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Session #1: Hearing -- Friday 12/2/2016
Background:

One in 500 babies in the United States is born deaf or hard of hearing (DHH). Early diagnosis of hearing loss is stressful and can impact the quality of life (QOL) of both infants and their parents; however, no quantitative way exists to assess the impact of interventions on hearing-related QOL.

Methods:

We performed semi-structured focus groups of clinical and educational providers for DHH children and interviews of hearing parents of 0-2-year-old DHH children. Transcripts were analyzed using grounded theory to identify key elements influencing hearing-related QOL and to develop a novel questionnaire based on these elements. The questionnaire was reviewed with providers and parents and iteratively modified based on their feedback.

Results:

We conducted 4 focus groups (n=33 providers) and interviews (n=9 parents). All children had permanent, congenital hearing loss with severities ranging from mild unilateral to bilateral severe-to-profound.
We identified nine major domains that impact child and parent QOL: (1) Child behavior, (2) Child’s socioemotional development, (3) Child’s communication ability, (4) Child’s mood, (5) Caregiver’s ability to communicate with the child, (6) Physical challenges, (7) Caregiver perceptions of the diagnosis, (8) Emotional support for the caregiver, and (9) Managing the logistics of hearing loss. A parent-proxy questionnaire was developed to address each of these domains.

Conclusions:

We developed and are validating a survey to assess the QOL of the DHH child/parent dyad. This instrument will be a valuable clinical and research tool to quantitatively assess the QOL outcomes of multidisciplinary interventions in this population.
AN EVIDENCE-BASED PROTOCOL FOR MANAGING NEONATAL MIDDLE EAR EFFUSIONS IN BABIES WHO FAIL NEWBORN HEARING SCREENING

Brittany Weber (M.D.)


1) Dept. of Otolaryngology, Eastern Virginia Medical School 2) ENT of Athens, Athens, Georgia 30606

Purpose: To evaluate the prevalence of middle ear disease in infants who fail newborn hearing screening (NBHS) and to review patient outcomes after intervention in order to propose an evidence-based protocol for management of children with otitis media with effusion (OME) who fail NBHS.

Methods: 86 infants with middle ear pathology were retrospectively reviewed after referral for failed NBHS. All subjects underwent a diagnostic microscopic exam /-myringotomy /- placement of a ventilation tube in the presence of a middle ear effusion and had ABR testing intraoperatively or a later date.

Results: At the initial office visit, a definitive normal middle ear space bilaterally was documented in only 5 patients (6%), while 51/86 (59%) had at least a unilateral middle ear effusion. 52/86 (60%) neonates underwent myringotomy with tube placement due to presence of an effusion. 16/86 (19%) had normal hearing by ABR in the OR avoiding the need for any further audiologic workup. 54/86 (63%) had sensorineural hearing loss (SNHL) and were referred for amplification. 27/86 (31%) were initially observed with follow up outpatient visits. 25/27 (92%) eventually required at least unilateral tube placement due to OME and 49% were found to have bilateral SNHL.

Conclusions: An effective initial management plan for children with middle ear pathology and failed NBHS is diagnostic myringotomy /- ventilation tube placement and intra-operative ABR. This allows for the identification and treatment of babies with a conductive component due to OME; accurate diagnosing of an underlying SNHL component and allows for prompt aural rehabilitation.
HEARING-LOSS-RELATED ISSUES AFFECTING QOL IN PRESCHOOL CHILDREN: QUALITATIVE ANALYSIS OF FOCUS GROUPS

Miranda Lindburg


1) Dept. of Otolaryngology, Washington University School of Medicine 2) Program in Audiology and Communication Sciences, Washington University School of Medicine 3) Department of Medicine, Washington University School of Medicine

Introduction

Quality of life (QOL) is an important measure of overall well-being that is affected by hearing loss (HL). Disease-specific tools of QOL are more sensitive and better quantify clinical changes than generic measures, and self-report of QOL is crucial even in young children.

Methods

This qualitative study utilized focus groups comprised of children age 5-7 years old with HL, parents of children 2-7 years old with HL, and professionals who interact with these children. Focus groups were moderated using questions concerning HL and QOL, video and audio recorded, and transcribed verbatim. Narrative analysis was utilized to extract common themes.

Results

10 professionals, 12 parents, and 6 children participated in the focus groups. Thematic analysis of the transcriptions revealed that a number of topics were common across the focus groups for how HL affects young children. These topics could be grouped into categories: Feelings, Behavior, Environments, Social/Activities, Family, and Hearing Equipment. Themes extracted from the child focus groups aligned well with those from parent and professional groups. Quotes illustrating issues under these headings will be presented.

Conclusion

These extracted concepts will be used to create a QOL questionnaire for young children. In addition, these focus groups served as an important proof-of-concept that children with HL in this age range were not only able to report issues that bothered them about their HL when asked, but that the content of their reports correlated well with that of the professional and parental focus groups.
HEARING LOSS DETECTION IN PEDIATRIC PATIENTS RECEIVING PLATINUM-BASED CHEMOTHERAPY

Sofia Waissbluth (M.D.) (PhD)

Sofia Waissbluth M.D. PhD (1, 2) Alvaro Del Valle M.T. (2) Angela Chuang M.D. (1) Ana Becker M.D. (3)

1) Dept. of Otolaryngology, Pontificia Universidad Catolica de Chile 2) Dept. of Otolaryngology, Hospital Dr. Sotero del Rio 3) Dept. of Hematology-Oncology, Hospital Dr. Sotero del Rio

Introduction: Platinum-based chemotherapy treatments are commonly used and effective against a variety of cancer types. Nevertheless, they may lead to hearing loss for which there is no current prevention or treatment option. As a result, pediatric cancer survivors present a decreased quality of life.

Objectives: To determine the incidence of platinum-induced ototoxicity in pediatric patients. To evaluate associated risk factors for hearing loss. To evaluate hearing levels with distortion product otoacoustic emissions, audiometry and auditory brainstem response, depending on age.

Methods: A prospective study including pediatric patients treated with cisplatin and/or carboplatin was started in 2012. The incidence of ototoxicity was determined based on the American-Speech-Language-Hearing Association (ASHA) criteria, the Pediatric Oncology Group (POG) criteria, the Chang classification and the International Society of Pediatric Oncology Boston (SIOP) ototoxicity grading scale. Demographics, head and neck radiation, platinum cumulative dose and other ototoxic medication use was evaluated.

Results: Twenty-three patients received platinum-based chemotherapy with two patients relapsing. Average age at first chemotherapy dose was 7.8 years. Medulloblastoma was the most common cancer type. Mean cisplatin and carboplatin cumulative dose was 436.4 mg/m2 and 4890 mg/m2, respectively. Hearing assessment was performed by audiometry for seventeen patients while six underwent auditory brainstem response evaluation. Total ototoxicity incidence was 39%, all of these patients received head and neck radiation therapy as well. Distortion product otoacoustic emission results were in agreement with audiograms.

Conclusions: Platinum-induced ototoxicity is common and can progress rapidly. Hearing loss monitoring is of utmost importance for pediatric oncology patients.
PARENTAL AND PRIMARY CARE PROVIDER AWARENESS OF NEWBORN HEARING SCREEN RESULTS

Jose Miguel Juarez

J. Miguel Juarez (1) Amber D. Shaffer, Ph.D. (2) David H. Chi, M.D. (2)

1) University of Pittsburgh Medical School, University of Pittsburgh 2) Department of Otolaryngology, University of Pittsburgh

Purpose: To describe gaps in parent recollection and primary care provider (PCP) records of Newborn Hearing Screening (NBHS).

Setting: Pediatric primary care clinic

Methods: While waiting to be seen by their child's pediatrician, English-speaking, biological parents, 18 years of age or older, were asked to participate in the survey if their child was 10 years old or younger. The survey included questions about parents’ knowledge of their child's NBHS results, rescreening, follow-up with an audiologist, hearing loss diagnosis, hearing aids, and early intervention. Demographics and the child’s birthing facility were also collected, and the child’s chart was reviewed for documentation of NBHS results.

Results: Out of 115 parents to whom the survey was offered, 89 completed the survey. Eighteen (20.2%) parents did not know whether a NBHS was performed or did not know the results. NBHS results were not available in the charts of 25 (28.1%) children. Nearly half of children (8/18, 44.4%) with parents unaware of NBHS results also had missing NBHS records in their PCP charts, representing 9.0% (8/89) of children overall.

Conclusions: In a group of children born after mandatory NBHS, 20.2% of parents did not remember the results of their child's NBHS, 28.1% of children did not have NBHS results in their PCP records, and 9.0% of children had NBHS results that were unknown to both their parents and PCP. Lack of effective communication of NBHS results could prevent timely diagnostic evaluation and intervention for infants with abnormal NBHS.
BACKGROUND AND OBJECTIVE:

Early Hearing Detection and Intervention (EHDI) programs across the country recommend the completion of inpatient and outpatient screens prior to one month of age. The goal of early detection of hearing loss and subsequent intervention is to maximize communication outcomes. Between May 2015 and April 2016, only 6% of the babies referred to our hospital for outpatient screens were scheduled within the recommended timeframe (by one month of age). The goal of this quality improvement (QI) project is to improve the processes by which outpatient referrals are made and appointments are scheduled; specifically, to improve the percentage of babies scheduled within the recommended timeframe from 6% to 50%.

METHODS:

During the four-month course of the project, several intervention cycles were systematically initiated to improve the way in which outpatient referrals are received from area birth hospitals and pediatricians. Data was collected from the state EHDI database as well as the electronic medical record (EMR) from the hospital.

RESULTS:

The project is currently in progress, with a completion date of August 31, 2016. The results obtained so far indicate an increase in the number of babies scheduled within the recommended timeframe from 6% to 12%.
CONCLUSION:

The intervention cycles implemented have thus far demonstrated improvement, with further improvement anticipated over time. The interventions will continue past the duration of the current project, with the expectation that at least 50% of the babies referred to our hospital will be scheduled within the recommended timeframe.
VESTIBULOTOXICITY AFTER PAEDIATRIC CANCER TREATMENT

Vicky Papaioannou

Vicky Papaioannou, M.CI.Sc. (1,2,3) Blake C. Papsin, MD, MSc. FRCSC (2,3) Paul Nathan, MD, MSc, FRCP (4,5) Karen A. Gordon, PhD (1,2,3) Sharon L. Cushing, MD, MSc.FRCSC (2,3)

1) Department of Communication Disorders, Hospital for Sick Children 2) Department of Otolaryngology Head and Neck Surgery, Hospital for Sick Children 3) Department of Otolaryngology Head and Neck Surgery, University of Toronto 4) Department of Haematology/Oncology, Hospital for Sick Children 5) Department of Paediatrics and Health Policy, Management & Evaluation, University of Toronto

Purpose: Pediatric cancer centres have a long history of monitoring hearing sensitivity to detect potential cochleotoxicity of platinum based therapies, cranial radiation, surgery and related sepsis treatment. In the present study, we focus on the less commonly considered vestibulotoxic effects of these treatments in our pediatric population. We hypothesize that vestibular and balance effects are likely given known associations between oto- and vestibulotoxieties.

Methods: Retrospective 5 year review of our Institution’s clinical database of patients with vestibular complaints (342) revealed that 19 (5%) had a diagnosis of ototoxicity; 10 of these 19 (53%) had received treatment for an oncologic diagnosis.

Results: All 10 identified children (mean age 12) had hearing loss. None reported vestibular symptoms but disequilibrium was noted by parent or clinician. Half of the children demonstrated bilateral vestibular impairment and presented on average nearly 6 years post treatment (medulloblastoma (3), acute myeloid leukemia complicated by sepsis (2)). Of the children who underwent standardized balance testing, 4/7 (57%) demonstrated skills that were poorer than expected for age.

Conclusions: Vestibulotoxicity occurs in the setting of cancer treatment. Reliance on patient/parent complaints or clinician concern likely underestimates prevalence. Our Institution has begun a process to expand the well-established hearing monitoring program for children.
PHARMACOGENOMIC COMPREHENSIVE REVIEW OF PLATINUM-INDUCED OTOTOXICITY IN PEDIATRIC POPULATION

Farid F. Ibrahim (M.D.)

Farid F. Ibrahim, M.D. (1) Joseph Rotstein, BSc (1) Sam J. Daniel, M.D. (1)

1) Otolaryngology, Head and Neck Surgery, McGill University

Background: Cisplatin and Carboplatin, two highly effective platinum chemotherapeutic agents, are widely used to treat a variety of malignancies. While the advent of these medications has coincided with greater survival rates among pediatric cancer patients, platinum-chemotherapy also leads to ototoxicity in more than half of these survivors. This has serious consequences on the quality of life of thousands of children. Despite several known risk factors for ototoxicity, substantial variability remains. Genetic variants are thought to account for this variability.

Methods: A literature review of randomized-controlled trials in pediatric populations was undertaken to evaluate the involvement of genetic variants in platinum-induced ototoxicity. Ten articles were chosen to be relevant in this review. The earliest study was in 2000 by U. Peters et al. and the latest studies were published in 2013.

Results: Nine genes are found to be involved in platinum-induced ototoxicity in pediatric patients. They were found to be correlated to ototoxicity incidence and progression even after chemotherapy treatment. These genes are single nucleotide polymorphisms GSTM3, GSTP1, GSTT1, LRP2, XPC, ERCC1, TMPT, COMT, and ABCC3.

Conclusion: Based on the current literature, we have concluded that there is not enough evidence to support standard genetic screening of patients to identify those who are susceptible to platinum-induced ototoxicity. Further replication is required in order to validate previous findings.
CAN BINAURAL FUSION BE COMPROMISED IN CHILDREN USING BILATERAL HEARING AIDS?

Mark Sandor

Mark Sandor (1) Jonah Gorodensky Blake C. Papsin Sharon L. Cushing Karen A. Gordon
1) Archie's Cochlear Implant Laboratory 2) Archie's Cochlear Implant Laboratory 3) Archie's Cochlear Implant Laboratory 4) Archie's Cochlear Implant Laboratory 5) Archie's Cochlear Implant Laboratory

Objectives: To assess prevalence of impaired binaural fusion (hearing two images rather than one) in children using bilateral hearing aids.

Background: Binaural/spatial hearing relies on precise and consistent differences in level and timing between the ears across different frequencies. Because auditory prostheses work independently, these cues may be altered during potentially sensitive periods in auditory development. Our lab studies the potential effects of such distortion in children with hearing loss who use bilateral hearing devices. Having reported impaired binaural fusion in a cohort of children using cochlear implants, we are now examining children using hearing aids.

Methods and materials: 11 children with normal hearing (aged 13.09 ± 3.20 years) and 8 children (aged 12.00 ± 3.02 years) with hearing loss who used bilateral hearing aids listened to bilaterally and unilaterally presented click trains. Lateralization (left vs right) and binaural fusion (one versus two) were measured in separate tasks.

Results: Children with hearing loss were able to lateralize interaural level cues similarly to peers with normal hearing. Lateralization of interaural timing cues and binaural fusion were more variable in the children with hearing loss.

Conclusions: Normal binaural function should not be assumed in children using bilateral hearing aids.
Session #2: Speech & Language – Friday 12/2/2016
Purpose: Despite early intervention efforts, language for many children who are deaf or hard of hearing (DHH) continue to remain average. Objectives: Examine language performance in the context of cognitive abilities; Identify factors associated with language underperformance (LU).

Methods: Children with bilateral HL, age 0-6 years enrolled in prospective cohort study of development. Standardized assessments included language, cognition, behavioral measures. NVIQ was categorized: <80, 80-100, >100. Language reported as standard scores and as ratios of receptive language to nonverbal IQ (NVIQ). Low language was defined as receptive standard score <80; LU as ratio<85. Multiple logistic regression used to identify factors associated with LU (significant odds ratios (OR) reported).

Results: 151 children enrolled, median age of HL diagnosis 4 months, half with mild-moderate HL, 35.8% use cochlear implant. Adjusted mean language scores increased with increasing NVIQ categories (70.4, 80, 92.8 respectively, p<.0001). Adjusted mean ratios decreased with increasing NVIQ categories (102.3, 88.5, 83.3, p<.0001) indicating widening language gaps. Only 29% of NVIQ<80 had LU, though most had receptive scores <80; whereas 41% of NVIQ>100 had LU. Children were more likely to have LU: NVIQ>100 (OR 6.4), lowest SES index (OR 6.5), nonwhite (OR 3.1), used an implant (OR 3.7). Amplification, identification age were not significant.

Conclusion: Children with lowest NVIQ had significantly higher ratios (though lowest language scores) than other NVIQ categories. Children with highest NVIQ were at highest risk for LU. Standard scores do not always convey a language “gap” which can have a negative impact on other developmental domains.
Purpose: The impact of persistent language underperformance (LU) on social functioning in children who are deaf or hard of hearing (DHH) is unknown.

Objectives: Quantify impact of persistent LU on social functioning over time; evaluate differences by cognitive abilities.

Methods: Children with bilateral hearing loss, 0-6 years enrolled in longitudinal study of development with standardized assessments of cognition, language, social function. Language relative to cognitive abilities defined as ratio of receptive language score to nonverbal IQ (NVIQ). Social function of children with persistent LU (ratio<0.85) and with commensurate language (ratio>0.85) were compared over time using repeated measures models.

Results: 151 children enrolled, median age of identification 4 months, 54% mild-moderate HL; mean NVIQ, 95.5 (20). Mean language scores were 10.5 points lower than NVIQ (p<0.0001); 41% of children had LU. Children with >1 year follow-up, 31% had persistent LU over time. Controlling for confounders, children with persistent LU had significantly lower (16 points, p=0.0004) social function scores over time compared to those with commensurate language. After 1 year, the difference in scores between LU and commensurate groups are greatest among NVIQ>100 (83 vs. 97), with no differences among NVIQ<80 (78 vs. 77). Children across all NVIQ abilities with persistent LU made no gains in social function.

Conclusion: Persistent LU has a negative impact on social development in young children who are DHH, across all levels of ability and degrees of hearing loss. Without early recognition of slower language trajectories, children are at risk to fall further behind in social functioning.
Introduction: Traditional treatment of uncomplicated acute mastoiditis includes myringotomy and inpatient antibiotic therapy. At our centre, selected cases of uncomplicated acute mastoiditis are treated with daily outpatient intravenous antibiotic therapy.

Objectives: Evaluate our experience with outpatient management of acute mastoiditis and identify risk factors for failure of outpatient intravenous therapy.

Methods: A retrospective chart review of paediatric patients diagnosed with acute mastoiditis between 2013 and 2015 was performed. Patients with syndromes, immunodeficiency, cholesteatoma, chronic otitis media, cochlear implant in the affected ear, or incidental mastoid opacity were excluded.

Results: 59 children were treated for acute mastoiditis, including 31 hospitalizations and 28 outpatients. Patients managed as outpatient had a 93% cure rate. Hospitalized children have a higher leukocytosis (p=0.04) and were more likely to be febrile (p=<0.001) on presentation. Eighteen hospitalized and one outpatient had complicated acute mastoiditis. Two patients failed outpatient therapy and were admitted: one for myringotomy and piperacillin-tazobactam treatment and one required a mastoidectomy. 4/28 children treated as outpatient underwent myringotomy and tube insertion, 2 underwent myringotomy and tube after admission and 22 didn't require tube insertion. The average total duration of intravenous antibiotic therapy was respectively 4.8 and 18 days in the outpatient and hospitalized group. The average duration of admission was 5.6 days.

Conclusion: Outpatient intravenous therapy for management of paediatric uncomplicated acute mastoiditis is safe, successful, and efficient. Careful selection criteria and close monitoring are key for success. Furthermore, this study suggests that myringotomy is probably not necessary for the treatment of uncomplicated acute mastoiditis.
DIFFERENCES IN CLINICAL PRESENTATION OF NECK ABSCESES BETWEEN INFANTS (<1 YEAR) AND CHILDREN (1-18 YEARS)

Neha Kumar

Neha Kumar (1) Marc Gelpi, M.D. (2) Jay Shah, M.D. (2)

1) Case Western Reserve University School of Medicine 2) Rainbow Children's University Hospitals Case Medical Center

Objectives: To characterize differing presentations of neck abscesses between infants (<1 year) and children (1-18 years) by comparing abscess location, C-reactive protein (CRP) levels, hospital stay duration, and microbiology.

Methods: This retrospective cohort study divided groups into infants and children surgically treated for deep neck abscesses from 2004-2014. Values were obtained from hospital records and multivariate analysis was performed to identify significant differences between groups based on abscess location, microbiology, hospital stay duration, and CRP levels.

Results: 248 patients (73 infants, 175 non-infants) were included. Both populations presented most commonly with deep neck abscesses. Methicillin-resistant Staphylococcus aureus (MRSA) and Group A Streptococcus were the predominant organisms in infants and non-infants respectively. Infants were more likely to have MRSA than non-infants (p<0.0001; CI=0.05) and had longer hospital stays with mean of 6.24 days compared to non-infants with mean of 3.90 days (p=0.0002; CI=0.05); this difference was not found in non-infants (p=0.2186; CI=0.05). There was no significant difference of CRP levels between groups (p=0.873; CI=0.05). No correlation between CRP levels and MRSA colonization was seen in either infants (p=0.5487) or in non-infants (p=0.7228).

Conclusion: In this single-center study, infants presented with significantly higher incidence of MRSA colonization and longer hospital stay duration compared to non-infants. Infants with MRSA had a significantly longer hospital stay than those without; this did not extend to non-infants. While no correlation between CRP levels and MRSA colonization was found, more studies should examine this relationship. These findings may have implications for antibiotic therapy selection and treatment planning.
OUTPATIENT MANAGEMENT OF PEDIATRIC PERIORBITAL CELLULITIS

Ashley Tritt

Ashley Tritt BSc(1) Tiffany Paradis (1) Melanie Duval, MDCM MSc FRCSC (2,3)

1) McGill University 2) Department of Otolaryngology, McGill University 3) Montreal Children’s Hospital, Montreal, Qc, Canada

INTRODUCTION: The traditional treatment for periorbital cellulitis consists of hospitalization for intravenous antibiotherapy. Outpatient parenteral management of bacterial infections is a cheaper and convenient alternative that has been shown to be as effective as admission in other conditions. Our objective was to evaluate whether in children diagnosed with periorbital cellulitis, daily administration of intravenous antibiotics via an outpatient setting is safe and as effective as inpatient treatment.

METHODS: A retrospective case series of all children treated for periorbital cellulitis at a tertiary children’s hospital between 2013-2015 was performed. Children were divided into inpatient and outpatient treatment groups based on the assessment by the emergency physician and the medical day hospital pediatrician.

RESULTS: There were a total of 27 inpatients and 101 outpatients treated with daily intravenous antibiotics via the medical day hospital. Four of 99 outpatients were admitted following failure of treatment or development of complications. All twelve patients with complicated periorbital cellulitis on presentation were admitted. Four of 99 (4.0%) patients treated at medical day hospital developed complications during treatment; one child required admission for antibiotherapy for a phlegmon, two children required a second course of intravenous antibiotics for persistent cellulitis and one child developed an eyelid abscess. The mean duration of intravenous antibiotherapy was respectively 18.8 and 11.5 days for inpatients and outpatients (p<0.01) and mean duration of admission was 4.0 days.

CONCLUSIONS: Outpatient parental therapy is an effective alternative to inpatient admission for selected cases of uncomplicated periorbital cellulitis and does not lead to increased complication rates.
THE JNA TRANSCRIPTOME: UPREGULATION OF FIBROBLAST GROWTH FACTOR RECEPTOR AND VASCULAR ENDOTHELIAL GROWTH FACTOR

Joel W. Jones (M.D.)


1) Department of Otolaryngology-Head and Neck Surgery, University of Kansas School of Medicine 2) Department of Molecular and Integrative Physiology, University of Kansas School of Medicine 3) Department of Pathology and Laboratory Medicine, University of Kansas School of Medicine

Objectives: To characterize the transcriptome of juvenile nasopharyngeal angiofibroma (JNA) using RNA sequencing and to determine expression levels of fibroblast growth factor receptor (FGFR) and vascular endothelial growth factor (VEGF).

Methods: Fibroblasts from two JNA tumor explants and normal adult tonsil tissue were cultured and harvested for RNA. Total RNA sequencing was performed and mRNA transcript estimates were measured in fragments per kilobase of transcript per million from the resulting sequence library and used to calculate differential gene expression estimates. Immunohistochemical (IHC) analysis for FGFRs and VEGF was performed on tissue microarrays from 28 paraffin embedded JNA surgical tissue specimens and 10 normal adjacent tissue controls to validate expression levels. Staining intensity was quantified manually by a pathologist using a scoring system from 0-3.

Results: RNA sequencing revealed a total of 1,088 significantly differentially expressed genes with 749 upregulated and 339 downregulated. Regarding genes involved in the FGF and VEGF axis, FGFR-2, FGFR-4, and VEGF-A were upregulated. Nonparametric t-tests showed a significant increase in staining intensity medians for JNA FGFR-1 (P = .0005), FGFR-2 (P = .03), FGFR-3 (P = .02), and VEGF (P < .0001) compared to normal adjacent tissue.

Conclusions: We isolated JNA fibroblasts and performed RNA sequencing to characterize its transcriptome. Expression levels of FGFR and VEGF were upregulated in RNA transcripts and validated using immunohistochemistry from JNA tissue specimens. These findings will facilitate the development of preclinical models and molecular targeted therapies for JNA.
A POPULATION BASED ASSESSMENT OF THE IMPACT OF PEDIATRIC LACROSSE
FACIAL MASK IMPLEMENTATION

Andrew Walls (M.D.)

Andrew Walls M.D. (1) Earl Harley MD Nicole Aaronson MD

1) Yale New Haven Hospital Department of Otolaryngology Head and Neck Surgery 2) Georgetown University Hospital Department of Otolaryngology Head and Neck Surgery 3) Pittsburgh Children’s Hospital Department of Pediatric Otolaryngology Head and Neck Surgery

Objective: To determine the incidence, relative risk, odds ratio and risk reduction of lacrosse associated head and neck injuries after the implementation of the pediatric facial mask mandate.

Methods: Our group retrospectively reviewed 809 pediatric patients aged 5-18 in the National Emergency Injury Surveillance System who presented to the emergency department with facial injuries between the years 2000 and 2010. The database was assessed for facial fractures, hemorrhages, abrasions/contusions and punctures that occurred during competitive play. Incidence, relative risk, odds ratios and relative risk reduction were calculated before and after the implementation of the mandate to determine statistical benefit.

Results: From 2000 to 2010, of the 809 women's lacrosse injuries, 199 were localized to the facial region and 56 to the ear. 149 of the facial injuries and 27 ear injuries occurred between 2000 and 2005 while 50 facial injuries and 29 ear injuries occurred between 2005 and 2010. There was a statistically significant decrease in the incidence and relative risk of facial laceration (P=0.01, RR=0.078 vs 0.130) and abrasions (P=0.02, RR=0.280 vs 0.120), respectively. There was also a significant decrease in the odds of obtaining a facial laceration (OR: 0.16, 95% CI: 0.07-0.37), facial fracture (OR: 0.09, 95% CI: 0.03-0.35) or abrasion (OR: 0.11, 95% CI: 0.07-0.18) with face mask use. Unfortunately, there was no reduction in ear injuries.

Conclusion: It appears that the 2005 mandated use of the face mask for female athletes has significantly reduced facial injuries. Use of further protective gear should be investigated.
STRATEGIES FOR DEALING WITH LARGE SALIVARY DUCT STONES INCLUDING USE OF A NOVEL STONEBREAKERTM SALIVARY PNEUMATIC INTRADUCTAL

Aren Bezdjian

Aren Bezdjian, M.Sc. (1) Sam J. Daniel, M.D., M.Sc. (1)

1) Dept of Otolaryngology, McGill University, Montreal Children's Hospital

Sialolithiasis is rare in children with the majority of cases affecting the submandibular gland. Mobile salivary stones can be retrieved using baskets and/or other instruments introduced through a sialoendoscope with a success rate of over 80%. The purpose of this presentation is to report on 6 cases of larger salivary stones retrieved by sialoendoscopy without excision of the submandibular gland.

In all cases, intraductal fragmentation of the stone was achieved using a number of strategies including Holmium laser and instrumentation that will be demonstrated. We will also emphasize our experience with a pneumatic lithotripter that allows endoscopically guided fragmentation. Our preliminary experience at our institution shows that pneumatic lithotripsy with the StoneBreaker™ is a safe and effective procedure. However, effective use of the device depends on the accessibility of the stone, the anatomy of the duct, as well as the location and size of the stone. Combined therapy may be necessary to achieve successful and complete removal.

In conclusion, large intraductal stones can be removed endoscopically using available technology, sparing the excision of the submandibular gland and potential risks including damage to the facial nerve.
Session #4: Airway & Voice – Friday 12/2/2016
DYNAMIC TONSILLAR PROLAPSE MASQUERADING AS PARADOXICAL VOCAL FOLD MOVEMENT DYSFUNCTION

Allison Tobey (M.D.)
Allison Tobey M.D. (1) Raymond C Maguire D.O.
1) Children Hospital of Pittsburgh of UPMC

Introduction:
Paradoxical vocal cord movement dysfunction (PVMD) is a disorder in which the vocal cords involuntarily adduct during inspiration resulting in stridor, cough and dyspnea. Additional sites of obstruction have been identified as sources of Periodic Occurrence of Laryngeal Obstruction (POLO) that mimic PVMD and treatments vary with site of obstruction.

Objective:
To evaluate pediatric patients presenting for evaluation of exertional stridor and dyspnea suggestive of PVMD who were found to have a dynamic obstruction of the upper airway due to adenotonsillar hypertrophy and prolapse.

Methods:
Retrospective chart review of patients diagnosed with exertional dynamic tonsillar prolapse whom have undergone adenotonsillectomy. Clinical characteristics, spirometry, flow volume loops (FVLs), exam findings and response to adenotonsillectomy were recorded.

Results:
Seven patients with exercise induced stridor and dyspnea whom underwent exercise spirometry then subsequent adenotonsillectomy were identified. Symptomatic co-morbidities were common and included: rhinitis (43%), reflux (29%), sleep disordered breathing (29%), asthma (14%), obesity (14%),
prematurity (14%) and anxiety/PTSD (14%). Preoperative use of bronchodilators or reflux medications was common. All patients were noted to have >50% oropharyngeal obstruction secondary to tonsillar hypertrophy and dynamic lateral pharyngeal collapse or tonsillar prolapse with transoral inspiration. No exercise induced PVMD was identified. All baseline and most exertion FVC, FEV1, FEV1/FVC and FEF 25-75% were normal. Four patients had FVLs suggestive of obstruction. All patients had symptomatic improvement after adenotonsillectomy.

Conclusions:
Dynamic tonsillar prolapse can result in subjective exertional stridor and dyspnea with objective upper airway resistance mimicking PVMD and treatment with adenotonsillectomy can greatly reduce symptoms.
Purpose: To update the audience on the new codeset for laryngotracheal reconstructions in 2017 and to explain the process by which the new coding system was created.

Methods: The author is a senior member of the CPT and Health Policy Team for the AAO/HNS and was a lead expert in the crafting of the new coding system. He and the AAO/HNS CPT team worked with ASPO and the ALA to revise the codes used to report laryngotracheal reconstruction and update them to more accurately reflect current clinical practice.

Results: In 2013, the codes used for laryngoplasty were identified on an AMA RUC and CMS screen, which mandated review and revision of the codes to address the concerns of CMS. To address these concerns, airway reconstruction and laryngology experts from both pediatric and adult otolaryngology worked with the AMA and CMS to construct a much more contemporary code set that more accurately reflects current clinical practice. Pediatric otolaryngologists will need to be familiar with this new code set in order to properly code for airway reconstructions in 2017.

Conclusions: Starting in 2017, an entirely new set of codes will be used to report laryngotracheal reconstruction. Practitioners will need to be familiar with these codes and the process that lead to their creation in order to properly report their services in the coming year.
FOUR-DIMENSIONAL COMPUTED TOMOGRAPHY (4DCT) FOR THE DIAGNOSIS OF TRACHEOBRONCHOMALACIA (TBM) IN VENTILATOR-DEPENDENT INFANTS

Winston M. Manimtim (M.D.)

Winston M. Manimtim M.D. (1) Brian Dunoski, M.D. (2) Douglas Rivard, D.O. (2)

1) Department of Pediatrics, Children's Mercy-Kansas City and the University of Missouri-Kansas City School of Medicine 2) Department of Radiology, Children's Mercy-Kansas City and the University of Missouri-Kansas City School of Medicine

Background: Bronchoscopy remains the gold standard for diagnosing TBM in infants and children. 4DCT is a non-invasive imaging study that can be used to evaluate the airways. Additionally, it can provide a dynamic assessment of the airway function in real time.

Objectives: To assess the diagnostic correlation between bronchoscopy and 4DCT and in the diagnosis of TBM in ventilator-dependent infants with BPD

Methods: A retrospective review of a cohort of consecutive infants with severe BPD suspected to have TBM who have undergone 4DCT. Demographic characteristics, respiratory support at the time of the study and clinical course were correlated with findings from both 4DCT and bronchoscopy.

Results: Total of 9 infants comprised the cohort (1 infant had a follow up evaluation 3 months following the first). Majority of infants (6/9) less than 27 weeks gestation at birth and 7 out of 9 had birth weight less than 1 kg. All 9 infants had severe BPD as the primary diagnosis and all of them were suspected to have TBM. Five out of nine (55%) were found to have TBM by 4DCT; in 4 of these 5 infants (80%), TBM was confirmed by bronchoscopy. Seven out of the nine infants (77%) received tracheostomy for chronic home ventilation.

Conclusion: There is a reasonably high correlation between 4DCT and bronchoscopy in diagnosing TBM in infants with ventilator-dependent BPD suspected to have TBM. Additional data are being collected to establish true clinical correlation.
OPTIFLOW AND PAEDIATRIC AIRWAY SURGERY

Miles Bannister (M.D.)

Miles Bannister M.D. (1) Alok Sharma M.D.

1) Department of Otolaryngology, Royal Hospital for Sick Children, Edinburgh

Introduction
To date all case series discussing nasal high-flow oxygen (OptiflowTM) to achieve a tubeless operative field centre on it’s use in adults. We discuss our recent experience with the system in diagnostic and therapeutic paediatric airway surgery.

Methods
Preliminary prospective series of 6 cases.

Results
OptiflowTM has been successfully used to provide a clear operative field for diagnostic bronchoscopy, therapeutic endoscopy and laryngeal surgery. Good paediatric blood oxygen saturations were maintained throughout the surgeries. No anaesthetic or surgical complications occurred either peri-operatively or post-operatively.

Conclusion
OptiflowTM provides safe, maintainable ventilation in both healthy and unwell children, including those with chronic lung disease. It offers a tubeless operative field that improves access to the paediatric airway, providing more space for surgeons to operate in. Crowding at patients’ heads can be avoided too. Providing that adequate anaesthetic and airway management experience are in place, we would encourage it’s wider use for paediatric airway cases based on our preliminary findings.
COBLATION PAEDIATRIC AIRWAY SURGERY: LONG-TERM PATIENT OUTCOMES

Miles Bannister (M.D.)
Miles Bannister M.D. (1) Alok Sharma M.D.

1) Department of Otolaryngology, Royal Hospital for Sick Children, Edinburgh

INTRODUCTION

Bipolar radiofrequency plasma ablation (Coblation) airway surgery is a relatively new development in the management of paediatric airway disease. Whilst its effectiveness in treating a variety of airway conditions has been described, little evidence on the long-term outcomes of paediatric airway coblation surgery is available.

METHODS

A prospective study of patient outcomes following coblation surgery to the airway using guardian-reported symptom recurrence, long-term morbidity and repeat airway endoscopy as outcome measures.

RESULTS

Ten patients underwent coblation airway surgery. The indications included an obstructing airway lesion (4), laryngomalacia (4) and laryngeal papillomatosis (2). The average length of follow-up was 25 months (range: 54-5 months). None of the patients' guardians reported any recurrence of symptoms or long-term morbidity. Endoscopic reassessment in cases has demonstrated a complete resolution of the primary airway pathology.

CONCLUSIONS

Our results suggests that coblation is an effective method of surgically managing airway abnormalities in children. It has excellent long-term results comparable to established surgical techniques. We discuss out centre's experience with coblation also.
PEDIATRIC CHRONIC COUGH: PREVALENCE OF MEDICATION UTILIZATION AND POSSIBLE ROLE OF DIETARY HABITS

Eliezer KInberg
Eliezer KInberg (1) Julie L. Wei (1,2)

1) University Of Central Florida College of Medicine 2) Division of Otolaryngology, Nemours Children's Hospital, Orlando FL

Objective: To describe a cohort of children with chronic cough, review number of medications they are on, subspecialty utilization, their dietary habits, and outcomes after dietary modification.

Study Design: Retrospective summary

Setting: Tertiary children’s hospital

Method: Chart review and data summary of 56 consecutive children seen by a single pediatric otolaryngology for chronic cough between September 2013 to May 2016. Demographics, number of daily medications taken, dietary habits, allergy history, number of subspecialists seen, follow up and outcomes after dietary modifications were reviewed. Dietary interventions focused on decreasing total dairy consumption, eliminating dairy consumption within 2 hours of bedtime, reducing sugar intake, and decreasing intake of processed foods.

Results: Mean age was 6 years (range 6 months to 16 years, median 6.69 years). Follow up was available in 37/56 patients at a median time of 6.5 weeks. Sixteen patients reported adhering to the recommended dietary changes. Of those, 13/16(81.2%) patient’s parents reported significant reduction or elimination of cough and quality of life, with the remaining three requiring further evaluation and treatment. Only 3 patients in this group were not on any medications at
baseline, while 50% of the patients were on 3 or more medications, including sympathomimetics, antihistamines, leukotriene receptor antagonists, nasal steroid, H2 blocker, proton-pump inhibitors, and steroid inhalants. Most commonly reported sugar beverages in this group include Capri Sun, apple juice, and chocolate milk.

Conclusion: Chronic cough in children results in high medication and subspecialty utilization. Dietary modification with reduced sugary beverages may be a treatment option.
Introduction: The prevalence of voice abnormalities in children born prematurely has been reported to be as high as 58%. No studies have yet correlated these abnormalities with laryngoscopic or videostroboscopic findings and characterized their laryngeal pathologies.

Objective: To review voice abnormalities in patients with a history of prematurity and to characterize the etiology of their voice problems. A secondary objective is to see if there is a correlation between the findings and the patient's intubation and surgical history.

Methods: A retrospective chart review was conducted of all preterm patients seen in voice clinic at a tertiary pediatric hospital. Demographic data, diagnoses, office endoscopy and videostroboscopy results were reviewed, as well as any speech therapy evaluations and/or medical and surgical treatment.

Results: 57 patients were included. Mean age at presentation was 5.1(±4.3) years. Mean gestational age was 27.8(± 3.7) weeks. CAPE-V perceptual evaluations included a mean overall dysphonia severity of 46.6(± 24.2). There was a weak but not statistically significant correlation between duration of intubation in the NICU and overall severity (Spearman correlation, r=0.40; p=0.055). 33 patients with vocal fold hypo- or immobility had significantly greater voice deviance in breathiness (p=0.04), loudness (p=0.03), and overall severity (p=0.057) as compared to those without vocal fold immobility. Of all patients, 35% were recommended surgical intervention and 49% voice therapy.

Conclusion: Prolonged intubation may be associated with more severe overall dysphonia in premature patients. There should be a low threshold for clinical evaluation of dysphonia in this unique patient population.
EFFECTS OF SEMI-OCCUPIED VOCAL TRACT EXERCISES IN CHILDREN

Stephnaie RC Zacharias (PhD)
Stephnaie RC Zacharias PhD (1,2) Janet Beckmeyer (1) Siddarth Khosla (2) Charles Myer, IV, (1,2)
Alessandro de Alarcon (1,2)

1) Cincinnati Children's Hospital 2) University of Cincinnati

Objective:
The objective of this study was to investigate immediate changes in aerodynamic measurements after completion of semi-occluded vocal tract (SOVT) exercises in children with a voice disorder.

Methods:
In a prospective study, aerodynamic data were collected in 6 children with a voice disorder. Aerodynamic measurements were obtained before and immediately after completing three SOVT exercises (straw phonation, lip trill, and tongue trill). Pre-post comparisons were completed to evaluate laryngeal changes persisting beyond completion of SOVT exercises.

Results:
Changes were noted in aerodynamic measurements of air flow, sound pressure level, air pressure and/or laryngeal resistance at the completion of SOVT exercises. The magnitude, direction, and variability of change will be discussed.

Conclusions:
This study highlights the immediate effects of commonly used voice therapy techniques in children with a voice disorder. This information may be important for voice professionals to help target certain therapy strategies to optimize voice outcomes. Further investigation is needed to better understand if specific SOVT exercises benefit certain pediatric voice disordered populations as well as the long term effects of SOVT exercises.
TIMING OF INJECTION LARYNGOPLASTY IN PEDIATRIC UNILATERAL VOCAL FOLD IMMOBILITY AND ITS EFFECT ON SYMPTOMATIC RESOLUTION

Seth Davis

Seth Davis (1) Jad R. Jabbour, M.D., M.P.H. (1) Thomas Robey, M.D. (1, 2)

1) Department of Otolaryngology and Communication Sciences, Medical College of Wisconsin, Milwaukee, WI, 53226 2) Division of Pediatric Otolaryngology, Children’s Hospital of Wisconsin, Milwaukee, WI, 53226

Objective:
Characterize the response to injection laryngoplasty in pediatric unilateral vocal fold immobility (UVFI) patients and compare the rate of symptomatic resolution among patients undergoing immediate (<3 months from diagnosis), early (3-6 months) and late (>6 months) injection.

Methods:
This is a retrospective cohort study of UVFI patients seen at an academically affiliated private pediatric otolaryngology practice from 2001-2012. Comparative analyses were performed to determine differences in symptomatic resolution between patients who had undergone immediate, early and late injection, as well as between injection patients and non-injected patients.

Results:
Of 267 UVFI patients with adequate follow-up, 34 underwent injection. Eighteen, 5 and 11 patients were included in the immediate, early and late injection groups, respectively. Median (range) age at presentation was 4.1 (0.1-212.8) months, time to injection 2.6 (0.1-31.7) months, and follow-up 13.9 (0.4-85.2) months after injection. Symptomatic resolution of VFI occurred in 66.7%, 80% and 27.3% of the immediate, early and late groups, respectively. Symptomatic resolution was significantly more likely in the immediate and early groups compared to the late (p=0.039 and p=0.049, respectively). There was no difference in resolution rates between the immediate and early groups (p=0.57).
Symptomatic resolution was more likely in patients who underwent injection <6 months from diagnosis compared to non-injected patients (69.6% vs 47.6%, p=0.045).

Conclusion:

Early injection laryngoplasty in children with UVFI is associated with higher rates of symptomatic resolution compared to delayed injection or no injection. To our knowledge, this is the first study that demonstrates this benefit in the pediatric population.
Session #5: Tonsils/Adenoid, Sleep Apnea – Saturday 12/3/2016
Objective: Post-tonsillectomy, parents are expected to manage issues surrounding pain, dehydration, and nausea/vomiting. Parents often look on the Internet for medical information but the quality of these websites is unknown. This study aims to assess the readability, clarity, comprehensiveness, and consensus of information on the Internet that parents may use.

Methods: A targeted Google search was performed to identify websites relating to pediatric perioperative tonsillectomy care. The first 30 publically accessible results written in English underwent a multi-stepped analysis. Readability was determined through the Simple Measure of Gobbledygook readability formula, Flesch-Kincaid Grade Level, and Flesch Reading Ease Scale. Information quality was assessed by the presence of the World Health Organization HONcode logo. Comprehensiveness assessment was conducted using a custom validated checklist. Level of recommendation consensus was elucidated by frequency effect sizes calculation with coded themes.

Results: Readability assessments showed that most websites were above the recommended reading level for the general population and only 10% of websites were considered “fairy easy” to read. Five websites displayed the HONcode logo, with no significant difference in readability when compared to non-HONcode websites (p>0.05). An average of 3.5 of 5 perioperative dimensions were addressed. Hygiene and activity recommendations had the highest consensus.
(100% and 81% moderate strength respectively), and pharmacologic management was the most varied (62% moderate strength association).

Conclusion: Websites in this study were of low quality, incomplete, and composed of broadly varying recommendations of poor readability. Improved information sharing is necessary to establish homogeneous guidelines and to encourage judicious caregiver decisions.
POST-OPERATIVE MONITORING FOLLOWING ADENOTONSILLECTOMY FOR SEVERE OBSTRUCTIVE SLEEP APNEA

Cecil Rhodes (M.D.)

Cecil Rhodes M.D. (1,2) Amanda Kull BS (1) Timothy Head DO (2) Anthony Sheyn (1,2)

1) University of Tennessee Health Science Center 2) LeBonheur Children's Hospital

Introduction: Patients undergoing adenotonsillectomy (T&A) for severe obstructive sleep apnea (OSA) are usually admitted for observation overnight, and many surgeons use the Intensive Care Unit for observation due to the risk of post-surgical airway obstruction. Given the limited resources of the ICU, there’s a push to better define the patients who require post-operative monitoring in the ICU.

Methods and Materials: IRB approval was obtained from the University. So far 38 patients have been enrolled in the study. Patients who had cardiac or craniofacial co-morbidities were excluded. Patients undergoing T&A for severe OSA were monitored in the PACU post-operatively. If patients required supplemental oxygen or developed hypoxia while in the PACU within the 3 hour monitoring period they were admitted to the PICU.

Results: 6/38 patients were admitted to the ICU for monitoring. The AHI of the patients who were admitted to the ICU were 21 - 96. The Oxygen nadir ranged from 50-82%. Two patients developed post-obstructive pulmonary edema while in the PICU. One required BiPAP overnight. Two patients were intubated overnight, both had an AHI greater than 50 and an oxygen nadir >50%. All 6 were considered to be obese.

Conclusion: Additional patients are needed to draw formal conclusions. Based on the initial data not all patients with severe OSA require ICU monitoring. Initial data suggests that patients who require monitoring are those with an AHI greater than 50, O2 nadir less than 80%, obesity and age younger than 2.
EVALUATION OF POST-OPERATIVE USE OF IBUPROFEN ON POST-TONSILLECTOMY HEMORRHAGE RATE

Daniela Carvalho (M.D.)

Daniela Carvalho, M.D. (1, 2) Wen Jiang, M.D. (1, 2) Shelby Leuin, M.D. (1, 2)

1) Department of Surgery, University of California, San Diego 2) Department of Pediatric Otolaryngology, Rady Children's Hospital of San Diego

OBJECTIVE:

To determine the effect of routine ibuprofen use on post-tonsillectomy bleed rate when compared to historical controls.

STUDY DESIGN:

Case series with historical controls.

METHODS:

With the FDA black box warning on the use of codeine, in April 2014 we transitioned to a combination of acetaminophen and ibuprofen for post-operative analgesia in all patients undergoing tonsillectomy. The number of surgeries and the bleeding rates were collected on a monthly basis from Jan 2010 until December 2015. The rate of bleeding was compared between the two periods, before and after the institution of routine ibuprofen use.

RESULTS:

A total of 7047 patients underwent tonsillectomy between 1/1/2010 and 12/31/2015, with 5152 cases prior to Ibuprofen use and 1895 cases after the transition. The rate of post-tonsillectomy hemorrhage was 1.6% prior to ibuprofen and 2.1% after the transition. Using a logistic regression model, the bleeding rates were shown to not be significantly different after the adoption of ibuprofen to the post-operative when compared to historical controls. The test
of the hypothesis of rates equality yielded a 0.39 significance level. The test for no effect of time yielded a 1.00 significance level. Therefore there is no evidence of trend in time and also no statistical difference between the bleeding rates of the two periods.

CONCLUSION: We did not observe any statistically increased rate of post-tonsillectomy bleeding when compared to historical controls with the incorporation of routine use of ibuprofen in our postoperative pain management.
Objective: To compare the Prevalence of Obesity in children undergoing tonsillectomy for sleep disorder breathing (SDB), recurrent tonsillitis or both.

Study Design: Retrospective case study.

Methods: We reviewed the electronic medical records of all patients undergoing tonsillectomy (with or without adenoidecomy) from 2/1/2015-1/31/2016. Patient’s age, gender, procedure, indications for surgery and BMI percentiles were recorded. Statistical analysis was performed using logistic regression, utilizing the CDC categories for BMI percentile-for-age weight status.

Results: A total of 1150 children underwent tonsillectomy during the study period, 563 females and 587 males. The average age was 7.2 years (1 to 19 years). 817 children had tonsillectomy for SDB, 190 for tonsillitis and 141 for both indications. The average BMI percentile was 62.05 for all patients, 62.99 for patients with SDB, 57.25 for patients with tonsillitis, 63.11 for patients with recurrent tonsillitis + SDB. Gender and age were not predictive obesity. Children who had tonsillectomy due to SDB (with or without recurrent tonsillitis) had a statistically significant higher chance of being overweight, obese or morbidly obese (p<0.0001). In the group of children who underwent tonsillectomy for SDB, 11.8% were overweight, 16.5% were obese and 9.8% were morbidly obese.

Conclusions: Children undergoing tonsillectomy with the diagnosis SDB are more likely to be overweight, obese or morbidly obese when compared to children undergo this procedure for recurrent tonsillitis only. The prevalence of obesity may contribute significantly to residual sleep apnea after surgery and needs to be addressed for both pre-operative counseling and post-operative management of these children.
POST-OPERATIVE DIETARY ADVICE AND POST-TONSILLECTOMY HAEMORRHAGE: SYSTEMATIC REVIEW

Miles Bannister (M.D.)
Miles Bannister M.D. (1) Alok Sharma M.D.

1) Department of Otolaryngology, Royal Hospital for Sick Children, Edinburgh

Introduction
Post-operative dietary advice after tonsillectomy varies. The extent and type of food eaten may affect children’s post-operative haemorrhage risk. Establishing any association could aid in reducing post-operative mortality, morbidity and healthcare costs. We aimed to review the published literature assessing the effect of children’s diet on post-tonsillectomy haemorrhage.

Methods

Results
One hundred and eighty article abstracts were reviewed. Seven met our inclusion criteria; 2 were excluded as these did not discuss haemorrhage rates. Five articles were included in the final review (4 randomized studies and 1 cohort study), totaling 916 children.

Conclusion
Children’s immediate diet following tonsillectomy is not associated with later haemorrhage. Later dietary restrictions are associated with increased haemorrhage rates. Parents should provide as much food as possible, of any type, after tonsillectomy.
Background: Readmission and revisit to the emergency room after tonsillectomy carries a significant financial and emotional burden. The literature is sparse on targeting reduction of readmission and revisit rates, with the exception of hemorrhage.

Aim: Review current literature on readmission and revisit to the emergency room after tonsillectomy, including reasons for presentation after tonsillectomy. Describe methodologies directed towards decreasing readmission rates, and institutional outcomes.

Methods: Literature search containing fields including tonsillectomy plus pediatric, readmission, revisit to emergency room, or discharge planning. Review of institutional rates from a tertiary care free standing pediatric hospital after multiple interventions were implemented to target reduction of readmission after tonsillectomy.

Results: Total readmission rates from 9 articles (patient number range 1,058 - 79,520) ranged from 2.01 - 13.3%. Readmission to the hospital ranged from 1.23 - 7.3%, and revisit to the emergency room ranged from 4.6 - 13.3%. Primary reasons for admission included hemorrhage, pain, dehydration/nausea. One article describes discharge methodology to reduce readmission. At our institution, the introduction of nursing education modules, patient educational materials, and incorporation of technology with text apps has reduced readmission and revisit rates.

Conclusion: Readmission and revisit rates after tonsillectomy carry a significant burden due to the high volume of the procedure. Bleeding rates remain constant, but efforts to reduce pain, nausea and dehydration and to increase patient education can help decrease readmission and revisit rates.
CURRENT PRACTICE IN ADENOIDECTION: A SURVEY OF PEDIATRIC OTOLARYNGOLOGISTS AND REVIEW OF THE LITERATURE

Marisa Earley (M.D.)


1) Department of Otolaryngology UTHSCSA 2) Department of Otolaryngology NYU Langone Medical Center

Introduction: Adenoidectomy, whether it is performed alone or concurrently with myringotomy and tube placement is one of the most commonly performed pediatric surgical procedures. With increasing focus on health care costs, it is important to analyze current practices and their costs. There are various techniques available to perform adenoidectomy. There is also significant variability in perioperative management of adenoidectomy patients.

Objectives: To evaluate the practice patterns of pediatric otolaryngologists in regards to performing adenoidectomy as well as perioperative medication use and management of complications. Review of the literature will also be performed and areas in need of additional research will be identified.

Methods: An anonymous Qualtrics electronic survey was distributed to the American Society of Pediatric Otolaryngology (ASPO. Statistical analysis of responses was performed.

Results: 144 current ASPO members responded (~28% response rate). The most common technique used was monopolar suction electrocautery alone (58%) followed by microdebrider and monopolar suction electrocautery(33%). 86% of respondents did not routinely use perioperative antibiotics. 52% did routinely use perioperative steroids. 89% recommended postoperative pain medication with <20% recommending any narcotic medication. 95% of respondents were pediatric otolaryngology fellowship trained.

Discussion: Based on survey results, areas of future research can be delineated. Guidelines and consensus statements rely on research that is focused on safety, cost, quality and efficacy. Practice patterns should also reflect this type of care. Additional research should focus on areas of high variability in practice to ensure safe and efficacious care such as perioperative steroid use and pain medication postoperatively.
OBJECTIVES: To evaluate the degree of decisional conflict (DC) experienced by caregivers of children with obstructive sleep apnea (OSA) without adenotonsillar hypertrophy, and to describe the association between DC, quality of life and OSA severity.

Study Design: Prospective series

Setting: Tertiary pediatric medical center

Subjects and Methods: Children were evaluated in a multidisciplinary Upper Airway Center at a tertiary pediatric medical center for infant and persistent OSA between 12/2014 and 5/2016. Caregivers were asked to complete surveys (the Pediatric Quality of Life Inventory 4.0 (PedsQL), OSA-18, Epworth Sleepiness Scale, Family Impact Questionnaire, DC Score, CollaboRATE scale, and SURE questionnaire) during a clinic visit. Polysomnography data was also collected. Analysis included Spearman correlation, Wilcoxon signed-rank testing and regression.

Results: Caregivers of 76 children participated; 16 (21%) had high DC. There were no significant differences in demographics between those with low- and high-DC. Overall and disease-specific quality of life, sleepiness, family impact scores and DC did not differ by OSA severity. The DC, CollaboRATE and SURE scores were associated (P<0.001) and correlated throughout the analysis; with an r²=-0.56 (P<0.001) and r²=-0.48 (P<0.001) for the CollaboRATE and SURE scores, respectively.

Conclusions: Treatment of pediatric OSA without adenotonsillar hypertrophy (e.g., after adenotonsillectomy or infant OSA) is associated with high DC for 21% of caregivers. However significant DC was not consistently associated with demographics, overall or disease-specific quality of life, family impact or disease severity. The briefer CollaboRATE and SURE surveys, briefer measures of decisional conflict, correlated well with the DC score for these children.
Introduction: Pediatric tonsillectomy is a common surgery performed in the United States, with over 500,000 cases performed annually. Families of these patients must be educated on how to care for their child at home after surgery. Several efforts have been made to improve the quality of education these families receive over the last few years at this institution. This included a pilot program utilizing text messaging to educate tonsillectomy patients on the expected preoperative and postoperative course. Findings from this pilot showed that providing information to families via text messaging was helpful to improve the patient experience before and after tonsillectomy. The aim of this project was to see if continued positive results were found in a larger cohort of patients.

Methods: After the successful pilot, a text messaging system was developed and offered to all tonsillectomy or T&A patients. Text messages started 2 weeks before surgery and continued at specified times until 9 days postoperatively. Messaging included information on frequently asked questions, pain control, and hydration, several with links to videos highlighting more specific information.

Results: Survey data again showed positive findings to questions of text messages being helpful, easy to understand, and reducing anxiety. Rates of nurse line phone calls for patients who utilized this service will also be examined.

Conclusions/Implications: Providing information to families via text messaging can improve the patient experience after pediatric tonsillectomy. Use of similar messaging will be created for other ENT surgical procedures, as well as other surgical procedures within this institution.
SOCIOECONOMIC CHARACTERIZATION OF CHILDREN WITH REFRACTORY OBSTRUCTIVE SLEEP APNEA UNDERGOING DRUG-INDUCED SLEEP ENDOSCOPY

Ray Y Wang

Ray Y Wang (1,2) Jefferie Wu (2) Samantha M Cummings (1,2) Edwina O McNeill-Simaan (2) Christopher T Wootten (3)

1) Vanderbilt University School of Medicine 2) Surgical Outcomes Center for Kids, Vanderbilt University Medical Center 3) Department of Otolaryngology, Vanderbilt University Medical Center

Introduction: Obesity and inflammation are risk factors for obstructive sleep apnea syndrome (OSAS). Because obesity has been linked to socioeconomic status as well as to refractory OSAS in children, this study seeks to characterize the socioeconomic status of children undergoing drug-induced sleep endoscopy (DISE) and multilevel operation for refractory OSAS.

Methods: We retrospectively reviewed pediatric patients (ages 0-18) with OSAS seen by pediatric otolaryngology between January 2014 and December 2015. Patients who received a DISE ± multi-level operations were included in our cohort. Age, gender, BMI at presentation, and ZIP code were collected, and descriptives were calculated. ZIP code was used to approximate income using the mean and median household income.

Results: 107 patients were identified. The mean age was 9.7 ± 4.7 years. 64 (60%) were male. Eighty-two (77%) were white, 17 (16%) were African American, 2 (2%) were Hispanic, and 5 were of other ethnicities. The mean BMI at presentation was 23.0 ± 8.2. The mean household income calculated by ZIP code was $50,839 ± $19,377. This was not statistically different from the national mean of $53,657 (p = 0.13). However, 69 (64.5%) of patients came from ZIP codes with mean incomes below the national mean.

Conclusions: Nearly two-thirds of our patients with refractory OSAS originated from ZIP codes with mean household incomes below the national mean. Further analysis will compare mean household income data by ZIP for patients with OSAS that resolved with adenotonsillectomy alone vs. those with refractory OSAS.
FACTORS LEADING TO HOSPITAL READMISSION OF <2-YEAR-OLD TRACHEOSTOMIZED-VENTILATOR DEPENDENT INFANTS

Gangaram Akangire (M.D.)
1) Department of Pediatrics, Children's Mercy-Kansas City and the University of Missouri-Kansas City School of Medicine

Background: There is significant variability in the treatment of infants and children with tracheostomy and home ventilator dependence. Knowledge of the factors leading to hospital readmission is sparse and may play a significant role in preventing readmissions, mortality and minimizing health care burden.

Objectives: Identify factors leading to hospital readmission of tracheostomized and/or ventilator dependent infants <2 years.

Methods: Retrospective review of trachestomized and/or ventilator dependent infants who were being followed in the infant tracheostomy and home ventilator clinic from 2009-2013. Demographic and clinical data were collected and analyzed.

Results: The cohort consisted of 110 trachestomized and/or ventilator dependent infants who received tracheostomy in the NICU. Chronic lung disease of infancy (other than BPD) is the most common reason for ventilator-dependence. Viral pneumonia/bronchiolitis was the most common reason for readmission followed by elective procedure and then equipment malfunction. Rhinoenterovirus, followed by RSV was the most common viral etiology. More than 40% of the infants had >2 readmissions/year.

Conclusions: Viral infections specifically, rhinoenterovirus is the leading cause of hospital readmission in this cohort of tracheostomized and/or ventilator-dependent infants. Complete data analysis is ongoing.
TRACHEOSTOMY FAMILY PREPAREDNESS AND TRACHEOSTOMY-RELATED EMERGENCY ROOM VISITS AND HOSPITAL READMISSIONS

Karen Beaudet

Karen Beaudet, APRN (1) Emily Keeven, RT-NPS (1) Joan Magee, RN, BSN (1) Sylvia Hernandez, MSW (1) Laura Miller-Smith, MD (1,2) Winston M. Manimtim, MD (1,2)

1) Department of Pediatrics, Children’s Mercy-Kansas City 2) University of Missouri-Kansas City School of Medicine

Background: There is a lack of standardized processes for tracheotomy placement, education and out-patient follow up that can potentially result in family/caregiver dissatisfaction and increased emergency room (ED) visits and hospital readmissions.

Objectives: To reduce ED visits and readmissions of patients with tracheostomy by 10%, and to improve parental/care giver positive survey response by 20%, within 1 year of implementation of a standardized pre-and post tracheostomy management and family/patient education.

Methods: A multidisciplinary continuous quality and practice improvement (CQPI) group was created to design and implement hospital-wide, standardized practice guidelines for tracheostomy placement, family/caregiver education by ENT using a standard flipchart, and regular out-patient follow up by PCP supported by ENT and other subspecialists. Pre-and post-hospital discharge family/caregiver comfort surveys were collected to determine the impact of the standardized approach on parental/caregiver satisfaction. Tracheostomy-related ED visits and hospital readmissions were compared pre- and post-interventions.

Results: Total of 209 children who received tracheostomy over a 3 year period, 129 (PICU) and 80 (NICU). 188/209 (90%) survived to discharge. Data analysis (n=89) parents/caregivers showed that the most frequent social concern after discharge was the inability to keep home health private duty nursing, followed
by transportation issues and job maintenance. The baseline rate of weekly ED visits/hospital readmission was 3.5 per week. Respiratory infection was the most common tracheostomy-related diagnosis.

Conclusion: Using CQPI methodology, it is anticipated that a hospital-wide standardized approach for tracheostomy placement and parental/caregiver education will improve parental/caregiver satisfaction and decrease tracheostomy-related hospital readmissions and emergency room visits.
RISK FACTOR ANALYSIS FOR 30-DAY READMISSION RATES OF NEWLY TRACHEOSTOMIZED CHILDREN

Jenna Briddell (M.D.)

Jenna Briddell M.D. (1) Abigail Strang, MD (2) Patrick Barth, MD (1,3,4) Aaron Chidekel, MD (2,4) Udayan Shah, MD (1,3,4)

1) Division of Otolaryngology, Nemours/Alfred I. duPont Hospital for Children 2) Division of Pulmonary Medicine, Nemours/Alfred I. duPont Hospital for Children 3) Department of Otolaryngology-Head & Neck Surgery, Sidney Kimmel Medical College, Thomas Jefferson University 4) Department of Pediatrics, Sidney Kimmel Medical College, Thomas Jefferson University

Intro:

Pediatric patients undergo tracheostomy for a variety of reasons; however medical complexity is common among these patients. Although tracheostomy may help to facilitate discharge, it may contribute to the need for readmission. The purpose of this study is to evaluate our institutional rate of 30-day readmission for patients discharged with new tracheostomies and to identify readmission risk factors.

Methods:

A retrospective chart review was performed of patients who required readmission within 30 days of discharge from their initial hospitalization in which a tracheostomy was placed. We investigated reasons for readmission, co-morbidities and discharge destination.

Results:

Over 36 months, 45 patients underwent tracheostomy and were subsequently discharged with an overall readmission rate of 31%. Of these 45 patients, 34(75%) were discharged to home, and 12(35%) of these patients required readmission. 11(20%) were discharged to long-term care facilities, and 2(18%) of these patients required readmission. Only 1(2%) patient required readmission
for reasons directly related to tracheostomy. 8(57%) patients were readmitted with lower airway concerns, all with significant co-morbidities. 4(28%) of patients were admitted for other issues unrelated to tracheostomy. 3(21%) patients readmitted from home had documented social or home nursing concerns.

Conclusion:

New pediatric tracheostomy patients are at high risk of readmission, though it is rarely directly related to the tracheostomy and more frequently attributable to co-morbidities. Social and nursing issues were more common among patients discharged to home. Addressing the social issues and nursing support available to these patients may help reduce future readmissions.
COBLATION OF SUPRASTOMAL GRANULOMAS IN TRACHEOSTOMY-DEPENDENT PEDIATRIC PATIENTS

C. Scott Brown (M.D.)


1) Division of Head and Neck Surgery & Communication Sciences, Department of Surgery, Duke University Medical Center 2) Duke University School of Medicine

Objective: Suprastomal granulomas pose a persistent challenge for tracheostomy-dependent children. They can prevent phonation, cause difficulty with tracheostomy tube changes and prevent decannulation. We describe the use of the coblator (controlled ablation) for radiofrequency plasma ablation of suprastomal granulomas in 5 consecutive children from September 2012 to January 2016.

Method: Retrospective case series at a tertiary medical center

Results: The suprastomal granuloma could be removed with the coblator in all 5 cases. Three were removed entirely endoscopically and two required additional external approach through the tracheal stoma for complete removal. There were no intraoperative or postoperative complications. One patient was subsequently decannulated and two patients have improved tolerance of their speaking valves. Two patients remain ventilator dependent, but their bleeding and difficulty with tracheostomy tube changes resolved. Three of the patients have had subsequent re-evaluation with tracheoscopy demonstrating resolution or decreased size of the granuloma. This technique is time efficient, simple, and minimizes risks associated with other techniques. The relatively low temperature reached by the coblator device decreases the risk of airway fires and hypoxia from keeping a low oxygen level to prevent fire during the procedure. The concurrent suction in the device decreases blood and tissue displacement into the distal airway.

Conclusion: Coblation can be used safely and effectively with an endoscopic or external approach to remove suprastomal granulomas in tracheostomy-dependent children. More and larger studies are needed to evaluate the use of this technique.
THE EDUCATIONAL EFFECTIVENESS OF "PEDIATRIC TRACHEOSTOMY: STUDENT EDITION" - A MOBILE APP FOR HEALTHCARE STUDENTS

Joshua Gurberg

Joshua Gurberg, BSc, MDCM (1) Paula A. Tellez, MD (1) Lisa Kwong, Bsc (1) Jack Zheng, MD (1) Jeffrey P. Ludemann (1)

1) Division of Otolaryngology - Head & Neck Surgery, BC Children's Hospital, University of British Columbia

Objectives: To test the educational effectiveness of a free, interactive mobile application (app) in teaching basic and advanced concepts of Pediatric tracheostomy care in a group of healthcare students.

Methods: Third year medical students and first year nursing students were recruited on a voluntary basis from class email lists. Informed consent was obtained and participant demographics were collected. Participants completed a questionnaire evaluating their Pediatric tracheostomy knowledge. They were then instructed to download and read through the app to improve their understanding of Pediatric tracheostomy care. The same questionnaire was then administered following their use of the app. Pre-and post-test scores were statistically analyzed. Qualitative data such as ease of use of the app and recommendations for improvement were also collected.

Results: Six students completed the study. There was a statistically significant improvement in test scores after using the app from a mean of 3/10 to 7/10 (paired samples t-test; P=0.002). All students indicated that they would use the app again and would recommend it to their peers.

Conclusions: The result of this pilot study demonstrates statistically significant improvement of the participants' knowledge of Pediatric tracheostomy concepts following the use of the app. Further study with a larger and more diverse healthcare student group, including respiratory therapy students, is underway. The "Pediatric Tracheostomy: Student Edition" app has the potential to positively impact patient care and could become an innovative addition to global tracheostomy quality of care initiatives.
ANALYSIS OF HEALTH CARE BURDEN OF TRACHEOSTOMY-DEPENDENT CHILDREN

Heather Lesch

Heather Lesch (1) Timothy Maul, CCP, PhD (3) Cynthia Chen, M.D. (2) Julie Wei, M.D. (2)

1) Dept. of Otolaryngology, Nemours Children's Hospital Orlando and University of Central Florida College of Medicine 2) Department of Otolaryngology, Nemours Children’s Hospital Orlando 3) Department of Cardiac Surgery, Nemours Children’s Hospital Orlando

Objective: Children who are tracheostomy-dependent usually have multiple medical comorbidities and require extensive utilization of healthcare system including outpatient clinic visits, operative procedures, and inpatient admissions for various reasons. Those with underlying neurologic impairment may be tracheostomy-dependent for years. While the health care burden of children with medical complexities have been studied, none have focused on this group. Our study aimed to review overall health care burden of neurologically impaired children who are tracheostomy dependent.

Setting: Tertiary children’s hospital.

Methods: Retrospective summary of 92 patients in a prospective database

Results: 34 are currently ventilator dependent, 23 require support 24 hours per day. Forty-four of 92 children receive in-home nursing care, 23 of whom have support 24 hours per day. On average, our patients take 10.46 medications on a daily basis. From 2012 to June 2016, this population underwent an average of 0.5 hospitalizations per year, and presented to our emergency department (ED) an average of 3.34 times between 2012 and June of 2016, with 46% of them in 2015. Fifty-one percent of ED visits were for airway-related concerns despite routine follow-ups by pulmonology and otolaryngology services.

Conclusion: Children with medical comorbidities who are tracheostomy dependent have a variety of health care needs, variations in nursing care, and are generally on at least 10 medications daily. Despite routine follow up for trach related care, 50% of ED visits are related to airway concerns.
Session #7: Rhinology – Saturday 12/3/2016
ALLERGIC FUNGAL SINUSITIS IN THE PEDIATRIC POPULATION

Sarah Hart


1) University of Central Florida College of Medicine 2) Department of Allergy and Immunology, Nemours Children's Hospital 3) Nemours Children's Hospital 4) Department of Otolaryngology, Nemours Children's Hospital

Objectives.

Characterize pediatric patients with chronic rhinosinusitis (CRS) and allergic fungal sinusitis (AFS)

Study Design.

Retrospective summary

Setting.

Tertiary children’s hospital

Methods.

Chart review of patients with CRS and AFS treated between January 2014 to December 2015. Data included demographics, patient characteristics, CT findings, medical and surgical intervention, and culture results.

Results.

Forty-one patients (15 AFS, 26 Non-AFS) were reviewed. Both presented with congestion, rhinorrhea, obstruction, and “sinusitis”. Allergic rhinitis was significantly associated with AFS patients, odds ratio [O/R] 9.1 (95% CI 2.1-39.6), with history of positive aeroallergen testing (O/R 9.2; 95% CI 2.1-39.6). Nasal
polyps on exam were significantly associated with AFS (O/R 8.8; 95% CI 1.7-47.5). There were no differences in Lund-Mackey Scores between groups, but bilateral disease was less likely in AFS (O/R 0.16; 95% CI 0.04-0.65). CT imaging was 95% specific for diagnosing AFS and 75% sensitive with an area under the receiver operator curve (AUROC) of 0.83 (95% CI 0.68 - 0.98). The median age at first surgery was older for AFS (14.4 ± 2.8 years vs. 10.2 ± 4.4 for Non-AFS, p < 0.05). No significant differences in total number of surgeries. Intraoperative findings of polyps was more likely in AFS (O/R 5.5; 95% CI 1.2-24.1) as was allergic mucin (O/R 2.3; 95% CI 1.5 - 3.4). Positive fungal cultures were identified in 9/10 AFS cases, with 6 Curvularia (60%), 2 Bipolaris (20%), and 1 Aspergillus (10%).

Conclusions.

Nasal polyposis, older age, history of test proven aeroallergen allergies, with unilateral CT sinus disease are predictive for AFS in the Southeast Region. CT is highly specific for the diagnosis of AFS.
INFECTION RATES OF MRSA IN COMPLICATED PEDIATRIC RHINOSINUSITIS: AN UP TO DATE REVIEW

Chelsea Hamill (M.D.)

Chelsea Hamill, M.D. (1) Kevin Sykes, Ph.D. (1) Christopher Harrison, M.D. (2) Robert Weatherly, M.D. (2)

1) Department of Otolaryngology, University of Kansas 2) Children’s Mercy Hospital of Kansas City

Introduction: Published studies report a rise in MRSA isolates in head and neck infections, but the microbiologic status of complicated pediatric rhinosinusitis is unclear. One study of such patients showed that all MRSA isolates were seen in the last three years of that study, suggesting a possible recent increased prevalence. Given the public health concerns of increasing rates in MRSA, this study investigates the microbiologic patterns and outcomes of this specific patient population.

Methods: Retrospective cohort of pediatric patients admitted to our institution with complicated rhinosinusitis from 2004-2014.

Results: Our study includes 250 admissions with a mean age of 7.8 years. Although the largest MRSA prevalence was in the last year of the study, there was no measurable increase in MRSA over time (P=0.973). No significant relationship was found between MRSA and intra-orbital complications versus intra-cranial complications (P=0.653). Patients with MRSA had permanent neurological deficits 25% of the time versus 9% of the time in non-MRSA patients (P=0.062). Interestingly, 56% of patients with anaerobes had permanent neurological deficits versus 21% of patients with aerobes (P<0.05).

Discussion: These results suggest that, although there appear to be occasional year-to-year increases in MRSA prevalence, there is no distinct pattern that can be statistically validated in our study period. Although we expected MRSA to cause a more severe infection, our results do not allow us to draw that conclusion. It does, however, appear that anaerobes caused a more severe infection than their aerobic counterparts. This warrants ongoing vigilence to ensure we are treating this patient population correctly.
CARE AND PREVENTION OF EPISTAXIS: A COMMUNITY APPROACH

Sharon Schroeder

Sharon Schroeder (1) Dr. Valerie Flanary MD Dr. S. Conley MD

1) Pediatric Department of OtoLaryngology:Chidlren's Hospital of Wisconsin

Recurrent Epistaxis is a common Pediatric disease initially seen by the primary care providers with referral to the Otolaryngologist. There are multiple factors that contribute to epistaxis however there is no consensus for treatment.

Purpose of this quality initiative was to determine "Best Practice" for treatment of Recurrent Epistaxis in the community.

Methodology: Questionaire was given to current staff regarding treatment styles and assessments. 128 charts were reviewed for current treatment practices from primary care providers prior to referral. Evaluation and treatment plan by ENT physician including follow up resolution rate of epistaxis was reviewed.

Results: Finding found that therapy prior to referral included saline, humidification and vaseline provided no benefit. Improper techniques of stopping nose bleed was also documented. Evaluation by ENT found that with treatment with nasal cautery or the use of triple antibiotic ointment twice a day for 2 weeks showed equal resolution of epistaxis.

Conclusion: The use of topical antibiotic therapy provides equal success in the resolution of epistaxis as compared to nasal cautery. Recommendations were given in the community regarding findings and this treatment should be done prior to referral. Educational material to the families is also beneficial. One year post recommendation of treatment will also be reviewed.
EFFICACY OF TOPICAL NASAL STEROID THERAPY IN THE MANAGEMENT OF CHRONIC NEONATAL AND INFANTILE RHINITIS

James M. Ruda (M.D.)

James Ruda, M.D. (1) Joseph Lopez, M.D. (2) Charles Elmaraghy, M.D. (1)

1) Department of Pediatric Otolaryngology, Nationwide Children's Hospital 2) Department of Pediatric Surgery, Nationwide Children's Hospital

Introduction: Chronic neonatal and infantile rhinitis (NIR) is a condition that frequently manifests as nasal congestion/obstruction symptoms in neonates/infants that negatively impacts their breathing, feeding, sleeping. Treatment includes conservative management (nasal saline/suctioning) vs. topical nasal steroid therapy (TNS). This study sought to explore the effectiveness of TNS in the treatment of NIR.

Methods: Retrospective Chart Review

Results: From 2010-2016, 94/197 (48%) infants-neonates, ages 0-6 months, were diagnosed with NIR and treated at our institution with TNS after ENT referral. 63/94 (67%) of NIR pts were male, commonly Caucasian>African American (2.4:1), and diagnosed at a mean age of 2.5 months old. Of NIR pts, 73/94 (78%) were reported symptomatic since birth.

Nasal congestion was the most common symptom followed by feeding problems in 53/94 (56%), snoring 37/94 (39%), and sleeping problems in 33/94 (35%) of pts. On physical exam and nasopharyngoscopy, nasal mucosal edema was reported in 31/94 and 67/94 pts, respectively, while rhinorrhea was reported in 35/94 and 18/94 pts, respectively. Topical prednisolone or dexamethasone drops were used in 77% vs. 14% pts while combination TNS and acid suppression was utilized in 42% of pts. 20/94 (21%) pts received multiple TNS courses. 83/94 (88%) pts had TNS therapy of ≤2 weeks duration. Average follow-up was 5.1 weeks after TNS therapy. 55/94 (58%) pts reported improved NIR symptoms while 11/94 (12%) pts reported complete resolution of NIR symptoms after one course of TNS.

Conclusions: TNS therapy with prednisolone or dexamethasone drops improved or resolved NIR symptoms in 66/94 (70%) of our pts. Future prospective studies are needed to confirm these findings.
Session #8: Cochlear Implant/Otology – Saturday 12/3/2016
CONSIDERATIONS FOR COCHLEAR IMPLANT CANDIDACY IN CHILDREN WITH CHARGE SYNDROME

Ashleigh Lewkowitz

Ashleigh Lewkowitz (1) Amy Szarkowski, PhD (1, 2) Susan Mumby Gibbons, AuD (1) Elizabeth Erickson O’Neill, AuD Margaret Kenna, MD (1,3) Greg Licameli, MD (1.3)

1) Dept. of Otolaryngology, Boston Children’s Hospital 2) Dept. of Psychiatry, Harvard Medical School 3) Dept. of Otolaryngology, Harvard Medical School

This study examines considerations needed when determining appropriate candidacy for cochlear implantation in pediatric patients with CHARGE syndrome. Although cochlear implantation may be successful in some cases, children with CHARGE syndrome are not straightforward cochlear implant candidates given the abnormal anatomy, neurological complexity, and behavioral challenges associated with this condition. Retrospective analysis of medical records at a tertiary care pediatric hospital for 12 children diagnosed with CHARGE syndrome was conducted; some children received implants (n=3), while others were evaluated for candidacy and were not implanted (n=9). This study explores the considerations employed by the cochlear implant team in deciding for or against implanting children with CHARGE who, based on audiometric thresholds alone, met criteria for cochlear implantation. Surgical, audiologic, and behavioral implications of the CHARGE diagnosis are discussed and recommendations offered for future management of children with CHARGE syndrome.
ANATOMIC CONSIDERATIONS FOR COCHLEAR IMPLANTATION IN CHILDREN WITH BRANCHIO-OTO-RENAL SYNDROME

William J Parkes (M.D.)

William J Parkes, M.D. (1) Jennifer M Siu, M.D. (1) Sharon L Cushing, M.D. (1) Adrian L James, M.D. (1) Susan I Blaser, M.D. (1,2) Blake C Papsin, M.D. (1)

1) Dept. of Otolaryngology, The Hospital for Sick Children, University of Toronto 2) Dept. of Neuroradiology, The Hospital for Sick Children, University of Toronto

Objectives:

1) Describe temporal bone anatomy in branchio-oto-renal (BOR) syndrome that can impact pediatric cochlear implantation (CI).

2) Assess the ability of pre-operative radiography to predict intra-operative challenges

Methods: 5 children with BOR were identified from our institution’s Cochlear Implant Program database. Operative reports were reviewed to detect anatomic obstacles encountered during surgery. Pre-operative radiography was retrospectively analyzed to assess whether intra-operative challenges could have been predicted.

Results: 5 children were implanted unilaterally and 1 received bilateral implants sequentially. Median age at CI was 7.3 years (range 2.7-13.1). Access limitations included: under-developed mastoid (2), dense cortical bone (2), ossicular and/or lateral canal dysplasia (2), and an aberrant facial nerve (2). Alterations in approach included: earlier use of microscope, use of smaller and/or diamond burrs, and need to drill facial recesses without visualization of the incus. Congenital cholesteatoma was unexpectedly encountered once. One patient required blind-sac closure after prior canal wall down surgery. Hypoplastic cochleae prompted straight electrode insertions in all 6 CIs. Magnetic resonance imaging (MRI) was obtained in all patients a mean of 6.3 months before surgery. In 3 patients, low-dose, non-enhanced high-resolution computed tomography
(CT) was completed a mean of 6.5 years prior to surgery. Whereas cochlear hypoplasia was easily appreciated on MRI, mastoid abnormalities were difficult to discern.

Conclusions: Children with BOR are phenotypically diverse. Often, abnormal temporal bone anatomy poses technical challenges during CI. A number of mastoid abnormalities are not well seen on MRI, highlighting the utility of complimentary CT imaging in these patients pre-operatively.
PROPOSAL CRITERIA FOR PEDIATRIC COCHLEAR IMPLANTATION AS A DAY SURGERY PROCEDURE

Fatima Syed
Fatima Syed (1) Yi-Chun C. Liu, M.D. (2)

1) Baylor College of Medicine 2) Department of Otolaryngology, Baylor College of Medicine

Introduction and Purpose

Although ambulatory surgery has become increasingly common in Otolaryngology, no current standard of care exists which addresses the necessary length of post-op observation for cochlear implant procedures. The purpose of our study is to delineate recommendations for which pediatric patient subgroups can be discharged home on the day of their cochlear implantation procedures and which should be admitted for overnight observation.

Methods

A retrospective analysis of 133 pediatric patients who underwent unilateral or bilateral cochlear implantation procedures was performed using EMR charts by reviewing for date of birth, gender, date of admission, level of care, post-operative complications, and duration of admission.

Results

Of the 133 records reviewed, 5 patients were found to have hospital stays exceeding 23 hours, two of which were admitted for post-operative nausea and vomiting (PONV), one for CSF leak, two for persistent infection, and one for low O2 saturation. Further investigation revealed that the patient with a CSF leak had an underlying craniofacial abnormality, and that the two patients with persistent middle ear infections had pre-existing internal prosthetic implants.

Conclusions

Cochlear implantation procedures have low rates of postoperative events and in most cases can be performed safely though an ambulatory approach. We recommend that patients with pre-existing craniofacial abnormalities, internal prosthetic implants, or patients with post-operative nausea and vomiting or persistently low post-operative O2 saturation exceeding four hours be admitted for overnight observation.
Objectives: To assess the presence of hemispheric asymmetry for auditory processing in young children and to identify the requirement of input from both ears through development.

Background: The adult right and left auditory cortices assume different functions to facilitate efficiency needed for detection and response to complex auditory input. Low frequency processing of syllabic rates and spectral information occurs in the right hemisphere whereas higher frequency coding of temporal phonemic features occurs in the left. Is this organization present in children and can it be altered in development?

Methods and materials: Multi-channel electroencephalography recorded cortical responses to brief sounds in 11 young children and 21 adolescents with normal hearing, 23 adolescents with bilateral deafness who used a right cochlear implant for most of their lives and 13 children who used bilateral implants from young ages.

Results: Tonal stimuli showed right hemispheric dominance in young children and adolescents with normal hearing. This organization was altered by right cochlear implant use, resulting in left hemispheric dominance to cochlear implant pulses. The same CI stimulation drove expected dominance of right cortical activity in children receiving bilateral cochlear implants early.

Conclusions: Specialized cortical processing requires bilateral input from young ages.
USE OF OTOSIM SIMULATOR TO IMPROVE DIAGNOSTIC OTOSCOPY SKILLS IN A LOW RESOURCE SETTING

Roger Nuss (M.D.)

Roger Nuss M.D. (1,2) Kosuke Kawai, PhD. (1,2) Pooja Pendri, B.A. (1) Nohamin Ayele, B.A. (1) Aaron Gasore, M.D. (3) Kaitesi Batamuliza Mukara, M.D. (3) Kim Wilson, M.D. (1,2)

1) Department of Otolaryngology and Communication Enhancement, Boston Children’s Hospital, Boston, MA, USA 2) Department of Otolaryngology, Harvard Medical School, Boston, MA, USA 3) Department of ENT, University Teaching Hospital of Kigali, Kigali, Rwanda

Introduction: A recent review of clinic records at the University Teaching Hospital of Kigali reveals that clinic visits related to acute and chronic ear disease as well as hearing loss accounted for 1166 out of 3845 patient clinic visits (30.3%) between 2012-2013. A lack of basic diagnostic equipment, as well as the lack of health professionals trained to use these tools properly, leads to inaccurate or missed diagnoses and a high rate of preventable complications.

Objective: To utilize OtoSim 2™ educational simulator tool to measure gains of knowledge in ear anatomy and diagnostic accuracy among Otolaryngology medical trainees in Rwanda, with the intention of fostering an effective means of self-learning and peer learning.

Methods: Pre- and post- OtoSim 2™ training tests are administered as well as general survey to assess impact on Otology skills and confidence in evaluating ears with participants both before introduction of the OtoSim 2™ and after its implementation.

Results: 32 participants received on average, 2.2 hours of OtoSim 2™ simulator course. The mean score of the image test significantly improved from 51.4 to 73.1 (p<0.001) after taking the OtoSim course. The mean confidence score improving from 8.1 to 13.8 after taking OtoSim course (p<0.001).

Conclusion: The OtoSim 2™ educational simulator tool is successful in improving participants' knowledge about ear anatomy and pathology, and diagnostic skills of ear disease. The tool shows to be an effective application, within a low resource setting, in training medical trainees at different levels without the need for close supervision by educators.
INNER EAR ANOMALIES IN CHILDREN WITH ISOLATED UNILATERAL CONGENITAL AUURAL ATRESIA

Tyler R. Halle

Tyler R. Halle (1) N Wendell Todd MD MPH Bruno P Soares MD

1) Department of Otolaryngology - Head and Neck Surgery, Emory University 2) Department of Otolaryngology - Head and Neck Surgery, Emory University 3) Department of Radiology and Imaging Sciences, Emory University

Objectives/Hypothesis: Define the frequencies of anomalies of the inner ear, oval window, and round window ipsilateral to isolated non-syndromic unilateral aural atresia.

Study design: Retrospective case series.

Methods: We reviewed high-resolution computed tomography scans of the temporal bones of 70 children with isolated non-syndromic unilateral congenital aural atresia. Scans were reviewed according to the Jahrsdoerfer criteria and further evaluated for anomalies of the vestibule, semi-circular canals, cochlea, internal auditory canal and vestibulocochlear nerve.

Results: Inner ear dysplasia was seen in two of 70 atretic ears: one with a small hypoplastic lateral semicircular canal, the other with a large vestibule assimilating the lateral semicircular canal. Abnormalities of the oval window and round window ipsilateral to the atresia were identified in 21% (15) and 7% (5), respectively, of the atretic ears. Oval window and round window abnormalities were associated with disproportionately lower Jahrsdoerfer scores compared to aural atresia patients without these abnormalities (P<.001 and P=.04, respectively).

Conclusion: Compared to studies that included syndromic or bilateral atresia cases, we found inner ear and oval window abnormalities less common in children with isolated non-syndromic unilateral aural atresia. However, round window anomalies seem to occur at about the same frequency.
BILATERAL COCHLEAR IMPLANTATION IN MEDICALLY COMPLEX CHILDREN

Steven Andreoli (M.D.)


1) Division of Pediatric Otolaryngology and Communication Sciences, Nemours Children_Specialty Care Jacksonville

Background: With the implementation of universal newborn hearing screening, hearing loss is often the earliest diagnosed disability. However, approximately 30-40% of children will have associated medical comorbidities or developmental delay. There is a paucity of data regarding medically complex children and time of cochlear implantation, compliance of device use, and improved audibility.

Materials and methods: A retrospective chart review was performed at a tertiary children’s hospital. All children with bilateral cochlear implants and additional medical or developmental comorbidities from 2001 to present were included. Time for initial implantation and lag to second implantation was investigated. Bilateral speech reception threshold (SRT) was measured as well as second side device compliance.

Results: 27 children (16 male:11 female) were included. The mean age for first cochlear implant was 2.8±1.7 years. The interval time to second implant was 2.8±3.4 years. A syndrome diagnosis was identified in six children, most commonly Noonan Syndrome. Congenital cytomegalovirus was identified in five children. Developmental delay was present in 51.9% (14/27). Performance status was good with bilateral SRT of 16.7±4.7 dB, improved from 21.3±4.8 dB with a single implant. All children consistently used at least one device. Single sided use was reported in two children, both of which have concomitant developmental delay.

Conclusions: Secondary to medical complexity, the age of initial implant and lag to second implant post dates children with hearing loss alone. However, the performance status and device compliance are good in the medically complex population.
THE FINANCIAL IMPACT OF CLINIC NO SHOW RATES IN AN ACADEMIC PEDIATRIC OTOLARYNGOLOGY PRACTICE

Zhen Huang (M.D.)


1) Dept. of Otorhinolaryngology, University of Texas Houston 2) George Washington University 3) Department of Otolaryngology, Children’s National Medical Center

Outcome Objectives: To investigate determinants of no show rates in an academic pediatric otolaryngology practice including appointment time, age, sex, new patient status, payer mix, and median household income by zip code.

Methods: Retrospective chart review of clinic no show rates and patient demographics in a free standing children’s hospital and affiliated outpatient clinics across eight providers in a one-year period.

Results: Analysis shows that the overall no show rate across all providers was 14% with the highest rate of 21% in the zip code with the lowest median income. There was no difference in no shows by age, sex, providers, or appointment times. However, in two providers, over half of no shows were new patient encounters in the higher income group. On average, seventy-eight percent of no shows had public insurance. Lower median income and higher proportion of public insurance were highly correlated with more no shows, but the overall difference across all providers was not significant (p=0.12). Lost revenue on no shows alone range from $191K to $384K. The average percentage of the amount billed paid by insurance range from the lowest by out-of-state Medicaid=16% to the highest by managed care=54%.

Conclusion: No show rates account for a significant portion of lost revenue in the outpatient setting for an academic practice, and correlate with patient's median income and payer type. New patients in lower median income households may need different appointment reminders. Future clinic templates should be optimized for no shows to increase productivity and access to care.
DECISIONAL REGRET IN PARENTS CONSIDERING ADENOTONSILLECTOMY OR TYMPANOSTOMY TUBE INSERTION FOR THEIR CHILDREN

Mary Purcell

Mary Purcell (1) Jill Chorney (1) Krista Ritchie (1) Paul Hong (1)

1) IWK Health Centre, Dalhousie University

Objective: The aim of this study was to describe the level of decisional regret experienced by parents considering elective pediatric otolaryngology surgeries and to determine relations among decisional regret, decisional conflict, and perceptions of shared decision-making.

Methods: A prospective cohort study was conducted at an academic pediatric otolaryngology clinic. Participants included 64 parents of children less than 6 years of age who underwent consultation for adenotonsillectomy or tympanostomy tube insertion. Parents completed the Decisional Regret Scale (DRS), Decisional Conflict Scale, and Shared Decision-Making Questionnaire-Parent version. Surgeons completed the Shared Decision-Making Questionnaire-Physician version.

Results: Thirty-five parents (54.7%) reported no decisional regret, while 28 parents (43.7%) had mild decisional regret. Only one parent experienced moderate to strong decisional regret. Parent ratings of shared decision-making were significantly negatively correlated to total DRS scores ($r = -0.254$, $p = 0.045$). However, physician ratings of shared decision-making were not significantly related to DRS. Parents with significant decisional conflict and whose children experienced postoperative complications had significantly higher DRS scores ($p = 0.020$ and $p = 0.035$, respectively).

Conclusions: Many parents experienced no decisional regret pertaining to their child’s elective surgical consultation. Parents who perceived themselves to be more involved in the decision-making process had less decisional regret. Future research should explore the influence of decisional regret on health outcomes and develop methods to better engage parents in shared decision-making.
READABILITY OF PEDIATRIC OTOLARYNGOLOGY INFORMATION BY TOP CHILDREN’S HOSPITALS AND ACADEMIC OTOLARYNGOLOGY DEPARTMENTS

Kevin Wong

1) Department of Otolaryngology, Boston University Medical Center

Introduction: Over 80% of parents with children that have otolaryngology-related illnesses have Internet access, and half of these parents use the Internet to educate themselves about their child’s illness. Ensuring that patient-directed health information is understandable is important for any medical condition, but becomes even more important for pediatric conditions because the readership will include children, teenagers, and young adults. Furthermore, the readership includes parents, who are responsible for making medical decisions for their children. The purpose of this study was to perform a readability analysis of patient educational materials available from leading online sources.

Methods: All pediatric otolaryngology-related from the online health libraries of the top 5 US News & World Report-ranked children’s hospitals, top 5 Doximity-ranked pediatric otolaryngology departments, and the AAO-HNSF were collected. The readability grade for each article was calculated using the Flesch-Kincaid Grade Level, Flesch Reading Ease, Gunning-Fog, Coleman-Liau, Automated Readability Index, and SMOG grade. Intraobserver and interobserver reliability were assessed.

Results: In total, 348 articles were analyzed. Intraobserver and interobserver reliability were both excellent with an ICC of 0.99 and 0.96, respectively. The average readability grade across all authorships and readability assessments exceeded both the sixth grade level recommended by the AMA and NIH as well as the 8th grade level of the average American adult.

Conclusion: Current online health information related to pediatric otolaryngology may be too difficult for the average reader to understand. Revisions may be necessary in order for current materials to benefit a larger readership.
INTRANASAL FENTANYL USE ON POSTOPERATIVE EMERGENCE DELIRIUM

Alex Dickerson
Alex Dickerson (1) Darion Williams (1) Robert Dickerson, MD (2) Karin S. Hotchkiss, MD, FACS (2)
1) University of Florida 2) Tampa Children's ENT, Tampa FL

Introduction: The use of short-acting anesthetic agents has stimulated interest in emergence delirium. Though not fully understood, this effect is primarily seen in children ages 2-5 receiving anesthetic agents. Intra-operative pain management may play a role in limiting post-operative delirium. We compare the use of intranasal fentanyl with intranasal saline to see if there is a difference in emergence delirium.

Methods: A prospective, randomized, blinded study was conducted comparing emergence delirium in pediatric patients undergoing myringotomy tube placement. Patients enrolled in the study ranged between 9 months and 4 years of age, given rectal acetaminophen intraoperatively, and randomized to received either intranasal fentanyl at .5 µg/kg, or intranasal saline. Patients were evaluated postoperatively using the Cravero scale at four minute intervals.

Results: A total of 10 patients were enrolled in the study. Patients were evaluated by two pediatric nurse recovery staff in a single outpatient surgery center. Of the 10 patients, 4 were randomized to receive intranasal fentanyl. The score of each of the time intervals was calculated and averaged across a 16 minute time period for both groups. The average score for the fentanyl group was 2.81 compared to 2.92 in the control group.

Conclusion: Thus far no statistically significant difference is seen between the two groups suggesting that the addition of intranasal fentanyl does not change the severity of emergence delirium observed in children. While these findings are preliminary and more data is necessary to draw definitive conclusions, this may assist in post-operative pain management options.
SU RGICAL OUTCOMES IN CHILDREN WITH VELOPHARYNGEAL INSUFFICIENCY AND APRAXIA

Andre M. Wineland (M.D.)

Andre M. Wineland M.D. (1) Kiefer Hock (2) J. Paul Willging, MD (1) Howard Saal, MD (3) Ann Kummer, PhD (4) Catherine Hart, MD (1)

1) Department of Otolaryngology Head and Neck Surgery University of Cincinnati, Division of Pediatric Otolaryngology Cincinnati Children’s Hospital Medical Center 2) University of Cincinnati, College of Medicine 3) Department of Human Genetics, University of Cincinnati 4) Department of Speech-Language Pathology, University of Cincinnati

Objectives:

Evaluation and management of velopharyngeal insufficiency (VPI) in children with apraxia is controversial. The objectives of this study are to: 1. Describe the clinical findings in children with VPI and apraxia. 2. Assess the outcomes of surgical intervention in this population.

Methods:

Retrospective review of all children seen from January 2010 to December 2015 in the Velopharyngeal Insufficiency Clinic at a tertiary pediatric center. Patients with hypernasal speech and apraxia who had pre- and post-treatment evaluations were included. Perceptual evaluation, nasometry, and nasopharyngoscopy were captured. Descriptive statistics were performed.

Results:

14 patients (11 male) were included with complete nasometry data available on nine. Average age at initial assessment was five years (range 3-7.5). Six patients had velocardo-facial syndrome, one had a submucosal cleft, and six had a history of adenoidectomy. Pre-operative median oral nasalance was 60% (range 40-75%; normal<25%). Ninety-three percent (13/14) underwent at least one surgical procedure. Five patients underwent a revision surgical procedure. Overall, oral nasalance scores decreased in 75% of patients (9/12), with an average decrease
of 17% (range 18 to 44%). Nine patients had pre- and post-operative nasopharyngoscopy. Velopharyngeal gap size decreased in 66% (6/9). Eighty-six percent (12/14) of caregivers reported increased intelligibility after treatment. One patient experienced a flap dehiscence. Two patients experienced post-operatively obstructive sleep apnea requiring velopharyngeal port revision.

Conclusion: Pediatric patients with VPI and apraxia should be evaluated by a multidisciplinary team. Surgical intervention resulted in increased intelligibility, reduced nasalance for oral sounds, and improved velopharyngeal closure in this patient population.
CLEFT PALATE WITH AND WITHOUT CLEFT LIP AND MIDDLE EAR DYSFUNCTION: IMPLICATIONS IN HUMANITARIAN AID.

Christine Fordham (M.D.)

Christine Fordham M.D. (1) Aria Jafari, MD Jacob Husseman, MD Marc Lebovits, MD

1) Pediatric Otolaryngology Fellow, Stanford 2) Department of Otolaryngology, University of California San Diego

Purpose:

Cleft lip and palate (CLP) is the most common head and neck congenital anomaly. Altered anatomy associated with cleft palate leads to increased rates of otitis media with effusion (OME) in children with CLP compared to children without CLP. The standard of care for children without CLP with OME is ventilation tube insertion (VTI). CLP children are at risk for speech and language delays independent of the increased risk of delay associated with OME therefore VTI should be placed. Humanitarian mission organizations do not routinely offer VTI. We conducted this study to evaluate if VTI could safely be placed during humanitarian aid of CLP repair.

Methods:

A chart review was performed on CLP patients seen at Thousand Smiles Foundation in Ensenada, Mexico. All charts active in the last 5 years were reviewed. They were reviewed for date of birth, type of cleft, presence of effusion, placement of VTI, repeat VTI, otorrhea, perforation, meningitis, cholesteatoma, and loss to follow up.

Results:

There were 211 active charts in the past 5 years. VTI were placed at least once in 77 patients for OME. Otorrhea was present in 27/77 (35%), perforation rate 20/77 (26%), lost to fu 13/77 (17%). There were no major complications.

Conclusion:

CLP is a common problem frequently associated with OME. VTI should be inserted to decrease risk speech and language delay associated with OME in an at risk group. VTI can safely be done in conjunction with cleft repair during humanitarian aid at locations with regular site visits.
PHARYNGEAL FLAP VERSUS SPHINCTER PHARYNGOPLASTY FOR VELOPHARYNGEAL INSUFFICIENCY: A REVIEW OF OPERATIVE AND ADMISSION TRENDS

Darrell T. Wright (M.D.)
Darrell T. Wright M.D., (1) Sharon H. Gnagi, M.D. (1) Shaun A. Nguyen, M.D., M.A. (1) David R. White, M.D. (1)
1) Dept. of Otolaryngology-Head and Neck Surgery, Medical University of South Carolina

Purpose: To examine the operative data and admission trends in patients with velopharyngeal insufficiency (VPI) undergoing surgical repair via pharyngeal flap (PF) or sphincter pharyngoplasty (SP).

Methods: Current procedural terminology codes were used to identify children undergoing PF (42224 or 42226) and SP (42950) for VPI in the American College of Surgeons National Surgical Quality Improvement Project - Pediatric 2014 database. Targeted variables included patient demographics, operative details, admission trends, and complications. Statistical analyses were performed using a Chi Square test for categorical variables and a Mann-Whitney U test (non-normal distribution) for continuous variables.

Results: 361 patients were treated for VPI. There were 221 (61%) patients treated with PF and 140 (39%) with SP. Patients were significantly more likely to be treated as an outpatient after SP (65%) with mean length of stay (LOS) 1.0 ± 0.9 days compared to the group undergoing PF (42%) with mean LOS 1.6 ± 1.0 days (p < .001). The mean duration of operation time was also shorter for the SP subgroup at 88.0 ± 52.0 minutes than those undergoing PF 74.7 ± 46.7 minutes (p = .02). Though not significantly different, 3% (7) of patients undergoing PF experienced a complication compared to 0.7% (1) of patients undergoing SP, the most common being superficial wound dehiscence.

Conclusions: Patients undergoing SP for VPI are more likely to be treated as an outpatient, with shorter operative times, and a trend toward lower complications in comparison to those being treated with PF.
DANGERS OF BABY-LED WEANING

Chelsea Troiano (M.D.)


1) Dept. of Otolaryngology- Head and Neck Surgery, Boston Medical Center, Boston University

Purpose: To raise awareness and educate medical professionals on the dangers of Baby-Led Weaning and better guide patient's families on food consistency progression to reduce the risk of foreign body aspiration.

Methods: Fundamental principles and philosophy of Baby-Led Weaning (BLW) were reviewed. World Health Organization (WHO) guidelines for feeding, speech language pathology (SLP) literature on the development of deglutition, United States Consumer Product Safety Commission (UPSC) guidelines for small toy parts and the SUSY Safe Project Database were examined. An assessment of rising popularity and a comparison between BLW literature and scientific literature was made.

Summary of Results: BLW is an approach to feeding in which 6 month old infants are transitioned to adult-finger-sized foods while weaning from milk, avoiding parent-fed purees. BLW is growing in popularity internationally and contradicts WHO guidelines for solid food introduction advocating for a progression of consistency from thins to solids. SLP research supports this progression as it protects the airway during the development of deglutition. Interestingly, BLW literature is inconsistent in the consistency of offered food. BLW also contradicts UPSC guidelines for small toy choking hazards. The SUSY database identifies the most common food foreign bodies.

Conclusions: BLW is an unsafe food progression philosophy that puts children at undue risk for foreign body aspiration. BLW guidelines are inconsistent across available forums and, are in opposition to widely accepted WHO and SLP recommendations. Awareness and education of patient's families is imperative to promote the safe and healthy eating of pediatric patients.
JUST SAY NO TO MODIFIED BARIUM SWALLOW STUDIES IN INFANTS UNDER 2 MONTHS

Arcangela Lattari Balest (M.D.)

Arcangela Lattari Balest, M.D. (1) Katherine E. White, MA CCC-SLP Matthew W. Georg, MS
Joseph E. Dohar, MD, MS

1) Department of Neonatology Children’s Hospital of Pittsburgh of UPMC 2) Department of Audiology & Speech-Language Pathology Children’s Hospital of Pittsburgh of UPMC 3) Division of Pediatric Otolaryngology Children’s Hospital of Pittsburgh of UPMC 4) Division of Pediatric Otolaryngology Children’s Hospital of Pittsburgh of UPMC

Background: Modified barium swallow (MBS) is the “gold standard” to assess swallowing disorders, however, testing under 48 weeks post-menstrual age (48PMA) is common to assess for silent aspiration (SA) despite the absence of laryngeal cough reflex (LCR). We reviewed MBS outcomes in this demographic.


Results: 144 consecutive patients underwent MBS during the time frame 2012-2015; 74 were <48PMA (197 MBS studies). 36.5% were born prematurely at <37 weeks gestation. SA was found in 52.7% of infants tested <48PMA. 53.4% of SA resolved by 48PMA. Only 4.1% (3/74) had persistent SA and LRI >48 PMA; 1.4% (1/74) with SA and LRI exhibited delayed cough after SA event. Despite the diagnosis of SA, these infants often displayed clinical signs during feeding indicative of aspiration.

Conclusions: Infants <48PMA often lack LCR rendering SA on MBS a developmental variant of normal. The term SA with pathologic connotation should be replaced with the term “infantile aspiration” in this age group. SA without cough often manifests with clinical signs not “silent” at all. In an era of cost containment and evidence-based best practice, MBS in this age group is contraindicated to assess for SA. These patients should be evaluated and managed clinically.
THE NEED FOR ESOPHAGRAM IN THE WORKUP OF PEDIATRIC PNEUMOMEDIASTINUM

G. Zachary White


1) Department of Otolaryngology, Beaumont Health- Farmington Hills 2) Department of Otolaryngology, Beaumont Children’s Hospital 3) Michigan Pediatric Ear, Nose, & Throat Associates 4) Department of Otolaryngology, Children’s Hospital of Michigan 5) Division of Pediatric Otolaryngology, Children’s Hospital of Pittsburgh at UPMC

Objective: To investigate the need for esophagram in stable patients diagnosed with pneumomediastinum due to blunt trauma or spontaneous origin.

Background: Pneumomediastinum is a rare entity in the pediatric population. It is caused by increased intrathoracic pressure resulting in alveolar rupture and tracking along the tracheobronchial tree. Most commonly, pneumomediastinum occurs spontaneously or as a result of trauma. Traditionally, this diagnosis is often associated with an extensive workup and increased length of stay.

Methods: A retrospective chart review was performed on 124 children diagnosed with pneumomediastinum at our tertiary care hospital between 2000 and 2014.

Results: One hundred and ten patients met inclusion criteria. Patients were excluded if they were initially unstable or had pneumomediastinum due to penetrating trauma. Eighty-five patients were diagnosed with spontaneous pneumomediastinum and 25 had pneumomediastinum due to blunt trauma. Thirty patients underwent esophagram as part of the workup for their pneumomediastinum while 80 had no esophagram performed. Only one patient undergoing esophagram was found to have an esophageal perforation. This was due to a broom stick striking the oropharynx. This patient was managed...
conservatively. Two patients who did not undergo esophagram needed intervention for their pneumomediastinum. One patient, who was injured in a bicycle accident, required endoscopy and open intervention while the second patient, injured in an ATV accident, required only endoscopic intervention.

Conclusion: Pneumomediastinum is a rare but potentially life threatening diagnosis. In stable patients diagnosed with pneumomediastinum due to spontaneous origin or blunt trauma, esophagram does not accurately identify patients needing surgical intervention.
Objective: To describe changes in diet and swallow function in patients with a laryngeal cleft after surgical repair of the laryngeal cleft.

Methods: Retrospective case series performed using chart review. Primary outcomes were diet and swallow function before and after laryngeal cleft repair. Clinical evaluation and video fluoroscopic swallow studies (VFSS) were used to assess pre and post intervention swallowing.

Results: 16 pediatric patients were included in this study. Preoperatively, 14 (88%) of them had diet restrictions. Postoperatively, 12 (75%) patients took a regular diet without limitation. 4 (25%) patients had no reduction in diet restrictions over the course of this study. For the 10 patients who transitioned to a regular diet postoperatively, it took a median of 300 days (range: 26 days - 3 years) to achieve a regular diet. This was corroborated by an increase in normal oral and pharyngeal phase swallow function on VFSS postoperatively when compared with preoperative VFSS results.

Conclusion: Dysphagia improves in a majority of patients after laryngeal cleft repair. The range in duration to normal diet was wide. This may allow for improved preoperative counseling and preparation of families for improved expectations.
Purpose: The modified barium swallow study (MBSS) is a frequently used method for swallow assessment among bottle-fed infants. Despite its widespread use, there are no procedural protocols that guide its execution. Instead, high variability exists in the timing that swallows are fluoroscopically visualized within the infant’s feed. Bedside observations indicate sucking, swallowing, and respiratory rate change throughout a feed. If these changes extend into other attributes of swallow function, the timing that swallows are fluoroscopically evaluated may impact the exams diagnostic yield. The aim of this pilot investigation was to explore changes in key features of oropharyngeal swallow physiology and airway protection during the MBSS.

Methods: 30 infants (18 male) underwent MBSS due to clinical concerns for oropharyngeal swallow function. Infants were continuously fed thin barium contrast while fluoroscopy was turned on to enable visualization of five swallows at four time points within the feed: 00:00, 00:30, 01:30, 02:30. Swallows were analyzed frame-by-frame for number of sucks per swallow, timing of swallow initiation, and penetration/aspiration.

Results: Significant changes were found between time 00:00 and 02:30 for each feature. The number of sucks per swallow increased (p=.007), delays in swallow initiation were longer (p=.004), and the proportion of swallows with penetration/aspiration increased (p=.002).
Conclusions: A decline in key swallowing features was found to occur during the MBSS. Hence, the timing of fluoroscopic swallow assessment appears relevant in the accurate identification of impairment. Future investigations with larger samples are warranted to determine the appropriate times of fluoroscopic assessment during the feed.
Posters
DIAGNOSTIC FLEXIBLE VS RIGID BRONCHOSCOPY FOR THE ASSESSMENT OF TRACHEOMALACIA

Jonathan Choi (M.D.)

Jonathan Choi, M.D. (1) Katherine Dunsky, M.D. (1, 2) Timothy J. Vece, M.D. (3) Eric H. Chiou, M.D. (4) Julina Ongkasuwan, M.D. (1, 2)

1) Department of Otolaryngology, Baylor College of Medicine 2) Department of Otolaryngology, Texas Children’s Hospital 3) Pediatric Pulmonology, Texas Children's Hospital 4) Pediatric Gastroenterology, Texas Children's Hospital

[Background] Tracheomalacia (TM) is a condition of structural weakness of the trachea with intrathoracic tracheal collapse resulting in symptoms of poor mucociliary clearance, recurrent infections and respiratory failure. Video bronchoscopy remains the diagnostic “Gold Standard.” However, no study has systematically differentiated the efficacy of flexible vs rigid bronchoscopy in diagnosing TM. Differentiating efficacy by modality is important both to correctly diagnose severity of TM in individual patients as well as for comparative studies.

[Objective/Study Outcome] This project (1) analyzes ratios of tracheal collapse and expansion in patients with TM, and (2) assesses the potential impact of rigid and flexible bronchoscopy in making the diagnosis of TM.

[Methodology] A total of 9 patients (5 males and 4 females) with TM underwent both rigid and flexible video bronchoscopy at Texas Children’s Hospital. All patients were breathing spontaneously. Images of the cross-sectional area of airway lumen were processed via ImageJ, and analyzed via Color Histogram Mode Technique (CHMT). T-tests via STATA v13.0 quantified differences in maximum airway collapse and expansion, ratios of maximum collapse-to-expansion, and ratios of maximum collapse-to-expansion (rigid-to-flexible). The two modalities of imaging were then compared.
[Results] The differences in maximum airway collapse (p=0.0002) and expansion (p=0.0005) were statistically significantly different. The ratios of maximum collapse-to-expansion (p=0.6414) and ratios of maximum collapse-to-expansion (rigid-to-flexible) (p=0.7470) were not significantly different.

[Conclusion] The ratios suggest that rigid and flexible bronchoscopy are equally efficacious in assessing the severity of TM. This implies that rigid and flexible bronchoscopy can be used interchangeably in a clinical setting.
HEMANGIOMA IN A CERVICAL LYMPH NODE: A CASE REPORT AND REVIEW OF THE LITERATURE

Dominick Gadaleta (M.D.)

Dominick Gadaleta M.D. (1) Taha Mur Richard Schmidt M.D. Anuj Patel M.D.

1) Dept. of Otolaryngology, Thomas Jefferson University 2) Dept. of Otolaryngology, Dupont Nemours Hospital for Children 3) Dept. of Radiology, Thomas Jefferson University

Introduction

Hemangiomas within lymph nodes are extremely rare. To our knowledge, there are only two other reported cases in the head and neck literature. Understanding the appropriate workup and imaging studies of this mass is crucial in successfully treating the patient.

Methods

Case report and literature review. The patient’s pertinent history, clinical findings, and radiologic studies are examined.

Results

The case is of a 11 year old female who presented to our outpatient clinic with a right neck mass. She localized the mass to the right submandibular region and reported that it was painless in nature. She was prescribed a course of antibiotics by her primary care doctor, which did not reduce the size of the mass. On exam, she was found to have a 3 cm mass in the right submandibular region. It was soft, discrete, nontender, and mobile. A CT scan from that time revealed a mixed solid and cystic lesion in the right submandibular space, adjacent to the submandibular gland. Lab results returned negative for any infectious organism,
including bartonella and atypical mycobacteria. She was taken to the operating room for an excision of the mass. Final pathology returned positive for hemangioma of a lymph node.

Conclusion

Although rare in nature, hemangiomas in lymph nodes should be considered when working up a neck mass in an atypical location. CT is an important modality in helping to establish the diagnosis and should be obtained in any patient with an unusual presenting neck mass.
Introduction: Postoperative-bleeding is the most common complication following tonsillectomy that requires surgical intervention. This risk is increased in patients with coagulopathies. Idiopathic thrombocytopenic purpura (ITP) is a transient coagulopathy that can have multiple etiologies. In this report we discuss a rare case of a post-tonsillectomy patient with hemorrhage in the setting of ITP.

Methods: Case report discussing the patient’s pertinent history and clinical findings in addition to a literature review.

Results: Patient is a 5 year old girl with a medical history of Gianne-Barre syndrome, presented with bleeding status-post tonsillectomy 3 days prior. On the day of admission, the parents reported the patient started to have some bleeding from her nose, eventually progressing to hemoptysis. She was found to have a hemoglobin of 11.2 and platelets of 3,000. In preparation for surgical control of her oral cavity bleeding, she was transfused with both platelets and PRBC. Oral-cavity exam in the operating room showed significant ecchymosis of the soft palate bilaterally with edema of the oral cavity, tonsillar fossa, and nasopharynx with bright red generalized oozing. Bismuth was placed in both fossa, and the nasopharynx was filled with Surgiflo with thrombin and there was no further bleeding. Hematology was consulted and she was diagnosed with ITP. Treatment consisting of IVIG and steroids was initiated with complete resolution of her symptoms.

Conclusion: Post tonsillectomy hemorrhage is a well-established post-surgical complication. The etiologies, signs, and symptoms of ITP and its post-surgical impact are important to be aware of when managing these patients.
MYCOBACTERIUM AVIUM PRESENTING AS RECURRENT ACUTE OTITIS MEDIA IN A TODDLER: A CASE REPORT AND TREATMENT RECOMMENDATIONS

Anthony Sheyn (M.D.)

Anthony Sheyn M.D. (1, 2) Vikrum Thimmappa MD (1) Armita Bahrami MD (2) Rosemary Stocks MD (1)

1) University of Tennessee Health Science Center 2) St. Jude Children's Research Hospital

Introduction: Mycobacterium Avium Intracellulare is an extremely rare cause of middle ear disease. To our knowledge only 10 cases have been presented in the literature. We present a case of an 18 month girl who presented with a middle ear mass and abdominal mass suspicious for soft tissue sarcoma.

Discussion: An 18 month old girl presented to with frequent otitis media starting at age 4 months. Her left ear was the only ear that was ever found to be affected. Prior to presentation she was found to have a left otitis media with foul discharge and was evaluated by an Otolaryngologist at an outside facility who found a granuloma in her left ear which was biopsied. The biopsy results were inconclusive and diagnostic imaging was undertaken which showed a middle ear soft tissue density, temporal bone involvement and mass in the bladder. She was subsequently referred to our facility. Repeat imaging of the bladder mass showed no evidence of the mass and it was attributed to cystitis. Persistent middle ear and temporal bone changes led to middle ear exploration with removal of the middle ear mass. Erosion of the incus and complete obliteration of the tympanic membrane were found. Histology and microbiology were positive for MAI. Patient was started on appropriate medication and subsequently underwent reconstruction and ossiculoplasty.

Conclusion: MAI involvement of the middle ear is extremely rare. This is the 11th documented case to our knowledge. With appropriate diagnosis and treatment, usually surgical, good outcomes can be obtained.
OBJECTIVES:

1. Increase awareness of the surgeon's exposure to human papilloma virus (HPV) in the healthcare setting, particularly the operating room.

2. Demonstrate the benefits of prophylactic vaccination for surgeons to minimize risk of HPV-related diseases.

Methods:

There currently are no standards for work place vaccination against HPV. Our institution is developing a novel program through employee health that allows surgeons to be vaccinated with Gardasil. The vaccination program is completely optional. The goal is to limit potential sequelae of HPV viral particle exposure in the operating room.

Summary of Results:

This presentation will focus on the process of developing a system through employee health to initiate a Gardasil vaccination program. Secondarily, the presentation will focus on the potential benefits of vaccination and the risks of occupational exposure to HPV in the operating room. There is an increase in the surgeon's exposure to HPV related pathologies and increasing measures need to be taken in order for short and long-term protection.
Rhabdomyosarcoma of the Hard Palate: Case Report & Treatment Challenges

Anthony Sheyn (M.D.)

Anthony Sheyn M.D. (1, 2) Amanda Kull (1) Vikrum Thimmappa (1)

1) University of Tennessee Health Science Center 2) St. Jude Children's Research Hospital

Introduction: Rhabdomyosarcoma (RMS) is a malignant neoplasm of mesenchymal tissue found predominantly in the pediatric population. Among pediatric sarcomas, RMS is the most common, accounting for 3-4% of all pediatric malignancies. Furthermore, up to 35% of RMS present in the head and neck. When occurring in the oral cavity, RMS typically involves the soft palate. We present a rare case of hard palate pediatric RMS. Due to the rarity of this disease, many treatment challenges were identified.

Case: A 17 year old patient was referred to us for a recurrent hard palate RMS. He was initially diagnosed 2 years ago and underwent partial resection of the right hard palate mass due to uncertain etiology. He then underwent chemoradiation therapy. A follow-up MRI at 2 years showed a suspicious lesion in the primary site. He was then referred to our center and underwent resection with primary closure. Specimen was positive for recurrent RMS. Additional imaging showed bilateral enlarged lymphadenopathy and patient then underwent lymph node biopsy. Positive margins were identified and a decision was made for re-resection with split thickness skin graft. He was then restarted on a regimen of chemoradiation.

Conclusion: Hard palate RMS is extremely rare. Our institution is well versed in treating pediatric RMS, even so several treatment challenges occurred during the treatment period. More investigation is needed to determine the appropriate strategy for pediatric oral cavity RMS.
HARMONIC DISCRIMINATION IN COCHLEAR IMPLANT USERS

Brandon Tomlin

Brandon Tomlin, B.S. Sandra Prentiss, Ph.D. David Friedland, M.D., Ph.D. Christina Runge, Ph.D.

1) Department of Otolaryngology, Froedtert Hospital 2) Medical College of Wisconsin

Introduction

Prior studies in our laboratory have shown that children who have spent nearly their entire lives hearing with cochlear implants, and perform near normal on speech tests, do not perceive musical sounds like normal hearing children. This suggests that a cochlear implant does not transmit the full spectrum of sound necessary for perceiving music.

Objective

This study compared cochlear implant (CI) subjects and normal hearing subjects in distinguishing an instrument note in which 1st and 2nd harmonics have been modified.

Methods

Four sets of stimuli were made for the test, altering the 1st and 2nd harmonic for the trumpet (TF1, TF2) and saxophone (SF1, SF2). For each of these sets, the altered harmonic was attenuated from 0 to -30 dB in steps of 2 dB. An adaptive 3 choice forced alternative testing program created in Eprime determined the threshold at which subjects can differentiate a modified and unmodified sound. 16 CI users and 11 normal hearing subjects were tested.

Results

CI users had a significantly higher threshold value than normal hearing listeners for the TF1 (p<0.001) and SF2 (p<0.001) modifications while no significant difference was found for the TF2 (p=0.451) and SF1 (p=0.316) modifications. However, with all thresholds averaged, CI users had a significantly higher threshold (p<0.001) than normal hearing listeners. No correlation was found between threshold values and speech perception score. The decreased sensitivity of CI users to modifications of harmonics could be a factor in their poor music perception.
PARTIAL TONSILLECTOMY: QUALITY, CONTENT, AND VALIDITY OF HEALTH INFORMATION

Kevin Wong

Kevin Wong, B.A. (1) Jessica R. Levi, M.D. (1)

1) Boston University School of Medicine

Introduction: Variability in the quality of online medical information has been well documented in the past. However, no study has evaluated the information available regarding partial tonsillectomy, which has become an increasingly popular treatment for sleep-disordered breathing in children. The Internet is a popular source of patient education, and it is important to ensure that the information provided helps parents make the most informed decisions for their children. The purpose of this study was to evaluate the quality and content of online information regarding partial tonsillectomy.

Methods: A web search was performed using the search term “partial tonsillectomy” in Google, Yahoo!, and Bing. The first fifty websites from each search were evaluated for authorship, content, and validity. A Freeman-Halton extension of Fisher’s Exact Test was used to compare differences between search engines. A second search using more technical search terms “intracapsular tonsillectomy” and “tonsillotomy” was also performed. Differences between search terms was compared using Fischer’s Exact Test.

Results: Most websites did not mention eligibility criteria (31.7%), describe risks (38.7%), or provide a description of the procedure (46.7%). Furthermore, less than half of websites referenced peer-reviewed literature (43.3%) or provided information to contact a physician (22%).

Conclusion: Altogether, these results suggest that current online information regarding partial tonsillectomy may not provide adequate patient education. Efforts should be made to simplify writing and include essential information in order for current educational materials to benefit a wider readership.
USE OF A STEROID-RELEASING STENT IN SUBGLOTTIC STENOSIS: A CASE REPORT

Sidrah M Ahmad (M.D.)
1) Dept of Otolaryngology, Children's Hospital of Michigan 2) Dept of Otolaryngology, Michigan State University 3) Michigan Pediatric ENT Associates, Detroit, MI

Subglottic stenosis affects approximately 1-2% of infants in the neonatal intensive care unit. These infants often require a tracheostomy for airway protection which carries a mortality rate of 1-2% per year. Furthermore, these patients require a laryngotraheal reconstruction at a later date to definitively correct the stenosis. We present a patient on whom we utilized a steroid-releasing stent after dilation of grade 3 subglottic stenosis. Although the patient did require initial tracheostomy tube placement, we noted good results utilizing a steroid-releasing stent in the limited follow up available thereby potentially decreasing both the mortality risk as well as the need for an open airway procedure.
IATROGENIC TRICHLOROACETIC ACID INJURY CAUSING NECROTIZING OTITIS AND DEAFNESS BILATERALLY: A CASE REPORT

Tyler R. Halle

Tyler R. Halle (1) N Wendell Todd, M.D., M.P.H. (1) Jolie C. Fainberg, M.A. (1,2)

1) Department of Otolaryngology, Emory University 2) Atlanta Speech School

Introduction: Trichloroacetic acid is a corrosive agent sometimes used to facilitate the healing of tympanic membrane perforations and in the treatment of acute otitis externa. We present a previously unreported iatrogenic injury resulting from the erroneous instillation of trichloroacetic acid into the ears following tympanostomy tube insertion.

Case presentation: A 10-month old infant suffered total perforation of each tympanic membrane, necrotizing otitis media and externa, and progressive hearing loss with cochlear ossification (not identifiable at pre-operative imaging).

Management and Outcome: She underwent staged bilateral ear debridement and mastoidectomy, ear canal closure and cochlear implantation. Now nearly five-years old, and three years after her initial cochlear implant, she is a listening-speaking communicator attending age-appropriate class in regular school. With her cochlear implants, she has auditory thresholds in the normal range.

Discussion: Medication administration protocols may minimize the risk of errors, and should be observed with the administration of all medications in all settings. When a harmful agent has been instilled into an ear, emergency intervention includes suctioning away the offending substance, and (depending on the agent) irrigating copiously with saline while suctioning.
DANGERS OF BUTTON BATTERIES: A CASE STUDY OF A 2 YEAR OLD

Komal Patel (RN)
(1) Kathryn Ammon, RN, MSN, CPNP-PC, CORLN
1) Division of Otolaryngology, The Children's Hospital of Philadelphia

Objective: To review a unique case of button battery ingestion causing a tracheoesophageal fistula.

Case: This is an individual case report of a pediatric patient initially presented to his Pediatrician with heavy breathing, was treated for croup and placed on oral steroids. He presented to his local emergency room 3 days later with decreased appetite and lethargic. In local ER was treated with more oral steroids and IV fluids, once stable was discharged. He presented again next day to local ER with breathing concerns, a chest x-ray done showed object concerned for button battery. Patient transported via helicopter to our hospital. The patient required emergent removal of the button battery under anesthesia. Once removed noted to have severe esophageal erosion/perforation at the site of the foreign body. Patient required admission to the Intensive Care Unit where he was noted to have some desaturations, ETT was repositioned and bedside bronchoscopy was done. Patient was placed on ECMO, with concerns of possible Tracheoesophageal fistula. The patients continued to have complications after button battery removal, required sternotomy and TEF resection, slide tracheoplasty and esophageal perforation repair.

The patient has required multiple microlaryngoscopy/bronchoscopy procedures to evaluate his airway.

Conclusion: Button battery ingestion rates have increased over the years in the pediatric population. Immediate evaluation and diagnosis is required to avoid complications.
PEDIATRIC CERVICAL TUBERCULOUS ADENITIS: A REVIEW OF THE LITERATURE AND PUBLIC HEALTH CONCERNS

Jason Maurice Wray II (M.D.)


1) Department of Otolaryngology, Naval Medical Center Portsmouth 2) Pediatrics Infectious Disease Department, Naval Medical Center Portsmouth

Purpose: To present a rare case of unilateral cervical tuberculous adenitis in a pediatric patient and discuss the diagnostic and therapeutic challenges, as well as the public health concerns prompting the need for timely differentiation between cervical tuberculous adenitis and nontuberculous mycobacterial adenitis.

Method: Case report presentation with review of the current literature

Summary: Cervical adenitis is a very common presentation in the pediatric population. In the United States most cases are reactive in nature secondary to viral or bacterial infections. Although an important health concern in developing countries, Tuberculosis is rarely encountered in the United States. We intend to present a case of cervical tuberculous adenitis in an immunocompetent patient who had previously completed latent Tuberculosis treatment two years prior to presentation with a normal post-treatment chest X-ray. We also intend to discuss the diagnostic and therapeutic challenges these cases present and the necessity for prompt and accurate differentiation between cervical adenitis due to Mycobacterium tuberculosis and other infectious etiologies to minimize morbidity for the patient and to prevent infection of health care providers and members of the community. Our case demonstrates the need for an elevated index of suspicion for tuberculous adenitis when evaluating pediatric patients with prior tuberculous diagnosis regardless of prior completed treatment for latent Tuberculosis and length of time from initial tuberculous diagnosis and current presentation. This poster will review the relevant literature for pediatric cervical adenitis with attention to Mycobacterium tuberculosis and public health concerns when managing patients with cervical Tuberculosis.
RETROPHARYNGEAL ABSCESS WITH MEDIASTINAL PROGRESSION IN INFANTS: A CASE SERIES AND REVIEW OF THE LITERATURE

Kelly Scriven (M.D.)

Kelly Scriven M.D. (1) Earl Harley M.D. Daniel Wohl M.D.

1) Dept of Otolaryngology, Georgetown University Hospital 2) Dept of Otolaryngology, Georgetown University Hospital 3) Pediatric Otolaryngology Associates, Jacksonville, FL

Introduction: Deep neck infections are common in infants and occur in several anatomic subsites including the retropharyngeal space. Retropharyngeal abscesses are significant given their propensity for mediastinal extension. Most retropharyngeal abscesses are seen in children under four years old. Failure to diagnose and treat retropharyngeal abscesses can lead to life threatening complications.

Case Description: We present two cases of retropharyngeal abscess with mediastinal extension in infants. In one case, an incompletely vaccinated ten-month old male presented with cough, rhinorrhea, and fevers. Despite antibiotic treatment, he developed Horner’s Syndrome and hypoxia. A CT scan showed a C1-T7 retropharyngeal abscess. He underwent trans-oral incision and drainage and recovered fully. In another case, a twelve-month old infant presented with eight days of fevers and neck pain. A CT scan showed a retropharyngeal collection extending to the mediastinum and right hemithorax. Trans-oral incision and drainage and VATS thoracotomy were performed for abscess drainage. He recovered fully with antibiotics.

Discussion: Retropharyngeal abscesses are increasing in incidence faster than other deep neck infections. Both cases we report had delayed diagnosis of the abscess leading to mediastinal extension and necessitating urgent surgery. Practitioners should maintain a high index of suspicion for deep neck space infections in infants with fevers and leukocytosis. Imaging should be prompt, and incision and drainage is standard of care when an abscess is identified. Trans-oral and trans-cervical drainage may be supplemented by thorascopic approaches. Patients should receive antibiotics with MRSA coverage. Practitioners should be exceptionally vigilant in treating patients under eighteen months old.
RECONSTRUCTIVE CHALLENGES IN PEDIATRIC DESMOID FIBROMATOSIS OF THE MANDIBLE - TWO CASE REPORTS AND REVIEW OF THE LITERATURE

Janet W Lee (M.D.)
Janet W Lee, M.D. (1) Craig W Senders, M.D. (1)
1) Department of Otolaryngology, University of California Davis

Introduction: Desmoid fibromatosis (DF) is a rare, benign soft tissue neoplasm with high rate of local recurrence. When it presents in the head and neck in children, its infiltrative nature and ability to involve bone as well as neurovascular structures demands careful considerations of the reconstructive options. Gross total resection (GTR) is the gold standard of treatment, but there is little discussion in the literature about strategies of reconstruction after surgery for DF.

Methods: Two case reports and literature review

Results: Case 1: A two-year-old boy presented with a large right mandibular mass which proved to be DF. GTR required partial mandibulectomy with immediate rib graft reconstruction. Case 2: A 15-month-old boy presented with DF of the right mandible. GTR involved marginal mandibulectomy and sacrifice of the inferior alveolar nerve. Both patients have experienced postoperative numbness of the lower lip. Bite/sucking trauma resulted in secondary granuloma of the lower lip which resolved without intervention in both children.

Conclusion: Surgical management of desmoid fibromatosis in the head and neck in children can be challenging given the desire to balance the preservation of form and function with the need to minimize local recurrence by achieving complete resection. If >25% of the height of the mandible is preserved, marginal mandibulectomy without reconstruction provides a simpler surgical treatment but may still result in postoperative lower lip numbness. If segmental mandibulectomy is required, we recommend immediate reconstruction. We favor rib grafting over free flap given the proven ability of nonvascularized rib to survive in children.
UNIQUE HEAD AND NECK MANIFESTATION OF LANGERHANS CELL HISTIOCYTOSIS: A CASE REPORT AND LITERATURE REVIEW

Melissa E. Bender (M.D.)
Melissa E. Bender M.D. (1) Kavita Dedhia M.D.
1) Department of Otolaryngology, Emory University 2) Department of Otolaryngology, Emory University

Objective: To describe a rare presentation of Langerhans cell histiocytosis (LCH) in a pediatric patient

Study Design: Case Report

Methods: Case presentation including discussion of diagnosis, clinical course, imaging studies, management, and literature review

Case Description:

This is the case of a 2 year-old female who was found to have respiratory distress, retropharyngeal thickening, and an anterior midline neck mass. She was evaluated 5 months earlier with similar symptoms and discharged after improvement on medical therapy.

Conclusion:

This illustrates the uncommon occurrence of LCH in the pediatric population. It remains difficult to diagnose due to the inherent diversity of its presentation. This case highlights the importance to have a high index of suspicion of LCH as part of the differential diagnosis. In these patients, it is important to obtain a pathological diagnosis quickly, and in the least invasive manner, given LCH is a non-surgical disease.
MANAGEMENT OF TONGUE LESIONS IN CONGENITAL HEMIFACIAL HYPERTROPHY

Steven Kennedy Dennis

Steven Kennedy Dennis (1) Jaecel Shah, M.D. Soham Roy, M.D.

1) Department of Otorhinolaryngology, UTHSC McGovern Medical School

Objectives: Congenital hemifacial hypertrophy (CHFH), a subset of congenital hemihypertrophy, is a rare developmental anomaly characterized by asymmetric hyperplastic changes of hard and soft tissue of the face. These changes are hypothesized to be malformations during development of the neural tube or first branchial arch. Changes are typically bounded superiorly by the frontal bone, inferiorly by the mandible, and laterally by the ear while traditionally sparing the eye. We present a unique case of CHFH with ipsilateral anterior and lateral tongue lesions.

Methods: Case report.

Results: A 9 year-old female with CHFH presented with numerous papillate lesions on the anterior tongue and a larger lateral tongue lesion. She was taken to the operating room for biopsy and removal of the lesions to improve discomfort, irritation during mastication and social angst. Biopsies were taken from both areas, then radiofrequency ablation (Coblation) was utilized to remove the multiple exophytic tongue lesions. Pathology of the anterior tongue lesions showed mild hyperkeratosis and parakeratosis. Pathology of the lateral tongue lesion was consistent with a traumatic neuroma.

Conclusions: Treatment options for CHFH remain limited and primarily include surgical procedures aimed at aesthetic and functional improvements. Biopsies were benign, consistent with previous literature with no prior reports of malignancy specific to these patients. In treatment of the hypertrophic fungiform papillae and tongue tissue in CHFH, radiofrequency ablation proves a viable approach.
Mucopolysaccharidosis IV (MPS IV; Morquio Syndrome) is a rare genetic disorder that causes skeletal deformity. Alongside the other symptoms, hearing loss is a common problem in patients with Morquio. However, hearing issues are frequently overlooked in these patients despite their detrimental influence on speech and language development and quality of life. As such, and because Morquio is such a rare disorder, the hearing function at a neurophysiological level has not been well-documented in these patients. The aim of this study was to examine the hearing function of fourteen patients with Morquio Syndrome (9 females and 5 males), ranging in ages from 12 to 38 years old. We recorded and analyzed the auditory brainstem responses (ABR), distortion product otoacoustic emissions (DPOAEs) and pure tone thresholds. The hearing status varied from normal to severe according to the pure tone audiometry. The type of hearing loss was not consistent either, with some patients presenting with conductive hearing loss, sensorineural hearing loss, or a combination of both. Over half of the patients tested in this study had abnormal DPOAEs in both ears. The results also indicated that some of these patients had abnormal DPOAEs, ABR, or both despite normal pure tone thresholds. The spectrum of hearing disorders in patients with Morquio should prompt for annual neurophysiological hearing testing regardless of their audiometric results.
LUC’S ABSCESS: THE SPECTRUM OF DISEASE INCLUDING THE FIRST REPORTED CASE WITH ASSOCIATED INTRACRANIAL ABSCESS

Mohit Sodhi

Mohit Sodhi, BSc (1) Ardalan Akbari, BSc (1) Joshua Gurberg, BSc, MDCM (1) Jeffrey P. Ludemann, MDCM, FRCSC (1)

1) Division of Otolaryngology â€“ Head & Neck Surgery, BC Children's Hospital, University of British Columbia, BC Children's Hospital

Introduction: Luc’s Abscess is defined as an extracranial subperiosteal temporal abscess, arising from acute otitis media (AOM). In 1900, Dr. Henri Luc first described this disease as being “particularly benign.” We present 2 cases, including one in which the patient had significantly greater morbidity than previously reported.

Materials/Methods: Retrospective case review.

Results:

Case 1: A 4 year-old male presented with 2 weeks of left-sided otalgia followed by fever, left temporal skin swelling, otorrhea, and papilledema. Computerized tomography (CT) scan revealed a 3.5 x 1.2 x 2.3 cm Luc’s abscess and 4.6 x 2.7 x 2.5 cm temporal lobe abscess with lateral sinus thrombosis and resultant intracranial hypertension. Both abscesses were drained and the patient was treated with intravenous (IV) antibiotics and anti-coagulation. Streptococcus pyogenes was diagnosed on molecular testing. The patient fully recovered after 6 weeks of medical therapy.

Case 2: A 7 year-old female had a more classic form of Luc’s abscess, which was successfully treated as an outpatient, with oral antibiotics. Her relatively more benign clinical course was likely related to her timely diagnosis and treatment.
Discussion: These cases illustrate the spectrum of Luc’s abscess, which has the potential to be life-threatening. Luc’s abscess has previously been reported with associated lateral sinus thrombosis; but to our knowledge, this is the first documented case of Luc’s abscess plus intracranial abscess in English-language literature.

Conclusion: Although Luc’s Abscess usually follows a relatively benign clinical course, early diagnosis and treatment remain essential in order to prevent life-threatening disease progression.
ADENOTONSILLECTOMY WITH PALATAL PLICATION

P. Ryan Camilon (M.D.)

P. Ryan Camilon M.D. (1) Kenneth M. Grundfast, M.D. Jessica R. Levi, M.D.

1) Dept. of Otolaryngology, Boston University

Purpose: Adenotonsillectomy (AT) for obstructive sleep apnea (OSA) in children has a cure rate of 54-66%. Therefore, procedures in addition to AT may be needed for children who have persistent OSA after AT. The palatal plication procedure can be done concurrently with adenotonsillectomy in those children with factors predictive of persistent OSA after AT, such as a severely elevated apnea-hypopnea index and/or a narrow oropharynx.

Methods: A literature review of the Pubmed database was performed using the keywords tonsillar pillar plication, tonsillar pillar suturing, and tonsillar pillar closure resulting in six manuscripts. Three met inclusion criteria. Additionally, we review several cases of patients who underwent pillar plication during AT.

Summary of results: Though adenotonsillectomy alleviates OSA in most children, there are some children who have persistent OSA after AT. Predictors of persistent OSA include a narrow oropharynx in addition to, or instead of, tonsillar hypertrophy. In these patients, sutures can be applied to the tonsillar pillars, approximating the anterior and posterior pillars together. This effectively pulls the palatal pillars laterally as well as anteriorly off the posterior pharyngeal wall, thus resulting in an average increase of 0.4 mm in each dimension.

Conclusions: Palatal plication is an additional procedure, that can be performed at the same time as adenotonsillectomy in select pediatric patients with OSA. It may be used as an adjunct technique in patients who are predicted to have a risk of persistent OSA after AT.
LARYNGOTRACHEAL RECONSTRUCTION WITH IMMEDIATE POSTOPERATIVE EXTUBATION: CASE REPORT AND COMMENT ON LITERATURE

Cameron Sheehan

Cameron Sheehan (1) Jonathan Grischkan (2,3)

1) The Ohio State University College of Medicine, Columbus, OH, USA 2) Department of Pediatric Otolaryngology, Nationwide Children’s Hospital, Columbus, OH, USA 3) Department of Otolaryngology, The Ohio State University Wexner Medical Center, Columbus, OH, USA

Purpose: To review the role of immediate postoperative extubation after laryngotracheal reconstruction to prevent iatrogenic complications of prolonged intubation.

Methods: The study design is a case report with review of existing literature on pediatric patients undergoing laryngotracheal reconstruction. The case in this study presented to a tertiary pediatric hospital with a diagnosis of subglottic stenosis treated with surgical reconstruction and extubation in the operating room.

Results: Postoperative intubation after laryngotracheal reconstruction is intended to provide support to the healing graft, however is not without complications. Long term intubation requires sedation to avoid irritation, trauma, and unintentional extubation. Extended sedation with a foreign body in the airway also puts the patient at risk for pulmonary atelectasis, pneumonia, medication withdrawal, and prolonged neuromuscular weakness. Although the lack of postoperative stenting has its own potential complications, our study shows that can be done safely in select cases.

Conclusion: Laryngotracheal reconstruction is the gold-standard treatment for subglottic stenosis. Although the details of the surgical technique are quite consistent from surgeon to surgeon, the postoperative management can be variable. The length of intubation postoperatively is controversial being anywhere between 2-14 days. The literature reviewed and the case presented in this study suggests that this surgical technique without stenting is successful and prevents complications that come with sedation and extended intubation.
MYCOBACTERIUM AVIUM INFECTION PRESENTING AS ENDOBRONCHIAL LESION IN A CHILD

Sweeti Shah

Sweeti Shah (1) Nina Lu, M.D. (1,2) Hugo Escobar, M.D. (1) Dough Swanson, M.D. (1) Pamela Nicklaus, M.D. (1)

1) Children’s Mercy Hospital, UMKC 2) Kansas University

Atypical mycobacterium infections present most commonly as cervical lymphadenitis in immunocompetent children. The most common organism is Mycobacterium avium complex (MAC). There are rare case reports of mediastinal MAC in children and even more rare reports of children with isolated endobronchial lesions. The most common symptom of these patients is a recurring respiratory complaint. These complaints usually consist of wheezing, coughing, or recurrent airway infections that often mimic symptoms of foreign body aspiration. We present a 3 year old immunocompetent male with a chronic cough that failed outpatient therapy. A bronchial lesion occluding the left mainstem bronchus was noted during flexible bronchoscopy. A CT chest with contrast revealed only an isolated endobronchial lesion in the left mainstem bronchus. Biopsy and CO2 laser reduction of the mass was performed. Biopsy results showed granulomas without necrosis but ultimately revealed MAC infection with polymerase chain reaction (PCR) and cultures. The patient was treated with triple antibiotic therapy of azithromycin, ethambutol and rifampin for six months. There are currently no treatment guidelines for this rare presentation and patient population. We demonstrate a successful combination of laser excision and triple therapy for a young healthy child with an isolated endobronchial MAC lesion.
Aplasia of the major salivary glands is a rare disease with a limited number of cases reported in the literature. Bilateral aplasia of the submandibular glands is an even more rare occurrence. We document the case of a 16 year old patient with incidental bilateral submandibular gland aplasia discovered during the work-up and treatment of a parotid gland malignancy. Bilateral submandibular gland aplasia cases can be easily overlooked on imaging due to its symmetric nature. Subspecialty Radiology consultation can be helpful in this regard. Surgeons should keep this condition in mind when encountering unusual anatomy within the submandibular triangle.
SYTHETIC MARIJUANA USE CAUSING CANNABINOID HYPEREMESIS SYNDROME AND BOERHAAVE SYNDROME: A CASE REPORT

Jo-Lawrence Martinez Bigcas (M.D.)

Jo-Lawrence Martinez Bigcas M.D. (1) Steven Dennis, M.S. Farrukh Virani, M.S. Jeffrey Johnson, M.D. Ibrahim Alava, M.D.

1) University of Texas McGovern Medical School

Objective: Cannibanoid hyperemesis syndrome (CHS) was first described in 2004 as cannabis abuse, cyclic nausea and vomiting, and resolution with cessation of cannabis. "Kush," a synthetic subset of marijuana, is poorly understood with a constant influx of new formulations hitting the market. We describe the case of a 17-year-old male with Boerhaave syndrome secondary to CHS from synthetic marijuana use.

Method: Case report and literature review

Results: A 17-year old previously healthy male presented with dehydration, nausea, and vomiting after smoking synthetic marijuana. The patient had 30 episodes of bloody and non-bloody emesis with subsequent dysphagia and chest pain. Computed tomography of the chest showed pneumomediastinum with air tracking to the supraglottic soft tissue. Pyriform sinus perforation was seen on barium esophagram. Laryngoscopy revealed no obvious injury. The patient was managed conservatively with antibiotics and NPO status. He was subsequently advanced to regular diet and had no further issues.

Conclusion: There are multiple case reports that have correlated CHS to synthetic marijuana use. Boerhaave syndrome is rare, especially in an adolescent male. Reliance on the “classic” presentation may be misleading. As there is a direct correlation between the time to treatment and potentially devastating morbidity associated with this syndrome, a high clinical suspicion and awareness of unusual clinical features is vital. We suspect a combination of factors was necessary to generate sufficient barotrauma within the esophagus as seen in this case.
CERVICAL ARTERIOVENOUS FISTULA IN AN INFANT: CASE REPORT WITH LITERATURE REVIEW

Aaron Domack

Aaron Domack (1) Patricia Burrows, M.D. (2) Robert Chun, M.D. (3)

1) Senior Medical Student, Medical College of Wisconsin 2) Department of Radiology, Medical College of Wisconsin 3) Department of Otolaryngology, Medical College of Wisconsin

Objectives:

1. Present a two-month-old with a congenital arteriovenous fistula (AVF) complicated by intracranial hemorrhage and managed with staged embolization and surgical excision.

2. Discuss literature review of similar cases of AVF.

Methods:

Case report with literature review.

Results:

A two-month-old presented with a fluctuating, cystic neck mass. Prior to imaging, the patient was admitted at five months with altered mental status, emesis, and hydrocephalus with a large intraventricular and intraparenchymal hemorrhage. MRI demonstrated a large cervical AVF fed by the thyrocervical trunk and right external carotid artery. The AVF drained into a large varix formation draining into the brachiocephalic and right internal jugular vein.

Following placement of a ventricular peritoneal shunt, AVF was embolized twice using multiple coils and embolic glue. This was complicated with right vocal cord paresis and pulmonary embolization of glue. Angiography on hospital day 20 demonstrated complete closure of the AVF.
At 11 months, the AVF was resected with demonstration of coil extruding from the AVF adjacent to the common carotid with inflammatory scarring of the vagus nerve. Vocal cord function returned 11 months post embolization.

Literature review confirmed this to be a unique case; however, other cases of carotid-jugular, cerebral, and paraspinal AVM described a similar treatment strategy.

Conclusion: Congenital cervical AVF may be associated with complications of intracranial bleeding. Early diagnosis is important in order to stabilize the AVF by embolization. Definitive excision is required to resect disease and remove extruding coils.
UNILATERAL VOCAL FOLD PARALYSIS AND SPINAL ACCESSORY NERVE PALSY IN A NEONATE: A CASE REPORT AND REVIEW OF THE LITERATURE

Elton M Lambert (M.D.)

Elton M. Lambert, M.D. (1,2) Meha Goyal, M.D. (2) Noemie Rouillard-Bazinet, M.D. (3)

1) Department of Otolaryngology, Texas Children's Hospital, Houston, TX, USA 2) Department of Otolaryngology, Baylor College of Medicine, Houston, TX, USA 3) Centre Hospitalier Universitaire Sainte-Justine, Montreal, Canada 4) Department of Pediatric Otolaryngology, Universite de Montreal, Montreal, Canada

Vocal fold paralysis occurs as a result of injury to the recurrent laryngeal nerve. Causes of vocal fold paralysis in a neonate include iatrogenic injury, neurologic disease, birth trauma and idiopathic vocal fold paralysis. Idiopathic vocal fold paralysis occurs in approximately one-third of all children with vocal fold paralysis. Most cases of vocal fold paralysis resolve with conservative management. There have been no previously described cases of idiopathic cranial nerve eleven palsy. This case report describes a case of idiopathic vocal fold paralysis and cranial nerve eleven palsy in a neonate and its management, with a review of the literature.
DELAYED PRESENTATION OF NASAL SEPTAL ABSCESS FOLLOWING INFECTIOUS MONONUCLEOSIS AND ACUTE BACTERIAL SINUSITIS: A CASE REPORT

Christian Ray Francom (M.D.)

Christian Ray Francom M.D. (1) Tyler Merrill B.S. Kris Jatana M.D. Tendy Chiang M.D.

1) Department of Otolaryngology - Head and Neck Surgery, The Ohio State University 2) Department of Pediatric Otolaryngology - Head and Neck Surgery, Nationwide Children's Hospital

Introduction: Infectious mononucleosis is rarely accompanied by otolaryngologic complications. Additionally, it is much less common for a nasal septal abscess to develop following sinusitis than it is following nasal trauma. We report a unique case where a pediatric patient developed acute bacterial sinusitis and a nasal septal abscess following an episode of infectious mononucleosis. This case is unique in that no other cases of infectious mononucleosis with development of bacterial sinusitis and nasal septal abscess could be found.

Case presentation: A 16-year-old otherwise healthy Caucasian female presented with infectious mononucleosis and subsequently developed acute bacterial sinusitis. She then developed persistent nasal pain, nasal obstruction, and a bulging nasal septum consistent with a nasal septal abscess. Emergent incision and drainage with evacuation of the abscess followed by systemic antibiotics and delayed rhinoplasty for cosmetic reconstruction were required in her management.

Conclusion: This case shows that even in the absence of trauma, nasal septal abscess must be considered in patients presenting with persistent nasal pain, obstruction and congestion. This case also lends evidence to the idea that infectious mononucleosis can leave a patient more susceptible to bacterial superinfection via inflammatory immune modulation as suggested in the literature.
CONGENITAL MANDIBULAR MASS: A CASE REPORT

Karin Hotchkiss (M.D.)

Karin Hotchkiss M.D. (1) Joshua Mitchell, MD (1) Darrion Williams, BA2 (2) Alex Dickerson, BS3 (2)

1) Tampa Children's ENT 2) University of Florida

Introduction: Congenital oral cavity masses are an uncommon finding. When present, they often interfere with feeding or breathing in the neonate. We present a case of a newborn with a midline mandibular gingival lesion and discuss differential diagnosis and management options for congenital gingival lesions.

Case report: A term newborn was found on initial examination to have a 1.5cm midline mandibular lesion at the alveolar ridge. Concerns persisted that the lesion was interfering with the child’s ability to latch with nursing. Initial suspicion was for a congenital epulis. The lesion was small and not affecting breathing but certainly affecting feeding/latch and decision was made for surgical intervention. Intraoperatively, the child was found to have unerupted neonatal teeth. The teeth were extracted/excised and gingiva sutured closed. The infant had immediate improvement in latch, feeding, and weight gain.

Methods: Review of the literature to assist in differential diagnosis and treatment recommendations for management of congenital oral lesions and neonatal teeth in the newborn patient.

Conclusion: Congenital alveolar lesions are uncommon with a reported incidence from 1:1,100 to 1:10,000 births. While both an epulis and natal teeth have a higher incidence in female patients, a congenital epulis tends to be more common on the maxilla while neonatal teeth are more commonly found on the mandible. Both are treated with surgical excision when feeding problems arise. This case is unique as the neonatal teeth were unerupted and the reactive gingiva led the appearance of another type of benign oral cavity lesion.
POSTOPERATIVE SIALADENITIS COMPLICATED BY BILATERAL TAPIA’S SYNDROME: A CASE REPORT AND REVIEW OF THE LITERATURE

Samuel D. Frasier (M.D.)

Samuel D. Frasier, M.D. (1) Christopher J. Hill, M.D. (1) Thomas Q. Gallagher, D.O. (1)

1) Department of Otolaryngology - Head and Neck Surgery, Naval Medical Center Portsmouth, Portsmouth, Virginia

Purpose:

To present a case of a young female patient who experienced two rare post-operative complications: “anesthesia mumps” leading to airway compromise, and bilateral Tapia’s syndrome. This is the first reported case where both of these complications occurred in the same patient simultaneously.

Methods:

A case report and literature review was performed for post-operative sialadenitis (anesthesia mumps) leading to airway compromise, as well as recurrent laryngeal and hypoglossal nerve paralysis (Tapia’s syndrome) following intubation.

Summary:

We report a case of a 13-year-old female who underwent a suboccipital craniotomy for a brainstem tumor resection. While recovering post-operatively, she developed acute submandibular gland swelling, massive lingual edema, and airway compromise and was emergently intubated. Following extubation she was identified to have bilateral hypoglossal and recurrent laryngeal nerve paralysis. We intend to review her management and discuss the morbidity associated with these complications as well as proposed pathophysiology and expected outcome. Additionally, we will discuss what little is known about these diseases in the literature and we hope to add to the knowledge of the readers about these rare conditions.
SCHWANNOMA ARISING FROM THE NASAL SEPTUM: A RARE CASE REPORT AND LITERATURE REVIEW

Ryan Gerritsen (M.D.)

Ryan Gerritsen M.D. (1) Diana Carao M.D. Udayan Shah M.D.

1) Thomas Jefferson University Hospital 2) Nemours/Alfred I. DuPont Hospital for Children 3) Nemours/Alfred I. DuPont Hospital for Children

Schwannomas are benign primary tumors of the Schwann cells of the nerve sheath, and are known to occur throughout the body. Here we present a unique case of a schwannoma arising from the nasal septum in a healthy 16-year-old male. The patient had approximately two months of left-sided nasal obstruction after sustaining a lacrosse injury to the nose. Imaging revealed a nonspecific soft tissue mass, which after nasal endoscopy and excision was revealed to be a schwannoma. We discuss our results, and review the characteristics of this case with the handful of other case reports regarding this unusual location.
LOBULAR CAPILLARY HEMANGIOMA OF THE TEMPORAL BONE IN CHILDREN: CLINICAL AND PATHOLOGICAL CHARACTERISTICS IN THREE CASES

Steven M Andreoli (M.D.)
Steven M Andreoli M.D. (1) Drew M Horlbeck M.D. (1) Siraj M El Jamal (2) Ali G Saad (2,3)
1) Division of Pediatric Otolaryngology, Nemours Children's Specialty Care, Jacksonville, FL 2) Department of Pathology, University of Mississippi Medical Center, Jackson, MS 3) Department of Pathology, Wolfson Children's Hospital, Jacksonville FL

Background: Lobular capillary hemangioma (LCH), otherwise known as pyogenic granuloma, is a benign vascular tumor of unknown origin. Typically involving the skin and oropharyngeal mucosa, LCH is characterized by friability with a propensity for hemorrhage. We report the clinical, radiological, histological and molecular characteristics of LCH involving the middle ear space in three children.

Materials and methods: Three patients (ages 9-14 years; 2 males and 1 female) presented with recurrent right otitis media, right facial paralysis and hearing loss, and left otalgia respectively. MRIs revealed a lobulated mass hyperintense on T1, T2 with avid enhancement involving the temporal bone. Hybrid arterial embolization and transmastoid resection was employed in one patient. Intraoperatively, the tumor eroded the tegmen, ossicles, and tympanic segment of the Fallopian canal from the first to second genu.

Results: In each case, light microscopy showed capillaries lined with plump endothelium and pericytes. A certain disarray of endothelial cells was noted without atypia. Endothelial cells were positive for CD31 and negative for Glut-1. The histomorphology and immunoprofile were consistent with LCH. Given that LCH of the middle ear was not previously reported, confirmatory molecular studies were performed on patients 2 and 3. In both cases, the tumor showed activating RAS mutations including NRAS confirming the diagnosis of LCH.

Conclusion: We describe in the first three cases of LCH of the middle ear in children. LCH should be considered in the differential diagnosis of pediatric tumors involving the middle ear.
**PIGMENTED EPITHELIOID MELANOCYTE IN A CHILD: CASE REPORT AND LITERATURE REVIEW OF A RARE AND CONTROVERSIAL DERMATOPATHOLOGY**

Ethan C Bassett (M.D.)

Ethan C. Bassett M.D. (1) Doha K. Aboul-Fotouh Tara L. Rosenberg Daniel C. Chelius

1) Texas Children's Hospital, Baylor College of Medicine 2) Baylor College of Medicine 3) Texas Children's Hospital, Baylor College of Medicine 4) Texas Children's Hospital, Baylor College of Medicine

**Introduction**

Pigmented epithelioid melanocytoma (PEM) was initially described in 2004 as a unique low grade variant of melanoma. Whether PEM represents a subtype of melanoma or a borderline melanocytic tumor is debated. It is noted that immunohistochemical features of PEM are very similar, if not indistinguishable, to those of animal type melanoma and atypical epithelioid blue nevus. It has an indolent course, but a rate of lymph node metastasis of up to 46% and has even been shown to be associated with distance metastases. No histologic or dermatoscopic criteria have been linked to nodal spread. The current accepted treatment algorithm of PEM includes wide local excision with sentinel lymph node biopsy.

**Methods**

Case report and literature review.

**Results**

We present a case of a ten year old male who presented with a seven millimeter hyperpigmented lesion on his nasal tip that had been steadily growing for eighteen months. He underwent wide local excision with the consideration that this was a benign blue nevus. When final pathology was PEM with positive margins, the patient underwent a wider excision and sentinel lymph node biopsy with delayed reconstruction. He will require prolonged surveillance.

**Conclusion**

Pigmented epithelioid melanocytoma is an infiltrative lesion with high nodal metastatic potential. Long term studies, and perhaps histologic advances, are needed to further guide appropriate treatment algorithms.
Langerhans Cell Histiocytosis is a predominantly pediatric neoplastic process with a variable phenotype ranging from a single osseous lesion to a multifocal, multisystem disease with a high mortality. 70% of patients have head and neck manifestations and for 1 in 4 patients the disease manifests a lesion in the temporal bone. Here, we present a case of a 6-year-old female who developed cholesteatomas bilaterally four years after successfully undergoing chemotherapy for multi-system Langerhans Cell Histiocytosis that involved the temporal bone. We compare our case to the only other known study detailing this complication and investigate Kid Inpatient Database and Nationwide Inpatient Sample from 2003-2013 to assess the frequency at which it occurs. We also use the databases to assess the frequency of head and neck manifestations of Langerhans Cell Histiocytosis in the United States and Review the latest literature on the topic.
Extramedullary hematopoiesis occurs in children with hemoglobinopathy and chronic anemia. The liver and spleen are often affected first, but other foci can develop in order to support erythrocyte demand. We report a case of nine year old with beta thalassemia and temporal bone extra medullary hematopoiesis causing ossicular fixation and bilateral conductive hearing loss. We review the current literature on the topic as well as management options. There is only one other case report in the literature describing this phenomenon in pediatric patients. Otolaryngologists should consider this etiology in patients with chronic anemia and conductive hearing loss.
RIGHT TRUE VOCAL CORD PARALYSIS ASSOCIATED WITH EXTRACORPOREAL MEMBRANE OXYGENATION

Farrukh R. Virani


1) University of Texas McGovern Medical School

Objective: To describe cases of right true vocal cord paralysis associated with extracorporeal membrane oxygenation (ECMO)

Method: Case series and literature review

Case Descriptions:

Case 1: A 1-day old girl, with a strong cry at birth, developed respiratory failure, sepsis, and was emergently placed on right-sided ECMO on day three of life. She was subsequently decannulated from ECMO and extubated by five weeks of age. Her cry was weak after extubation. She had no cardiac surgeries or other notable procedures in the interval. Flexible laryngoscopy showed an immobile right vocal cord fixed in a lateral position.

Case 2: A previously healthy 12-year old boy decompensated due to viral myocarditis. He was emergently placed on ECMO. Cannulation was performed on the right side. He was decannulated three weeks later and subsequently extubated. Post-extubation, his voice was breathy, and he suffered from severe oropharyngeal dysphagia. Flexible laryngoscopy demonstrated right vocal fold paralysis.

Conclusion: Extracorporeal membrane oxygenation (ECMO) requires surgical dissection into the carotid sheath. The vagus and recurrent laryngeal nerves can be damaged at the time of ECMO cannulation or decannulation. Although the overwhelming majority of true vocal cord paralysis after cardiac surgery is left-sided, ECMO is primarily performed on the right, which carries the risk of ipsilateral true vocal cord paralysis and the associated deficits in respiration, voice, and swallow.
SURGICAL MANAGEMENT OF A RARE BENIGN PEDIATRIC PALATE TUMOR AND REVIEW OF THE LITERATURE

Jonathan Grischkan (M.D.)

Jonathan Grischkan M.D. (1) Kristen Honsinger M.D. (1)

1) Dept. of Otolaryngology, Nationwide Childrens Hospital, Columbus, OH and The Ohio State University

Purpose: To describe a case of a rapidly growing palatal tumor, discuss management and review the existing literature for pediatric palatal reconstruction.

Methods: This case describes an 8-year old boy who presented with a 5-week history of palatal mass. It was asymptomatic and noticed incidentally by parents. He underwent biopsy at an outside practice, where pathologic analysis was consistent with a benign tumor (cellular pleomorphic adenoma). On the day of planned definitive resection, the tumor was noted to have significantly enlarged, so the procedure was cancelled and he was referred to our quaternary pediatric otolaryngology practice for definitive management.

He underwent CT and MRI and the case presented at tumor board for management of the lesion, with the consideration that this rapid growth may represent a malignancy that the original specimen did not represent the entire mass.

Results: The patient was taken for definitive excision of the lesion, with reconstructive options discussed with parents pre-operatively. Options including placement of a surgical obturator, myomucosal rotation flap or free flap were discussed. At the time of definitive surgical excision, there was a plane deep to the tumor which allowed for complete excision of the mass leaving intact soft palate musculature and nasal mucosa.

Conclusions: Management of palatal lesions can be quite complex, requiring pre-operative planning with regard to tumor excision, reconstruction of the defect and post-operative function in terms of speech and swallowing. Management of these lesions should be left to experienced surgeons with access to all manner of reconstructive options.
POST TRANSPLANT LYMPHOPROLIFERATIVE DISORDER PRESENTING AS PHARYNGEAL NECROSIS

Patrick Walz (M.D.)

Patrick Walz M.D. (1, 2) Charles Elmaraghy, MD (1, 2)

1) Department of Otolaryngology, The Wexner Medical Center at Ohio State University 2) Department of Pediatric Otolaryngology, Nationwide Children's Hospital

Purpose: The purpose of this presentation is to describe the head and neck manifestations of post-transplant lymphoproliferative disorder (PTLD) in order to increase clinical suspicion for this entity in all its forms in the post-transplant patient population.

Methods: Case report and review of literature.

Summary of Results: The presentations of PTLD in the head and neck frequently center around the oropharynx and can vary widely from lymphoid hyperplasia in Waldeyer's ring to extensive necrosis of these same tissues with extension of this necrotic process to adjacent tissues. In the 2 year old female presented here, poor oral intake triggered pharyngeal evaluation that demonstrated ulceration of the tonsil fossa. This ulceration rapidly progressed to necrosis of the tonsils that extended to involve the soft palate, raising concern for invasive fungal disease given her immune compromised status. Imaging revealed abnormalities extending into the posterior nasal cavity as well. In order to definitively identify the etiology, operative debridement and biopsies were performed serially which ultimately confirmed diagnosis of PTLD. Such a case exemplifies one of the many presentations of PTLD and highlights the importance of prompt identification and definitive pathologic diagnosis to ensure proper management in this complex patient population.
ENDOSCOPIC CAUTERIZATION FOR CLOSURE OF RECURRENT TRACHEOESOPHAGEAL FISTULA: CASE REPORT AND REVIEW OF LITERATURE

Stacie Gregory (M.D.)


1) Department of Otolaryngology, Medical College of Wisconsin 2) Department of Pediatrics Division of Gastroenterology, Medical College of Wisconsin 3) Department of Pediatrics Division of Pulmonary Medicine, Medical College of Wisconsin 4) Department of Anesthesia, Medical College of Wisconsin 5) Department of Surgery Division of Pediatric Surgery Medical College of Wisconsin

Objective: Recurrent tracheoesophageal fistula (TEF) can be a diagnostic and therapeutic challenge. Traditional treatment is thoracotomy, which carries significant morbidity and technical difficulty especially in the previously operated field. Recently, endoscopic approaches have been advocated as a primary approach prior to open repair. This case report describes the endoscopic technique used to address a recurrent TEF. The existing literature of reported endoscopic cauterization methods is reviewed.

Methods: An 8 month old with proximal esophageal atresia and distal TEF underwent endoscopic closure of a recurrent TEF. The fistula was approached endotracheally utilizing electrocautery (EC) and endoluminally using argon laser and placement of porcine graft into the tract. Current literature review presented with a synthesis of data on cases utilizing endoscopically applied EC and the combined results of this closure technique.

Results: Our patient has maintained successful closure after a single treatment confirmed on follow up endoscopy. Including this patient, there have been 30 patients with recurrent TEF closed utilizing endoscopic EC reported in the literature. The overall success rate is 87.1% with a mean of 1.85 procedures per successful closure. Comparing EC alone to EC combined with tissue glues or laser, success rates are 67% and 90% respectively.

Conclusion: Endoscopic repair of recurrent TEF has proven to be safe and effective in the literature as an alternative to a second thoracotomy/open surgical repair. EC combined is more effective than EC alone based on available data.
MANAGING DEHISCENT JUGULAR BULB IN A PATIENT REQUIRING MYRINGOTOMY AND TYPANOSTOMY TUBES: CASE REPORT AND LITERATURE REVIEW

Peter L Nguy

1) School of Medicine, Georgetown University 2) Department of Otolaryngology, Georgetown University 3) Department of Otolaryngology, Georgetown University

Purpose: To present the management of jugular bulb dehiscence and review the pertinent literature.

Background: Jugular bulb dehiscence is a rare variant of middle ear vascular anatomy, and is described with increased incidence in some genetic disorders. These anomalies may remain asymptomatic or may present as hearing loss or tinnitus. If not appropriately identified, serious consequences may result during middle ear surgery.

Subject and Methods: 4-year old male with a history of chronic otitis media presented for evaluation of hearing loss. Otoscopy in clinic revealed a blue mass in left posterior tympanum and retracted tympanic membrane. The patient ultimately underwent bilateral myringotomy and tympanostomy tube placement. A radial incision in the anterior-superior quadrant was made in the left ear to avoid the dehiscent jugular bulb.

Results: Surgery was completed without injury to dehiscent jugular bulb. Eighteen unique studies were identified describing this variant. Dehiscence was occasionally recognized through otoscopy as a blue retrotympanic mass, but was also confirmed on computed tomography. Prevention of bleeding included selection of incision location, preoperative embolization, or surgical reinforcement. Packing controlled most instances of hemorrhage.

Conclusions: It is important to identify jugular bulb dehiscence prior to surgical intervention to reduce the risk of iatrogenic bleeding; however, this is not always possible. Strategies exist to identify and manage this anomaly preventively and reactively in regards to hemorrhage.
THE CHANGE IN SALIVARY GLAND SIZE, SHAPE AND TEXTURE OVER THE COURSE OF THREE ONABOTULINUM TOXIN A TREATMENTS

Ashley Mosseri

Ashley Mosseri (1) Isabel Cardona (1) Christine Saint-Martin (2) Sam J. Daniel (1)  
1) Department of Otolaryngology, Montreal Children’s Hospital 2) Department of Nuclear Imaging, Montreal Children’s Hospital

Background. Onabotulinum toxin A (OBTXA) is a well-known treatment for patients with drooling. Its transient effects necessitate repeated injections every 3 to 6 months depending on the drooling severity. In a previous study, our group has demonstrated salivary gland atrophy after repeated OBTXA injections.

Objective. The objective of the current study was to determine when, if any, morphological changes occur in the salivary glands, over the course of 3 OBTXA injections.

Methods. The size, shape, and echotexture of the salivary glands of drooling patients who underwent three repeated OBTXA injections were rated in a blinded fashion using a predetermined scale. All patients were followed over a minimum of 12 months and underwent 3 pre-injection ultrasound evaluations of their submandibular glands.

Results: 8 Patients were included in the study (mean age 11.75(±4.10) years, 5 males). No post injection complications occurred. Change in submandibular gland shape, size and echotexture was observed but not significant (P values > 0.05). A relationship was observed between morphological changes in salivary glands and improvements in drooling functionality.

Conclusion: Onset of morphological changes was observed from the initiation of OBTXA treatment for drooling. Results from this study encourage further investigation as to when permanent morphological as well as the functional effects of OBTXA occur on the salivary glands in relation to the clinical outcomes of the treatment.
LINGUAL THYROGLOSSAL DUCT CYSTS: AN UNCOMMON ENTITY

Blaine D. Smith

Blaine D. Smith (1) Ryan Drake (1) Jaecel Shah (1) Soham Roy MD (1)
1) Department of Otorhinolaryngology - University of Texas at Houston

Objectives: The lingual thyroglossal duct cyst (LTGDC) is a rare variant of the most common congenital neck mass, the thyroglossal duct cyst. Newborns usually present with symptoms of upper airway obstruction, and infant death has been reported if left untreated. We present a unique case of LTGDC and a review of the current recommendations for treatment.

Methods: Case report and review of literature.

Results: A preterm seven-week-old male presented with persistent inspiratory stridor. Flexible laryngoscopy confirmed an infiltrative base of tongue mass causing prolapse of the epiglottis and laryngomalacia. MRI confirmed a cyst within the base of tongue and not bulging into the vallecula, consistent with LTGDC. Transoral laser excision of the cyst and epiglottopexy were performed using the CO2 laser, providing complete resolution of symptoms without recurrence.

Conclusions: Treatment options for LTGDC are primarily surgical and seek to relieve supraglottic obstruction and prevent cyst recurrence. Several different surgical approaches have been described in the literature, including cyst marsupialization, endoscopic transoral excision with electrocautery or cold knife dissection, and transoral laser excision. Although there is no consensus regarding surgical approach, multiple viable options have achieved acceptable rates of recurrence and symptom improvement. The appropriate surgical approach depends on needs of the patient and the experiences and preferences of the surgeon. Compelling video will be shown.
THE DIFFICULT DUCT: A NOVEL APPROACH FOR INTRAOPERATIVE DUCTAL LOCALIZATION DURING SIALOENDOSCOPY

Alexander Manteghi

Alexander Manteghi (1) Justin Wilson, MD (1) Matthew Brigger, MD (1)

1) Department of Pediatric Otolaryngology, Rady Children's Hospital, University of California-San Diego

The advent of salivary gland endoscopy has been a major advance in providing an accurate means to diagnose and treat salivary disorders in children. Advances in instrumentation have driven expansion of indications for sialendoscopy in children. However, locating the pediatric salivary duct while a child is under anesthesia may at times prove difficult due to patient anatomy as well as clinician experience factors particularly in the setting of a training hospital. In order to develop a standardized method to promote rapid duct identification and locate difficult to cannulate ducts, we describe an approach using common items found in an operating room in combination with anesthetic adjuncts. After induction with an anesthetic technique that promotes salivary secretion, the child is appropriately positioned. Using a valved air source (such as a jet ventilator) and appropriate tubing, pressurized air can be used to deliver compressed air to the oral cavity in a controlled fashion. The compressed air dries the surrounding mucosa and leads to a natural “plumping” of the papilla allowing rapid identification and cannulation thus promoting a smoother procedure.
THE ROLE OF MIDDLE MEATAL CULTURES IN THE TREATMENT OF PEDIATRIC SINUSITIS

Mary Wiesen

Mary Wiesen, MSN, RN, CPNP (1) David Beste, M.D. (1)

1) Department of Otolaryngology, Division of Pediatric Otolaryngology, Medical College of Wisconsin

Background: Research supports the use of middle meatal cultures when treating recurrent and chronic sinusitis. There is currently no established consensus among a group of Otolaryngology providers (11 physicians, 7 nurse practitioners) on the criteria and therapeutic use of middle meatal culture data. We sought to reach a group consensus.

Methods: One Otolaryngology practice was surveyed on their practice regrading middle meatal cultures. The same group was then presented data on the role of middle meatal cultures in recurrent and chronic sinusitis. A follow-up survey was obtained to determine whether a group consensus could be reached.

Conclusions: The goal of this poster aims to report the current evidence surrounding middle meatal cultures in pediatric sinusitis in order to guide oral antibiotic therapy.
NECROTIZING PULMONARY INFECTION FROM RETAINED FOREIGN BODY: CASE REPORT AND REVIEW OF THE LITERATURE
K. Pettijohn (M.D.)

Kelly Pettijohn M.D. (1) Sophie Shay, M.D. (1) Alisha West, M.D. (1)

1) Department of Head & Neck Surgery, University of California, Los Angeles

Purpose: To present the case of a necrotizing pulmonary infection from prolonged airway foreign body and review the literature regarding management of necrotizing pulmonary infections in pediatric patients.

Methods: We report the case of a 2-year-old boy with a necrotizing pulmonary infection from a foreign body in the left lower lobe. The foreign body had gone unrecognized for one year despite recurrent pneumonia. Pre-operative computed tomography demonstrated extensive left lower lobe consolidation with cystic change suggestive of necrotizing infection. He was treated with bronchoscopy and foreign body removal, rather than some of the more invasive approaches often recommended, such as lobectomy or pneumonectomy.

Results: A rubber screw was identified and removed from the left lower lateral segmental bronchus. He experienced a full recovery.

Conclusions: Airway foreign body is one of the more common and potentially life-threatening consultations received by pediatric otolaryngologists. Despite a low-threshold for operative evaluation, airway foreign bodies are frequently missed and can result in serious complications. Airway foreign bodies of prolonged duration/distal location are often managed with lung resection, given there is risk that the bronchial wall is eroded and removal will cause pneumothorax. Further advocating pulmonary resection, it is known that necrotic lung tissue in adults is unlikely to recover.

However, in pediatric patients, a more conservative approach to treatment of necrotizing infections in the setting of airway foreign body should be considered, given pediatric patients have a favorable prognosis and are likely to have complete recovery of pulmonary function, contrary to their adult counterparts.
Purpose: Acute rhinosinusitis (ARS) is one of the most common conditions treated by primary care providers with an estimated prevalence of 20 million cases of ARS occurring annually in the United States. Studies suggest that guidelines for the diagnosis and management of ARS have not been effectively translated into practice.

The purpose of this project was to assess pediatric PCP, pediatric otolaryngology and pediatric urgent care providers' perception of their adherence to the 2013 American Academy of Pediatrics established guidelines for the diagnosis and management of ARS in children.

Methods: A 21-item questionnaire was designed by the investigators. The survey was emailed to a total of 138 providers (94 PCP, 25 UC, and 19 ENT).

Results: Sixty-seven providers responded to this survey. Diagnosis: The following diagnostic criteria are utilized: persistent nasal congestion/cough lasting >10 days (95%), worsening of classic URI symptoms at days 5-7 (70%), severe onset and purulent nasal discharge for 3 consecutive days (45%). Use of nasal culture varies between groups. Management: Typically used antibiotics: amoxicillin (72%), Augmentin (98%), Cefdinir (73%), azithromycin (15%). Typical length of antibiotic therapy for all providers is 10 days (70%) and 14 days (17%); ENT (21%) will prescribe 7 days past any symptoms compared to PCP (6%) and urgent care (5%). Recommendations for adjuvant therapies also varied between groups.

Conclusions: This quality improvement project demonstrates that providers' diagnosis of ARS is consistent with the 2013 AAP guidelines while variation in clinical management exists. The survey demonstrates the need to educate all providers on the current 2013 AAP guidelines and define practice across all settings.
CASE REPORT: TRANSPLACENTAL - TRANSMITTED MATERNAL MELANOMA PRESENTED AS ACUTE MASTOIDITIS IN A 10-MONTH-OLD CHILD.

SOFIA STAMATAKI (M.D.)

SOFIA STAMATAKI M.D. (1) XENOFON KOCHILAS MD, PHD

1) DEPT OF OTOLARYNGOLOGY, Aglaia Kyriakou Children Hospital, Athens, Greece 2) DEPT OF OTOLARYNGOLOGY, LISTER HOSPITAL, STEVENAGE, ENGLAND

Introduction

Metastasis of maternal malignant tumour to the products of conception is a rare event. Melanoma is the most common maternal malignant tumour to metastasise to the placenta and the foetus.

Case Description

We describe a rare case of transplacental-transmitted maternal melanoma presented as acute mastoiditis in a 10-month old child. This patient was presented in our hospital with a left retroauricular oedema characteristic of acute mastoiditis. The child was initially treated with myringotomy and intravenous antibiotics. Due to recurrence of the retroauricular oedema, a CT with contrast was performed. An invasive lesion of the mastoid cavity was found, expanding towards the cranial bones and the underlying meningeal elements into the brain. The patient underwent mastoidectomy. During surgery multiple fragments of dark coloured tissue were sent for histological examination which showed a melanocytic tumour. From the family history, the mother was diagnosed with melanoma at the age of 25, for which she was treated with chemotherapy. During her pregnancy, she had recurrence of the disease with multiple metastases and died 3 months after the delivery. The child underwent no further treatment after the consultation of our oncology team. The child is now 21-months-old and she had close follow-up. There are no signs of recurrence or metastasis.

Conclusion

To our knowledge, this report is the first of a patient with melanoma metastasis transmitted through the placenta to the mastoid of a Foetus. The biological properties of these kind tumours are poorly understood and further research is warranted.
Acute lymphoblastic leukemia (ALL) is a malignancy of the bone marrow in which early proliferation of lymphoid precursors replace normal hematopoietic cells of the marrow. ALL is the most common type of cancer in children in the United States, accounting for 25% of all pediatric malignancies. There are medullary and extramedullary manifestations, but the initial presentation of ALL as an extramedullary sinonasal mass is exceedingly rare. We report the case of a 2-year-old boy who initially presented with left facial and gingival swelling with associated proptosis. Computed tomography of the sinuses revealed a 4.3 x 4.4 x 4.2 cm heterogeneous soft tissue mass centered in the maxillary sinus with bony destruction and invasion into the left orbit, nasal cavity, oral cavity, infratemporal fossa, and pterygopalatine fossa. An incisional biopsy via a sublabial approach demonstrated an atypical lymphocyte population initially suggestive of B-cell lymphoma. Subsequent bone marrow biopsies demonstrated diffuse disease with atypical lymphocyte involvement, consistent with the diagnosis of B-cell ALL. To the best of the author’s knowledge, this is the youngest case of a sinonasal extramedullary involvement in a patient with ALL, and it represents the 4th case reported overall.
THE ROLE OF SIALENDOSCOPY IN THE EVALUATION AND MANAGEMENT OF BILATERAL SUBMANDIBULAR SIALADENITIS IN A PREMATURE INFANT

Anna Bury
Anna C. Bury (1) Clark A. Elliott, M.D.

1) University of North Dakota School of Medicine and Health Sciences 2) Sanford Health Fargo, ND, Department of Otolaryngology

Objectives: To describe the unique presentation, diagnosis, and the role of sialendoscopy in the management of a premature infant with bilateral submandibular sialadenitis.

Methods: We present a single case of a premature male infant that developed fever and sepsis accompanied by bilateral erythema and induration in the upper chest, anterior neck, jaw and inferior face on day twelve of life. Thick purulent discharge was expressed from both Wharton’s ducts by palpating the submandibular glands. Ultrasound identified the presence of sialadenitis and surrounding cellulitis without evidence of a discrete abscess.

Results: Broad spectrum antibiotics were initiated. Because of the presence of sepsis, the patient was taken to the operating room for bilateral submandibular sialendoscopy, duct papillotomy, and duct irrigation. Thick purulent secretions were encountered throughout the entire ductal system on each side. No stenosis or other ductal anomalies were found. There was rapid decrudescence of sepsis, induration, and fever within 24 hours. No secondary salivary duct irrigation was required. Follow-up ultrasound revealed no evidence of dilated ducts or fluid collections. Subsequent follow-up evaluations revealed normal salivary duct flow with no evidence of residual salivary gland enlargement.

Conclusions: We describe a unique case of a premature infant with bilateral submandibular sialadenitis. Neonatal sialadenitis is a rare occurrence and is often associated with sepsis. Optimum results are achieved using multimodal therapy that includes broad spectrum antibiotics and enhancing salivary flow. Our case highlights the value of sialendoscopy in establishing salivary flow, improving salivary duct irrigation, and reducing the potential need for additional procedures.
Bone Conduction devices (BCD) have been helping many children with conductive hearing loss for over 25 years. Traditionally, many patients undergoing BCD implantation go through general anesthesia and a procedure that involves a skin incision /- soft tissue reduction, or a skin flap. Minimally invasive ponto surgery (MIPS™) was recently introduced in North America, with the first case performed at our institution. The objective of this paper is to describe the technique and report on outcome of a pilot.

The procedure starts with a punch-down to the skull using a 5 mm biopsy punch. A cannula is then inserted and guide drilling is performed through the cannula. A widening drill is then used to widen the hole, and the cannula is then removed. Implant installation is performed through the circular incision using a newly developed insertion indicator to count the number of turns the implant engages in the bone. This gives an assurance that the implant is fully inserted. Finally, a soft healing cap is attached to the abutment. Our first patient was a 15 years old female with single sided deafness. The procedure was performed under local anesthesia in less than 10 minutes. The patient found the procedure painless, did not suffer any complications and is currently an active BCD user. The implant stability measure is similar to standard techniques.

MIPS is a novel minimally-invasive rapid technique that can be performed safely under local anesthesia in children older than 14 years of age. Long-term follow-up data is still required.
GLITTERING LIGHTS: A NEW CAUSE OF FOREIGN BODY ASPIRATION IN CHILDREN

Sophie Shay (M.D.)

Sophie Shay, M.D. (1) Kelly J. Pettijohn, M.D. (1) Alisha N. West, M.D. (1)

1) Department of Head and Neck Surgery, University of California Los Angeles

Purpose: To present LED lights an unusual source of foreign body aspiration in children and review the current literature regarding this potential airway hazard.

Methods: We describe the case of a 2-year-old male who presented with 10 days of coughing and concern for foreign body aspiration. Computed tomography and plain films of the chest demonstrated a metallic object within the lower lobe bronchus. The patient was taken to the operating room for rigid bronchoscopy and foreign body removal.

Results: An LED light bulb was removed from the patient’s left lower bronchus.

Conclusions: Tracheobronchial foreign body aspiration is a well-investigated pediatric emergency associated with potentially severe morbidity and mortality. LED light bulbs are an uncommon source of foreign body aspiration that has very limited documentation in the current literature. It is paramount for both parents and physicians to recognize the potential life-threatening risks of LED light bulbs.
DOES PREMATURE DEBULKING OF A PLEXIFORM NEUROFIBROMA INCITE CONVERSION TO MALIGNANT PERIPHERAL NERVE SHEATH TUMOR?

Sophie Shay (M.D.)

Sophie Shay M.D. (1) Kelly J. Pettijohn, M.D. (1) Alisha N. West, M.D. (1)

1) Department of Head and Neck Surgery, University of California Los Angeles

Background: Neurofibromatosis type-1 (NF1) is associated with a 5-10% lifetime risk of malignant peripheral nerve sheath tumor (MPNST) according to recent estimates. NF-1 associated MPNST often arise from locations deeper than known cutaneous neurofibromas.

Methods: We describe the case of a 12-year-old female with a history of NF1 and a left neck and mediastinal plexiform neurofibroma that was surgically debulked at the age of 4 years. The patient returned 8 years after initial surgical debulking with a rapidly progressive, massive malignant peripheral nerve sheath tumor located within the previous neurofibroma. The patient was taken to the operating room for radical neck dissection and tumor resection.

Results: Surgical pathology revealed a high grade MPNST, 12.6cm in largest dimension.

Conclusions: Apart from radiation-induced MPNST, the risk factors for malignant transformation of plexiform neurofibromas remain generally unknown. We suggest that premature surgical tumor debulking of a plexiform neurofibroma may have incited and accelerated malignant transformation in our patient. Knowledge of surgical debulking as a potential risk for malignant transformation is critical, particularly given the poor prognosis facing patients with NF1 associated MPNST.