patients who underwent PA were reviewed. ACS was defined as the inability to maintain oxygenation with elevation of peak inspiratory pressures (PIP).

Results: 20 patients (12 males) were treated (average age 21 months). Diagnoses included NEC (11), trauma (3), Hirschsprung’s enterocolitis (2), perforated bowel (3), and bilateral Wilm’s tumor with intestinal obstruction (1). Oxygen requirements decreased after PA (mean preoperative FiO₂ 0.88 ± 24, mean postoperative 0.67 ± 23 [p=0.001]). The PIP decreased significantly in the 14 patients who survived (mean preoperative PIP 33 ± 8, mean postoperative PIP 26 ± 6 [p=0.004]); PIP failed to respond to PA in the 6 nonsurvivors (mean preoperative PIP 35 ± 12, mean postoperative PIP 32 ± 16 [p=NS]; mortality 30%). Complications of intraabdominal abscess and enterocutaneous fistula occurred in 5 patients, all of whom had NEC.

Conclusions: Patch abdominoplasty effectively decreases airway pressures and oxygen requirements associated with ACS. Abdominal complications of PA occur primarily in patients with NEC. Failure to respond to patch abdominoplasty is an ominous sign.

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KNOW BEFORE YOU MOW
REVIEW OF LAWNMOWER INJURIES IN CHILDREN 1990-1998

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Purpose: We evaluated lawnmower injuries in children aged 0-19 who presented to the Emergency Departments of the children’s hospitals in Ottawa (CHEO) and Montreal (HSJ & MCH).

Methods: Data were collected through the CHIRRP questionnaire (Canadian Hospitals Injury Reporting & Prevention Program). 90 cases were reported between 1990-98 (MCH) and 91-97 (HSJ & CHEO).

Results: Of the 43 cases specifying lawnmower sub-types, 18 (42%) were ride-on style mowers and 21 (48%) involved traditional walk-behind power mowers. Lacerations were the most common type of injury comprising 29 (32%) followed closely by amputations 26 (29%); burns and fractures were the other main subtypes comprising, 16 (18%) and 12 (13%) respectively. 87% of all injuries involved distal upper or lower extremity. The most severe injury seen was a near-total bowel avulsion requiring long-term parenteral nutrition. A bimodal age distribution was noted with 36% (29/81) younger than 4 years, and 37% (30/81) 10-14 years of age. 93% of all injuries involved children under the age of 14. 42% (34/81) required hospitalization, another 37% (30/81) were classified as major injuries treated in emergency and followed up.

Conclusions: Recommendations for a proposed prevention campaign include the following: (1) children under age 14 should not operate lawnmowers, (2) children under 14 should not be in the yard when lawn is being mowed, (3) no passengers should be carried on the ride-on style mowers, (4) more prominent warnings detailing 1-3 should be seen in both the operating manual as well as on the machine itself.

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PEDIATRIC PERINEAL IMPALEMENT INJURIES

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Pediatric perineal impalement injuries are relatively uncommon and usually attributed to accidental falls or sexual abuse. The extent of injury is dependent upon the size, force and direction of the impaling object. Lesions in the pediatric perineum may appear innocuous, but can be potentially life-threatening and surgically challenging. The authors report three cases. The superficial appearance of the wounds didn't reflect the magnitude and seriousness of the intraperitoneal injury. This can potentially delay diagnosis and proper treatment. An aggressive work-up, with examination under anesthesia, including cystoscopy, sigmoidoscopy and, age appropriate vaginoscopy are recommended for a successful outcome.

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MANUAL DETORSION IN CASES OF TESTICULAR TORSION: 
A VIABLE OPTION

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Background/purpose: Testicular torsion has always been considered an acute surgical emergency given its short and long term implications. The purpose of early diagnosis and prompt treatment is to salvage the testicle and reduce the morbidity. We combined a recognized but little talked about therapeutic manoeuvre: Manual detorsion with Doppler-Ultrasound control in order to allow as much precision as possible in the assessment of therapeutic effectiveness. We propose manual detorsion under Doppler-Ultrasound control as a safe, reproducible and often effective means of treating this acute emergency until definitive surgical therapy can be delivered. With ever dwindling operating room availability and longer waiting periods, even for emergency cases, such an adjunct is becoming more and more important.

Methods: All patients presenting in our institution between August 1998 and March 1999 with a diagnosis of testicular torsion had attempted manual detorsion in the ultrasound suite.

Results: 8 patients with confirmed torsion were seen. 5 had successful manual detorsion as evidenced by immediate Doppler-Ultrasound control and symptomatic relief. All 5 testicles were salvageable at operation. 3 testicular torsions were not reduced. 2 of these could not be, and at operation were found to be necrotic, requiring orchiectomy 1 was partially "detorted" according to Doppler and in the operating room, could be salvaged.

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LAPAROSCOPIC VS. OPEN SPLENECTOMY IN CHILDREN

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Background: We have reviewed our initial experience with laparoscopic splenectomy (LS) to identify indications, efficacy, and cost compared to open splenectomy (OS) performed during the same time period.

Methods: The records of 54 children who underwent splenectomy from 1993 through 1998 were reviewed.

Results:

<table>
<thead>
<tr>
<th></th>
<th>Open (n = 17)</th>
<th>Laparoscopic (n = 35)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td>Female</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td><strong>Mean age (range), years</strong></td>
<td>11.8 (2-17)</td>
<td>9.4 (1-17)</td>
</tr>
<tr>
<td><strong>Diagnosis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITP</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Hereditary Spherocytosis</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Hemoglobinopathy</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Accessory spleens</td>
<td>2 (11%)</td>
<td>10 (28%)</td>
</tr>
<tr>
<td>Enlarged spleen</td>
<td>8 (47%)</td>
<td>11 (31%)</td>
</tr>
<tr>
<td>Median blood loss (cc)</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Blood transfusion</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>Concomitant cholecystectomy</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Conversion to open procedure</td>
<td>N/A</td>
<td>1 (2.9%)</td>
</tr>
<tr>
<td>Length of stay (days)</td>
<td>4.0 ± 1</td>
<td>1.8 ± 1</td>
</tr>
<tr>
<td>Median hospital charge ($)</td>
<td>8331</td>
<td>10157</td>
</tr>
</tbody>
</table>

One LS was converted to an open procedure because the spleen did not fit in the bag. One LS patient developed recurrent ITP; accessory spleens were found and resected laparoscopically.

Conclusion: LS can be performed safely in children, with a low conversion rate (2.9%), and is associated with a shorter hospital stay and comparable total hospital cost when compared to OS.

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BIG UMBILICAL HERNIA IN BLACK CHILDREN – HOW TO DO IT

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The esthetic results of big umbilical hernia, common in black children, are often disappointing for the children, the parents and the surgeon. A technic is devised which uses a 2 to 3 cm pediculated skin flap which is tubularized. A neo umbilicus is constructed and fixed in place of the native one. The details of the technique will be illustrated adequately. Using this technique give a quite better looking than the one which use a purse string or fixation on the native umbilicus which look like an ugly donut. Short and long term results are gratifying and complications not encountered.

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EFFECT OF GROWTH HORMONE, EPIDERMAL GROWTH FACTOR AND INSULIN ON BACTERIAL TRANSLOCATION IN EXPERIMENTAL SHORT BOWEL SYNDROME

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Background: Bacterial translocation (BT) is frequent after massive bowel resection. An adaptive process starts in the remaining intestine and several trophic factors, including growth hormone (GH), epidermal growth factor (EGF) and insulin (INS) have been shown a positive effect on it. In experimental short bowel syndrome (SBS), the effects of GH, EGF or INS on BT have not been investigated.

Aim: To test the hypothesis that GH, EGF or INS administration decreases BT in SBS in rats with parenteral nutrition (PN).

Material and methods: Thirty-eight adult Wistar rats underwent central venous cannulation and were randomly assigned to one of four groups receiving for ten days four treatment regimes:

- PN group (N=10): fasting, all-in-one PN solution (300mL/kg/24h, 280 kcal/kg/24h), 80% gut resection including ileo-cecal valve.
- GH group (N=9): fasting, same PN regime and resection, GH (1 mg/kg/d, s.c.).
- EGF group (N=9): fasting, PN, resection, EGF (150 microg/24h i.v.).
- INS group (N=9): fasting, PN, resection, INS (1 U.I./100g/24h s.c.).

At the end of the experiment they were sacrificed and mesenteric lymph nodes (MLN), and peripheral and portal blood specimens were recovered and cultured. Several samples of intestine were taken to determine cell proliferation (PCNA index) and morphometric parameters (villous height, crypt depth).

Results: GH, EGF and INS groups showed a 28%, 29%, 30% increase in gut mucosal thickness and PCNA index rose 21%, 20% and 25%, respectively, from PN group levels. Bacterial translocation to peripheral blood was detected in 6% of PN animals and 44%, 40% and 25% of GH, EGF or INS rats respectively (p<0.05). (No differences were found in BT in MLN or portal blood among groups)

Conclusions: Administration of GH, EGF or INS improves gut mucosal structure in rats with SBS under PN, but, surprisingly, the incidence of BT was increased rather than decreased in animals receiving these treatments.

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IMPLICATIONS OF HIV POSITIVE STATUS IN PAEDIATRIC SURGERY. PRELIMINARY STUDY

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Aim: a) the real number of paediatric inpatients tested for HIV; b) the ratio HIV(+) / HIV infection in the cohort of HIV (+) babies; c) the significance of the HIV(+) status in babies with surgical diseases; d) the influence of HIV (+) status on the outcome; e) to propose guidelines for the approach of paediatric surgical patients with HIV (+) status.

Clinical material: An extensive study was performed in Paediatrics Units and Departments of Pretoria Academic Hospitals. From Baragwanath Hospital only the HIV (+) babies with surgical diseases were reported. Between 1995-1997 (Oct), 44,590 children less than 12 yr old were admitted to Pretoria Paediatric Wards; 5253 (12%) were tested for HIV and 506 (10%) were positive; 46% HIV (+) only and 54% with proved HIV related infection. In Paediatric Surgery Units 12,250 pts were admitted and only 70 (0,6%) were tested for HIV but 32 (46%) of them were found to be HIV (+). At Baragwanath Hospital 17 pts were tested positive. These 49 HIV (+) pts were divided into 4 groups: a) 1 pts with medical diseases: 12 (25%); b) pts with surgical diseases: 8 (16%); c) pts in which the surgical disease could be related with their HIV(+) status: 11 (22%); d) pts with surgical diseases caused by HIV infection: 18 (37%). Sixteen (44%) of the 36 surgical pts presented with AIDS (WHO criteria). Twenty four (50%) pts have died; in 19 (39%) the death was AIDS related. The authors discuss the last 2 groups of pts under clinical presentation and treatment, outcome.

Conclusion: The study demonstrated: a) the number of paediatric inpatients tested for HIV is extremely low both in Paediatric and Paediatric Surgical pts. b) New guidelines for testing HIV in paediatrics, appropriate to the real situation in RSA are urgently required. c) Further multicentre studies of HIV (+) surgical paediatric pts are warranted and recommended.

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GLYCERIN/SALINE SOLUTION FOR ANTEGRADE ENEMA

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Purpose: To test the effectiveness of glycerin/saline antegrade enema solution in patients with an appendicostomy or cecostomy for the treatment of intractable incontinence.

Materials: During the last 7 years, 30 patients aged 5 to 58 years (mean: 14±10.7 years) underwent an appendicostomy or cecostomy for incontinence. A solution of 20 to 50% glycerin in normal saline was used for antegrade enema in a dose ranging from 3 to 10 ml/kg of body weight. The effectiveness of glycerin/saline enema was evaluated by follow-up telephone survey. The study outcomes included frequency of enema, duration before evacuation of stools, after-enema dripping, accidents and soiling between enemas, and ultimate satisfaction in terms of quality of life.

Results: Twenty patients (67%) responded to our survey. Patients had enemas on a daily or every other day schedule. A bowel movement started in all patients within 15 minutes after the enema and stool evacuation was completed within 30 minutes after the initiation of bowel movement. None of our patients suffered from after-enema dripping, accidents or soiling. All patients rated glycerin/saline antegrade enema excellent or good in terms of colonic evacuation. They reported their quality of life was remarkably improved by antegrade glycerin/saline enema.

Conclusion: Our review suggests that glycerin/saline is an appropriate antegrade enema solution. It induces a satisfactory bowel movement shortly after administration, and the relative small volume prevents after-enema dripping. Furthermore, it stimulates the evacuation of a large amount of stools, preventing accidents or soiling during the interval between enemas.

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APPENDICITIS IN CHILDREN LESS THAN 3 YEARS OF AGE
A 28 YEAR REVIEW

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Purpose: The goal of this study was to identify the presenting symptoms and signs of appendicitis in children less than 3 years of age and to examine their subsequent management and outcome.

Methods: A 28-year experience of a single pediatric surgeon in academic practice was reviewed; twenty seven children less than 3 years old comprised 2.3% of all children with appendicitis in his series.

Results: The most common presenting symptoms were vomiting (27), fever (23), pain (21), anorexia (15), and diarrhea (11). The average duration of symptoms was 3 days with 4 or more days in 9 children. The most common presenting signs were abdominal tenderness (27), abdominal distension (22), peritonitis (22) temperature ≥ 38.0 C (21). Abdominal radiographs demonstrated findings of a small bowel obstruction in 14 of 21 patients. Perforated appendicitis was found in all 27 patients. Postoperative antibiotics were administered for an average of 6 days. Sixteen patients suffered 22 complications.

Conclusions: Perforated appendicitis was found in all children less than 3 years old resulting in very high morbidity (51% complications) which may be attributed to the 3-5 day delay in diagnosis. It should be seriously considered in the differential diagnosis of children under the age of 3 years, who present with the triad of abdominal pain, tenderness and vomiting.

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A RANDOMIZED, DOUBLE-BLINDED, PLACEBO-CONTROLLED TRIAL OF TOPICAL STEROID THERAPY FOR PHIMOSIS IN CHILDHOOD

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Background: Phimosis affects 5-10% of school-age males. Recently, studies have suggested using topical steroids as an alternative to circumcision in the treatment of childhood phimosis. However, study design and the inability to control for the comanouver of daily dilatations limit many of these studies.

Objectives: The primary objective is to evaluate the short term effectiveness of steroid topical therapy (TST) as compared to a placebo in preventing circumcision in children with significant phimosis.

Methods: The study was a double blind, randomised, placebo controlled, clinical trial comparing topical steroid cream to a placebo cream. Boys aged ≥ 2 years with severe phimosis, grade 3 or greater, were included. Cure was considered as a phimosis score of grade 1 or less. An intention to treat analysis was performed. Patients were treated for 1 month with either 0.1% Triamcinolone Acetonide (Kenalog) or a placebo. Creams were identical except for the steroid component. Phimosis severity was graded as follows: Grade 0 – no phimosis, grade 1 – full preputial retraction but constricted behind the glans, grade 2 – partial glans exposure, grade 3 – only meatus visible, grade 4 – some preputial retraction but meatus not visible, grade 5 – no preputial retraction at all. (Kikiros, et al.).

Results: Ninety boys, mean age of 4.8 years (SD 2.5), were randomised with 45 in each arm.

<table>
<thead>
<tr>
<th></th>
<th>FAILURE</th>
<th>CURE</th>
<th>TOTAL</th>
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<tbody>
<tr>
<td>Steroid cream</td>
<td>10</td>
<td>35</td>
<td>45</td>
</tr>
<tr>
<td>Placebo cream</td>
<td>28</td>
<td>17</td>
<td>45</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>52</td>
<td>90</td>
</tr>
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Chi Square = 14.8  P = .001

When stratified by age, steroid cream was also superior (p 0.05), in boys 4 years or older. Of the failure in the placebo group, 19 of 27 were cured when subsequently treated with the steroid cream.

Conclusions: Topical steroid therapy is effective in the treatment of severe childhood phimosis. Simple preputial dilatations are not as effective as TST. We believe all children should be treated with topical steroids before undergoing circumcision for phimosis.

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LATE NONFUNCTIONING DUODENAL ATRESIA REPAIR
A SECOND LOOK

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In 1986, we reported three newborns who had repair of their duodenal atresia, and between 6 and 18 months postoperatively each suddenly developed an anastomotic obstruction. After prolonged medical and surgical treatments it became apparent that the duodenoduodenostomy was functionally obstructed; plication of the dilated atonic proximal duodenum was curative. Since then two more patients became so obstructed at 5 and 24 years postoperatively.

**Purpose:** To report very late occurrence of a functional obstruction of a newborn duodenoduodenostomy.

**Methods:** The two histories and surgical repairs were reviewed.

**Results:** The 5 year old boy was immediately cured with plication only of his dilated proximal duodenum. The 24 year old nurse had a very stormy 2 year course with several operations which did not relieve her abdominal pain and bile vomiting until these recent bypass operations were taken down and her dilated proximal duodenum was plicated after which she made a speedy recovery. Both remain well.

**Conclusions:** Very late sudden onset duodenoduodenostomy anastomotic obstruction due to proximal dilated duodenal atony and dysfunction can occur many years later and responds to duodenal plication alone.

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TRENDS IN BICYCLING RELATED HEAD INJURIES IN CHILDREN AFTER IMPLEMENTATION OF A COMMUNITY BASED BIKE HELMET CAMPAIGN

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Background/Purpose: To determine the effect of a community based bike helmet promotion campaign on bike helmet use and related head injuries in children (0-14 years of age) in a large North American city.

Methods: We established a multi-faceted, multi-disciplined, community-based campaign to promote bike helmet use by children in 1989. The campaign included school-based education weeks, discount sales, rallies, political lobbying and mass media publicity. The goals were to: increase helmet use by 50% per year, to reduce fatal bike related head injuries by 50% and to explore the feasibility of legislation mandating helmet use. We measured helmet use by standardized field observations repeated annually in a single borough within the metropolitan area. To estimate head injury rates, we used the number of admissions to hospital for the treatment of bike related head injuries in a regional trauma registry which included all residents in the target population. We were unable to control for changes in exposure to bicycling or in the criteria for admission to hospital for the treatment of head injuries during the study period.

Results: Legislation requiring helmet use by all children went into effect in 1995.

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</thead>
<tbody>
<tr>
<td>No. of Admissions with H.I.</td>
<td>71</td>
<td>46</td>
<td>50</td>
<td>50</td>
<td>36</td>
<td>29</td>
<td>33</td>
<td>24</td>
</tr>
<tr>
<td>No. of In Hosp. Deaths</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
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</table>

Head injuries include ICD9 Codes 800-1, 803-4, 850-4
Bicycling injuries include E800-807, E810-825, E826-829

Conclusions/Discussion: Bike helmet use increased significantly during the first 4 years of the campaign and again after the helmet law was implemented. The total number of bike related head injury admissions declined by more than 50%. Although other factors in addition to the campaign likely influenced the helmet use rate, the campaign achieved all of its goals except for a 50% reduction in fatal head injuries, which were too infrequent for analysis.

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LONG-TERM DISABILITY FOLLOWING TRAUMA IN CHILDREN

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Purpose: To assess long-term disability following pediatric trauma and identify predicting factors.

Methods: Phone survey of all pediatric traumatic injuries with an Injury Severity Score (ISS) ≥ 4 seen over 6 years at a regional trauma centre. The questionnaire was a modification of the Rand Health Insurance Study scales.

Results: Of 218 eligible trauma registry patients, 19 were deceased, 64 unreachable, 19 declined, and 116 interviewed. There were no demographic differences between respondents and non-respondents. 63% of the respondents were male, mean age at injury was 13, ISS 16.7, and mean interval since injury was 4.4 (range 1 - 7) years. 63 children (54%) had no limitations on follow-up; the remainder had either limitations in physical / role activities (28%), mobility (16%), or self-care ability (2%). Significant correlations (r, p<0.05) are shown below.

<table>
<thead>
<tr>
<th>Presence of disability</th>
<th>Age at injury</th>
<th>ISS</th>
<th>PTS</th>
<th># regions injured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current general health</td>
<td>.25</td>
<td>.21</td>
<td>.22</td>
<td>.21</td>
</tr>
</tbody>
</table>

Stepwise logistic regression identified number of regions injured, mechanism of injury and ISS as the main determinants for presence of long-term disability.

Conclusion: Half of injured children do have long-term sequelae. Their occurrence can be predicted from trauma scores, mechanism of injury, and number of regions injured.

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COMPLICATIONS OF LAPAROSCOPIC SURGERY FOR ESOPHAGEAL ACHALASIA IN CHILDHOOD

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Background: The aim of this study is to assess the long-term results and the incidence of complications in children operated on for esophageal achalasia via laparoscopy. Usually preferred treatment for children affected by an esophageal achalasia is esophagomyotomy, but there exist, however, variations in surgical approaches and differences of opinion regarding the utilization of the adjunctive antireflux procedure.

Methods: In this report, the authors describe nine cases of patients with severe achalasia who were treated by laparoscopic Heller operation associated with a fundoplication according to Dor's or Toupet’s techniques. The patients’ ages varied between 2 and 13 years. A 5-port technique was used in all the patients. A laparoscopic Heller esophagomyotomy was made to an extension of 7-8 cm, followed by an anterior Dor fundoplication in 7 cases and a Toupet in 2 other cases. The myotomy was carried out along the stomach for an extension of at least 2-3 cm.

Results: Mean operating time was 120 minutes. Three complications were recorded in our series: two perforations of the esophago-gastric mucosa; the first was sutured in laparoscopy, the second needed a second intervention. One case that presented dysphagia was resolved with a dismount of the too tight fundoplication and the realisation of an another antireflux mechanism. At the longest follow-up of 5 years, all the children were free of symptoms.

Conclusion: The authors believe that laparoscopic Heller esophagomyotomy appears to be safe and effective as much as laparotomy is in children with achalasia, but not without risks at beginning of the experience.

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LAPAROSCOPIC SURGERY OF GORD IN CHILDREN: TECHNICAL DIFFICULTIES AND EARLY POST-OPERATIVE COMPLICATIONS IN A SERIES OF 442 CASES

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Background: Laparoscopic surgery for gastroesophageal reflux (GERD) in children is widely recorded. Results of large series with a long enough follow-up are appearing. Complications have occurred, enhancing the need to report our experience.

Method: From 1992 to 1999, 442 children ranging from 1 month to 19 years (mean age 4 yrs) were submitted to a laparoscopic anti-reflux procedure for GERD, performed by 3 well-trained teams. 38 patients were neurologically impaired, 18 had an intrathoracic hiatal hernia. Associated pathologies induced collateral risks in 20% of cases (i.e. respiratory insufficiency or V.P. shunt). All the surgeons followed an unique protocol: open trans-umbilical introduction of the first port according to the Hasson's technique, then 3 or 4 ports for 5 mm laparoscopic instruments, dissection of the both crus, and of the lower part of the esophagus. 206 Toupet's and 236 Nissen's procedures were used as anti-reflux wrap. 26 simultaneous gastrostomies were performed. The operative time ranged from 35 to 240 min (mean 100 min). 8 conversions (1.8%) were due to a failure of exposition, a visceral tear, or a bleeding. Those happened at the beginning of the study. We recorded only the complications occurring since the anesthesiologic induction until the 30th post operative day. Data related to the long-term follow-up will be presented separately.

Results: There were neither anesthesiologic complication nor peri-operative mortality, but a 18 yrs. old patient with severe encephalopathy died at D25 of a delayed respiratory distress. Apart from the operative difficulties which are discussed in details, 25 (5.6%) surgical complications are reported: 4 perforations of the esophagus, stomach or intestine, 1 bleeding, 1 suture of the naso-gastric tube to the wrap, 8 openings of a pleura, 5 sections of the posterior vagus nerve, 2 left liver or partial splenic ischemia. 5 children were reoperated, 4 because of parietal wall leakages (3 on a port site, 1 on a site of gastrostomy), and 1 for peritonitis due to an esophageal perforation. Some frequent incidents occurred during the postoperative period such as nausea, abdominal pain, or diarrhea. There was no intestinal occlusion. 19 dysphagia were observed, 17 resolved spontaneously and 2 after endoscopic dilatations.

Conclusion: Laparoscopy has got up for the surgical treatment of GERD in children. Besides the necessity to analyze the long-term results, each team entering this new method has to be aware of previously encountered difficulties and pitfalls. Thus some complications could be avoided or more adequately managed. In this pluricentric series, we were unable to avoid some major complications in spite of the surgeons' experience. Their complete report and related discussion may contribute to the reliability of the method.

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OUTCOMES OF LAPAROSCOPIC FUNDOPPLICATION AND GASTROSTOMY IN CHILDREN WITH CYSTIC FIBROSIS

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Background/Purpose: Cystic fibrosis (CF) patients have an increased incidence of gastroesophageal reflux (GER) which may exacerbate their pulmonary disease and impair nutrition. This study reports the short-term outcomes after laparoscopic Nissen fundoplication in children with CF and GER.

Methods: Four children (mean age 13 yr, range 6-18 yr) with CF and symptomatic GER underwent laparoscopic fundoplication; 3 had concurrent gastrostomy. The best preoperative pulmonary function tests (PFTs) were compared to the best postoperative PFTs during the subsequent 3 months. Weight gain and continued medical GER therapy were also recorded. The mean followup was 11 months (1-22 months).

Results: The operation was completed in all 4 patients with no major perioperative morbidity. All patients reported symptomatic improvement. Three patients were able to completely stop their GER medications and 2 patients gained weight. PFTs improved in 1 patient who completely weaned off supplemental oxygen, but PFTs deteriorated in 2 other patients postoperatively. One young child did not cooperate with testing.

Conclusions: Laparoscopic fundoplication and gastrostomy can be accomplished with minimal morbidity in patients with CF and GER. It appears to be effective in reducing GER symptoms, allowing discontinuation of GER medications and improving weight gain. Pulmonary function may improve in some patients.

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PERCUTANEOUS ENDOSCOPIC GASTROSTOMY (PEG) AVOIDS TPN RELATED COMPLICATIONS IN PEDIATRIC CANCER PATIENTS

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Cancer patients require extensive nutritional support. Because of significant TPN related complications, we performed percutaneous endoscopic gastrostomies. There were 8 patients (2-13 years): ALL (3), brain tumors (2), rhabdomyosarcoma (1), Wilms’ tumor (1), and Ewing sarcoma (1). Indications were cholestasis and severe liver dysfunction (3/8), or feeding difficulty and prolonged anorexia (5/8). At insertion time, the absolute neutrophil count (ANC) was greater than 1500 (6), less than 1000 (1), and less than 100 (1). There were no immediate complications. Medium-term complications included site erythema (6/8) and cellulitis (2/8). Long-term complications required the removal of the PEG (2/8). Both patients had ANC below 1000. PEG removal was required because of local peritonitis (1) and site necrosis (1). Both died of cancer related causes. All patients responded dramatically with improved weight gain and quality of life. Cholestasis and liver dysfunction resolved in 2/3. Chemotherapy and other treatment modalities were NOT delayed. We believe that aggressive nutrition support in pediatric cancer patients by means of PEG insertion yields important benefits with minimal inherent complications. Criteria need to be developed to identify the best candidates for PEG placement. The criteria should include time of insertion, type of chemotherapy, minimal ANC, and tumor type.

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STAGING OF WILMS' TUMOR - COMPUTERIZED TOMOGRAPHY (CT) CORRELATION WITH PATHOLOGICAL FINDINGS

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Purpose: To determine the ability of Computerized tomography (CT) scan to correctly determine the local stage of Wilms' tumor.

Method: Thirty-four patients with Wilms' tumors were accrued over the period of 1990-1997. Preoperative abdominal CT scans were reviewed in a blinded fashion by experienced radiologists and staged according to National Wilms' Tumor Study (NWTS) Group Staging V. Radiologic staging was then compared to pathologic staging. Of note, tumors were staged for local extent of disease consisting of capsular invasion and nodal enlargement. Evidence of distant metastasis was not sought. Therefore, tumors with metastases (Stage IV) were staged only according to the extent of local tumor spread.

Results: Overall, we found that CT Scan correctly staged only 18 of 34 cases (53%) of Wilms' tumor. CT scan overstaged 12 of 16 (75%) localized renal disease (Stage I) and local extension (Stage II) tumors and understaged 4 of 15 (27%) localized spread (Stage III) tumors. CT Scan correctly staged 3 of 3 bilateral (Stage V) tumors.

<table>
<thead>
<tr>
<th>Tumor stage</th>
<th>CT - I</th>
<th>CT - II</th>
<th>CT - III</th>
<th>CT - V</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pathology - I</td>
<td>0</td>
<td>8</td>
<td>2</td>
<td>0</td>
<td>10</td>
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<tr>
<td>Pathology - II</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>7</td>
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<tr>
<td>Pathology - III</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Pathology - V</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>0</td>
<td>16</td>
<td>15</td>
<td>3</td>
<td>34</td>
</tr>
</tbody>
</table>

Conclusion: CT scan appears to have poor correlation to pathologic staging. Therefore, we conclude that basing therapy solely on radiologic imaging may lead to some patients receiving more intense therapy than necessary while others not receiving sufficient therapeutic regimens.

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THE ROLE OF TRANSCATHETER ARTERIAL CHEMOEMBOLIZATION (TAE) IN UNRESECTABLE MALIGNANT LIVER TUMOUR IN CHILDREN

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Objective: The main goal of the treatment of malignant liver tumour (MLT) in children and adults is complete surgical resection. The African children are often in advanced/unresectable stages at diagnosis. Transcatheter arterial chemoembolization (TAE) is an important therapeutic tool in these advanced tumours and it is part of neoadjuvant therapy.

Method: Three cases of unresectable MLT, 2 hepatoblastomas (HB) and 1 hepatocellular carcinoma (HCC) in children are presented. Repeated TAE (1,2,4) induced significant shrinkage and resectability has been achieved. In cases of HB, TAE was performed at the end of neoadjuvant chemotherapy (CH); in the case of HCC 4 preoperative TAE was the only treatment. TAE was performed at 4-5 week intervals using a mixture of: Adriamycin 50 mg/m², Cisplatin 50 mg/m², SoluMedrol and Lipiodol followed by Gelfoam particles embolisation for temporary occlusion of hepatic artery branch feeding the tumour.

Results: The procedures were well tolerated. No major complications were noticed. Resectability was achieved in all cases. CUSA (Sonocut) dissection and Tisseel sealing (Fibrin Glue) were used in all cases. One patient with HB is alive and well 3,5 years post resection, the HB died of metastatic disease 8 months post resection. The patient with HCC died 10 hours post operatively due to fulminant DIC following an uneventful resection.

Conclusion: TAE in advanced/unresectable MLT is part of neoadjuvant therapy with or without systemic CH. The method is particularly recommended in HCC in children. An ongoing prospective study together with ECOG is underway regarding the role of TAE in advanced unresectable non-metastatic HCC (more than 20 patients, adults and children already enrolled).

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A NOVEL TECHNIQUE FOR RESECTING "UNRESECTABLE" LIVER TUMORS

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Background/Purpose: Complete resection of hepatobastoma is essential for cure. Tumors involving all 3 major hepatic veins are considered unresectable. We describe a novel technique to successfully resect these tumors and report our results.

Methods: Three children with tumors involving all 3 hepatic veins were explored following chemotherapy. The hepatic veins were encircled and the right lobe was reflected medially. Two patients had large, accessory retrohepatic veins. Suprahepatic vascular clamps were placed to occlude all 3 hepatic veins. In 2 patients, cross-clamping precipitated mild to moderate swelling of the liver. In the third, the liver became grossly edematous. In the former 2 patients, the 3 hepatic veins were divided and an intraparenchymal dissection, between the anterior and posterior hepatic segments, was performed completely removing the tumors.

Results: The two patients undergoing resection have survived 5 and 1 years, respectively. There has been no evidence of local recurrence and liver function is satisfactory. The third patient underwent liver transplantation.

Conclusions: "Unresectable" liver tumors involving both lobes and all three hepatic veins can be completely removed using this new technique. A prerequisite for attempted resection is adequate venous drainage via accessory hepatic veins, which can only be ascertained at laparotomy.

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NEAR-TOTAL INTESTINAL AGANGLIONOSIS; LONG-TERM FOLLOW-UP OF A MORBID CONDITION

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Purpose: To understand the long-term outcome of this disease.
Methods: An institutional review of all such patients since 1974. Seven term babies were identified (4 males, 3 females); mean birth weight 3.2 kg. Two siblings and one Down syndrome baby. All 7 developed obstruction within 5 days of life; one patient perforated. All 7 were diagnosed within the first 2 months. In 2/7 aganglionicosis began 10 cm distal to the ligament of Trietz (LOT); the longest segment of normal small bowel was 130 cm (from LOT). 5/7 babies underwent a stoma between day 1 and 15.
Results: 2/3 “long term” (> 2 yr) survivors had corrective surgery by 13 months: The first received extended jejuno-ileal myotomy and myectomy with multiple postoperative problems; she died at 8 yr from TPN complications. The second underwent myotomy, resection and patch graft to jejunum and several jejunostomy revisions; all of the above was eventually resected. The 3/7 who lived more than one year all took some nutrition orally. Three died between 3 mo and 8 yr of TPN complications. There are 2 survivors at 2 and 6 yr. Survival has not correlated with the length of aganglionicosis.
Conclusions: Aganglionicosis involving most of the bowel has a high morbidity and mortality. Since 1990 a more aggressive management approach has resulted in improved survival with significant morbidity. For children surviving beyond 3 months of age, outcome was less dismal. Some patients may benefit from extended jejunal myotomy and/or myectomy, however, post-operative complications are the rule, not the exception.

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SPONTANEOUS GASTRIC PERFORATION IN NEONATES AND ABNORMAL DISTRIBUTION OF INTESTINAL PACEMAKER CELLS

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**Purpose:** The etiology of spontaneous gastric perforation (SGP) is still unclear with several plausible theories. The interstitial cells of Cajal (ICCs), which express tyrosine kinase receptor C-kit, have recently been identified as "intestinal pacemaker cells". C-kit is required for the development of ICCs (i.e., normal bowel motility). Its ligand is known be stem cell factor (SCF).

**Methods:** Gastric specimens were obtained at surgery or postmortem from SGP patients (n=7) and age-matched controls (n=10). Immunohistochemical labeling with antibodies to C-kit (a marker for ICCs) and SCF with microwave antigen retrieval was used to visualize ICCs and SCF in formalin-fixed/paraffin-embedded specimens.

**Results:** In all control specimens, ICCs were present in the circular and longitudinal muscle layers, and around the myenteric plexuses (MP), and there was strong SCF immunoreactivity within MP. In contrast, ICCs were completely absent in 3/7 SGP patients. ICCs were scarce in the circular and longitudinal muscle layers, and around the MP in the remaining 4 SGP patients, but SCF immunoreactivity within the MP was normal in all SGP patients.

**Conclusion:** Our findings suggest that the markedly decreased distribution of intestinal pacemaker cells (i.e., primary hypomotility) may play an important role in the development of spontaneous gastric perforation in neonates.

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HAEMOPERITONEUM IN THE NEWBORN: REPORT OF THREE CASES

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Haemoperitoneum in the newborn is rare with most reported cases ascribed to solid organ injury associated with traumatic delivery. Umbilical vein rupture as a cause of neonatal haemoperitoneum has been reported in the world literature only twice previously and both these infants did not survive. This report describes three cases of haemoperitoneum in the newborn, including perhaps the first survivor of a rupture of the umbilical vein. An abrupt pressure differential during delivery may be responsible for solid organ rupture in cases with apparent non-traumatic delivery. Unless the haemorrhage is contained, urgent surgical intervention is essential for survival.

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TRANSVERSE COLONIC TRANSPLANT FOR ESOPHAGEAL REPLACEMENT IN CHILDREN: TEN YEAR'S EXPERIENCE IN 136 PATIENTS

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Following 42 two-staged esophagoplasties using colonic transplants practiced since 1966, we introduced the one-stage procedure in 1989, placing the transplant in the posterior mediastinum following a closed-chest esophagectomy. We report our 10 year's personal experience of 136 esophageal replacements using isoperistaltic transverse colonic transplants in children with a mean age of 4.5y. 130 (95%) esophagoplasties were performed for caustic burns.

In 91 patients, a total or partial blind esophagectomy was performed allowing an orthotopic transplant, however in 45 cases we failed to do so and the esophagus had to be placed in the retrosternal position. Because of associated pharyngo-tracheal lesions we performed 6 proximal anastomosis at the level of the arytenoids on the larynx. Those children were able to recover normal swallowing within a period of 2 to 5 mo. Otherwise the end-to-end proximal anastomosis was performed in the neck although a difference of diameter was frequently present. We recorded 5 fistulae which healed spontaneously and 19 postoperative stenosis of the anastomosis requiring dilatations.

Originally the lower anastomosis had been done using various techniques resulting in a high rate of reflux into the transplant. As from 1993, we performed a novel anti-reflux technique in 40 children, and a reduced rate of reflux (12%) was observed, assessed by esophagograms and pH-metry.

All patients survived the intervention. One ulcer was noticed in the proximal transplant. The one stage esphagoplasty is a shorter procedure (mean 4.9 h) than the two stage one with no higher rate of complications and better morphological results. Some children suffered transitory respiratory and dysphagia problems. All patients have recovered from these disturbances and are eating normally.

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LONGTERM RESULTS IN CHILDREN WITH GASTRIC TUBE
OESOPHAGEAL REPLACEMENT

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Aim: a) to present the long term outcome in 104 consecutive cases who underwent reversed gastric tube oesophageal replacement (RGTE); b) to investigate the value of 24 hrs pH-metry in patients with RGTE; c) adjustment of the GT to the body growth: is it a real growth or a progressive elongation only?

Clinical material: 1975-1998: 104 cases; age at operation (1-5 yr), mean 3,5 yr. Primary pathology: caustic stricture: 84; oesophageal atresia: 20. In the initial 21 patients the GT was placed retrosternally without oesophagectomy. In the later 83 the GT was placed through the posterior mediastinum, following oesophagectomy, without thoracotomy. Seven deaths, 15 complications and 1 necrosis of gastric tube were recorded.

Results: Review included detailed questioning for: symptoms, swallow, measurement of height, weight, Hb concentration, serum albumin, Ba swallow, GT endoscopy (± biopsy) - 32 patients, 24 hr pH-metry (10 pts), evaluation of the "growth" of the gastric tube. Evaluable pts 82; age 5-29 yr (mean 13 yr); 10 pts over 18 years old; 3 married women had a normal pregnancy. Normal swallow was reported in 76 pts (92%). pH-metry study shows that the GT does not essentially change its physiological profile with frequent episodes of asymptomatic gastro-tubal reflux. The "growing" of the GT is in harmony with the body height and no cases of redundant GT (so often occurring with colonic replacement) has been found. All evaluable pts have a normal active social life.

Conclusion: RGTE is an excellent oesophageal substitute allowing normal long-term physical and psychological development.

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FETAL DEMISE IN MONOCHORIONIC TWINS DISCORDANT FOR SACROCCOEYGEAL TERATOMA

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The pathophysiology of fetal sacrococcygeal teratoma (SCT) in a singleton pregnancy is well documented. A subset of fetuses with large, rapidly growing, SCTs may develop arteriovenous shunting through the tumor, with secondary high output physiology, evolution of placentomegaly/hydrops, and subsequent fetal demise. The pathophysiology of monochorionic twins, one of which has a large SCT, is relatively unknown. We recently managed an informative case of monochorionic twins discordant for a large SCT. Serial fetal echocardiography and ultrasonography with Doppler flow measurements beginning at 20 weeks gestation documented rapid growth of the SCT with a corresponding increase in combined cardiac output in the affected twin. No evidence of placentomegaly in the combined placenta, or hydrops in either twin was observed. At 28 weeks umbilical artery waveform analysis revealed reversed diastolic arterial flow in the twin with SCT without hydrops. This was followed by sudden fetal demise of both twins within 24 hours. The absence of high output failure prior to fetal demise suggests that parameters of rapid tumor growth, vascular flow measurements, and umbilical artery waveform analysis may be more informative predictors of fetal demise than hydrops in monochorionic twins with SCT. A better understanding of the pathophysiology of SCT in monochorionic twins may allow early intervention, such as cord ligation or early delivery, to improve outcome.

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PROGRAMME SCIENTIFIQUE ET SOCIAL

Jeudi, le 23 septembre 1999

09:00 - 17:00 Réunion du Conseil de l'ACCP
17:00 Inscription
19:00 - 22:00 Réception de Bienvenue – Delta Montréal

Vendredi, le 24 septembre 1999

07:00 - 13:00 Inscription
07:00 - 07:55 Petit Déjeuner
07:30 - 13:00 Exposition
07:55 - 08:00 Mot de Bienvenue et Ouverture du Congrès
08:00 - 10:15 PREMIÈRE Session Scientifique
10:15 - 10:50 Pause-Santé
10:50 - 12:00 DEUXIÈME Session Scientifique
12:00 - 13:00 Fred MacLeod Lecture, Dr. Patricia K. Donahoe
13:00 - 14:15 Lunch
14:15 - 14:45 TROISIÈME Session Scientifique
14:45 - 15:45 The So-Called "Experts" Panel Quiz

Samedi, le 25 septembre 1999

06:30 - 08:00 Réunion du Comité de Spécialité en Chirurgie Générale Pédiatrique
07:00 - 12:00 Inscription
07:00 - 08:00 Petit Déjeuner
07:30 - 13:00 Exposition
08:00 - 10:15 QUATRIÈME Session Scientifique
10:15 - 10:50 Pause-Santé
10:50 - 12:00 CINQUIÈME Session Scientifique
12:00 - 13:00 "2 minutes / 2 diapos"
13:00 Déjeuner d'Affaire des Membres
18:15 Réception du Président - Quai Jacques Cartier, Vieux-Port de Montréal
19:00 Banquet du Président – Le Bâteau-Mouche (looper-Cuisine), Vieux-Port de Montréal

Dimanche, le 26 septembre 1999

07:00 - 12:00 Inscription
07:00 - 08:00 Petit Déjeuner
07:00 - 13:00 Exposition
08:00 - 10:10 SIXIÈME Session Scientifique
10:10 - 10:45 Pause-Santé
10:45 - 12:30 SEPTIÈME Session Scientifique
12:30 Ajournement
MOT DE BIENVENUE DU PRÉSIDENT

Chers membres de l'ACCP et chers(ères) invité(e)s,

Bienvenue à Montréal !

Notre association retourne à Montréal pour sa 31e réunion annuelle qui sera sûrement pleine d'enseignement et très stimulante. Ce dernier congrès du millénaire continuera la tradition d'excellence de notre programme scientifique. Geoff Blair et les membres du comité du programme ont sélectionné des sujets très variés et ont prévu beaucoup de temps pour la discussion pour les membres et les autres congressistes.

Nos hôtes, Diane et Salam Yazbeck, ont de nouveau organisé un programme social comportant un banquet croisière sur le St-Laurent autour de Montréal. Ce sera sûrement une soirée mémorable.

Montréal est une ville superbe, bien placée pour y tenir notre dernier congrès de ce millénaire.

Merci encore à Salam et Diane Yazbeck, à Geoff Blair et à Arlene Ein pour tous les efforts mis pour organiser ce congrès.

Nous avons hâte de vous retrouver tous à Montréal et nous vous invitons à participer à toutes les activités.

David P. Girvan, M.D.
Président
Association Canadienne de Chirurgie Pédiatrique
À PROPOS DE
L'ASSOCIATION CANADIENNE DE CHIRURGIE PÉDIATRIQUE


Il existe trois secteurs d’intérêt principaux pour les membres. Ce sont les méthodes diagnostiques, les traitements ainsi que la recherche.

Les Nouveau-Nés Porteurs de Malformations Congénitales

Bien que la majorité des nouveau-nés porteurs de malformations congénitales graves puissent être opérés avec succès, il arrive souvent que la malformation ne soit pas reconnue ou, si elle est diagnostiquée, que le médecin de première ligne ne soit pas au courant des possibilités chirurgicales. Dans ces conditions, la plupart de ces enfants meurent ou, s'ils survivent, la qualité de leur vie est fortement diminuée par leur malformation.

Les Néoplasies de l'Enfant

Le cancer constitue la deuxième cause de mortalité chez les enfants. Actuellement, l'exérèse chirurgicale des tumeurs associée à la chimiothérapie et la radiothérapie permet de guérir la majorité de ces enfants.

Les Traumatismes

Les traumatismes représentent la première cause de mortalité infantile en Amérique du Nord. Grâce aux méthodes modernes de premiers soins, de transport, de réanimation et de soins intensifs, ainsi qu'à la disponibilité des équipes chirurgicales spécialisées, il est devenu possible de sauver un grand nombre de ces enfants.

Programme d'Éducation Médicale Continue

Afin de réussir à améliorer la qualité des soins chirurgicaux pédiatrique, l'Association Canadienne de Chirurgie Pédiatrique a lancé un programme d'éducation médicale continue pour les médecins, le personnel infirmier ainsi que pour les autres travailleurs du domaine de la santé de l’enfant. Un fonds d'éducation fut créé afin de pouvoir soutenir ce programme.
Le rôle du Fonds d'Éducation est de promouvoir l'éducation médicale continue des membres de l'Association Canadienne de Chirurgie Pédiatrique, l'éducation des autres spécialistes, médicaux et chirurgicaux, des médecins en formation et du public à propos des maladies pédiatriques chirurgicales et de leur prévention. Le financement du Fonds d'Éducation provient d'individus et de groupes aussi bien médicaux que non médicaux intéressés à la chirurgie de l'enfant. Il provient également de certaines fondations charitables. Il est de l'intention de l'Association d'augmenter le capital jusqu'à un niveau suffisant pour que les intérêts puissent soutenir le Programme d'Éducation Médicale Continue.

Le Fonds d'Éducation de l'Association Canadienne de Chirurgie Pédiatrique est inscrit auprès du gouvernement fédéral et tous les dons qu'il reçoit sont entièrement déductibles d'impôt. Une vérification comptable est faite tous les ans.

Les dons peuvent être adressés à:

Salam Yazbeck, M.D.
Secrétaire-Trésorier de l'ACCP
Hôpital Sainte-Justine
3175, Côte Ste-Catherine
Montréal (Québec) CANADA
H3T 1C5

Téléphone   (514) 345-4688
Fax         (514) 345-4964
E-mail     Secretary@caps.ca
PRÉSIDENTS

<table>
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<tr>
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SECRÉTAIRES-TRÉSORIERS

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CONFÉRENCIÈRE INVITÉE

Docteur Patricia K. DONAHOE, M.D.

Le Docteur Donahoe est née à Boston. Elle est diplômée des universités de Boston, Columbia et Harvard. Elle fit sa résidence en chirurgie au Tufts New England Medical Center à Boston puis devint senior registrar Alder Hey Children's Hospital de Liverpool.


Le Docteur Donahoe a toujours été impliquée en recherche, recevant un grand nombre de bourses du NIH, aboutissant au dépôt de pas moins que douze brevets scientifiques à son nom. Sa renommée internationale ne fait pas de doute et les postes de fellowship dans son laboratoire sont très convoités aussi bien par les américains que par des étudiants de tous les continents.
MEMBRES FONDATEURS

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<td>TURCOT*</td>
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Le premier CONGRÈS ANNUEL eut lieu le 22 janvier, 1969 à VANCOUVER
PROCHAINS CONGRÈS DE L'ACCP

32ᵉ Réunion Annuelle
22-24 Septembre 2000
Le Château Montebello, OTTAWA

Le Château Montebello, cachet rustique dans un lieu de villégiature de renom
COMMUNICATION DES RÉSIDENTS

Les présentations faites par les résidents en chirurgie sont jugées par un panel constitué de membres du Comité de Publication. Il y a deux catégories: celui du meilleur travail clinique et celui du meilleur travail expérimental. Chaque prix est de 500$. Le comité du Programme essaie normalement de placer ces communications durant les deux premiers jours du programme afin que la remise des prix puisse avoir lieu au cours du Banquet de Président.

PRIX POUR LES MEILLEURES COMMUNICATIONS DES RÉSIDENTS 1997

MEILLEUR TRAVAIL CLINIQUE

Dr. N.L. YANCHAR

"Long term outcomes of Hirschsprung's disease"
N.L. Yanchar, P. Soucy
The Children's Hospital of Eastern Ontario
Ottawa (Ontario) CANADA

MEILLEUR TRAVAIL EXPÉRIMENTAL

Dr. S.B. SHEW

"The determinants of protein catabolism in neonates on ECMO"
S.B. Shew, T.H. Keshen, F. Jahoor, T. Jaksic
Baylor College of Medicine, ARS/USDA
Children's Nutrition Research Center
Houston, TX USA

FÉLICITATIONS AUX DOCTEURS YANCHAR ET SHEW !!
PRIX DU LIVRE

PRIX POUR LES MEILLEURES COMMUNICATIONS DES RÉSIDENTS 1997

MEILLEUR TRAVAIL CLINIQUE

Dr. K. AL-HARBI

"Poor and scoop: Mucous fistula reffeding in neonates with short bowel syndrome"
Children's Hospital at Hamilton Health Sciences Corporation
Hamilton (Ontario) CANADA

MEILLEUR TRAVAIL EXPÉRIMENTAL

Dr. P.M. KAUFMANN

"Heterotopic hepatocyte transplantation using three dimensional polymer matrices.
Evaluation of different modalities of hepatotrophic stimulation"
P.M. Kaufmann, S. Uyama, D. Kluth, J.P. Vacanti
Department of Pediatric and General Surgery
University of Hamburg
Hamburg, GERMANY

FÉLICITATIONS AUX DOCTEURS AL-HARBI ET KAUFMANN !!
VISITEZ NOTRE SITE INTERNET

www.caps.ca
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Notre conférencière invitée a reçu un très grand nombre de distinctions depuis le début de sa carrière jusqu'à maintenant. Elle est membre du comité éditorial de huit publications scientifiques majeures. Elle a à son crédit plus de 255 publications sous formes d’articles scientifiques, chapitre de livres, livres et revues éditoriales.

Les principaux champs d’intérêt en recherche concerne la biologie et la génétique du fœtus ainsi que le domaine fascinant de la thérapie génique.

L'Association Canadienne de Chirurgie Pédiatrique est honorée d’accueillir

DOCTEUR PATRICIA K. DONAHOE

à donner la conférence annuel Fred MacLeod

Le sujet de la conférence est
"COMMENT LA BIOLOGIE DU DÉVELOPPEMENT CONTRIBUE AUX SOINS CHIRURGICAUX PÉDIATRIQUES MODERNES"