



# 67<sup>th</sup> Annual Meeting Banff, AB

*"A Voice for Everyone"*

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# **PEDIATRIC OTOLARYNGOLOGY**

**P1. Unusual Foreign Bodies - Grill Brush Wire Bristles** – B. Wu, J. Chau, A. Cheung, J. Jones, Winnipeg, MB

## **LEARNING OBJECTIVES**

1) Review foreign body ingestion and the implications of retained foreign bodies in the upper aerodigestive tract. 2) Become familiar with an increasingly common possible foreign body - wire BBQ grill brush bristles. 3) Appreciate that endoscopic and plain x-ray findings may appear normal in these cases. 4) Have a high index of suspicion for possible penetration of wire foreign bodies into upper aerodigestive tract structures.

## **ABSTRACT**

**Objectives:** To review and discuss the topic of foreign body ingestion with retention of the object in the upper aerodigestive tract. Specific focus will be made on metallic barbecue grill brush foreign body ingestions. **Methods:** Case series presentation and comprehensive review of the literature. **Results:** Two adult cases and one pediatric case of accidental ingestion of a wire bristle from a grill cleaning brush were identified, prospectively followed and their charts reviewed. All three cases presented with a history of consuming grilled food products. Both adult cases had benign fiberoptic endoscopic examinations. Two of the cases had negative plain X-ray findings. One case had penetration of the wire bristle into the base of tongue. All cases required operative removal of the foreign body under general anesthesia. **Conclusions:** Presumed increase of wire foreign body ingestion from grill brushes raises safety concerns. Endoscopy and plain X-rays may appear normal requiring CT imaging. Management of this particular foreign body ingestion requires detailed food consumption history, possible CT imaging, endoscopy and operative extraction.

**P2. Pharyngeal Burkitt's Lymphoma in a Pediatric Population: Case Series and Literature Review** – S. Bouhabel, L. Nguyen, Montreal, QC

## **LEARNING OBJECTIVES**

At the end of this session, the audience will be able to: Recognize the multiple possible clinical presentations of Burkitt's lymphoma. - Understand the importance of prompt intervention in the context of Burkitt's lymphoma. - Apply the conclusion of the poster to their practice and have an increased degree of clinical suspicion to detect this pathology.

## **ABSTRACT**

**Objective:** Burkitt's lymphoma is an aggressive type of Non-Hodgkin's lymphoma. The objective of this case series is to describe five very interesting presentations of pharyngeal Burkitt's lymphoma arising in a pediatric population. **Methods:** Retrospective review of the medical records of the 5 patients was conducted. Initial complaints, imaging results, pathologic examinations and adopted treatment strategies were gathered and analyzed. **Results:** We encountered multiple presentations of the same disease in our institution. This diversity in clinical presentations is mostly related to the anatomic location of the tumor. Patients initially presented for common otolaryngologic complaints, such as otalgia, cough and nasal congestion. We however report a case of facial palsy and a case of acute visual loss. **Conclusion:** In summary, Burkitt's lymphoma is a very aggressive form of NHL. It can rarely arise in the head and neck region, and when it does, it mimics multiple other affections such as otitis media or sinusitis. Considering the nature of the disease, a high degree of clinical suspicion from health care providers is warranted to detect this pathology in its polymorphism.

**P3. An Unusual Case of Stridor: Airway Obstruction from a Nasogastric Tube Knot in a 1-Month Old Infant** – B. Chang, J. Lea, V.W.F. Cheung, Vancouver, BC

## **LEARNING OBJECTIVES**

- To describe a unique complication of nasogastric tube placement in the pediatric population.

## **ABSTRACT**

**Objective:** To describe a unique instance of an extensively knotted nasogastric tube in a 1-month old infant. **Methods:** Attempted removal of a routinely placed nasogastric tube in a 1-month old infant was unsuccessful, prompting further investigation. Plain radiographs revealed a large, multi-looped knot impacted in the naso-

pharynx and oropharynx. The infant subsequently developed stridor and was brought to the operating room for removal. Results: The tube was subsequently removed through the mouth under general anesthesia without complication, revealing a large, impressive knot of the distal end of the nasogastric tube. Conclusion: Knot formation is a rare but potentially dangerous complication of nasogastric tube placement, especially in the pediatric population.

#### **P4. Suspected Paradoxical Vocal Cord Movement as a Presenting Sign of Temporal Lobe Seizures in Two Male Pediatric Patients** – A. Cheung, J. Jones, B. Wu, Winnipeg, MB

##### **LEARNING OBJECTIVES**

1) Readers will be able to describe two atypical presentations of paradoxical vocal cord movement. 2) Readers will be able to provide a differential diagnosis for presentations of recurrent apneic episodes in young children, including central nervous system etiologies. 3) Readers will be familiar with current literature describing central nervous system presentations of apneic episodes.

##### **ABSTRACT**

Objectives: To discuss the cases of two atypical presentations of paradoxical vocal cord movement due to central nervous system etiologies in pediatric patients and to review current literature. Methods: Chart review of two cases. Results: Both patients presented to the emergency department with recent onset of apneic episodes, occasionally associated with stridor. Neurological and otolaryngological exams were normal. In the absence of other findings, they were initially diagnosed with paradoxical vocal cord movement and prescribed empiric anti-reflux medications. One patient developed staring spells and the other facial twitching superimposed on the apneic episodes. Electroencephalography demonstrated epileptiform abnormalities in left temporal regions. One patient was diagnosed with benign epilepsy of childhood. The other patient was found to have a mass in the temporal lobe diagnosed on biopsy as a ganglioglioma. The first patient was prescribed lorazepam as needed for seizures. At 5 month follow up the patient was seizure free without the use of medications. The patient with the ganglioglioma was followed by hematology, oncology and neurosurgery as an outpatient. Discussion: These cases demonstrate the importance of considering central nervous system etiologies in atypical presentations of paradoxical vocal cord movement in pediatric patients.

#### **P5. Pediatric Localized Primary Laryngeal Amyloidosis: Case Report and Review of the Literature** - C. Garnis, S. MacLellan, J. Lawson, C. Poh, Vancouver, BC

##### **LEARNING OBJECTIVES**

1) Understand the clinical presentation of pediatric laryngeal amyloidosis. 2) Understand the pathologic characteristics of laryngeal amyloidosis. 3) Understand the usage of CO2 laser excision of laryngeal amyloidosis and post-operative follow up.

##### **ABSTRACT**

Localized primary laryngeal amyloidosis is extremely rare in the pediatric population. Since 1934 there have only been 8 cases reported- each treated with various treatment modalities. We report the case of an otherwise healthy 10 year old boy who presented with hoarseness. Diagnostic evaluation included flexible nasopharyngoscopy, direct laryngoscopy, bronchoscopy and biopsy and CT. The results of the Congo red staining of the biopsy specimen were characteristic of amyloid. The work-up for systemic amyloid was negative. We discuss the operative treatment with CO2 laser and postoperative course of this patient as well as the clinical and pathologic characteristics of laryngeal amyloidosis.

#### **P6. Penetrating Firearm Injury to the Parapharyngeal Space Caused by an Air-powered BB Gun in a Pediatric Patient** – A. Isaac, H. El-Hakim, Z. Al-Qudehy, Edmonton, AB

##### **LEARNING OBJECTIVES**

1. Describe the epidemiology of non-powder firearm injuries in the pediatric population. 2. Recognize the potential morbidity and mortality of non-powder firearm injuries in the head and neck, particularly in pediatric patients. 3. Discuss the various management options, including surgical and non-surgical, of penetrating neck trauma in pediatrics.

**ABSTRACT**

Non-powder firearm related trauma to the head and neck has the potential for significant morbidity and mortality. This is especially so in children, whose injuries tend to be particularly under-reported and trivialized. We present a case of penetrating trauma in a three-year-old boy caused by a BB gun pellet fired in close range to the face, entering the right side of the head and landing within 3mm of the carotid bifurcation, fortunately, without major neurovascular injury. Due to potential morbidity related to surgical exploration of the parapharyngeal space, a non-surgical approach was observed. The patient suffered no functional deficit from the injury. This case demonstrates the merits of the non-surgical approach to head and neck trauma. The literature pertaining to the epidemiology of this injury is reviewed, including the advantages and disadvantages of surgical and non-surgical management.

**P7. Sand Aspiration Treated with use of Extracorporeal Membrane Oxygenation in a Child: A Case Report and Review of the Literature** – A. Isaac, A. Kawaguchi, D. Garros, H. El-Hakim, Edmonton, AB

**LEARNING OBJECTIVES**

1. Appreciate the potential morbidity and mortality involved with aspiration of particulate matter. 2. Describe the epidemiology of sand aspiration in the pediatric population. 3. Identify key diagnostic features that are characteristic of sand aspiration. 4. List and compare various treatment modalities for aspiration of particulate matter in pediatric patients. 5. Discuss the role of extra-corporeal membrane oxygenation in the treatment of sand aspiration.

**ABSTRACT**

Objective: To describe a case of sand aspiration in a child where extracorporeal membrane oxygenation was used in addition to bronchoscopic removal of foreign material. Background: Sand aspiration is rare in children. It is a potentially lethal injury, with outcomes ranging from full recovery to global cerebral asphyxia. Methods: An English literature search was conducted. The mechanisms of injury and treatment methods were sought. Our case was compared to previous documentation of sand aspiration. Results: There have been only ten reports of pediatric sand aspiration in the literature. The majority has involved bronchoscopy with lavage. We present a case of sand aspiration in a ten-year-old boy caused by an accidental burial, including successful treatment with bronchoscopy and extra-corporeal membrane oxygenation (ECMO). Conclusions: Prompt bronchoscopy and removal of foreign material is a common denominator for successful management in severe cases of sand aspiration. ECMO is an effective and potentially life-saving measure in cases requiring high ventilatory pressures and the need for support allowing repeated bronchoscopies.

**P8. Sand Aspiration Following Accidental Burial: Case Report and Literature Review** – K. Smith, A. Hui, Calgary, AB

**LEARNING OBJECTIVES**

By the end of this session, the learner/participant will be: 1. Able to describe the common causes of sand aspiration. 2. Able to describe the various presentations of sand aspiration .3. Aware of the possible treatment options for sand aspiration. 4. Aware of the possible complications of sand aspiration.

**ABSTRACT**

Background: Sand aspiration is a rare, potentially life threatening event. Accidental burial and near drowning are the most common causes of sand aspiration. The presentation and management is highly varied. Long term outcomes are generally quite good, although mortality is not uncommon. Objectives: To present the unusual case of an 11 year old male who was accidentally buried alive, resulting in sand aspiration and acute respiratory failure requiring extracorporeal membrane oxygenation (ECMO). Methods: Case report and literature review. Results: This 11 year old male was tunneling in sand when it collapsed, burying him alive for approximately 5-10 minutes. Achieving adequate ventilation remained difficult, despite intubation. A nasopharyngoscopy revealed sand obstructing the endotracheal tube and the carina. He was placed on ECMO and a bronchoscopy with deep suction was performed, which expressed approximately 100cc of sand. He remained on ECMO for 3 days, intubated for 7 days and was discharged 12 days after the incident. He has since recovered with no complications. Conclusions: Sand aspiration presents a unique problem. The management of these cases is highly variable. Bronchoscopy and lavage are the most common therapeutic measures. ECMO may be useful, especially in cases of severe obstruction and respiratory failure.

**P9. Concurrent Thyroglossal Duct Cyst and Dermoid Cyst in Two Pediatric Patients – R.J. Lin, N. Chadha, P. Moxham, Vancouver, BC**

**LEARNING OBJECTIVES**

1. To present two case reports of truly concurrent presentation of a thyroglossal duct cyst and a dermoid cyst; 2. To review the embryologic and histopathologic differences between a thyroglossal duct cyst and a dermoid cyst; 3. To compare these two case reports to the so-called "mixed thyroglossal-dermoid cysts" in the literature; 4. To make a clinical recommendation to avoid missed diagnosis of a concurrent neck mass.

**ABSTRACT**

Background: Thyroglossal duct cysts and dermoid cysts do not share a common embryologic origin. Truly concurrent presentation of a thyroglossal duct cyst and a dermoid cyst has not been reported. Case description: Case 1 was an 11-year old boy with submandibular swelling. Investigations including CT and MRI revealed a cystic structure in the submandibular space and a separate cyst in continuity with the hyoid bone. Surgical excision of these two cysts was performed. Histopathology was consistent with a thyroglossal duct cyst and a dermoid cyst. Case 2 was a 17-day old neonate who had a mass in his floor of mouth at birth. This was excised and histopathology showed a dermoid cyst. The infant returned 18 months later with a submental mass, which was excised. Final histopathology revealed a thyroglossal duct cyst. Conclusion: "Mixed" thyroglossal-dermoid cysts have been reported in the literature but these are different from cases described in this report. This is the first case series reporting the true concurrent presentation of a thyroglossal duct cyst and a dermoid cyst. We recommend that the entire neck should be imaged if the patient is to undergo diagnostic imaging to rule out the presence of a second neck mass.

**P10. Mature Teratoma in the Parapharyngeal Space in a Newborn - A Case Report – M. Piché, P. Savard, Québec, QC**

**LEARNING OBJECTIVES**

To draw attention to this rare case of parapharyngeal teratoma in a newborn; To expose the clinical, radiologic and pathologic characteristics of teratomas and outline the differential diagnosis of a soft-tissue mass of the head and neck in infants; To describe the pre-operative management and the surgical approach of a massive tumor of the parapharyngeal space in a newborn.

**ABSTRACT**

OBJECTIVE: The purpose of this report is to convey our experience of a parapharyngeal teratoma in a newborn; a very uncommon condition. We outline what we believe is appropriate management for difficult, deep-seated and invasive cervical tumors in infants. METHOD: We present a case report of a newborn with a massive and invasive tumor of the left parapharyngeal space. The patient presented with acute respiratory distress, which required endotracheal intubation. The antenatal screening did not allow posing the diagnosis. Subsequent investigations, by computed tomography, magnetic resonance and physical examination under general anesthesia, were strongly suggestive of teratoma. RESULT: A postponed surgery allowed the complete resection of the tumor with a transcervical approach. A mandibulotomy wasn't necessary. All vital structures including the facial nerve and carotid artery were preserved. The post-operative course was uneventful. CONCLUSION: To our knowledge, this is the third case of parapharyngeal teratoma in a newborn published in the English literature to date. Even if they are rare and invasive, particularly in the cervical area, teratomas can be completely removed with low morbidity. They should be considered in the differential diagnosis of a soft-tissue mass of the head and neck in a newborn.

**P11. Synchronous Airway Lesions in Children: What are the common associations? – D. Ho-Wo Cheong, L. Nguyen, T. Mijovic, J. Manoukian, M. Bergeron, Montreal, QC**

**LEARNING OBJECTIVES**

1) To understand that synchronous airway lesions are not uncommon in the pediatric population. 2) To identify the most commonly associated anatomical sites of airway lesions and their associated pathologies.

**ABSTRACT**

Objectives: To determine the prevalence of synchronous airway lesions (SALs) in the pediatric population and to analyze the associations between the various anatomical airway sites involved. Methods: Retrospective case

series and chart review of patients who were found to have more than one airway lesion after undergoing airway evaluation via rigid endoscopy at a tertiary care pediatric hospital between 2001 and 2011. Patients' demographics and the number and types of airway lesions was collected and correlated. Results: Out of 592 bronchoscopies performed, there were 73 cases with SALs (12.3%) with a slight male predominance (43 males vs 30 females). 40% of cases had 2 SALs, 45% had 3 lesions and 15% had more than 3 lesions. The trachea, subglottis and supraglottis were the most frequent anatomical sites involved with rates of 79%, 67%, 52%, respectively. The top 3 pathologies are: subglottic stenosis (41 cases), tracheomalacia (27 cases) and laryngeal cleft (20 cases). The most common combinations of airway sites are tracheal-subglottic (31 cases) followed by tracheal-supraglottic (27 cases), tracheal-bronchial (22 cases) and glottic-subglottic (21 cases). Conclusions: The finding of SALs on rigid bronchoscopy is not uncommon. The trachea and subglottis are the most frequent anatomical locations and lesion association.

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## **HEAD AND NECK SURGERY**

**H1. Effects of Geography on Survival of Patients with Oral Cavity Squamous Cell Carcinoma** – H. Zhang, H. Seikaly, T.T. Nguyen, C. Jeffrey, P. Dziegielewski, D. O'Connell, J. Harris, Edmonton, AB

### **LEARNING OBJECTIVES**

1) To review effects of geography on oral cavity squamous cell carcinoma; 2) To discuss possible causes of any geographic effects on oral cavity squamous cell carcinoma survival. 3) To discuss the epidemiological profile of oral cavity squamous cell carcinoma.

### **ABSTRACT**

Background: Patients with oral cavity squamous cell carcinoma (OCSCC), residing in urban setting have traditionally improved survival. The main theory of the urban effect on survival is improved access to health care. Objective: To evaluate effect residing in an urban setting on the survival of patients with OCSCC in a system with universal access to health care. Setting: Province of Alberta (population based study). Methods: Demographic, pathologic, treatment, and survival data was obtained from all patients diagnosed with OCSCC in the province of Alberta between 1998 and 2010. The overall and disease specific survival were calculated using Kaplan-Meier and Cox-Regression analysis. The log rank test was employed for comparisons between groups. Results: A total of 624 patients were included. There was no difference between patients residing in an urban or rural setting in regards to, stage, demographics, and treatment paradigms. Urban patients benefitted from 5 and 10 year overall survival improvements (77.4%, P=0.04) and early stage OCSCC (83.4%, P=0.002). Conclusion: OCSCC patients residing in an urban setting have improved survival. Factors other than access to Health care seems to be causing this effect.

**H2. Human Papillomavirus–Associated Oropharyngeal Squamous Cell Carcinoma and Anogenital Cancers in Men: Epidemiologic Evaluation of Association** – H. Marzouki, H. Seikaly, V. Biron, Edmonton, AB

### **LEARNING OBJECTIVES**

1) To learn about the association between HPV related head and neck cancers and anogenital cancers. 2) To understand the improved survival of patients with HPV positive OPSCC.

### **ABSTRACT**

Objective: To verify and support the epidemiological association between oropharyngeal carcinoma and anogenital tumors and to confirm the hypothesis of HPV co-infection with molecular data. Methods: Population based demographic and survival data on all male patients diagnosed with oropharyngeal cancer (OPSCC) and anogenital cancer (AG) between 1998 and 2010 in the province of Alberta were collected. Standardized incidence ratios of anogenital cancer in oropharyngeal cancer patients were calculated. Overall and disease-specific survival of patients with OPSCC with and without anogenital cancer were calculated using Kaplan-Meier and Cox regression models. Tissue samples of the anogenital cancer from the patients with Oropharyngeal cancer were stained for p16. Results: 774 male patients were diagnosed with OPSCC and 340 with anogenital cancer in the

province between 1998 and 2010. 9 patients were diagnosed with both. All the patients with both diagnoses were p16 positive. Conclusions: Men with OPSCC might have an elevated risk of developing HPV-related anogenital cancers. The most likely cause is HPV coinfection of oropharyngeal and anogenital tissues in this population.

**H3. Hypopharyngeal Reconstruction: Comparison of Three Reconstructive Methods** – B. Ibrahim, A. Mlynarek, E. Sela, M. Hier, M. Black, R. Payne, Montreal, QC

#### **LEARNING OBJECTIVES**

At the end of this presentation, the audience will be able to: 1) Describe the different advantages and disadvantages of the three main reconstructive methods presented in terms of post-operative follow up, functional outcome and 1 year follow up. 2) List the figures comparing surgical outcomes in different flaps as described in the latest large reviews of the literature.

#### **ABSTRACT**

Objective: 1. Compare the rate of fistula formation associated with different hypopharyngeal reconstructive methods. 2. Compare functional outcomes (speech comprehensibility and nutritional method) at 12 months post reconstruction. Methods: Retrospective chart review of the medical charts and speech language pathology charts of all patients who underwent laryngectomy ± pharyngectomy from 2002 to 2011 at our center. 39 patients with inaccessible electronic files were excluded. 38 patients were retained and separated according to the type of surgery (salvage vs primary intervention) and type of reconstruction (primary closure (PC), pedicled flap (PF), free flap (FF)). Results: 15 patients had PC, 9 PF and 14 FF. The groups obtained were similar in terms of age, stage at the time of surgery, immunity and pre-operative nutritional status. 9 fistulas were noted in this study. FF had the overall best rate of fistula formation 21.4% (n=3/14) and PC had the highest rate 26.7% (n=4/15). In terms of functional outcome, overall at 12 months post-operative the PC group had the best rate of favorable speech and nutritional outcomes (91.7% and 91% respectively) as opposed to FF, which had the lowest rate of favorable outcomes (61.5% for both). Conclusion: The experience of our center shows that FF reconstruction is associated with the lowest rate of PCF formation while the best functional outcomes in comprehensibility of speech and nutritional method are obtained with PC.

**H4. Functional Outcomes of External Auditory Canal Reconstructions with Local Pedicled Flaps After the Extirpation of T1/2 Cutaneous Malignancies of the External Ear** – K. Ansari, H. Seikaly, Edmonton, AB

#### **LEARNING OBJECTIVES**

At the end of this presentation / poster, the learner will be able to: 1. list the optimal outcomes of soft tissue reconstruction of the external auditory canal. 2. Describe the use of local pedicled flaps in the reconstruction of the external auditory canal after resection of T1/T2 external ear cutaneous.

#### **ABSTRACT**

OBJECTIVE: To determine the functional outcomes of external auditory canal (EAC) reconstructions with local pedicled flaps after the extirpation of T1/2 cutaneous malignancies of the external ear. METHODS: Retrospective chart reviews was performed on 10 patients with T1 and T2 external ear malignancies that required full thickness soft tissue resections of the external auditory canal who were then subsequently reconstructed with local pedicle flaps. These patients were assessed for any healing complications, conductive hearing loss, and patency of the reconstructed EAC. Data was also compiled on the subjects regarding the age, gender, tumor type, tumor stage, extent of soft tissue EAC resection, types of flaps utilized, radiation treatment, length of follow-up, and tumor recurrence. RESULTS: Except for one patient with rapid local tumor recurrence, all other patients had no wound healing complications, resulting in patent EACs with no residual conductive hearing loss. There was no statistically significant correlation between the functional outcomes and other examined variables. CONCLUSIONS: Local pedicle flaps reliably reconstruct EACs that have been resected as part of the extirpation of T1 and T2 malignant skin tumors of the external ear, resulting in well healed and patent EACs with no conductive hearing loss.

**H5. Effect of Hand Dominance on Forearm Skin Pliability** – J. Chung, M. Corsten, Ottawa, ON**LEARNING OBJECTIVES**

By the end of this presentation, the resident or practicing otolaryngologist will be able to 1) describe how hand dominance affects forearm skin pliability in the context of radial forearm free flaps, and 2) design experiments on radial forearm free flaps using the contralateral arm as control.

**ABSTRACT**

**Objectives:** In head and neck surgery reconstructions, the radial forearm free flap is traditionally harvested from the non-dominant arm. In this study, we tested the hypothesis that hand dominance has no effect on the pliability of forearm skin. **Methods:** We enrolled 30 volunteers for this study and measured the pliability of their forearm skin, both on the volar and dorsal aspects. The dominant and non-dominant arms were measured and each volunteer served as their own control. The measurements were taken using the Cutometer, an instrument that accurately measures various skin properties including pliability, which is defined as the maximal skin stretch under a given suction load. The paired t-test was used with  $p = 0.05$  defined as statistically significant. **Results:** For both the dorsal and volar forearm sites, there was no significant difference in pliability between the dominant and non-dominant arms (all  $p > 0.05$ ). **Conclusions:** Hand dominance does not appear to affect the pliability of forearm skin. This may have implications on the design of future studies involving radial forearm free flaps, as it confirms that the contralateral forearm can be used as a control.

**H6. Free Flap Elevation Times in Head and Neck Cancer Surgery Using the Harmonic Scalpel** – J.

DeSerres, D. O'Connell, B. Barber, H. Seikaly, J. Harris, Edmonton, AB

**LEARNING OBJECTIVES**

1. To assess the effect of the Harmonic Scalpel on operative time in free flap elevation for head and neck reconstruction. 2. To assess the effect of the Harmonic Scalpel on donor site morbidity.

**ABSTRACT**

**Background:** The Harmonic Scalpel™ (HS) has been utilized in a multitude of surgeries in the past decade. More recently, it has been used in free flap elevation in head and neck reconstruction for its decreased risk of heat transmission to adjacent delicate tissues and perceived expedition of elevation time when compared to conventional electrocautery. **Objective:** To compare mean operative times for elevation of different microvascular free flaps using the Harmonic scalpel with the conventional electrocautery method. **Secondarily,** to compare complication rates and donor site morbidity with both methods. **Study Design:** Prospective case series with comparison to retrospective cohort. **Results:** A total of 42 free flap elevations without HS were reviewed retrospectively and compared to a prospective series of 29 patients. Overall flap elevation time, primary ischemia time and secondary ischemia time were analyzed. Patient demographic data was found to be similar between the two groups of patients. HS usage was shown to reduce overall free flap elevation time when compared to the prospective cohort by 17.4% for RFFFs, 20.5% for FFFs, and 24.3% for ALTFs. There was no difference in donor site morbidity in each group. **Conclusions:** Use of the Harmonic Scalpel™ allows for decreased free flap elevation time and decreased primary ischemic time for the RFFF, FFF, and ALTF harvests.

**H7. Inflammatory Myofibroblastic Tumour of the Larynx** – B. A. Do, J. Young, R. Varshney, F. Zawawi, Montreal, QC**LEARNING OBJECTIVES**

By the end of the session, the learner should be able to: 1 understand the nature of an inflammatory myofibroblastic tumour (IMT) of the larynx; 2) describe the histopathological and radiological findings of IMT; 3) elaborate a management plan for IMT.

**ABSTRACT**

Inflammatory myofibroblastic tumor (IMT) is a rare benign neoplasm that mainly affects the lungs, the mesentery and the omentum. Rarely, it can affect the head and neck region, namely the larynx. It is also known as inflammatory pseudotumor, plasma cell granuloma and inflammatory fibrosarcoma. To date, less than 50 cases of IMT of the larynx have been reported in the English literature. We present a complex case of a 37 year-old man with IMT of the larynx treated with resection and steroids. We aim to make Otolaryngologists aware of this



rare pathology in their differential of benign laryngeal disease. The clinical presentation, histopathological, and radiological findings, treatment options and a review of the literature will be discussed.

**H8. Oral Cellular Neurothekeoma** – N. Emami, S. Daniel, F. Zawawi, R. Yawkim, A. Nahal, Montreal, QC

### **LEARNING OBJECTIVES**

The goal of this case report is to raise awareness about an unusual presentation of a rare disease. By the end of this session, the audience will be familiarized with a clinical presentation and histological features of Neurothekeoma and will be able to list the differential diagnosis, the diagnostic method of choice and the definitive treatment.

### **ABSTRACT**

Cellular neurothekeoma is known as a cutaneous tumor with uncertain histogenesis. Very few involvement of mucosal membrane has been reported in the literature so far. This is a case report of an intra-oral lesion in a 15 years old girl. Complete excision was performed and histopathology evaluation showed a tumor consists of spindle to epitheloid cells forming micronodules in a concentric whorled shape pattern. Tumor cells were positive for CD63, vimentin and NKI-C3. Total excision was performed and no recurrence happened after 18 months follow-up.

**H9. Epidemiology and HPV Status of Nova Scotia Patients With Oropharyngeal Squamous Cell Carcinoma** – R. Hart, S. Snow, M. Taylor, J. Trites, M. Rajaraman, M. Ha, Halifax, NS

### **LEARNING OBJECTIVES**

1. Understand the rising incidence of HPV related cancer in the oropharynx. 2. Identify epidemiologic shifts related to HPV. 3. Understand the relationship between age and HPV status of OP cancers.

### **ABSTRACT**

Background: While the overall incidence of head and neck cancers (HNC) is decreasing, the incidence of one subset, oropharyngeal cancer (OPC), is increasing. OPC has been associated with oncogenic strains of human papillomavirus (HPV), which may account for these epidemiologic shifts. Further, patients with HPV positive HNC have been shown to have different demographic profiles, risk factor exposure and outcomes, however, Canadian data is lacking. Methods: A retrospective chart review of all HNC cases treated at the Nova Scotia (NS) Cancer Centre in 2011 was performed. Relevant patient, disease and outcome data was collected to determine the rate of HPV infection. Wilcoxon rank sum tests were used to compare numerical variables and Chi-squared or Fisher's exact tests were used to compare categorical variables among subgroups to identify differences in demographics or disease characteristics on the basis of HPV status. Results: 108 cases of HNC were reviewed. 47 (43.5%) were OPC primaries. Immunohistochemistry p16 analysis, a test for HPV infection, was performed on 21 cases (17 OPC), 15 (71.4%) of which were p16 positive. HPV positive patients were younger ( $p=0.03$ ) and had less tobacco exposure ( $p=0.02$ ). There was no difference in disease stage at presentation. Only one cancer related death has occurred, in the HPV positive group. Conclusions: HPV positivity was detected in the majority of OPC tested in NS in 2011 at a rate comparable to those published for other Western populations. HPV positive cancer patients were younger and had less cigarette usage compared to those with HPV negative tumours.

**H10. Functional Outcomes in Patients Undergoing Osteocutaneous Free Flap Reconstruction of Mandibulectomy Defects** – A. Isaac, H. Seikaly, Edmonton, AB

### **LEARNING OBJECTIVES**

Functional outcomes in patients undergoing osteocutaneous free flap reconstruction of mandibulectomy defects.

### **ABSTRACT**

Background: The mandible provides the bony framework that supports the function of the upper aerodigestive tract. Mandibular defects cause significant functional deficit that is dependent on the site and size of the discontinuity. Objective: This study examined prospectively the speech and swallowing outcomes of a cohort of patients that have undergone mandibulectomy and primary osseous free flap reconstruction. Methods: Speech and swallowing data were gathered prospectively at four evaluation times (pre-operatively, and at one, six, and twelve months post-operatively). Single words and sentences were analyzed for speech intelligibility. Modified barium swallows of various consistencies were analyzed and graded. Dental implantation, gastrostomy tube rates,

and type of diet were recorded. Results: 61 patients were reviewed. 37 were reconstructed with fibula, 11 with scapula, 5 with radius, and 8 with dual flap. There were no significant differences in one-year word and sentence intelligibility in any group except those with significant tongue defects. Barium swallow data including oral transit time were significantly worsened at one month, but returned to baseline at one year. The gastrostomy tube rate was 10% at one year. 16 patients had undergone successful dental implantation and rehabilitation. Conclusions: Osteocutaneous free flaps are an excellent reconstructive option for mandibular defects.

**H11. Role of the Viral Oncoprotein E5: Is E5 the Forgotten Oncogene?** – S. Um, N. Mundi, J. Barrett, S.D. MacNeil, K. Fung, J. Yoo, J. Mynryk, A. Nichols, London, ON

### **LEARNING OBJECTIVES**

1) To understand the impact of human papillomavirus (HPV) on head and neck cancer. 2) To understand the role of the HPV oncoproteins E6 and E7. 3) To develop an understanding of the role of E5 as a possible biomarker of treatment failure through an epidermal growth factor receptor mediated mechanism.

### **ABSTRACT**

**Objective:** The role of the human papillomavirus (HPV) oncoproteins E6 and E7 in the development of head and neck cancer is well understood. The role of the viral oncoprotein E5 has been described in cervical cancer, specifically related to the up regulation of the epidermal growth factor receptor (EGFR), however this has not been described in head and neck cancer. **Methods:** DNA and RNA were extracted from 15 fresh oropharyngeal cancer samples and tested for p16 by immunohistochemistry and HPV-16 by real-time polymerase chain reaction (PCR). E5 and EGFR expression levels were determined by reverse transcriptase PCR. E5 levels were correlated with EGFR levels for the HPV positive tumors. **Results:** 10/15 (67%) tumors were positive for p16 and HPV-16. All HPV-negative tumors were negative for E5 and had variable levels of EGFR expression. HPV-positive tumors demonstrated highly variable levels of E5 expression which were tightly correlated ( $p < 0.05$ ) with EGFR expression. **Conclusions:** In contrast to consistent expression of E6 and E7, expression of E5 is variable in HPV-positive head and neck cancer and tightly correlated with EGFR expression. This is a possible mechanism of treatment failure in a cohort of patients with a typically favorable treatment outcome.

**H12. A Collaborative Surgical Approach to an Intraorbital Intraconal Hemangioma** – B. Williams, E. Massoud, D. Clarke, B. Maleki, Halifax, NS

### **LEARNING OBJECTIVES**

To describe a rare cause for unilateral decrease in vision: an intraorbital intraconal hemangioma. To demonstrate a collaborative surgical approach for the excision of this tumour with minimal morbidity to the patient.

### **ABSTRACT**

**Objectives:** To describe a case of intraorbital intraconal cavernous hemangioma. To demonstrate a minimally invasive combined approach for the successful surgical treatment of this rare entity. **Methods:** The case history, management and outcomes of a patient with an orbital apex tumor will be described. The literature will be reviewed for similar cases and compared to the case presented here. **Results:** A 46 year old female presented with progressive vision loss in her right eye and retro-orbital discomfort. MRI showed a 1 cm diameter mass in the orbital apex. An initial attempt at transnasal endoscopic excision was aborted due to the fact that the medial rectus muscle was stretched over the tumour. A second surgery used an approach combining a transcaruncular incision and endoscopic transethmoid approach. This allowed retraction of the medial and inferior rectus muscles and successful transnasal resection of the tumor. The patient did well post-operatively. **Conclusions:** Intraorbital intraconal hemangioma is a rare presentation and is challenging to resect without major morbidity. A surgical approach is using transcaruncular incision to retract the extraocular muscle and transnasal endoscopic removal of the mass will obviate the need for more invasive surgery and minimize damage to the medial rectus muscle.

**H13. Outcome Predictors in Squamous Cell Carcinoma of the Maxillary Alveolus and Hard Palate** – A. Eskander, D. Goldstein, B. Givi, P. Gullane, J. Irish, D. Brown, R. Gilbert, Toronto

### **LEARNING OBJECTIVES**

After attending this presentation, attendees will have advanced their knowledge of the following aspects of maxillary alveolus and hard palate squamous cell carcinoma: 1. Occult nodal metastatic rate. 2. Treatment. 3. Outcomes. 4. Predictors of Disease Free Survival.

**ABSTRACT**

**INTRODUCTION:** Hard palate and maxillary alveolus are two commonly grouped oral cavity sub-sites due to their anatomic contiguity and oncologic disease behavior. Few studies have been conducted investigating clinical presentation, staging, prevalence of cervical metastases, and outcomes in this population. The primary objective of this study was to analyze predictors of disease-free survival (DFS) in surgically treated patients, particularly as it relates to the role of neck dissection. **METHODS:** Case series with planned data collection over 15 years (1994-2008) at a large tertiary care cancer center. Data was collected on demographics, clinical factors, pathologic characteristics, and outcomes. Univariable and multivariable Cox regression analyses were used to identify predictors of DFS. **RESULTS:** Ninety-seven patients met the inclusion criteria (54 male, 56%). The majority of patients (54, 56%) presented with locally advanced disease (cT3,cT4). Occult nodal metastases were noted in 28% (11/39) of patients clinically staged as N0. The 3-year DFS was 70% (95%CI 59-78%) with a median time to failure of 1.1 years (range 0.3 – 9.7 years). Cox regression multivariate model demonstrated that advanced pathologic T stage, hard palate tumor site, and poorly differentiated tumor grade were each independent predictors of DFS. Those treated without initial neck dissection or those with nodal involvement on final pathology approached statistical significance as predictors of DFS in multivariate analysis. **CONCLUSIONS:** A significant portion of the patients with hard palate and maxillary alveolus tumors harbor occult cervical metastases. Elective neck dissection in the high-risk patients may potentially be beneficial in providing more accurate staging and improving DFS.

**H14. North American Survey on HPV and p16 testing in Head and Neck Cancer** – S. Moubayed, A. Christopoulos, A. Maniakas, T. Ayad, L. Guertin, P-F. Nguyen-Tan, O. Gologan, D. Soulières, Montreal, QC

**LEARNING OBJECTIVES**

At the end of this presentation, the participant will: 1) understand the difference between HPV and p16 testing in head and neck cancer. 2) Learn about the available options for HPV and p16 testing in head and neck cancer. 3) Describe the utilization of HPV or p16 testing in North America according to geography and type of test.

**ABSTRACT**

**Objectives:** (1) To evaluate systematic testing of HPV and p16 status on head and neck cancer in North America; (2) To assess if HPV or p16 status is used to influence treatment in this population. **Methods:** Online survey sent to three professional associations (Canadian Society of Otolaryngology, Quebec Association of Otolaryngology, American Head and Neck Society). Inclusion criteria are physicians practicing in North America. Chi-square analyses were conducted. **Results:** Response rate of 20% with a total of 216 responses. Most respondents were otolaryngologists (196; 90.7%), English-speaking (178; 82.4%), practicing in an academic setting (138; 63.9%). Systematic HPV or p16 testing was done by 146 respondents for oropharynx, 69 for oral cavity, and 44 for other subsites. Most (113; 77.4%) test for both HPV and p16. Most (58.3%) indicate that HPV/p16 status influences treatment for oropharyngeal cancer. In Canada, 61.0% of respondents test for HPV/p16, versus 88.1% of the American Head and Neck Society members. **Conclusions:** A majority of North American otolaryngologists test for HPV or p16 status in head and neck cancer. The majority indicate that this testing influences treatment for oropharyngeal cancer. Multiple treatment de-intensification protocols for this type of cancer are currently underway.

**H15. The FAMM Flap: A Versatile Flap for Every Surgeon** – T. Ayad, A. Rahal, A. Christopoulos, Montreal, QC

**LEARNING OBJECTIVES**

By the end of this session the participants will be able to describe the potential indications of the FAMM (facial artery musculomucosal) flap. By the end of this session the participants will be able to evaluate the advantages and limitations of the FAMM flap.

**ABSTRACT**

**OBJECTIVES:** 1. Describe the current indications of the FAMM (facial artery musculomucosal) flap for reconstruction of head and neck defects. 2. Assess the reliability, complications and functional results of the FAMM flap. **METHODS:** Prospective multi-institutional analysis of 30 consecutive FAMM flaps performed for head and neck defects. The harvest technique is illustrated in a video with a clinical case. **RESULTS:** The main

indication in our practice is reconstruction of small to moderate oral cavity defects following cancer ablation. Other sites reconstructed include the oropharynx, nasal cavity and nasopharynx. No total flap loss was observed. Two cases of partial flap necrosis were observed. We encountered a total of 6 complications, with 2 of them requiring revision surgery for an overall rate of revision surgery of 6.6% (2/30). Patients who had a FAMM flap for an oral cavity defect resumed a regular or soft diet in 100% of the cases, and speech was considered as functional and/or understandable by the surgeon in 95% of these patients. **CONCLUSION:** The FAMM flap is well suited for reconstruction of small to moderate head and neck defects because it is reliable, has few significant complications, and allows preservation of function.

**H16. The Supraclavicular Flap: A Versatile Flap for Every Surgeon** – T. Ayad, L. Xie, M.J. Olivier, A. Rahal, Montreal, QC

### **LEARNING OBJECTIVES**

By the end of this session the participants will be able to describe the potential indications of the supraclavicular flap. By the end of this session the participants will be able to list the steps for a successful supraclavicular flap harvest.

### **ABSTRACT**

**OBJECTIVES:** Describe the surgical technique for supraclavicular flap harvest. Discuss clinical cases that illustrate potential indications. **METHODS:** Case study of two patients with moderate to large size defects of the head and neck. **RESULTS:** The supraclavicular flap was successfully harvested in two patients with no significant donor site morbidity. The two flaps were harvested in less than 70 minutes. Successful reconstruction was achieved in one patient with a significant external chin defect and in another patient with a major pharyngeal defect. The two patients were previously radiated and had a neck dissection. **CONCLUSION:** The supraclavicular flap is an underused pedicled flap with many potential indications for head and neck defects. Donor site morbidity is low. This flap is accessible to every head and neck surgeon as the harvest technique is straightforward.

## **ENDOCRINE SURGERY**

**E1. Tumor classification in Well Differentiated Thyroid Carcinoma and Sentinel Lymph Node Biopsy Outcomes: a Direct Correlation** – A. Maniakas, R. Payne, V.-I. Forest, J. Saliba, M. Hier, A. Mlynarek, M. Tamilia, Montreal, QC

### **LEARNING OBJECTIVES**

1) By the end of this presentation the audience will understand the correlation between and the implication of Primary Tumor (T) classification and Sentinel Lymph Node Biopsy outcomes. 2) Following this presentation the audience will have a better understanding of the usefulness of performing sentinel lymph node biopsies in predicting locoregional metastasis in well differentiated thyroid carcinomas. 3) At the end of this presentation the audience will have a better understanding of patient age at the time of surgery as a factor in sentinel lymph node metastasis.

### **ABSTRACT**

**Objectives:** Predicting locoregional metastasis in well differentiated thyroid carcinoma (WDTC) is a challenge for thyroid cancer surgeons. Sentinel lymph node biopsy (SLNB) has been shown to be an effective predictive tool. To our knowledge, Primary Tumor (T) classification has yet to be studied with regard to SLNB outcomes. We hypothesized that larger primary tumors would correlate with the rate of malignancy in SLNBs. **Methods:** A retrospective chart review was conducted on patients operated for WDTC at our University Thyroid Cancer Center over a 36 month period. Patients who underwent a total thyroidectomy and SLNB for WDTC were included in this study. **Results:** 311 patients were included and separated into two groups (236 negative and 75 positive SLNBs). Patients with negative SLNBs had 65% T1, 17% T2, 16% T3 and 2% T4, whereas patients with positive SLNBs had 18% T1, 5% T2, 45% T3 and 32% T4 ( $p < 0.001$ ). Patients <45 years old had a higher rate of positive SLNBs (36% vs. 17% in  $\geq 45$  years old) ( $p < 0.001$ ). **Conclusions:** Performing SLNBs remains effective in predicting locoregional metastasis. Patients with higher T classifications are more likely to have a positive SLNB. Lastly, positive SLNBs were found to be more frequent in patients <45 years old.

**E2. How Long is Too Long? - Patients Opinion and Satisfaction with Their Wait for Thyroid Surgery –**

A. Eskander, D. Goldstein, J. Freeman, D. Brown, J. Irish, R. Gilbert, P. Gullane, K. Higgins, D. Enepekides, Toronto, ON

**LEARNING OBJECTIVES**

After attending this presentation, attendees will have advanced their knowledge of: 1. Wait times for thyroid surgery. 2. Patient Satisfaction while waiting for thyroid surgery. 3. Patient Opinion about a reasonable wait for thyroid surgery. 4. Surgeon management of waiting lists.

**ABSTRACT**

**INTRODUCTION:** Due to the generally favorable prognosis, patients with thyroid neoplasms are often prioritized behind other head and neck cancer patients. This paper examines length of wait, patient demographics, and patient opinion about their length of wait. This is discussed in light of the Cancer Care Ontario wait time guidelines for thyroid surgery. **METHODS:** A prospective mail-out cohort study assessed patients on the waiting list for thyroidectomy. This was part of a larger study which investigated the relationship between wait time and psychological morbidity. All patients on 8 surgeons' wait lists at 3 University Hospitals in Canada received survey materials over a 3-year period. We examine the results of our sociodemographic and patient opinion questionnaire, actuarial data on length of wait as compared to that of the province of Ontario and their final pathology. **RESULTS:** We achieved a 53% (176/334) response rate over a 3-year period. Those with FNA biopsy results which were reported as malignant or suspicious for malignancy had significantly lower wait times ( $p < 0.0001$ ). Most considered their wait to be long or too long (73%; 128/176) and defined a reasonable wait as  $< 1$  month (38%; 66/176) or  $< 3$  months (38%; 66/176). **CONCLUSION:** Patients with suspected malignant neoplasms are appropriately triaged ahead of those with non-malignant neoplasms. However, both groups are waiting longer than recommended by Ontario provincial standards, feel their wait is too long and that a reasonable wait would be less than 1 or 3 months from the date of decision to operate.

**E3. Spurious Elevation of Parathyroid Hormone Levels after Total Parathyroidectomy with Forearm Implantation – P. Kerr, D. Khalil, D. Sutherland, Winnipeg, MB****LEARNING OBJECTIVES** N/A**ABSTRACT**

**Purpose:** To report a cause of falsely elevated parathyroid hormone levels after total parathyroidectomy with forearm implantation. **Design:** Case Series. **Methods and Materials:** Chart review of 4 cases with inconsistent PTH levels after total parathyroidectomy with forearm implantation. **Results:** These 4 patients had high levels of PTH in venous samples drawn from the arm in which their parathyroid graft was placed, and much lower levels of PTH drawn from sites distant from the graft. **Conclusions:** One should avoid drawing venous blood for PTH levels from sites that are in close proximity to, and upstream of the patient's graft site as spuriously high readings can result. This is a function of the hormone's very short half-life.

**E4. Successful Resection of Follicular Thyroid Carcinoma with Contiguous Intra-vascular Spread to the Superior Vena Cava – J. Franklin, T. Fear, Kingston, ON****LEARNING OBJECTIVES**

1. To understand the clinical presentation and usual cases of Superior Vena Cava Syndrome. 2. To know that resection of tumor within the superior vena cava is possible with the appropriate multi-disciplinary team. 3. To understand the importance of gross tumor resection in Follicular carcinoma.

**ABSTRACT**

**Background:** The presence of thyroiditis historically was thought to be predictive of benign disease throughout the thyroid gland however this has recently been brought into question. Follicular carcinoma is relatively rare especially in the setting of Grave's disease however it is well known to be associated with vascular invasion. **Case Report:** A 60 year old female presented with a right thyroid mass and Grave's disease. TSH was suppressed and she required admission for thyrotoxicosis. FNAB and uptake scan were in keeping with Grave's disease. Two weeks later she presented with evidence of Superior Vena Cava Syndrome. Imaging confirmed a possible thrombus or tumor within the SVC. She underwent an urgent resection of her thyroid and biopsy of the

intraluminal contents of the cervical vessels. The final pathology confirmed Follicular Carcinoma within the thyroid as well as within the lumen of the inferior thyroid vessels. She subsequently underwent a thoracotomy and resection of the intra-luminal SVC tumor. She made an uneventful recovery and received post-operative radio-iodine therapy. Conclusions: Follicular carcinoma can show vascular invasion and propagation within the vasculature. There have been only a handful of case reports of thyroid carcinoma within the SVC, none of which were in the background of Grave's disease and thyrotoxicosis. The presence of disease within the Superior Vena Cava does not preclude resection. Resection of all gross disease improves the efficacy of post-operative radio-iodine therapy.

**E5. Identification of Biomarkers in Papillary Thyroid Tumor Tissue and Hashimoto's Disease – R. Hart, M. Brace, S.M. Taylor, J. Trities, M. Bullock, M. Petten, J. Wong, F. Makki, Halifax, NS**

### **LEARNING OBJECTIVES**

1. Understand the TH17 microenvironment and its role in thyroid cancer. 2. Identify potential biomarkers of thyroid cancer. 3. Understand the cytokines in the TH17 pathway and their implications on tumorigenesis.

### **ABSTRACT**

**Introduction:** Type 17 T helper cells (TH17) have a dominant role in mediating chronic autoimmune inflammation and their signature cytokine interleukin 17 (IL-17) has been shown to be present in the tumor microenvironment of various cancers. Further, IL-17 and its isoform IL-17F have been shown to play a role in tumorigenesis. Depending on the carcinoma in question, the role of IL-17 has been shown to be either protective or non-protective. Hashimoto's disease is a form of autoimmune thyroiditis and it has been demonstrated that there is an increase in both pro-inflammatory cytokines and TH17 lymphocytes in the serum and thyroid tissue of patients with the disease. Additionally, Hashimoto's disease increases a patient's risk of developing thyroid cancer. **Methods:** The aim of this study was to evaluate the expression levels of key cytokines related to TH17 cells for their potential to be used as biomarkers in thyroid cancer. Tissue samples from 47 patients (n=12, Thyroid cancer with Hashimoto's Disease, n=12, Thyroid Cancer, n=11, Hashimoto's Disease, and n=12, Benign thyroid changes) were processed and RNA extracted to generate cDNA. Quantitative PCR (qPCR) was used to determine expression levels for IL-17, IL-17F, IL-6, IL-22, RORC, TGF- $\beta$ 1, TGF- $\beta$ 2, IL-1 $\beta$ , Foxp3, and IL-23p19. **Results:** In the thyroid cancer with Hashimoto's group there was found a significant increase in the expression of TGF- $\beta$ 1 and Foxp3. Additionally, TGF- $\beta$ 1 was increased significantly in the thyroid cancer group and IL-23p19 was found to be significantly increased in the Hashimoto's disease group. **Conclusions:** TGF- $\beta$ 1, Foxp3 and IL-23p19 may be useful as future novel biomarkers in predicting the presence or absence of thyroid cancer, particularly in the setting of Hashimoto's thyroiditis.

**E6. Oncolytic Poxviruses Demonstrate Potent Activity for the Control of Anaplastic Thyroid Carcinoma – N. Mundi, A. Nichols, S.H. Um, J. Barrett, J. Yoo, K. Fung, J. Mymryk, London, ON**

### **LEARNING OBJECTIVES**

1) To develop an appreciation of the role of oncolytic viruses for the control of cancer. 2) To understand the particular advantages of poxviruses for the treatment of anaplastic thyroid cancer. 3) To appreciate that vaccinia is superior to other poxviruses for the control of anaplastic thyroid cancer.

### **ABSTRACT**

**Objectives:** Oncolytic viral therapy is a potential strategy to improve outcomes for patients suffering with anaplastic thyroid cancer (ATC). We aim to test the in-vitro efficacy of a panel of poxviruses for the control of ATC. **Methods:** ATC cell lines were infected with a panel of poxviruses including myxoma, vaccinia, raccoonpox and tanapox. Viral proliferation was assessed by fluorescence and plaque size. The effect on cell line growth was assessed by the Presto Blue assay and a live-dead assay. **Results:** Differences in plaque or foci in terms of size and number indicated that cell lines were differentially susceptible to each virus. Vaccinia virus was the most potent of the tested poxviruses and was highly effective in controlling proliferation in all cell lines. Inhibition of cell line growth by a particular virus was not the result of apoptosis, indicating another mechanism of cell death. **Conclusions:** Vaccinia virus is superior to myxoma, tanapox and raccoonpox for the control of anaplastic thyroid cancer in-vitro. The efficacy of these viruses need to be confirmed in vivo, but offer hope for improved outcomes for patients suffering with ATC.

**E7. Outpatient Thyroid Surgery: A Three Year Review of 394 Cases** – M. Sklar, P. Solomon, Toronto, ON**LEARNING OBJECTIVES** N/A**ABSTRACT**

**BACKGROUND:** Thyroid surgery has been traditionally viewed as a procedure necessitating hospitalization of patients. There is a small but growing body of literature demonstrating the safety and efficacy of outpatient thyroid surgery. Here, we add to our previously described safety and efficacy data surrounding outpatient thyroidectomy. **OBJECTIVES/DESIGN:** A literature review and a description of the protocol used to identify patients who are candidates for outpatient procedures, complications associated with the management of these patients and the success of the outpatient procedure at a hospital administrative level are discussed. **SETTING:** Tertiary referral otolaryngology practice within a community hospital. **RESULTS:** The study period included 394 thyroid surgeries, of which 192 were completed on an outpatient basis. No serious complications were identified in the outpatient group. Ten scheduled out-patients were converted to inpatient cases. One patient developed a small seroma treated with outpatient aspiration. There were no hematomas and no hypocalcemia. **CONCLUSIONS:** A three year review of our data demonstrates that outpatient subtotal thyroidectomy is safe and effective. It has not been shown to increase postoperative complication rates. Hospital administration can better meet provincial wait times and volume targets which are a continuous challenge with the current number of existing inpatient beds. The practice of outpatient thyroid surgery can be of financial benefit to the Canadian health care system.

**E8. Thyroid Gland Rupture: A Rare Finding after a Blunt Neck Trauma** – F. Zawawi, J. Manoukian, R. Varshney, R. Payne, Montreal, QC**LEARNING OBJECTIVES**

By reviewing this poster, the healthcare fractioned, otolaryngologists in specific, will learn more about thyroid rupture cases and its clinical course and proposed management. This will also trigger discussions between the attendees on their experiences with dealing with this rare finding.

**ABSTRACT**

**Background** - Blunt neck traumas are serious and should be thoroughly investigated. Thyroid gland rupture from a blunt neck trauma is a very rare condition. The Majority of the reported cases recommend close observation due to the potential seriousness of its complications. The objective of this report is to highlight this case and compare the clinical course with reviewed cases in the literature. **Methods and Materials** - A case report of a 13 years old boy with a thyroid rupture secondary to a hockey stick trauma to his neck and a review of the literature with a focus attention on diagnosis and management. **Results** - There are 14 other cases in the literature with thyroid rupture, all were adults. CT scan or ultrasound is necessary for diagnosis. 7 out of 14 patients required surgical intervention mainly to evacuate a hematoma, 5 of which had underlying thyroid pathology. Patients should be monitored for airway symptoms and thyroid storm. **Conclusion** - This is the first reported case in the literature of thyroid rupture due to a blunt trauma in a child. Patients with thyroid rupture should be monitored closely for developing a hematoma or a thyroid storm.

**E9. Preoperative TSH and Thyroglobulin Levels: Would it Predict Thyroid Cancer?** – A. Al Bader, R. Payne, Z. Singer, F. Al Zawawi, M. Hier, M. Tamilia, A. Mlynarek, Montreal, QC**LEARNING OBJECTIVES**

1. To evaluate preoperative levels of TSH and thyroglobulin in patients with thyroid nodules. 2. To study the relation between preoperative TSH and thyroglobulin levels and thyroid cancer.

**ABSTRACT**

**Background:** Thyroglobulin (Tg) is an important tumor marker used to monitor the recurrence of thyroid cancer in patients after receiving the primary modality of therapy. In this study our goal is to find out whether preoperative Tsh and Tg levels can be used as a predictor of thyroid cancer. **Method:** A retrospective chart review of patients who underwent thyroid surgery between 2006-2012. Demographics, Preoperative TSH and Tg values and final pathology were recorded. Patients were grouped depending on their preoperative TSH and Tg levels. Group 1 elevated TSH and Tg, Group 2 elevated TSH only, Group 3 elevated Tg only, and Group 4 both TSH and Tg were

not elevated. Results: 653 patients were reviewed, 386 patients were excluded due to missing information. 212 were females. Mean age 50. Group 1 included 52 patients, 25 of them (48%) had WDTC. The relative risk was 1.59 and the Odds ratio was 1.79. Group 2 included 80 patients 36 (45%) of whom had WDTC. Group 3 included 58 patients, 23(39.6%) of them with WDTC. Group 4 had 77 patients where 16(20.8%) cases with WDTC. Conclusion: TSH and Tg levels can aid in the assessment of a thyroid nodule preoperatively.

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## **OTOLOGY / COCHLEAR IMPLANTS**

### **01. Does Mastoid Obliteration Following Mastoidectomy Offer An Improvement in Quality of Life? –**

G. Kurien, K. Greeff, N. Gomaa, A. Ho, Edmonton, AB

#### **LEARNING OBJECTIVES** N/A

#### **ABSTRACT**

**Objectives:** To determine if mastoid obliteration with autologous bone graft following mastoidectomy offers an improvement of quality of life to patients as measured by the Glasgow Benefit Inventory (GBI). **Design:** A retrospective observational study. **Methods:** Participants are patients who have had mastoidectomy with primary or secondary mastoid obliteration for cholesteatoma in a tertiary otology practice. A GBI questionnaire survey was administered to patients in person or via the mail. Chart review was performed to assess baseline demographics and hearing thresholds pre and postoperatively. The primary outcome was the GBI score. Our secondary outcomes are recurrence rates, time to recurrence. **Results:** 60 patients were interviewed. GBI scores were improved in those patients who underwent mastoidectomy with obliteration, with average scores of 20. Recurrence rates were comparable with the current literature. **Conclusions:** Mastoidectomy with obliteration offers a significant quality of life benefit to patients. This study is the only Canadian study describing improvement of quality of life following this procedure.

### **02. Causes and Clinical Characteristics of Oscillopsia – P. Charusripan, J. Rutka, D. Pothier, Toronto, ON**

#### **LEARNING OBJECTIVES**

By the end of these sessions the Otolaryngologist will be able to: 1. Describe the clinical characteristics of oscillopsia. 2. List the likely causes of oscillopsia and the co-morbidities associated with it. 3. Describe the treatments available for oscillopsia.

#### **ABSTRACT**

**Objectives -** Oscillopsia disabling symptom of dysfunction of the vestibulo-ocular reflex (VOR). Little has been published on incidence and clinical characteristics of patients presenting with oscillopsia. **Methods-**A retrospective review was undertaken of patients presenting to the Neurotology MDT Clinic with symptoms of oscillopsia. Clinical characteristics and associated pathologies were identified as well as likely etiologies. **Results-**129 patients were identified. There was a nearly equal sex distribution and a mean age of 54.35(SD=15.495). 22% of patients had complex pathology with more than one diagnosis; the most common peripheral causes were ototoxicity and bilateral Ménière's Disease (17.8% and 8.5% respectively). The most common central cause was vestibulocerebellar degeneration. Benign positional vertigo was detected incidentally in 9.3% of patients – all improved substantially following particle repositioning. Only 55% complained of vertigo or intermittent dizziness. 66% of patients with central findings had more than one clinically detectable central sign. Abnormalities of smooth pursuit dominated the central findings along with abnormalities of VOR suppression. **Conclusions-**Oscillopsia is not an unusual finding both in central and peripheral vestibular dysfunction and may be associated with other pathologies, many of which can be treated. The treatment of oscillopsia with vestibular rehabilitation and innovative technologies is discussed.

### **03. Hair Barrette Induced Cochlear Implant Receiver Stimulator Site Infection with Extrusion – T.**

Le, J. Hochman, D. Leitao, Winnipeg, MB

#### **LEARNING OBJECTIVES**

By the end of this session, the meeting attendees will be able to: - Describe signs and symptoms associated with cochlear implant infections. - Describe different management options to treat cochlear implant infections.



- Appreciate an interesting etiology of infection of cochlear implant site.
- Select different varieties of imaging modalities in assessing patients with cochlear implants.
- Utilize 3D CT imaging to better display spatial relationship and reduce associated artifacts.

### **ABSTRACT**

Cochlear implantation permits the deaf to access voiced sound. Infection and extrusion are uncommon but potentially devastating complication when they occur. Recent literature suggests conservative management can be employed; inclusive of aggressive surgical debridement with vascularized flaps in association with adjunctive parenteral antibiotics. Such local measures represent a viable option and often permit device salvage. However, explanation should be considered if evidence of systemic, intracranial or intractable infection. This case illustrates a complicated local wound infection associated with cochlear implantation due to transcutaneous adherence of a hair barrette to a cochlear implant magnet. The ferrous barrette was initially difficult to appreciate within the associated inflammatory tissue. However the reconstruction of Computed Tomography data with multiplanar (MPR) and 3D volume rendering significantly improved the value of the images and facilitated patient counseling as well as operative planning. A CT scan may be beneficial in the evaluation of cochlear implant complications. 3D CT images provide a comprehensive view of the site of interest, displaying the relationship of the hardware to the skull and soft tissues, while drastically minimizing associated artifacts. Optimization of available imaging modalities might help in decision making for management of complicated local wound infection associated with cochlear implantation.

### **04. Recovery of Hearing After Endoscopic Transclival Drainage of Cholesterol Granuloma of the Petrous Apex** - R. Murphy, H. El-Hakim, Edmonton, AB

#### **LEARNING OBJECTIVES**

After reviewing the poster, the reader will: 1. Review the intricate anatomy of the skull base and the petrous bone as well as the complex relations of its contents. 2. Learn the potential ability of the inner ear/cochlear nerve to recover from the compression effect of disease. 3. Learn the various approaches for management of cholesterol granuloma of the petrous apex with special emphasis on the endoscopic transclival approach, its limitations and its advantages.

#### **ABSTRACT**

**Introduction:** We present a case showing hearing recovery after successful endoscopic transclival drainage of recurrent cholesterol granuloma of the petrous apex. We also demonstrate the remarkable hearing preservation in in the same patient after the earlier drainage via translabyrinthine approach. **Case Presentation:** A 50 year old male presented with mild pressure and slight tinnitus in left ear was diagnosed with a left-sided cholesterol granuloma of the petrous apex. Serial audiograms showed progressive left mixed hearing loss. He initially underwent a subtemporal, extradural approach in 2001. In 2006, after re-accumulation of the granuloma, a translabyrinthine approach was done with remarkable preservation of hearing. He later developed increased left sided facial twitching, decreased balance, and profound hearing loss after re-accumulation of the granuloma. An image guided endoscopic transclival drainage of the granuloma was performed in August 2012. Audiograms before and after the 2012 operation demonstrate significantly improved hearing in the left ear post-op. **Discussion:** We have shown the precision of translabyrinthine approach in preserving the cochlea as well as the advantage of endoscopic transclival approach in the wide drainage of petrous apex cholesterol granulomas and the resilience of the cochlear nerve in recovery of hearing after decompression.

### **05. Inflammatory Pseudotumor of the Temporal Bone** – N. Shoman, S. Lewis, M. Pensak, Saskatoon, SK

#### **LEARNING OBJECTIVES**

This case presentation will introduce the reader to the entity of an inflammatory pseudotumor as a rare temporal bone lesion. The reader will have a better understanding of the clinical, radiographic, and histologic features of this pathological entity, along with a summary on management recommendations.

#### **ABSTRACT**

**Objective:** To present a case of mastoid inflammatory pseudo tumor (IP) erroneously diagnosed as schwannoma, and highlight relevant clinical, radiographic, histologic, and management features. **Background:** IP of the temporal bone is a rare, histologically benign but clinically aggressive lesion. The clinical presentation can be quite variable. The pathological cellular diversity, absence of pathognomonic histologic features and the rarity of

this clinical entity, makes for a challenging clinical and pathological diagnosis. Case presentation: An 82 year old woman with a history of chronic otitis media presented with a 3 month history of left aural fullness and hearing loss. Otomicroscopic examination was unremarkable. Computed tomography showed extensive opacification of the left mastoid air cells, antrum, and epitympanum. A mastoid mass was encountered intraoperatively and a biopsy was diagnosed as a schwannoma. However, post-operative MRI scan revealed a mastoid mass with no enhancement. The mass was subsequently extirpated en bloc, and pathological examination revealed features consistent with an IP. Conclusion: Although IPs are exceeding rare in the temporal bone, it is important for otolaryngologists to maintain this entity in the differential diagnosis of temporal bone lesions. They are frequently misdiagnosed on radiographic and histologic assessment. Surgical excision should be attempted in all cases.

**06. Malposition of a Cochlear Implant in the Horizontal Semicircular Canal** – B. Williams, M. Bance, H. Maessen, Halifax, NS

### **LEARNING OBJECTIVES**

- To describe an uncommon complication of cochlear implantation - malposition in the horizontal semicircular canal. - To identify pitfalls that prevented this malposition from being detected intraoperatively.

### **ABSTRACT**

Objectives: To describe an uncommon complication of cochlear implantation, namely accidental vestibular implantation, and to demonstrate the pitfalls that prevented this complication from being identified intraoperatively. Methods: We describe a case of a 79 year old female with profound hearing loss with intended hearing preservation surgery, usually a soft flexible electrode designed for electroacoustic stimulation. The issues relevant to her surgery and complication will be discussed. Similar cases from the literature will be reviewed. Results: The patient experienced a rare complication of cochlear implantation: malposition of the electrode in the horizontal semicircular canal. This occurred despite the fact that round window insertion of a very flexible implant (Med-El® SONATAti100) was used. Waveforms were present on intraoperative Auditory Nerve Response Thresholds (ARTs). The malposition was detected on postoperative day 1 when the patient developed vertigo and a CT scan was obtained. The electrode was repositioned with good effect. This is the first reported case of malposition in the semicircular canals using this very flexible electrode. Conclusions: Even very flexible electrodes can penetrate the basilar membrane and enter the vestibule and semicircular canals. Intraoperative ARTs can give a false sense of security in the placement of the electrode.

**07. Hyperventilation as a Method to Improve the Sensitivity of Head Shake Nystagmus in Peripheral Vestibulopathy** – C. Daszenies, J. Rutka, D. Pothier, Toronto, ON

### **LEARNING OBJECTIVES**

By the end of the presentation, attendees will understand the theories explaining head shake nystagmus phenomenon in vestibular vestibulopathy. Attendees will have learned the usefulness of HSN in assessment of the dizzy patient. Attendees will know the sensitivity and specificity of HSN. Attendees will understand the physiological effects of hyperventilation and the possible explanations of its effect on head shake nystagmus.

### **ABSTRACT**

Objectives: Head shake nystagmus (HSN) is used in the assessment of the dizzy patient but is limited by its low sensitivity. We set out to evaluate hyperventilation as a clinical method to improve the sensitivity of HSN and describe the possible mechanisms explaining this phenomenon. Methods: Eight patients with a history of peripheral vestibulopathy and unilateral vestibular loss (defined as caloric test asymmetry exceeding 25 %) were evaluated with HSN before and after 90 seconds of hyperventilation; the presence, direction, intensity and duration of nystagmus were compared. HSN was performed in standard conditions with Frenzel's lenses for 20 seconds at 2 Hz. A positive test was defined as the presence of  $\geq 3$  beats of nystagmus. Results: In 4 patients, HSN was absent before and after hyperventilation. Three patients who were positive for HSN before hyperventilation had increased intensity and duration of nystagmus after hyperventilation. One patient who tested negative for HSN before hyperventilation were positive for HSN after hyperventilation. Conclusions: Hyperventilation may be used as a clinical method to increase sensitivity of HSN in unilateral vestibular loss. A possible explanation is that hyperventilation alters central compensatory mechanisms in vestibular pathology, allowing a greater asymmetry in peripheral input.

**08. Recurrent Meningitis after Pediatric Cochlear Implantation** – E. Hwang, D. Schramm, Ottawa, ON**LEARNING OBJECTIVES**

1. During this presentation, the audience will learn about the risk factors for meningitis after pediatric cochlear implantation. 2. By the end of this presentation, the audience will be able to consider monitoring and preventative methods for meningitis after pediatric cochlear implantation. 3. By the end of this presentation, the audience will understand the importance of close monitoring for delayed meningitis after pediatric cochlear implantation.

**ABSTRACT**

Objective: Bacterial meningitis is a possible complication of cochlear implantation (CI). Through this case series, we aim to further determine and understand risk factors for meningitis post-CI. Methods: A search of the clinical database of the auditory implant program at our institution was performed. Of the 743 patients undergoing CI, two pediatric cases of meningitis were identified. Results: The first patient was a 4-year-old female who developed meningitis 8 months post-CI. She was explanted 3 years later due to device failure following head injury. A positioner was used at re-implantation. She subsequently experienced meningitis 4 years later. The implant with a positioner was removed and replaced with one without a positioner. She did not develop further meningitic episodes. The second patient was a 3-year-old female who underwent CI in a common cavity cochlea one year after an episode of meningitis pre-implantation. Eleven years post-CI, she developed two episodes of meningitis within 3 months, secondary to acute otitis media. Conclusions: Both patients had recurrent meningitis after CI. Risk factors for meningitis post-CI include young age, use of a positioner, cochlear malformation, and meningitis pre-implantation. We recommend thorough parental and patient education as delayed meningitis beyond 10 years following CI may occur.

**09. The Use of Oral Mycostatin in Meniere's Disease** – A. Leong, D. Pothier, C. Paninee, D. Cristian, S. Reza, J. Rutka, Toronto, ON**LEARNING OBJECTIVES**

By the end of the session, the otolaryngologist will: 1. be introduced to the background underlying the use of antifungal compounds to treat acute attacks of Meniere's disease. 2. understand that the use of antifungal compounds may play a role in improving the severity of clinical symptoms in Meniere's disease.

**ABSTRACT**

Background: The potential efficacy of antifungals e.g. mycostatin (nystatin) in treating acute attacks of Meniere's disease was first suggested in 1983, following anecdotal evidence of patients whose hearing loss and vertigo in Meniere's disease improved after commencing oral antifungal therapy for unrelated disorders. Although a small study reported marked clinical improvement in patients started on oral mycostatin for symptoms of Meniere's, further data is lacking. Oral mycostatin has been used as second-line medical treatment for Meniere's disease at our institution for many years. Objective: To assess the efficacy of oral mycostatin on reducing severity of acute attacks in Meniere's disease, specifically hearing loss, vertigo, aural fullness and tinnitus. Methods: A retrospective study at a tertiary specialist referral centre for vestibular disorders was undertaken of all patients with Meniere's disease started on oral mycostatin. Patient demographics, duration of dosage and measures of clinical improvement were evaluated. Results: 30.7% of patients reported improvement in vertigo, 26.4% had improvement in aural pressure, 18.1% had improvement in tinnitus and 12.5% noted their hearing loss improved with oral mycostatin. Side-effects were minor and uncommon. Conclusion: The use of oral mycostatin to alleviate symptoms of Meniere's disease shows promising results and warrants further investigation in prospective randomized controlled studies.

**010. Bilateral cochlear implants: A comparison of cutaneous scars from scalpel versus cautery** – J. Paradis, L. Parnes, K. Zimmerman, P. Doyle, M. Brandt, S. Agrawal, London, ON**LEARNING OBJECTIVES**

By the end to this research presentation, the audience will be able to consider using electro cautery for incisions on both hair bearing and non-hair bearing skin as an alternative to scalpel incisions.

**ABSTRACT**

Objectives: To evaluate and compare incisions made with scalpel versus electro cautery among patients having undergone single-stage bilateral cochlear implants by using the validated Scar Camouflage Scale. Methodology: Pediatric patients who received bilateral cochlear implants in a single-stage between October 2007 and January 2012, at London Health Science Centre were recruited. A photograph was taken of each scar. All surgeries followed the same standardized protocol; cautery for the initial incision, scalpel for the contra-lateral incision. All photos were edited and evaluated by two groups, surgical residents and non-medical students. The validated Scar Camouflage scale was used. Data was analyzed using SPSS. Results: Thirteen cochlear implant patients were recruited. A total of 22 images were edited. Mean patient age was 54 months. Post-operative scar assessment was done at a mean of 14 months. There was no difference between electro cautery and blade scar evaluations. Further, there was no difference between surgical and non-surgical raters. There was excellent test retest reliability. Conclusion: Single-staged cochlear implant patients are unique for the comparison of scars as they serve as their own controls. Electro cautery is safe, has known advantages and yields similar cosmetic results as incisions made with scalpel.

**O11. Surgical Treatment of Benign Idiopathic Osteonecrosis of the External Auditory Canal – A.**  
Saxby, T. Linder, Vancouver, BC

**LEARNING OBJECTIVES**

Attending surgeons and residents should learn: 1) How to diagnose benign idiopathic osteonecrosis of the EAC. Treatment options, including regular debridement and surgical sequestrectomy 3) Appreciate the benefits of vascularized flaps in covering exposed canal wall 4) Consider surgical options early in treating this difficult condition to avoid patients suffering prolonged symptomatic periods.

**ABSTRACT**

Objective: This study presents a case series of five patients with benign idiopathic osteonecrosis of the external auditory canal undergoing surgical debridement and vascularized flap repair. Particular attention is drawn to the surgical technique employed in achieving a successful outcome in what is often a difficult condition to treat. Methods: A retrospective chart review of patients was combined with a literature review and comparison of surgical techniques and outcomes. Results: Five patients underwent canalplasty, sequestrectomy, vascularized flap and full thickness skin graft of their necrotic canal wall lesions with a mean follow up of 43 months. Successful closure of the canal wall skin with no ongoing ulceration was achieved in every case. All had failed conservative management for at least 8 months (range 8 - 120 months) prior to their successful surgery. Literature review demonstrated 26 further cases of benign idiopathic osteonecrosis with various treatment protocols and outcomes. Approximately half of those treated conservatively failed with medical management alone. Conclusions: Symptomatic benign idiopathic osteonecrosis of the tympanic bone is well treated by provision of vascularized tissue to maximize the chance of bone healing and subsequent cure. It should be considered early to avoid lengthy symptomatic periods, which ultimately may not heal with medical therapy alone.

**RHINOLOGY / SINUS DISEASE**

**R1. An Atypical Presentation of Sinonasal Schwannoma: Nonsolitary with Osseous, Orbital and Intracranial Invasion – T. Ross, Ottawa, ON**

**LEARNING OBJECTIVES**

After reading the case report, the learner will be able to: 1. Understand the typical and atypical presentation of sinonasal schwannoma. 2. Expand the possible differential diagnosis list for poorly differentiated invasive paranasal sinus masses. 3. Understand that the malignancy potential of this type of sinus mass may be difficult to evaluate on the basis of imaging and biopsy alone.

**ABSTRACT**

Neural tumors of the sinonasal tract are infrequent. Schwannomas of this area represent less than 4 percent of the schwannomas of the head and neck; only about 100 cases of this type have been reported in the literature to date. Recent descriptions of the radiologic appearance of these benign tumors indicate that they present as a well demarcated, solitary soft-tissue mass, most commonly in the nasal cavity or ethmoid sinus. We report a rare

case of a paranasal sinus schwannoma that was poorly defined, extensively involved the paranasal sinuses, and invaded into the adjacent orbit and anterior cranial fossa. Biopsies revealed spindle cell neoplasm with tumour invasion into bone but conclusive diagnosis could not be established. Extensive surgical resection was performed, and with the operative specimen a definitive diagnosis of sinonasal schwannoma was made. Conclusion: This case of sinonasal schwannoma is important as its features were contrary to the pervasive theory that sinonasal schwannoma is a well-defined solitary mass. For this reason, sinonasal schwannoma should be considered in the differential of a poorly defined invasive paranasal sinus mass.

**R2. Should it be Removed? A Case of Gunshot Wound Resulting in Retained Lead Pellet in the Sphenoid Sinus and Traumatic Optic Neuropathy** – J.C.C. Wang, A. Javer, a. Thamboo, A. Ko, J. Shewchuk, K. Paton, Vancouver, BC

### **LEARNING OBJECTIVES**

1. Understand the potential consequences of retained lead pellet in the sphenoid sinus, such as lead poisoning, and review the relevant literature. 2. Appreciate the application of endoscopic endonasal transsphenoid surgery in removal of retained lead pellets in the sphenoid sinus and decompression of traumatic optic neuropathy. 3. Understand the prognostic factor for treatment of traumatic optic neuropathy using endoscopic endonasal transsphenoid surgery.

### **ABSTRACT**

Objectives: Retained lead pellets in the sphenoid sinus from gunshot wounds are rare. The prognosis and considerations for removal of the retained lead pellets using endoscopic endonasal transsphenoidal surgeries are not well established. Despite a few reports of successful removal, we present and discuss a case of retained lead pellets in the sphenoid sinus. Case Report: A 21-year-old male presented with penetrating knife and air-gun injuries in the left and right eyes, respectively. Computed tomography showed a metallic object lodged in the left sphenoid sinus, directly anterior to the internal carotid artery (ICA), with possible ICA wall injury. A fractured sphenoid bone fragment compressed the left optic nerve, causing left traumatic optic neuropathy. The question was whether the patient should undergo endoscopic endonasal transsphenoidal surgery for optic nerve decompression and removal of the lead pellet. Conclusion: This case report reviews literature. The prognosis for retained lead pellets in the paranasal sinuses is unpredictable, but the risks associated with endoscopic endonasal transsphenoidal surgery cannot be overlooked. The risks and benefits from the ENT and Ophthalmology standpoint are discussed. Given the position of the lead pellet, we determined that the potential harm of endoscopic endonasal transsphenoidal surgery outweighed the benefits of removal.

**R3. Paranasal Sinus Lymphoma Masquerading as CRS with or without Polyps: A Report of Two Cases and Review of the Literature** – J. Yeung, S. Kilty, Ottawa, ON

### **LEARNING OBJECTIVES**

The learner will understand clinical variability in the presentation of sinonasal lymphoma. The learner will recognize atypical findings in patients presenting with chronic rhinosinusitis that warrant further investigation.

### **ABSTRACT**

Introduction: Chronic rhinosinusitis (CRS) is a common inflammatory disease. Given its variable symptomatology, identifying a concurrent mucosal disease, such as primary lymphoma, can be difficult. Though red flag symptoms may suggest a grave underlying etiology, these ominous findings may be absent. Methods: Two cases of CRS are presented, both having been referred for management. One case had been diagnosed as CRS with nasal polyps (CRSwNP). The other as CRS without polyps and had undergone previous sinus surgery. Both had typical signs and symptoms of their respective CRS phenotypes. Results: The identification of either suspicious mucosal inflammation by endoscopy or a CT scan variant lead to further investigation and mucosal biopsies for each case. One patient was eventually diagnosed with primary sinonasal T-cell lymphoma. The patient with previously diagnosed CRSwNP in fact had sinonasal plasmablastic lymphoma of one maxillary sinus. Red flags identified in the literature review are presented. Conclusion: When confronted with atypical mucosal edema on endoscopy or a variation in sinus CT inflammatory pattern, further evaluation, including mucosal biopsy, should be considered. The cases described illustrate the necessity for maintaining a high index of suspicion in the face of seemingly benign symptomatology.

# GENERAL OTOLARYNGOLOGY

## **G1. Non-granulomatous Supraglottic Edema Due to Mast Cell Pharyngitis: A Rare and Unexplored Disease** – T. Brown, C.J. Jin, M. Bullock, Halifax, NS

### **LEARNING OBJECTIVES**

By the end of the poster presentation, participants will be able to: 1) Recognize mast cell pharyngitis if encountered and include this rare disease in the differential when patients present with supraglottic obstructive symptoms. 2) Review the differential diagnosis for chronic supraglottic edema. 3) Apply approaches to investigation and management of chronic supraglottic edema when encountered in clinical practice.

### **ABSTRACT**

Mast cell pharyngitis is a form of chronic non-granulomatous supraglottic edema, characterized by supraglottic obstructive symptoms and diffuse mast cell infiltration. It is extremely rare, with only one case reported in 1988 and three other cases in the literature with a very similar presentation classified as chronic non-granulomatous supraglottic edema. We present a case of a patient with mast cell pharyngitis who presented with chronic dysphonia, dysphagia, and dyspnea, found to have airway obstruction due to significant edema of her right arytenoid mucosa. She was managed with CO2 laser resection and was diagnosed with mast cell pharyngitis based on pathology and the exclusion of infection, neoplasm, or granulomatous disease. We review the limited literature relevant to this extremely rare and difficult disease, which requires further reported cases to be well defined and currently presents a diagnostic challenge with a myriad differential. We also discuss the possible etiology and treatment strategies for mast cell pharyngitis that currently available or remain to be explored.

## **G2. Posterior Neck Abscess: A Rare Complication of CPAP** – A.R. Esmail, J. Chau, Winnipeg, MB

### **LEARNING OBJECTIVES**

The learner will be more aware of possible risks with CPAP mask straps as a nidus for skin irritation and infection. The learner can become more aware that early intervention for skin irritation in these patients is key to avoiding major complications.

### **ABSTRACT**

Background: Continuous positive airway pressure (CPAP) machines are a great help to many sufferers of Obstructive sleep apnea (OSA). Many patients that use these machines are overweight, and some have other health issues including diabetes. One rare complication encountered in our practice was a posterior deep neck abscess where the CPAP mask strap was the nidus for infection. There are no previous case reports of this in the literature. Design: Case Report. Results: A 49 year old male with a past medical history of OSA, DMII, CVD, MI, HTN, morbid obesity presents with significant edema, erythema and pain in the posterior neck. The patient was seen one week earlier with a rash and boil on his neck from where he was wearing his cpap mask strap. His Blood glucose was 20.9 and his WBC was 18.7. I&D of 15 cc pus was done in the ER. The patient was admitted and required another I&D in the OR PAD #2 with packing. Ptn was discharged PAD#8. swabs grew MSSA. Conclusion: Although rare irritation from a CPAP mask in an immunocompromised patient can be a nidus for serious infection. Proper management and early intervention of irritation should be undertaken. Patients should be counseled on importance of hygiene in this area.

## **G3. Safe Resection of a Massive Parotid Lesion of Kimura's Disease Through the Use of High Dose Pre-operative Steroids** – J. Franklin, J. Li, Kingston, ON

### **LEARNING OBJECTIVES**

1. To know the presenting features of Kimura's disease. 2. To understand the challenges in diagnosis and treatment of Kimura's disease. 3. To know the different treatment modalities for Kimura's disease.

### **ABSTRACT**

Background: Kimura's disease is rare disorder characterized by hypertrophic lymphoid tissue and peripheral eosinophilia. Almost universally reported in males of Asian descent, there is no know etiology. Treatment has included oral and intra-lesional steroids. The disease is challenging due to a tendency to recur once treatment ceases. We report a case of Kimura's disease presenting as a massive parotid lesion managed with pre-operative

oral steroid and surgical resection. Case Report: A 28 year old man presents with a massive parotid lesion. FNA and core biopsy suggested Kimura's disease and the diagnosis was indemnified through the finding of elevated peripheral eosinophils. Oral and intra-lesional steroids were effective but only temporarily. Following hematology opinion surgical management was recommended. Pre-operative steroids were given, allowing for the safer resection of this lesion as the size was significantly reduced. The parotidectomy was performed uneventfully and the facial nerve was preserved. Pathology confirmed Kimura's disease and there has been no recurrence in the absence of steroid. Conclusions: Surgical management of Kimura's can be difficult due to surrounding inflammation and the bulk of the lesions. We report safe excision of a massive parotid lesion through pre-treatment with high dose steroids.

**G4. Spontaneous Episodic Tonsillar Hemorrhage in Type III Von Willebrand Disease – M. Gousseau, J Chau, Winnipeg, MB**

**LEARNING OBJECTIVES**

1. Review the pathophysiology of Von Willebrand's Disease. 2. Review the relevance of this rare disorder to the Otolaryngologist-Head & Neck Surgeon. 3. Review the secondary role of surgery in managing tonsillar hemorrhage in these patients.

**ABSTRACT**

Background: Von Willebrand Disease (VWD) is the most common bleeding disorder in humans, affecting roughly 1% of the population. Severe (Type 3) VWD is considerably more rare, affecting 2-3 persons per million, characterized by spontaneous mucocutaneous, soft tissue & musculoskeletal bleeding. Spontaneous tonsillar hemorrhage is an exceedingly rare presentation. Design: Case Report with literature review. Results: A 25 year old female with a past medical history of Type 3 VWD presented with significant unilateral tonsillar bleeding. There was a long history of tonsillar bleeding previously, responsive to treatment with Humate (Factor VIII/VWF), but failing in this instance. On examination frank hemorrhage was noted from the left tonsil, with no infectious features noted. Surgical management was deferred in favour of medical treatment with Humate and Tranexamic Acid which controlled the hemorrhage adequately. At 2 and 6 month follow-up no further episodes of hemorrhage had occurred. Conclusion: Medical therapy can be successful in controlling spontaneous tonsillar hemorrhage in Type 3 VWD. Other published literature supports surgery as a secondary modality indicated in more refractory cases.

**G5. Thyroid Cartilage Fracture as the Result of Sneezing: Case Report and Literature Review – M. Klein, K. Ansari, K. Klein, G. Mulholland, Edmonton, AB**

**LEARNING OBJECTIVES**

After reading this poster presentation, the CSO attendee will be able to describe the typical presentation of laryngeal fracture secondary to barotrauma, understand the best treatment modality, and feel comfortable managing this relatively rare presentation. The learner will also have an understanding of all previous case reports generated from a comprehensive literature review, and have a detailed understanding of the case presented here. Along with this, the learner will understand typical outcomes for cases presenting this way.

**ABSTRACT**

**OBJECTIVES** - To describe a unique case of a 34 year old man who sustained a thyroid cartilage fracture due to sneezing. Additionally, to perform and discuss a literature review of thyroid cartilage fractures caused by increased airway pressures, comparing and contrasting the presentations, outcomes, and treatment modalities used. **METHODS** - A structured search strategy was created using key terms such as "thyroid cartilage", fracture, sneeze and other synonymous terms. The search was then applied to the Web of Science, PubMed and Embase databases without date or language restrictions. **RESULTS** - The literature search identified reports of only three similar cases. All published reports described cases of middle aged males presenting with sudden onset dysphonia and odynophagia. Our management plan was in accordance with other reported cases and standard accepted protocols for the management of non – displaced stable thyroid cartilage lamina fractures. **CONCLUSIONS:** A CT scan with fine cuts of the larynx is the gold standard in the evaluation of laryngeal fracture. It is suggested in the literature that spontaneous fractures in individuals may be the result of abnormal ossification and mineralization of the thyroid cartilage. There is no suggestion of predisposition due to congenital abnormality.

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## **FACIAL PLASTICS AND RECONSTRUCTION**

**F1. Patient Satisfaction and Safety with Local Anesthesia and Sedation in Facial Plastic Surgery – A.**  
Rassouli, M. Samaha, Montreal, QC

### **LEARNING OBJECTIVES**

By the end of this presentation, Otolaryngology students, residents and staff will be able to appreciate the role of local anesthesia and sedation in facial plastic surgery as well as its safety and associated patients' satisfaction.

### **ABSTRACT**

**OBJECTIVES:** To evaluate satisfaction and safety of patients undergoing facial plastic surgery with local anesthesia and sedation. **METHODS:** Subsequent to attainment of approval from X University Ethics Committee, patients undergoing facial plastic surgery at one surgeon's office were recruited consecutively between March 1<sup>st</sup> and September October 30th, 2012. The study was explained and the consent form signed during their surgical consultation visit. At the end of this consultation, the patients completed the Amsterdam anxiety questionnaire form. All rhinoplasties were performed under local anesthesia with mild sedation and peri-operative medications and vitals were recorded. During their routine 1-week post-operative follow-up, patients completed the Iowa Satisfaction with Anesthesia Questionnaire. **RESULTS:** Significant majority of our patients demonstrated satisfactory experience. Pre-operative anxiety level had no impact on post-operative satisfaction with anesthesia and sedation. Furthermore, the majority of our patients would prefer the same type of anesthesia for future procedures when possible, including those who had experienced general anesthesia in the past. There were no peri-operative complications to report in this study. **CONCLUSIONS:** Local anesthesia with mild sedation is safe and demonstrates high level of satisfaction among patients undergoing facial plastic surgery.

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## **EDUCATION**

**ED1. enttraining.org: An Online Self-assessment Program for Otolaryngologists – M. Roskies, S.**  
Daniel, Montreal, QC

### **LEARNING OBJECTIVES**

By the end of this session the healthcare professional in the field of otolaryngology and those in primary practice should be able: 1. To be aware of the need for and advantages of online training self-assessment programs in all medical specialties. 2. To identify enttraining.org as the only known online CPD training module in otolaryngology available. 3. To familiarize themselves with the website and know how to sign up, locate quizzes and log CME credits accordingly. 4. To recognize the utility of this website for their own teaching purposes when presented with information from an online pilot project.

### **ABSTRACT**

**OBJECTIVES:** To identify symptoms and signs as well as VEMP thresholds and air-bone gap (ABG) values to predict a positive CT scan for superior canal dehiscence (SCD). **METHODS:** A retrospective study was conducted to compare clinical, audiometric and radiological features of positive and negative CT scan of patients suffering from SCD symptoms. **RESULTS:** 106 patients were included: 44 had a negative and 62 had a positive CT scan. The latter showed more cochlear symptoms (4.3 vs. 2.6)( $p<0.001$ ) but no statistically significant difference for vestibular symptoms(2.16 vs. 1.8) was identified. VEMPs thresholds of the positive and negative scan groups were respectively 66 and 81 dB for cVEMPs ( $p<0.001$ ) and 64 and 90dB for oVEMPs ( $p=0.011$ ). Positive CT scan group showed higher ABGs only at 250Hz (15dB), 500Hz (13dB) and 2kHz (5dB) ( $p<0.001$ ,  $p<0.001$  and  $p=0.007$  respectively). No statistical significance was found when comparing both groups for PTA, air and bone conduction. 23% and 27% of the positive CT scan group showed a Valsalva induced vertigo and positive Siegle test respectively, against 2.3% and 0% of the negative scan group( $p =0.003$ ,  $p<0,001$ ). **CONCLUSIONS:** Number of cochlear symptoms, ABG, VEMP and a positive Siegle test are good tools to predict a positive CT scan for SCD while vestibular symptoms are not.



## **ED2. The Utilization of Kotter's Change Management Paradigm to Address RCPSC Accreditation Deficiencies in PGME Training Programs – J.P. Vaccani, L. McLean, Ottawa, ON**

### **LEARNING OBJECTIVES**

1) This poster will provide the reader with knowledge about the 8 steps of Kotter's Change Management paradigm. 2) The reader will learn how to apply this change management paradigm when dealing with issues within a residency program.

### **ABSTRACT**

Background: Accreditation by the Royal College of Physicians and Surgeons of Canada (RCPSC) is an important and necessary process for Postgraduate Medical Education (PGME) training programs. Results of the process can have a significant impact on residents, educators, hospitals and universities—strengths should be celebrated and noted deficiencies need to be addressed. However, once the evaluation has been completed, there are currently no tools provided to individual programs to help address deficiencies. Kotter's paradigm offers a structured approach to successfully effect change. Objective: To provide PGME training programs with an effective post-accreditation strategy by demonstrating one program's utilization of Kotter's Change management model to address identified program deficiencies. Methods: RCPSC accreditation of the Otolaryngology-Head and Neck Surgery residency program at the University of Ottawa occurred in January 2010. The deficiencies noted by the review process were addressed by following Kotter's model. The 8-step paradigm offered the residency training committee and the program director with tools useful to effect the necessary changes to the program. Conclusion: Kotter's Change Management paradigm can be a very useful tool to aid PGME programs and Program Directors to effectively achieve the required accreditation outcome.

## **ED3. Part-time Faculty in Academic Otolaryngology: A View of Chairs – N. Gabra, L. Nguyen, S. Frenkiel, Montreal, QC**

### **LEARNING OBJECTIVES**

By the end of our presentation the participant will be able to: 1- Describe the current situation of Part-Time Faculty (PTF) in academic Otolaryngology – Head and Neck Surgery (OTL-HNS) in Canada. 2- Describe the advantages and disadvantages of Academic PTFs as reported by OTL Chairs. 3- List the current challenges that Chairs face in having PTFs in their academic institution.

### **ABSTRACT**

Objectives: To describe the current situation of Part-Time Faculty (PTF) in academic Otolaryngology – Head and Neck Surgery (OTL-HNS) in Canada, and to obtain the view of Chairs concerning PTF in their institution. Methods: A 23-item questionnaire was sent to the 14 Chairs of OTL-HNS departments in Canada. Chairs assessed the advantages, disadvantages, challenges, attitudes and policies related to PTF on a 5-point Likert scale. Results: Chairs from 11 departments (76%) responded to the survey, with 91% of academic institutions employing PTF. PTF comprise 51% of the 235 faculty members included in the study, and 79% of PTFs are male. Although the majority of Chairs believed that PTF enhance faculty quality and diversity, 50% report no advantages in hiring PTF and that recruitment of PTF would remain the same or decrease over the next 5 years. Disadvantages cited include less productivity and less commitment compared to full-time faculty. Chairs find it challenging to clearly define PTF, to ensure equal footing in decision-making and to provide them with adequate privileges. Conclusion: Overall, Chairs were satisfied with their PTF, and cited a variety of advantages, disadvantages and challenges related to having PTF.

## **ED4. Rapid Prototyping of the Hyoid Bone – A Novel Clinical Classification– B. Wu, D. Pahwa, J. Hochman, J. K.M. Chau, Winnipeg, MB**

### **LEARNING OBJECTIVES** N/A

### **ABSTRACT**

Objectives: At present, no clinical classification exists regarding hyoid bone morphology. The primary purpose of this study is to propose a clinical classification system for hyoid bone morphology using rapid prototyped models. Secondary objectives include validation of sequencing software. Methods: CT image series of 100 random hyoid bones were processed and sequenced in 3D polygonal mesh format and photo printed as 3D models for analysis. Hyoid morphology was then measured in 3 dimensions, including volume, gender, age and ethnicity data were

also collected. Results: Two general morphological phenotypes were observed. Gender differences were found but no difference was noted in age or ethnicity. The margin of difference between the computer rendered models and the sequenced computer models was negligible. Conclusions: Two general morphological phenotypes of the hyoid bone were noted and differed between genders. Computer sequenced models correlated with printed models with excellent precision.