CANADIAN ASSOCIATION of PAEDIATRIC SURGEONS
ASSOCIATION CANADIENNE de CHIRURGIE PÉDIATRIQUE

40th- 40ième

Annual Meeting -Réunion Annuelle

August 21-24 Août
2008

Toronto, Ontario
CANADA

CAPS 2009 Annual meeting
ACCP 2009 Réunion Annuelle

Halifax, Nova Scotia, Nouvelle-Écosse
CANADA

October 1 - 4 Octobre

PLAN TO JOIN US!

Joignez-vous à nous!

CANADIAN ASSOCIATION of PAEDIATRIC SURGEONS
ASSOCIATION CANADIENNE de CHIRURGIE PÉDIATRIQUE

40th Annual Meeting
40ième Réunion Annuelle

August 21-24 Août
2008
Toronto Marriott Downtown Eaton Center
Toronto, Ontario
CANADA

The Royal College of Physicians and Surgeons of Cansada
Le Collège royal des médecins et chirurgiens du Canada
774 promenade Echo Drive, Ottawa, Canada K1S 5N8

Dalhousie University Continuing Medical Education designates this continuing medical education activity for up to 16.5 credit hours as an accredited group learning Section 1 activity as defined by the Maintenance of Certification program of The Royal College of Physicians and Surgeons of Canada

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

In keeping with CMA Guidelines, program content and selection of speakers are the responsibility of the planning committee. Support is directed toward the costs of the course and not to individual speakers. All speakers have indicated no involvement with industry that may be perceived as potentially influencing the presentation of the educational material.

Educational Objectives

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

- Present current updates on advances in clinical pediatric surgery
- Present current updates on advances in the pathophysiology of pediatric surgical disorders
- Provide for group discussion on controversial issues in pediatric general and thoracic surgery through:
    - Discussion of presented scientific papers
    - Interactive panel discussion on the management of clinical pediatric problems

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

A panel of 6 members of the CAPS Program Committee has chosen the abstracts presented, based on quality of abstracts submitted and reflecting what is commonly relevant to the practice of pediatric surgery. Input for subsequent meetings and how to improve this one will be solicited from the delegates at the conclusion of the meeting.

SCIENTIFIC AND SOCIAL PROGRAM
PROGRAMME SCIENTIFIQUE ET SOCIAL

Thursday, August 21, 2008
Jeudi, Août 21, 2008

Start Time	End Time	Function	Room	Floor
10:00	17:00	Council Meeting	Dundas	2nd Floor
14:30	18:00	Registration	A Foyer	Base of Escalator Foyer Convention Level
17:30	18:30	CAPSNET Meeting	Richmond	2nd Floor
18:30	23:00	Welcome Reception	Trinity Ballroom 1 - 3	Convention Level
07:00	17:00	Office Storage	Simcoe	Convention Level

Friday, August 22, 2008
Vendredi, Août 22, 2008

Start Time	End Time	Function	Room	Floor
06:30	08:00	Publication Meeting	York B	Convention Level
07:00	17:00	Registration	A Foyer	Base of Escalator Foyer Convention Level
07:00	17:00	Office Storage	Simcoe	Convention Level
07:00	08:00	Continental Breakfast	Grand Foyer	Convention Level
07:45	08:00	President's Welcome	Salon A - B	Convention Level
08:00	**09:24**	**Scientific Session I**	**Salon A - B**	**Convention Level**
09:20	09:45	Coffee Break	Grand Foyer	Convention Level
09:45	**11:04**	**Scientific Session II**	**Salon A - B**	**Convention Level**
11:05	**12:00**	**JPS/Fred MacLeod Lecture**	**Salon A - B**	**Convention Level**
12:00	13:30	Box Lunch	Grand Foyer	Convention Level
12:15	**13:15**	**2 Min - 2 Slides Videos**	**Salon A - B**	**Convention Level**
13:20	13:40	CAPSNET Update	Salon A - B	Convention Level
13:40	14:00	Poster Previewing	Grand Foyer	Convention Level
14:00	**15:15**	**Scientific Session III Poster Presentations**	**Grand Foyer**	**Convention Level**
15:15	15:30	Afternoon Break	Grand Foyer	Convention Level
15:30	**17:30**	**Scientific Session IV**	**Salon A - B**	**Convention Level**
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Samedi, Août 23, 2008

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09:45	**11:09**	**Scientific Session VI**	**Salon A - B**	**Convention Level**
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11:25	**12:37**	**Scientific Session VII**	**Salon A - B**	**Convention Level**
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17:30		Buses Tour & To Hockey Hall of Fame		Outside Marriot Bay Street
19:00	23:00	Presidential Dinner	Hockey Hall of Fame	Bay and Yonge Street

Sunday, August 24, 2008
Dimanche, Août 24, 2008

Start Time	End Time	Function	Room	Floor
07:00	08:00	Continental Breakfast	Grand Foyer	Convention Level
08:00	**09:24**	**Scientific Session VIII**	**Salon A - B**	**Convention Level**
09:24	09:45	CAPS Traveling Resident Talk	Salon A - B	Convention Level
09:45	10:15	Coffee Break	Grand Foyer	Convention Level
10:15	**11:42**	**Scientific Session IX**	**Salon A - B**	**Convention Level**
11:43	12:20	Presentation by CMPA	Salon A - B	Convention Level
12:20	12:25	President's Closing Remarks	Salon A - B	Convention Level
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PRESIDENT'S WELCOME

Welcome to Toronto for CAPS 2008!

I want to thank Dr. Paul Wales, Dr. Sherifa Himidan and our *star forward*, Arlene Ein who have *stick-handled* all the local arrangements. We'll *face -off* with the Welcoming Reception and then move onto the action-packed *periods* of the Scientific Sessions, that have been expertly *coached* by Dr. Natalie Yanchar and her Program *team*. CAPS is well-known for its meeting candor and friendly sparring.
So don't worry about the *penalty box*- the *referees* aren't coming to this *game*.
We are honoured to have this year Barcelona's Professor Jose Boix-Ochoa as our visiting *All Star* who will deliver the annual JPS/MacLeod lecture on the subject of cystic adenomatoid malformations.
We are grateful to all the *players* who make CAPS a *winning league*, and our Secretary-Treasurer, Dr. Juan Bass should be the *first star of this game*. Juan always *skates* hard for CAPS, *checking* all the problems into the *boards*.
Lastly, break out your favourite *shinny* jersey and join us for the Presidential Banquet where we can really talk *hockey*!
To meet old and new friends, to learn and promote more learning, to talk and share our passion for the game of Paediatric Surgery, - our *goal* is to have a great meeting.

Geoffrey K. Blair,
President
Canadian Association of Paediatric Surgeons

MOT DE BIENVENUE DU PRÉSIDENT

Bienvenue à Toronto pour CAPS 2008

Je veux remercier le Docteur Paul Wales et le Docteur Sherifa Himidan ainsi que notre centre-étoile, Arlene Ein, qui ont déjoué habilement toutes les difficultés des arrangements locaux.

Nous ferons la mise au jeu avec la Réception de Bienvenue pour poursuivre avec des périodes de Sessions Scientifiques remplies d'action, le tout sous l'œil expert de l'entraineur-chef, Nathalie Yanchar et de son équipe du Programme.

CAPS est bien connue pour ses réunions franches et ses prises de bec amicales. Aucune punition ne sera décernée car les arbitres n'ont pas été invités.

Nous avons l'honneur cette année de recevoir un joueur vedette de la ligue internationale de chirurgie pédiatrique, du club de Barcelone, le Professeur Jose Boix-Ochoa, qui nous entretiendra des malformations kystiques adénomatoides, un sujet qui ne manque pas de souffle, lors du deuxième entracte, la Conférence JPS /MacLeod.

Nous sommes reconnaissants à tous les joueurs qui font de CAPS une ligue de gagnants et en particulier pour la première étoile de cette partie, notre Secrétaire-Trésorier, le Docteur Juan Bass. Juan a des patins bien aiguisés pour contrôler tous les problèmes sur la patinoire de CAPS.

Enfin, sortez le chandail de votre équipe favorite et joignez vous à nous pour vraiment parler de hockey lors du Banquet du Président.

Nous espérons marquer plusieurs buts durant cette réunion; celui de l'amitié entre les jeunes et les ainés; celui de la connaissance, celle à acquérir et celle à promouvoir; celui de la passion pour ce grand sport qu'est la chirurgie pédiatrique. Bienvenue à ce match de la CAPS.

Geoffrey Blair
Président,
Association Canadienne de Chirurgie Pédiatrique

ABOUT THE CANADIAN ASSOCIATION OF PAEDIATRIC SURGEONS

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

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

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

Contributions to educational fund can be made online at www.caps.ca or send cheque to:

Juan Bass
CAPS Secretary-Treasurer
Children's Hospital of Eastern Ontario
401 Smyth Rd
Ottawa, Ontario. K1H 8L1
Email: bass.caps@gmail.com
Telephone: (613) 737-7600 ext 2799
Fax: (613) 738-4849

AU SUJET DE L'ASSOCIATION CANADIENNE DE CHIRURGIE PÉDIATRIQUE

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

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

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

Les dons pour le fonds d' éducation peuvent être envoyé par courriel à www.caps.ca ou adressé par chèque à :

Juan Bass
CAPS Secretary-Treasurer
Secrétaire-trésorier de l'ACCP
401 Smyth Rd
Ottawa, Ontario. K1H 8L1
Email: bass.caps@gmail.com
Telephone: (613) 737-7600 ext 2799
Fax: (613) 738-4849

PRESIDENTS - PRÉSIDENTS

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
1989-1991	Jacques C. Ducharme	Montreal
1991-1993	Sigmund H. Ein	Toronto
1993-1995	Angus Juckes	Regina
1995-1997	Jean G. Desjardins	Montreal
1997-1999	David P. Girvan	London
1999-2001	Ray Postuma	Winnipeg
2001-2003	Mike Giacomantonio	Halifax
2003- 2005	Salam Yazbeck	Montreal
2005- 2007	Nathan Wiseman	Winnipeg
2007-	Geoffrey Blair	Vancouver

* deceased/ décédé

SECRETARY - TREASURERS
SECRÉTAIRES - TRÉSORIERS

1967-1974	Barry Shandling	Toronto
1974-1978	Gordon Cameron	Hamilton
1978-1983	Frank M. Guttman	Montreal
1983-1989	David Girvan	London
1989-1995	Ray Postuma	Winnipeg
1995-2002	Salam Yazbeck	Montreal
2002-2006	Peter G. Fitzgerald	Hamilton
2006-	Juan Bass	Ottawa

FOUNDING MEMBERS
MEMBRES FONDATEURS

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

* deceased / décédé

1st ANNUAL MEETING was held January 22, 1969 in VANCOUVER

Le premier CONGRÈS ANNUEL eut lieu le 22 janvier, 1969 à VANCOUVER

THE COAT OF ARMS OF THE CANADIAN ASSOCIATION OF PAEDIATRIC SURGEONS

LES ARMOIRIES DE L'ASSOCIATION CANADIENNE DE CHIRURGIE PÉDIATRIQUE

Heraldic Blazon

Per pale gules and purpure, dexter a scalpel erect entwined by a serpent, sinster 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 guérit".

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".

Le Blason

Au gauche, un bistouri droit entouré d'un serpent alors qu'à droite se tient un enfant, tout argent.
Au sommet se trouvent trois feuilles d'érable ainsi que la date 1967.
Devise: "Je le pensay, Dieu le guérit".

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

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

La devise est une citation d'Ambroise Paré, père de la chirurgie moderne.

GUEST LECTURER
CONFERENCIER INVITE

The Canadian Association of Paediatric Surgeons
L'Association Canadienne de Chirurgie Pédiatrique

is pleased to invite est fière d'inviter

PROF. JOSE BOIX-OCHOA

To give the JPS / Fred MacLeod Annual Lecture.
À donner la conférence annuelle JPS/ Fred MacLeod

" The Ontogeny and Phylogeny of the Human Lung- A study of Cystic Adenomatoid Malformations "

The visit by Prof. BOIX-OCHOA La visite du Prof. BOIX-OCHOA

is made possible with the financial support of
est rendue possible grâce à la générosité de

Elsevier

Professor JOSE BOIX-OCHOA

We are honoured with the presence of Professor Boix-Ochoa as this years' JPS/MacLeod lecturer. He is well-recognized around the world of Paediatric Surgery. His name inspires us all for his dedication, academia and integrity. His CV is too long to print in this booklet; here is a brief glance at his achievements.

He did his residency in Paediatric Surgery with Prof F. Rehbein in Bremen (Germany) from 1960 – 1965. He received Board certification in General Surgery in 1966, in Paediatrics in 1975, and a Ph. D. Summa Cum Laude in 1976. In 1980 he was Board Certified in Paediatric Surgery in Spain.

He was Chairman of Surgery and Chief of the Paediatric Surgical Department in the Autonomous University of Barcelona-Spain from 1966 – 2005, Director of the Paediatric Surgical Transplantation Program from 1985 – 2005, and Director of the Foetal Surgical Program from 2000 – 2006. He is a Founding Member of the European Union of University Surgical Professors and he is the Secretary-Treasurer of the World Federation of Associations of Pediatric Surgery. He was awarded the European Paediatric Surgical Association Rehbein Medal in May 2007.

He has published more than 413 papers in National and International Paediatric Surgery, General Surgery, Paediatrics, and Paediatric Gastroenterology Journals. He has also contributed 74 Book Chapters. He holds honorary fellowships from multiple associations and has been an Invited Professor in 158 Round Tables and Symposiums, and Guest Speaker in 126 International Congresses.

We are proud to have him add CAPS to his long list of honorary achievements.

RESIDENTS' PAPERS

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

PRÉSENTATIONS DES RÉSIDENTS

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

WINNERS OF THE 2007 RESIDENT BEST PAPER AND POSTER AWARDS
PRIX POUR LES MEILLEURES COMMUNICATIONS DES RÉSIDENTS 2007

BEST CLINICAL RESEARCH PAPER
MEILLEUR TRAVAIL CLINIQUE

1st prize - Dr. Beth Rymeski for the paper "Utilization of Internet based animations to understand procedures". **Grosfeld Pediatric Surgery Textbook**

2nd prize - **Dr. Ivan Diamond** for the paper "Changing the paradigm: Omegaven for the treatment of liver failure in pediatric short bowel syndrome".
One year subscription to JPS

3rd prize - **Dr. Angela Hanna** for the paper "Outcome of adrenocortical tumors in children". **One year subscription of Seminars in Pediatric Surgery**

Dr. MARIA DI LORENZO
BEST BASIC SCIENCE RESEARCH PAPER
MEILLEUR TRAVAIL EXPÉRIMENTAL, PRIX MARIA DI LORENZO

Dr. Andre Nicolas Gay for the paper "Granulocyte colony stimulating factor (GSCF) alters the phenotype of SK-N-SH neuroblastoma cells". **One year subscription to JPS.**

BEST POSTER- MEILLEURE AFFICHE

Dr. Abdullah Ali for the poster "Diaphragmatic pacing for the treatment of congenital central alveolar hypoventilation syndrome". **Grosfeld Pediatric Surgery Textbook**

THE CANADIAN ASSOCIATION OF PAEDIATRIC SURGEONS WOULD LIKE TO ACKNOWLEDGE THE FINANCIAL SUPPORT OF THE FOLLOWING SPONSORS

L'ASSOCIATION CANADIENNE DE CHIRURGIE PÉDIATRIQUE REMERCIE LES COMMANDITAIRES POUR LEUR CONTRIBUTION

Elsevier
Sponsor of the JPS/Fred Macleod Lecture and Resident prizes

Gold Sponsors
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Johnson & Johnson Medical Products

Bronze Sponsors
Baxter Corporation
Biomet Microfixation
Cook Medical

PROGRAM SCHEDULE

PROGRAMME DÉTAILLÉ

ABBREVIATIONS

O	original paper-présentation originale
R	resident paper-présentation par résident
C/T	case/technique report- présentation de cas ou de technique
P	poster presentation-présentation d'affiche

O,R, P Adjudicated-permis

C/T Not adjudicated- non permis

Dear CAPS Member,

Please visit our website at
www.caps.ca
and keep your profile updated.
If you change your e-mail address
or
if you forgot your user name or password
please contact me at
bass.caps@gmail.com

Juan Bass
CAPS Secretary-Treasurer

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FRIDAY, AUGUST 22nd,2008

7:45 - 8:00			**President's Welcome : Dr. Geoffrey Blair**
8:00 - 9:24			**Scientific Session I** **Moderators:** **Annie Fecteau & Paul Wales**
8:00 - 8:07	1	OR	**Minimal Access Surgery (MAS) Simulator Usage in Pediatric Surgery Training** David Lasko[1], Mohammed Zamakhshary[1,2], J. Ted Gerstle[1] [1] The Hospital for Sick Children, Toronto, Canada [2] King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia
8:12 - 8:19	2	OR	**Relationship Between Serum Citrulline Levels And Progression To Parenteral Nutrition Independence In Children With Short Bowel Syndrome** Shimae Fitzgibbons, MD [1,2]Y. Avery Ching, MD [1,2]Julie Iglesias, CPNP [1,2]Clarissa Valim, MD, ScD [2,4] Jing Zhou, MS [2,4]Christopher Duggan, MD [1,3]Tom Jaksic, MD, PhD [1,2] [1] Center for Advanced Intestinal Rehabilitation, Children's Hospital Boston [2] Department of Surgery, Children's Hospital Boston [3] Department of Gastroenterology and Nutrition, Children's Hospital Boston [4] Division of Biostatistics, Children's Hospital Boston
8:24 - 8:31	3	OR	**Long-term Nutritional and Clinical Outcomes following Serial Transverse Enteroplasty at a Single Institution** Y. Avery Ching [1,2] Shimae Fitzgibbons [1,2], Clarissa Valim [2,3], Jing Zhou [3], Christopher Duggan [1,4],Heung Bae Kim [1,5],Tom Jaksic [1,2] [1] Center for Advanced Intestinal Rehabiliation, Children's Hospital Boston and Harvard Medical School [2] Department of Surgery, Children's Hospital Boston and Harvard Medical School [3] Division of Biostatistics, Children's Hospital Boston [4] Department of Gastroenterology and Nutrition, Children's Hospital Boston and Harvard Medical School [5] Pediatric Transplant Center, Children's Hospital Boston and Harvard Medical School
8:36 - 8:43	4	OR	**Establishing Norms For Intestinal Length In Children** Marie-Chantal Struijs MD, Ivan R. Diamond MD, Paul W. Wales MD The Group for Improvement of Intestinal Function and Treatment (GIFT), The Hospital for Sick Children, Toronto, Canada
8:48 - 8:55	5	OR	**The Timing Of Stoma Closure After NEC** Stephanie Phillips [1], Suad Gholum [2], Jamal Alhudhaif [1], Pramod Puligandla [2], Helene Flageole [1] [1] McMaster Children's Hospital, McMaster University, Hamilton, ON, Canada [2] Montreal Children's Hospital, McGill University, Montreal, QC, Canada

9:00 - 9:07	6	O	**The Impact Of Centre Caseload Experience On Outcomes Of Biliary Atresia In Canada** R Schreiber [1], C Barker [1], EA Roberts [2], SR Martin [3] and the Canadian Pediatric Hepatology Research Group. [1] Dept of Pediatrics, University of British Columbia, Division of GI, BC Children's Hospital, Vancouver, BC [2]Depts of Pediatrics, Medicine and Pharmacology, University of Toronto, Division of Pediatric Gastroenterology, Hepatology and Nutrition, The Hospital for Sick Children, Toronto, Ontario [3] Dept of Pediatrics, Universite de Montreal, Division of Pediatric GI and Nutrition, L'Hopital Sainte Justine, Montreal, Quebec
9:12 - 9:19	7	OR	**Prognostic factors in Jejuno-Ileal atresia** BC Sathya Prasad [1]Elise Crete [1]Sarah Bouchard [1] [1]University of Montreal
9:20 - 9:45			**BREAK**
9:45 - 11:04			**Scientific Session II** **Moderators:** **Helen Flageole & Andrew Hong**
9:45 - 9:52	8	OR	**The incidence of pediatric IBD in Southwestern Ontario** Tanya Grieci [1], Andreana Bütter [1] [1] Division of Pediatric Surgery, The Children's Hospital of Western Ontario, London, Ontario
9:57 - 10:04	9	OR	**Delayed gastric emptying in the pediatric population: Does pyloroplasty matter?** Claudia M. Mueller, PhD, MD [1]Georges Beyrouthy, MD [2]Raymond Lambert, MD [3]Sophie Turpin, MD [3]Marie Claude Joseph, MD [1]Arie Bensoussan, MD [1] [1] Division of Pediatric Surgery, University of Montreal, Montreal, Quebec [2] Division of Pediatric Surgery, Hopital Hotel-Dieu de France, Beirut, Lebanon [3] Division of Nuclear Medicine, University of Montreal, Montreal, Quebec
10:09 - 10:16	10	OR	**Primary Omental Infarct in Children. Conservative or operative management in the era of Ultrasound, Computerized Tomography and Laparoscopy.** Gustavo Stringel, Whitney McBride,,Ayodeji Nubi, Alok Gupta,Adele Brudnicki Maria Fareri Children's Hospital, New York Medical College
10:21 - 10:28	11	OR	**Laparoscopic Assisted Ano-rectal Pullthrough (LAARP) for Ano-rectal malformations (ARM): A systematic Review and a plea for standardization of reporting** Omar Al-Hozaim [1], Aayed Al-Qahtani[2], Mohammed Zamakhshary[1] [1]King Abdulaziz Medical City- Riyadh, [2]King Saud university, Riyadh
10:33 - 10:40	12	O	**Interstitial cells of Cajal are found within the myenteric ganglia in human intestine** Marcos Bettolli[1], Claudio De Carli[1], Xuan-Yu Wang[2], Kheira Jolin-Dahel[3], Anthony Krantis[3], Louis W.C. Liu[2], Steven Rubin[1], William A.Staines[3], Jan D. Huizinga[2] [1]Department of General Surgery, Children's Hospital of Eastern Ontario, Ottawa, Ontario, [2]McMaster University,Hamilton [3]Department of Cellular and Molecular Medicine, Ottawa University
10:45 - 10:52	13	OR	**What is the optimal surgical treatment of nonparasitic splenic cysts in children?** C.J.H.M. Meeussen[1], F.T.J. Ferenschild[1], G.C.Madern[1], N.M.A.Bax[1] Erasmus MC – Sophia, Department of pediatric surgery, Rotterdam, The Netherlands

10:57 - 11:01	14	OR	**Beware of the New Lung Cyst** Madalsa Joshi BSc, J Michael Giacomantonio MD, Guy F. Brisseau MD Department of Surgery, Dalhousie University/IWK Health Center, Halifax, NS
11:05 - 12:00			**Professor Jose Boix-Ochoa** **JPS / Fred MacLeod Lecture** ***" The Ontogeny and Phylogeny of the Human Lung - A study of Cystic Adenomatoid Malformations "***
12:00 - 13:00			**BOX LUNCH**
12:15 - 13:15			**2 MIN - 2 SLIDES - VIDEOS**
13:20 - 13:40			**CAPSNET UPDATE** Dr. Erik Skarsgard
13:40- 14:00			**Poster previewing** Moderator : Ken Gow
14:00- 15:15			**Scientific Session III - POSTER PRESENTATIONS** 5 MINUTES EACH
	15	OR	**Weight Gain in Infants with GERD Managed with Medication or Nissen Fundoplication** J Baerg, D Shores, G Yanni, W Fung, E Tagge , D Deming All Authors, Loma Linda University Children's Hospital
	16	OR	**The Impact of Duration of Symptoms on The Post-operative Outcome of Hypertrophic Pyloric Stenosis** A. Alshehry [1], M. Alsayegh [2], A. Alzahem [1], M. Zamakhshary [2], A. Aljazaeri [1]. [1] King Khalid University Hospital [2] King Fahad National Guard Hospital
	17	OR	**Minimally Invasive Heller Myotomy in Children: Safe and Effective** Askegard-Giesmann JR [1], Grams JM [1], Hanna AM [1], Iqbal CW [1], Teh S [1], Moir CR [2] [1] Department of General Surgery, Mayo Clinic, Rochester, MN [2] Department of Pediatric Surgery, Mayo Clinic, Rochester, MN
	18	C/T	**A new technique for tracheomalacia caused by innominate artery compression of trachea in three patients with neuromuscular disorders** Yukihiro Tatekawa, Tetsuo Hori, Yasuhisa Urita, Sumi Kudou, Hiroaki Komuro[1], and Michio Kaneko Department of Pediatric Surgery, University of Tsukuba
	19	OR	**Pulmonary function after early vs. late lobectomy during childhood: a preliminary study** Richard Keijzer [1]Priscilla P.L. Chiu [2]Felix Ratjen [2]Jacob C. Langer [2] [1] ErasmusMC-Sophia Rotterdam, The Netherlands [2] The Hospital for Sick Children, University of Toronto, Toronto, ON, Canada
	20	OR	**Management of prenatally diagnosed abdominal lymphangiomas** Carol Oliveira [1]Martin Meuli [1]Peter Sacher [1] Department of Pediatric Surgery University Children's Hospital Zürich, Switzerland
	21	OR	**Risk Stratification in Gastroschisis: Can Prenatal Evaluation or Early Postnatal Factors Predict Outcome?** Ryan P. Davis[1]Marjorie C. Treadwell[3]Robert A. Drongowski[2]Daniel H. Teitelbaum[2]George B. Mychaliska[2] [1]University of Michigan Medical School [2]Section of Pediatric Surgery, Department of Surgery, C. S. Mott Children's Hospital [3]Division of Maternal Fetal Medicine, Department of Obstetrics and Gynecology

	22	OR	**Right-Sided Congenital Diaphragmatic Hernia: High Utilization of ECMO and High Survival** Benjamin S. Bryner [1], Anne C. Kim [2], Joseph S. Khouri [1], Robert A. Drongowski [2], Ronald B. Hirschl [2], Steven W. Bruch [2], George B. Mychaliska [2] [1] University of Michigan Medical School ; [2] Section of Pediatric Surgery, Department of Surgery, C. S. Mott Children's Hospital
	23	OR	**Rare Biliary Pathology Encountered In Neonatal Ecmo-Patients** Luc E.M. Matthyssens. MD [1], Ivo de Blaauw, MD, PhD [1], Arno van Heijst, MD, PhD [2], Frans H.J. van der Staak, MD, PhD [11] Dept. of Pediatric Surgery, Radboud University Medical Centre, Nijmegen, The Netherlands [2] Neonatal Intensive Care Unit, Department of Pediatrics, Radboud University Medical Centre, Nijmegen, The Netherlands
	24	OR	**Management of Perianal Sepsis in Children** Anindya Niyogi Tushar Agarwal Jack Broadhurst Robin Abel Chelsea and Westminster Hospital, London SW10 9NH
	25	OR	**Relationship of serum C-reactive protein and blood glucose with injury severity and hospitalization in pediatric trauma critical care** Lisa N. Brunengraber [1], Ann V. Robinson [2], Walter J. Chwals [1] [1] Division of Pediatric Surgery, Rainbow Babies and Children's Hospital, Case Western Reserve University School of Medicine, Cleveland, Ohio, USA [2] Department of Surgery, University Hospitals Case Medical Center, Cleveland, Ohio, USA
	26	OR	**Management of blunt splenic injury in children: evolution of the non-operative approach over 50 years** Dafydd A. Davies [1] Richard H. Pearl [2] Sigmund H. Ein [1] Jacob C. Langer [1] Paul W. Wales [1] [1] Division of General Surgery, The Hospital for Sick Children, Toronto, Canada [2] Division of General Surgery, Children's Hospital of Illinois, Peoria, USA
15:15 - 15:30			**BREAK**
15:30- 17:30			**Scientific Session IV** **Moderators:** **Dr. Ted Gerstle and George Azzie** **CAPS International Paediatric Surgery Symposium** **Sick Kids - No Boundaries - OPSEI Global - UBC**

SATURDAY, AUGUST 23th,2008

8:00 - 9:24			**Scientific Session V** **Moderators:** **Sigmund Ein & Ricardo Superina**
8:00 - 8:07	27	OR	**Paediatric cervical spine injury: Review of 106 patients** Al-Balushi Z [1], Bolduc S [1], St-Vil D [1], Parent S [2] [1] CHU Sainte-Justine, Division of Pediatric Surgery [2] CHU Sainte-Justine, Division of Orthopaedic Surgery
8:12 - 8:19	28	OR	**The Canadian C-spine Rule and The National Emergency X-Radiography Utilization Low Risk Criteria for C-spine radiography in young trauma patients.** Christopher Wee Jeff Proan Ankur Rana Robert Drongowski Peter Ehrlich University of Michigan Department of Pediatric Surgery , Ann Arbor Michigan
8:24 - 8:31	29	OR	**Paediatric Blunt And Penetrating Trauma Deaths In Ontario: A Population Based Study** Ivan R. Diamond MD[1], Patricia C. Parkin MD[1], Paul W. Wales MD[1], Desmond Bohn MD[1], Margaret Kreller CHIM[1], Evelyn H. Dykes MBChB[2], Barry A. McLellan MD[3], David E. Wesson MD[4] [1]The Hospital for Sick Children, Toronto, Canada. [2]Royal Aberdeen Children's Hospital, Aberdeen, Scotland. [3]Sunnybrook Health Sciences Center, Toronto, Canada. [4]Texas Children's Hospital, Houston, United States of America.
8:36 - 8:43	30	OR	**Management of blunt splenic injuries in children in Canada – Practices and Opinions** Debbie Li Dr. Natalie Yanchar Division of Paediatric General Surgery, IWK Health Centre, Dalhousie University, Halifax
8:48 - 8:55	31	CR	**Spindle Epithelial Tumor With Thymus-Like Elements: A National Case Series And Review Of The Literature** Jeremy R. Grushka [1], Jon Ryckman [1], Claudia Mueller [3], Anthony de Buys Roessingh [3], J. Mark Walton [2], Dickens St. Vil [3], Jean-Martin Laberge [1], Van-Hung Nguyen [4], and Pramod Puligandla [1] [1]Division of Pediatric Surgery, The Montreal Children's Hospital, Montreal, Quebec, Canada [2]Division of Pediatric Surgery, McMaster's Children Hospital, Hamilton, Ontario, Canada [3]Division of Pediatric Surgery, Centre Hospitalier Sainte-Justine, Montreal, Quebec, Canada [4]Division of Pediatric Pathology, The Montreal Children's Hospital, Montreal, Quebec, Canada
9:00 - 9:07	32	OR	**Desmoplastic small cell tumor: A new therapy approach** Al-Balushi Z , Mueller CM , Lallier M Division of Pediatric Surgery, CHU Sainte-Justine, Montreal (Quebec) CANADA
9:12 - 9:19	33	OR	**Pilonidal Disease in the Pediatric Patient: What is the Best Treatment? A 35 Year Study** Ahmed Nasr , Sigmund H. Ein Hospital for Sick Children, Toronto
9:24 - 9:45			**BREAK**

9:45 - 11:09			**Scientific Session VI** **Moderators:** **Sarah Jones & Saud Al-Shanafey**
9:45 - 9:52	34	OR	**A New Minimal Invasive Technique For The Repair Of Femoral Hernia In Children** Luc E.M. Matthyssens, MD [1,2], Paul Philippe, MD [2], Frans H.J. van der Staak, MD, PhD [1] [1] Dept. of Pediatric Surgery, Radboud University Medical Centre, Nijmegen, The Netherlands [2] Dept. de Chirurgie Pédiatrique, Clinique Pédiatrique, Centre Hospitalier de Luxembourg, Luxembourg
9:52 - 10:04	35	OR	**Laparoscopic Orchidopexy: The easy way to go** BC Sathya Prasad [1]Diego Barrieras Anne-Marie Houle Julie Franc-Guimond University of Montreal
10:09 - 10:16	36	OR	**Operative innovations to the "Nuss" procedure** Ali Al-Assiri, Dragan Kravarusic, Bryan Dicken, Kris Milbrandt, Victor Wong, avid L. Sigalet Alberta Children's Hospital
10:21 - 10:28	37	O	**Laparoscopic Duodenoduodenostomy in the Neonate** Saundra Kay, Suzanne Yoder, Steve Rothenberg Rocky Mountain Hospital for Children, Denver, Colorado
10:33 - 10:40	38	O	**Etiology and management of pancreatic pseudocysts in children: A multicenter review.** S. Uddin[1], A. Roy[1,2], T. Gerstle[2], J. Bass[3], P. Fitzgerald[1] Divisions of Pediatric Surgery: [1]McMaster Children's Hospital, Hamilton, Ontario; [2]Hospital for Sick Children, Toronto, Ontario; [3]Children's Hospital of Eastern Ontario, Ottawa, Ontario
10:45 - 10:52	39	OR	**Laparoscopic versus Open Pancreatectomy for Persistent Hyperinsulinemic Hypoglycemia of Infancy** Saud Al-Shanafey MD King Faisal Specialist Hospital and Research Center Riyadh, Saudi Arabia
10:57 - 11:04	40	OR	**Robot-assisted Pediatric Surgery: Safety and Feasibility** Abdullah Alshehri[1]Abdullrahman Albassam [1]Mohammed Zamakhshari [2]Mohammed Shoukri [1] Tariq Altokhais [1]Ayman Aljazairi [1] Abdullrhman Alzahim [1]Mohammed Mallik [1]Aayed Alqahtani [1] [1] College of medicine, King Saud University, Riyadh, Saudi Arabia [2] King Abdullaziz Medical City, Riyadh, Saudi Arabia
11:09 - 11:25			**BREAK**

11:25 - 12:37			**Scientific Session VII** **Moderators:** **Ioana Bratu & Andrew Zigman**
11:25 - 11:32	41	OR	**Is timing everything? The influence of gestational age and intended and actual route of delivery on outcome in gastroschisis** Boutros, John [1]; Regier, Michael D. [2]; Skarsgard, Erik D. [3] and the Canadian Pediatric Surgery Network (CAPSNet)
11:37 - 11:44	42	O	**Predicting the outcome of gastroschisis** Nathaniel R. Payne [1]Aubrey Johnson [1]Kathleen M. Pfleghaar [2]Barbara G. Assel [2]R. Hampton Rich [3] [1] Department of Neonatology, Children's Hospitals and Clinics of Minnesota [2] Minnesota Perinatal Physicians, Abbott Northwestern Hospital [3] Department of Surgery, Children's Hospitals and Clinics of Minnesota
11:49 - 11:56	43	OR	**The Effect Of Hospital Case Volume On Outcome In Congenital Diaphragmatic Hernia (CDH)** Jeremy R. Grushka[1], Jean-Martin Laberge[1], Pramod Puligandla[1], Erik D. Skarsgard[2] And The Canadian Pediatric Surgery Network
12:01 - 12:08	44	OR	**Whatever happened to the "Hidden mortality" in Congenital Diaphragmatic Hernia (CDH)?** V. Kandice Mah[1], Doug Y. Mah[2], Brian Cameron[2], Juan Bass[1], Desmond Bohn[4], Leslie Scott[3], Mohammed Zamakhshary[4], Mark Walker[1], Peter CW Kim [4] 1 Children's Hospital of Eastern Ontario, Ottawa, Ontario 2 McMaster University, Hamilton, Ontario 3 London Health Sciences Center, London Ontario 4 Hospital for Sick Children, Toronto, Ontario, Canada.
12:13 - 12:20	45	OR	**A Multi-Institutional Review of Central Venous Line Complications: Retained Intravascular Fragments** Milbrandt, K [1]; Beaudry, P [1]; Giacomantonio, M[2]; Jones, SA [3]; Sigalet, D [1] [1] Alberta Children's Hospital, Calgary AB [2] IWK Children's Hospital, Halifax NS, [3] Kingston's Children's Center, Kingston ON
12:25 - 12:32	46	OR	**The use of transanastomotic feeding tubes at the time of esophageal atresia repair.** Alabbad S.I, Ryckman J, Puligandla P.S, Shaw K, Nguyen L.T and Laberge J-M Division of Pediatric Surgery.The Montreal Children's Hospital, Montreal, Quebec, Canada
12:45			**CAPS BUSINESS LUNCH**

SUNDAY, AUGUST 24th,2008

8:00 - 9:24			Scientific Session VIII Moderators: Geoffrey Blair & Michael Giacomantonio
8:00 - 8:07	47	O	**Classification and appraisal of the level of evidence of publications from the Canadian Association of Pediatric Surgeons over the past ten years** K. Al-Harbi[1,2], F. Farrokhyar[2,3], S. Mulla[1,2], P. Fitzgerald[1,2] [1]Division of Pediatric Surgery, McMaster Children's Hospital; [2]Departments of Surgery and [3]Clinical Epidemiology and Biostatistics, McMaster University, Hamilton, Ontario, Canada
8:12 - 8:19	48	O	**Esophagus Tissue Engineering: In-Vitro Generation Of Esophageal Epithelial Cell Sheets And Viabilty On Scaffold** Amulya K. Saxena,MD, Herwig Ainodhofer and Micheal E. Höllwarth,MD Department of Pediatric Surgery, Medical University of Graz, Austria
8:24 - 8:31	49	O	**Experimental Replacement of Tracheal Defect** Yukihiro Tatekawa [1], Yoshito Ikada [2], Hiroaki Komuro [1], Michio Kaneko [1] [1] Department of Pediatric Surgery, University of Tsukuba [2] Department of Bioenvironmental Medicine, Nara Medical University
8:36 - 8:43	50	O	**Growth modulation of the thoracic cage in a fetal ovine model: a preliminary study.** Sarah Bouchard [1], Stefan Parent [2], Denise Carrier, Véronique Pellerin Sainte-Justine Hospital,Montreal Quebec Canada [1] Pediatric general surgery [2] Pediatric orthopaedic surgery
8:48 - 8:55	51	O	**Management Of Congenital Pouch Colon Based On The Anatomic Morphological Classification** Praveen Mathur,MD [1], Amulya K. Saxena,MD [2], Anita Simlot,MD [3] [1] Department of Pediatric Surgery, RNT Medical College, Udaipur, India, [2] Department of Pediatric Surgery, Medical University of Graz, Austria, [3] Department of Obstetrics & Gynecology, RNT Medical College, Udaipur, India
9:00 - 9:07	52	O	**Benefits Of Specialist Paediatric Surgery Experience In Humanitarian Surgery Overseas** Evelyn Dykes Royal Aberdeen Children's Hospital, Aberdeen, Scotland
9:12 - 9:19	53	O	**The concept of telesimulation for teaching surgical and procedural skills in developing countries** Georges Azzie, Allan Okrainec Hospital for Sick Children. University of Toronto
9:24 - 9:45			**CAPS travelling resident talk Dr. Tuan Pham**
9:45 - 10:15			**Morning BREAK**

11:25 - 12:37			Scientific Session IX COMPLICATIONS IN PAEDIATRIC SURGERY Moderators: Jean Martin & Natalie Yanchar
10:15 - 10:20	Complication		**INTRODUCTION**
10:20 - 10:24	54	NO	**Attention to Small Details: Big Deal for PEGs** Ioana Bratu Stollery Children's Hospital, University of Alberta
10:24 - 10:28	55	YES	**Serious complications from gastrostomy tube changes** Alana L. Beres Jean-Martin Laberge Montreal Children's Hospital, McGill University
10:28 - 10:34	56	NO	**Major reduction in complications after laparoscopic assisted percutaneous endoscopic gastrostomy in children who had previous upper abdominal surgery.** D. Vervloessem[1], F. van Leersum[2], D. Boer[2], J.C. Escher[2], G.C. Madern[1], L. de Ridder[2], Klaas(N) M.A Bax[1] Department of Pediatric Surgery[1] and Pediatric Gastro-enterology[2], Erasmus MC- Sophia, Rotterdam, The Netherlands
10:34 - 10:44			DISCUSSION
10:44 - 10:53	57	NO	**Cardiac injury sustained during a sternochondroplasty by the NUSS technique** Sarah Bouchard. Sainte-Justine Hospital. Montreal, Canada
10:48 - 10:53			DISCUSSION
10:53 - 10:57	58	NO	**Lethal complication after percutaneous needle aspiration of a presumed simple neonatal ovarian cyst** Saundra Kay, Sherif Emil, Pramod Puligandla, Jean-Martin Laberge The Montreal Children's Hospital
10:57 - 11:02			DISCUSSION
11:02 - 11:06	59	YES	**Migration of Prosthetic Patch into the Small Intestine** Omar Al-Hozaim, Jamila Al-Marry, Mohammad Al-Namshan King Abdulaziz Medical City- Riyadh
11:06 - 11:11			DISCUSSION
11:11 - 11:17	60	YES	**Skin erosion over totally implanted vascular access devices in children** Juan Bass[1] and Jacqueline M. Halton [2] Department of Surgery [1] and Pediatrics[2] Children's Hospital of Eastern Ontario, Ottawa.
11:17 - 11:21	61	NO	**Paraplegia after chest wall resection for primitive neuroectodermal tumor.** Jon Ryckman, Jean-Martin Laberge, Pramod Puligandla Division of Pediatric Surgery, Montreal Children's Hospital, Montreal, Quebec
11:21 - 11:26			DISCUSSION
11:26 - 11:30	62	YES	**Neo-esophageo – pericardial fistula in a child with retrosternal gastric tube esophageal replacement** Omar Al Hozaim [1] Ahmed Abdalwahab [2] Mohammed Namshan-Alghamdi [1] Abdullah AlRabeeah [1] [1] King AbdulAziz Medical City - Riyadh, Kingdom of Saudi Arabia [2] King AbdulAziz Medical City - Jeddah, Kingdom of Saudi Arabia
11:30 - 11:35			DISCUSSION
11:35 - 11:55			**PRESENTATION BY CMPA: Dr. Jacques Guilbert** Medico-legal Pitfalls in Paediatric Surgery
11:55 - 12:10			DISCUSSION
12:10 - 12:15			**President's Closing Remarks - Dr. Geoffrey Blair**

Minimal Access Surgery (MAS) Simulator Usage In Pediatric Surgery Training

David Lasko[1], Mohammed Zamakhshary[1,2], J. Ted Gerstle[1]

[1] **The Hospital for Sick Children, Toronto, Canada**
[2] **King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia**

Background/Purpose: In the current time-restricted training environment, simulator usage in surgical teaching is receiving increasing attention. This study assessed how widely simulators are used and attitudes towards their effectiveness in training.

Methods: Surveys were e-mailed to all current North American pediatric surgery trainees (PST) and training program directors (PD). Queries examined respondents' perceptions about MAS simulators' usefulness, to what extent they are used and obstacles to usage.

Results: Response rates were (47% in PD and 67% in PT). Nearly all respondents felt MAS simulators improve training efficiency (88%) and that exposure should be maximized (83%); about half (55%) reported regular simulator availability to trainees. Less than half of fellows (42%) and training directors (45%) felt current simulators had actually significantly improved trainees' skills. Approximately 80% of programs have no simulation curriculum as part of the training program. Patient-care responsibilities and lack of funding were cited as the most common obstacles to the use of simulators (59.6% and 42.6%)respectively.

Conclusions: Respondents highly valued simulator usage in pediatric surgery training. However, most did not feel that current simulators had actually improved the trainees' MAS skills. Wider availability and more advanced simulation models, and protected time for using them, could enhance their impact upon pediatric surgery training.

Original Paper
Trainee Presentation

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Paper 2

Relationship Between Serum Citrulline Levels And Progression To Parenteral Nutrition Independence In Children With Short Bowel Syndrome

Shimae Fitzgibbons, MD [1,2] Y. Avery Ching, MD [1,2] Julie Iglesias, CPNP [1,2] Clarissa Valim, MD, ScD [2,4] Jing Zhou, MS [2,4] Christopher Duggan, MD [1,3] Tom Jaksic, MD, PhD [1,2]

[1] Center for Advanced Intestinal Rehabilitation, Children's Hospital Boston
[2] Department of Surgery, Children's Hospital Boston
[3] Department of Gastroenterology and Nutrition, Children's Hospital Boston
[4] Division of Biostatistics, Children's Hospital Boston

Background/Purpose: While bowel length is an important prognostic variable used in the management of children with short bowel syndrome (SBS), reliable measurements can be difficult to obtain. Plasma citrulline levels (CIT) have been proposed as surrogate markers for bowel length. We sought to evaluate the relationship between CIT and parenteral nutrition (PN) independence in children with SBS.

Methods: Retrospective chart review performed for all patients seen in a multidisciplinary pediatric intestinal rehabilitation clinic with a recorded CIT between January 2005 and December 2007 (n=32).

Results: Median age at time of CIT determination was 2.3 years (range 0.1 to 41). Diagnoses included necrotizing enterocolitis(22%), intestinal atresias(19%) and gastroschisis(19%). CIT correlated well with bowel length (R=0.67, p

Conclusions: Plasma citrulline levels are strong predictors of PN independence in children with SBS, and correlate well with a patient's recorded bowel length. A cutoff CIT level of 17 umol/L may serve as a prognostic measure in counseling patients regarding the likelihood of future PN independence.

Original Paper
Trainee Presentation

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

Senior Author: Tom Jaksic, MD, PhD, FRSCS

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Long-Term Nutritional And Clinical Outcomes Following Serial Transverse Enteroplasty At A Single Institution

Y. Avery Ching [1,2] Shimae Fitzgibbons [1,2], Clarissa Valim [2,3], Jing Zhou [3], Christopher Duggan [1,4], Heung Bae Kim [1,5], Tom Jaksic [1, 2]

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[5] Pediatric Transplant Center, Children's Hospital Boston and Harvard Medical School

Background/Purpose: Serial transverse enteroplasty (STEP) is a novel technique to lengthen and taper bowel in patients with short bowel syndrome (SBS). There are limited reports of long-term outcomes following STEP. We sought to describe long-term nutritional and clinical outcomes of SBS patients who underwent STEP at a single institution.

Methods: We reviewed all patients (n=16) who underwent STEP from February 2002 to February 2008. Analyses of Z-scores for height, weight, and weight-for-height, were performed to 48 months post-operatively. Random effects models were used to assess changes in post-STEP outcomes.

Results: 16 patients (10 male; median age 12 months; IQR 1.5, 65.0) had mean increases in bowel length of 91% (38% SD). Following STEP, patients had increased height for age Z-scores of 0.24 units/year (p=0.004), weight for age Z-scores of 0.26 units/year (p=0.0001), and weight-for-height Z-scores of 0.28 units/year (p=0.02). Patients improved enteral tolerance of 1.4%/month (p

Conclusions: In pediatric patients with SBS, the STEP procedure improves enteral tolerance, results in significant catch-up growth, and is not associated with increased mortality.

Original Paper
Trainee Presentation

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Paper 4

Establishing Norms For Intestinal Length In Children

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Background/Purpose: Existing data on normal intestinal length (IL) are limited because most studies report post-mortem measurements. Using prospective data, appropriate norms for pediatric IL were developed.

Methods: IL measurements, using a silk suture on the antimesenteric border, were made on patients between 24 weeks gestational age (GA) and 5 years of age undergoing laparotomy. Patients with gastrointestinal malformations or those outside 2 standard deviations for growth parameters were excluded. The relationship between IL, age, weight and height at surgery were examined using multivariable linear regression.

Results: Data from 108 patients were used in the development of IL norms. Small Bowel length increased from a mean of 70cm (standard error (SE) 6.3) in those 24-26 weeks GA to 423.9cm (SE 5.9) at 49-60 months. Colon length increased from 22.7cm (SE 2.0) to 122.4cm (SE 5.7) at 24-26 weeks and 49-60 months, respectively. Age was the only significant predictor of IL. On this basis, reference tables by age were created for IL.

Conclusions: In estimating predicted bowel length, the tables created in this prospective study for children of various ages should provide greater accuracy than previous post-mortem data. These results have both clinical and research application, especially in the short bowel population.

Original Paper
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The Timing Of Stoma Closure After NEC.

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Background/Purpose: Newborns undergoing surgery for necrotizing enterocolitis (NEC) often require a stoma. The study purpose is to determine if the timing of stoma closure impacts the post-operative course.

Methods: After obtaining IRB approval, records of patients with NEC who received a stoma between 2003 and 2007 at 2 pediatric institutions were reviewed. Data collected included time interval between stoma creation and closure, indication for closure, post-operative complications, time to feeds, length of NICU and hospital stays. For analysis purposes, patients were divided in 2 groups: 1- stoma closed within 10 weeks, and 2- stoma closed more than 10 weeks after construction.

Results: There were 37 patients; 13 in Group 1, and 24 in Group 2. Group 1 babies were ventilated longer post-op (7.69 vs. 1.08 days; p=0.0006). They required TPN for more days (51.62 vs. 16.30 days; p=0.0486). Group 1 patients took longer to reach full po (19.08 vs 7.86 days; p=0.027) and they had a longer LOS post reversal (113.08 vs. 31.32 days; p=0.0373). No differences were observed in survival rates or anastomotic complications.

Conclusions: The timing of stoma reversal significantly impacts the post-operative course after NEC. Unless seriously indicated, stoma closure should be deferred until at least 10 weeks post creation.

Original Paper
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Paper 6

The Impact Of Centre Caseload Experience On Outcomes Of Biliary Atresia In Canada

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Background/Purpose: Our study of biliary atresia outcomes in Canada (1985-2002) reported an overall 4 yr post Kasai (HPE)survival with native liver of 36% with optimal survival in those with HPE at < 30 days. (J Pediatr 2007 151:659-65). Herein we examine the role of centre experience on outcome.

Methods: BA patients born between Jan 1,1992 and December 31, 2002 were followed at one of 12 Canadian university pediatric hospitals. Centres categorized into small, medium or large respectively, if 3 HPE operations were performed annually. Statistical analyses used T tests and Kaplan-Meier curves.

Results: There were 6 small, 4 medium and 2 large centres managing 36, 74 and 120 cases respectively. There was no difference (NS)in HPE rates between centres. Median age at HPE was lower in medium centres compared with others (56 vs. 66 days)(p=0.05). The 4 yr patient and post HPE native liver survival were 84% and 39% respectively (NS between centres). There was a trend towards improved HPE native liver survival in centres managing >5 cases/yr. (p=0.19)

Conclusions: In Canada, BA patient outcomes do not appear to be influenced by centre caseload experience. Overall, outcomes in Canada are comparable to those in Europe and elsewhere.

Original Paper

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Prognostic Factors In Jejuno-Ileal Atresia

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Background/Purpose: Jejuno-Ileal atresia (JIA) is a common cause of neonatal bowel obstruction. Motility problems, bacterial overgrowth and TPN dependence are not an uncommon cause of morbidity and mortality. We looked into the prognostic factors that affect outcome in this group.

Methods: Retrospective review of 63 patients (34 male) diagnosed with JIA over a thirty year period (1975-2005).

Results: The mean gestational age of the study set was 36-weeks and mean birth weight 2858g. There were 14 Type-I, 14 Type-II, 16 Type-III, 9 Type-IV, and 10 Type-V atresias. 33 patients (52%) had associated anomalies. 51 patients underwent resection-anastamosis, 5 Bishop-Koop procedure, 5 ileostomies, and 1 strictureplasty. Nine patients needed reoperations for adhesions before the first year of life. Intestinal dilatation severe enough to warrant surgical intervention was seen in 7 of 35 patients(20%)with the more severe variants of atresia (Type-III and higher).Five tapering procedures, 1 Bianchi operation and 1 STEP procedure were performed. Average hospital stay was 41 days(8-332 days).Fifty-six patients were alive at follow-up averaging 1.7 years(6 months-11 years).There were 7 deaths (11%). Most patients who died had associated anomalies(P=0.017) or Type-IV / V atresias(p=0.007).

Conclusions: Mild atresias have an excellent prognosis and long term survival. Severe atresias have a higher incidence of secondary procedures for intestinal failure. Close follow-up in intestinal rehabilitation programs should be considered for neonates with severe atresias.

Original Paper
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Paper 8

The Incidence Of Pediatric IBD In Southwestern Ontario

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Background/Purpose: Despite a rising worldwide incidence of inflammatory bowel disease (IBD), little data exists on Canadian children. We reviewed the incidence of IBD in all children ≤ 17 yrs of age in Southwestern Ontario.

Methods: A chart review from 1997-2006 revealed 123 children with IBD. Patients were divided into 2 groups according to year of diagnosis: Group 1=1997-2001 and Group 2=2002-2006. Our catchment population was determined from Census data.

Results: Gender (Group 1=32 females; Group 2=28 females, p=0.42) and age (Group 1=12.4+/-3.6;Group 2=12.9+/-3.5,p=0.43) were similar between groups. Although the overall incidence of IBD decreased (Group 1=14.3 cases/100,000;Group 2=12.4 cases/100,000,p=0.7), the incidence of Crohn's nearly doubled (Group 1=3.5 cases/100,000;Group 2=6.01 cases/100,000,p=0.003) while the incidence of ulcerative colitis (UC) decreased significantly (Group 1=10.6 cases/100,000;Group 2=6.01 cases/100,000,p=0.02). The incidence of indeterminate colitis was 0.2 cases/100,000 for Group 1 and 0.4 cases/100,000 for Group 2. The rate of surgical intervention decreased over time, with 43% of pts requiring surgery in Group 1 and 31% in Group 2 (p=0.17).

Conclusions: Despite a slight decrease in pediatric IBD incidence in Southwestern Ontario, the incidence of Crohn's disease has nearly doubled over the last decade. Reasons for this remain unclear although given the relatively short time interval, environmental factors seem more likely.

Original Paper
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Delayed Gastric Emptying In The Pediatric Population: Does Pyloroplasty Matter?

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Background/Purpose: The utility of gastric emptying studies for the pre-operative workup of gastro-esophageal reflux disease (GERD) has long been debated. Proponents of these studies argue that in cases of delayed gastric emptying, pyloroplasty protects gastric fundoplication from pressure caused by stasis of stomach contents. We examine the effect that pyloroplasty has on patient tolerance of fundoplication and gastrostomy.

Methods: The charts of 101 patients who underwent gastric emptying studies with technetium-tagged liquids or solids from January, 1999 to December, 2006 were reviewed.

Results: 52 patients had slow gastric emptying: 23 underwent pyloroplasty in conjunction with fundoplication (26%) or gastrostomy (30%) or both (44%). The remaining 29 children with delayed emptying did not have pyloroplasty. These "untreated" children nonetheless displayed good tolerance of their surgical procedures. Indeed, it was the children who underwent pyloroplasty who more frequently showed post-operative dumping syndrome (13% vs. 3%). No significant differences were noted between the two groups in terms of post-operative GERD.

Conclusions: Over half of the children diagnosed with delayed gastric emptying by nuclear medicine studies did not undergo pyloroplasty. These children suffered no consistent adverse consequences from their slow gastric voiding. Pyloroplasty offered no clear benefit to patients after fundoplication and gastrostomy.

Original Paper
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Primary Omental Infarct In Children. Conservative Or Operative Management In The Era Of Ultrasound, Computerized Tomography And Laparoscopy.

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Background/Purpose: Primary omental infarct is a rare condition in children. The preoperative diagnosis can be accurately accomplished by the use of ultrasound (US) and Computerized Tomography (CT). We reviewed the cases of omental infarction in children diagnosed preoperatively in our institution since laparoscopy has been the standard of care. We compared conservative versus operative management.

Methods: We treated 10 cases of omental infarction in children. There were 6 males and 4 females. Ages varied from 5 to 14 years of age. The diagnosis was made preoperatively in all of them by CT scan; in two cases, US was also diagnostic.
Conservative non operative management was successfully done in 4 cases and laparoscopic omentectomy and appendectomy done in the other 6.

Results: There was no mortality. All children recovered uneventfully. Postoperative average hospital stay was 4 days for patients treated non-operatively and 48 hours for children treated with laparoscopy. Three patients initially treated conservatively were operated because of intractable pain. The preoperative stay was 3 days in these patients.

Conclusions: Children with omental infarct can be treated conservatively. The indications for surgical intervention are uncertain diagnosis, intractable relentless pain, and persistent peritoneal findings. Children treated with laparoscopy had a shorter length of stay and decreased use of narcotics.

Original Paper
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Laparoscopic Assisted Ano-Rectal Pullthrough (Laarp) For Ano-Rectal Malformations (Arm): A Systematic Review And A Plea For Standardization Of Reporting

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Background/Purpose: LAARP is becoming increasingly common in high and intermediate ARM. The aim of this review was to evaluate the worldwide experience of LAARP with regard to indications, outcomes and quality of reporting.

Methods: A Systematic review was conducted. Search was limited to studies reported in English, and performed in Humans. In addition to Medline and pubmed, a manual search of JPS, PSI, Surgical Endoscopy and Journal of laparoendoscopic & advanced surgical techniques between the years 2000-2007 was conducted.

Results: 15 studies were included. Of included studies, non were randomized, 2 were prospective and 4 compared outcomes of PSARP and LAARP. Studies included 113 patients (85M, 28F), 80% were high/intermediate malformations. All studies reported short-term outcomes. Outcomes reported included: continence in 10 studies, rectal prolapse in 5, the position of the rectum was assessed in 7 studies using Kelly score and manometry (1), contrast enema (1), post anal endo-sonography (3) and post-operative MRI (3). Outcomes reported varied widely between reports precluding a meta-analysis.

Conclusions: The number of studies dealing with LAARP is low. There is an urgent need for improving quality and standardizing reporting in LAARP research to allow for evidence based surgical decision-making

Original Paper
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Paper 12

Interstitial Cells Of Cajal Are Found Within The Myenteric Ganglia In Human Intestine

Marcos Bettolli[1], Claudio De Carli[1], Xuan-Yu Wang[2], Kheira Jolin-Dahel[3], Anthony Krantis[3], Louis W.C. Liu[2], Steven Rubin[1], William A.Staines[3],Jan D. Huizinga[2]

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Background/Purpose: Interstitial cells of Cajal (ICC) in the human bowel are closely associated with the nervous system. We noted that in human ICC surrounding the myenteric plexus (ICC-MP) penetrate the ganglia. We hypothesized that ICC within the ganglia form synapse-like junctions with nerve varicosities to facilitate coordination of ICC pacemaker activity together with nerve function.

Methods: Segments of resected bowel of 16 children, were investigated using c-Kit for ICC and PGP9.5 or vAChT to reveal the ganglia. Specimens were analyzed and quantified using image analysis. Ultrastructural studies were carried out with electron microscopy (EM.

Results: ICC-MP processes and entire ICC, were found within the boundaries of the ganglionic capsule (intraganglionic ICC, ICC-IG), amongst the ganglionic neurons and in direct contact with intraganglionic nerve structures. ICC-IG were not seen in all patients. EM studies confirmed contacts between nerve structures and ICC, consisting of intimate membrane-to-membrane appositions as well as synapse-like junctions.

Conclusions: We showed for the first time in human bowel the existence of ICC-IG. We confirmed the intimate relationship between ICC-IG and ICC-MP and nerve structures, establishing synapse-like junctions. Further investigations will be required to determine if these close connections are crucial for the fine coordination of ICC pacemaker activity together with nerve function.

Original Paper
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What Is The Optimal Surgical Treatment Of Nonparasitic Splenic Cysts In Children?

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Background/Purpose: Nonparasitic splenic cysts are rare. There is no 'evidence-based' information regarding their optimal surgical management. Recurrence of splenic cysts after laparoscopic or open deroofment with omentoplasty seems to be common but reported series are small. Reports of partial splenectomy suggest lower recurrence rate. This study aimed to evaluate the clinical outcome of our patients.

Methods: In the period between October 1994 and February 2008, seven patients were treated. Age was between 12 and 16 years. Six underwent laparoscopic and one open deroofment in combination with omentoplasty. In five the inner surface was also electrocoagulated.

Results: Recurrence occurred in five out of seven patients. Median time to recurrence was 10.5 months. Reoperation for symptomatic recurrence was necessary in three patients. There was no mortality and no perioperative complications. Pathological findings were not related to recurrence.

Conclusions: Deroofment of symptomatic splenic cysts, also when performed laparoscopically, is associated with a high recurrence rate. Other techniques should be used in the treatment of splenic cysts. It may be that partial splenectomy is a better option.

Original Paper

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Paper 14

Beware Of The New Lung Cyst

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Background/Purpose: Pleuropulmonary blastoma (PPB) is a rare childhood malignancy. Patients present with varied symptoms including upper respiratory tract infections, spontaneous pneumothorax, or incidental findings on chest radiograph. Preoperative diagnosis is unusual.

Methods: Patient records from 1987-2007 at the IWK Health Centre were searched and all cases of PPB were identified

Results: Patient 1, a 2 year old boy, presented with a 2 week history of cough. A subsequent chest radiograph revealed what appeared to be a right-sided tension pneumothorax, unresponsive to chest tube. CT scan suggested a large right-sided unilocular simple cyst 15x12cm compressing normal lung tissue and deviating the mediastinum. Normal lung tissue was confirmed with nuclear medicine flow study. Chest radiograph done one year prior to this was normal. Patient 2, a 9 year old boy, presented with recurrent pneumothoraces, which were responsive to chest tube. Pre-operative CT scan revealed a 3.4x3.3cm unilocular simple cyst in the left upper lobe. Both patients underwent a non-segmental resection. Pathological analyses unexpectedly revealed type 1 PPB in both patients, requiring chemotherapy. Neither specimen had evidence of CCAM.

Conclusions: The diagnosis of PPB should be considered in all cases of unilocular cysts. Complete excision should be conducted to ensure the best prognosis. A pre-operative discussion with patients may be helpful.

Original Paper
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Weight Gain In Infants With GERD Managed With Medication Or Nissen Fundoplication

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Background/Purpose: We compared weight gain in infants treated with anti-reflux medication or Nissen fundoplication after diagnosis of gastroesophageal reflux disease(GERD).

Methods: We retrospectively reviewed charts of infants who had pH-probes done between January 2004 and December 2006, were less than 6 months of age, and had complete 6 months follow-up. A pH-probe study was positive if the pH was < 4 for ≥ 5% of a 24 hour period. We compared weight percentiles between the treatment groups (reflux medication or fundoplication) 6 months after the intervention. Data was analyzed using Chi-square and logistic regression.

Results: 192 infants were identified, 88 (46%) females and 103 (54%) males. 84 (44%) had positive probes. Of the infants with positive probes, 31 (37%) underwent fundoplication, 47 (56%) were treated with anti-reflux medications and 6 (7%) died during early follow-up. 25 (81%) gained after fundoplication and 37 (78%) gained after medical therapy, p=0.75. Logistic regression controlled for vomiting [OR=0.82 (0.23-2.86)], seizures [OR=1.96 (0.52-7.45)], congenital heart disease [OR=1.31 (0.39-4.34)], failure to thrive [OR= 0.38 (0.08-1.84)], respiratory symptoms [OR=1.20 (0.29-5.00)] and prematurity [OR=1.38 (0.46-4.17)].

Conclusions: There was no difference in weight gain in infants with GERD managed with medical therapy or fundoplication. Logistic regression did not reveal a subgroup which would gain better with a specific treatment.

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Paper 16

The Impact Of Duration Of Symptoms On The Post-Operative Outcome Of Hypertrophic Pyloric Stenosis

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Background/Purpose: Hypertrophic pyloric stenosis (HPS) is a common cause of gastric outlet obstruction (GOO) in infants. Prolonged GOO is believed to result in acid and electrolytes disturbances, gastric atony and delayed postoperative recovery. We studied the impact of prolonged obstructive symptoms on the post-operative outcomes of this disease.

Methods: A Retrospective review of all patients who underwent pyloromyotomy over the past 11 years was performed. The correlation between duration of pre-operative vomiting and presenting electrolytes and acid-base balances, postoperative time to full feed, postoperative morbidity and duration of hospitalization were analyzed.

Results: 47 patients were identified. At presentation, the median (range) for duration of symptoms was 14(3-60) days and surgeries were performed at 2(0-6) days after admission. Apart from one case of postoperative wound infection, all patients had unremarkable recovery. The unusually prolonged duration of symptoms in our cohort did not correlate with the preoperative mean (SD) chloride level 93.9(+/-8.8) Meq/L with (P=0.39; r =0.13), PH level mean 7.5(+/-0.9) with (P=0.42; r =0.12), postoperative time to full feed 31(+/-15.1) hours, (P=0.53; r = -0.94) or duration of hospitalization 5.1(+/-2.2) days, (P=0.89; r = -0.22).

Conclusions: Longer duration of obstructive symptoms in HPS dose not seem to have a significant impact on postoperative outcomes.

Original Paper
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Minimally Invasive Heller Myotomy In Children: Safe And Effective

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Background/Purpose: To review a single institution experience of minimally invasive Heller myotomy in pediatric patients with achalasia.

Methods: An IRB-approved retrospective review from 1999-2005 identified patients 18 years old and younger who underwent a minimally invasive Heller myotomy for achalasia.

Results: Twenty-six patients were identified with a mean age of 15 (range 4 – 18 years). There were 11 female and 15 male patients. There were three intraoperative complications (2 esophageal mucosal injuries and 1 aspiration). There was no mortality. All 26 surgeries were completed laparoscopically. Two patients had Dor fundoplication, while 23 patients had Toupet fundoplication. Average length of hospital stay was 2.7 days (range 1 – 4 days) excluding the three patients with intraoperative complications, and 3.5 days for all patients (range 1 – 17 days). Postoperative follow up ranged from 0 – 75 months (mean 20 months). Post-operatively, one patient developed reflux symptoms (incidence 4%). Seven patients (27%) had recurrence of symptoms at a mean of 13 months (range 1 – 66 mos) after their operation.

Conclusions: Laparoscopic Heller myotomy with fundoplication is a safe and effective treatment for symptomatic achalasia in the pediatric population. Complications were low in this group of patients and comparable to other published reports in the literature.

Original Paper
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A New Technique For Tracheomalacia Caused By Innominate Artery Compression Of Trachea In Three Patients With Neuromuscular Disorders

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Abstract: The purpose of this report is to evaluate the effectiveness of a new technique to relieve tracheal compression by the innominate artery in patients with neuromuscular disorders. Method: From August 2006 to February 2008, three neurologically impaired patients aged 9 years, 9 years and 15 years (3 girls) underwent a new technique for innominate artery compression of the trachea. Two patients required prolonged mechanical ventilation because of tracheomalacia. The other patient had received laryngotracheal separation for intractable aspiration and was medicated with a long endotracheal tube because of tracheomalacia. A surgical procedure was followed by an osteotomy of the manubrium, reinforcement of the anterior trachea with cartilage ring graft, wrapping and suspending the innominate artery with a sternohyoid muscle flap, and tracheopexy. Results: The follow-up duration was 2 month, 12 months and 20 months (mean: 11 months). Both patients were successfully weaned from prolonged mechanical ventilation after operation. The other patient was not necessitated to stent in the fragile segment of the trachea. Conclusions: Resection of the manubrium sterni, tracheal stenting with rib segments and use of the strap muscle to elevate the innominate artery off of the trachea offer potential long-term release of airway obstruction.

Technique Report

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Pulmonary Function After Early Vs. Late Lobectomy During Childhood: A Preliminary Study

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Background/Purpose: One proposed reason for performing early resection of asymptomatic cystic adenomatoid malformations is the theoretical benefit of optimizing compensatory lung growth. Our aim was to determine if early lobectomy is associated with better long-term pulmonary function than lobectomy later in childhood.

Methods: Retrospective chart review of children undergoing pulmonary lobectomy for benign disease between 1990-2006. Those having surgery before and after two years of age were compared. Forced vital capacity (FVC) was used as an indicator of pulmonary growth, with FVC

Results: Of 115 patients identified, 11 had postoperative pulmonary function testing at a mean age of 10 years. Of these, six had lobectomy before, and five had lobectomy after 2 years of age. There was no significant difference between groups in mean FVC (81.5 vs 83.3) or number of children with FVC

Conclusions: Age at the time of lobectomy did not influence FVC. These preliminary data suggest that early lobectomy does not confer an advantage to the child with respect to pulmonary function. A prospective study is necessary to confirm or refute these findings in a larger group of children.

Original Paper

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Paper 20

Management Of Prenatally Diagnosed Abdominal Lymphangiomas

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Background/Purpose: Abdominal lymphangiomas (AL) are rare congenital malformations that can regress spontaneously or lead to serious complications. Therefore, the appropriate management may be challenging, particularly since pertinent literature is missing. We present management and outcome of five patients with prenatally diagnosed AL and suggest a decision making algorithm.

Methods: We retrospectively reviewed history, diagnostics, therapy, complications, and outcome of 5 patients with prenatal diagnosis of AL, referred to our department between January 2006 and February 2008.

Results: AL was diagnosed by ultrasound prenatally in all patients (GA 21, 23, 23, 32 and 34 weeks). MRI was performed in one patient prenatally and postnatally and in one postnatally. Clinical symptoms ranged from none to life threatening respiratory distress and abdominal compartment syndrome. In one patient the AL involuted. In two patients it persisted after OK-432 injections (one required emergency resection due to bleeding). 2/3 patients with surgery required segmental bowel resection and 3/3 stayed recurrence-free. Complications included one partial IVC-thrombosis after surgery, one subileus and one hemorrhage after OK-432 applications.

Conclusions: Asymptomatic and regressing AL are best managed conservatively (“watchful waiting”) while symptomatic and/or non-regressing AL require surgery.

Original Paper
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Risk Stratification In Gastroschisis: Can Prenatal Evaluation Or Early Postnatal Factors Predict Outcome?

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Background/Purpose: The prenatal or postnatal factors that predict complex gastroschisis patients (atresia, volvulus, necrotic bowel and bowel perforation) remain controversial. We hypothesized that increased prenatal bowel dilation and/or thickness correlates with complex gastroschisis and poor outcome.

Methods: We analyzed maternal and neonatal records of 46 gastroschisis patients treated from 1998-2007. Patient demographics, prenatal data(24/46 ultrasounds), delivery information was operative data was collected. Outcome variables included survival, ventilator days, TPN days, time to full enteral feeds, complications, length of stay, and long-term gastrointestinal function. Univariate or multivariate analysis was used, with P

Results: Prenatal bowel dilation(>17mm) and thickness(>3mm) did not correlate with outcome or risk stratification into simple versus complex(p

Conclusions: Prenatal bowel wall dilation and/or thickness did not predict complex patients or adverse outcome. Complex gastroschisis patients can only be identified postnatally and have substantial morbidity.

Original Paper
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Paper 22

Right-Sided Congenital Diaphragmatic Hernia: High Utilization Of ECMO And High Survival

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Background/Purpose: Right-sided congenital diaphragmatic hernia (R-CDH) has been reported to have a poorer prognosis than left-sided CDH. We aim to assess the treatment strategies and outcome of R-CDH, particularly extracorporeal membrane oxygenation (ECMO).

Methods: We reviewed the cases of 41 R-CDH patients treated between 1991 and 2006. We gathered information on prenatal diagnosis, birth history, CDH repair, ECMO, associated anomalies and outcome.

Results: Predicted survival (calculated by the CDH Study Group formula) was 63% for 36 evaluatable patients (3 patients presented late and 2 patients underwent EXIT-ECMO); 29 of these survived (81%). Of all 41 patients, 33 survived(80%). Fifteen(37%) were prenatally diagnosed, 13 of whom were inborn. Diaphragm closure required a patch in 13(32%) patients; an abdominal wall silo or prosthetic closure was used in 9(22%) patients. Twenty-two patients (54%) required ECMO for a mean of 6Â±7 days; of those, 16(73%) survived. Two patients (9%) underwent repair before ECMO, 5(23%) while on ECMO, 11(50%) after ECMO, and 4(18%) underwent ECMO but died before repair.

Conclusions: Our data suggest that patients with R-CDH have high ECMO utilization, and may experience greater relative benefit from ECMO as evidenced by their higher-than-expected overall survival. ECMO may be found to have a distinctive role in managing R-CDH.

Original Paper
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Rare Biliary Pathology Encountered In Neonatal Ecmo-Patients

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Background/Purpose: Extracorporeal Membrane Oxygenation (ECMO) is a possibly life-saving technique for severe neonatal respiratory failure. Cholelithiasis associated with ECMO has been reported in two cases.

Methods: Three cases with remarkable biliary pathology are presented out of a single-centre series of 310 consecutive ECMO-patients.

Results: Two male neonates, successfully treated with VV- and VA-ECMO for postnatal Group-B-Streptococcal sepsis and Congenital Diaphragmatic Hernia respectively, became gradually icteric 2 months after decannulation. Laparotomy with intraoperative cholangiography (IOC) showed bile obstruction by choledocholithiasis in both, successfully treated by choledochal wash-out and cholecystectomy.
A girl born at term developed progressive respiratory distress at day three, necessitating VV-ECMO. Bright-yellow fluid was aspirated endotracheally. Bronchoscopy revealed a millimetric ostium at the carina, producing bile. Methylene-blue instilled intratracheally was seen in the duodenum on esophagogastroduodenoscopy. On ECMO, a congenital tracheobronchial fistula was ligated via right thoracotomy. Thereafter, the patient was easily decannulated. Four days later, recurrent bile was seen endotracheally. Laparotomy showed a 5mm retrohepatic tubular structure running towards the thorax, draining the left liver lobe on IOC. The duct was ligated cranially and Roux-en-Y derivation was performed. All patients had an uneventful recovery.

Conclusions: Remarkable biliary pathology, encountered in 1%, merits extra attention in all neonatal ECMO-patients.

Original Paper
Trainee Presentation

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Management Of Perianal Sepsis In Children

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Background/Purpose: This study was performed to identify the best method of treatment of perianal sepsis in children.

Methods: A retrospective study was conducted of children ≤16years of age who were treated for perianal sepsis in a Teaching Hospital during a 4-year period (January 2002 to April 2006). Patients were divided into 3 age groups, 8yrs. The rate of recurrence, associated fistula-in-ano and association with Inflammatory Bowel Disease (IBD) were determined.

Results: 78 patients were treated for perianal sepsis during the period. 33(85%) of 39 children 8years, 12(55%) had I&D, 1(4%) had fistulotomy and 9(41%) were non-surgically treated. 3(67%) of 4 patients with IBD associated fistulae-in-ano were treated successfully with topical tacrolimus.

Conclusions: Surgery for perianal sepsis in children

Original Paper
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Relationship Of Serum C-Reactive Protein And Blood Glucose With Injury Severity And Hospitalization In Pediatric Trauma Critical Care

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Background/Purpose: Serum markers of inflammation and of glucose production are known to reflect the acute metabolic response to injury. We hypothesized that monitoring of the early C-reactive protein (CRP) and blood glucose (BG) concentrations would correlate with clinical morbidity and outcome measures in pediatric intensive care unit (PICU) trauma patients.

Methods: A five-year retrospective chart review of pediatric trauma patients in our PICU was conducted to establish the relationships between early (first 3 PICU days) serum CRP and BG concentrations, Injury Severity Score (ISS), and hospital length of stay (HLOS). Statistical significance (p

Results: Forty-two PICU trauma patients (8.0±5.2 years) were evaluated. The early inflammatory response (CRP≥10 vs 7 vs ≤7 days, p<0.05).

Conclusions: This study establishes a significant relationship between the early inflammatory and glycemic injury response and the association of that response with PICU patient morbidity and outcome measures.

Original Paper
Trainee Presentation

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Management Of Blunt Splenic Injury In Children: Evolution Of The Non-Operative Approach Over 50 Years

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Background/Purpose: Non-operative management of blunt splenic injury (BSI) was first proposed at our institution in 1948. Since that time, treatment of patients with BSI has evolved from routine splenectomy, to an aggressive spleen-preserving philosophy. This report summarizes our institutional experience over the last 50 years.

Methods: All children (0-18 years) admitted to our pediatric trauma centre with BSI during 4 eras (1956-65, 1972-77, 1981-86 and 1992-2006) were retrospectively reviewed for demographics, injury patterns, management and complications.

Results: During the 4 eras captured over the last 5 decades, 486 children suffered BSI. The mean age was 10 yrs with 347 males (71%). Non-operative management rate increased from 42 to 97% with improvement in splenic-salvage rate (42 to 99%). Mean length of stay decreased from 17 to 5 days. In patients with isolated splenic injuries (50%) non-operative management rate increased (36 to100%) and fewer received transfusions (60 to 1%). Overall mortality rate improved (19 to 6.6%, 8 to 0.7% in isolated injuries).

Conclusions: The management of BSI in children has changed dramatically over the last 50 years. This study clearly demonstrates the safety of non-operative management and documents progressively lower rates of splenectomy and transfusion, shorter hospitalization, and an extremely low risk of mortality.

Original Paper
Trainee Presentation

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Paediatric Cervical Spine Injury: Review Of 106 Patients

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Background/Purpose: C-spine injuries are uncommon in paediatric trauma patients. We review our experience with this injury.

Methods: All cases of c-spine injury treated at a level 1 trauma center from 1996 to 2006.

Results: 63 boys and 43 girls (mean age 10.8 years, mean ISS 16) met the inclusion criteria. Motor vehicle collision (MVC) was the most common mechanism (43%) followed by sports-related injuries (28%). Most children presented with cervical pain (60.4%) and neurological deficit (27.4%). Associated injuries were skeletal (23%) and abdominal organ (3%). Plain x-rays were diagnosed in 71 patients. CT scan were diagnosed in all cases. 46% of children had upper cervical spine injuries, while 20% had lower injuries. 15 patients presented with complete spinal cord injury. Thirty-seven patients were managed surgically (19% by fusion, 81% with traction). 65% were treated by cervical collar alone. Mortality was 6% and primarily associated with severe head trauma. 75% were discharged home and 19% were transferred to rehabilitation centres.

Conclusions: C-spine injury in children most commonly involved the upper cervical spine. CT scan was most specific for diagnosis. Treatments and outcome of patients depend on clinical presentation and severity of injury.

Original Paper
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The Canadian C-Spine Rule And The National Emergency X-Radiography Utilization Low Risk Criteria For C-Spine Radiography In Young Trauma Patients.

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Background/Purpose: The Canadian C-spine (cervical spine) Rule (CCR) and the National Emergency X-Radiography Utilization Low Risk Criteria (NLC) are criteria designed to guide C-spine radiography in trauma patients. It is unclear how these two rules compare with young children.

Methods: This study retrospectively examined case-matched trauma patients 10 years old or younger. Two cohorts were identified; Cohort A: C-spine imaging was preformed, and Cohort B: no imaging was conducted. The CCR and NLC criteria were then applied retrospectively to each cohort.

Results: Cohort A contained 125 cases and Cohort B 250. Seven patients (3%) had significant C-spine injuries. In Cohort A NLC criteria could be applied in 108/125 (86.4%) and CCR in 109/125 (87.2%). NLC suggested that 70 (58.3%) cases required C-spine imaging compared to 93 (76.2%) by CCR. NLC missed 3 c-spine injuries, CCR missed one.
In Cohort B, NLC criteria could be applied in 132/150 (88%) and CCR in 131/150 (87.3%). NLC criteria identified 8 and CCR 13 cases that would need C-spine radiographs. Fischer two sided exact test demonstrated that CCR and NLC predictions were significantly different (p=0.002) in both cohorts.

Conclusions: CCR and NLC criteria may reduce the need for C-spine imaging in children 10 years old and younger, with CCR a superior predictor of imaging requirements. Further prospective evaluation is required.

Original Paper
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Paediatric Blunt And Penetrating Trauma Deaths In Ontario: A Population Based Study

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Background/Purpose: To describe the mechanisms of injury and causes of death in children dying in a modern, integrated trauma system.

Methods: Records of all children (

Results: There were 234 injury deaths (222 blunt; 12 penetrating) over the 3 years. Thirty (13%) resulted from intentional injury. The median age was 10 years (range 0 – 15); 64% were male. Sixty-eight percent resulted from incidents involving motor vehicles (passenger, pedestrian or cyclist). The majority (74 %) died at the scene; only 5% survived > 24 hours. Devastating cranio-cervical injury [Abbreviated Injury Scale 5 or 6] was present in 83%, and was the only life threatening injury in 39%. The annual mortality rate averaged 3.2 per 100,000 children.

Conclusions: In a modern, integrated trauma system most paediatric injury deaths occur at the scene from severe head injuries. In this population strategies to reduce the death rate from paediatric trauma must focus on primary and secondary injury prevention.

Original Paper
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Paper 30

Management Of Blunt Splenic Injuries In Children In Canada – Practices And Opinions

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Background/Purpose: To compare management of blunt splenic injuries in children between Canadian pediatric (PGS) and non-pediatric general surgeons (GS).

Methods: Forty-five PGS and 755 GS were surveyed (internet and hard copy). Chi-square was used to compare groups.

Results: To date, 115 surveys are returned (19 PGS, 96 GS); survey responses are continuing. Initial results indicate that compared to PGS, GS are less likely to follow APSA splenic injury guidelines (12% versus 58%, p

Conclusions: Differences exist between PGS and GS in the management of blunt splenic injuries in children, resulting in higher operative rates, utilization of critical care resources and radiation exposure. Further education of GS in NOM and provision of management guidelines are indicated.

Original Paper
Trainee Presentation

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Spindle Epithelial Tumor With Thymus-Like Elements: A National Case Series And Review Of The Literature

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Background/Purpose: Spindle epithelial tumor with thymus-like elements (SETTLE) is a rare tumor of the thyroid observed in children and adolescents. We present a case series of three patients with SETTLE, focusing on the clinical and pathological features of this rare tumor.

Methods: Three male patients presented at ages 4.5, 6.5 and 7 years with a right thyroid mass (1998-2002). All were treated by standard hemithyroidectomy. None had evidence of distant metastases at presentation. The diagnosis of SETTLE was confirmed at the time of the initial operation in two of the three patients.

Results: All patients had uneventful post-operative courses. Two patients remain disease free 4 and 7-years post-resection, respectively. One patient presented 10 years after resection with shortness of breath and hemoptysis secondary to multiple bilateral parenchymal lung metastases. This patient received chemotherapy against the epithelial components of the tumor with a 25% response based on imaging studies.

Conclusions: SETTLE is rare tumor that should be suspected if spindle elements are observed in the resected thyroid specimen. Since these patients may present with delayed metastases, long-term follow-up is recommended. However, chemotherapy against specific tumor elements is only marginally effective.

Original Paper
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Paper 32

Desmoplastic Small Cell Tumor: A New Therapy Approach

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Background/Purpose: Desmoplastic small cell tumor (DSRCT) is a rare, highly aggressive malignancy with distinctive histological and immunohistochemical features occurring in young population with male predominance. The tumor appears to arise as masses in the abdominal cavity without a clear visceral origin. Five patients with DSRCT were treated with combined chemo-radiation and surgery. In addition, patients in our center underwent bone marrow transplant (BMT), a novel approach to this disease.

Methods: Charts of five patients (4 males, mean age of 11 years) treated between 2000 and 2007 were reviewed. The diagnosis of DSRCT was made on the basis of clinical exam, CT-scan, and explorative laparotomy with biopsy. Bone marrow biopsy and biochemical markers were negative. All patients were treated with aggressive chemo-radiation and surgery. Three patients also had autologous BMT.

Results: Four patients responded to treatment: one complete, three partial. The responding patients had surgery with the intent of removing all disease. All three patients who underwent BMT responded to treatment. Two patients died from their cancer; neither underwent BMT.

Conclusions: DSRCT are sensitive to aggressive combination of surgery, chemo-radiation and autologous BMT. It appears that this new multi-faceted treatment offers good palliation and may prolong survival.

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Pilonidal Disease In The Pediatric Patient: What Is The Best Treatment? A 35 Year Study

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Background/Purpose: A 35 year study of pilonidal disease in infants and children seen and treated by the same surgeon. What is the best treatment?

Methods: All patients were evaluated for age, sex, infection, clinical diagnosis, treatment, complications and results. REB approval (1000008962).

Results: From July 1969 to 2003 inclusive 121 children with pilonidal disease (M-64, F-57) with age range 12 years to 19 years and mean age 15 years were evaluated and treated. Only those who were infected (88%, 46% acutely) were operated on. All 107 pilonidals operations were done at the same children's hospital. All pilonidals were excised under general anesthesia and antibiotics were used for all patients. There were a total of 24 (22%) recurrences of which 6 (25%) recurred twice: 20 (22%) recurrences out of 90 packed open and 5 (25%) recurred twice; 3 (23%) recurrences out of 13 marsupialized, and 1 (33%) recurred twice; 1 (25%) recurrence out of 4 closed primarily with no second recurrence (p=0.1). Each recurrence was smaller than the original.

Conclusions: Regardless of the operative repair, the recurrence rate was more than 20%. Therefore, primary closure appears to be the best surgical option. Suction drainage may be an added benefit.

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A New Minimal Invasive Technique For The Repair Of Femoral Hernia In Children

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Background/Purpose: The laparoscopic treatment of inguinal hernia in children is well-established. Pediatric femoral hernia (FH) is rare and often misdiagnosed. A new minimal invasive technique for the treatment of pediatric FH is presented.

Methods: We present a personal series of thirteen consecutive and prospectively studied FHs, repaired by a standardized laparoscopic technique offering an anatomic repair of the femoral orifice. A short video will illustrate the technique.

Results: Over a seven-year period (2001-2008), four girls and six boys with in total thirteen FHs were treated, at a mean age of seven and a half years (range 2-12). A preoperative clinical diagnosis of FH was accurate in seven patients. All thirteen FHs were confirmed and treated by a standardized transabdominal laparoscopic approach using three 3-mm trocars, suturing Poupart's to Cooper's Ligament. All patients went home the same day. No major postoperative complications nor recurrences occurred, with a mean follow-up of over 36 months (range 4-85).

Conclusions: The diagnosis of pediatric FH with the use of the laparoscope is easy and permits immediate minimal invasive treatment, even when not suspected preoperatively.
The technique presented provides a minimal invasive anatomical repair without the use of foreign material and is straightforward, effective and safe.

Original Paper
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Laparoscopic Orchidopexy: The Easy Way To Go

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Background/Purpose: Intra-abdominal testes represent less than 10% of cryptorchid testicules, yet they are the most challenging to correct. In the last 15 years, the 2-stage Fowler-Stephens orchidopexy has gained wide acceptance. The traditional approach includes laparoscopic or open clipping of the testicular vessels (first stage)and open inguinal orchidopexy (second stage). We present our experience with 2-stage orchidopexy with both stages done laparoscopically.

Methods: Over a 5 year period, we reviewed patients who underwent two stage laparoscopic orchidopexy with a minimum of one-year follow-up. Success was defined as a non atrophic intrascrotal testis. 15 patients met the inclusion criteria and none was lost to follow-up.

Results: In the 15 patients, 11 had a unilateral intra-abdominal testis and 4 had bilateral cryptorchidism, with one of the two testes intra-abdominal. First stage was done at a mean age of 32 months and the average time between stages was 9.7 months. Two complications occurred, one scrotal hematoma and one redo first stage because of inappropriate clipping noticed at the time of the planned second stage. The success rate was 94.3% (14/15). All testicules are intrascrotal and all testicules but one has maintained pre-operative volume.

Conclusions: 2-satge laparoscopic orchidopexy is an outpatient surgical procedure with minimal morbidity and high success rate. A larger cohort of patients with long term follow-up is needed to substantiate these findings.

Original Paper
Trainee Presentation

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Paper 36

Operative Innovations To The “Nuss” Procedure

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Background/Purpose: Background: The “Nuss” procedure for repair of pectus excavatum is now the standard procedure employed worldwide. In this technique, the blunt retrosternal dissection is made more difficult, and post-operative pain is increased, in patients with a more rigid chest wall. We describe a technique of relaxing incisions along the cartilaginous ribs at the point of maximal chest wall concavity to facilitate retrosternal dissection and to reduce chest wall tension.

Methods: Patients and methods: With IRB approval, patients were monitored prospectively. 32 consecutive patients underwent a modified Nuss procedure (MN) and were matched for age, sex and Haller index with nine standard Nuss (SN) patients

Results: Results: The median number of relaxing incisions in the MN group was 3.6 (range 3.0 – 8.0). There was no difference in the mean Haller index (SN: 4.6, MN:4.28) , blood loss, or days of epidural requirements between the SN group and the MN groups. However, the days to reach functional independence showed a trend toward significance (p = 0.054).

Conclusions: Conclusions: The addition of sternocostal relaxing incisions to the standard Nuss procedure facilitates retrosternal dissection and bar placement. Local pressure reduction may have consequences on post-operative pain management.

Original Paper
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Laparoscopic Duodenoduodenostomy In The Neonate

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Background/Purpose: Minimally invasive procedures are performed in neonates for an ever-expanding list of congenital anomalies. The laparoscopic repair of duodenal atresia and stenosis in the neonate is one such indication.

Methods: We report our experience with the laparoscopic duodenoduodenostomy for duodenal atresia and stenosis in the neonate over the past 4 years. A retrospective chart review was conducted on all cases of duodenal atresia and stenosis diagnosed between January 2004 and January 2008.

Results: Seventeen neonates underwent laparoscopic duodenoduodenostomy successfully during this time period. Patient weight at surgery ranged from 1.35kg to 3.75kg. Most were operated on within the first week of life. Many had associated anomalies. There were no conversions to an open procedure, no intraoperative complications and no anastamotic leaks observed. Time to full feeds ranged widely but averaged 12 days.

Conclusions: Laparoscopic duodenoduodenostomy in the neonate can be safely and successfully performed with excellent short term outcome.

Original Paper

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Paper 38

Laparoscopic Versus Open Pancreatectomy For Persistent Hyperinsulinemic Hypoglycemia Of Infancy

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Background/Purpose: The aim of this study is to compare laparoscopic pancreatectomy with open pancreatectomy for Persistent Hyperinsulinemic Hypoglycemia of Infancy (PHHI) in one center regarding feasibility, safety, and effectiveness.

Methods: A retrospective chart review was conducted for patients managed for PHHI with either laparoscopic (group I) or open (group II) pancreatectomy over the period from 2001 to 2007. Demographic and clinical data were retrieved. The two groups were compared using student t-test for means and Chi-square test (Fisher's exact test) for proportions. A p-value less than 0.05 was considered statistically significant.

Results: 18 patients managed with pancreatectomy for PHHI over that period, 10 laparoscopic and 8 open. The two groups were comparable regarding age and weight at surgery, gender, procedure duration, hospital stay postoperatively, need for re-operation, and development of diabetes mellitus (DM) and mental delay. Extent of resection was significantly higher in the open group (p-value = 0.02) and the laparoscopic group was fed significantly earlier (p-value = 0.001). The mean follow up for the laparoscopic and the open groups were 20.4 months and 46 months respectively (p-value = 0.004).

Conclusions: Laparoscopic pancreatectomy for PHHI is safe and feasible. Our data suggests its effectiveness compared to the open approach.

Original Paper

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Etiology And Management Of Pancreatic Pseudocysts In Children: A Multicenter Review.

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Background/Purpose: The aim of this study was to assess the etiology and management of pancreatic pseudocysts in children.

Methods: A retrospective review in three tertiary pediatric centers between 1990 and 2005 was undertaken. REB approval was obtained in each institution.

Results: Forty-three patients were identified (mean age: 9 years, 1 month (range: 4m-18yrs)). Post-traumatic pseudocysts accounted for 37.2% (16/43) of cases. Non-traumatic pseudocysts comprised 62.8% (27/43) of cases: gallstones (3), drugs (2), tumour (2), metabolic (1), congenital anomalies (7) and idiopathic (12). Initial management included observation only (16/43), image-guided drainage (IGD) (23/43) and surgery (4/43). The pseudocysts were largest in the IGD group. The hospital stay was not significantly different between groups. Sixteen of 19 complications developed in the IGD group, including infected pseudocyst (6), recurrence (6), GI bleed (1), hemorrhage (1) and splenic vein thrombosis (2). Surgery was subsequently required in 1 patient from the observation group and 3 from the IGD group.

Conclusions: This review represents the largest number of cases assessed in the literature to date and confirmed that trauma remains the most common etiology for pancreatic pseudocysts in children. IGD was the most common initial management strategy, but was associated with the most complications.

Original Paper
Trainee Presentation

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Robot-assisted Pediatric Surgery: Safety and Feasibility

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Background/Purpose: To assess the safety and feasibility of performing robot-assisted pediatric surgery with the da Vinci Surgical System based on our experience with a variety of procedures.

Methods: A retrospective review was performed of 144 robot-assisted pediatric procedures performed between June 2004 and Dec 2007.The procedures included 39 fundoplications , 34 cholecystectomies, 25 gastric bandings , 13 splenectomies, 4 anorectal pullthrough for imperforate anus , 4 nephrectomies, 4 appendectomies, 4 sympathectomies, 3 choledochal cyst excisions with hepaticojejunostomies, 3 inguinal hernia repair, 2 each: liver cyst excision, repair of congenital diaphragmatic hernia, Heller's myotomy, ovarian cyst excision , and one each: duodeno-duodenostomy, adrenalectomy, hysterectomy. The mean patient age was 8.9 years, and the mean patient weight was 57 kg

Results: 133 procedures were successfully completed without conversions. 10 cases were converted to open surgery and one case to laparoscopic surgery. There were no system failures. There was one esophageal perforation and two transient dysphagias following Nissen fundoplication.

Conclusions: Robot-assisted surgery appears to be safe and feasible for a variety of pediatric procedures.

Original Paper
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Is Timing Everything? The Influence Of Gestational Age And Intended And Actual Route Of Delivery On Outcome In Gastroschisis

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Background/Purpose: Optimal perinatal treatment in gastroschisis remains uncertain. We sought to determine the effect of gestational timing, intended and actual route of delivery on outcomes in gastroschisis.

Methods: Gastroschisis cases were abstracted from a national, disease-specific database. Outcomes analyzed by planned and actual route of delivery included survival, type of abdominal closure, days of mechanical ventilation, nutrition outcomes and LOS. Univariate and multivariate analyses of predictive variables was performed.

Results: 192 infants (56%male) born at mean gestational age 36.13±2.14weeks, with mean BW 2535.8±556.7grams were included. 183(95%) survived. Route of delivery was vaginal in 119(62%). Of 145 pregnancies (76%) with an antepartum delivery plan, a conforming delivery occurred in 74(51%). BW significantly predicted survival (OR=1.001; 0.996-1.007) and BW and GA were significant inverse predictors of ventilator and TPN days, and LOS. Route of delivery did not predict choice of abdominal closure, and was not associated with any outcome except a trend towards fewer low BW infants (

Conclusions: Gestational age and birth-weight are robust predictors of outcome in gastroschisis, while route of delivery is not.

Original Paper
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Paper 42

Predicting The Outcome Of Gastroschisis

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Background/Purpose: We retrospectively examined the outcomes of 155 gastroschisis patients treated from 1990-2007 to identify factors associated with outcome.

Methods: We used both univariate and multivariate analysis.

Results: Four factors determined outcome, measured by length of stay (LOS): 1) gestational age (p=0.006), 2) small abdominal cavity (AC) requiring a silo (p10mm) on prenatal ultrasound (p=0.043) and non-GI anomaly (p=0.042) were associated with complicated gastroschisis. The absence of dilated bowel on antenatal ultrasound correctly predicted the absence of complicated gastroschisis in 80% of cases. In the absence of meconium-stained fluid, absence of dilated bowel on ultrasound had a negative predictive value of 94%. The presence of dilated bowel had a low positive predictive value (40%) for complicated gastroschisis with many false positives.

Conclusions: We conclude a small abdominal size, in-utero intestinal injury, prematurity, and other non-GI anomalies determine LOS. Prenatal ultrasound can predict the absence of complicated gastroschisis.

Original Paper

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The Effect Of Hospital Case Volume On Outcome In Congenital Diaphragmatic Hernia (CDH)

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Background: Despite advances in neonatal care of CDH, a significant variation exists in the mortality rates reported by individual centers. Center experience (reflected by case volume) may contribute to this variation in outcome.

Purpose: To determine whether CDH outcome (mortality) is affected by hospital case volume.

Methods: CDH cases were abstracted from a disease-specific, 16 hospital, national network. 13 hospitals participated in this study. Anonymized hospitals were categorized as either high (> 6 cases) or low volume (≤6 cases) centres (HVC n=6; LVC n=7) according to the median case number per centre. Risk-adjusted (SNAP-II score) mortality rates were compared between HVC and LVC.

Results: 121 CDH cases were identified. Overall in-hospital survival was 81%. No significant difference in SNAP-II score was observed between HVC and LVC. Fifteen of 97 (15%) infants treated in HVC died compared to 8 of 24 (33%) in LVC ($p<0.05$).

Conclusion: Hospital case volume may be partially responsible for mortality rate variation in CDH. This result requires careful analysis, as case volume may merely be a surrogate for other predictive variables.

Original Paper
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Paper 44

Whatever Happened To The "Hidden Mortality" In Congenital Diaphragmatic Hernia (CDH)?

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Background/Purpose: The aim of this study is to determine if there has been a true, absolute or apparent, relative increase in CDH survival over the last two decades.

Methods: All neonatal Bochdalek CDH patients admitted to an Ontario pediatric surgical hospital during the period when significant improvements in CDH survival was reported (from January 1st 1992 to December 31st 1999), were analyzed. Patient characteristics were assessed for CDH population homogeneity and differences between institutional and Vital Statistics-based population survival outcomes. SAS 9.1 was used for analysis.

Results: Of 198 cohorts, demographic parameters including birth weight, gestational age, apgar scores, sex, and associated congenital anomalies did not change significantly. Pre-operative survival was 149/198 (75.2%) while post-operative survival was 133/149 (89.3 %), and overall institutional survival was 133/198 (67.7 %). Comparison of institution- and population-based mortality (n = 65 vs. 96) during the period yielded 32% of CDH deaths unaccounted for by institutions. Yearly analysis of hidden mortality consistently showed a significantly lower mortality in institution-based reporting than population.

Conclusions: A hidden mortality exists for institutionally reported CDH survival rates. Careful interpretation of research findings and more comprehensive population-based tools are need for reliable counseling and evaluation of current and future treatments.

Original Paper
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A Multi-Institutional Review Of Central Venous Line Complications: Retained Intravascular Fragments

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Background/Purpose: Background: There have been many reports of complications of central venous lines in children but limited discussion of retained intravascular fragments.

Methods: Methods: Retrospective review of two institution's cases of central line removal over a five year period, with analysis of patient characteristics, and outcome.

Results: Results: Seven central venous lines that could not be removed in the operating room with standard techniques including one failed interventional radiological attempt were identified. One required the removal of the vein while the remaining six have been left in-situ with no complications to date up to 7 years. All patients had the line for greater than 18 months and all were oncology patients receiving aggressive chemotherapy.

Conclusions: Conclusion: The problem of a stuck intravascular portion of a central venous line is a difficult problem. In certain instances, it may be appropriate to simply leave the fragment rather than attempt more radical excision procedures

Original Paper
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Paper 46

The Use Of Transanastomotic Feeding Tubes At The Time Of Esophageal Atresia Repair.

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Background/Purpose: Esophageal atresia with distal tracheoesophageal fistula(typeC-EA) accounts for 85% of EA. Our patients were traditionally started on TPN postoperatively with oral feedings were initiated after a contrast esophagogram. Our aim is to assess the benefit of intraoperatively placed transanastomotic feeding tubes(TAFT).

Methods: A 7-year retrospective review analyzed outcomes of children with typeC-EA as they relate to the use of TAFT. Demographics, associated anomalies, operative findings, complications, duration of TPN, resumption of oral feeding, length of stay and follow up were examined.

Results: Twenty-one patients had typeC-EA. Twelve(57%) and nine(43%) patients were identified as non-feeding tube(NFT) and feeding tube(FT) groups, respectively. No differences in gestational age, birth weight, associated anomalies, and interval to operative intervention or operative time were observed. Excluding one patient with severe cardiac malformations in the NFT group, there were no significant differences in anastomotic leak (8.3%vs22%), stenosis(36%vs22%), TPN duration(23.5daysvs12days) and cholestasis (36%vs11%).

Conclusions: TAFT may lead to shorter TPN duration and decreased cholestasis, but a larger prospective study would be required to prove these benefits and ensure that it does not increase anastomotic leaks. This could be done through an expanded CAPSNet study.

Original Paper
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Classification And Appraisal Of The Level Of Evidence Of Publications From The Canadian Association Of Pediatric Surgeons Over The Past Ten Years

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Background/Purpose: Increasing emphasis is being placed on the evidence-based quality of publications. We determined trends in the publication type and assessed the reporting quality of the highest evidence level publications from CAPS over a 10-year period.

Methods: All publications from CAPS issues in the Journal of Pediatric Surgery from 1998 to 2007 were classified by study type and level of evidence (Oxford Centre for Evidence-based Medicine Levels of Evidence). Cohort studies (level 2) were evaluated by two independent assessors using the Newcastle-Ottawa Quality Assessment Scale (NOQAS). Reliability and Chi-squared analyses were performed.

Results: Three hundred and two publications were classified by level of evidence as follows: level-2: 46, level-3: 13, level-4: 109, and level-5: 134. The median NOQAS score of the 46 level-2 cohort studies was 8 (range:5-9) and the inter-rater reliability was 0.94 (95%CI: 0.89-0.96). There was a significant increase in the number of level-2 evidence publications (p= 0.001) over the study period.

Conclusions: The level-2 evidence cohort studies met a high scientific standard as assessed by the NOQAS and significantly increased in number over the study period. However, there were no level-1 evidence (RCT) publications and the majority of publications were in the lower evidence classification levels (3-5).

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Paper 48

Esophagus Tissue Engineering: In-Vitro Generation Of Esophageal Epithelial Cell Sheets And Viabilty On Scaffold

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Background/Purpose: Management of long-gap esophageal atresia poses clinical challenges. The surgical techniques for esophageal replacement are associated with complications and high morbidity. The aim of this study was to develop protocols to obtain single layer sheets of esophageal epithelial cells (EEC) and to investigate their survival on collagen scaffolds.

Methods: EEC were sourced from adult Sprague-Dawley rats. Briefly, the esophagus was treated with dispase to separate the epithelial layer and further trypsined to obtained EEC. The EEC were proliferated in-vitro and seeded on to collagen scaffolds.

Results: The EEC organized after 48 hours in culture and formed cluster formation after 72-96 hours. Organization of the EEC was completed after 7 days in culture and characteristic sheets of EEC with the histological morphology of mature esophagus were obtained after 14 days of culture. Immunohistochemistry demonstrated pure esophagus culture using cytokeratin CK-14 markers. The EEC that were transferred on to collagen polymers demonstrated excellent survivability of the cells after 8 weeks of in-vitro culture.

Conclusions: Successful protocols for EEC isolation and proliferation were established. The engineering of sheets of EEC and survivability of EEC on collagen scaffolds for 8 weeks in-vitro, which are prerequisites for esophagus tissue engineering of substantial length, was demonstrated.

Original Paper

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Experimental Replacement Of Tracheal Defect

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Background/Purpose: We investigated the epithelialization and the newly formed cartilage in an artificial trachea by using a bioabsorbable caprolactone-lactide copolymer (P(CL/LA)) sponge sheet reinforced with poly(glycolic acid) (PGA) fiber mesh (Cop).

Methods: Nine, male white rabbits, weighing 2.5 to 2.8 kg, were divided into three groups. A full-thickness anterior defect (4 mm x 10 mm) was created in tracheal rings. In the defect, Cop (n=3)(Group A), Cop incorporating gelatin hydrogel (n=3)(Group B), and Cop incorporating gelatin hydrogel with 100 ƒÊg of b-FGF (n=3) (Group C) were implanted with reinforcement by external stenting. The 3 rabbits in each group were sacrificed 1, 3 and 6 months postoperatively, and subjected to histological evaluation.

Results: In Group A, epithelialization was recognized during 6 months postoperatively, but any new cartilage was not formed. In Group B and C, newly formed cartilage and epithelialization were observed 6 months postoperatively and furthermore neovascularization was noticed. Safranin O staining and staining for type collagen ‡U were observed at neocartilage in Group B and C, and vWF immunohistochemically stained in the circumferential connective tissues adjacent to the neocartilage.

Conclusions: A bioabsorbable copolymer incorporating gelatin hydrogel induces tracheal epithelialization and formation of cartilage and vessels in tracheal defects

Original Paper

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Paper 50

Growth Modulation Of The Thoracic Cage In A Fetal Ovine Model: A Preliminary Study.

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Background/Purpose: Thoracic insufficiency syndrome is the inability of the thorax to support normal respiration and lung growth. Since no animal model of congenital chest wall and scoliotic deformity exists, we propose to create a fetal ovine model of chest wall deformity that will allow the evaluation of thoracic growth modulation, lung development with chest wall deformity, and the impact of different treatment strategies.

Methods: Fetal surgery was performed in 8 ewes between 65 and 70 days gestation (term:140d) under anesthesia. Following exposure of the fetus through a hysterotomy, a left thoracic deformity was created in 9 lambs by either tying 3 ribs together or adding resection of the 7th rib in addition to partial destruction of the vertebral body.

Results: All 9 lambs who underwent surgery were born at term through vaginal delivery and suffered from a thoracic deformity ranging from mild to severe. They were all sacrificed at 2 months of age for necropsy except for one animal who died earlier from failure to thrive.

Conclusions: We have created a model of congenital thoracic deformity that can be used to study the impact of the deformity on vital functions and to evaluate treatment strategies.

Original Paper

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Management Of Congenital Pouch Colon Based On The Anatomic Morphological Classification

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Background/Purpose: Management guidelines of congenital pouch colon (CPC) are unfortunately not defined due to the lack of clear classifications. The aim of this study was to outline the management strategy in CPC using the anatomic-morphological classification.

Methods: From 1995-2007, 426 patients were treated for anorectal malformations. CPC was documented in 80 patients and comprised of 18.8% of the total number of cases of anorectal malformations and 60.2% of the cases of high anorectal malformations.

Results: In Type-1 and Type-2 CPC the condition of the pouch (ischemic or healthy) determined if a one-stage (pouch excision and pull-through) or three-stage procedure (ileostomy, pouch-coloplasty with pull-through and ileostomy closure) was necessary. In Type-3 and Type-4 CPC a three-stage procedure (pouch excision with colostomy, pull through and colostomy closure) is recommended. In Type-5 a three-staged procedure (distal pouch excision with proximal pouch-coloplasty in addition to ileostomy, pull through and colostomy closure) is suggested.

Conclusions: The anatomic-morphological classification provides well defined management guidelines to the treatment of CPC. In Type-1 and Type-2 CPC the condition of the pouch (healthy or ischemic) determines the operative strategy. In Type-3, Type-4 and Type-5 clear guidelines to pouch management are clearly outlined.

Original Paper

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Paper 52

Benefits Of Specialist Paediatric Surgery Experience In Humanitarian Surgery Overseas

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Background/Purpose: In the United Kingdom at least, the training for and practice of Paediatric Surgery is becoming more and more specialized. Trainees in Paediatric Surgery now undertake little General Surgery training and the discipline itself is becoming more subspecialized. Such changes may be felt to restrict opportunities for wider contributions.

Methods: Over the last 5 years, the author has had the opportunity to undertake periods of humanitarian surgery in developing countries in Africa and SE Asia. The wide-ranging work involved caring for adults as well as children, including victims of the civil war in Sudan, and the treatment of obstetric fistulas.

Results: Despite initial anxieties that the author's background in Paediatric Surgery would not equip her for this kind of work, in fact the reverse was true. Paediatric Surgery is the only remaining discipline in which surgeons are familiar with more than one body system – perhaps the “last bastion” of true general surgery. The range and diversity of the author's experiences overseas are presented, and the advantages of a Paediatric Surgical background emphasized.

Conclusions: This paper will encourage paediatric surgeons and trainees to consider undertaking such work, which is of itself immensely rewarding.

Original Paper

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The Concept Of Telesimulation For Teaching Surgical And Procedural Skills In Developing Countries

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Background/Purpose: Simulation has been extensively validated in the teaching of procedural and surgical skills. Such teaching is a challenge in remote and resource limited environments. TELESIMULATION is a concept allowing mentored simulation real-time over the internet. Its feasibility was assessed.

Methods: A needs assessment in Botswana identified procedural and surgical skills amenable to teaching and testing via telesimulation. Educational programs for the Fundamentals of Laparoscopic Surgery (FLS), Intra-Osseous resuscitation (EZ-IO equipment) and open knot-tying & suturing are at various stages of completion between Toronto, Canada and Gaborone, Botswana.

Results: The hardware and software are available to permit cost effective telesimulation. Preliminary results with the FLS telesimulation program are encouraging. The feasibility of carrying out the EZ-IO and open knot-tying & suturing curriculi has been demonstrated.

Conclusions: Telesimulation is a novel, practical and inexpensive way to teach surgical and procedural skills in any country where the necessary internet access exists.

Original Paper

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Paper 54

Attention To Small Details: Big Deal For Pegs

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Abstract: Background/Purpose: Percutaneous endoscopic gastrostomy (PEG) insertions are commonly performed in the pediatric population, and even though complications are documented, there are no consensus guidelines for children. Methods: We present 3 cases of PEG complications at different timeframes since their insertion. Results: Patient 1 is a7 year old with cerebral palsy who has a PEG insertion, but has the PEG bolster taped 5 cm away from the skin in an attempt to prevent skin pressure sore that results in gastrocutaneous tract detachment. Patient 2 is a small 2 year old with scoliosis and cerebral palsy, who has a difficult PEG placement with poor transillumination. Three months later, after PEG exchange, the patient presents two days later in septic shock with Candida peritonitis from disruption of the gastrocutaneous tract because of intervening omentum. Patient 3 is a 12 year old with a stroke who had PEG placement 2 years previous who presents with a cutaneous-colonic-gastric fistula. Conclusions: Consideration to other alternatives to PEG should be considered such as laparoscopic assisted PEG, laparoscopic gastrostomy, or even open gastrostomy, especially if there is lack of transillumination, small size, scoliosis, or previous abdominal surgeries .

Case Report

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Serious Complications From Gastrostomy Tube Changes

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Abstract: Background: Gastrostomy tubes are used for nutritional support in children for a variety of reasons. Whether placed operatively or percutaneously, tube changes are necessary in order to place a “button” or when the tube fails. While changing a G-tube is usually a simple procedure, it is not without potential serious complications, especially in neurologically impaired patients.

Methods: Chart reviews were conducted in 7 cases of known misplacement of G-tubes during tube changes.

Results: Four patients had tubes inserted into the peritoneal cavity, with resulting peritonitis after tube feedings were resumed. Two of these children recovered after laparotomy and washout. The other two children, both severely neurologically impaired, died as a result of the complication. In 3 patients, the replacement tube ended up in the small bowel (2) or colon (1), even though the gastrostomy had been functioning well for 3 to 13 months prior to recognition of misplacement.

Conclusions: Life-threatening complications related to G-tube changes require increased awareness. While misplacement may not be preventable, routine verification of placement by aspiration of gastric contents, instillation and withdrawal of water and by imaging when necessary, should allow early recognition of the problem and prevention of sequelae.

Case Report
Trainee Presentation

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Major Reduction In Complications After Laparoscopic Assisted Percutaneous Endoscopic Gastrostomy In Children Who Had Previous Upper Abdominal Surgery.

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Background/Purpose: Percutaneous endoscopic gastrostomy (PEG) provides enteral nutrition in children with feeding problems but has complications. This study was performed to identify risk factors for complications after PEG, adjust the PEG guideline accordingly and re-evaluate the complication rate.

Methods: Major complications after PEG were defined as need for surgery, non-prophylactic antibiotics, blood transfusion or procedure related mortality. Risk factors (mental retardation, scoliosis, constipation, hepatomegaly, upper abdominal surgery, ventriculoperitoneal (VP) shunt, peritoneal dialysis (PD), esophageal deformity and coagulopathy) were analyzed. Medical files of all patients receiving PEG from 1992 to 2008 were reviewed. Patients were divided in two groups: 1992 – 2003 and 2003 – 2008. In the second group the PEG guideline had been adjusted :laparoscopic assisted PEG (lap PEG) was performed in children who had previous abdominal procedures.

Results: The first group consisted of 268 patients; 15.3% developed major complications. A significant higher complication rate (46,4%,p=0.001) was found in children who had previous abdominal procedures (upper abdominal surgery, VP or PD). The second group (2003 – 2008) consisted of 201 patients(184 PEG,17 lap PEG). The complication rate in the patients with previous abdominal procedures had dropped to 0%.

Conclusions: Previous abdominal surgery is a risk factor for major complications after PEG. Laparoscopic assisted PEG placement in this subgroup significantly reduces the rate of major complications.

Original Paper

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Cardiac Injury Sustained During A Sternochondroplasty By The NUSS Technique

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Abstract: We present the case of a 15 year old asymptomatic boy with a severe pectus excavatum. Pre-operative investigations included a Chest X-Ray, pulmonary functions tests and echocardiography. The Haller Index pre-operatively was 20. On imaging study, the “bony” distance between the posterior aspect of the sternum and anterior aspect of the vertebral body was 1.4 cm. The planned surgical procedure was a sternochondroplasty by the NUSS technique and the procedure and risks were presented to the family. During the surgical procedure, despite a meticulous approach and bilateral thoracoscopies the patient sustained an intracardiac injury leading to tamponade and hemodynamic instability. The injury was rapidly recognized and the procedure was converted to an emergency sternotomy with rapid control of the injury. In addition to the entry point in the right atrium, the patient sustained a traumatic ventricular septal defect and developed heart failure controlled with medication. At the time of abstract submission, his care his still on going. We would like to discuss this case in details with lessons learned and perhaps review surgical indications and approach of the NUSS technique during the severe complications session of the 2008 CAPS meeting.

Case Report

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Paper 58

Lethal Complication After Percutaneous Needle Aspiration Of A Presumed Simple Neonatal Ovarian Cyst

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The Montreal Children's Hospital

Abstract: Background: Most surgeons agree that complex neonatal ovarian cysts, regardless of size, warrant operative intervention, and simple cysts 4cm is still controversial, although many favor intervention because of the increased risk of torsion. Laparoscopic cyst resection is favored by some, while others prefer less invasive percutaneous needle aspiration.

Case report: We present a newborn who was admitted with sepsis and respiratory failure after home delivery. Ultrasound done on day6 to check for umbilical venous line placement incidentally showed a simple ovarian cyst measuring 3.6cm x 5.9cm x 6.9cm. Percutaneous needle aspiration was atraumatic and revealed serous fluid, with cytology & an estradiol level compatible with an ovarian origin. Four days later surgery was indicated for deterioration with suspected hemorrhage into the cyst. We found a midgut volvulus with extensive necrosis secondary to a jejunal duplication cyst. Ovaries were normal and there was no evidence of malrotation. Postoperatively, after discussion with the parents, support was withdrawn and the child expired.

Conclusion: We should not rely solely on ultrasonographic features and fluid characteristics to diagnose a large neonatal abdominal cyst, but rather confirm the diagnosis with laparoscopy.

Case Report

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Migration Of Prosthetic Patch Into The Small Intestine

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Abstract: The reported complication with the use of prosthetic patch for repair of congenital diaphragmatic Hernia (CDH) includes re-herniation and patch infection.
A 3 year old boy who had neonatal repair of left CDH presented with intestinal obstruction. His abdominal CT confirmed small bowel obstruction and two foreign bodies within the small intestine. At laparotomy, the findings included multiple bowel adhesions, hair pin and Gortex patch within the small intestine and an intact diaphragm. After adhesolysis, both foreign bodies were removed through an enterotomy. We report this rare complication of prosthetic patch migrating into the intestine and to raise the pediatric surgeon awareness of its occurrence

Case Report
Trainee Presentation

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Paper 60

Skin Erosion Over Totally Implanted Vascular Access Devices In Children

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Background/Purpose: Erosion of the skin over a Totally implanted vascular access devices TIVAD is a rare event that may lead to life threatening sequelae.

Methods: From 1994 to 2007 we reviewed the medical records and central line database of 960 central line insertions for the complication of skin erosion over the TIVAD. Outcome measures included age, gender, nutritional status, number of days until complication, insertion site, and attending surgeon.

Results: 540 of the 960 central lines were TIVAD. Skin erosion over a TIVAD occurred in nine patients with an incidence of 1.67%. Average age at insertion was 51 months (range 25-116.5 months). The average catheter duration use in days was 335 with a range 39-1575 days. Malnutrition defined as BMI < 5% or a decrease in BMI percentiles occurred in 2 and 4 patients respectively and contributed to the thinning of the subcutaneous fat overlying the TIVAD. Anatomical location of the TIVAD in the anterior or anterolateral chest was not a factor in skin erosion.

Conclusions: Skin erosion over TIVAD is a rare complication. Most cases can be prevented by inserting the device in a subfacial location in the very young child or in the child with expected weight loss. Furthermore, the device should be placed at a fair distance from the skin incision to prevent early skin erosion through the wound.

Original Paper

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Paraplegia After Chest Wall Resection For Primitive Neuroectodermal Tumor

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Abstract: Background: Spinal cord complications are rarely encountered in elective pediatric surgery. We present a patient who became paraplegic after resection of a chest wall tumor.

Case Report: After initial chemotherapy, a child with primitive neuroectodermal tumor(PNET) of the right chest underwent resection. Ribs #3,4,5,6 were resected with a wedge of right upper and middle lobes. To obtain clear margins, the ribs were disarticulated from the spine. Significant bleeding arose when the fourth rib was detached. Presuming an intercostal vessel bleed, the area was packed with surgicel with resolution of bleeding. The patient was kept sedated and ventilated in the PICU. The next day, she complained of paresis of lower extremities. MRI revealed spinal cord compression at T4. Emergency decompression revealed giant epidural veins, with impressive bleeding. Blood clot and surgicel were found in the spinal canal. The patient never regained neurological function below the insult. Despite negative margins and ongoing adjuvant therapy, her tumor recurred and she succumbed within one year.

Conclusion: Chest wall tumors arising near the spinal canal may be associated with enlarged Batson's plexus that may hemorrhage during surgical resection. We recommend regular assessment of neurovitals postoperatively and immediate imaging for any concerns of spinal hemorrhage.

Case Report

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Paper 62

Neo-esophageo – pericardial fistula in a child with retrosternal gastric tube esophageal replacement

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Abstract: We present a 13 year old child who at the age of 3 yrs underwent a trans-mediastinal colonic esophageal replacement for a refractory corrosive injury followed by a retrosternal reverse gastric tube after an early catastrophic leak. He was thriving postoperatively and was lost to follow-up till he presented with a history of intermittent chest pain for 6 months. He was found to have an enlarged cardiac silhouette on CXR and a pericardial effusion on ECHO. A contrast swallow in preparation for pericardiocentesis showed contrast emptying into the pericardiac sac. He soon after developed fever and tachypnea, a CXR showed a left pleural effusion that was purulent on placing a chest tube. He further deteriorated requiring intubation after which he developed a tension pneumopericardial tamponade that was treated with CT guided pericardiocentesis. He was stabilized and operated on via a sternotomy. The gastric tube was not found to be strictured or ulcerated and was preserved. The fistula was closed and the suture line patched with pericardium. He is well 16 months post –op. This is a rare long-term complication that pediatric surgeons need to be aware of.

Case Report
Trainee Presentation

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