AMERICAN SOCIETY
OF
PEDIATRIC OTOLARYNGOLOGY

SIXTEENTH ANNUAL MEETING

MAY 9th to MAY 12th, 2001.

MARRIOTT'S CAMELBACK INN
RESORT, GOLF CLUB AND SPA
SCOTTSDALE, ARIZONA
CME INFORMATION

CME Credit
This activity has been planned and implemented in accordance with the Essentials and Standards of the Accreditation Council for Continuing Medical Education (ACCME) through the joint sponsorship of the American Academy of Otolaryngology-Head and Neck Surgery Foundation (AAO-HNSF). The AAO-HNSF is accredited by the ACCME to sponsor continuing medical education for physicians.

The AAO-HNSF designates this educational activity for a maximum of 12.5 hours in category 1 credit towards the AMA Physician's Recognition Award. Each physician should claim only those hours of credit that he/she actually spent in the educational activity.

In accordance with the ACCME and AAO-HNSF policies, all faculty members will disclose relevant financial relationships with commercial entities.

Notice about Off-Label Use Presentations and Exhibits.
AAO-HNSF meetings may include presentations and exhibits involving drugs or devices, or uses of drugs or devices, that have not been approved by the Food and Drug Administration (FDA).

The FDA restricts the type of information that may be disseminated by or on behalf of suppliers of drugs and medical devices with respect to regulated products, including information about unapproved uses of approved drugs and devices (off-label uses). The FDA does not regulate the practice of medicine, and therefore does not prevent physicians from independently teaching, describing, performing or prescribing off-label uses of drugs or devices. The FDA has also said that it is the responsibility of the physician to determine the FDA clearance status of each drug or device that he or she wishes to use in clinical practice.

AAO-HNSF is committed to the free exchange of medical education. Inclusion of any presentation or exhibit in the program, including presentations or exhibits on off-label uses, does not imply an endorsement of AAO-HNSF of the uses, products, or techniques presented.

An ASPO evaluation sheet is enclosed in your packet. This must be completed, legible, and turned in for category 1 CME credit hours to be awarded. Evaluations may be turned in at the meeting in designated areas.

CME credit hours will be recorded by the AAO-HNSF and reported on an annual cumulative transcript issued in January 2002. No separate ASPO CME certificates will be distributed.

Questions on CME for the ASPO Sixteenth Annual meeting may be directed to Rich Rosenfeld, MD, or Sheila Seid.
TABLE OF CONTENTS

PAGE NUMBER

CME CREDIT INFORMATION .......................................................... INSIDE FRONT COVER
MISSION STATEMENT .................................................................

ASPO BOARD OF DIRECTORS .................................................................. 1
ASPO COMMITTEES .................................................................................. 2
PAST PRESIDENTS .................................................................................... 4
ASPO COMMITTEE MEETINGS ................................................................. 5
ASPO PROGRAM SUMMARY ....................................................................... 6
SOCIAL EVENTS ....................................................................................... 7
ASPO GUESTS 2001 .................................................................................... 8

ASPO SCIENTIFIC SESSION
THURSDAY MAY 10th, 2001 ..................................................................... 9

ASPO SCIENTIFIC SESSION
FRIDAY MAY 11th, 2001 ......................................................................... 31

POSTER PRESENTATIONS .......................................................................... 63

SPONSORS .............................................................................................. INSIDE BACK COVER
MISSION STATEMENT

The American Society of Pediatric Otolaryngology is a professional society of physicians dedicated to the care of ear, nose and throat disorders in children. The Annual Meeting and Scientific Program provides a forum for dissemination of recent advances in research and clinical care, and other issues relating to the care of ear, nose and throat disorders in children. Oral and poster presentations at the scientific session will be complemented by the ASPO Compendium of Case Reports.

Educational Objectives

Following the program, participants should be able to:

Summarize the current status of Pediatric Otolaryngology-Head and Neck Surgery in the United States and other countries.

Discuss recent developments in instruments, equipment, and other materials used in the field of Pediatric Otolaryngology-Head and Neck Surgery.

Describe recent advances in diagnosing and managing airway disorders, sinus disease, tonsil and adenoid disorders, otitis media, hearing and communication problems, and head and neck lesions in children.

Communicate overall advances in Pediatric Otolaryngology-Head and Neck Surgery.

Who Should attend: Physicians, nurses, scientists and associated persons in professional disciplines with special interest in the ear, nose, and throat care of children should attend. Included are audiologists, speech and language pathologists, and other allied health professionals.
ASPO
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2001

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BIRMINGHAM, AL

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BOSTON, MA
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### 2000-2001

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- Randal Clary, M.D.
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- Max April, M.D.
- Paul Willging, M.D.
- Sharon Gibson, M.D.

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- J. Scott McMurray, M.D.

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- Sally Shott, M.D.
- Jacqueline Jones, M.D.
- Tom Andrews, M.D.

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- **Richard J.H. Smith, M.D. - Chairperson**
- Margaretha Casselbrant, M.D.
- Scott Schoem, M.D.
- Robert Ward, M.D.
- Gregory Wiet, M.D.

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- **Robert Ward, M.D. - Chairperson**
- Carol Gerson, M.D.
- Steven Cook, M.D.
- Ben Asher, M.D.
- Stephen Conley, M.D.

### LONG RANGE/ STRATEGIC PLANNING COMMITTEE
- **Scott Manning, M.D. - Chairperson**
- Patrick Connolly, M.D.
- Christopher Post, M.D.
- Joseph Haddad, M.D.
- David Tunkel, M.D.
<table>
<thead>
<tr>
<th>Committee</th>
<th>Chairperson</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM COMMITTEE</td>
<td>Richard Rosenfeld, M.D.</td>
<td>2001</td>
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<td></td>
<td>Anna Messner, M.D.</td>
<td>2003</td>
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<td>Mark Volk, M.D.</td>
<td>2001</td>
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<td>Sukgi Choi, M.D.</td>
<td>2003</td>
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<td>Nancy Bauman, M.D.</td>
<td>2002</td>
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<td>Carlos Gonzalez, M.D.</td>
<td>2002</td>
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<tr>
<td>INFORMATION/TECHNOLOGY COMMITTEE</td>
<td>Steven Gray, M.D.</td>
<td>2001</td>
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<td>Bruce Matt, M.D.</td>
<td>2003</td>
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<td>Robert Ruben, M.D.</td>
<td>2002</td>
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<td>Michael Rothschild, M.D.</td>
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<td>Richard Hubbell, M.D.</td>
<td>2001</td>
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<td>LIAISON COMMITTEE</td>
<td>Anthony Magit, M.D.-Chairperson</td>
<td>2003</td>
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<td>Andrew Hotaling, M.D.(AAP)</td>
<td>2003</td>
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<td>William Gibson, M.D.(SENTAC)</td>
<td>2001</td>
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<td>Audie Woolley, M.D.(AAO-HNS)</td>
<td>2002</td>
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<td>INTELLECTUAL PROPERTY RIGHTS COMMITTEE</td>
<td>Margaret Kenna, M.D.-Chairperson</td>
<td>2004</td>
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<td>J. Lindhe Guarisco, M.D.</td>
<td>2004</td>
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<td>Franklin Rimell, M.D.</td>
<td>2001</td>
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<td>Wendell Todd, M.D.</td>
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<td>Peggy Kelly, M.D.</td>
<td>2004</td>
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<td>Valerie Flanary, M.D.</td>
<td>2004</td>
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<tr>
<td>CENTRALIZED OTOLARYNGOLOGY RESEARCH EFFORTS (CORE)</td>
<td>Margaret Kenna, M.D.</td>
<td>2004</td>
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<td>Frank Rimell, M.D.</td>
<td>2001</td>
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<td>WOMEN'S COMMITTEE</td>
<td>Carol Gerson, M.D.</td>
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<td>YOUNG PHYSICIAN'S COMMITTEE</td>
<td>Ayal Wilner, M.D.</td>
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<td>Name</td>
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<td>Seymour R. Cohen, M.D.</td>
<td>1985-1986</td>
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<td>Francis I. Catlin, M.D.</td>
<td>1986-1987</td>
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<td>Gerald B. Healy, M.D.</td>
<td>1987-1988</td>
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<td>Robin T. Cotton, M.D.</td>
<td>1988-1989</td>
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<td>Mark A. Richardson, M.D.</td>
<td>1989-1990</td>
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<td>Allan B. Seid, M.D.</td>
<td>1992-1993</td>
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<td>Kenneth M. Grundfastic, M.D.</td>
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<td>Robert J. Ruben, M.D.</td>
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<td>Rodney P. Lusk, M.D.</td>
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<td>James S. Reilly, M.D.</td>
<td>1996-1997</td>
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<td>Patrick E. Brookhouser, M.D.</td>
<td>1997-1998</td>
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<tr>
<td>Ellen M. Friedman, M.D.</td>
<td>1998-1999</td>
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SLIDE READY ROOM  
Cholla  
Wednesday 3:00 p.m. to Friday 5:00 p.m.

MEDIA ROOM  
Palo Verde  
Thursday 8:00 a.m. to Friday 5:00 p.m.

ASPO COMMITTEE MEETINGS

WEDNESDAY MAY 9TH, 2001

<table>
<thead>
<tr>
<th>COMMITTEE</th>
<th>TIME</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit Committee</td>
<td>2:30 - 3:30 p.m.</td>
<td>Board Room</td>
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<tr>
<td>Fellowship Committee</td>
<td>2:30 - 3:30 p.m.</td>
<td>Goldwater Gallery</td>
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<tr>
<td>Finance Committee</td>
<td>2:30 - 3:30 p.m.</td>
<td>Mesquite</td>
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<td>Ethics Committee</td>
<td>2:30 - 3:30 p.m.</td>
<td>Nogales</td>
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<td>Long Range Planning Committee</td>
<td>2:30 - 3:30 p.m.</td>
<td>Octillo</td>
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<td>Intellectual Property Committee</td>
<td>2:30 - 3:30 p.m.</td>
<td>Saguaro</td>
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<tr>
<td>Information / Technology Committee</td>
<td>2:30 - 3:30 p.m.</td>
<td>Tucson</td>
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<tr>
<td>AAO-HNS Pediatric Otolaryngology Committee</td>
<td>2:30 - 3:30 p.m.</td>
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<td>ASPO Board Meeting</td>
<td>4:00 - 5:30 p.m.</td>
<td>Board Room</td>
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<tr>
<td>Fellowship Directors Meeting</td>
<td>5:30 - 6:30 p.m.</td>
<td>Saguaro</td>
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THURSDAY MAY 10TH, 2001

ASPO Business Meeting  
(Members only)  
8:00 - 9:00 a.m.  
Scottsdale West

FRIDAY MAY 11TH, 2001

ASPO Board Meeting  
6:30 - 7:45 a.m.  
Board Room

ASPO Business Meeting  
(Members only)  
2:00 - 2:30 p.m.  
Scottsdale West

RRP Task Force  
5:00 - 6:00 p.m.  
Town Hall

SATURDAY MAY 12TH, 2001

RRP Task Force Software Demonstration Breakfast  
7:30 - 8:30 a.m.  
Town Hall
ASPO SCIENTIFIC PROGRAM SUMMARY

THURSDAY MAY 10TH, 2001

**TIME** | **LOCATION**
---|---
9:00 a.m - 12 noon | ASPO Scientific Session
12 noon - 2:00 p.m | Lunch with Exhibitors
2:00 p.m. - 5:00 p.m | ASPO Scientific Session

FRIDAY MAY 11TH, 2001

**TIME** | **LOCATION**
---|---
8:00 a.m. - 12:15p.m. | ASPO Scientific Session
12:30 p.m. - 1:45 p.m. | Scottsdale West

**CONCURRENT BREAKOUT SESSIONS**

**Session A:**
The Heart of Practice: Finding Meaning in our Work
Flagstaff / Prescott

**Session B:**
Practical Challenges in Pediatric Otolaryngology: Beyond the Textbook
Scottsdale East

**Session C:**
Financial Empowerment for Pediatric Otolaryngology
Sedona / Carefree

2:30 p.m. - 5:00 p.m | ASPO Scientific Session

POSTER SESSIONS

**LOCATION:** Paradise Valley West

**Wednesday May 9th, 2001**
3:00 - 5:00 p.m. Poster Set Up

**Thursday May 10th, 2001**
8:00 a.m.-5:00 p.m. Poster viewing
6:00 p.m. - 7:30 p.m. Meet the Authors Wine and Cheese Reception

**Friday May 11th, 2001**
8:00 a.m. - 5:00 p.m. Poster viewing
5:00 - 6:00 p.m. Poster teardown
SOCIAL EVENTS

<table>
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<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tr>
<td><strong>WEDNESDAY MAY 9th, 2001</strong></td>
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<td>6:30 – 8:30 p.m.</td>
<td>PRESIDENT’S RECEPTION</td>
<td>Sonoran Terrace</td>
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<td><strong>THURSDAY MAY 10th, 2001</strong></td>
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<td>7:00 – 8:00 a.m.</td>
<td>NEW MEMBER BREAKFAST</td>
<td>Cholla</td>
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<td>5:50 – 7:30 p.m.</td>
<td>MEET THE POSTER AUTHORS CHEESE AND WINE RECEPTION sponsored by Dalichi Pharmaceutical</td>
<td>Paradise West</td>
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<td><strong>FRIDAY MAY 11th, 2001</strong></td>
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<td>6:30 – 7:00 p.m.</td>
<td>Fun Run /Power Walk</td>
<td>meet at Spa Fountain</td>
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<td>7:30 – 10:00 p.m.</td>
<td>BANQUET: WESTERN COOKOUT</td>
<td>Mummy Mountain</td>
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<td><strong>SATURDAY MAY 12th, 2001</strong></td>
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<td>9:00a.m. to 5:00 p.m.</td>
<td>FULL DAY POST CONFERENCE TOUR TO SEDONA.</td>
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ASPO GUESTS 2001

GUEST OF HONOR
Mary Kaye Richter
Executive Director, NFED
Mascoutah, Illinois

HONORED GUESTS
Robin T. Cotton, M.D.
Professor,
Sally R. Shott, M.D.
Associate Professor
J. Paul Willging, M.D.
Associate Professor
John H. Greinwald, M.D.
Assistant Professor
Glen O. Bratcher, M.D.
Assistant Professor
Daniel I. Choo, M.D.
Assistant Professor

Department of Otolaryngology
Children’s Hospital Medical Center
Cincinnati, OH

CHARLES D. BLUESTONE LECTURE
Stan L. Block, M.D.
Bardstown, Kentucky

KARL STORZ AWARD
Theodore W. Striker, M.D.
Anesthesiologist in Chief
Director, Department of Anesthesia
Children’s Hospital Medical Center
Cincinnati, Ohio
American Society of Pediatric Otolaryngology
May 9 – 12, 2001
SCIENTIFIC PROGRAM

WEDNESDAY, MAY 9

2:30 – 3:30 P.M. COMMITTEE MEETINGS
3:00 – 5:00 P.M. POSTER SET-UP
4:00 – 5:30 P.M. ASPO BOARD MEETING
5:30 – 6:30 P.M. FELLOWSHIP DIRECTORS MEETING
6:30 – 8:30 P.M. PRESIDENT’S RECEPTION

THURSDAY, MAY 10

6:30 – 8:00 A.M. NEW MEMBER BREAKFAST
8:00 – 9:00 A.M. ASPO BUSINESS MEETING Scottsdale West

9:00 A.M. SCIENTIFIC SESSION
ANNOUNCEMENTS & WELCOME: Scottsdale West
Charles M. Myer III, MD, ASPO President
Richard M. Rosenfeld, MD, MPH, ASPO Program Chair

Topic: LARYNGOLOGY and BRONCHOESOPHAGOLEY
Moderator: Mark Volk, MD, Boston, MA

9:10 A.M. A1: Natural history of juvenile-onset recurrent respiratory papillomatosis
William Reeves, MD, MSPH; Katherine Swanson, MPH; Craig Derkay, MD; Elizabeth Unger, PhD, MD

9:18 A.M. A2: Can mumps vaccine induce remission in recurrent respiratory papilloma?
Nigel Pashley, MB, BS

9:26 A.M. A3: Immunocompetency in children with recurrent respiratory papillomatosis
Yoram Stern, MD; Alexander Felipovich, MD; J. Paul Willging, MD; Charles Myer III, MD; Robin Cotton, MD

9:34 A.M. DISCUSSION

9:45 A.M. Introduction of the Karl Storz Award recipient
by Charles M. Myer III, MD, ASPO President

9:50 A.M. KARL STORZ AWARD LECTURE
Pediatric Otolaryngology and Anesthesia: Historic Perspective
Theodore W. Striker, MD, Wyoming, OH
10:15 – 10:45 A.M.  COFFEE BREAK (Exhibit Area)  Scottsdale East

Topic:  OTOLOGY and AUDIOLOGY
Moderator:  Margaret Kenna, MD, Boston, MA

10:45 A.M.  A4: Cochlear implants induce auditory neural maturation in congenitally deafened children
Thierry Van Den Abbeele, MD, PhD; Nathalie Noel-Petroff, MD; Paul Viala, MD; Bruno Frachet MD, Phillipe Narcy, MD

10:53 A.M.  A5: Device complications in pediatric cochlear implantation
Eytan Young, MD; Marilyn Neault, PhD; Margaret A. Kenna, MD

11:01 A.M.  A6: Clinical and audiologic features in auditory neuropathy
Daniel Choo, MD; Michael Rutter, FRCS; Lisa Hilbert, MA; Colm Madden FRCS; John Greinwald, MD

11:08 A.M.  A7: Early auditory deaffrentation and intracochlear electrical stimulation induce long-term modification of GABA A receptor subunits
Rémi Marianowski, MD, PhD; Wen-Huei Liao, MD; Thierry Van Den Abbeele, MD, PhD; Patrice Tran Ba Huy, MD

11:15 A.M.  DISCUSSION

Topic:  TONSILS and ADENOIDS
Moderator:  Charles Bower, MD, Little Rock, AR

11:27 A.M.  A8: Impact of adenotonsillectomy on child quality of life in obstructive sleep disorders
Lianne de Serres, MD, MS; Craig Derkay, MD; Michael Biavati, MD; Jacqueline Jones, MD; David Tunkel, MD; Kathleen Sie, MD; Joseph Haddad Jr., MD; Scott Manning, MD; Andrew Inglis, MD; Dimitra Tampakapoulou, MD

11:35 A.M.  A9: Impact of tonsillectomy and adenoidectomy on child behavior
Mahnum Fatima, MD; Nira Goldstein, MD; Thomas Campbell, PhD; Richard Rosenfeld, MD, MPH

11:43 A.M.  A10: Tonsillectomy in the under two year old child: indications, complications, and outcomes
Andreas Werle, MD; Daniel Kirse, MD; Pamela Nicklaus, MD; Daniel Bruegger, MD

11:51 A.M.  DISCUSSION

12:00 – 2:00 P.M.  LUNCH with EXHIBITORS  Scottsdale East
2:00 P.M. Introduction of the Presidential Guest of Honor
by Charles M. Myer III, MD, ASPO President

2:05 P.M. PRESIDENTIAL KEYNOTE ADDRESS
Frozen Boogers...Finding Answers in Unexpected Places
Mary Kaye Richter, Mascoutah, IL

Topic: HEAD and NECK SURGERY
Moderator: Michael Rothschild, MD, New York, NY

2:30 P.M. A11: Vagus nerve stimulator implantation in children
Daniel Kirse, MD; Andreas Werle, MD; Tom Eyen, MD; Daniel Bruegger, MD; Greg Hornig, MD; Jerome Murphy, MD; Richard Torkelson, MD

2:38 P.M. A12: Management of pediatric plunging ranula
Murali Mahadevan, FRACS; Nilesh Vasan, FRACS

2:46 P.M. A13: Age-specific differences in presentation, organism, and site of deep neck abscesses
James Coticchia, MD; Geoffrey Getnick, BS; James Arnold, MD

2:54 P.M. A14: Treatment of deep neck abscess by intravenous antibiotics
John McClay, MD; Alan Murray, MD; Tim Booth, MD

3:02 P.M. DISCUSSION

3:15 – 3:45 P.M. COFFEE BREAK (Exhibit Area)

Topic: OTOLOGY and AUDIOLOGY
Moderator: Anthony Magi!, San Diego, CA

3:45 P.M. A15: Water precautions and tympanostomy tubes: a randomized, controlled trial
Nira Goldstein, MD; Ellen Mandel, MD; Janine Janosky, PhD; Margaretha Casselbrant, MD, PhD

3:53 P.M. A16: Disease-specific quality of life outcomes after surgical intervention for otitis media
Michele Richards, MD; Carla Giannoni, MD

4:01 P.M. A17: Incidence and risk factors for subsequent ENT surgery after placement of myringotomy tubes in children
Mark Boston, MD; Craig Derkay, MD; Joseph McCook

4:08 P.M. DISCUSSION
4:20 P.M.  Panel:  Otitis Media Controversies 2001
Moderator:  Margaretha L. Casselbrant, MD, PhD, Pittsburgh, PA
Panelists:  Margaret A. Kenna, MD, Boston, MA
           Craig S. Derkay, MD, Norfolk, VA
           Charles M. Bower, MD, Little Rock, AR

5:00 P.M.  ADJOURN

6:00 -- 7:30 P.M.  WINE & CHEESE RECEPTION  Paradise Valley West
Objective: To characterize the natural history of JORRP in the United States.
Design: Standardized medical record abstraction through national registry of JORRP.
Setting: 22 tertiary-care pediatric otolaryngology centers throughout the United States.
Participants: Patients (<18 yrs) with active JORRP seen between January 1, 1996 and June 30, 2000.
Outcome Measures: Age at diagnosis, anatomic sites of disease, longitudinal disease course, numbers of surgical procedures, tracheostomy.
Results: The registry includes data from 549 children (50.4% female; 63.4% white, 29.7% black and 6.9% other racial group). The mean age at diagnosis was 4.0 yrs with no significant differences when stratified by sex, race, ethnic group or insurance status. The mean number of lifetime surgical treatments was 17.5 (median 10.0) and the annual mean number was 3.1 (median 2.3). The anatomic extent of disease was noted for 487 children. Only one anatomic site involved in 83.6%, 94.6% being the larynx. Longitudinal data were available for 449 patients. Of these, most (72.6%) had stable disease, 3.6% showed regression, 8.2% showed progression and 15.6% had no evidence of disease for at least one year. Children whose disease progressed were significantly younger at diagnosis than those who had stable disease (mean age 2.2 versus 3.9 yrs, p = 0.001). The 47 patients with tracheostomy were significantly younger at diagnosis than those without (median 1.5 versus 3.1 yrs, p <0.0001).
Conclusions: Continuation of the Registry data collection is planned to provide refined information on the natural history of JORRP.
Objective: To describe our experience using laser excision and locally injected mumps vaccine to induce remission in patients with RRP.

Design: Pilot study group of 11 children, subsequent case series of 18 children and 20 adults.

Setting: Tertiary care regional medical center.

Participants: Initially, 11 children with RRP, all treated with laser excision at regular intervals for at least a year without any adjuvant therapy. Later 18 children and 20 adults with RRP, some of whom had used various adjuvant therapy with interval laser excision.

Interventions: Both patient groups continued their same interval laser excision, using the same or similar laser, same clinical setting, same surgeon. Locally injected mumps vaccine was then administered into the excision site after each laser removal of papilloma.

Outcome measures: Larynx and trachea were observed microphotographically with each treatment. Two consecutive disease free intervals and a follow up of at least one year were required criteria for remission.

Results: In the pilot study, remission was induced in 9/11 patients (81.8%) by 1 to 10 injections, with follow up of 5 to 19 years. In the subsequent series, remission was induced in 29/38 patients (76.3%) by 4 to 26 injections and follow up was 2 to 5 years.

Conclusions: Combined with serial laser excision, mumps vaccine positively influences induction of remission in children with RRP. The mechanisms of this effect are unclear but the treatment is readily available, cheap, and has a low risk of side effects.
IMMUNOCOMPETENCY IN CHILDREN WITH RECURRENT RESPIRATORY PAPILLOMATOSIS: PROSPECTIVE STUDY

Yoram Stern MD1,2, Alexander Felipovich MD3, J. Paul Willging MD2, Charles M. Myer MD2, Robin T. Cotton MD2,

1,2Department of Pediatric Otolaryngology, Schneider’s Children’s Medical Center of Israel, Petah Tikva, Israel
2Departments of Otorhinolaryngology, 3Hematology and Oncology, Children’s Hospital Medical Center, Cincinnati, Ohio, USA
972-3-9253755 tel; 972-3-9253273 fax; pwillging@chmcc.org

Introduction: The haphazard transmission rates of human papilloma virus (HPV) and unpredictable recurrence patterns of recurrent respiratory papillomatosis (RRP) suggest that affected children may be immunologically vulnerable.

Objectives: To investigate the immunologic status of children with RRP and to evaluate any correlation between the patients’ immunocompetency and the clinical course of the disease.

Intervention: Twenty children with RRP underwent immunologic evaluation every 12 months which included complete blood count, serum immunoglobulin levels, lymphocyte subpopulation analysis (CD3, CD4, CD8, CD16, CD19), responses of lymphocytes to mitogens stimulation (MS) and natural killer (NK) cell function. The patients were observed prospectively (42-56 months) and their clinical course (number of papilloma sites, distal tracheobronchial spread and frequency of recurrences) were recorded.

Results: CD4/CD8 ratio and lymphocyte MS responses were significantly reduced in children with RRP compared to normal controls. Reduced lymphocyte MS responses were significantly correlated to a high number of papilloma sites and more frequent recurrences. Abnormal NK function was significantly correlated to more frequent recurrences.

Conclusion: Compromised cell-mediated immune response may permit repeated or persistent HPV infection leading to development of RRP in children. Patients with aggressive clinical course may have underlying cell-mediated immunodeficiency. Long-term perspective investigations are needed to establish the role of the host immune system in the pathogenesis of RRP in children.
PODUM A4

COCHLEAR IMPLANTS INDUCE AUDITORY NEURAL MATURATION IN CONGENITALLY DEAFENED CHILDREN.

Thierry Van Den Abbeele MD, PhD¹, Nathalie Noel-Petroff MD¹, Paul Viala MD¹, Bruno Frachet MD², Philippe Narcy MD¹

¹Department of Pediatric Otolaryngology, Robert Debré Hospital, AP-HP, Paris, France
²Department of Otolaryngology, Avicenne Hospital, AP-HP, Bobigny, France
33-140032179 tel; 33-140034717 fax; thierry.van-den-abbeele@rdb.ap-hop-paris.fr

Purpose: to compare in a prospective study the effects of chronic electrical stimulation by multichannel cochlear implants in early congenital or progressively deafened children on objective measurements.

Patients: 16 children (26 months-10 years, mean 4.8 years) presenting with a bilateral profound deafness were consecutively implanted with a Clarion S-series cochlear implant from February 1998 to December 1999.

Methods: Electric Auditory Brainstem Potentials (EABR) were recorded in all children at the end of the surgical procedure of cochlear implantation and after 9-12 months of daily use. Stimuli were monopolar alternated pulses (75 μs/phase, 40 Hz).

Results: EABR responses were obtained in all cases. The intraoperative mean latencies and amplitude of wave V (6 dB above the threshold) were better in progressively deafened children (4.12 ± 0.06 ms, 0.65 ± 0.1 μV, n=7) as compared with early congenitally deafened children (4.5 ± 0.13 ms, p<0.02 and 0.30 ± 0.03 μV, n=9, p<0.002) suggesting developmental differences of the neuronal pathways between these two groups. These values improved significantly in the "congenital" group (4.07 ± 0.1 ms, p<0.01 and 0.70 ± 0.06 μV, p<0.005, n=9) and in a less extent in the "progressive" group (3.92 ± 0.1 ms and 0.95 ± 0.14 μV, n=7). Differences between both groups were not significant after one year.

Conclusion: congenitally deafened children improve EABR responses after one year of daily use of the cochlear implant suggesting that electrical stimulation induces a maturation of central auditory pathways. These results support the concept of early implantation in congenitally deafened children.
DEVICE COMPLICATIONS IN PEDIATRIC COCHLEAR IMPLANTATION

Eytan Young MD, Marilyn Neault PhD, Margaret A. Kenna MD

Department of Otolaryngology and Communication Disorders, Children's Hospital Boston, MA
617-355-6460 tel; 617-355-8041 fax, eytan_young@yahoo.com

Objective: To look at device related complications in a group of pediatric cochlear implant (CI) recipients.

Design: A retrospective study of children with cochlear implants

Setting: An Academic Children's Hospital

Participants: 121 children with CI followed in a single pediatric CI program.

Intervention: Ongoing evaluation of the CI device

Outcome measures: Problems related to the CI device

Results: Of 121 children ages 15 months through 25 years and with a mean follow up of 2.5 years (range 2 to 10 years) after cochlear implantation, 16 have had problems related to the internal device. Four groups of device complications are described: device failure (5), facial nerve stimulation requiring turning off two or more electrodes (4), malfunction of isolated electrodes (4), and kinked arrays (3). Replacement of the CI was required in all device failures and is being considered in one case of facial nerve stimulation. Mapping adjustment allowed for functional audition in all remaining cases.

Conclusion: Although devices are sturdy and long lived, device complications may occur. Since complications are manageable, we recommend that children with CI be closely monitored post implantation. Timely intervention can minimize the adverse affects of a prolonged loss of auditory input provided by this excellent intervention for deaf children.
Objective: To clinically and audiologically characterize the population of children diagnosed with Auditory Neuropathy (AN).

Study Design: A retrospective chart review of the last 15 patients diagnosed at our institution with AN.

Setting/Subjects: 15 patients identified from a pediatric otology clinic in a tertiary care pediatric hospital setting.

Results: 15 children were diagnosed with AN based upon either positive Otoacoustic Emissions (OAEs) with an absent Auditory Brainstem Response (ABR) or OAEs with only a cochlear microphonic (CM) on ABR. An additional 2 patients were identified with an obvious CM on ABR but failed to demonstrate robust OAEs. A hereditary/genetic factor in AN is suggested by our identification of 3 families (each with 2 affected children) as well as 2 other children with positive family histories of hearing loss in our cohort. Clinical features common amongst our population included a history of hyperbilirubinemia (47%), prematurity (41%), family history of hearing loss (41%), neonatal ventilator dependence (35%), ototoxic drug exposure (29%) and cerebral palsy (17%). Significantly, 4 patients showed improvement in behavioral thresholds over time, indicating that a subset of children with AN may recover useful hearing levels. Also significant is the success of 2 children diagnosed with AN after cochlear implantation.

Conclusions: These early data suggest that management of children with AN requires serial clinical and audiometric evaluations with a prominent role for behavioral testing. For those children not benefiting from amplification or FM systems, cochlear implantation remains a potentially successful method of habilitation.
Objective: To investigate the effects of early postnatal deafening by daily amikacin injections and intracochlear electrical stimulation (ICES) on auditory pathways. Expression of mRNAs encoding ionotropic γ-aminobutyric acid type A (GABA\(_A\)) receptor subunits was assessed by \textit{in situ} hybridization in the dorsal (DCN) and the ventral cochlear nucleus (VCN) and in the central nucleus of the inferior colliculus (CNIC).

Design: Experimental study.

Setting: Tertiary referral center, institutional pediatric practice, hospitalized care.

Results: Daily amikacin injections from P7 to P16 induced a complete destruction of the organ of Corti. Early postnatal deafening increased the expression of mRNAs encoding some GABA\(_A\) subunits (\(\alpha_1, \beta_1, \gamma_2\)) in auditory pathways of newborn deafened rats. After 15 days of daily unilateral ICES, the expression of some GABA\(_A\) subunits (\(\alpha_1, \beta_1, \gamma_1, \gamma_2\)) was increased bilaterally in the DCN, VCN, and the CNIC. These changes were more pronounced in cochlear nuclei than in CNIC and did not last over a week after stimulation.

Conclusion: These results suggest that auditory sensation is essential for the normal development of central auditory pathways. These modifications might be related to long lasting synaptic plasticity of brainstem auditory pathways. As far as analogy to deaf children can be made, early electrical stimulation might be of interest to maintain neuronal networks and to induce synaptogenesis within the efferent pathways.
IMPACT OF ADENOTONSILLECTOMY ON CHILD QUALITY OF LIFE IN OBSTRUCTIVE SLEEP DISORDERS

Lianne M. de Serres MD, MS, Craig S. Derkay MD, Michael Biavati MD, Jaqueline Jones MD, David Tunkel MD, Kathleen C.Y. Sie MD, Joseph Haddad Jr. MD, Scott C. Manning MD, Andrew F. Inglis MD

Children’s Hospital of New York, New York, NY
212-305-8933 tel; 212-305-6142 fax; lmd54@columbia.edu

Objectives: To determine the impact of adenotonsillectomy on child QOL in children with obstructive sleep disorders (OSD) before and after surgery.

Design: Prospective, observational, before and after trial.

Setting: Six tertiary pediatric otolaryngology practices

Patients: Convenience sample of 101 children (median age 5.8 years) with adenotonsillar hypertrophy and OSD scheduled for adenotonsillectomy.

Intervention: Adenotonsillectomy was performed on children for an OSD. QOL was assessed using the Obstructive Sleep Disorders-6 (OSD-6), a validated instrument for detecting QOL change in children with OSD. Surveys were completed at the initial office visit (visit 1), day of surgery (visit 2), and the postoperative office visit (visit 3). Physical characteristics were assessed using tonsillar and orocraniofacial scales (visit 1). Satisfaction with health care decisions was assessed using Satisfaction with Decision Scale and Satisfaction with Office Visit measures (visit 1).

Outcome measures: Short-term changes in QOL before (visit 1-2) and after surgery (visit 2-3).

Results: Changes in QOL prior to surgery were trivial or small, and smaller than changes after surgery (Mean change score 0.18 vs. 2.3, p< .0001). Large, moderate, and small improvements in quality of life were seen in 77.2%, 6.9%, and 9.9% of children, respectively. Sleep disturbance, caregiver concern, and physical suffering were the most improved domains, although significant changes also occurred for speech and swallowing problems, emotional disturbance, and activity limitations. Six percent of children had poorer quality of life after surgery, however no predictive factors were identified.

Conclusions: Adenotonsillectomy produces large improvements in QOL in the majority of children with OSDs.
Objective: To measure the impact of Tonsillectomy and Adenoidectomy (T & A) on children's behavioral and emotional problems using a standardized assessment of child behavior, the Child Behavior Checklist (CBCL), and a validated quality of life survey of pediatric obstructive sleep apnea, the OSA-18.

Design: Prospective study.

Setting: Tertiary care academic medical center.

Participants: 32 children (mean age 5.2 ± 3.7 yrs, 14 boys, 18 girls) who underwent T & A for treatment of obstructive sleep apnea syndrome (OSAS), upper airway obstruction, or recurrent tonsillitis.

Intervention: Parents or caretakers completed the CBCL for ages 2 - 3 or 4 - 8 years, as well as the OSA-18, prior to surgery and 3 months postoperatively.

Main Outcome Measure: The CBCL total problem score (T score).

Results: The experimental group consisted of the 22 children who scored ≥ 60 on the preoperative OSA-18, suggesting a moderate to severe impact on Health-related quality of life (HRQL), and the control group consisted of the 10 children who scored < 60 on the preoperative OSA-18, suggesting a small impact on HRQL. Postoperatively, 21 of the 22 experimental children scored < 60 on the OSA-18. The preoperative CBCL T score was consistent with abnormal behavior for 11 (50%) experimental children. After T & A, only 3 (14%) experimental children had abnormal scores. No control child had an abnormal T score before or after T & A.

The mean T score was 9.5 points lower after surgery (95% confidence interval, 6.2 - 12.8) in the experimental group, as compared to 3.1 points lower after surgery in the control group (95% confidence interval, -1.5 - 7.7), indicating a significant decrease in the experimental group (P < .00001, matched t-test).

Conclusions: This study demonstrates a high prevalence (50%) of abnormal behavior in children who score in the abnormal range on a validated pediatric OSAS quality of life instrument. Both HRQL scores and scores on a standardized measure of behavior improve following T & A.
Objective: To review the experience with tonsillectomy in the under two year old child at an urban children's hospital.

Design: Retrospective chart review

Setting: Tertiary care children's hospital

Participants: 94 patients under two years old undergoing tonsillectomy between June 1, 1995, and May 31, 2000.

Interventions: 73 patients (78%) underwent tonsillectomy and adenoidectomy (T&A). 11 patients (12%) underwent tonsillectomy without adenoidectomy. A number of patients also underwent other minor procedures. The methods of tonsil and adenoid excision were noted, as was the use of perioperative steroids, antibiotics, and antiemetics.

Main outcome measures: 1) Duration of post-operative inpatient observation; 2) Complications; 3) Time to first oral intake; 4) Prevalence of post-operative vomiting; 5) Type and duration of respiratory support; and 6) Improvement relative to operative indications.

Results: Patient ages ranged from 12 to 23 months (mean 19.6 +/- 3.1). Indications included obstructive sleep apnea in 51 patients (54%), chronic or recurrent tonsillitis in 29 (31%), and other conditions in 14 (15%). Complicating conditions were numerous. Sleep studies were obtained for 8 patients (8%). Hospital stays ranged from 4 hours to 13 days. Complications included hemorrhage in 4 patients (4%) and pneumonia in 2 (2%). Oxygen was required after discharge from the recovery room in 29 patients (31%), with 7 of these requiring reintubation, continuous positive airway pressure, or nasopharyngeal airways. Of the 89 patients on oral diets, only 3 (3%) experienced a delay in discharge due to inability to take p.o. Interestingly, only 2 patients (2%) experienced emesis after surgery. Four patients (4%) required treatment for dehydration after discharge.

Conclusions: Tonsillectomy is an effective procedure with low morbidity in the healthy child under two years of age. However, comorbid conditions often require special perioperative management strategies.
Background: Vagus nerve stimulation was approved in 1997 for the treatment of partial onset seizures refractory to medical therapy in patients 12 years of age and over. Subsequent to the initial clinical trials, no studies have been published specifically addressing peri-operative management issues.

Objective: To present the operative technique and peri-operative management of patients undergoing vagus nerve stimulator implantation. Complications and their management are analyzed.

Design: Retrospective chart review and survey of implanted patients.

Patients: 100 consecutive patients aged 22 months to 18 years.

Setting: Tertiary care pediatric hospital.

Intervention: Vagus nerve stimulator implantation and lead placement.

Main Outcome Measures: To present, in detail, the surgical technique of vagus nerve stimulator implantation from skin prep, to incision placement, to skin closure. Peri-operative complications are enumerated and strategies in their management are described. A patient survey addresses quality of life issues such as hoarseness, impact on swallowing, and prolonged pain related to the device.

Results: 100 patients successfully underwent vagus nerve stimulator implantation. Three patients experienced infection of the chest wound holding the generator and required explantation. These three patients were re-implanted within two months. Two patients have undergone removal of the vagus nerve leads. Most patients experience some degree of hoarseness when the generator is activated but this symptom can be lessened with proper programming of the generator output.

Conclusions: Vagus nerve stimulator implantation has a low incidence of serious complications. Modifications to the surgical procedure must be considered when implanting the very young patient.
Objective: To evaluate the diagnosis and surgical treatment of plunging ranula in children.

Design: Prospective case series.


Patients and Methods: 21 consecutive patients with a clinical diagnosis of plunging ranula were considered. Male 14: Female 7 (N=21), racial demographics were Polynesian 14, Maori 6, Caucasian 1.

All children underwent clinical assessment and fine needle aspiration by author and no other investigations were performed in this series. All children underwent intraoral excision of sublingual glands and pseudocyst. Surgical technique is discussed.

Results: Preoperative diagnosis was unchanged after surgery and histopathological analysis in all cases.

There were no recurrences at 12-month followup. There is no long-term complication to date.

Conclusions: Intraoral removal of sublingual glands and pseudocyst is an effective and safe method for the treatment of plunging ranula in the pediatric population.
Objective: To clarify presenting symptoms, organisms, and site of neck abscesses in children.

Design: Retrospective review.

Setting: Tertiary children's hospital.


Outcome Measure: Resolution of abscess.

Results: Symptoms, neck mass (91%), fever (83%), cervical adenopathy (82%), poor oral intake (60%), and neck stiffness (47%). Patients <4 yrs of age presented with agitation (58% vs 10%), rhinorrhea (48% vs 14%), and cough (31% vs 15%), compared to patients >4 yrs of age. Common organisms were Staphylococcus aureus (35%) and group A strep (23%), 26% no growth. Children <1 yr. of age staphylococcus aureus (81%) versus group A strep (7%), while children >1 yr. of age were more commonly infected with group A strep (27%) versus staphylococcus aureus (20%). Retropharyngeal or parapharyngeal spaces more common >1 yr. of age (38%) versus <1 yr. of age (15%). Anterior or posterior triangle spaces <1 yr. of age (41%) versus >1 yr. of age (15%). Retropharyngeal or parapharyngeal spaces yielded group A strep (35%) versus staphylococcus aureus (16%). Anterior or posterior triangle spaces yielded staphylococcus aureus (42%) versus group A strep (21%).

Conclusions: Abscesses in children <1 yr. of age more commonly affected the anterior or posterior triangles, which more frequently yielded Staphylococcus aureus. Abscesses in children >1 yr. of age commonly affected the retropharyngeal or parapharyngeal spaces, which frequently yielded group A strep.
Objective: To determine the effectiveness of treating clearly defined deep neck abscesses diagnosed by computed tomography in clinically stable children solely with intravenous antibiotics.

Design: Retrospective chart and computed tomography (CT) scan review

Setting: Tertiary care children’s hospital

Patients: Clinically stable pediatric patients who presented with signs and symptoms of a deep neck abscess, and had computed tomography criteria of abscess in the parapharyngeal space, retropharyngeal space or both that included 1) well formed ring enhancement around non-enhancing density consistent with fluid and 2) size greater than one centimeter in every dimension

Outcome measure: Resolution of deep neck abscess to treatment with intravenous antibiotics

Results: Of 32 children over a 12 month period admitted for neck infection who obtained a CT scan of the neck with contrast, 9 children met the inclusion criteria. Of those nine, 8 (89%) responded to intravenous antibiotic alone as their only treatment. Five (62%) of 8 responded clinically by 48 hours. The one child who did not respond to IV antibiotics had surgical drainage with purulence discovered at the time of surgery.

Conclusion: In a select number of clinically stable children, classically described deep neck abscesses diagnosed by contrast enhanced computed tomography can be effectively treated by intravenous antibiotics alone.
Podium A15

WATER PRECAUTIONS AND TYPANOSTOMY TUBES: A RANDOMIZED, CONTROLLED TRIAL

Nira A. Goldstein MD, Ellen M. Mandel MD,
Janine E. Janosky PhD, Margaretha L. Casselbrant MD, PhD

Department of Otolaryngology, SUNY Downstate Medical Center, Brooklyn, NY
Department of Pediatric Otolaryngology, Children's Hospital of Pittsburgh, PA
718-270-1638 tel; 718-270-3924 fax; ngoldstein@netmail.hscbklyn.edu

Objective: To determine whether there is an increased incidence of otorrhea in young children who swim and bathe without water precautions as compared to children who use water precautions in the form of earplugs when they swim and bathe.

Design: Prospective, randomized, investigator-blinded, controlled trial.


Participants: 200 children, ages 6 months to 6 years, undergoing bilateral myringotomy and tube insertion for recurrent acute otitis media or otitis media with effusion.

Intervention: Children were randomized into one of 2 groups: 1) swimming and bathing without earplugs; or 2) swimming and bathing with earplugs. Children were seen monthly for one year, and whenever there was intercurrent otorrhea. Children were withdrawn from the study if they developed 3 episodes of otorrhea in 6 months or 4 episodes in one year.

Main Outcome Measure(s): The incidence of otorrhea in each of the experimental groups and the average number of episodes of otorrhea per child.

Results: 140 patients (86 boys, 54 girls, mean age 25.3 months) were followed for at least 6 months, with a mean follow-up of 11.0 ± 2.2 months. 64 children did not use earplugs, while 76 children used earplugs. 45 (70.3%) children who did not use earplugs developed at least one episode of otorrhea, as compared to 39 (51.3%) children who used earplugs (P = .0223, chi-square test). The average number of episodes of otorrhea per child was 1.17 ± 1.09 in the children who did not use earplugs, as compared to .80 ± .97 in the children who used earplugs (P = .0010, t-test). 6 (9.4%) children who did not use earplugs were withdrawn from the study, as compared to 3 (3.9%) children who wore earplugs (P = n.s., Fisher exact test).

Conclusions: The use of earplugs in children with tympanostomy tubes significantly reduces the incidence of otorrhea, although the effect size is only .40 episodes of otorrhea per child-year. Although we recommend the use of water precautions, the clinical relevance of our findings should be determined by the individual clinician.
DISEASE-SPECIFIC QUALITY OF LIFE OUTCOMES AFTER SURGICAL INTERVENTION FOR OTITIS MEDIA

Michele Richards MD, Carla Giannoni MD

Department of Otolaryngology, University of Florida, Gainesville, FL
352-392-4461 tel; 352-392-5725 fax; jonesml@ent.ufl.edu

Objective: To assess the change in disease-specific quality of life in children with recurrent acute otitis media (RAOM) and/or chronic otitis media with effusion (COME) treated with surgical intervention.

Design: Prospective questionnaire-based outcome study.

Setting: An academic pediatric otolaryngology practice.

Participants: Consecutive series of 123 children referred for surgical treatment of RAOM and/or COME.

Intervention and methods: An otitis media disease-specific questionnaire was administered before and after surgical intervention. Surgery included either BMT alone or BMT with adenoidectomy.

Main Outcome Measures: Comparison of the mean percent change in total ear symptoms score between pre-surgery and post-surgery scores at one-month and six-months post-intervention.

Results: The mean percent change in total ear symptom score was a 74.5% improvement (p<0.0001) at one-month follow-up and a 59.8% improvement (p<0.0001) at the six-month follow-up. Parental worry related to their child’s ear problems was also significantly decreased a mean of 3.43 (p<0.0001) at one month and 2.64 (p<0.0001) at six months. When caregivers were asked if they would have their child undergo tympanostomy tube placement if they had to make the decision again, 91% and 84% responded yes at one and six months post-op, respectively.

Conclusions: The disease-specific quality of life of children with RAOM and/or COME with appropriate surgical indications significantly improved after surgical intervention. The amount of parental worry concerning their children’s ear problems also significantly improved following surgery and the majority of caregivers would opt again for tube placement.
INCIDENCE AND RISK FACTORS FOR SUBSEQUENT ENT SURGERY AFTER PLACEMENT OF MYRINGOTOMY TUBES (BMT) IN CHILDREN

Mark Boston MD, Craig S. Derkay MD, Joseph McCook

Eastern Virginia Medical School, Department of Otolaryngology, Norfolk, VA
757-668-9853 tel; 757-668-9848 fax; derkaycs@chkd.com

Objective: To determine the incidence and risk factors that account for additional ENT surgeries among children who have undergone an initial placement of ventilation tubes.

Design & Setting: Retrospective, chart review of consecutive series of patients.

Subjects: 5 year consecutive series of 2076 children cared for in a hospital-based, tertiary care Pediatric Otolaryngology practice.

Intervention: Subsequent need for second set of ventilation tubes or other ENT surgery.

Results: Of the 2076 children who underwent initial placement of ventilation tubes between April 1995 and May 1998, 415 (20.0%) subsequently had a second set of tubes placed by May 2000. At the time of the second BMT, average age was 3.04 years (median 1.98 years). Children 18 months of age or younger at the time of initial BMT were twice as likely (26.4% vs. 16.1%) to undergo a second BMT when compared to children who were older than 18 months of age at initial surgery (p<.005). Characteristics of the children who underwent multiple sets of ventilation tubes were as follows: 57% were male; 22.9% were exposed to second hand tobacco; 39.7% attended daycare; 15.9% had a craniofacial abnormality; 7.5% had at least one co-morbid medical condition; and 26.7% had an immediate family history of significant middle ear disease.

Conclusions: Epidemiological analysis of this consecutive series of BMT patients in a tertiary care Pediatric Otolaryngology practice suggests that 1 in 5 will subsequently require a second set of ventilation tubes. Age under 18 months at the time of initial BMT is associated with a 2-fold risk for additional surgery.
FRIDAY, MAY 11

6:30 – 7:45 A.M. ASPO BOARD MEETING

8:00 A.M. SCIENTIFIC SESSION Scottsdale West
Introduction of the Charles D. Bluestone Award recipient
by Charles M. Myer III, MD, ASPO President

8:05 A.M. CHARLES D. BLUESTONE AWARD LECTURE
Antibiotic Resistance in Acute Otitis Media
Stan L. Block, MD, Bhardstown, KY

Topic: OTOLOGY and AUDIOLOGY
Moderator David Darrow, MD, DDS, Norfolk, VA

8:30 A.M. B1: Suppurative complications of acute otitis media in the era of antibiotic resistance
Jeffrey Zapalac, MD; Kathleen Billings, MD; Peter Roland, MD

8:38 A.M. B2: Impact of atopy on neutrophil activity in middle-ear effusion and biopsy specimens from children with chronic otitis media
David Hurst, MD, PhD; Kawa Amin, PhD; Lahja Sevéus, PhD; Per Venge, MD, PhD

8:46 A.M. B3: Assessment of balance maturation in children
Umesh Ullal, MB BS, DLO; Murray Waldron, MB BCH; Ian Johnson, MB BCH, MD

8:54 A.M. B4: Continuous regional chemoprotection against cisplatin induced hearing loss
Rose Mary Stocks, MD, PharmD; Blonie Dudney; Herbert Gould, PhD; Andrew Bush, PhD; Jerome Thompson, MD, MBA

9:02 A.M. DISCUSSION

Topic: LARYNGOLOGY and BRONCHOESOPHAGOLOGY
Moderator: Sugki Choi, MD, Washington, DC

9:14 A.M. B5: Management of laryngeal and laryngotracheoesophageal clefts
Peter Lacy, MD; Christopher Hartnick, MD; Benjamin Hartley, MD; Michael Rutter, MD; Charles Myer III, MD; Robin Cotton, MD

9:22 A.M. B6: Bioabsorbable PLLA stents and their use in a rabbit tracheal reconstruction model
Thomas Robey, MD; Tero Välilmaa MSc; Hedwig Murphy, MD, PhD; Pertti Törmälä PhD; David Mooney, PhD; Robert Weatherly, MD

9:30 A.M. B7: Costal cartilage tracheoplasty for congenital long-segment tracheal stenosis
James Forsen, MD; Rodney Lusk, MD; Charles Huddleston, MD
9:38 A.M.  B8: Topical mitomycin-C application following laryngotracheal reconstruction: a randomized, double-blind, placebo-controlled trial
Christopher Hartnick, MD; Benjamin Hartley, MD; Peter Lacy, MD; James Liu, MD; Judy Bean, PhD; J. Paul Willging, MD; Charles Myer III, MD; Robin Cotton, MD

9:46 A.M.  DISCUSSION

10:00 – 10:30 A.M.  COFFEE BREAK (Poster Area)  Paradise Valley West

Topic:  HEAD and NECK SURGERY
Moderator:  Frank Rimmel, MD, Minneapolis, MN

10:30 A.M.  B9: Topical application of mitomycin in the prevention and treatment of scar formation in the pediatric head and neck: friend or foe?
Reza Rahbar, DMD, MD; Trevor McGill, MD; Gerald Healy, MD

10:38 A.M.  B10: Outcomes in pediatric cranial base surgery
Mario Imola, MD, DDS; Victor Schramm Jr., MD

10:46 A.M.  B11: Endoscopic access to the infratemporal fossa and skull base: a cadaveric study
Christopher Hartnick, MD; John Myseros, MD; Charles Myer III, MD

10:54 A.M.  DISCUSSION

Topic:  RHINOLOGY and PARANASAL SINUSES
Moderator:  Glenn Isaacson, MD, Philadelphia, PA

11:05 A.M.  B12: Exclusive endoscopic removal of juvenile nasopharyngeal angiofibroma: trends and limits
Gilles Roger, MD; Roger Peynegre, MD; Jean-Michele Klossek, MD; Patrick Dessi, MD; Elie Serrano, MD; Thierry Van Den Abbeele, MD, PhD; Erea-Noel Garabedian, MD; Phillippe Herman, MD, PhD

11:13 A.M.  B13: Surgical management of nasoglabellar dermoids in the pediatric patient
Reza Rahbar, DMD, MD; Prerak Shah, MD; John Mulliken, MD; Trevor McGill, MD; Gerald Healy, MD

11:21 A.M.  B14: Anthropometric measures before and after external septoplasty in children
Hamdy El-Habim, FRCSEd; L. Farkas, MD, CSc, DSc; M. Abdollel, MSc; William Crysdale, MD

11:29 A.M.  DISCUSSION

Topic:  TONSILS and ADENOIDs
Moderator:  Anna Messner, Palo Alto, CA
B15: Pre-incisional ropivacaine with or without clonidine in pediatric tonsillectomy
Carla Giannoni, MD; Sno White, MD; F. Kayser Enneking, MD; Timothy Morey, MD

B16: Reducing post-tonsillectomy pain by decreasing electrocautery energy through the use of the microdissection cautery tip
Ravinder Dahiya, MD; Jonathan Perkins, DO

B17: Comparison of plasma-mediated ablation vs. monopolar electrosurgery for tonsillectomy
Udayan Shah, MD; Jeffrey Galinkin, MD; Rosetta Chiavacci, RN, BSN; Marianne Briggs, RN, MSN, CRNP

12:04 A.M. DISCUSSION

12:15 A.M. ADJOURN FOR BREAKOUT SESSIONS

12:30 – 1:45 P.M. CONCURRENT BREAKOUT SESSIONS (with lunch)

Session A: The Heart of Practice: Finding Meaning in Our Work
Moderator: Carol Roberts Gerson, MD, Chicago, IL
Room Location: Sedona

Session B: Practical Challenges in Pediatric Otolaryngology: Beyond the Textbook
Moderator: Seth M. Pransky, MD, San Diego, CA
Panelists: Ellen M. Friedman, MD, Houston, TX
Kenny H. Chan, MD, Denver, CO
Sally R. Shott, MD, Cincinnati, OH
Room Location: Scottsdale East

Session C: Financial Empowerment for Pediatric Otolaryngologists
Moderator: Richard M. Rosenfeld, MD, MPH, Brooklyn, NY
Panelists: Eileen M. Giamo, AAO-HNS, Alexandria, VA
John Riche, Healthcare Transitions, Babylon, NY
Room Location: Flagstaff / Prescott

2:00 – 2:30 P.M. ASPO BUSINESS MEETING
Scottsdale West

Topic: SCIENTIFIC SESSION
Moderator: Michael Cunningham, MD, Boston, MA
Room Location: Scottsdale West

B18: Treatment of lymphangiomas with picibanil (OK-432) sclerotherapy – a prospective multi-institutional trial
Chantal Giguère MD; Diane Burke RN; Yutaka Sato, MD; Nancy Baun, MD; John Greinwald, MD; Richard Smith, MD
2:38 P.M.  B19: Clinical study of botulinum-A toxin in the treatment of sialorrhea in children with cerebral palsy
Dana Suskind, MD; Ann Tilton, MD; Evelyn Kluka, MD; William Perret Jr., RDMS; John Meades, MCD-CCC; Donald Liu, MD, PhD

2:46 P.M.  B20: Pediatric head and neck malignancies: U.S. incidence and trends over two decades
James Albright, MD; Alan Topham, BA; James S. Reilly, MD

2:54 P.M.  B21: Undifferentiated nasopharyngeal carcinoma in young patients
Lynne Lim, FRCS; Christopher Goh, FRCS; Susan Loong, FRCR; LW Khin, MSc; Abhilash Balakrishnan, FRCS; Joseph Wee, FRCR

3:02 P.M.  DISCUSSION

Topic:  PLASTIC & RECONSTRUCTIVE SURGERY
Moderator:  Peter Koltai, MD, Cleveland, OH

Matthew Steele, MD; Dana Suskind, MD; Evelyn Kluka, MD; Michael Moses, MD

3:22 P.M.  B23: Cosmetic considerations in surgery for orbital subperiosteal abscess in children: experience with a combined transcaruncular and transnasal endoscopic approach
Ron Pelton, MD, PhD; Simon Taylor, MD; Bhupendra Patel, MD; Marshall Smith, MD; Steven Kelly, MD

3:30 P.M.  B24: The age dependent relationship between facial fractures and skull fractures
Michelle Putnam, MD; Peter Koltai, MD; Paul Feustel, PhD

3:38 P.M.  DISCUSSION

Topic:  MISCELLANEOUS
Moderator:  Jacqueline Jones, MD, New York, NY

3:47 P.M.  B25: Gastroesophageal reflux and true vocal cord nodules
Mark Shrime, MS; John McClay, MD; Michael Biaviti, MD; Alan Murray, MD; Gina Worley, MS-CCC/SLP

3:55 P.M.  B26: Office-based lower airway endoscopy in pediatric patients
David Book, MD; Joseph Kerschner, MD; Stephen Conley, MD; Valerie Flanary, MD

4:03 P.M.  B27: Risk factors for adenotonsillar hypertrophy in children following solid organ transplantation
Nina Shapiro, MD; Ali Strocker, BS; Neil Bhattacharyya, MD

4:11 P.M.  DISCUSSION
4:20 P.M.  Panel:  Head & Neck Controversies 2001
Moderator:  Kenny H. Chan, MD, Denver, CO
Panelists:  Andrew F. Inglis, Jr, MD, Seattle, WA
David Darrow, MD, Norfolk, VA

5:00 P.M.  ADJOURN

7:00 – 10:00 P.M.  PRESIDENT'S RECEPTION & BANQUET
Objective: To review our experience with suppurative complications of acute otitis media (AOM) in the era of antibiotic resistance, given the perceived increase in the number of such cases requiring surgical intervention at our institution in recent years.

Design: Retrospective review of pediatric patients presenting with suppurative complications of AOM from January 1993 to June 2000.

Setting: Academic tertiary care children's medical center.

Patients: 90 pediatric patients, ranging in age from 3 months to 16 years (mean 45 months).

Results: There were a total of 104 suppurative complications of AOM in 90 patients over the 7.5 year study period. Acute noncoalescent mastoiditis occurred in 51 (49%), acute coalescent mastoiditis in 24 (23%), facial nerve paresis in 14 (13%), epidural abscess in 7 (7%), sigmoid sinus thrombosis in 5 (5%), petrous apicitis in 2 (2%), suppurative labyrinthitis in 1 (1%), and otitic hydrocephalus in 1 (1%). The incidence of noncoalescent, coalescent, total mastoiditis, and total suppurative complications all increased over the study period with coalescent outpacing noncoalescent disease during the latter 3 years of the study. A trend toward an increasing number of cases requiring surgical intervention was noted during the study period, corresponding to an increasing number of resistant Streptococcus pneumoniae (SP) isolates. Nine of 15 SP isolates were resistant, and they were primarily collected from younger children ranging in age from 4-24 months (mean 11.9 months).

Conclusion: The rising incidence of suppurative complications of AOM may correspond to the increasing number of resistant SP isolates, and may, in turn, contribute to more aggressive infectious processes requiring surgical intervention.
THE IMPACT OF ATOPY ON NEUTROPHIL ACTIVITY IN MIDDLE EAR EFFUSION AND BIOPSY SPECIMENS FROM CHILDREN WITH CHRONIC OTITIS MEDIA

David S. Hurst MD, PhD, Kawa Amin PhD, Lahja Seveus PhD, Per Venge MD, PhD

Laboratory for Inflammation Research, Uppsala University, Sweden
207-778-3535 tel; 207-778-6323 fax; meean@earthlink.net

Objective: To identify the relation of neutrophil activity to allergy as reflected by the presence of myeloperoxidase (MPO) in ears with chronic otitis media with effusion (OME) among patients whose atopic status was characterized by objective testing.

Design: Evidence of neutrophils was measured prospectively in effusion and biopsies in patients with chronic OME. Atopy was determined by intradermal and/or in vitro testing.

Subjects: Effusion MPO was measured from 91 randomly selected patients (116 ears) with chronic OME. Middle ear biopsies from a second group of 5 OME patients (9 ears) and 5 controls were fixed in plastic and stained immunohistochemically for neutrophils.

Results: Eighty-five percent of patients had extensive activation of neutrophils in their middle ear effusion. Among those with elevated MPO, 91% were atopic. Mean MPO was 6766 µg/L in 100 atopic vs 128 µg/L in 16 non-atopic ears (p<0.001). MPO was not elevated in non-atopics. Neutrophils were significantly more prevalent in biopsy material from 7 of 9 OME ears and absent in all but 1 normal ear biopsies.

Conclusion: The surprising finding of marked elevation of effusion MPO in atopics but very low levels in non-atopics suggests that atopy may contribute to elevated levels of neutrophil activity in OME. The atopic patient may respond differently than a non-atopic to the microbial or viral products of acute inflammation due to its primed inflammatory cells.
Objective: Previous studies on adults have shown that balance alters with age. Balance improves up to the fifth decade and declines thereafter. Although studies in children have demonstrated progressive motor development during childhood and into adolescence, little information is available on normal balance maturation in children under 16. Posturography is an established and accurate method of measuring balance. Sway Magnetometry (SM) has been validated as a reliable and reproducible (<5% error) device in this field. Our aim was to establish the pattern of maturation of balance using Sway Magnetometry in children aged 3 to 15.

Design: Observational prospective cross-sectional study.

Setting: University Teaching Hospital.

Subjects: Data were collected from normal children (no documented otological or neurological pathology) with an age range of 3.25 to 15.5 years (mean 7.5 years, Standard Deviation 2.66).

Intervention: SM was undertaken in 2 states with the eyes open and then closed (to reduce optic fixation whilst standing on foam (to reduce proprioception).

Outcome Measures: Sway results are reported as path length per unit time, as this has been demonstrated to be the most accurate method of measurement.

Results: Linear regression co-efficient analysis of the results shows a statistically significant reduction in path length with increasing age in each of the two states assessed. Eyes open: regression coefficient -33.4 (Standard Error 7.8) (p<0.001). Eyes closed: regression coefficient -31.3 (Standard Error 6.8) (p<0.001)

Conclusion: With increasing age children exhibit a progressive improvement in balance function. The results show maturation of the balance system has mostly occurred by the age of 9 to 10 years with a slower improvement thereafter. This is the first time this has been demonstrated and quantified using Sway Magnetometry.
CONTINUOUS REGIONAL CHEMOPROTECTION AGAINST CISPLATIN INDUCED HEARING LOSS

Rose Mary S. Stocks MD, Pharm D, Blonie W. Dudney, Herbert Gould PhD, Andrew J. Bush PhD, Jerome Thompson MD, MBA

University of Tennessee-Memphis, Otolaryngology-Head & Neck Surgery, Memphis, TN 901-572-4400 tel; 901-572-5047 fax; lblalock@utmem.edu

Objective: To determine if the continuous infusion of sodium thiosulfate (STS) to the middle ear space of Hartley albino guinea pig (HAGP) decreases or eliminates the cisplatin-induced sensorineural hearing loss.

Design: Prospective randomized pilot study

Setting: Basic science laboratory

Patients: 12 HAGP (125-300 grams)

Interventions: A miniature osmotic infusion pump with a constant controlled delivery system was inserted with its catheter tip was placed into the left middle ear space of the HAGP. The daily subcutaneous injections of cisplatin began two days later for 16 days. The hearing thresholds were obtained by auditory brainstem response (ABR) before and after treatment.

Main Outcome Measure: Left (STS treated) versus right ear (control) differences in ABR before and after treatment. Treatment effects on responses at 2000, 8000, and 16000 Hz signals were investigated at \( p = 0.05 \) by repeated measures ANOVA.

Results: No pre-treatment differences in ABR were found. However, significant post-treatment mean differences were found for responses to 8000 and 16000 Hz signals with both results indicating that STS is protective. Results at 2000 Hz were consistent with those found at higher frequencies but too small to reach statistical significance.

Conclusion: Cisplatin is a widely used chemotherapeutic agent used to treat various pediatric solid tumors. One of the dose-limiting aspects of the therapy with cisplatin is ototoxicity. The continuous direct administration to the inner ear of isotonic and pH balanced 6% STS was shown to statistically reduce the ototoxicity at 8000Hz and 120000Hz. Potentially, the findings of this study could revolutionize the use of chemoprotective agents in clinical medicine. This has an even greater importance in the pediatric population with the increasing use of cisplatin in the management of pediatric solid tumors because of the irreversible long-term handicap of hearing loss.
Objective: To review the clinical presentation, management, morbidity and mortality associated with cleft larynx and laryngotracheoesophageal clefts.

Design: Case series.

Setting: Tertiary Pediatric Otolaryngology facility.


Results: There were 38 males and 23 females. Fourteen cases were referred after previous attempt at repair. There were 17 Grade I, 22 Grade II, 16 Grade III and 6 Grade IV. Sixteen syndromic children included 7 Opitz (11%) and 6 Vater (10%). Associated anomalies included tracheoesophageal fistula in 11 (18%) and esophageal atresia in 8 (13%). There was one pair of identical twins but only one had a cleft. Symptoms included feeding difficulties (69%), respiratory tract symptoms (39%), stridor (38%) and 13 children (21%) required intubation. Symptom length was from one day to 14 years. Fourteen repairs were performed as a single stage procedure without tracheostomy. There were 4 deaths and 14 repair breakdowns, mostly distal (10). These were associated with long clefts and previous repair.

Conclusions: Airway clefts are associated with many congenital abnormalities. Diagnosis is often delayed. Morbidity and mortality are related to the length of cleft and other anomalies. The first attempt at surgical repair represents the best chance for success. Breakdown is more common after revision surgery.
Objective: To test the ability of biodegradable poly L-lactide (PLLA) internal tracheal stents to stabilize and support surgically reconstructed airways in rabbits.

Design: The PLLA stents were implanted intraluminally in rabbits that underwent anterior patch tracheoplasties with fascia lata grafts. After three months, comparisons were made between the control group and the internal stent group for stridor development, overall group mortality, reconstructed airway lumen size and histologic findings.

Subjects: 26 New Zealand white rabbits

Results: The attrition rate for the control group was 23.1% versus 30.8% for the experimental group. There were two airway related deaths in the control group and one in the stented group. The stridor rate for the control group was higher at 38.5% compared to 15.4% for the stented group. As expected, the PLLA stents did not degrade in the short three month time period of the study, but four of the stents did show evidence of mechanical breakdown at nine weeks. There was partial mucosalization of the PLLA stents in five of the 13 stented animals. After three months, the stented rabbits had significantly more patent airways than the control rabbits. The stented group had an average stenosis across the reconstructed segment of 4.9% compared to 33.7% for the control group. (p<0.05, two tailed student’s t-test)

Conclusion: The biodegradable PLLA stents had a statistically significant beneficial effect in augmenting anterior patch tracheoplasties with fascia lata grafts in rabbits. Several important issues remain, however, regarding their eventual use in a clinical setting.
Objective: To evaluate and report the outcome of costal cartilage tracheoplasty for congenital long-segment tracheal stenosis (CLSTS).

Design: Retrospective tertiary care children's hospital

Patients: Eleven consecutive patients with CLSTS managed from 1986 to 2000. There were 9 males and 2 females with an age range of 1 week to 14 months (average age 17 weeks) at time of surgical repair. Eight of the patients had associated anomalies, 5 with cardiovascular defects. Average length of tracheal stenosis was 3.2 cm and average stenosis diameter was 1.9 mm.

Intervention: All patients underwent costal cartilage tracheoplasties while on cardiopulmonary bypass.

Outcome Measures: Post-operative days on ventilator, post-operative days until discharge from the hospital, number of post-operative therapeutic bronchoscopies, survival rate.

Results: There were no intra-operative or early post-operative deaths. Average number of days on the ventilator was 17 (range 7-96). Average number of days until hospital discharge was 36 (range 11-186). Average number of therapeutic bronchoscopies was 14 (range 1-112). No patient died from an inadequate tracheal airway, though 2 ultimately expired from other cardiopulmonary complications. With an average follow-up of 6.7 years, there was an 82% overall survival rate. Eight of the original 11 patients are fully active without tracheostomy.

Conclusion: We report one of the largest series of costal cartilage tracheoplasty for congenital long-segment tracheal stenosis, which has met with a high success rate.
Objective: To establish whether topical application of Mitomycin-C inhibits the development of granulation tissue and recurrent scar after pediatric laryngotracheal reconstruction.

Design: Randomized, double blind, placebo controlled trial

Patients: Children aged 2-17 years with subglottic stenosis undergoing single stage laryngotracheal reconstruction at a single tertiary care children's hospital

Intervention: At the time of extubation or stent removal, the children underwent bronchoscopy and 0.4 mg/ml of either Mitomycin-C or an equal volume of normal saline was directly applied to the subglottic region for a single application time of two minutes. These children then underwent interval endoscopy at 2 weeks, 6 weeks, and 3 months post-operatively for assessment of their airway.

Results: Granulation tissue was graded on scale of 0-4. Videotapes of endoscopies were independently observed and graded with an inter-observer agreement of 91.6%. The results were then dichotomized to represent a single cohort where further surgical intervention would be required and another separate cohort where further surgery would not be required. At the one year mark, interim analysis was performed by a Data Safety and Monitoring Committee. At this time, 13 children had been randomized to the Mitomycin C arm of the study and 11 children to the placebo arm. A two-tailed Fisher’s exact test revealed a value of 1.00. The Data Monitoring and Safety Committee advised that the trial should be stopped as the distributions between the two populations were almost identical.

Conclusions: We can not reject the null hypothesis that a single topical dose of Mitomycin-C at a dose of 0.4 mg/ml exerts an equal benefit to normal saline when applied to the pediatric airway after laryngotracheal reconstruction.
Podium B9

TOPICAL APPLICATION OF MITOMYCIN IN THE PREVENTION AND TREATMENT OF SCAR FORMATION IN THE PEDIATRIC HEAD AND NECK: FRIEND OR FOE?

Reza Rahbar DMD, MD, Trevor J. McGill MD, Gerald B. Healy MD

Department of Otolaryngology and Communication Disorders, Children's Hospital, Boston
Department of Otology and Laryngology, Harvard Medical School, Boston, MA
617-355-6417 tel; 617-355-8041 fax; reza.rahbar@tch.harvard.edu

Objective: To evaluate the efficacy of Mitomycin in the prevention and treatment of scar formation.

Design: Prospective study: IRB approved clinical trial (Topical application of Mitomycin, 0.4mg/ml for 4 minutes).

Setting: Tertiary-care pediatric medical center

Participants: Fourteen patients: Choanal atresia/stenosis (five patients); Airway stenosis (eight patients); Esophageal stenosis (one patient)

Outcome: The efficacy and safety of Mitomycin in prevention of scar formation.

Intervention: Choanal Atresia/Stenosis: Two patients underwent transpalatal repair with stenting, two patients underwent transnasal repair with stenting, and one patient underwent transnasal repair without stent; followed by application of Mitomycin. Ages: 2-5 years (mean=3.4). Airway Stenosis: Endoscopic laser approach was used for the treatment of one patient with pharyngeal stenosis, two patients with glottic stenosis, and five patients with subglottic stenosis; followed by application of Mitomycin. Ages: 1-15 years (mean=6.3). Esophageal Stenosis: Endoscopic dilatation and application of Mitomycin. Age: 7 years.

Results: Choanal Atresia/Stenosis: Four patients responded favorably; no evidence of scar formation and no need for dilatation, followup: 13-32 months (mean=22). One patient (transnasal + Mitomycin + stent) required dilatation once, follow up: 9 months. Airway Stenosis: One patient with pharyngeal stenosis, two patients with glottic stenosis, and three patients with subglottic stenosis responded well. All patients had improvement of airway on endoscopy and resolution of preoperative symptoms, follow up 12-23 months (mean=20). Two patients with subglottic stenosis had minimal improvement; both are currently tracheotomy dependent, follow up 11-15 months (mean=13). Esophageal Stenosis: One patient with esophageal stenosis/scar after radiation responded favorably, follow up 6 months.

Conclusion: Topical application of Mitomycin C can play an effective role in the prevention and treatment of scar formation in the pediatric patients.
Objective: To review our surgical outcomes in treating children and adolescent with skull base tumors.

Study Design: Retrospective analysis of pediatric patients referred to tertiary cranial base treatment center. Inclusion criteria included all patients 18 years of age undergoing craniotomy during skull base tumor resection.

Results: Thirty-eight (38) patients were identified as fitting the criteria for our study over a 14 year period (1986-1999). Of these, 20 were diagnosed with anterior skull base tumors while 18 had middle or central cranial base lesions. A broad range of histologies was encountered including 29 benign lesions and 9 malignancies overall. Congenital tumors accounted for 12 cases. Age ranged from 10 months to 17 years with a median of 11 years (mean 10.6 yrs.) Surgical procedures included 27 anterior approaches (frontal/subfrontal, LeFort I, lateral rhinotomy) and 24 lateral approaches (preauricular infratemporal middle fossa). Several technical differences became apparent relative to adult skull base surgery. Adjunctive treatment included radiation therapy (4) and chemotherapy (5). Outcomes in the benign group revealed a 100% survival, however, 6 patients (20.7%) developed recurrences necessitating repeat excision. Patients with malignant lesions demonstrated a 67% survival with a mean follow-up of 5.4 years. Overall complication rate was 23.5%.

Conclusion: Cranial base surgery is an effective treatment method in pediatric patients with skull base tumors. Several differences exist when compared to adult skull base surgery.
Podium B11

ENDOSCOPIC ACCESS TO THE INFRATEMPORAL FOSSA AND SKULL BASE: A CADAVERIC STUDY

Christopher J. Hartnick MD, John S. Myseros MD, Charles M. Myer III MD

Department of Pediatric Otolaryngology, Children’s Medical Center, Cincinnati, OH
513-636-5435 tel; 513-636-8133 fax; harq4k@chmcc.org

Objective: To demonstrate that the regions of the infratemporal fossa and skull base at the level of foramen ovale can be visualized endoscopically and that structures can be manipulated within these regions using endoscopic instruments.

Design: Cadaveric dissections of three human cadavers using the endoscopic optical dissector. In all, six endoscopic infratemporal fossa/skull base approaches were performed. The aim was to demonstrate a reproducible means of endoscopically visualizing and instrumenting the regions both of the infratemporal fossa and at the level of the skull base.

Setting: Human temporal bone laboratory

Results: A Gilles incision was coupled with a lateral brow incision and then sub-periosteal planes were developed. Endoscopic visualization and instrumentation was then performed. The infratemporal fossa was readily identified. The skull base at the level of the foramen ovale and the branches of the third division of the trigeminal nerve were seen distinctly. A probe was placed with ease within the foramen ovale itself.

Conclusions: Endoscopic access to the infratemporal fossa is readily accomplished with excellent visualization and instrumentation ability. This novel technique provides the ability to access this remote region for purposes of access and evaluation, possible biopsy, and potential treatment of infratemporal fossa lesions. The application of this surgical technique is discussed in relation to a case of a child with a refractory cerebrospinal fluid leak which had failed multiple repairs. A video presentation will be shown.
EXCLUSIVE ENDOSCOPIC REMOVAL OF JUVENTILE NASOPHARYNGEAL ANGIOFIBROMA (JNA): TRENDS AND LIMITS

Gilles Roger MD, Roger Peynegre MD, Jean-Michel Klossek MD, Patrick Dessi MD, Elie Serrano MD, Thierry Van Den Abbeele MD, PhD, Erea-Noel Garabedian MD, Philippe Herman MD, PhD

Department of Otolaryngology, Trousseau Hospital, Paris, France
33-1-44-73-61-09 tel ; 33-1-44-63-61-08 fax ; gilles.roger@trs.ap-hop-paris.fr

Objective: To determine the conditions of feasibility for exclusive endoscopic resection of JNA
Design: Retrospective patients study. Mean follow-up: 28 months
Setting: 7 academic referral hospitals.
Interventions: All patients had preoperative CT scan and MRI and at least one follow-up CT scan 12 months after surgery. Exclusive endoscopic removal was performed using conventional FESS instrumentation after preoperative embolization.
Results: Using Radkowski staging, 8, 12, 1 patients were found with stage I, II and III respectively. Two patients were operated on for a recurrence after external surgery. Extensions towards sphenoid sinus, pterygomaxillary fossa or infratemporal fossa could be removed. There was no attempt of endoscopic removal of deep skull base or temporal fossa invasion. Mean surgery duration was 125 minutes. Mean diameters of the tumor were 4x 3.5x 2.5 cm. Average blood loss was 300 mL. No clinical recurrence occurred in this series (one small asymptomatic residual).
Conclusions: Exclusive endoscopic management of JNA appears to be effective for small to medium sized tumors. It should be considered as a first choice option (minimal bleeding, shorter duration, effectiveness) for these cases.
THE SURGICAL MANAGEMENT OF NASOGLABELLAR DERMOIDS IN THE PEDIATRIC PATIENT

Reza Rahbar DMD, MD, Prerak Shah MD, John B. Mulliken MD, Trevor J McGill MD, Gerald B. Healy MD

Department of Otolaryngology and Communication Disorders and Division of Plastic Surgery; Children's Hospital, Boston
Department of Otology and Laryngology, Harvard Medical School, Boston, MA
617-355-6417 tel; 617-355-8041 fax; reza.rahbar@tch.harvard.edu

Objective: To assess the role of preoperative imaging and different surgical approaches in the management of nasoalabellar dermoid in children.

Design: Retrospective study; 1970-2000. Only patients with a complete medical record and adequate follow up were included.

Setting: Tertiary care pediatric medical center

Participants: Number of patients: 30; F/M: 8/22; Age:2-132 months (mean = 30.5). The most common presentation was nasal dorsum mass in 13 patients (43%), followed by glabellar mass in 7 patients (23%).

Intervention: Imaging modality: CT Scan (14 patients), MRI (4 patients), CT Scan and MRI (5 patients), Plain facial/skull films (5 patients), No imaging (2 patients). Surgical Intervention: Vertical excision of tract: 13 patients (43%); External rhinoplasty: 3 patients (10%); Lateral rhinotomy: 2 patients (7%); Transverse excision of tract: 1 patient (3%); Transnasal approach: 2 patients (7%); Combined intra-extracranial excision: 9 patients (30%).

Outcome: 1. Role of imaging modality; 2. Outcome of surgical approach; 3. Rate of recurrence

Results: 1. Preoperative imaging had accuracy of 93% with regard to dura/intracranial extension; 2. There was no statistical difference in the success rate of different surgical approaches; 3. Rate of recurrence: 4 patients (13%).

Conclusions: 1. Work up should include fine-cut CT scan (axial/coronal, bone/soft tissue algorithms), a complimentary MRI (high resolution, multiplanar) scan should be considered if there is concern for intracranial extension. 2. No evidence of transcranial extension: Direct local excision. 3. Evidence of transcranial extension: Direct nasal-dorsal excision, if residual epithelial component at the foramen cecum then combined intra-extracranial excision.
A STUDY OF ANTHROPOMETRIC MEASURES BEFORE AND AFTER EXTERNAL SEPTOPLASTY IN CHILDREN

Hamdy El-Hakim FRCSEd (ORL), L.G. Farkas MD, CSc, DSc, FRCSC, M. Abdollel MSc, and William S. Crysdale MD, FRCSC

Departments of Otolaryngology, Epidemiology, Craniofacial Laboratory
The Hospital for Sick Children, Toronto, Canada
416-813-6536 tel; 416-813-5036 fax; helhakim@aol.com

Objective: To test hypotheses that surgery on the growing nasal septum does not adversely affect nasal and mid-facial dimensions
Design: Paired study
Setting: Tertiary center
Participants: Children treated consecutively over a 4-year period; all had significant nasal obstruction and cosmetic disfigurement secondary to skeletal septal deformities
Intervention: Nasal septal surgery with an external approach - the quadrilateral cartilage (QC.) was removed entirely, remodeled and re-inserted as a free graft.
Outcome measures: Anthropometric linear measurements and indices of the face and nose were taken pre and post-operatively; nasal dorsum length, nasal height, and nasal dorsum index, nasal tip protrusion, columellar length, facial height, face width, upper face height, facial index, nose - upper face height index, and columellar length - nasal tip protrusion index. Continuous measurements were transformed into ordered categories with reference to available normative data. Data were analyzed using Wilcoxon Signed Rank Sum test at an alpha-level of 0.05 and applying the Bonferroni adjustment for multiple testing.
Results: 26 children were studied (12 females & 14 males); age at surgery ranged from 4.6 to 15.5 years (mean of 9.5); average age at post-operative measurement was 12.5 years; mean follow up was 2.7 years. Only nasal dorsum length was decreased by a statistically significant level (P<0.04). However, the change was not considered clinically significant. Thus, relative to age appropriate norms, the dimensions of the nose and mid-face and their proportionality did not change after surgery.
Conclusions: Appropriate nasal septal surgery involving excision and subsequent re-insertion of a remodeled segment of the QC. does not have a major deleterious effect on development of nose and mid-face. The absolute dogma that nasal surgery in children must always be avoided is questioned.
Objective: To determine if preemptive analgesia with ropivacaine with or without clonidine decreases pain and hastens recovery after tonsillectomy.

Design: Prospective, randomized, triple-blinded trial.

Setting: University referral center; pediatric ambulatory practice.

Participants: 64 children, ages 3 to 15 years, undergoing tonsillectomy.

Interventions: Patients received injections in the tonsillar fossae of saline (S), ropivacaine (R), or ropivacaine plus clonidine (R+C) prior to tonsil excision.

Outcome Measures: Visual analog pain scale scores at rest and when drinking; opioid use; recovery time to normal activity; and incidence of symptoms such as otalgia.

Results: Pain was reduced on postoperative day 0 in the R and R+C groups as compared with the S group (P<0.05). Pain was also decreased in the R+C group on post-operative days 3 and 5 (P<0.05). IV narcotic use was decreased on day 0 in R and R+C groups (P<0.05). Cumulative codeine use was similar at day 3 for all patients, but was decreased at day 5 in the R+C group (P<0.05). The incidence of otalgia decreased from 89% in the S group to 63% in R and 61% in R+C groups (P<0.01). Recovery to normal activity was shortened from 8.1±0.4 to 5.8±0.6 days in the S and R+C groups, respectively (P=0.03).

Conclusions: Pre-incisional injection of ropivacaine with clonidine prior to tonsillectomy has a preemptive analgesic effect that outlasts the local anesthetic and decreases pain, opioid use, and the time to return to normal activity.
Objective: To determine if the use of a needle tip Bovie for tonsillectomy results in a decrease in post-operative pain as compared to a standard electrocautery unit.

Design & Setting: A randomized prospective study of two groups of children in an academic pediatric otolaryngology practice.

Subjects: 42 children with no other significant medical history between the ages of 4 and 12.

Intervention: The 42 children were randomly assigned to two groups. In one group the tonsillectomy was performed with a standard monopolar electrocautery tip at 20 watts. In the second group the microdissection needle was used at 8 watts. The same surgeon, a pediatric otolaryngologist, performed all of the procedures. The other aspects of the procedure were held constant, including patient positioning, intraoperative injection of .25% Marcaine, a weight appropriate dose of steroids, and the use of post op antibiotics.

Outcome Measures: The subjective measure of post-operative pain was a questionnaire based on a standard visual analogue scale (VAS) from 0 to 10. The more objective measures included the doses of pain medications consumed and the tolerance of oral intake.

Results: There was no statistical significant difference in the amount of intraoperative hemorrhage between the two groups. Operative time was on average 3.2 minutes longer in the needle tip group (11 min. to 7.8). The postoperative pain as measured by the VAS was significantly different days 3, 4, and 5 (p < .05). This correlated to differences in the number of doses of pain medications used on the same days. There was no statistically significant difference between the two groups in regards to the amount of fluids tolerated.

Conclusions: Without any increase in complications the use of the microdissection needle resulted in significantly less postoperative pain by day number 3 by subjective and objective measurement.
Objective: To compare plasma-mediated ablation (PMA) to monopolar electrosurgery (MES) for pediatric tonsillectomy.

Design: Prospective, randomized, blinded. Setting: University-based children's hospital.

Participants: 34 children, aged 4 to 7, with adenotonsillar hypertrophy, scheduled for outpatient adenotonsillectomy.

Interventions: 17 children randomized to tonsillectomy by PMA using the Coblation (R) wand by Arthrocare (Sunnyvale, CA), and 17 by MES, using the pencil electrocautery by ValleyLab (Boulder, CO). Adenoidectomy was performed by curette.

Outcome measures: Surgical efficacy, estimated blood loss, time for T&A, pain medication use and pain scores in recovery room, and return to normal diet, activity, parental return to work, histopathology, and complications.

Results: PMA was effective for tonsillectomy, with similar blood loss to MES. PMA took longer (16 min. vs. 24 min., p=.002). Histopathology showed much less thermal injury with PMA than with MES. Pain medication use and pain scores were equivalent. Oral intake was worse with PMA at day 5, but equivalent by day 10. PMA patients had more complications than MES, including two PMA patients who required admission for post-op airway obstruction.

Conclusions: PMA for pediatric tonsillectomy, while showing less thermal injury than MES, took longer to perform (p=.002), resulted in poorer early oral intake, and a trend to more complications. PMA delivered by a wand should not replace MES for routine tonsillectomy. The reduced thermal injury seen with PMA supports current investigations into other means of using plasma-ablation to treat tonsillar hypertrophy.
Objective: To evaluate the efficacy and safety of Picibanil (OK-432) as a therapeutic modality for macrocystic lymphangiomas.

Design & Setting: Prospective randomized trial. Multiple tertiary care referral centers throughout the United States.

Subjects: Thirty-seven patients diagnosed with predominantly (>50%) macrocystic lymphangiomas. Thirty-one were ages 6 months to 18 years. Thirty-five had lesions located in the head and neck area.

Intervention: Every patient received a four dose injection series of OK-432 scheduled 6 to 8 weeks apart unless a contraindication existed or a complete response was observed prior to completion of all injections.

Outcome measures: Efficacy was determined as the proportion of subjects in the treatment group relative to the control group who demonstrated a substantial (>60%) reduction in lesion size at 26 weeks following enrollment, as determined by MRI.

Results: A substantial response or greater was noted in 23 patients out of 35 belonging to the treated group (66%) and in 2 patients out of 9 belonging to the control group (22%) (n=37). Transient pyrexia was the only mild complication encountered with the use of OK-432.

Conclusions: In this preliminary study, sixty-six percent of patients demonstrated a substantial or greater response to Picibanil (OK-432) indicating that this sclerosing agent is an effective treatment option for lymphangiomas which are predominantly macrocystic (p<0.03 – Fisher’s Exact Test).
CLINICAL STUDY OF BOTULINUM-A TOXIN IN THE TREATMENT OF SIALORRHEA IN CHILDREN WITH CEREBRAL PALSY


LSU School of Medicine and Children's Hospital of New Orleans, LA
504-896-9423 tel; 504-896-9296 fax; susliu@lsumc.edu

Objective: To assess the safety and efficacy of intra-glandular (parotid and submandibular) Botulinum-A toxin (Botox) in the treatment of sialorrhea in children with cerebral palsy (CP).

Design: Prospective, open-label, dose-escalation study.

Setting: Tertiary Care Children's Hospital

Patients: 24 subjects between 9-20 years with CP and significant sialorrhea.

Intervention: The first 12 subjects were injected in only the submandibular gland and the second twelve in the submandibular and parotid glands. All injections were performed under ultrasound localization. The first group (divided into 3) received and received total 10, 20 or 30 units of Botox. The second group (divided into 3) received a standard of 30 units in the submandibular gland and 20, 30, or 40 units in the parotid glands.

Outcome Measures: Drool quantification with dental rolls and a 'drool rating scale'. Swallowing was evaluated pre and post-injection with a formal speech therapy evaluation.

Results: All subjects successfully underwent Botox injections without local or systemic complications. There were no adverse effects on swallowing. Objective 'drool quantification' with dental rolls was found to be extremely difficult in this population. Most indicative of results was the “drool rating scale” which primarily concentrated on ‘physical measures’. These included daily bib usage, degree of skin irritation, drooling while eating, and drooling at night. Botox injections resulted in a variable effect on sialorrhea. One child demonstrated no effect.

Conclusions: Botulinum toxin is a promising, minimally invasive new treatment for sialorrhea.
Objective: Recent reports have noted an increase in the overall incidence of pediatric cancer. We sought to determine whether this trend was applicable to malignancies of the head and neck in children.

Design: Using the National Cancer Institute's Surveillance, Epidemiology, and End Results tumor database, the incidence of all cancers diagnosed from 1973-96 in children ≤ 18 years of age was determined. This was compared to the incidence of head and neck malignancies within the same population. Rates were then determined for eight 3-year time periods from 1973-75 to 1994-96 and adjusted by use of three, 5-year age groups weighted by the 1970 U.S. standard population.

Results: A total of 24,960 malignancies diagnosed in children ≤ 18 years of age were identified for the study period. From this group, 3,050 (12%) tumors were located in the head and neck. The average annual rate of all cancer in children ≤ 14 years of age rose 25% from 11.22 (95% CI 10.70-11.74) for 1973-75 to 14.03 (95% CI 13.46-14.60) for 1994-96. In contrast, the rate of head and neck malignancies increased 35% from 1.10 (95% CI 0.94-1.26) to 1.49 (95% CI 1.30-1.68) during the same period. Unlike the overall pediatric cancer population that was noted to have an increasing proportion of males over time, the head and neck cancer group showed no gender predilection.

Conclusion: The incidence of pediatric head and neck malignancies in the United States from 1973-96 increased at a greater rate than childhood cancer in general.
Objective: Nasopharyngeal carcinoma (NPC) is rare in pediatric patients. To determine its disease characteristics, and whether chemoradiotherapy improves outcome.


Patients: 12 consecutive young patients with non-disseminated undifferentiated NPC.

Outcome Measures: Symptoms, stage, recurrence, survival.

Results: Mean age 16 years (range 10 to 20). Male: female ratio 1:1.4. Seventy-five % complained of a neck lump and 25% of headache. TNM Stage I 8% (n=1), Stage III 50% (n=6), Stage IV 42% (n=5). All received radiotherapy to the postnasal space averaging 6520 cGy and neck averaging 5825 cGy. 50% (n=6) had recurrences (5 bone, 1 postnasal space). All 6 recurrences presented in Stage III/IV, and later accounted for the 6 deaths in this series. However, 3 patients in Stage III/IV who received combined chemo-radiotherapy instead of radiotherapy alone are alive without disease. Overall time to recurrence is 23 months (95% CI: 18 - 77), overall survival 46 months (95% CI: 5 - 69). For the 11 Stage III/IV patients, 3 and 5-year actuarial survival is 72% (95% CI 48 - 95) and 29% (95% CI 0 - 62) respectively.

Conclusion: Late stage presentation and distant recurrences in young NPC is noted. Though preliminary results do not reach statistical significance (p=0.0562), chemoradiotherapy for Stage III/IV NPC appears to confer a tendency for both disease-free and survival advantage. It warrants multi-institutional prospective randomized trials.
Objective: To describe an endoscopic approach for pediatric orbitofacial masses.

Design: A retrospective chart review

Setting: Tertiary Care Children’s Hospital

Participants: Patients (4 male 6 female) ranged in age from 6 months to 11 years. All children underwent endoscopic excision of an orbitofacial mass.

Intervention: A single port approach was used in all but the initial case. The scalp incision was placed approximately 2.0cm behind the frontal hairline. A subgaleal dissection was performed so as to minimize risk of nerve injury. Under endoscopic visualization, the mass was resected.

Outcome Measures: Ability to successfully excise the mass endoscopically and incidence of complication.

Results: All lesions were successfully resected endoscopically. The surgical time varied from 30 to 105 minutes with a mean of 49.5. Pathologic examination revealed 9 dermoid cysts and 1 schwannoma. 1 child had a transient frontal nerve paresis that resolved within 2 months. There was 1 unilateral frontal hypoesthesia in the patient with a schwannoma (an expected result). There were no other complications.

Conclusions: An endoscopic approach to pediatric orbitofacial tumors is safe and effective. Although the risk of nerve injury is higher, careful dissection in the subgaleal plane and a thorough knowledge of frontorbital anatomy will minimize this risk. The distinct advantage of an endoscopic approach is the absence of a conspicuous facial scar in these young patients.
COSMETIC CONSIDERATIONS IN SURGERY FOR ORBITAL
SUBPERIOSTEAL ABSCESS IN CHILDREN: EXPERIENCE WITH A COMBINED
TRANSCARUNCULAR AND TRANSNASAL ENDOSCOPIC APPROACH

Ron W. Pelton MD, PhD¹, Simon Taylor MD¹, Bhupendra CK Patel MD¹,
Marshall E. Smith MD², Steven M. Kelly MD²

¹Department of Ophthalmology,
²Division of Otolaryngology/Head and Neck Surgery
University of Utah School of Medicine, Salt Lake City, UT
801-599-2782 tel; 801-588;3982 fax; marshall.smith@hsc.utah.edu

Objective: To evaluate the patient outcomes of a new surgical approach for drainage of medial
subperiosteal abscess of the orbit and acute sinusitis in children.

Design: Case series

Setting: Tertiary pediatric hospital

Patients: Eleven children ages 3 to 12 years with orbital subperiosteal abscess and acute
sinusitis who met indication for surgery by visual compromise and/or refractory course to
medical therapy

Intervention: The orbital abscess was drained via an incision inside the medial palpebral
commissure medial to the lacrimal caruncle, which provided access to the medial orbital wall. An
endoscopic ethmoidectomy was also performed to drain the sinus infection and source of the
orbital abscess.

Outcome Measures: judgment of cosmetic appearance by surgeon and family, resolution of
symptoms, length of hospital stay, complications

Results: All children had prompt resolution of symptoms after surgical drainage. Cosmetic
outcome was excellent in all patients with no cutaneous scar or ectropion. After edema and
cellulitis resolved, no family member could tell a difference in appearance between the eyes. No
complications of these combined procedures were identified. One patient experienced recurrence
of abscess two weeks after a transnasal endoscopic orbital drainage procedure, and was
successfully treated by this approach.

Conclusions: This combined surgical approach to medial orbital subperiosteal abscess and acute
sinusitis provides a cosmetically superior outcome when compared with orbital approaches
requiring a cutaneous incision. It also appears to be more efficient and reliable than transnasal
endoscopic drainage alone.
Objective: To demonstrate whether there is clinical evidence to support a prediction, based on our understanding of craniofacial development, that there is an age dependent relationship between facial fractures and skull fractures.

Design: Retrospective chart review of all children and adults admitted with combined facial fractures and skull fractures and skull fractures alone over a 7-year period.

Setting: The Albany Medical Center Hospital, a tertiary level 1 trauma center.

Patients: There were 201 children [1 month to 17 years] with skull fractures (frontal, parietal or temporal) among which there were 41 children with facial fractures. There were 139 adults [18 years to 90 years] with skull fractures among which there were 70 adults with facial fractures.

Outcome Measures: The sex, age, skull fracture, facial fracture, Glasgow coma score (GCS), mechanism of injury, associated injury, surgical treatments, and outcome of all patients admitted to the Albany Medical Center Hospital with frontal parietal, or temporal fractures with or without facial fractures between January 1991 and November 1997.

Results: There are a significantly greater [p < 0.001] number of facial fractures (fx) associated with skull fractures among adults compared to children. Moreover, there is an exponential rise in facial fractures between infancy and adolescence.

Conclusion: The spectrum of craniofacial injuries is related to the specific developmental stage of the craniofacial skeleton as demonstrated by the variable pattern of combined facial and skull fractures.
Objective: To determine the presence and significance of gastroesophageal reflux (GER) in pediatric patients with true vocal cord (TVC) nodules

Design: Retrospective chart review

Setting: Children's Hospital Voice Clinic

Patients: 27 pediatric patients (ages 3-13) diagnosed with: 1) TVC nodules by flexible videostroboscopy and 2) GER by dual channel pH probe testing.

Outcome Measures: The presence of GER, the degree of GER (mild, moderate or severe), improvement of hoarseness or TVC nodules based on medical treatment for GER and voice therapy.

Results: Twenty-two (81%) of 27 children with TVC nodules had GER on dual channel pH probe testing. Of the 22 patients with GER, 16 (73%) had mild reflux, 4 (18%) had moderate reflux and 2 (9%) had severe reflux. Nine (41%) of 22 children had adequate follow-up documented. Of the nine children, seven were treated both medically and surgically for GER and six (84%) of seven improved or resolved their symptoms or TVC nodules. Of the 2 patients not treated, one improved slightly and one did not improve.

Conclusion: Gastroesophageal reflux appears to be present in children with true vocal cord nodules. In select patients, anti-reflux treatment and voice therapy appear to improve the child’s voice.
Objective: Office-based evaluation of the lower airway in adults using only topical anesthetics has been well documented. Similar techniques in children have not been reported. This study was performed to assess the feasibility of performing office-based lower airway endoscopy in a pediatric population.

Design: Twenty-five consecutive pediatric patients requiring flexible laryngoscopy were enrolled. All received only a topical anesthetic-decongestant applied nasally. Following flexible laryngoscopy, the endoscope was passed below the vocal folds to visualize the subglottis, trachea, and carina. All evaluations were videotaped for later review and scoring.

Setting: Academic pediatric otolaryngology practice

Outcome Measures: Ease of performing the lower airway evaluation was rated on a 3-point scale: 1 = unable to perform, 2 = performed with some difficulty, 3 = performed without difficulty. The endoscopist, two additional pediatric otolaryngologists, and an otolaryngology resident reviewed all tapes. The ability to view the subglottis, trachea, and carina were rated on a 3-point scale: 1 = unable to visualize, 2 = incompletely visualized, 3 = well visualized.

Results: Patients ranged from 0.5 to 164 months of age (mean 41.25). The mean score for ease of endoscopy was 2.8. The mean scores for visualizing the lower airway were 2.91 for the subglottis, 2.82 for the trachea, and 2.26 for the carina. Scoring correlation was good for all reviewers and approached 0.9.

Conclusions: Using only topical anesthesia, flexible endoscopy of the lower airway in children can generally be performed quite easily and effectively in the office.
Podium B27

RISK FACTORS FOR ADENOTONSILLAR HYPERTROPHY IN CHILDREN FOLLOWING SOLID ORGAN TRANSPLANTATION

Nina L. Shapiro MD, Ali M. Strocker BS, Neil Bhattacharyya MD

Division of Head and Neck Surgery, UCLM School of Medicine, CA
310-825-2749 tel; 310-206-1393 fax; nshapiro@ucla.edu

Objective: To identify signs and symptoms of risk factors for adenotonsillar hypertrophy (ATH), a potential precursor to post-transplantation lymphoproliferative disorder (PTLD), in children following solid organ transplantation.

Design: Cross-sectional study.

Setting: Tertiary care center.

Participants: 132 pediatric solid organ transplant patients

Interventions: Questionnaire, physical examination, and laboratory data collection.

Outcomes Measure: Correlation of signs and symptoms of adenotonsillar hypertrophy with objective data.

Results: 132 pediatric transplant recipients (64 renal, 68 liver) were enrolled. Mean age at transplantation was 7.4 (SD, 6.0) years with a mean follow-up of 49.0 (SD, 48.4) months post transplantation. The mean questionnaire score and exam score were 8.4 (SD, 7.9) and 3.9 (SD, 1.9), respectively, with a statistically significant correlation between the two (Pearson’s r=0.352, p<0.001). A multivariate linear regression model found recipient EBV seronegativity and younger age at transplantation to be statistically significant risk factors for development of ATH (p=0.024 and 0.035, respectively).

Conclusions: Young age and EBV seronegativity confer increased risk for ATH in pediatric patients undergoing solid organ transplantation. As ATH may be the earliest sign of PTLD, long-term surveillance is required to determine the impact of ATH on quality of life and survival in these patients.
American Society of Pediatric Otolaryngology
May 9 – 12, 2001
POSTER PRESENTATIONS

MISCELLANEOUS

P1: A pedigree of pediatric ENT
   J. Paul Willging, MD; J. Scott McMurray, MD; Dana T. Link, MD

P2: Correlation of caregiver report of ear-related disease and socioeconomic status in kindergarten students
   Valerie Flanary, MD; Tanya Meyer, MD

P3: Efficacy of intravenous sedation versus general anesthesia for pediatric otolaryngology procedures
   Samuel G. Shiley, MD; Kirk Lalwani, MD; Henry Milczuk, MD

MOLECULAR BIOLOGY

P4: Mapping the gene for hemifacial microsomia
   Marissa Botma, MD ChB, FRCS (Glas), FRCS (Ed); Anthony Aymat, MD ChB, FRCS; Jerome Lim, MB ChB, FRCS; Jess Tyson, BSc, PhD; Daniel Kelberman, BSc; David Albert, MB ChB, FRCS; Maria Bitner-Glindzicz, BSc, MBBS, MRCP, PhD

P5: Sensorineural hearing loss and A1555G mutations in cystic fibrosis
   James Coticchia, MD; Baran Sumer; Joshua Waltonen; Nathaniel Rubin, MD

OTOLOGY and AUDIOLOGY

P6: NICU patients at risk for sensorineural hearing impairment: incidence and degree of hearing impairment
   Ellis M. Arjmand, MD, PhD; Diane Sabo, PhD

P7: A staging system for congenital cholesteatoma
   William P. Potsic, MD, MMM; Daniel S. Samadi, MD; Roger R. Marsh, PhD; Ralph F. Wetmore, MD

P8: Trimethoprim-sulfamethoxazole in the management of chronic suppurative otitis media without cholesteatoma in children
   Anne G.M. Schilder, MD, PhD; Godelieve J. de Bree, MD; Ward J.M. Videler, MD; Lieke A.M. Sanders, MD, PhD
Family and physician satisfaction with laser-assisted tympanic membrane fenestration using topical anesthesia
Ellen S. Deutsch, MD; Steven H. Shaha, PhD, DBA; Steven P. Cook, MD; James S. Reilly, MD; Gordon Siegel, MD; Linda Brodsky, MD

Frequency specificity of the contralateral cochlear efferent pathway: real time recordings with distortion product otoacoustic emissions
Adrian James, MA, BM, BCh, FRCS; Richard Mount, MLT; Robert Harrison, PhD, DSc

Areolar connective tissue grafts in pediatric tympanoplasty
John F. Eisenbeis, MD; Brian Herrmann, MD

Cochlear implantation in postmeningitic children
Greg R. Licameli, MD; Caroline Robson, MD; Marilyn Neault, MD; Salim Samuel, MD; Margaret Kenna, MD

P13: Cochlear implantation in the CHARGE association
Paul W. Bauer, MD; Jenifer Goldin, MS, CCC-A; Judith E.C. Lieu, MD; Rodney P. Lusk, MD

P14: Cochlear implantation in two children with auditory neuropathy
Judith M. Barnes, MS; Larry B. Lundy, MD; Mary Jo Schuh, MS; Daniel L. Wohl, MD

P15: Efficacy of gatifloxacin treatment of acute otitis media caused by penicillin susceptible and resistant Haemophilus influenzae in the chinchilla
James S. Batti, MD; Douglas Swarts, PhD

P16: The clinical implications of hearing loss in pediatric oncology patients, as predicted by otoacoustic emissions
Melissa G. Kress, DO; Claudia V. Emery, MS, CCC-A; Ronald W. Deskin, MD; Douglas R. Strother, MD

P17: Etiology of hearing loss in 519 children and adolescents enrolled in the hearing loss outpatient service of the pediatric otorhinolaryngology department of the Federal University of São Paulo's Hospital
Manoel de Nóbrega, MD; Claudia Simônica de Sousa, MD; Roberta Almeida; Aline Dominques Chaves Aita; Cláudia Regina Figueiredo, MD; Luc Louis Maurice Weckx, MD, PhD

P18: The natural history of sigmoid sinus thrombosis
Anurag Agarwal, MD; Patricia Lowery, MD; Glenn Isaacson, MD

RHINOLOGY, PARANASAL SINUSES, and ALLERGY

P19: The effects of functional septoplasty on the facial growth of ferrets
Timothy M. Cupero, MD; Chuck Middleton, DDS; Andrew B. Silva, MD

P20: Effect of intranasal histamine challenge on Eustachian tube function
Carlos Ebert, BA; Hoke Pollock, BA; Marc Dubin, MD; Jiri Prazma, MD, PhD; Harold Pillsbury, MD
Topical mitomycin C as an adjunct to repair of choanal atresia
Robert Ward, MD; Patrick Froelich, MD; Max April, MD

Intracranial complications of sinusitis in children
Ong Yew Kwang, MBBS; Henry T.K. Kiaang, MD

P23: Imaging and surgical approach for excision of nasal dermoids
David Bloom, MD; Daniela Carvalho, MD; Donald Kearns, MD

TONSILS and ADENOIDs

P24: Seasonal variation in the presence and severity of pediatric obstructive sleep apnea
Gonzalo Verdugo, MD; Debra M. Don, MD; Kenneth A. Geller, MD; Sally Davidson-Ward, MD

P25: The safety of conscious sedation in peritonsillar abscess drainage
Paul W. Bauer, MD; Judith E.C. Lieu, MD; Dana Suskind, MD; Rodney P. Lusk, MD

P26: The familial aggregation of pediatric obstructive sleep apnea syndrome
Alexander Ovchinsky, MD; Irwin Lotwin; Nira A. Goldstein, MD

P27: Endoscopic adenoidectomy in children with submucosal cleft palate
Yoram Stern, MD; Eitan Yaniv, MD

P28: Detection of EBV and subsets of lymphoid cells in adenoids of children under 2 years of age
José Vassallo, MD, PhD; Luiza H. Endo, MD, PhD; Eulália Sakano, MD; Pierre Brousset, MD, PhD

P29: Implication of immunological abnormalities after adenotonsillectomy
Beata Zielnik-Jurkiewicz, MD, PhD; Dariusz Jurkiewicz, MD, PhD

P30: Preoperative sedation in pediatric patients with obstructive sleep apnea
Anthony Cultrara, MD; Garrette Bennette, MD; Craig Lazar, MD; Joseph Bernstein, MD; Nira Goldstein, MD

P31: Does tonsil appearance reflect the morbidity of recurrent acute tonsillitis?
Stephen Hone, MB; Peter Walshe, MB; Michael Harney, MB; Donald McShane, MB

LARYNGOLOGY and BRONCHOEosophagOLOGY

P32: Use of Passey Muir speaking valve in tracheostomized children under the age of 2
Marcelle Sulek, MD; Ellen Friedman, MD; Carol Turnage-Carrier, MD; Susan Engleman, MD

P33: Use of Passey Muir valve in the home in tracheotomized children
Marcelle Sulek, MD; Ellen Friedman, MD; Carol Turnage-Carrier, MD; Susan Engleman, MD
Evaluation of voice changes in children between 6 and 12 years: value of largest Lyapunov exponents
Richard Nicollas, MD; Antoine Giovanni, MD; Maurice Ouaknine, PhD; Bruno Nazarian, PhD; Jean-Michel Triglia, MD

Endoscopically placed nitinol stents for pediatric tracheal obstruction
John P. Bent, MD; Robert F. Ward, MD; Max M. April, MD

P36: Prognosis of subglottic hemangioma associated to facial hemangioma in pediatric population
Remi Marianowski, MD, PhD; Simon Rassi, MD; Dominque Hamel Teillac, MD; Yves Leru, MD; Lean-Louis Alt Amer, MD; M-P Morisseau-Durand, MD; Y. Manach, MD

P37: A ten-year review of a non-invasive therapeutic option for treatment of subglottic hemangioma and evolving concepts
Hans L.J. Hoeve, MD, PhD

P38: Age related mechanisms of cricoid cartilage response to injury in the rabbit
Shilpa Reddy Cherukupally, MD; Leila Mankarious, MD

P39: Correlation between bronchogram and microlaryngoscopy / bronchoscopy in patients with congenital tracheobronchial lesions
David Albert, MD; Derek Roebuck; Helen Myatt

P40: Swallowing dysfunction and gastroesophageal reflux disease in laryngomalacia with and without supraglottoplasty
Howard R. Goldberg, MD; Robert F. Yellon, MD

P41: The efficacy of routine chest X-ray following tracheotomy in children
Syed F. Ahsan, MD; Magit Khan, BS; Michael Haupert, DO

P42: Indications for tracheotomy in the pediatric intensive care unit population
Walter Lee, MD; Esmael Amjad, BS; Peter Koltai, MD; Michael McHugh, MD; Steve Davis, MD; Kathryn Weise, MD; A. Marc Harrison, MD; Demetrios Bourdakos, MD; Elumalai Appachi, MD

P43: Gross and histologic changes in the developing rabbit subglottis in response to a controlled depth of injury
Leila A. Mankarious, MD; Shilpa Reddy Cherukupally, MD

P44: Tracheotomy tube placement in children following cardiothoracic surgery: indications and outcomes
Mario LoTempio, MD; Nina L. Shapiro, MD
Microvessel density increases with increasing severity of pathologic diagnosis for keloids, aggressive juvenile fibromatosis, and fibrosarcoma
Shelagh A. Cofer, MD; John M. Maddalozzo, MD; Susan Crawford, MD

Ectopic cervical thymus in infants: a case report and review of the literature
James Chuang, MD; John A. Smith, MD; Cirilo Sotelo-Avila, MD

Genistein enhances growth inhibition and cytotoxicity of actinomycin-D in pediatric rhabdomyosarcoma cells
Paul Krakovitz, MD; Sami Khoshyomin, MD; Gregory Manske, BS; Robert Sofferman, MD; Sean Lew, MD

Osseous hemangioma of the maxilla in an infant
Daniel J. Kirse, MD; Andreas Werle, MD; Amy Jo Nopper, MD; Robert Garola, MD

Congenital foregut duplication cysts of the tongue
Debbie Eaton, MD; Kathleen Billings, MD; Charles Timmons, MD; Timothy Booth, MD; Michael Biavati, MD

Pediatric non-orbital pseudotumor of the head and neck
Shilpa Reddy Cherukupally, MD; Leila Mankarious, MD; William Faquin, MD, PhD; Michael Cunningham, MD

Acute lymphoblastic leukemia presenting as a primary parotid mass
Sarvi Nalwa, MD; Diane Puccetti, MD; J. Scott McMurray, MD

Ectopic cervical thymus: an uncommon diagnosis in the evaluation of pediatric neck masses
LCDR Kirby Scott MC, USN; LCDR Ashley A. Schroeder, MC, USNR; CDR John H. Grienwald Jr., MC, USNR

Mandibular distraction osteogenesis in tracheostomy dependent children with multiple congenital anomalies
Stephen Hone, MB; John Canady, MD; Richard Burton, DDS; Richard Smith, MD

Use of perichondrial cutaneous grafts in the management of traumatic eyelid injuries in children
Timothy S. Lian, MD; Fred J. Stucker, MD; Cherie-Ann Nathan, MD
Objective: To identify the progenitor of the field of pediatric otolaryngology.

Design: A pedigree of pediatric otolaryngologists has been created to show the history of all Pediatric Otolaryngology training programs. The ASPO membership roster was the primary source document for the pedigree.

Results: The progeny of these programs are illustrated to highlight the cross-fertilization of the institutions.
Objective: To determine if socioeconomic status is related to caregiver reports of ear related disease in students in kindergarten in a large metropolitan school system

Design: Prospective observational

Setting: Large metropolitan school system

Interventions: Questionnaires were distributed to caregivers of kindergarten students with questions concerning the number of ear infections, speech delay, ear tube placement, regular doctor visits, and family history of ear disease. Using zip code information and census data, responses were separated by socioeconomic level.

Outcomes Measures: Correlation analysis using Spearman Correlation Coefficients

Results: Hearing problems, family history and speech delay were positively correlated with education, per capita income, and family income, and negatively correlated with employment. Reports of tube placement and regular doctor visits were negatively correlated with all but employment level. Reports of increased numbers of infections were positively correlated with education and employment, while negatively correlated with family income and per capita income.

Conclusions: Caregiver report of ear-related disease and healthcare differ with socioeconomic status. These results suggest that increasing socioeconomic levels are associated with a belief that more problems exist. However, this group also would suggest that there is also a decrease in regular care with a doctor for these complaints. A negative correlation in ear tube placement may suggest that higher socioeconomic levels are less likely to suffer from recurrent or chronic otitis media or are less likely to consider surgical option. More detailed investigations are required to better understand these relationships.
Objective: Compare the safety, outcome, and cost of procedures common in a pediatric otolaryngology practice using intravenous sedation (IVS) in an outpatient clinic versus general anesthesia (GA) in the operating room.

Design: Retrospective review of procedures performed using IVS or GA.

Setting & Subjects: Hospital-based pediatric otolaryngology practice. Patients (N=83) who underwent tympanostomy tube (PET) removal and/or Gelfoam patch myringoplasty (GPM), nasal ciliary or fine needle aspiration biopsies between July 1998 and December 2000 were included.

Interventions: Procedures were performed in two settings: 1) outpatient clinic with propofol IVS and monitoring by pediatric sedation service, or 2) operating room with GA.

Outcome Measures: Procedures reviewed regarding cost, complications, and results.

Results: Patient groups (IVS vs GA) were similar in average age (7.9 vs 7.2 years) and duration of follow-up (3.0 vs 3.2 months). Using IVS, 46 patients had multiple procedures performed. Most common were PET removal with GPM (N=31), biopsies (5), GPM alone (3), and cerumen removal (3). In 37 patients a similar set of procedures were done under GA, though 19 patients had multiple procedures done. When IVS was used 7 patients experienced either transient hypoxia requiring supplemental oxygen (4) or airway obstruction requiring jaw thrust (4). No long-term complications occurred in either group. Procedure results were similar between groups. Procedure costs were significantly more in the GA group due to the operating room charges.

Conclusions: A variety of procedures can be safely and effectively performed in an outpatient clinic using IVS and monitoring by a pediatric sedation service.
Objective: Hemifacial Microsomia (HFM) is a facial malformation, with an incidence of 1:7000 live births. Most cases of HFM appear to be sporadic, although there are familial cases in whom the condition is inherited in an autosomal dominant manner. HFM is likely to be an etiologically heterogeneous condition. We aim to map the gene locus area involved in HFM.

Design: We have ascertained a four-generation family with 12 affected members in which the condition is segregating as an autosomal dominant trait with reduced penetrance. Linkage and association studies will also be performed.

Subjects: Over a period of two years, we have collected blood samples for DNA analysis from patients diagnosed with HFM, Goldenhar syndrome, isolated microtia and pre-auricular skin tags.

Interventions: We have used the large family in our study to perform a genome wide scan to identify the disease-causing locus. Affected members were genotyped for 340 microsatellite marker loci spread at an average distance of 10cM throughout the genome. We used an ABI 377 automated sequencer for high throughput genotyping and will shortly start with the linkage and association studies in the smaller families and sporadic cases respectively.

Results: The results of linkage and haplotype analysis have localized the disease gene in this large family to an approximate 20cM interval. Fine mapping of this region and candidate gene analysis is currently in progress.

Conclusion: We have mapped the mutant gene involved in causing HFM in our large family and can now test smaller affected families and sporadic cases to ascertain whether genetic heterogeneity underlies this condition.
Objectives: 1) Evaluate prevalence of sensorineural hearing loss (SNHL) in patients with cystic fibrosis (CF), 2) Characterize risk factors and nature of hearing loss in patients with CF and SNHL, and 3) Evaluate percentage of these patients with A1555G mutations.

Design: Retrospective review

Setting: Tertiary care hospital

Participants: 46 patients with CF

Interventions: Audiologic testing

Outcome Measure: Audiometric results

Results: 46 patients with CF underwent audiologic testing, ranging in age from 1 to 46 years. 67% were male, 33% female. 17 of 46 patients with CF (37%) had hearing loss. 12 patients (26%) had SNHL, 3 patients (5%) had mixed loss, and 2 others (4%) had conductive hearing loss (CHL). Concerning the SNHL, 60% had mild loss, 0% moderate, 27% severe, and 13% had profound SNHL. 60% showed bilateral SNHL, 40% unilateral. 13% of patients with SNHL had tinnitus, and none had vertigo as associated symptoms. For patients with CF and SNHL, 85% had stable hearing loss, and 15% progressive hearing loss. Regarding risk factors of patients with SNHL and CHL, all of them received aerosol tobramycin therapy, and 72% received intravenous aminoglycoside therapy prior to documentation of SNHL.

Conclusions: Of 46 children with CF that had audiograms, 26% had SNHL, 4% had CHL, and 5% had mixed loss. Regarding the SNHL, 60% had mild loss, 0% had moderate loss, 27% had severe loss, and 13% had profound SNHL. All of the patients with hearing loss received aerosol aminoglycoside therapy and 72% received intravenous aminoglycosides. Genetic analysis of these patients is ongoing.
Objective: To describe the characteristics of SNHI in neonatal ICU (NICU) patients, and to assess the effectiveness of auditory brainstem response (ABR) screening.

Design: Retrospective review.

Setting: Academic medical center in a major metropolitan area.

Participants: NICU patients with one or more risk factors for SNHI.

Intervention: ABR screening (35 dB HL) for SNHI prior to hospital discharge.

Outcome Measures: Incidence, degree, and type of hearing impairment.

Results: Of 6,062 patients tested, 330 failed the ABR screen. Two hundred forty-nine (75%) returned for further testing. SNHI was confirmed in 156 patients (2.6% of the study population). Bilateral symmetric sensorineural hearing loss was identified in 72% of affected children; unilateral or asymmetric SNHI was uncommon. Seventy percent of affected children had moderately severe or worse SNHI. The majority had multiple risk factors.

Conclusions: ABR screening is highly effective. Seventy-seven percent of children who failed the initial screen had some degree of hearing impairment at follow-up. Affected children typically have bilateral symmetric loss of at least moderate severity.
Objective: To evaluate the utility of a staging system for congenital cholesteatoma in predicting the likelihood of persistent hearing loss and residual disease.

Design: Analysis of data from a case series, to determine predictive value of the proposed staging system.

Setting: Tertiary-care pediatric hospital.


Interventions: Each case was staged on a four-point scale as follows: (I) cholesteatoma confined to the anterior-superior quadrant, (II) any other middle ear involvement, but without ossicular erosion or mastoid involvement, (III) ossicular erosion but no mastoid involvement, or (IV) mastoid involvement.

Outcome measurements: Hearing loss, residual disease.

Results: There was a strong association between stage and residual disease, ranging from a 10% risk in stage I to 62% in stage IV. Postoperative hearing levels were also related to stage.

Conclusions: This simple staging system may be particularly useful in standardizing the reporting of congenital cholesteatoma and in adjusting for severity in evaluating outcomes. It also provides information that is useful in counseling parents.
TRIMETHOPRIM-SULFAMETHOXAZOLE IN THE MANAGEMENT OF CHRONIC SUPPURATIVE OTITIS MEDIA WITHOUT CHOLESTEATOMA IN CHILDREN.

Anne GM Schilder MD PhD, Godelieve J de Bree MD, Ward JM Videler MD, Lieke AM Sanders MD PhD

Departments of Pediatric Otorhinolaryngology and Pediatric Immunology, University Medical Center Utrecht, Utrecht, The Netherlands

Objective: To determine the effectiveness of trimethoprim-sulfamethoxazole in children with chronic suppurative otitis media without cholesteatoma (CSOMWC).

Design: Descriptive, retrospective case series.

Setting: Tertiary care pediatric otolaryngology center.

Patients: Children aged 1-12 years referred for chronic otorrhea unresponsive to treatment with conventional ototopical and oral antimicrobials.

Intervention: Oral trimethoprim-sulfamethoxazole 18 mg/kg bid for 6 weeks, repeated if necessary.

Outcome Measure: Cure: complete resolution of otorrhea. Improvement: less than 4 episodes of otorrhea of < 2 weeks’ duration in 6 months, or less than 5 episodes in 12 months. Failure: no resolution of otorrhea.

Results: Data were collected on 49 children. Median age at start of trimethoprim-sulfamethoxazole therapy was 48 months; median duration of otorrhea was 19 months. Sixteen children had undergone previous middle ear and mastoid surgery. Median follow-up was 7.5 months. Response after initial treatment with trimethoprim-sulfamethoxazole was: 14 (29%) cure, 22 (45%) improvement, 13 (26%) failure. Thirteen children received additional treatment with trimethoprim-sulfamethoxazole for recurrence or persistence of otorrhea. The end result of medical treatment was: 16 (33%) cure, 24 (49%) improvement, 9 (18%) failure. Three children underwent tympanomastoid surgery.

Conclusion: Outpatient treatment with high dose trimethoprim-sulfamethoxazole is an effective alternative to tympanomastoid surgery for children with CSOMWC.
Objective: Evaluate factors affecting physician and family satisfaction with Laser-assisted Tympanic Membrane Fenestration (LTMF).

Design: prospective clinical cohort effectiveness trial

Setting: 4 tertiary care hospitals

Patients: volunteer sample of 226 children (322 ears) undergoing LTMF with topical anesthesia. IRB approval and informed consent were obtained.

Interventions: LTMF with or without myringotomy tube placement for otitis media.

Main Outcome Measure: Physician and family assessment of discomfort and satisfaction with LTMF, related to age, indication and 90 day outcome; using validated pain scales and satisfaction survey on day 1, 14, 30 and 90.

Results: The experience of LTMF matched or exceeded the explanation for 85% of families. Over 70% "definitely" preferred LTMF to antibiotics alone (Abx) and to tube placement under general anesthesia (BMT/GA). The experience was worst for children who experienced pain during LTMF (Kendall's tau-b p=.001). Over 60% choosing the highest pain ratings "definitely" preferred LTMF over both Abx and BMT/GA. If treatment succeeded, physicians preferred LTMF over tubes, medical management, or their first alternative therapy (Phi p<.000 for each).

Conclusions: Family and physician satisfaction rates for LTMF were significantly high. Family satisfaction inversely correlated with discomfort during LTMF; physician satisfaction at 90 days correlated with outcome.
FREQUENCY SPECIFICITY OF THE CONTRALATERAL COCHLEAR EFFERENT PATHWAY: REAL TIME RECORDINGS WITH DISTORTION PRODUCT OTOACOUSTIC EMISSIONS

Adrian James MA, BM, BCh, FRCS, Richard Mount MLT, Robert Harrison PhD, DSc

Auditory Science Laboratory, Hospital for Sick Children and Department of Physiology, University of Toronto, Ontario, Canada
416-813-8390 tel; 416-813-8456 fax; adrian.james@pem.cam.ac.uk

Objective: To use a new protocol for measurement of distortion product otoacoustic emissions (DPOAEs) in real time to investigate the frequency specificity of the cochlear efferent pathway which mediates contralateral suppression.

Design: Real time recording of DPOAE suppression induced by pure tone stimulation of the contralateral ear.

Subjects: Twelve adult chinchillas.

Intervention: DPOAEs of awake and anesthetized chinchillas were recorded in real time, i.e. without signal time averaging, using narrow pass filtering techniques (Vivo 600DPR, Vivosonic Inc.). Primary frequencies were set at f2/f1= 1.22 over a range of 2-8kHz with L1 at 70dB and L2 at 65dB. Emissions were recorded at 2f1-f2. Pure tone stimuli were applied to the contralateral ear over a range of 0.5-12kHz, and the change in DPOAE amplitude measured.

Results: Maximal suppression of DPOAEs was observed when the contralateral stimulus frequency equated to f2. Suppression increased with intensity of the contralateral stimulus.

Conclusion: These findings demonstrate frequency specificity in the olivo-cochlear pathway which allow construction of contralateral ‘suppression tuning curves’. Suppression depends upon a functioning contralateral cochlear and cochlea nerve and is intensity dependent. This may allow development of a simple, non-invasive, objective test of hearing threshold, which would have particular value in early detection of hearing loss.
Objective: To compare the use of areolar connective tissue versus temporalis fascia as a graft material in primary pediatric tympanoplasty.

Design: Case series by retrospective medical record review.

Setting: Academic pediatric hospital serving both as a primary care and tertiary level referral center.

Patients: Twenty-five patients younger than 18 years who underwent primary tympanoplasty from December 1997 through December 1999 were examined. Four patients were lost to follow up and excluded, leaving twenty-one patients for evaluation. Ten patients received areolar grafts while eleven others received grafts composed of temporalis fascia.

Interventions: Type I tympanoplasty without ossicular chain reconstruction or mastoidectomy.

Outcome Measures: Preoperative and postoperative otologic examination and audiometric data at the final follow up visit were utilized. Surgical success was defined as the presence of an intact graft without perforation, failure, or lateralization for a minimum of 6 months. Audiometric success was defined as a postoperative air-bone gap of less than 25 dB.

Results: Both groups were similar with respect to age (7.7 y vs. 7.8 y), perforation/retraction pocket size (27.5% vs. 28.5%), and air bone gap (33.5 dB vs. 32.7 dB). The surgical success rates for areolar and fascial groups were 80% and 82%, respectively. The audiometric success rates were also 80% and 82%, respectively.

Conclusions: Our results suggest that primary pediatric tympanoplasty can be successfully performed with either material as a graft. Although small, this study supports the use of areolar grafts during an initial tympanoplasty. It produces comparable results and saves the temporalis fascia for later use if the initial repair attempt fails.
Objective: To evaluate the results of pediatric cochlear implantation in individuals with sensorineural hearing loss due to meningitis and to describe the relationship between surgical findings, high resolution computed tomography (HRCT), audiologic testing and educational placement.

Design: Retrospective case series.

Setting: Tertiary pediatric care hospital.

Participants: Twelve (12) patients (8 males, 4 females) between 13 months and 11 years of age implanted between October 1996 and September 2000 with postmeningitic hearing loss.

Intervention: Cochlear implantation.

Outcome Measures: Findings of ossification at surgery and insertion depth were related to findings of preoperative high-resolution CT scans. Audiologic performance was described based on scores obtained from open set speech perception testing and performance in an educational setting. Implant programming parameters including increases in threshold and comfort levels, mode and pulse width were reviewed over time.

Results: 50% of patients had findings of ossification of the cochlea on CT imaging, requiring drilling into the basal turn in all but one case for electrode placement. Three of these patients had partial electrode insertion. All patients without findings of ossification on CT imaging had complete insertion without difficulty. 25% of patients had significantly increased threshold current requirements within the first year after surgery, managed by changes in programming parameters.

Conclusions: Cochlear ossification in postmeningitic deaf children seen on CT scanning does not always predict the degree of difficulty at surgical implantation or implant use performance. Performance with implant use was dependent on age of deafness onset, duration of deafness, age of implantation, and number of electrodes implanted. A direct relationship between degree of ossification of the cochlea and patient performance was less clear.
Objective: To examine the feasibility and outcome of cochlear implantation in a group of pediatric patients with the CHARGE association.

Design: A retrospective review of temporal bone morphology based on radiographic data and intraoperative observations compared to historical reports. Audiometric findings, differences in sound awareness, and speech perception abilities were assessed in a retrospective case evaluation and compared to a control group of matched children with implants.

Setting: A tertiary referral children’s medical center cochlear implant program.

Participants: Six consecutive pediatric patients with the CHARGE association and profound sensorineural hearing loss.

Interventions: As part of the standard precochlear implant evaluation computed tomogram of the temporal bone, audiometric studies and age appropriate meaningful auditory integration scale (MAIS) were completed. During cochlear implantation the morphology of the middle ear was documented. Audiometric studies and appropriate MAIS questionnaires were repeated prospectively at 3 month intervals after cochlear implantation.

Outcome Measures: The presence of temporal bone anomalies; the degree of difficulty in performing the implant and the types of complications encountered; age appropriate speech perception and difference in sound awareness after cochlear implantation.

Results: Five CHARGE patients were successfully implanted. One patient could not be implanted secondary to the aberrant course of the facial nerve. A high percentage of them have vestibulocochlear dysplasias which portends an aberrant course to the facial nerve. Various ossicular abnormalities are often seen. Perilymphatic gushers can be encountered. We have seen good outcomes in terms of hearing thresholds and difference in sound awareness.

Conclusion: Cochlear implantation in the CHARGE association has been reported once. The varied temporal bone anomalies encountered in CHARGE patients can lead to increased technical challenges in completing cochlear implantation. Knowledge of the variations and facial nerve monitoring is essential to avoid inadvertent facial nerve injury. It is expected that speech perception and production will be similar to the results found in other implanted children with matched cognitive function.
Objective: To demonstrate the efficacy of cochlear implantation in two pre-school aged children with suspected auditory neuropathy.

Design: Unaided and aided audiometric tests, tympanometry, otoacoustic emissions, auditory brain stem response, and a speech perception battery were used to evaluate the children both pre- and post implant. In addition radiographic imaging, cognitive assessment, and speech and language measures were administered to determine cochlear implant candidacy. Both children met all recognized criteria for cochlear implantation.

Results: At the time of implantation, Subject 1 was a 2 year old male with measurable unaided residual hearing in the severe-profound range and no hearing aid use. Subject 2 was a 4 year old male with documented hearing in the profound range, aided speech awareness at 30dB and used hearing aids for 2.5 years. Testing supported presence of auditory neuropathy. Otoacoustic emissions were present pre- and post-operatively in Subject 1 and absent post-operatively in Subject 2. Neither subject demonstrated any auditory/speech identification or perception pre-implant. The subjects demonstrated improved awareness and detection of both environmental and speech information post implantation. Auditory/speech perception skills increased within six months of implant use. Subject 1 demonstrated additional increase in auditory perception at one year post implantation.

Conclusion: Two children with auditory neuropathy underwent uneventful cochlear implantation followed by successful initial stimulation. Both subjects demonstrated both enhanced and progressive improvement in auditory skills and oral communication post implantation. With attentive post-surgical therapy, cochlear implantation can be an effective treatment for children with auditory neuropathy and profound hearing loss.
EFFICACY OF GATIFLOXACIN TREATMENT OF ACUTE OTITIS MEDIA CAUSED BY PENICILLIN SUSCEPTIBLE AND RESISTANT HAEMOPHILUS INFLUENZAE IN THE CHINCHILLA

James S Batti MD, Douglas Swarts PhD

Department of Pediatric Otolaryngology, Children’s Hospital of Pittsburgh, PA
412-692-6216 tel, 412-692-6074 fax; batcavepa@aol.com

Objective: To evaluate the efficacy of gatifloxacin treatment of acute otitis media caused by penicillin susceptible and resistant Haemophilus influenzae in the chinchilla.

Design & Setting: 180 chinchillas randomly assigned to one of three equal groups (N=60) corresponding to treatment with ampicillin, azithromycin, and gatifloxacin for treatment of H. influenzae acute otitis media.

Subjects: 180 chinchillas with H. influenzae acute otitis media.

Intervention: Acute Otitis media induced in a chinchilla model with various strains of penicillin susceptible and resistant H. influenzae.

Outcome Measures: Primary outcome measures consisted of survival, otoscopy, tympanometry, and culture results post treatment.

Results: Two days after inoculation, a 10-day course of treatment was initiated. On days 4, 8, and 12 otomicroscopy and tympanometry were performed with middle ear cultures obtained on day 12. Culture results on day 12 demonstrated 100% eradication of both beta-lactamase positive and negative haemophilus influenzae in the gatifloxacin treated group.

Conclusions: The use of gatifloxacin for the treatment of beta-lactamase positive H. influenzae demonstrated superior results for sterilizing the middle ears compared to similar treatment course with either ampicillin or azithromycin.
THE CLINICAL IMPLICATIONS OF HEARING LOSS IN PEDIATRIC ONCOLOGY PATIENTS, AS PREDICTED BY OTOACOUSTIC EMISSIONS

Melissa G. Kress DO¹, Claudia V. Emery MS, CCC-A², Ronald W. Deskin MD¹, Douglas R. Strother MD³

¹Texas Children's Hospital, Department of Pediatric Otolaryngology,
²Department of Audiology, and ³Department of Pediatric Hematology Oncology,
Baylor College of Medicine, Houston, TX
832-824-3267 tel; 832-825-3251 fax; melissa_kress@yahoo.com

Objective: A study of 17 cases to assess the clinical implications of hearing loss in pediatric oncology patients, as predicted by otoacoustic emissions.

Design: A retrospective review of an audiological database.

Setting: A children's hospital of a tertiary care academic medical center.

Patients: 308 pediatric oncology patients.

Methods: Amplitudes of distortion product evoked otoacoustic emissions measured and compared the threshold of pure tone audiometry to assess peripheral sensitivity and for threshold determination of hearing loss, while the children were undergoing chemotherapy for various cancers.

Results: 13 of the 308 patients were excluded due to lack of complete data. 17 of the 295 patients were reported to have a drop in their otoacoustic emissions, at follow-up testing and predicted a future drop in thresholds of pure tone audiometry.

Conclusion: The application of distortion product evoked otoacoustic emissions to assess peripheral sensitivity and for threshold determination of hearing loss due to ototoxicity has been questioned by many authors, with regard to clinical implications. While early detection of hearing loss may not alter cancer chemotherapies, it can allow for early intervention by audiologists and speech pathologists to address language development problems related to the hearing loss.
Objective: to assess hearing loss in 519 children and adolescents enrolled in the Hearing Loss Outpatient Clinic of a Public Hospital.

Design: this study analyses the records of 519 patients with histories of hearing loss, based on the (modified) "Risk Indicators for Hearing Loss" of the Joint Committee on Infant Hearing, in the period of March 1990 to September 2000.

Setting: Specialized outpatient referral center.

Subjects: 519 individuals, 271 males and 248 females, aged 0 - 21 years.

Intervention: All individuals were submitted to a standard questionnaire and otorhinolaryngologic examinations; and counseled for audiologic evaluation, rehabilitation and selection of hearing aids. Patients without defined etiologies also underwent genetic evaluation.

Results: The average age at suspicion of hearing loss was 2 years 3 months; 4 years 6 months at confirmation; and 2 years 4 months was the average time between suspicion and confirmation (ATBSC). Etiologies: unknown - 37.57% (suspicion: 3 years 1 month; ATBSC - 2 years 7 months); congenital rubella: 15.41% (suspicion: 2 years 1 month; ATBSC - 1 year 10 months), genetic factors - 13.68% (suspicion: 2 years 1 month; ATBSC - 1 year 9 months); perinatal causes - 11.75% (suspicion: 4 years 4 months; ATBSC - 2 years 5 months); meningitis - 10.40%; consanguinity - 5.78%.

Conclusions: the study did not identify 37.57% of the etiologies; the average age at suspicion was very high, as was the time elapsed between suspicion and confirmation of the hearing loss, resulting in severe retardation in overall individual development.
Objective: To demonstrate the evolution of sigmoid sinus thrombosis.

Design: Prospective observational study.

Setting: Tertiary children’s medical center.

Patient: A six-year-old girl presented with mastoiditis, epidural abscess and occipital osteomyelitis from multiple drug resistant Streptococcus pneumoniae. She underwent a mastoidectomy and partial occipital craniectomy. This procedure produced a window in the occipital bone that allowed serial ultrasonography of the sigmoid sinus during medical treatment.

Intervention: Computed tomography followed by weekly Doppler ultrasonography.

Outcome Measure: Resolution of sigmoid sinus thrombosis.

Result: The natural history of a treated episode of sigmoid sinus thrombosis was illustrated. Venous occlusion resolves over a 4-week period without surgical drainage or anticoagulants. Collateral flow, reversal of normal venous flow and ultimate return to normal venous transport characterized the period of resolution.

Conclusions: An occluded sigmoid sinus from mastoiditis can naturally recanalize. Aberrant venous flow can be demonstrated during period of resolution.
Objective: To determine the effects of functional septoplasty on the facial growth.

Design: Pilot study.

Subjects: 9, four week old ferrets.

Interventions: The ferrets were divided into three groups of three. The first group served as the control group and had bilateral mucoperichondrial flaps raised only. The second group had a 5x3mm piece of septal cartilage removed with preservation of the dorsal and caudal septal struts. The third group had a 4mm piece of vomer excised with preservation of all septal cartilage. All groups had preservation of the mucoperichondrium. The ferrets were then allowed to grow until 14 weeks of age and were then sacrificed. Lateral cephalograms were then performed and facial analysis conducted.

Outcome Measures: Facial growth based on cephalometric analysis.

Results: Preliminary data suggest there is no statistically significant difference in the facial growth of the three groups of ferrets.

Conclusions: Functional septoplasty has no effect on the facial growth of ferrets.
Objective: To show a relationship between intranasal histamine challenge, the development of middle ear effusion and Eustachian tube dysfunction (ETD) in a rat model.

Design & Setting: Animals were randomly assigned to receive an intranasal infusion of 16 L of 10% histamine or normal saline. Eustachian tube function was assessed by using the forced-response test to measure passive and active opening and closing pressures at time intervals of 6, 10, 14, 18, 22, and 26 minutes and 24 hours post-infusion. Mucociliary clearance times of the tubotympanum at 14 and 26 minutes post-infusion were measured by timing the transit of dye from the middle ear to the nasopharynx.

Subjects: Non-allergic Sprague Dawley rats weighing between 250-350 grams.

Outcome Measures: Eustachian tube function and evidence of clinical effusion.

Results: Intranasal histamine caused acute Eustachian tube dysfunction when introduced into the nasopharynx demonstrated by statistically significant (p= <0.001) elevations in passive and active opening and closing pressures within the intranasal histamine challenged group, as well as when compared to the saline challenged group. The largest difference was seen at 26 minutes post-infusion. Furthermore, there was a statistically significant difference in mucociliary clearance times when comparing histamine challenged group to the saline challenged group. No clinically significant effusions were evident in either group at any time interval.

Conclusion: These data demonstrate a successful development of intranasal histamine rat model, in addition to a relationship between intranasal histamine challenge and development of ETD.
TOPICAL MITOMYCIN C AS AN ADJUNCT TO REPAIR OF CHOANAL ATRESIA

Robert Ward MD, Patrick Froelich MD, Max April MD

New York Otolaryngology Institute, New York, NY
212-327-3000 tel; 212-327-3004 fax; nyoi_ward@I-2000.com

Objective: To evaluate the use of topical mitomycin in the repair of choanal atresia to reduce the development of granulation tissue and cicatrix.

Design & Setting: Retrospective case series in two tertiary care centers.

Subjects: 16 patients with either unilateral or bilateral congenital choanal atresia underwent repair using the transnasal endoscopic approach or the transpalatal approach.

Intervention: The senior surgeons favor the use of the endoscopic transnasal drill out technique for all unilateral cases of choanal atresia and for selected bilateral cases. We describe our experience and treatment paradigm for these 16 patients (12 with unilateral atresia, 4 with bilateral.) Topical application of Mitomycin C was employed and in some cases postoperative stenting for a period of one to two weeks. In 5 cases a second application of Mitomycin was used. Follow up ranged from 3 months to 2 years (mean of 9).

Outcome Measures: The patency of the choanae without any respiratory distress or nasal drainage as assessed by endoscopic evaluation determined a successful repair.

Results: Of the 16 patients, 12 remained patent. 4 of the patients were converted from a total atresia to a narrowed, stenotic choana.

Conclusions: The use of mitomycin as an adjunct to the repair of choanal atresia may offer improved patency with a decreased need for stenting, dilatations, and revision surgery. Newer endoscopic techniques with powered instrumentation further enhance the safety and efficacy in the repair of choanal atresia.
Objective: Intracranial complications of sinusitis in children.
Setting: Children's Hospital, Singapore.
Participants: Seven boys: Age range 9-14, over a two-year period from 1998-1999.
Intervention: Craniotomy/craniectomy & Sinus Surgeries.
Outcome Measure: Glasgow Outcome Scores (GOS).
Results: There were 6 cases of subdural empyemas and 1 case of meningitis. The commonest presenting symptoms included fever, headache and vomiting. The intracranial infections were not apparent from the initial CT scans for 2 patients and were confirmed later only after the disease has progressed. The median time to intracranial diagnosis was 3 days. Four patients had lumbar puncture without any adverse effects. All 7 cases had infections involving the frontal, ethmoid and maxillary sinuses and 2 also had sphenoid sinusitis. All were treated with high-dose intravenous antibiotics together with drainage of both the intracranial (n=6) and sinuses (n=7) suppuration. Five needed repeat intracranial drainage. Streptococcus species were isolated in 5 cases. Three patients developed seizures post-operatively while one needed a ventriculo-peritoneal shunt for hydrocephalus. The median length of hospital stay was 43 days (30-89).
Conclusions: Teenage males are at greatest risk of developing intracranial infections from sinusitis. We recommend that radiological imaging of the brain for suspected intracranial infection should always include the sinuses as this aids with early diagnosis. Good management outcome can be achieved only if both aggressive antibiotics therapy and surgical drainage are used.
Objective: To determine the most accurate and cost effective radiographic evaluation for nasal dermoids and to determine the best surgical approach for excision of nasal dermoids.

Design: Retrospective chart review.

Setting: Department of Pediatric Otolaryngology, Children’s Hospital of San Diego, CA

Participants: All patients with nasal dermoids evaluated and treated from 1990 – 2000.

Intervention: Preoperative radiographic evaluation and surgical excision.

Outcome Measures: Accuracy of CT and MRI correlated with surgical findings and results.

Results: In the early years of the review, a simple excision was made over the mass with blunt and sharp dissection for removal. In later years, an external rhinoplasty incision was used with better exposure and improved cosmetic results. In cases with intracranial communication, a combined approach of external rhinoplasty and craniotomy were used. Initially CT scan was used as the initial radiographic evaluation. However, CT scan alone frequently did not provide adequate and accurate information about intracranial extension as the cribiform plate is not calcified in younger patients. MRI alone provides adequate and accurate evaluation of nasal dermoids and determination of intracranial communication.

Conclusions: MRI alone is the most cost effective and accurate means of evaluating nasal dermoids and is essential for preoperative planning. The surgical approach of choice is external rhinoplasty for both cosmetic reasons and exposure of nasal dermoids with and without intracranial extension.
Objective: To determine whether the presence and severity of the obstructive sleep apnea syndrome (OSAS) in children varies by season.

Design: Retrospective analysis.

Setting: Tertiary care children’s hospital.


Outcome Measures: Lowest O2 saturation, peak end tidal CO2 (PETCO2) and respiratory disturbance index (RDI) were recorded. Patients were assigned to severity groups termed no OSAS, mild, moderate and severe OSAS based on lowest O2 saturation, PETCO2 and RDI.

Results: The age range was one to 17.5 years with a mean of 5.6 years. Ninety seven patients had no OSAS, while 288, 146 and 19 children were classified as having mild, moderate and severe OSAS, respectively. A decrease in moderate and severe OSAS patients was detected in July to August, while an increase in children with moderate and severe OSAS was detected in November to December (P=0.017). Furthermore, a decrease in patients lacking OSAS was detected during November to January (P=0.010). Age and length of sleep study affected OSAS severity.

Conclusions: The presence and severity of OSAS appears to vary by season with fewer patients demonstrating moderate and severe OSAS during summer months and greater numbers exhibiting moderate and severe OSAS during the late fall to early winter. This may reflect an increased incidence of adenotonsillar hyperplasia caused by persistent exposure to infectious agents during winter months.
Objective: Demonstrate the safety of peritonsillar abscess (PTA) management under conscious sedation (CS).

Design: Retrospective review of all patients diagnosed in the emergency department with a PTA or cellulitis and managed with CS from March 1, 1998 until September 1, 2000. Patients who were managed with CS were compared with previously published data from our institution and to historical reports on the complication rates for CS and for PTA incision and drainage (I&D).

Setting: A tertiary referral children's hospital emergency department.

Participants: Forty-three consecutive children initially evaluated in the emergency department and managed for a PTA or cellulitis under CS.

Interventions: PTA I&D under CS. A team of physicians whose activities were documented on a formal CS record administered the CS. Patients were monitored for major and minor complications.

Outcome Measures: The primary outcome measure was complications from CS. Secondary outcome measures considered were recurrence of PTA and the need for admission.

Results: Forty-three patients underwent CS for I&D of a PTA, two of whom underwent I&D under CS twice, and one was taken for tonsillectomy after presenting with a recurrent abscess four months later. No major complications occurred, only two minor complications occurred (nausea and vomiting; minor decrease in oxygen saturation that promptly responded to arousal). Fourteen patients were admitted after the procedure. Our previously published data contained 27 children who underwent CS, three of whom underwent CS twice. No major complications were reported in that series. Combining our previous data with the patients from the current study we obtained a total of 75 separate episodes of PTA drainage under CS. The one sided upper 95% confidence limit for major complications is 4%.

Conclusion: Our series, when combined with previously published data from our institution, demonstrates that a peritonsillar abscess can be safely managed under CS in pediatric patients.
Objective: To determine the role of genetic mechanisms in the development of Pediatric Obstructive Sleep Apnea Syndrome (OSAS).

Design: Genetic-epidemiologic survey of families of index children with laboratory confirmed OSAS.

Setting: Tertiary care academic medical center.

Participants: 600 nap polysomnograms performed in our institution’s Pediatric Sleep Laboratory over the past 6 years were reviewed, and the 497 children who tested positive for OSAS were selected. A caretaker of 200 of these index patients was contacted and 115 agreed to participate.

Intervention and Outcome Measure: Questionnaire-type telephone interviews were conducted with the caretakers of the index patients to assess the distribution of sleep disordered breathing in the first degree relatives (parents and siblings).

Results: Data were collected for 445 first degree relatives (256 adults, 189 children) of the 115 index patients. Habitual snoring was found in 194 (43.6%) of the family members while symptoms highly suggestive of OSAS (nighttime “gasping for air” or “cessation of breathing”) were found in 91 (20.4%). 68 (26.6%) of the adult first degree relatives and 23 (12.2%) of the pediatric first degree relatives had symptoms highly suggestive of OSAS. Of the 115 index children, 50 (43.5%) had at least one relative with symptoms highly suggestive of OSAS. 6 (1.3%) of the first degree relatives had sleep studies positive for OSAS, 4 (0.9%) were using nasal continuous positive airway pressure (CPAP), and 21 (4.7%) had prior surgery for the treatment of OSAS.

Conclusions: Considering the established prevalence of OSAS in the general population (2 to 4%), the results of this study support a familial basis for this disorder.
Objective: To determine the safety and effectiveness of endoscopic partial adenoidectomy for the treatment of nasal obstruction in children with submucosal cleft palate.


Intervention: Transnasal endoscopic partial adenoidectomy

Outcome Measures: Operative complications, relief of nasal obstruction, presence of postoperative velopharyngeal insufficiency.

Results: There were no operative complications. All the children had relief of nasal obstruction. Velopharyngeal insufficiency was not observed during the postoperative follow-up.

Conclusions: Endoscopic partial adenoidectomy is a safe and effective procedure for the treatment of nasal obstruction in children with submucosal cleft palate.
DETECTION OF EBV AND SUBSETS OF LYMPHOID CELLS IN ADENOIDS OF CHILDREN UNDER 2 YEARS OF AGE.

José Vassallo MD, PhD, Luiza H. Endo MD, PhD, Eulália Sakano MD, Pierre Brousset MD, PhD

1Department of Ophthalmology and Otolaryngology, State University of Campinas, Brazil
55-19-32524241 tel; 55-19-32510125 fax; luiza_endo@hotmail.com

Background: In a previous study by our group using in situ hybridization to detect EBV in adenoids from children (2-13 years old), resected because of nasal obstruction due to hypertrophy, we found EBV genome in 72% of the cases.

Objective: To study the frequency of EBV expression in adenoids from children that underwent surgical removal, belonging to a lower age group (1-2 years old) and to establish which lymphoid subsets are involved in this infection.

Design & Setting: Cohort study in 2 pediatric otolaryngology practices in Campinas, State of São Paulo, Brazil.

Subjects: 21 children aged 1-2 years old (mean 1.6y), 15 males and 6 females with nasal obstruction due to adenoidal hypertrophy.

Methods: Adenoids were surgically removed, fixed in formalin 10% and embedded in paraffin. Sections were submitted to double labeling: in situ hybridization with EBER probes to detect EBV and immunohistochemistry to determine the lymphocyte typing of EBV positive cells (CD20 for B-lymphocytes, CD3 for T-lymphocytes and CD56 and CD57 for NK-cells).

Results: Among the 21 patients, 7 showed positive lymphoid cells for EBV (33%). In almost all cases, EBV-positive cells were also CD20-positive. Some EBV-positive cells showed no labeling with any of the lymphoid markers, but in no instance they were positive for CD3, CD56 or CD57.

Conclusion: Our data reveal a lower frequency of EBV infection in children under 2 years of age and confirms the preferential infection of B-lymphocytes by EBV, which in some instances can down regulate the expression of CD20.
Objective: To evaluate changes in systemic immunity in children before and after adenotonsillotomy.

Design & Setting: Three times clinical and immunological study in children from Department of Otolaryngology undergoing adenotonsillotomy.

Subjects: 80 children (33 girls and 47 boys, mean age 6.8 years) with diagnosed hypertrophy of adenoids and tonsils. The control group comprised 40 healthy children (14 girls and 26 boys, mean age 7.6 years) without a history of the recurrent upper respiratory tract infections.

Intervention: Scheduled adenotonsillotomy. Blood analysis before, day after and six months after adenotonsillotomy.

Outcome Measures: Serum levels of immunoglobulins A, G, M (humoral immunity); percentage of T lymphocytes (CD3); percentage of T helper (CD4) and T cytotoxic (CD8) lymphocytes (cellular immunity) and delayed cutaneous hypersensitivity - Multitest CM1 (cell mediated immunity).

Results: In children with hypertrophy of adenoids and tonsils there exist changes in immunological parameters. The observed changes appear not only locally but also generally. In the period immediately following adenotonsillotomy there was statistically significant decrease in the values of humoral and cellular immunity parameters. However six months after operation we observed normalization of examined immunological parameters.

Conclusion: An examinations of immunological system parameters (humoral and cellular) is necessary before any scheduled adenotonsillotomy.
Objective: Based on a few reports that describe obstructive sleep apnea (OSA) patients as having an increased risk of acute upper airway obstruction after pharmacologic sedation, this population is less likely to receive sedation prior to surgery. Our objective was to evaluate pediatric patients with OSA who received preoperative sedation to determine if there was an increase in perioperative airway obstruction.


Setting: Two tertiary care academic medical centers.

Subjects: 56 children (mean age = 4.3 ± 2.1 years; 42 boys, 14 girls) diagnosed with OSA by sleep study or clinical evaluation that received preoperative midazolam hydrochloride.

Outcome measure: The occurrence of perioperative upper airway obstruction that required active intervention within 24 hours of surgery.

Results: Of the 56 children, six had positive sleep studies with respiratory distress indexes of 2.8, 3.8, 3.9, 15.7, 17.9 and 40.7. The remaining 46 children had a history and physical exam suggestive of OSA. After receiving midazolam hydrochloride, the children were closely observed by their parents and nursing staff in the holding area. Adenotonsillectomy was performed in 54 children with one tonsillectomy and one adenoidectomy performed in the remaining two children. There were no cases of upper airway obstruction, hypoventilation, desaturation, bradycardia, or sustained lethargy after the administration of preoperative sedation.

Conclusions: The preliminary data suggested that preoperative sedation may be safely administered to children sleep apnea if they are closely observed prior to surgery. Further prospective studies are needed to confirm these results.
Poster P31

DOES TONSIL APPEARANCE REFLECT THE MORBIDITY OF RECURRENT ACUTE TONSILLITIS?

Stephen Hone MB, Peter Walshe MB, Michael Harney MB, Donald McShane MB

Department of Otolaryngology, MANCH Hospitals, Tallaght, Co Dublin, Ireland
316-353-7847 tel; stephen-hone@uiowa.edu

Objective: To determine if tonsil appearance reflects a history of recurrent acute tonsillitis.

Design: Prospective case control study.

Setting: Tertiary referral hospital.

Participants: 50 consecutive patients presenting with a history of five or more bouts of acute tonsillitis annually for two or more years and 50 patients of similar age and sex presenting with unrelated problems with no history of acute tonsillitis.

Intervention: Tonsil appearance was graded according to size (1 to 3) and the presence or absence of anterior pillar hyperemia, pharyngitis and jugulo-digastric nodes.

Outcome measures: A combined score was calculated for each group and individual parameters were also compared.

Results: Mean age was 10 years, range (2 to 18). There were no statistical demographic differences between the two groups. No significant difference in tonsil appearance was found. Jugulo-digastric nodes were more frequent in the tonsillitis group.

Conclusion: Tonsil appearance does not reflect a history of recurrent acute tonsillitis and is unhelpful in deciding on tonsillectomy.
Objective: To determine tolerance of Passey Muir Speaking Valve (PMSV) of tracheostomized infants and children 2 years of age or less.

Design: Retrospective review.

Setting: Tertiary care center in large metropolitan center.

Participants: 64 children under 2 who had tracheostomies from 1/1/93 to 9/30/95.

Interventions: Trials of PMSV use from day 8 to day 496.

Outcome Measure: Tolerance occurred if oxygen levels remained above 88%, heart and respiratory rates were normal and unlabored, and no agitation.

Results: The 64 tracheostomies were performed for airway obstruction (45%), pulmonary toilet (20%) and prolonged ventilation (35%). 29 of 64 (45%) were eligible for the trials of PMSV. 55% were ineligible due to patient instability, upper airway obstruction or neurological status. Trials of PMSV occurred between day 8 and day 496 after the tracheostomy. In 22 uncomplicated patients, the PMSV trial occurred between day 8 and 40. 83% (24/29) tolerated the PMSV and 75% (18/29) vocalized on the first trial. 6 ventilator dependent patients tolerated the PMSV. Intolerance in 5 was due to increased work of breathing, desaturation, or color change. 13/24 (54%) were under 6 months of age and 9/24 (38%) were under 3 months of age, the youngest 13 days of age.

Conclusion: PMSV is tolerated by infants as young as 13 days of age. PMSV is tolerated by children on ventilators. Tolerance should follow guidelines of oxygen saturation, respiratory and heart rates in the normal range, unlabored breathing and lack of agitation.
Objective: Parents' perception of experience of Passey Muir Speaking Valve (PMSV) in infants and children with tracheostomies after discharge from the hospital.

Design: Patient telephone survey.

Setting: Tertiary care hospital in large metropolitan setting.

Participants: Tracheostomy patients under 2 using the PMSV before discharge.

Outcome Measures: Survey of parents regarding problems using the PMSV, language development, language skills of decannulated children, need for speech therapy and parent perception of PMSV impact on parent-child relationship.

Results: Of the 24 children discharged using the PMSV with their tracheostomies, only 10 were found for the phone survey. The children were now 2 to 5 years in age and 6 of these 10 children were now decannulated. The median age at the time of tracheostomy placement was 2.7 months and the median day that the PMSV trial occurred was 21 days. Eight out of 10 children were in speech therapy and had been for 1 to 3.5 years. Of the 4 of 10 children with tracheostomy still in place, 3 of the 4 used the PMSV all day while awake. While using the PMSV, parents noted sounds in 2 of 10 patients, but 8 of 10 patients had developed vocabulary. Seven of 10 children spoke in sentences when using the PMSV. Parents felt that their relationship with their child had been enhanced while using the PMSV in 7 of 10 children.

Conclusions: This review suggests that parents can monitor their child's use of the PMSV at home. The PMSV gives parental perceptions of improved language skills and improved relationships between parent and child.
Objective: Identify objective evidence of voice changes in children between 6 and 12 years, with special focus on voice signal stability.

Design: Prospective one-year study including 306 children.

Setting: Academic care center.

Subjects & Methods: Three hundred and six children with no history of voice disorder were divided into groups according to age (6, 7, 8, 9, 10, 11 and 12 years). For each child, a digital voice recording was made and fundamental frequency, vocal range, jitter, and intensity were measured. Only 186 records were estimated normal by a jury of 3 listeners. Largest Lyapunov exponents were calculated using a sustained “a” recorded in the .wav format. The largest Lyapunov exponent is a indicator of system instability recently used for clinical applications (Titze, Hertel...).

Results: A statistical difference between the two groups of children involved largest Lyapunov exponents (p<0.05). A small statistical difference was found on jitter.

Conclusions: In this study, analysis of largest Lyapunov exponents in children between 6 and 12 years demonstrated decreasing laryngeal instability with age and maturity. The most likely explanation for this finding is improved coordination resulting in a decrease in degrees of freedom (Bernstein’s theory). As suggested by previous studies, our findings indicate that largest Lyapunov exponents are not strongly correlated with jitter. Thus this parameter should probably be taken into account for objective voice analysis especially in children.
Objective: To provide preliminary clinical data regarding endoscopically placed nitinol stents for children with tracheal obstruction.

Design: Case series.

Setting: Academic tertiary care referral center.

Patients: Three children (ages 5, 7, 15) dependent upon tracheotomy because of acquired tracheal obstruction. Two patients had combined tracheomalacia and tracheal stenosis. Both had failed tracheoplasty with rib graft augmentation and their obstruction was too long to allow tracheal resection. The third patient had tracheal collapse above his stoma in addition to distal tracheal stenosis from innominate artery compression and bilateral vocal cord paresis with supraglottic stenosis.

Intervention: Endoscopic placement of nitinol stents in the obstructed tracheal segment using fluoroscopic guidance. The third patient had the stent placed in the region of suprastomal collapse, not the distal tracheomalacic region. All tracheotomy tubes were removed immediately after successful stent deployment.

Results: Five stents were placed in total. The first patient's initial stent was too narrow and was therefore removed and replaced at a later date with a larger diameter stent. The second patient experienced distal migration of his initial stent requiring stent removal and replacement at a later date. Both patients remain successfully decannulated (follow-up = 9 and 11 months). The third patient required replacement of his tracheotomy tube because of glottic and supraglottic obstruction, and ultimately stent removal.

Conclusion: Preliminary use of nitinol stents for pediatric tracheal obstruction has enabled successful decannulation in 2 of 3 children with complicated airways. Experience with stent selection and placement will help avoid problems encountered in this initial series.
Objective: To compare the evolution between isolated subglottic hemangioma (ISGH) and subglottic hemangioma (SGH) associated with facial lesions in beard distribution in pediatric patients. The presence of facial hemangioma distributed in a beard pattern is highly correlated to presence of hemangioma in the upper airway or subglottic regions.

Design: Retrospective study, chart review.

Setting: Tertiary referral center, institutional pediatric practice.

Patients: Records of fifteen children presenting with ISGH or SGH associated to skin hemangiomas were reviewed, over a 4 year period (from 1995 to 1999).

Results: Nine infants (60%) had ISGH and six (40%) had SGH associated to facial hemangiomas in a beard distribution. The sex ratio (M/F) was 6/3 in group I and 1/5 in group II. Symptoms began at 3 months of age (ranging from birth to 8 months) in group I and 1 month of age (ranging from birth to 3 months) in group II. Two children in group I and 2 children in group II had respiratory symptoms present from birth. Comparative evolution between these 2 groups did not reveal significant difference concerning prognostic outcomes except in 1 patient in the second group representing a spectrum of malformations described in PHACE(S) syndrome.

Conclusion: Large cervicofacial hemangiomas especially those in a beard distribution, are important to recognize as an index for the presence of SGH. Comparative evolution with ISGH did not show any significant difference. However, early detection of associated malformations is crucial to decrease the morbidity related to respiratory compromise and to other abnormalities.
Poster P37

A TEN-YEAR REVIEW OF A NON-INVASIVE THERAPEUTIC OPTION FOR TREATMENT OF SUBGLOTTIC HEMANGIOMA AND EVOLVING CONCEPTS

Hans L.J. Hoeve MD, PhD

Department of Otorhinolaryngology, Rotterdam, The Netherlands
31-10-4636073 tel; 31-10-4636472 fax; hoeve@audi.azr.nl

Objective: Review of patients data on subglottic hemangioma treated with intralesional steroids and intubation (IS+I). How many weeks of intubation are still acceptable when submucosal resection techniques have become available?

Design: Retrospective series study.

Setting: University Children’s Hospital.

Participants: Twelve infants with a diagnosis of subglottic hemangioma, who presented at this institution from 1990 – 2000, and were primarily treated with IS+I.

Interventions: Endoscopic injection of steroids followed by one week intubation; submucosal resection.

Outcome Measures: Number of days intubated, age at last intervention, and clinical outcome.

Results: Ten patients were primarily successfully treated with IS+I, with a median total of 14 days of intubation. The last intervention ended at a median age of 10 months. In two other patients treated with IS+I, symptoms of obstruction recurred after the fourth application of steroids and intubation. Both were successfully treated with submucosal resection.

Conclusion: Though IS+I is still considered the optimal therapy for many patients, we turn to surgical resection much sooner than before, when seven or more weeks of intubation were accepted.
Objective: To evaluate age-related mechanisms of cricoid cartilage response to injury in an animal model using monoclonal immunofluorescent antibodies to chondrocyte proliferation markers collagen II, aggrecan, Ki-67.

Design: Descriptive Pilot Study. Using monoclonal antibodies, experiments were performed on fresh frozen rabbit cricoid cartilage sections in three age groups – 4 week, 8 week, and 1.5 year old rabbits. Age matched controls were also stained. Differential expression of chondrocyte proliferation markers were compared between age groups at the injured sites.

Subjects: 30 New Zealand White Rabbits. Three of each age group, plus controls.

Intervention: Each animal underwent anterior tracheofissure under general anesthesia were euthanized one month after the procedure. The cricoid cartilages were harvested and fresh frozen sections obtained.

Results: Age-related differential staining of all three markers was found. In the youngest rabbits, increased immunofluorescent staining was found at the injured sites. Progressively less staining was seen in the older age groups.

Conclusions: Preliminary findings of increased chondrocyte proliferation markers in younger cricoid cartilage specimens suggests that younger cartilage has greater capacity for regeneration and healing than older cartilage. These findings may explain why prolonged intubation in neonates is less likely to result in subglottic stenosis than in older patients who undergo shorter periods of intubation. Further studies in human cricoid specimens are warranted.
Objective: To determine the correlation between bronchogram and MLB.

Design: Prospective data collection by the endoscopist and radiologist. Neither was blinded as this could have prejudiced the clinical outcome.

Setting: Major tertiary referral centre with dedicated tracheal team.

Participants: 50 patients were studied (age range = 8/12-15 yrs, average age = 1.57 years) with congenital tracheobronchial lesions seen on bronchogram and/or MLB.

Intervention: Bronchograms were performed using a standard technique that included the measuring of opening pressures as an objective measure of tracheobronchomalacia. MLB by experienced endoscopists using rigid Storz bronchoscopes/telescopes. A number of techniques were used to avoid masking tracheomalacia by inadvertent physical or airway pressure support. Experienced anesthetists avoided coughing during the procedure which can mimic tracheomalacia.

Results: Bronchogram showed same lesions as MLB 28; bronchogram showed less severe lesions 13. In 12 bronchogram was normal; bronchogram showed more severe lesion 5. In 3 bronchogram showed more severe malacia; bronchogram showed different lesions 4. In 3 bronchogram showed tracheomalacia rather than stenosis.

Conclusions: Bronchogram and MLB are complementary in the assessment of patients with congenital tracheal stenosis.
Objectives: To determine the incidence of swallowing dysfunction, GERD and outcomes of airway and GERD management in children with LM.

Design: Retrospective chart review.

Subjects & Setting: 44 children with endoscopically proven moderate to severe LM at a pediatric tertiary care center.

Interventions: Modified barium swallows and/or SP, testing and treatment for GERD

Outcome Measures: swallowing dysfunction, aspiration, positive tests for GERD, decannulation or avoidance of tracheotomy, complications.

Results: Twenty-one children did not undergo SP. Modified barium swallow indicated that 10 (48%) had swallowing dysfunction including penetration, nasopharyngeal reflux, delayed initiation, aspiration, and poor coordination. GERD was documented in 10 (48%). Stridor improved following treatment of GERD in 9 (90%). Three (14%) required tracheotomy. Twenty-three children underwent SP. Preoperative modified barium swallow studies were performed in 11. Six of 11 (55%) were abnormal including penetration, poor coordination, aspiration, and nasopharyngeal reflux. GERD was confirmed in 12 (52%), however none improved with medical treatment. Twenty-two (96%) avoided tracheotomy or were decannulated following SP. Complications (17%) following SP included aspiration, supraglottic and subglottic stenosis.

Conclusions: LM is frequently associated with swallowing dysfunction and GERD. Treatment of GERD may decrease stridor. Modified barium swallow studies in children with LM may guide decisions regarding the advantages of tracheotomy versus SP. A high index of suspicion for swallowing dysfunction and GERD is important, both before and after SP.
Objective: To evaluate the value of routine post-operative chest x-rays after tracheotomy in children.

Design: A retrospective chart review of all patients who had tracheotomy over the last 3 years (January 1997 to January 2000).

Setting: A tertiary care Children's hospital.

Patients: 68 patients (age range 0 month to 16 years) required tracheotomy over the study period.

Outcome Measures: Post-operative chest x-rays were reviewed for any evidence of tracheotomy complications (pneumothorax, pneumomediastinum, atelectasis, and infiltrates).

Results: Overall, 68 patient charts were analyzed. Patients ranged from age 0 month to 16 years. There were 43 males and 25 females. 63 out of 68 patients had post-operative chest x-rays. 63 patients underwent tracheotomy for ventilator dependence or respiratory failure secondary to anatomic obstruction (cystic hygroma, subglottic edema, obstructive sleep apnea), developmental defects (hyaline lung disease, bronchopulmonary dysplasia), and neurologic disorders (vocal cord paralysis, status epilepticus, encephalopathy). The remaining patients required tracheotomy for either airway management in patients with history of recurrent aspiration pneumonia (3), facial trauma (1), and RSV infection (1).

Of the 63 patients who had post-operative chest radiographs, no patients had either a pneumothorax or pneumomediastinum identified. Only one patient had a management change implemented as a result of finding a foreign body in the right mainstem bronchus. This was not thought to be associated with the tracheotomy procedure.

Conclusions: Overall, immediate post-operative chest x-rays did not reveal any significant complications associated with the tracheotomy procedure in children. The abnormalities, which were associated with the procedure (atelectasis, infiltrates), did not appear to alter patient management. It is urged that a randomized, prospective study be conducted to study the efficacy of immediate post-operative chest x-rays after tracheotomy.
Objective: To refine the indications for tracheotomy in patients requiring prolonged intubation in the pediatric ICU.

Design: Retrospective chart review study.

Setting: A tertiary care center-pediatric intensive care unit.

Patients: All patients older than 30 days in the pediatric ICU intubated for longer than one week between 1997 through 1999.

Intervention: None.

Results: During a 2 year period, 84 admissions involved intubation longer than 1 week. Tracheotomy was necessary in 8% (n=7) of these patients. The mean length of intubation prior to tracheotomy was 435 hours, while the mean length of intubation without the need for tracheotomy was 413 hours, with no difference between the two groups. Of those requiring tracheotomy, 2 had tracheomalacia, 1 had subglottic edema, 1 had hypoplastic lungs, and 1 patient had Downs Syndrome with apnea resulting in right heart failure. 1 required long term ventilation and 1 had mitochondrial cytopathy. Of these 7 children, 5 were subsequently successfully decannulated. 1 patient died of underlying disease and 1 patient remains cannulated secondary to her mitochondrial cytopathy.

Conclusions: Children, like neonates, tolerate prolonged intubation without predictably suffering laryngeal complications. This suggests that length of intubation is not, by itself, an indication for tracheotomy in the pediatric ICU setting, and that other factors, such as fixed airway lesions, need for pulmonary toilet, or the expectation for long term ventilation, should be the primary deciding consideration for tracheotomy.
Objective: To determine the effects of perichondrial vs. intracartilaginous injury in the developing rabbit subglottis.

Design: Anatomic and histologic descriptive study of changes in the shape of the subglottis following a controlled depth of injury. Controls were age-matched and did not undergo any surgery. Experimental animals recovered for four weeks prior to euthanasia.

Subjects: Twenty-seven New Zealand White rabbits, three age groups (4 wk, 8 wk, and 1.5 yrs), and 9 animals per age group were used for this study.

Intervention: Within each age group, three animals underwent no surgery, three underwent perichondrial injury, and three underwent intracartilaginous injury. All injuries were created through an anterior tracheofissure approach.

Results: Control animals had no abnormalities in shape of the subglottic shape. Perichondrial injured animals in the 4 wk age group developed a marked abnormality in the shape of the cricoid cartilage in the injured region. Perichondrial injured animals in the 8 wk and 1.5 yr groups, had no compromise of the subglottic lumen, however the cartilage became histologically consistent with fibrous tissue. All animals which underwent intracartilaginous injury preserved the shape of their subglottis regardless of age. Again, cartilage in the region of the injury was replaced by fibrous tissue.

Conclusions: The above responses of the cartilage to a perichondrial and intracartilaginous injury may have implications for timing and choice of surgical interventions in human pediatric age groups.
Objective: To review the indications for and outcomes of children requiring tracheotomy tube placement following cardiothoracic surgery.

Design: Retrospective chart review.

Setting: Tertiary care center.


Intervention: Chart review.

Outcomes measure: Morbidity and/or mortality associated with tracheotomy tube placement in this patient population, duration of tracheotomy tube, and rate of decannulation.

Results: Fifteen out of approximately 3000 children undergoing cardiothoracic surgery required tracheotomy tube placement over a six-year period. Indications included diaphragmatic paresis (DP) alone (7 patients), vocal cord paresis (VP) alone (3 patients), DP and VP (1 patient), subglottic stenosis (SS) and DP (1 patient), VP and SS (2 patients), DP and SS (1 patient) and cerebrovascular infarct (1 patient). The mean age at the time of tracheotomy tube placement was 36.5 months (range, 0.75-108 months). The mean duration of intubation between cardiothoracic procedure and tracheotomy was 31.6 days (range, 9-72 days). Six patients were successfully decannulated following a mean of 7.4 months of tracheotomy tube dependence. All six decannulated patients had DP necessitating tracheotomy and ventilatory support. Eight patients continue to be tracheotomy tube-dependent, and one patient died of unrelated causes. There was no short-term or long-term morbidity or mortality associated with tracheotomy tube placement.

Conclusions: Tracheotomy tube placement is rarely indicated following cardiothoracic surgery in children. The most common indication is DP, which is usually transient. Most children will eventually be candidates for decannulation.
Objective. Keloids, aggressive juvenile fibromatosis (AJF), and fibrosarcoma are three neoplasms seen in children that represent a spectrum of soft tissue tumors from benign to malignant, respectively. Studies have shown that malignant tumors and some benign neoplasms are dependent on angiogenesis for growth. One method for estimating neovascularization is to determine intra-tumoral microvessel density (MVD) in whole tumor sections. We hypothesized that the angiogenic capability of a tumor type will increase as its ability to recur or metastasize increases. Therefore, for these soft tissue tumors, the MVD will be lowest for keloids, intermediate for AJF, and highest for fibrosarcoma.

Design. Paraffin embedded whole tissue sections were stained with hematoxylin and eosin, and examined with light microscopy. The number of microvessels per high power field was counted and recorded. Each case was assigned a study number, and blinded comparisons were made.

Subjects. All patients were treated at a tertiary care children's center over a 10-year period. The number of patients with keloid, AJF, and fibrosarcoma was 5, 7, and 14, respectively.

Results. The average MVD for fibrosarcoma was 10 times that for keloids, whereas the average MVD for AJF was 4 times that for keloid tissue.

Conclusion. Our original hypothesis that angiogenic capability as measured by MVD in whole tissue sections correlates with severity of pathologic diagnosis in 3 pediatric soft tissue neoplasms is supported.
ECTOPIC CERVICAL THYMUS IN INFANTS: A CASE REPORT AND REVIEW OF THE LITERATURE

James Chuang MD, John A. Stith MD, Cirilo Sotelo-Avila MD

Division of Pediatric Otolaryngology and Department of Pathology, Saint Louis University, MO
314-577-8884 tel; 314-268-5111 fax; stlouisdrj@yahoo.com

Objective: To understand the embryology, histopathology, clinical presentation, and radiographic features of ectopic cervical thymus (ECT).

Design: Case series by retrospective medical record review.

Setting: Tertiary care pediatric hospital.

Subjects: All patients <1 year old seen by the senior author for ECT.

Interventions: Open surgical excision of lesion.

Outcome measures: Age, sex, side of neck mass, clinical presentation and diagnosis, pathology.

Results: Patient 1 was a 5 _week old male with a solid left neck mass that fluctuated in size and caused torticollis. FNA correctly identified the mass as thymic tissue. The mass extended up near the jugular foramen. Patient 2 was a 28 day old male with a cystic left neck mass causing progressive dysphagia and stridor, necessitating urgent intubation. The clinical diagnosis was uncertain. The mass was adherent to the SCM muscle, thyroid gland, and carotid sheath.

Conclusions: ECT in infants is rare with 11 reported cases in the literature, 2 solid and 9 cystic. Our results are similar to the 11 reported cases. Differences include the first correct preoperative diagnosis of ECT reported and the unusually high extent of the mass in patient 1. Since the thymus is the central lymphoid organ of infancy, it is important to confirm the presence of a mediastinal thymus before complete excision is done.
GENISTEIN ENHANCES GROWTH INHIBITION AND CYTOTOXICITY OF ACTINOMYCIN-D IN PEDIATRIC RHABDOMYOSARCOMA CELLS

Paul Krakovitz MD, Sami Khoshyomn MD, Gregory Manske BS,
Robert Sofferman MD, Sean Lew MD

University of Vermont/FAHC, Division of Otolaryngology HNS, Burlington, VT
802-296-2895 tel; 802-658-9937 fax; paul.krakovitz@hitchcock.org

Objective: Epidemiologic studies of cultures consuming a soy-based diet have shown a lower incidence of cancer. Experimental data on genistein, an isoflavone constituent of soy, demonstrates a considerable suppression of growth and invasiveness of multiple human malignancies. The inhibitory effect on rhabdomyosarcoma cell growth by actinomycin-D combined with genistein was investigated in this study.

Design: Two human rhabdomyosarcoma cell lines (HTB-82 and CRL-7774) were treated with actinomycin-D in combination with 6μM genistein, the maximum reported dietary plasma level in children. Monolayer cell growth and toxicity, as measured by inhibition of colonigenic survival, were then compared in control and drug-treated cultures. Presence of apoptosis using the DNA ladder assay was investigated in both cell lines.

Results: Genistein at 6μM led to a 1.7-fold increase in the monolayer growth inhibitory effect of actinomycin-D in HTB-82 and CRL-7774 cells. Genistein increased colonigenic survival inhibition of HTB-82 and CRL-7774 1.8-fold at the same actinomycin-D concentration. These effects are primarily additive. Compared to actinomycin-D alone, the combination of genistein and actinomycin-D led to a significant increase in antiproliferative effect on rhabdomyosarcoma cells. In this study, we were unable to detect apoptosis.

Conclusions: Actinomycin-D is one of the standard drugs used in the treatment of pediatric rhabdomyosarcoma. The results of this study indicate an enhanced effect of actinomycin-D when combined with genistein at typical dietary plasma levels. The clinical implication for treatment of rhabdomyosarcoma may be a reduction in the chemotherapeutic dose recommendations in combination with a soy-based diet. Therefore, decreasing the risk of treatment sequelae for these patients.
Objective: Primary osseous hemangiomas of the facial bones are well-described but extremely rare lesions. The presenting symptoms can be confusing and often represent a diagnostic dilemma.

Subject: A case is presented in which a one-month old female is evaluated for a mass of the left side of the palate and upper alveolar ridge.

Intervention: Imaging was obtained which suggested an aggressive and erosive tumor obliterating the entire left maxilla. Incisional biopsy revealed the diagnosis of hemangioma. The patient underwent traditional treatment consisting of high dose steroids which were tapered over several months.

Results: The patient demonstrated total involution of the lesion by one year of age. Follow-up imaging showed complete remodeling of the maxilla. Clinical photographs, histology, and imaging will be presented in addition to a review of the literature on the subject.
Objective: To review our experience with foregut duplication cysts of the anterior tongue.

Design: Case series of patients identified with foregut duplication cysts.

Setting: A tertiary care children's medical center.

Patients: Five patients ranging in age from birth to 8 months.

Results: Four patients presented at birth with a floor of mouth mass. Two were asymptomatic and two presented with difficulty feeding. A fifth patient was noted to have a large protruding tongue at birth, but the cyst was not recognized until 8 months of age. No patient presented with respiratory compromise, despite the large size of the anterior tongue masses (range 1.5-2.4 cm). The differential diagnosis included: dermoid cyst, ranula, cystic hygroma, hemangioma, and thyroglossal duct cyst. Magnetic resonance imaging was performed in 3 patients, all given a presumptive diagnosis of dermoid cyst based on radiographic findings. No patient was diagnosed correctly prior to surgical excision. All patients underwent surgical excision at an average age of 13 months (range 3 days to 3.8 years). Surgical pathology was reported as foregut duplication cyst (enterocystoma), with foci of gastric mucosa noted in 3 patients.

Conclusion: Foregut duplication cysts are easily misdiagnosed preoperatively, and may be underrepresented in the differential diagnosis.
Objective: To evaluate the incidence, location, and treatment outcomes of pediatric non-orbital pseudotumor of the head and neck.


Setting: Tertiary care center.

Patients: All patients aged 18 years and younger with non-orbital pseudotumor of the head and neck evaluated and treated at the Massachusetts Eye and Ear Infirmary and Massachusetts General Hospital from 1990 to 2000.

Results: Of 100 patients with head and neck pseudotumor, 15 were pediatric patients. Of the fifteen cases of pediatric pseudotumor, 3 patients had involvement of non-orbital head and neck sites. Sites of involvement included the infratemporal fossa, submandibular gland, and malar soft tissue. 4 of the 15 patients had isolated lacrimal gland involvement by pseudotumor.

Conclusions: All cases were treated with long term oral steroids with resolution of symptoms.
Objective: To report an unusual presentation of acute lymphoblastic leukemia (ALL) as a primary parotid mass.

Design and Setting: Case report from a tertiary children's hospital.

Subject: A two-year-old child was evaluated for a parotid mass.

Interventions: A superficial parotidectomy was performed for tissue diagnosis.

Results: This child evidenced a 3 by 4 centimeter parotid mass and a small mass over the ipsilateral orbit which were found to be a pre-B cell acute lymphoblastic leukemia (ALL) by histologic examination and flow cytometry. He was found to have a normal white count but the differential reported 47% circulating blasts. Physical exam, chest radiograph and CSF evaluation failed to reveal other sites involved with leukemic infiltration. Bone marrow biopsy revealed near total replacement with blast cells consistent with ALL.

Conclusions: Malignant neoplasms comprise one third of all pediatric salivary gland tumors. Lymphoproliferative disorders such as lymphoma, or acute monocytic leukemia may present as a primary intraparotid tumor. Although very rare, lymphoproliferative disorders should be included in the differential diagnosis involving parotid tumors in children. Special pathologic examination and a multidisciplinary approach are required for a complete determination of the disease entity.
Objective: Ectopic cervical thymic tissue is an uncommon cause of neck masses in children, with fewer than 100 cases reported in children who presented with primary neck masses. To illustrate the unique characteristics of these tumors, we report the case of a 13-month-old infant with ectopic thymic tissue presenting as asymptomatic, bilateral, solid cervical masses.

Methods: This case report highlights several unique findings: 1) the rare nature of solid thymic tumors compared to cystic lesions and of bilateral disease. 2) the utility of MRI scanning with and without fat suppression for diagnosis 3) the risks of surgical removal of thymic tissue in children.

Conclusions: Despite its infrequent occurrence and often-asymptomatic presentation, ectopic cervical thymus masses should be included as a rare cause of cervical masses in the pediatric population. Awareness of this diagnosis will allow for appropriate preoperative diagnostic studies, which may preclude the need for biopsy.
Objective: To examine the role of mandibular distraction osteogenesis in children with multiple congenital craniofacial anomalies, airway problems and feeding difficulties.

Design: Prospective case series.

Setting: Tertiary referral center.

Participants: Tracheostomy-dependent children with severe mandibular hypoplasia and multiple congenital craniofacial anomalies.

Intervention: Unilateral or bilateral mandibular distraction osteogenesis using a modification of the external Malina plating system. Mandibles were distracted at a rate of 1mm per day for up to 3 weeks.

Outcome Measures: Post-operative complications, degree of distraction, improved feeding and tracheal decannulation.

Results: 5 patients underwent mandibular distraction between 10/99 and 7/00. There were 4 males and 1 female, with a mean age of 3.3 years (range 12 months to 8 years). 1 patient had a unilateral distraction and 4 patients had bilateral distractions. Mandibular distraction of up to 20mm was obtained in all cases. Complications included loosening of one of the external screws toward the end of consolidation. 1 patient was decannulated and 1 patient was deemed suitable for decannulation. Improved oral feeding was noted in 2 patients.

Conclusion: Mandibular distraction osteogenesis is feasible with minimal complications in children with multiple craniofacial anomalies. It facilitates tracheal decannulation and may improve feeding in selected patients. We describe an important modification that makes mandibular distraction in the young more feasible.
Objective: We propose a technique of utilizing a perichondrial cutaneous graft (PCCG) in managing specific traumatic eyelid injuries in children.

Rationale: Due to the inherent inelasticity of skin in children, eyelid injuries in the pediatric population are frequently more serious than in adults and avulsion defects are more common. The optimum treatment of these very challenging cases requires cooperation between the emergency department, the ophthalmologist, the pediatrician, and the head and neck surgeon. Traditionally, skin grafts have been employed for significant eyelid tissue loss. Unfortunately, even the thickest of skin grafts contract, making them suboptimal for eyelid replacement in a growing individual.

Methods: In the pediatric patient, we have replaced skin grafting of facial defects less than 3-4 cm with a PCCG. We have also developed a philosophy which includes operating when an ectropion first manifests itself rather than waiting and allowing the scar to mature. We present our series of 11 patients, age 18 months to 9 years, where we employ the PCCG in eyelid reconstruction.

Results: All grafts placed resulted in excellent functional and cosmetic repair of specific traumatic eyelid injuries.

Conclusion: Use of the PCCG is a viable option in the repair of specific traumatic eyelid injuries in children.