



Canadian Society of Otolaryngology-  
Head & Neck Surgery

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# 64<sup>th</sup> Annual Meeting Niagara Falls, ON

*"Technology Transforming Patient Care"*

## **Overall Learning Objectives**

This meeting offers delegates the unique opportunity to learn from experts (academic and community) and share their own professional experience in various areas of otolaryngology-head and neck surgery. Participants are encouraged to critically investigate and challenge how technologies can transform patient care.

- To offer podium and poster presentations of up-to-date clinical and scientific material with special focus on technological advancement in otolaryngology-head and neck surgery.
- To present a variety of workshops, panels and subspecialty sessions to provide more focused subject matter in an interactive setting.
- To provide a platform for constructive discussions on general otolaryngology as well as subspecialty areas including head / neck oncology, laryngology, rhinology, otology, neurotology, pediatric otolaryngology, facial cosmetic reconstructive surgery and medical education.
- To promote an atmosphere of academic, professional and social interaction among Society members, allied health providers and honored guests and corporate partners.

# 64<sup>th</sup> Annual Meeting Niagara Falls, ON

May 23 – 25, 2010 – SHERATON ON THE FALLS HOTEL

**Sunday, May 23, 2010**

**Great Room C**

**Opening Session** (CPD credit hrs – 3.25)

**Chair: Dr. Joseph C. Dort, Calgary, AB**

- 08:00 – 08:20 Presidential Address and introduction of Guest of Honour – Dr. Joseph Dort, CALGARY, AB
- 08:20 – 08:30 Guest of Honour – Dr. Julian Nedzelski, TORONTO, ON
- 08:30 – 08:35 Introduction of Guest Speaker Dr. Douglas Chepeha – Dr. Joseph Dort, CALGARY, AB
- 08:35 – 09:20 ***Treatment Selection in Head and Neck Cancer: The Value of Customizing Therapy*** – Dr. Douglas Chepeha, ANN ARBOR, MI

## ABSTRACT

Each patient is different and as a result each patient's tumor is different. The DNA that makes each of us unique is the same DNA that affects tumor behaviour, immune monitoring, response to a specific treatment and the side effects from treatment. In addition, environmental exposures, such as tobacco, cannabis, alcohol and viral infection can alter cellular regulation that in turn affect tumor biology and the resultant phenotype of the tumor. A number of these factors are taken into account by a good clinician without deliberate quantification.

An additional tool for predicting tumor behaviour is the use of molecular markers. These markers are the proteins whose production is controlled by the DNA of the tumor. Knowing the status of key markers could help to choose the treatment regimen for a particular patient. Much as we use blood tests to determine the appropriate treatment for many medical conditions, we hope to be able to use molecular markers to tune and adjust the treatment of a particular patient. In head and neck, a few markers have emerged as important predictive indicators of the underlying tumor biology. As we move forward, we hope to incorporate these markers to customize the treatment of our patients.

- 09:20 – 09:25 Introduction of Special Presentation on Undergraduate Medical Education – Dr. Joseph Dort, CALGARY, AB
- 09:25 – 09:40 ***Educating the eGeneration: Unifying the Curriculum from Website to Bedside*** – Dr. Kevin Fung, LONDON, ON
- 09:40 – 10:10 COFFEE BREAK
- 10:10 – 10:15 Introduction of Guest Speaker Dr. Ross Mitchell – Dr. Joseph Dort, CALGARY, AB
- 10:15 – 11:00 ***Virtual Biopsies: Non-invasive Molecular Diagnosis of Cancer*** – Dr. Ross Mitchell, CALGARY, AB

## ABSTRACT

Our expanding knowledge of the genetic basis and molecular mechanisms of cancer is beginning to revolutionize the practice of clinical oncology. Increasingly, molecular biomarkers of prognosis and treatment response are being used to classify tumors and direct treatment decisions. Advanced medical imaging platform such as MRI, PET and CT provide incredibly detailed images of tumors that reflect their structure, biochemistry, physiology and perhaps genetics. Studies by the Imaging Informatics Lab at the University of Calgary, and others, show that information about a tumor's molecular phenotype can be obtained by using novel algorithms and computational tools to more fully analyze tumor images. Such "virtual biopsies", performed by applying these image processing and machine learning techniques to routine diagnostic images (e.g. MRI, PET or CT), could be a rapid and powerful means of assaying important cancer biomarkers. If successfully validated, and proven to have suitable sensitivity and specificity, the use of non-invasive imaging-based molecular diagnostic tests could be a valuable complement to conventional surgical biopsies. For example, virtual biopsies could be important in the context of large heterogeneous tumors, multiple metastases, surgically inaccessible tumors, and settings where disease progression needs to be monitored frequently over time.

Virtual biopsy research lies at the intersection of molecular imaging, medical imaging physics, and biocomputation, and is highly complementary to these areas. The presentation will cover key enabling technologies behind virtual biopsies, and discuss some recent progress in this research.

- 11:00 – 11:05 Introduction of Special Speaker Dr. Antonia Maioni – Dr. Andre Tan, KINGSTON, ON
- 11:05 – 11:50 ***Health Reform in Canada and the United States*** – Dr. Antonia Maioni, MONTREAL, QC
- 11:50 – 13:15 LUNCH AND VISIT TO EXHIBITS

## **Sunday, May 23, 2010 Great Room C**

### **Workshop #1** (CPD credit hrs – 0.75)

- 13:15 – 14:00 ***Systematic Review and Meta-analysis: A Guide for Otolaryngologists*** – D.R. Schramm, N. Barrowman, D. Fergusson, OTTAWA, ON

### LEARNING OBJECTIVES

At the end of the symposium, the attendees should be able to:

- Understand the processes involved in the design, conduct, and analysis of a systematic review and meta-analysis
- Be able to critically appraise both a published systematic review and meta-analysis
- Identify opportunities for conducting a systematic review or meta-analysis

## ABSTRACT

Systematic reviews synthesize present knowledge through a comprehensive review of the literature using pre-defined search strategies in an attempt to minimize bias and random error. Quantitative systematic reviews may also summarize results using statistical meta analysis when studies are comparable. This technique allows researchers to 'pool data' from several individual studies into a single summary estimate of the result.

The goal of this symposium is to give basic theoretical knowledge to the otolaryngologist who wants to improve his/her skills in appraising and interpreting this important type of research. This symposium should also allow otolaryngologists to identify opportunities for collaboration in systematic reviews and meta-analyses.

David Schramm MD, a neurotologist with experience in clinical epidemiology will present the rationale for conducting systematic reviews and meta-analyses. The difference between a systematic review and meta-analysis will be discussed. The importance of a well structured research question for a systematic review or meta-analysis will be emphasized.

Dean Fergusson PhD, Director, Clinical Epidemiology Program, Ottawa Hospital Research Institute will review the seven basic steps of conducting and appraising a systematic review and meta-analysis. The "PICOS methodology" will be explained. The steps for an efficient search strategy, data extraction and analysis will be discussed.

Nick Barrowman PhD, Senior Statistician, Children's Hospital of Eastern Ontario Research Institute will define heterogeneity across study results and the impact on the analysis. Statistical analyses for heterogeneity will be explained. Pooling of study results and the use of fixed and random effect models will be discussed.

## **Workshop #2**

14:00 – 15:00 **Current Management of Epistaxis** - B.W. Rotenberg, L. Maxwell, I. Witterick, D. Lee, LONDON, ON

### LEARNING OBJECTIVES

- 1) After attending the workshop, participants will be able to describe current thinking on the management of epistaxis.
- 2) After attending the workshop, participants will understand options available to manage epistaxis both in the community and in academic settings.
- 3) After attending the workshop, participants will understand the relative role of surgery versus interventional radiology in managing severe nosebleeds.

### ABSTRACT

**OBJECTIVE:** The purpose of our workshop is to review the current management of epistaxis

**METHODS:** A panel of 2 Otolaryngologists (Maxwell (community), and Witterick (academic)), and ENT resident (Sowerby) and an interventional radiologist (Lee) will review and update the audience on current perspectives on epistaxis. A full Q&A session will ensue and, time permitting, case discussions will also take place.

**RESULTS:** Not applicable / **CONCLUSIONS:** Not applicable

15:00 – 15:30 COFFEE AND VISIT TO EXHIBITS

## **Workshop #3** (CPD credit hrs – 0.75)

15:30 – 16:15 **Clinical Importance of Bacterial Biofilms in Chronic Sinus and Ear Disease**  
– S.J. Kilty, M.Y. Desrosiers, D. Morris, OTTAWA, ON

#### LEARNING OBJECTIVES

- 1) By the end of this session the audience member will be aware of what a biofilm is, how a bacterial biofilm forms, and methods of identification of a biofilm.
- 2) By the end of this session the audience member will be able to describe the current principles for the treatment of biofilm disease.
- 3) By the end of the session the audience member will be able to describe the importance biofilms in chronic disease of the paranasal sinuses and middle ear.

#### ABSTRACT

**BACKGROUND:** Bacterial biofilm is a form of bacterial existence often implicated in chronic inflammatory diseases with clinically negative culture results. It is believed to figure in the pathogenesis of chronic rhinosinusitis (CRS), as well as chronic otitis media (COM) and adenoiditis, making it of interest to otolaryngologists from all branches of the specialty.

**OBJECTIVES:** To share the available scientific evidence on the role of bacterial biofilms in CRS, COM and adenoiditis as well as the existing and potential therapeutic approaches with practicing physicians, in order to familiarize them with this important and emerging subject area in ENT.

**METHODS:** The 3 presenters will examine and elaborate on the current evidence for bacterial biofilm presence in CRS, COM and adenoiditis and present and discuss current methods of detection and potential clinical therapies, illustrating this with practical examples taken from their practices.

**RESULTS:** The attendees of the workshop should come away with a better understanding of what are biofilms and their role in ENT pathologies; methods for the detection of biofilms and potential treatments for this form of bacterial infection. .

**CONCLUSIONS:** The attendee will leave the session with a greater knowledge of biofilm science and its clinical application in CRS, COM and adenoiditis.

#### **Workshop #4** (CPD credit hrs – 0.75)

16:15 – 17:00 ***Are Biomarkers Ready for Prime Time?*** - D. Chepeha, Ann Arbor, MI

#### **Workshop #5** (CPD credit hrs – 1.005)

17:00 – 18:00 ***Challenges in Pediatric Otolaryngology*** – S. Daniel et al

#### LEARNING OBJECTIVES

At the end of this symposium the participants will be able to

- Gain knowledge in novel approaches to pediatric cholesteatoma in children.
- Integrate current best practice guidelines for otitis media.
- Discover pearls to managing the chronically draining ear.
- Learn the latest on BAHA surgery and its indication.

#### ABSTRACT

The panel will discuss through challenging clinical cases and the latest updated approach to pediatric otology problems.

**Sunday, May 23, 2010**  
**Strategy Room 2**

**Workshop #6** (CPD credit hrs – 0.75)

13:15 – 14:00 **Facial Trauma for the Otolaryngologist - Head and Neck Surgeon- C.C.**  
Moore, LONDON, ON

LEARNING OBJECTIVES

Participants should be able to

1. understand relevant reconstructive issues when dealing with maxillofacial trauma;
2. recognize the importance of incision camouflage in facial trauma;
3. understand basic concepts and technique used in treating the facial trauma patient
4. explore the possibilities for the use of endoscopic approaches in facial trauma.

ABSTRACT

This will include an overview of relevant anatomy of the craniofacial skeleton and soft tissue with specific details on the management of commonly seen low velocity facial fractures. The course is designed to address step by step management of common facial fractures seen and to present cases in such a fashion that these techniques may be incorporated into the attendees's practice. Specific details of each fixation technique used for frontal sinus, orbital, nasal, zygoma/arch, maxilla and mandible fractures are given with surgical photographs and video of procedures. The use of endoscopes in the repair of facial fractures will be demonstrated including the benefits and pitfalls of these approaches.

**Workshop #7** (CPD credit hrs – 1.00)

14:00 – 15:00 **Sunnybrook Otology Workshop: Cochlear Implantation in 2010 - J. M.**  
Chen, J. Nedzelski, V. Lin, D. Shipp, L. Freisen, TORONTO, ON

LEARNING OBJECTIVES

At the end of the workshop, the learner should be able to....

1. Define current Implantation criteria among adults.
2. Appreciate the level of performance achievable through cochlear implantation.
3. Realize a basic understanding of the current implant technology and indications for hearing preservation and bilateral implantation.
4. Look into the future.

ABSTRACT

This workshop is designed for a General Otolaryngology audience to serve as an update and review in the management of severe to profound SNHL in the context of Cochlear Implantation in adults. Advances in technology and expansion of implantation criteria will be communicated to effect a possible change in the current care and referral of suitable candidates for this technology.

15:00 – 15:30 COFFEE AND VISIT TO EXHIBITS

## **Workshop #8** (CPD credit hrs – 0.75)

15:30 – 16:15 ***Peer Review for the Practising Otolaryngologist, and How to Become an Expert Reviewer at the Journal*** - B.W. Blakley, WINNIPEG, MB, H. Seikaly, E. Wright, EDMONTON, AB, I. Witterick, TORONTO, ON

### LEARNING OBJECTIVES

After this presentation the participants will:

1. Have a better understanding of the peer review process as it applies to clinical practice and,
2. Will be willing and able to participate in academic publishing.
3. Acquire the skills for becoming a competent reviewer

### ABSTRACT

PREAMBLE: Many clinicians find the medical literature confusing and/or time-consuming and decline to participate. Understanding the peer review process is an important step in the application of medical literature to patient care. In this workshop the editors of The Journal of Otolaryngology-Head and Neck Surgery will provide a practical outline the peer-review process with a view to reducing barriers to participation.

### PROGRAM:

1. 8 minutes: Differentiating among good papers, good evidence, and just controversial fluff. (Dr. Ian Witterick);
2. 8 minutes: The peer review process – what it is and what it is not. (Dr. Erin Wright)
3. 8 minutes: How to read a paper or do a quality review in a time-efficient manner. (Dr. Hadi Seikaly)
4. 8 minutes: How can a non-statistician suspect when statistics are invalid? (Dr. Brian Blakley)
5. 10 minutes: Panel discussion: (Drs. Witterick, Wright, Seikaly; Moderator Brian Blakley)

## **Workshop #9** (CPD credit hrs – 0.75)

16:15 – 17:00 ***Nasal Reconstruction for the Otolaryngologist-Head and Neck Surgeon*** – S. M. Taylor, HALIFAX, NS

### ABSTRACT

Objective: To provide a basic overview of nasal reconstruction for the Otolaryngologist-Head and Neck Surgeon.

Methods: This one hour workshop will begin with an overview of nasal anatomy and classification of nasal defects. The presentation will cover the full spectrum of techniques available to the reconstructive surgeon with a focus on locoregional flaps.

Results: Attendance to this workshop should result in the surgeon becoming familiar with a basic approach to nasal reconstruction with detailed information on locoregional flap reconstruction.

Conclusion: Nasal defects are commonly encountered by the Otolaryngologist-Head and Neck Surgeon. A systematic approach to the classification and reconstruction of nasal defects is essential to achieve satisfactory patient outcomes.

## **Sunday, May 23, 2010 Strategy Room 3**

### **Workshop #10** (CPD credit hrs – 0.75)

13:15 – 14:00     ***Surgical Simulation in Otolaryngology*** - S.K. Agrawal, H.M. Ladak,  
LONDON, ON

#### LEARNING OBJECTIVES

At the end of the workshop, attendees will:

- 1) have an understanding of the current status of surgical simulation in Otolaryngology in Canada;
- 2) have an appreciation of both experimental and commercially available surgical simulators around the world;
- 3) be able to critically evaluate these simulators for both validity and skills transfer;
- 4) be able to assess whether surgical simulation should be implemented in their own practices and training programs.

#### ABSTRACT

Virtual reality simulation has long been used in the aviation industry, but there has been significant recent interest in the realm of surgical simulation. Since the landmark papers by Seymour and Grantcharov showing the transfer of surgical skills from the simulator to the operating room in residents, there has been a flurry of development in many surgical fields. Otolaryngology is particularly well suited to simulation and several experimental and commercial training simulators are now available.

This workshop will review the current progress being made in Otolaryngology surgical simulation across multiple centres in Canada. We will also highlight other experimental and commercial simulators around the world in an interactive medium, using videos and haptic devices. An evidence-based review of these simulators will be presented along with their state of validation testing and skills transference.

Future directions in surgical simulation research will be presented. Finally, we will examine whether surgical simulation should be implemented in Otolaryngology training programs and licensure examinations in the future.

### **Workshop #11** (CPD credit hrs – 1.00)

14:00 – 15:00     ***Controversies in Oral Cancer*** - K.A. Pathak, P. Kerr, R.W. Nason, N. R.  
Viallet, D.S. Sutherland, WINNIPEG, MB

#### LEARNING OBJECTIVES

By the end of 90 minutes the practising otolaryngologists and residents will be able to understand the existing evidence about the controversies in management of premalignant and malignant lesions of oral cavity, apply the state of art knowledge gained on management of node negative neck, mandible preserving alternatives and options of reconstruction as well as weigh them against current standard of care.

#### ABSTRACT

OBJECTIVES: To understand the advances in management of premalignant and malignant lesions of oral cavity in terms of minimally invasive surgery including newer modalities such as photodynamic therapy, mandibular preservation alternatives, status of sentinel

lymph node biopsy for NO neck and reconstructive options in oral cavity. The emerging treatment modalities will be weighed against the conventional treatment.

**METHODS:** The workshop will involve a series of five presentations on -

1. Management of premalignant lesions of oral cavity.
2. Alternatives to mandibulectomy.
3. Sentinel lymph node biopsy Vs Selective neck dissection for NO neck.
4. Emerging treatment modalities.
5. Reconstructing oral cavity- what fits where?

Each presentation will be for 15 minutes each. This will be followed by a combined panel discussion for 15 minutes to enable two way interactions with the audience. We will present a set of case discussion to assess audience response against the recommendations by the panelists.

**RESULTS:** This workshop will present the available evidence on these contentious issues in the management of oral cancer. We will evaluate the place of emerging technology in practice of oral oncology. All presentations will conclude into evidence based recommendations.

**CONCLUSIONS:** This workshop will be of relevance to residents, fellows and practice physicians alike.

15:00 – 15:30 COFFEE AND VISIT TO EXHIBITS

**Workshop #12** (CPD credit hrs – 0.75)

15:30 – 16:15 ***Laryngeal Papillomatosis in Adults*** - K.M. Kost, MONTREAL, QC, T. Brown, HALIFAX, NS, M. Allegretto, EDMONTON, AB, D. Bosch, CALGARY, AB, M. Morrison, VANCOUVER, BC, J. Anderson, TORONTO, ON, D. Eibling, USA, K. Fung, LONDON, ON

**LEARNING OBJECTIVES**

At the end of the workshop, participants will:

1. Understand the etiology of adult respiratory papillomatosis.
2. Be aware of viral subtypes and their impact on disease.
3. Appreciate the pathophysiology of the disease.
4. Know how and when to apply the various treatment options.
5. Be aware of new developments.

**ABSTRACT**

**OBJECTIVES:** 1) Discuss how viral subtypes affect disease process; 2) Review management options; 3) Explore new developments; 4) Present cases for audience discussion.

**METHODS:** This 2 hour workshop will consist of a didactic portion during which panelists will present the following: 1) Virology, including how viral subtypes affect the virulence of the disease 2) Transmission 3) Surgical management, including a comparison of various techniques 4) Voice outcomes 5) Medical management with adjuvant therapy 6) The role of reflux in disease behavior 7) Future directions. During the second half, cases will be presented and discussed by both the panelists and the audience. Throughout the workshop, audience interaction will be encouraged and solicited.

**RESULTS:** Adult respiratory papillomatosis is a complex disease of viral etiology. Several factors influence disease virulence, including host status and viral subtype. Treatment must be multifaceted to include surgery and adjuvant therapy, both local and systemic. A variety

of cases with videoclips will be used to highlight the complexity of the disease and therapeutic challenges.

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## **Monday, May 24, 2010**

### **Great Room C**

**Paper Presentations: General Otolaryngology** (CPD credit hrs – 2.00)

**Chair: Dr. L. Maxwell, Saint-John, NB**

08:00 – 08:08 ***Incidence of Respiratory Complications after Tonsillectomy - A.***  
Darnbrough, D. Leitao, WINNIPEG, MB

#### ABSTRACT

**OBJECTIVES:** To identify the risk of respiratory complications in pediatric patients admitted to hospital post-tonsillectomy. We also sought to determine whether a diagnosis of OSA was a better predictor of complications compared to other patient characteristics.

**METHODS:** Retrospective chart review of all cases from Jan 1, 2007 to Dec. 31, 2008. Respiratory complications included need for oxygen, re-positioning manoeuvres, oral airway, NIPPV, and intubation. Risk factors reviewed included diagnosis of OSA, age, weight, syndromes, craniofacial disturbance, neuro-developmental disorders, and medications given.

**RESULTS:** 297 pediatric patients were admitted post-tonsillectomy for this 2 year span. The risk of respiratory complications is 15%. Risk of major respiratory complications is 3%, all of whom had major co-morbidities. A diagnosis of OSA was not an independent predictor of respiratory complications.

**CONCLUSIONS:** Healthy patients with no underlying co-morbidities are at low risk for respiratory complications post-tonsillectomy, regardless of indication for surgery or diagnosis of OSA.

08:08 – 08:16 ***Codeine Safety in Post-operative Children: A Systematic Review - B.***  
Hassouneh, G. Guyatt, D. Leitao, WINNIPEG, MB

#### LEARNING OBJECTIVES

The audience will achieve good understanding of the current evidence for the safety of oral codeine use in post-operative children. This can be used to identify potentially high-risk patients and improve current prescription practices.

#### ABSTRACT

**INTRODUCTION AND OBJECTIVES:** Adenotonsillectomy is a common operative procedure in children. Achieving adequate pain control is a critical component of the post-operative care. Oral codeine with acetaminophen is widely prescribed post-adenotonsillectomy. Codeine has good oral bioavailability and provides further improvement in pain control for the majority of patients. Recent reports have suggested that codeine is associated with serious toxicity in patients with “ultra-rapid meta bolism” variant. This has significant impact on the current clinical practices. The object of this study is to perform a comprehensive systematic review of the literature examining the evidence for serious toxicity or adverse events from codeine use in post-operative children.

**METHODS:** A high-sensitivity search strategy is conducted to identify articles reporting on the safety of codeine. The full text of all possibly relevant articles is assessed by two independent reviewers. Articles are included in the review based on a priori stated inclusion and exclusion criteria. Data abstraction is performed by two independent reviewers for all included articles.

**RESULTS AND CONCLUSIONS:** A summary of the findings from the included articles is presented. The results are used to formulate conclusions on the quality of evidence for serious toxicity or adverse events following codeine use.

08:16 – 08:24      ***Quality of Life in Children After Tonsillectomy +/- Adenoidectomy for Recurrent Tonsillitis*** - M. Shakeel, A. Trinidad, C. Claire, K.W. Ah-See, ABERDEEN, SCOTLAND

**LEARNING OBJECTIVES**

- Highlight the indications for surgical intervention for recurrent tonsillitis.
- Present a summary of current literature on the QoL improvement after tonsillectomy.
- Share our experience of using a validated QoL tool - Glasgow Children Benefit Inventory.
- By the end of our presentation the audience would have acquired enough familiarity with QoL measurement using GCBI that they may want to use this tool for analyzing their local practice.

**ABSTRACT**

**OBJECTIVES:** To measure the change in children’s quality of life who underwent tonsillectomy +/- adenoidectomy for recurrent tonsillitis, using Glasgow Children Benefit Inventory (GCBI).

**METHODS:** Retrospective hospital case notes review of all children who underwent tonsillectomy +/- adenoidectomy for recurrent tonsillitis over 4 years (2002-2005) under our care. The data collection included demographics, indication of surgery, main operation, other operations, surgical technique and post-operative recovery. The validated questionnaire, GCBI was posted to the parents of these children along with an addressed, stamped, return envelope. The data were collected and analyzed using excel and SPSS.

**RESULTS:** A total of 549 patients were identified but 43 were excluded as the patients had moved with no forwarding address available. The response rate was 42%. The GCBI has 4 domains and provides detailed information on the perceived benefits of surgical intervention. The results showed that the scores were mostly indicative a benefit from the procedure. In our study group, the average total score was 22 with evidence of improvement in all the four subscales of GCBI.

**CONCLUSION:** Our results are comparable to published data. This study confirms sustained improvement in children’s quality of life and validates adenotonsillectomy as an appropriate treatment for recurrent tonsillitis.

08:32 – 08:40 ***Hyoid Procedures in Sleep Apnea Surgery: An Evidence Based Review***  
J.K.M. Chau, R. L Goode, Palo Alto, CA

LEARNING OBJECTIVES

1. Review the Oxford classification and grading of Medical literature.
2. Understand the various techniques of hyoid myotomy and suspension.
3. Understand the current indications for hyoid myotomy and suspension.
4. Understand the current body of evidence supporting the utility of hyoid myotomy and suspension in the surgical treatment of sleep disordered breathing.

ABSTRACT

**Objective:** Hyoid myotomy and suspension has traditionally been part of phase I sleep surgery since its original description in the Stanford Sleep Surgery protocol. Various techniques have been described with equally variable reports of its efficacy. An evidence based review was undertaken to critically review the current body of evidence for hyoid surgery in sleep apnea surgery.

**Methods:** An a priori systematic search strategy of electronic databases and included article(s) bibliography was employed. English and non-english articles were included. Two independent reviewers abstracted data from the included articles.

**Results:** 15 articles were included in our review. Hyoid surgery was performed most commonly as part of a multilevel surgical strategy. Two main techniques of myotomy and suspension were described. Efficacy ranged from 17 to 78% based on polysomnographic indices. The majority of the evidence was level 4.

**Conclusions:** Hyoid surgery achieves reasonable, if not widely variable, success (17-78%) when utilized as part of a multilevel surgical approach. There is insufficient evidence at this time to recommend one suspension technique over another. There is no evidence to support the use of hyoid surgery alone in treating SDB.

08:40 – 08:48 ***Approach to Choanal Adenoids: Why Should We Care?*** - N. Cohen, J. Manoukian, MONTREAL, QC

LEARNING OBJECTIVES

By the end of the presentation, a first year resident in OTL HNS will be able to describe and recognize choanal adenoids. They will learn to assess patients with various degrees of adenoid hypertrophy when operating on and to value the importance of recognizing and carefully managing choanal adenoids. The session will be interactive, ensuring audience participation and learner assessment.

ABSTRACT

**INTRODUCTION:** Choanal adenoids comprise hypertrophy extending into choanae and posterior nasal cavity and are challenging to remove by curettage. Our study looks at morbidity of choanal adenoids vs. regular adenoid hypertrophy and efficiency of suction electrocautery for resection of choanal adenoids.

**METHODS:** We conducted a matched retrospective case review of children who underwent adenoidectomies, comparing preoperative symptoms in patients with and without choanal adenoids. Intra-operative assessment with visualization using a laryngeal mirror was

conducted by an expert pediatric otolaryngologist. Weck suction cautery was used for resection. Follow up was at 5 months and 1 year post-operatively.

**RESULTS:** 76 patients met our criteria, with 54% of patients under the age of 5. 76% of patients had mouth breathing and 71% snored. 46% of patients reported symptoms of OSA (vs. 17% in controls,  $p < 0.001$ ), 29% had proven moderate to severe OSA (9% in controls,  $p < 0.001$ ). 98% of our patients had resolution of symptoms post-operatively. One patient had persistent OSA and another had velopharyngeal insufficiency. Recurrence was not detected.

**CONCLUSION:** Patients with choanal adenoids, a more morbid form of adenoid hypertrophy, are more prone of having OSA. Suction electrocautery is an effective tool for adenoidectomy of choanal adenoids.

08:48 – 08:56 ***Use of Autoinflation Using Otovent® Device in Adults*** - R.J. Glore, A. Rokade, D.W. Skinner, SHREWSBURY, SHROPSHIRE, UK

#### LEARNING OBJECTIVES

This pilot study is the first step in evaluating Otovent® device application in adults with blocking and popping sensation in the ears and otitis media with effusion. Our aim is to use the study as a stepping stone in a prospective study with a greater number of participants to have more statistically significant results.

#### ABSTRACT

**OBJECTIVE:** To examine the effect of autoinflation using Otovent® device in adults with otitis media with effusion and/or symptoms of popping and blocking sensation in the ear.

**METHOD:** This is a retrospective study of 18 adults presenting to our ENT department with above symptoms. The patients were given Otovent® device to use for autoinflation 3-4 times/day for 3 months at least. The patients were reassessed at the end of this period for symptom resolution or improvement.

**RESULTS:** 61% of patients demonstrated complete resolution of their symptoms after use of Otovent® device for autoinflation. Nearly 70% of patients who had blocking or popping sensation in the ear demonstrated symptom resolution.

**CONCLUSION:** This is the first case series showing usefulness of Otovent® device in adults with blocking and popping sensation in the ears and otitis media with effusion.

09:04 – 09:12 ***Equality of Care in Bilateral Myringotomy with Tympanostomy Tube Insertion*** – A. Li, A. Tan, D. Zoutman, KINGSTON, ON (ABSTRACT TBA)

09:12 – 09:20 ***The Impact of the Aging Population on Canadian Otolaryngology Practice*** - R. Varshney, C. Szeto, K.M. Kost, MONTREAL, QC

#### LEARNING OBJECTIVES

By the end of this presentation, the audience will be able to:

- 1) Appreciate the prevalence of elderly patients in Canadian Otolaryngology practice.
- 2) Identify common otolaryngological complaints of the elderly and challenges of treating this age group.

3) Understand Otolaryngologists' perceptions of Geriatric Otolaryngology.

ABSTRACT

INTRODUCTION: The elderly segment of the Canadian population is growing. Otolaryngologists are faced with a number of challenges in management of those over 65.

OBJECTIVES: 1) To analyse the impact of the aging population on the practice of Otolaryngology, 2) To examine otolaryngologists' perceptions of geriatric otolaryngology.

METHODS: A survey was sent to Canadian Otolaryngologists. Data acquired included patient demographics, perceptions of Geriatric Otolaryngology, and common illnesses and challenges facing this group.

RESULTS: 44.1% of physicians completed this survey. 67.7% responded that 21-60% of their patients were elderly. Presbycusis, dizziness, dysphonia, tinnitus and rhinitis were the most common complaints. 78.6% believed that geriatric patients present differently from younger patients and 59.7% proposed more conservative management. Challenges reported in treating the elderly included major comorbidities, higher operative risk, polypharmacy, increased consultation time and communication difficulties. Although 78% felt comfortable in managing geriatric patients, 43.7% suggested that additional resident training would be beneficial. Only 9.8% of Otolaryngologists were aware of organizations dedicated to geriatric otolaryngology.

CONCLUSION: Otolaryngologists appreciate the challenges inherent in caring for older patients. Many believe additional resident training would be beneficial. Remarkably few are aware of dedicated geriatric otolaryngology organisations.

09:28 – 09:36 **Holmium-YAG Laser Salivary Stone Fragmentation Efficiency** - R. A. Irvine, B. Homayoon, S. Swanson, VANCOUVER, BC

LEARNING OBJECTIVES

1. To discuss the in vitro fragmentation efficiency of various pulse-frequency and energy settings of the Holmium-YAG laser when used in salivary stone lithotripsy.
2. To discuss the optimal Holmium-YAG laser settings for clinical applications of endoscopic salivary laser lithotripsy.

ABSTRACT

OBJECTIVE: This study seeks to evaluate the stone fragmentation efficiency of various pulse-frequency and energy settings of the Holmium-YAG laser in the endoscopic treatment of salivary gland stones.

METHODS: Based on published experimental protocols in evaluation of Ho-YAG laser treatment of ureteric stones and stone phantoms, salivary stones measuring 6-7 mm in diameter will be fragmented for 300 seconds in clear pipettes. Various laser energy and pulse-frequency settings will be applied to each stone. At the end of laser treatment, the residual stone and any fragments greater than three millimeters in greatest dimension will be collected and weighed. The difference in stone mass will be recorded and compared.

RESULTS: We hypothesize that low-energy-high-frequency settings are more likely to pulverize salivary gland stones into fragments amenable to extraction via irrigation or

basket extraction whereas high-energy-low-frequency settings are more likely to fragment them into larger pieces requiring further laser treatment.

**CONCLUSION:** By comparing salivary stone fragmentation efficacy in vitro according to Holmium-YAG laser settings we seek to define an optimal pulse-frequency and energy setting that allows for the safe and timely removal of salivary gland stones.

09:36 – 09:44 ***Flexible Esophagogastroscopy and Bronchoscopy for the Community Otolaryngologist*** - S. Jackson, HAMILTON, ON

#### LEARNING OBJECTIVES

- 1) To bring flexible endoscopy back into the realm of the otolaryngologist.
- 2) To create a positive attitude to these problems in the bronchoesophageal field so that at the conclusion of the presentation there is enthusiasm to pursue these procedures.
- 3) To elicit from the audience if they feel there is a need for a course, or if residency training and the use of the flexible nasopharyngoscope will give them enough of a comfort zone , after touching on technique , to proceed with flexible gastroscopy and bronchoscopy.
- 4) At the completion of this session I would expect the general otolaryngologist with experience in traditional rigid endoscopy will seriously consider flexible endoscopy without requiring any formal training as well as relate to the indications and diagnostic benefits.

#### ABSTRACT

Patients with symptoms pertaining to gastroesophageal reflux, dysphagia and other bronchoesophageal disorders are commonly encountered in a general otolaryngology practice. Otolaryngologists were historically the consultant of choice for endoscopic evaluation until the advent of the flexible bronchoscope and gastroscope. We have a 20 plus year experience in these instruments and will outline the route to follow to setup privileges in your hospital with the goal to enhance diagnosis, broaden your skills with these tools and improve your satisfaction in dealing with esophageal and laryngobronchial disorders.

09:44 – 09:52 ***Perspectives on the Management of Posterior Epistaxis: A Survey of Canadian Otolaryngologists*** - S. Tam, B. Rotenberg, LONDON, ON

#### LEARNING OBJECTIVES

1. By the end of this session, the audience will be able to describe the current trends in the treatment of posterior epistaxis among Canadian otolaryngologists as described in this study.
2. By the end of this session, the audience will be able to describe the beliefs and preferred management of complications from posterior nasal packing held by Canadian otolaryngologists as described in this study.
3. By the end of this session, the audience will be able to consider the necessity of new guidelines for the management of posterior epistaxis and posterior nasal packing, given the findings from this study.

#### ABSTRACT

**OBJECTIVE:** Though posterior nasal packing is the traditional management for posterior epistaxis, newer methods, like arterial ligation and embolization, are becoming increasingly

popular. Management varies with physician preference, comfort, and resources. This study describes contemporary experiences of Canadian otolaryngologists in managing posterior epistaxis.

**METHODS:** A pilot survey was sent to 13 subjects, modified accordingly, and sent to all members of the Canadian Society of Otolaryngology. It consisted of three sections: 1) data about respondents' medical practice; 2) preferred management of posterior epistaxis; 3) perceptions on complications following posterior nasal packing. A modified Dillman method was used to increase response rate.

**RESULTS:** Of 152 responses (28% response rate), 35.8% felt sphenopalatine arterial ligation (SPAL) was the best treatment, but 35.8% preferred and 74.2% were most comfortable with inflatable balloon packing (IBP). Treatment preference was not significantly different between different years or types of practice. Most (76.2%) agreed that patients required monitoring after posterior nasal packing, but 66.2% believed that environments other than intensive care units would be sufficient.

**CONCLUSIONS:** Canadian otolaryngologists believe SPAL is the best treatment for posterior epistaxis, but were most comfortable with and most preferred IBP. Lower intensity monitoring is believed to be sufficient after posterior nasal packing.

10:00 – 10:30 COFFEE AND VISIT TO THE EXHIBITS

## **Monday, May 24, 2010 Great Room C**

**Paper Presentations: Education and Research** (CPD credit hrs – 1.50)  
**Chair: Dr. A. Tan, KINGSTON, ON**

10:30 – 10:38 *Evaluation of the Long-Term Retention of a Three Dimensional Educational Computer Model of the Larynx* - F.K. Dieter, A. Hu, T. Wilson, H. Ladak, P. Haase, P. Doyle, K. Fung, REGINA, SK

### LEARNING OBJECTIVES

- By the end of this session, the medical educator will be able to describe the long term retention of an educational intervention to teach laryngeal anatomy to health sciences student.
- By the end of this session, the medical educator will be able to describe the effect of model fidelity in teaching health sciences students laryngeal anatomy.

### ABSTRACT

**OBJECTIVES:** To determine the long-term retention of an educational intervention to teach laryngeal anatomy and to compare the long-term retention of a 3D educational computer model (3D) to standard written instructions (SWI).

**STUDY DESIGN:** Prospective, randomized, controlled trial

**METHODS:** For Step 1, 100 students were randomized to the 3D model (n=50) or SWI (n=50) and tested with a 20-question laryngeal anatomy test. For Step 2, 6 months later the same students were invited to retake the laryngeal anatomy test to examine long term retention.

RESULTS: Sixty-two students retook the test: 3D (n=30) and SWI (n=32). There was no significant difference in mean scores (p=0.54) and change in scores (p = 0.31) between step 1 and 2 on the laryngeal anatomy test. There was a trend towards an increase in the 3D score in both groups (p=0.07) and a significant increase in 3D scores in the 3D group only(p=0.049).

CONCLUSIONS: A low fidelity model (SWI) is just as effective as a high fidelity model (3D) in teaching laryngeal anatomy. The acquired knowledge from either educational intervention may last up to 6 months for long-term retention. This study is one of the few studies in medical education that examines long term retention.

10:38 – 10:46 ***The Ovine Middle Ear: Comparative Anatomy and Relative Anatomy. A Model for Surgical Training and Research*** - D. Pothier, S. MacKeith, TORONTO, ON

LEARNING OBJECTIVES

- After listening to the presentation, the audience members will have knowledge of the comparative anatomy of the ovine and human middle ears
- After listening to the presentation, the audience members will be able to apply knowledge of the ovine middle ear to use it as a training model for stapedectomy

ABSTRACT

OBJECTIVE: To perform a morphological analysis of the middle ear of the sheep to determine its usefulness as a model for surgical training and research with particular regard to training in stapedectomy

METHODS: Twenty ovine middle ears were dissected and compared to human anatomy using human specimens and data from the literature. A stapedectomy and insertion of a prosthesis was performed on all twenty sheep ears.

RESULTS: Comparative anatomy: The ovine model is approximately two thirds the size of a human ear with an absent scutum in all specimens. The ovine ossicles were smaller than human ossicles; the malleus was proportionally longer (mean = 5.85mm, SD=0.21mm), with the incus smaller with a shorter long process (mean = 3.18mm, SD=0.09). The stapes footplate was relatively fixed in the post mortem specimens.

SURGICAL MODEL: Twenty stapedectomies were carried out using 0.6mm teflon prostheses. Although surgical access is more difficult, the ovine model closely resembled human stapes surgery, both anatomically and from a surgical perspective.

CONCLUSIONS: Sheep middle ears offer a useful model for surgical training in stapedectomy as well as having the potential to be used as a model for surgical research and training for other middle ear procedures.

10:46 – 10:54 ***The Development and Evaluation of a Computer Assisted Learning Module Demonstrating the Anatomy of the Cranial Nerves*** - J. C. Yeung, K. Fung, T. Wilson, LONDON, ON

LEARNING OBJECTIVES

By the end of this session, the participant will be able to describe one of several current research endeavours being undertaken at the University of

Western Ontario investigating the efficacy of online, computer assisted learning modules, specifically pertaining to their use in teaching cranial nerve anatomy.

**ABSTRACT**

**OBJECTIVES:** Advancements in technology and personal computing afford the development of novel teaching modalities such as online web-based modules. These modules are currently being incorporated into undergraduate medical curricula and, in some paradigms, have been shown to be superior to traditional methods of instruction. Modules developed by our group at the University of Western Ontario have been presented in previous years and encompass a broad range of topics, including clinical case-based knowledge, clinical skills, and anatomy. The purpose of our current study is to develop and test an online web-based visualization module that demonstrates complex spatial relationships in the head and neck.

**METHODS:** A 3-dimensional model of the skull, brainstem, deep nuclei and the cranial nerves was developed using data from the Visible Human Project and Amira®4.2 software. This model was incorporated into an Internet browser-friendly module designed to teach the anatomy of the cranial nerves, using Adobe® Creative Suite® 4. A randomized control trial was conducted comparing our module to traditional text-/image-based learning supplements. Indications of the students' ability to translate spatial relationships between the cranial nerves and craniofacial skeleton were assessed via a post-intervention knowledge quiz. Results to be presented.

11:00 – 11:08 ***Factors Influencing Research Productivity in Canadian Otolaryngologists*** - M. Duval, S. Daniel, OTTAWA, ON

**LEARNING OBJECTIVES**

- Describe the access to research-related resources of Canadian otolaryngologists.
- Describe the factors limiting research activity in Canadian otolaryngologists.

**ABSTRACT**

**OBJECTIVES:** Describe the factors limiting research productivity in Canadian otolaryngologists.

**METHODS:** A survey distributed at the 2007 meeting of the Canadian Society of Otolaryngology. The survey was anonymous and included questions relating to basics demographics as well as different factors associated with research productivity. This survey was collected at the end of the conference on site and via mailing.

**RESULTS:** 65 attendees returned the survey. 25 responders had a community-based practice and 40 responders were in an academics-based practice. The three factors identified as limiting research productivity were demands of clinical services, research funding and poor remuneration. Community-based otolaryngologists reported enthusiasm related to research activities and good access to patients and databases, but limited access to research funds, clinical-scientist program and mentorship. Academics-based otolaryngologists reported good access to patients and enthusiasm related to research, but lack of mentorship and support staff in order to support research.

CONCLUSION: Canadian otolaryngologists are enthusiastic and interested in pursuing research activities. Factors that are currently perceived as limiting research endeavors include lack of funds and time, mentorship and support staff. Awareness of these factors will allow the society as well as academic institutions to correct those perceived limitations in order to promote research activity in otolaryngology.

11:08 – 11:16 ***Global Health Training in Otolaryngology Residency: Considerations for Creation of Infrastructure*** - H. Javidnia, L. McLean, OTTAWA, ON

LEARNING OBJECTIVES

- By the end of this session the audience will have knowledge of the importance of several factors which should be considered when creating infrastructure for resident participation in Global Health Initiatives.

ABSTRACT

OBJECTIVE: To systematically identify components required to assist in establishing GHI participation amongst Canadian Otolaryngology residents.

BACKGROUND: In a previous study we demonstrated that a significant number of Canadian Otolaryngology residents have an interest in Global Health Initiatives (GHI). However, perceived barriers exist which limit their participation in such initiatives.

METHODS: A web-based survey of all Canadian Otolaryngology residents was performed examining existing GHI infrastructure. A needs assessment for future program requirements was also elicited.

RESULTS: Four discrete infrastructure components to aid GHI participation were identified: mentorship, project grants, a national project database and pre and post departure training.

CONCLUSION: The need for creation of global health curriculum in Otolaryngology residency has become increasingly important as resident interest and participation in GHI continues to rise. Mentorship, funding, a national database and pre and post departure training should be considered integral components when developing this postgraduate curriculum.

11:20 – 11:38 ***A Multifaceted Inter-Specialty Approach to Teaching Advanced Airway Management Skills*** – K. Richardson, R. Varshney, F. Ramadori, A. Guzzo, K. Kost, S. Daniel, J. Manoukian, L. Nguyen, MONTREAL, QC (ABSTRACT TBA)

11:28 – 11:36 ***How We are Subliminally Anchored in Our Clinical Decision-making: The Effect of Arbitrary Coherence: A Randomised Controlled Trial*** - B. Hubbard, K. Mason, D. Pothier, TORONTO, ON

LEARNING OBJECTIVES

- After listening to the presentation, the audience members will be able to understand the role of arbitrary coherence in clinical decision-making and use this knowledge to predict where subliminal anchors may affect clinical outcomes.

ABSTRACT

OBJECTIVES: Arbitrary coherence is a recently recognised behaviour that can be induced by influencing subjects to anchor their answers to a series of questions to an unrelated

number. We set out to assess the impact of arbitrary anchors on answers given to questions on otolaryngological topics.

**METHOD:** A pilot study was undertaken. A group of consultants, specialist registrars and other trainees in Otolaryngology participated. Each participant was randomly assigned envelope containing either the number '10' or '90' which they were asked to look at and write on their answer sheet. They were then asked a series of simple and unrelated questions, the answers to which required an estimate to be made of incidence.

**RESULTS:** Trainees who had an envelope containing a '10' gave answers with a significantly lower value than those with a '90' (Median 15 vs. 45,  $p < 0.001$ ), despite the fact that the numbers were randomly assigned to participants, that the questions asked were identical and that the assigned numbers they were unrelated to the questions being answered.

**CONCLUSIONS:** The introduction of a subliminal anchor affects decision-making and is likely to influence medical decisions where this effect is likely to manifest, such as the consent process or qualitative research.

11:36 – 11:44 ***The Effectiveness of Webcast Versus Didactic Lectures as a Teaching Tool*** - H. Javidnia, J.-P. Vaccani, OTTAWA, ON

#### LEARNING OBJECTIVES

By the end of this session teachers at all levels will have knowledge of the effectiveness and benefits of webcast lectures as a teaching tool, as well as an example of its implementation when deciding on the format of a teaching session.

#### ABSTRACT

**OBJECTIVE:** To investigate whether webcast lectures are as or more effective than didactic lectures as a teaching tool.

**METHODS:** Three Otolaryngology lectures were given to third year medical students with one group receiving lectures in the regular didactic format and the other group in a webcast format. Students watched webcasts at a remote site at their convenience, and had a scheduled online question and answer session with the lecturer. All lectures (didactic or webcast) were given by the same lecturer and contained identical material. Three outcome measures were used: a student satisfaction survey, performance on the otolaryngology component of their written examination, and performance on an Otolaryngology OSCE station in the general end of year OSCE examination session.

**RESULTS:** Student in the webcast group felt it was an effective learning tool for them. Most viewed the lectures more than once, and felt that this was beneficial to their learning. Student performance on both the written examination and the OSCE were equivalent between the webcast and didactic lecture groups.

**CONCLUSION:** Webcasts are equally as effective as didactic lectures as a teaching tool. There are many benefits to webcasts which most notably include great potential for use as a long-distance learning / teaching tool.

12:00 – 13:30 LUNCH AND VISIT TO EXHIBITS

## **Monday, May 24, 2010 Great Room C**

### **Poliquin Residents Competition** (CPD credit hrs – 3.00) **Chair: Dr. E. Massoud, HALIFAX, NS**

13:00 – 13:10 Introduction and outline of competition – E. Massoud, Awards Chair,  
HALIFAX, NS

13:10 – 13:22 ***Accuracy and Reproducibility of Automatic vs Manual Registration Using a  
Cone Beam CT Image Guidance System*** - D. Dalgorf, M. Daly, J. Irish,  
University of Toronto, TORONTO, ON

#### ABSTRACT

Intra-operative imaging reveals morphological changes and resolves anatomical uncertainties during surgery. Automatic registration (AR) offers an approach of providing registered intra-operative images within seconds of acquisition. PURPOSE: 1) To design an AR device for clinical use integrated with cone beam CT 2) To compare accuracy and reproducibility of manual and automatic registration 3) To evaluate robustness of the AR system. METHODS: An acrylic face shield with fiducials mounted on an adjustable arm was designed. Eight surface and 5 internal divot markers were placed with bony fixation to a cadaveric head. Internal markers were localized on the image representing “true” location. This was compared to the positions localized using a navigational system when both manual and AR were applied. Face shield height was varied at 0,1,3,5,7,9 cm above the nasal tip and target registration error (TRE) measured at each height. RESULTS: Mean fiducial registration error (FRE) for manual and automatic was 0.72 mm +/- 0.03 and 0.41 mm +/- 0.01 respectively. Mean TRE for manual and automatic was 0.89 mm +/- 0.26 and 0.91 mm +/- 0.25 respectively. CONCLUSION: AR offers a more accurate and more reproducible FRE and equally comparable TRE with manual registration. This system also demonstrates robustness with comparable accuracy and reproducibility when fiducials are set at heights at least 9 cm above the surgical field. This system is currently being translated into clinical trials.

13:22 - 13:34 The Effect of Temperature on Tensile Strength of Otomimic in Ossicular Reconstruction - P. Pace-Asciak, N. Longridge, University of British Columbia, VANCOUVER, BC

#### ABSTRACT

OBJECTIVES: Chronic diseases of the middle ear, such as neoplasms, inflammatory processes or trauma can disrupt ossicular continuity. Incudostapedial joint erosion can be reconstructed with *Otomimic*, a bone cement composed of hydroxyapatite. The purpose of this study is to evaluate the effects of temperature on the setting time of *Otomimic*, as well as its tensile strength after exposure to cooler temperatures. **Methods:** We measured the setting time of *Otomimic* to its final state at room temperature, 0°C, -5 °C, and at -10°C. Next, the tensile strength was measured by applying compressive force using a universal testing device. The breaking strength was plotted on a stress vs. strain graph after exposure to the 4 different temperatures.

RESULTS: Preliminary results show that at room temperature, *Otomimic* has a setting time of approximately 5 minutes. Cooler temperatures slow the exothermic reaction in half for every 10°C change thus allowing the surgeon increased time for manipulation of the bone cement.

CONCLUSIONS: We feel this data will provide valuable information regarding the effects of temperature on the setting time and strength of *Otomimic* bone cement during middle ear surgery.

LEARNING OBJECTIVES: By the end of this session, the audience will be able to describe the benefits of using hydroxyapatite bone cement for middle ear surgery based on the literature presented. In addition, the audience will understand the value of temperature control when using *Otomimic* based on the results from the study.

13:34 – 13:46 ***A Customized Stent To Secure The Airway In An Animal Model Of Bilateral Vocal Cord Paralysis: A Pilot Study*** - E. Prisman, N. Chadha, A. Gordon, P. Campisi, M. Estrada, V. Forte, University of Toronto, TORONTO, ON

ABSTRACT

OBJECTIVE: Congenital bilateral vocal cord paralysis (BVP) is a rare but devastating condition. Studies suggest waiting 12 months prior to definitive surgical intervention for the potential of spontaneous recovery. We designed a spring-loaded stenting device and a technique to insert this device between the arytenoid vocal processes in a piglet model with BVP.

METHODS: Optical grasping forceps was modified to deploy the stent under suspension laryngoscopy. The technique was developed in a cadaveric piglet model. As a proof of principle, BVP was induced in two anesthetized mature Yorkshire piglets by severing the recurrent laryngeal nerves, followed by stent insertion. Airway resistance was measured at baseline, after BVP and post stent insertion.

RESULTS: The stents were successfully inserted. Relative inspiratory airflow resistance increased from baseline (1.00) to BVP (2.67) and decreased with stent insertion (0.95).

CONCLUSION: The customized stent and deployment technique was successful in relieving the glottic obstruction secondary to induced BVP.

13:46 – 13:58 ***Can We Predict a Difficult Intubation in Cleft Lip and - or Cleft Palate Patients?*** - I. Arteau-Gauthier, A. Godbout, J.E. Leclerc, Université Laval, Quebec, QC

BACKGROUND: A review of the medical literature shows a higher rate of difficult endotracheal intubation in infants born with cleft lip and-or palate. The risk of difficult intubation decreases in older children.

OBJECTIVE: To find predictors of a difficult intubation in infants born with a cleft lip and-or a cleft palate.

METHODS: A total of 146 infants born with cleft lip and-or cleft palate were enrolled in a single-blind prospective study at Le Centre Hospitalier de l'Université Laval. Ten clinical and morphological parameters were evaluated. The intubation grade was determined by the anesthetist at the palatal cleft repair surgery between 9 - 11 months.

RESULTS: The relative risk of a difficult intubation in cleft lip, cleft palate without the Pierre Robin sequence, cleft lip-palate and the Pierre Robin sequence groups was respectively 0%, 2,7%, 10% and 23%. The infants born with the Pierre Robin sequence had a statistically

significant higher intubation grade and the difficulty increased in cases classified as class II and III in the Caouette-Laberge et al. classification.

**CONCLUSIONS:** Infants born with the Pierre Robin sequence have a statistically significant higher risk of difficult intubation. Within this group, of all the studied factors, a clinical history of early airway and feeding problems is the best predictor of a difficult endotracheal intubation.

13:58 – 14:10 ***A Double-blinded Randomized Controlled Trial of Medication-soaked Merocel Versus Merocel Applications for Endoscopic Sinus Surgery*** - E. Chang, E. Akbari, A. Ostry, T. Alandejani, A. Javer, University of British Columbia, VANCOUVER, BC

ABSTRACT

**OBJECTIVE:** This study aims to compare the histopathological effects of Merocel middle meatal spacer (MMS) and medication-soaked Merocel MMS on mucosal healing and patient's discomfort following functional endoscopic sinus surgery.

**METHODS:** Sixty patients with chronic rhinosinusitis undergoing bilateral functional endoscopic sinus surgery were enrolled in a prospective study. Patients were randomized and blinded to receive medication-soaked Merocel middle meatal spacer (either one of Budesonide, Gentamycin or Manuka Honey) in one nostril and an unmedicated Merocel MMS on the contralateral side. Patients were seen one week post-operatively where they were asked to complete a visual analogue score (VAS) to report the level of discomfort from nasal packing on each side. Biopsies of the mucosa were taken from both middle turbinates and were sent to a blinded pathologist to determine the level of mucosal inflammation on a stage of 0 to 4.

**RESULTS:** Pulmicort-soaked Merocel MMS showed a significant decrease in the histopathological score of sinonasal inflammation when compared to the control Merocel MMS. There was no significant difference in the degree of discomfort post-operatively between medication-soaked Merocel MMS and unmedicated Merocel MMS.

**CONCLUSIONS:** Pulmicort-soaked Merocel MMS was found to cause a lower degree of sinonasal inflammation post FESS when compared with Merocel MMS. Pulmicort-soaked Merocel MMS should be considered as a plausible alternative to other MMSs.

14:10 – 14:22 ***Using Photodynamic Therapy as a Neoadjuvant Treatment in the Surgical Excision of Non-melanotic Skin Cancers: A Prospective Study*** - G. Jeremic, M. Brandt, K. Jordan, C. Moore, University of Western Ontario, LONDON, ON

ABSTRACT

**BACKGROUND:** Topical 5-aminolevulinic acid photodynamic therapy (ALA-PDT) is a successful treatment for non-melanotic skin cancers (NMSC). Nevertheless, surgical excision continues to be the gold standard treatment. Often cervicofacial excision results in functional and aesthetic impairment. We hypothesize that ALA-PDT as a neoadjuvant therapy to surgical excision may reduce tumour size and thus decrease local morbidity.

**OBJECTIVES:** To determine the utility of ALA- PDT in reducing NMSC area for the purpose of surgical excision.

**METHODS:** A prospective cohort study

RESULTS: Forty NMSC with a mean area of 683.30 +/- 127.81 mm<sup>2</sup> were included. Of these lesions, 100% responded to neoadjuvant ALA-PDT. Mean response demonstrated a 50.69 +/- 18.31% (p < 0.05) reduction in lesion area.

CONCLUSIONS: This is the first study to investigate neoadjuvant use of ALA-PDT in the excision of NMSC. The results demonstrate a significant decrease in tumour size leading to a reduction of excisional area in aesthetically-sensitive regions.

14:22 – 14:34 **Healing Time of Radial Forearm Free Flap Donor Sites After Pre-operative Tissue Expansion: A Randomized Controlled Trial** - P. Bonaparte, M. Corsten, M. Allen, University of Ottawa, OTTAWA, ON

ABSTRACT

OBJECTIVE: To test the hypothesis that pre-operative tissue expansion of the radial forearm free flap donor site will result in a significant reduction in healing time compared to the conventional method of using a split thickness skin graft. Secondary objectives assessed for reductions in post-operative pain and economic cost.

METHODS: 25 patients were randomized to either the treatment (Tissue pre-expansion) or control (STSG) groups. An intention to treat analysis was utilized. Healing time was recorded for all patients. The Short Form McGill Pain Questionnaire was used to assess surgical pain 1-week post-op.

RESULTS: Mean (95% C.I.) healing time was 4.8 (3.2-6.4) days for the Treatment Group and 32.8 (12.7-53.0) days for the Control Group (p<0.001). Overall surgical pain (p<0.001) and estimated economic cost (p<0.001) was significantly lower in the treatment group.

CONCLUSIONS: Using a simple, non-invasive method of pre-operative tissue expansion results in both clinically and statistically significant reductions in healing time, post-operative pain and economic cost.

14:34 – 14:46 **Automated Hearing Tests: Applying The Otogram To Patients Who Are Difficult To Test** - J. Yu, A. Ho, A. Ostevik, W. Hodgetts, University of Alberta, EDMONTON, AB

ABSTRACT

OBJECTIVES: The Otogram is an automated audiometer capable of determining air and bone conduction thresholds with masking when appropriate. The manufacturer claims that testing can be done in a quiet physician's consultation room without a sound-treated booth. We aim to test the validity of the Otogram on "difficult-to-test" patients all of whom require masking.

METHODS: 32 "difficult-to-test" patients underwent 3 audiograms: 2 by an audiologist and one by the Otogram. First, audiograms performed by the audiologists were compared establishing test re-test reliability. Secondly, audiograms performed by the Otogram were compared to one of the audiologist. We calculated the percentage of pure tone thresholds that were in agreement by 10 decibels. Weighted Kappa statistic analyses demonstrated levels of agreement.

RESULTS: Comparisons between audiologists demonstrated a very high degree of agreement. Greater than 90% of air and bone conduction thresholds fell within 10 dB of each other. Comparisons between audiologist and Otogram also demonstrated a high degree of agreement.

CONCLUSIONS: The Otogram<sup>®</sup> has the capability of accurately ascertaining air and bone conduction thresholds. It appropriately used masking when indicated. The Otogram<sup>®</sup> has great potential as a diagnostic tool to improve access to healthcare especially where hearing test facilities are limited or un-available.

14:46 – 14:58 **Open versus Endoscopic Septoplasty: A Blinded Randomized Controlled Trial** - Paradis, B. Rotenberg, University of Western Ontario, LONDON, ON

ABSTRACT

OBJECTIVE: To compare subjective and objective outcomes of conventional 'open' versus endoscopic septoplasty techniques for repair of septal deviation.

METHODS: Prospective blinded randomized controlled trial. Patients with septal deviation scheduled for surgical repair were recruited. Those who met inclusion criteria were randomly assigned to either the conventional or endoscopic group, and were blinded as to their group. Outcomes included: surgical time, intra-operative complications, and pre- and post-operative data gathered from the validated Nasal Obstruction Symptom Evaluation (NOSE) questionnaire. Chi-square and t-tests were used.

RESULTS: Sixty-three patients were enrolled (endoscopic group n = 32; conventional group n = 31). Subjective post-operative NOSE scores improved across all participants and within both groups (endoscopic: pre-op mean score = 14.7, post-op mean score = 7.4, p < 0.05; conventional: pre-op mean score = 15.2, post-op mean score = 6.3, p < 0.05) , with no differences found between groups (p = 0.61) . Operative time (p < 0.001), and intra-operative complications (p = 0.01) favoured the endoscopic group.

CONCLUSION: Endoscopic septoplasty may be considered superior to the traditional 'open' approach for repair of septal deviation.

14:58 – 15:24 COFFEE BREAK AND VISIT TO EXHIBITS

15:24 – 15:36 **Endpoints for Cisplatin Ototoxicity** - K. Qureshy, B. Blakley, University of Manitoba, WINNIPEG, MB

ABSTRACT

INTRODUCTION: Hearing loss due to ototoxicity is usually presumed to be irreversible and stable. Most papers in the literature study the effects of ototoxic agents such as cisplatin a few days or weeks after administration. Our study focused on the recovery of hearing over several weeks. We used a systems-approach to create a mathematical model to explain our data that includes the possibility of some improvement over time.

METHODS: A total of 32 mice and 16 guinea pigs were exposed to a cisplatin dose of 15 mg/kg five times on alternate days. After this exposure, we performed auditory brainstem response (ABR) testing on all mice and guinea pigs at baseline, 4 and 8 weeks. These results were graphed and fit to an exponential function.

RESULTS: Hearing loss due to cisplatin shows significant variability between and within species. In the first two to three weeks hearing continues to deteriorate, stabilizing at one month. After that time the hearing may actually improve to varying degrees depending on the initial dose of cisplatin. The data can be described as an under-damped system that meets the standard criteria for stabilization after one month.

CONCLUSION: In general, ototoxicity endpoints should be assessed more than one month after exposure. Our observation that hearing loss is incomplete before one month opens the clinical possibility for prevention during that time.

15:36 – 15:48 ***The Effect of Fibula and Anterolateral Thigh Free Flaps on the Gait of Head & Neck Cancer Patients*** - K.I. Macdonald, S.M. Taylor, J.R.B. Trites, M.J.

Dunbar, A. Henigar, R.D. Hart, Dalhousie University, HALIFAX, NS

ABSTRACT

OBJECTIVES: There is scarce data examining the effect of a fibula (FFF) or anterolateral thigh (ALT) free flap on a person's gait. Although there are few studies suggesting little subjective gait impairment, there is a need for an objective, validated tool. We aimed to determine the effect of fibula and anterolateral thigh free flaps on the gait of head and neck cancer patients.

METHODS: All patients evaluated for a FFF or ALT for the reconstruction of a head & neck tumour resection defect were eligible for prospective study participation. Patients completed questionnaires preoperatively, and at 3 and 6 months. At the same intervals patients walked 30 feet with the Walkabout Portable Gait Monitor, a lightweight device worn on the lumbar spine which triaxially records the acceleration of the centre of mass of the subject.

RESULTS: 18 patients were enrolled. 14 patients (8 male, mean age 55.6, 7 ALT and 7 FFF flaps) completed 3 and 6 month postoperative data. 3 patients passed away and 1 withdrew because of travel distance. Although patients reported their ankle stability decreased after a FFF, there was no significant subjective difference in walking with a FFF or ALT. Gait belt data showed a significant decrease in velocity 6 months postoperatively (3.4 vs. 4.2km/hr,  $p < 0.05$ ), but no significant difference in forward and vertical asymmetries, frequency or step length.

CONCLUSION: Patients can be assured that a FFF or an ALT has little effect on gait.

15:48 – 16:00 ***Functional Outcomes and Laryngectomy Free Survival after Transoral CO2 Laser Microsurgery for Stage 1 & 2 Laryngeal Carcinoma*** - M. Kujath, C.

Myers, F. Bemaker, P. Kerr, University of Manitoba, WINNIPEG, MB

ABSTRACT

OBJECTIVES: To determine the oncologic and functional outcomes of transoral CO2 laser microsurgery for early stage laryngeal carcinoma.

STUDY DESIGN: Functional analysis - Population based, prospective, non-randomized consecutive series (N=75) treated with laser surgery or radiotherapy.

Oncologic analysis – Population based, retrospective comparison of patients treated with CO2 laser (N=50) and radiotherapy (N=150)

METHODS: Functional results were prospectively collected prior to treatment, and at 3, 6, 12, and 24 months following treatment. Assessment of general level of function included the Karnofsky, and ECOG performance scales. Speech and swallowing were monitored using questionnaires on eating restrictions, normalcy of diet, and speech understandability.

RESULTS: There is a trend toward better voice quality after radiotherapy, but the level of patient satisfaction is high in both groups. Reduced voice quality in the laser group is offset by a trend toward better laryngectomy free survival.

CONCLUSIONS: Laser microsurgery for early stage laryngeal cancer results in excellent functional outcomes and laryngectomy free survival.

16:00 – 16:12 **McGill Thyroid Nodule Scoring System (MTNSS): “Rating the Risk” - A Novel Predictive Scheme for Cancer Risk Determination** - N. Sands, S. Karls, A. Amir, M. Tamilia, L. Rochon, M. Hier, R. Payne, McGill University, MONTREAL, QC

ABSTRACT

OBJECTIVES: There are presently a great number of publications pertaining to clinical risk factors associated with thyroid cancer. These studies deal mostly with a single feature from either patient demographics, physical exam, laboratory values, imaging, or cytology. We sought to create a novel scoring system that integrates the diagnostic indices of each of these clinical features for carcinoma.

METHODS: A retrospective analysis of 1100 consecutive thyroidectomy patients was performed. Each patient was assigned a cancer-risk score according to a newly devised 22-point scoring scheme termed the McGill Thyroid Nodule Scoring System (MTNSS). The MTNSS was developed by a multi-disciplinary team of endocrinologists, thyroid surgeons, radiologists, and pathologists using already established evidence-based risk factors for thyroid cancer.

RESULTS: The exact incidence of malignancy was calculated for each specific MTNSS score based on final pathology. The incidence for scores of 1-3 was 25%, 9-11 was 63%, and 15-18 was 93%. 100% (150/150) of patients with a score of  $\geq 19$  had carcinoma. A score of  $\leq 8$  correlated with a 40% (142/357) risk of thyroid cancer, whereas a score  $> 8$  implied an 86% (417/487) risk.

CONCLUSION: Our data suggests that a combined scoring system, the MTNSS, can serve as an accurate predictor for thyroid cancer. This will help physicians to better assess the risk that a thyroid nodule is malignant and therefore formulate management decisions accordingly.

16:12 – 16:24 **The Value of 3D Stereolithographic Modelling in Head and Neck Reconstruction: A Prospective Trial** - P. Dziegielewski, J. Zhu, B. King, P. Singh, J.R. Harris, H. Seikaly, University of Alberta, EDMONTON, AB

ABSTRACT

BACKGROUND: Mandibular reconstruction is a challenging technique for the novice head and neck reconstructive surgeon. The difficulty increases when the external mandibular cortex is violated by tumor; thus, eliminating it as a guide for the bony contour. 3D stereolithographic modeling creates dimensionally accurate physical models of patients' craniofacial skeletons, which can potentially assist in reconstruction. However, this capacity has not been objectively examined.

OBJECTIVES: The purpose of this study was to prospectively assess the accuracy of free-hand versus model-assisted bone contouring of mandibular defects performed by experienced and trainee surgeons.

METHODS: 10 experienced and trainee surgeons were asked to bend a titanium plate for a standardized anterior mandibular defect with and without the assistance of a 3D model. The constructs were then scanned into graphic files and static cephalometric measurements were made.

RESULTS: All measurements demonstrated significantly improved accuracy in model-assisted plate bending. The most impacted measurement was anterior mandibular projection, which was more often retrognathic in the free-hand groups ( $p < 0.05$ ). The differences were more pronounced for trainees ( $p < 0.05$ ).

CONCLUSIONS: We have objectively demonstrated that 3D modeling improves bony contouring accuracy in mandibular reconstruction, especially for the novice surgeon.

16:24 – 16:36 ***Heparin vs Tirofiban in Microvascular Anastomosis: A Randomized Controlled Trial in a Rat Model*** - P. Singh, L. Zhu, P. Dziegielewski, J.R. Harris, H. Seikaly, University of Alberta, EDMONTON, AB

ABSTRACT

BACKGROUND: Free flap failure after head and neck surgery is a devastating event that significantly impacts patients long term outcomes. The most common reason for this complication is venous thrombosis after microvascular reanastomosis. A variety of molecules have been used topically and systemically in an attempt to arrest the thrombosis cascade. Tirofiban is a Glycoprotein IIb/IIIa inhibitor that prevents platelet aggregation. Previous studies have shown its systemic and topical use to be effective in lowering thrombosis rates in the crushed vessel model. OBJECTIVES: The purpose of this study was to compare the thrombosis rate of topical heparin to topical heparin + tirofiban in a thrombogenic rat free flap model.

METHODS: Ethics approval and sample size calculations were performed. 10 rats underwent a thrombogenic microvascular free flap model procedure without any chemical manipulation. 26 rats were randomized to either topical heparin or topical heparin + tirofiban groups. Data was collected on thrombosis rates and free flap survival for each group in a blinded fashion.

RESULTS: The heparin+tirofiban group had a 22% lower thrombosis rate compared to the heparin group alone and 78% lower rate when compared to the no treatment group.

CONCLUSION: The use of topical tirofiban and heparin in microvascular surgery results in reduced rates of thrombosis and free flap loss in the rat model.

16:36 – 16:48 ***Addressing Animal Model Issues in Auditory Research*** - S. Alsaleh, B. Blakley, University of Manitoba, WINNIPEG, MB

ABSTRACT

OBJECTIVE: To better understand some of the differences in auditory systems across species.

METHODS: Auditory brainstem response (ABR) testing on normal animals including 30 guinea pigs, 30 mice and 5 rats. Threshold variability across six frequencies was then considered as functions of mean body weight, known metabolic rate and serum levels of glutathione from the literature.

RESULTS: Inter-species variability in auditory thresholds for normal-hearing animals is largely explained by differences in mean body weight, metabolic rate and normal known serum levels of glutathione. A mathematical model will be presented that may permit extrapolation of animal data for hearing levels to humans in a meaningful way.

CONCLUSION: Middle and inner ear function differs significantly among species. These differences should be kept in mind in translational research efforts to apply animal results to humans.

16:48 – 17:00 ***Oropharyngeal Squamous Cell Carcinoma and HPV-associated Cancers in Women: An Epidemiological Evaluation of Association*** - Vi. L. Biron, D.W. Côté, H. Seikaly, University of Alberta, EDMONTON, AB

ABSTRACT

OBJECTIVE: Human papilloma virus (HPV) is a well established etiological factor in oropharyngeal squamous cell carcinoma (OPSCC). The objective of this study is to evaluate the association between OPSCC and HPV-related precancerous or cancerous lesions of the female genital tract.

METHODS: Demographic, survival and pathologic data on all female patients diagnosed with OPSCC in Alberta between 1998 and 2008 was collected. A review of pathology reports in these patients was undertaken to identify HPV-related vulvar, vaginal and cervical precancerous or cancerous lesions. Standardized incidence ratios (SIRs) of HPV-related lesions in oropharyngeal cancer patients was calculated using control data obtained from provincial cancer surveillance. Disease specific survival of patients with oropharyngeal cancer only versus oropharyngeal and HPV-related lesions was also compared.

RESULTS: Our results show an elevated incidence of HPV-related precancerous/cancerous lesions in women with OPSCC in comparison to the control population (SIR of 11.3). Distinct survival trends were also identified between patients with both OPSCC and HPV-related genital lesions versus OPSCC only.

CONCLUSIONS: Women with oropharyngeal cancer have a significantly elevated risk of developing HPV-related genital cancers which suggests frequent HPV co-infection of oropharyngeal and genital tissues in this patient population.

**Monday, May 24, 2010  
Strategy Room 2**

**Paper Presentations: Rhinology** (CPD credit hrs – 1.50)  
**Chair: Dr. I. Witterick, TORONTO, ON**

08:00 – 08:08 ***Olfactory Dysfunction in Allergic Fungal Sinusitis*** - A. Thamboo, C. Philpott, L. Lai, A. Akbari, A. Javer, VANCOUVER, BC

ABSTRACT

OBJECTIVE: This study aims to correlate subjective reporting of olfactory function with endoscopic staging and performance on the Sniffin' Sticks test in patients with Allergic Fungal Rhinosinusitis (AFRS).

METHODS: 55 patients with AFRS seen in a tertiary rhinology clinic were recruited to undergo olfactory testing following routine endoscopic follow up. The Sniffin' Sticks test was used to derive their threshold, discrimination and identification (TDI) score and a visual analogue score was used for their perceived olfactory ability. An endoscopic staging score was given for each patient.

RESULTS: 28 male and 27 female patients with AFRS underwent olfactory testing. The mean TDI score was 19 showing a poor level of function in this group. There was a

significant correlation between patients' performance on the Sniffin' Sticks and endoscopic staging and with their reported olfactory ability ( $p < 0.001$ ).

**CONCLUSION:** Patients with significant sinonasal inflammatory disease should receive evaluation with olfactory testing and be treated on their merit in order to lessen the impact on their quality of life.

08:08 – 08:16 ***Utilization of Complementary and Alternative Medical Therapies for Chronic Rhinosinusitis: A Canadian Perspective*** - K.A. Bertens, B.W. Rotenberg, LONDON, ON

**LEARNING OBJECTIVES**

- 1) After hearing the presentation, the learner will be able to describe the pattern of use of CAM therapy for sinus disease in Canada
- 2) After hearing the presentation, the learner will gain an appreciation for the factors influencing use of CAM therapy in treating chronic sinus disease
- 3) After hearing the presentation, the learner will understand the types of CAM therapy used to treat chronic sinus disease, and what the relative merits and drawbacks are.

**ABSTRACT**

**BACKGROUND:** Many Canadians use complimentary and alternative medicines (CAM) to treat their chronic diseases. The objective of this study was to report patients' usage of CAM for chronic rhinosinusitis (CRS), and to determine factors predictive of CAM use.

**METHOD:** A cross-sectional survey was conducted. Self-report questionnaires were administered to patients with CRS using strict inclusion/exclusion criteria. The questionnaire included demographic information, questions pertaining to disease severity, and CAM use for CRS treatment. Statistical analysis was used to compare gender, age range, symptom duration, pharmacotherapy use, and surgical frequency amongst CAM users and non-users. A binomial logistical regression model was developed to predict CAM usage. Secondary outcome measures included factors predictive of CAM use, type of CAM used, and reasons for using CAM.

**RESULTS:** Data was obtained from 288 patients. 45 respondents (15.6%) had used CAM as a treatment for their CRS. CAM users were more likely to be females and more likely to have used each class of pharmacotherapy. On logistic regression, female gender and use of nasal corticosteroids were predictive of CAM use.

**CONCLUSION:** The use of CAM as treatment of CRS is common. Females and those having used the various classes of pharmacotherapy are more likely to use CAM. Both female gender and nasal corticosteroid use are predictive of CAM use. Physicians should routinely inquire about CAM use from their patients w (original incomplete).

08:16 – 08:24 ***Exploratory Study into the Effect of Nasal Challenge with Flour on Nasal Levels of Nitric Oxide*** - R. Castano, D. Miedinger, J.L. Malo, M. Desrosiers, MONTREAL, QC

**LEARNING OBJECTIVES**

Upon completion of this presentation, participants will know about the role of nitric oxide in nasal inflammation; the applicability of nitric oxide measurements during nasal challenge with allergen and the potential

clinical use of a simple nitric oxide analyzer for monitoring nasal inflammatory conditions.

**ABSTRACT**

**OBJECTIVES:** The utility of nasal nitric oxide (nNO) for assessment of airway inflammation during nasal challenge test (NCT) with allergen is yet to be elucidated. We studied the kinetics of nNO after challenge with flour in subjects with occupational rhinitis.

**METHODS:** Eight bakers underwent control NCT and flour NCT on consecutive days. Nasal response was assessed by acoustic rhinometry and symptoms recording. nNO was measured before the challenge and at 30min, 6h and 24h after challenge using a hand-held analyser.

**RESULTS:** Flour NCT induced a significant decrease in nasal volume in the early phase. After control NCT, nNO increased from 34.8 ppb±14.4 at baseline to 44.2 ppb±26.0 at 30 min ( $p=0.04$ ); to 46.3±21.9 at 6h; and up to 42.3±23.6 at 24h ( $p=0.12$ ). After flour NCT, nNO decreased from 42.3 ppb±23.6 at baseline to 33.1 ppb±13.1 at 30min ( $p=0.07$ ); then, nNO increased to 46.5 ppb±24.0 at 6h and up to 56.5 ppb±42.6 at 24h ( $p=0.16$ ) after challenge.

**CONCLUSIONS:** nNO appears to have a role as biomarker of nasal airway inflammation on the late phase response to challenge with allergen, possibly a reflection of the inflammatory cell influx occurring at this time. nNO kinetics during early reaction to allergen challenge may be altered by a marked nasal congestive response with obstruction of sinus ostia.

08:30 – 08:38 ***Use of Polestar N20 Low Field Intra Operative Magnetic Resonance Imaging for Endoscopic Transsphenoidal Pituitary Surgery- The Dalhousie Experience*** - S. Annamalai, M. Hong, D.B. Clarke, E. Massoud, HALIFAX, NS

**LEARNING OBJECTIVES**

By the end of the session the Audience will be familiar with the iMRI use in endoscopic skull base procedures as well as benefits, limitations and drawbacks of the use of this tool.

**ABSTRACT**

**OBJECTIVES:** Ultra low field (0.15T) intra-operative MRI (iMRI) has been used in some centers around the world, we are the first center in Canada to use this system. The aim of this study is to report our experience using the Medtronic Polestar N20 iMRI as an adjunct to tumor resection during Endoscopic Transsphenoidal surgery.

**METHODS:** In our institution, both Otolaryngologists and Neurosurgeons work as one surgical team during the procedure, from start to finish. The iMRI system has been implemented as a standardized adjunct to image guided endoscopic transsphenoidal resection in selected cases of large tumours having extra-sellar extension, either superior to the optic chiasm or lateral to the cavernous sinus.

**RESULTS:** Our early experience indicates that, for these highly selected patients, the use of the Polestar N20 is a safe, helpful adjunct to endoscopic transsphenoidal surgery. During surgery, this system provides immediate feedback concerning extent of tumor resection.

**CONCLUSION:** Although intra-operative interpretation can initially be challenging pre and post-gadolinium contrast image quality is quite satisfactory to evaluate the presence of residual tumor in the sellar and parasellar areas. Total anaesthesia and operation times are

prolonged; however iMRI provides valuable real time information concerning the extent of tumour removal that can help in obtaining a more complete tumor resection.

08:38 – 08:46 ***Purely Endoscopic Transsphenoidal Surgery versus Traditional Microsurgery for Resection of Pituitary Adenomas: A Systematic Review*** - J.E. Strychowsky, S. Nayan, K. Reddy, F. Farrokhyar, D. Sommer, HAMILTON, ON

#### LEARNING OBJECTIVES

- By the end of this session, the student will be able to describe two surgical approaches (purely endoscopic and traditional microsurgery) to the resection of pituitary adenomas and the outcomes and complications associated with each approach.
- By the end of this session, the student will be able to consider which surgical approach is most appropriate for the management of pituitary adenomas.

#### ABSTRACT

**OBJECTIVE:** To determine in a systematic review, whether purely endoscopic transsphenoidal resection of pituitary adenomas offers improved outcomes and decreased complications compared with the traditional microscopic approach.

**METHODS:** The literature was searched using Medline, EMBASE, and the Cochrane Library (inception to October 2009). Studies were included if they compared the two surgical approaches for the management of pituitary adenomas and at least one outcome (gross tumour resection, recurrence, visual field improvement, hormone resolution, mean blood loss, mean operative time, mean hospital stay) or complication rate (CSF leak, visual or endocrine deterioration, nasal complications, meningitis, death). Two independent review authors screened eligible studies and assessed methodological quality.

**RESULTS:** Eleven studies met inclusion criteria (1 RCT and 10 retrospective) and involved 758 patients. The purely endoscopic approach was associated with less mean blood loss, shorter hospital stays and operative times, and fewer nasal complications. There was also a trend towards better gross tumour resection, decreased incidence of post-operative diabetes insipidus, and higher incidence of post-operative CSF leak. Other outcomes and complication rates were equivocal.

**CONCLUSION:** Purely endoscopic transsphenoidal resection of pituitary adenomas is both safe and efficacious when compared with the traditional microscopic approach and may offer some benefit.

08:50 – 08:58 ***Identifying the Effects of Blood Pressure on Intra-operative Bleeding During Endoscopic Sinus Surgery*** - A. R. Sharma, T. Alandejani, M. Fandino, A. Javer, VANCOUVER, BC

#### ABSTRACT

**OBJECTIVES:** To date there has been no study recommending a suitable mean systolic blood pressure (SBP) and mean arterial blood pressure (MAP) needed to reduce intra-operative bleeding during elective endoscopic sinus surgery (ESS). Our study will assess MAP and mean SBP to identify it's effect on intraoperative bleeding during ESS in patients with chronic rhinosinusitis (CRS) with and without nasal polyps (NPs) and allergic fungal sinusitis (AFS).

**METHODS:** A prospective, randomized, double-blinded study evaluating patients undergoing ESS with two study groups: one group with mean SBP <100 mmHg (or MAP <65 mmHg) and the second group with mean SBP >110 mmHg (or MAP >70 mmHg). Bleeding during surgery will be graded by the primary surgeon at the termination of the procedure based on the Boezaart grading scale. Secondary outcomes of the study will assess CRS patients with and without NPs and AFS patients to assess the impact of mean SBP on intra-operative bleeding on different sinus pathology and the extent of disease based on the Lund-MacKay (LM) score.

**RESULTS:** The results show a higher Boezaart score in patients with mean SBP >100 mmHg (or MAP of >70 mmHg). Results also show a higher incidence of intra-operative bleeding in patients with NPs and higher LM scores.

**CONCLUSIONS:** Patients undergoing ESS with mean systolic blood pressures of <100 mmHg (or MAP <65 mmHg) have less bleeding and an improved intra-operative surgical field.

08:58 – 09:06 ***Systematic Review Assessing the Effectiveness of Cocaine for Local Anesthesia and Vasoconstriction*** - D. MacNeil, A.R. Javer, B. Westerberg, R. Irvine, VANCOUVER, BC

**LEARNING OBJECTIVES**

- 1) By the end of this session Otolaryngologists will be able to evaluate the efficacy of cocaine as a topical anesthetic and for vasoconstriction in head and neck surgery.
- 2) By the end of this session the Otolaryngologist will be able to determine the most effective and safe agent for topical anesthesia and vasoconstriction for head and neck procedures/surgery.

**ABSTRACT**

**BACKGROUND:** Cocaine is used in Otolaryngology for local anesthesia and vasoconstriction. Reports of cardiac ischemia and other side effects have caused some to question the necessity and safety of cocaine.

**METHODS:** A systematic review was conducted of RCTs published between 1966 and 2009. Methodologic validity was evaluated. Primary outcomes were vasoconstriction or blood loss and local anesthetic effect.

**RESULTS:** Two RCTs showed cocaine caused less intraoperative blood loss than placebo and adrenaline. Two RCTs demonstrated equivalent intraoperative blood loss when cocaine, oxymetaxoline and phenylephrine were compared. Nine studies compared cocaine with other treatments or placebo for nasal procedures or surgery under local anesthetic and found no difference in the patient's pain perception.

**CONCLUSIONS:** Cumulative evidence from nine RCTs shows no difference in pain scores regardless of the topical anesthetic used for nasal procedures. There is insufficient evidence to conclude that cocaine is superior to other vasoconstrictive agents for minimizing intraoperative blood loss.

09:10 – 09:18 ***Does Pterygopalatine Fossa Injection with Local Anaesthetic and Adrenaline Decrease Bleeding During Endoscopic Sinus Surgery?*** - Y. N. Albadaai, S. Alghamdi, M. Samaha, MONTREAL, QC

#### LEARNING OBJECTIVES

- To evaluate the effect of pterygopalatine fossa infiltration with xylocaine and epinephrine on surgical field visualization and blood loss during Endoscopic sinus surgery.

#### ABSTRACT

**OBJECTIVE:** To determine the effect of Pterygopalatine fossa injection with xylocaine and adrenaline on surgical field bleeding, blood loss, and duration of surgery during Endoscopic sinus Surgery (ESS) for Chronic Rhinosinusitis (CRS).

**METHODS:** A prospective single blinded control trial was performed. A total of 50 consecutive patients undergoing surgery for CRS, whose disease was symmetrical based on CT grading were included. A unilateral pterygopalatine fossa injection with 1% of xylocaine and 1:100,000 epinephrine was performed after induction of anesthesia. The contralateral side served as control. The operating surgeon who was blinded to the injected side assessed the surgical field using a validated 6-scale scoring system. Blood loss, blood pressure, heart rate, end-tidal Co2 and duration of surgery were recorded for each side separately.

**RESULTS:** preliminary analysis of data from 20 patients showed no statistically significant difference in surgical field bleeding, blood loss, or duration of surgery.

**CONCLUSION:** Preliminary results indicate that pterygopalatine fossa infiltration prior to ESS did not improve intraoperative surgical field bleeding, decrease blood loss or shorten the duration of surgery.

09:18 – 09:26 ***A Preliminary Study of the Efficacy of Topical Aantibiotics Delivered by a Biodegradable Polymer Compared to Post-operative Oral Antibiotics after Endoscopic Sinus Surgery*** - V.M. Yu, S. Jonnalagadda, P.J. Catalano, BURLINGTON, MA

#### LEARNING OBJECTIVES

- Participants will be able to assess the efficacy of topical antibiotics delivered by a biodegradable polymer compared to that of post-operative oral antibiotics after endoscopic sinus surgery based on preliminary studies.

#### ABSTRACT

**OBJECTIVE:** This study compares the efficacy of topical antibiotic delivered by a bio-absorbable material to that of post-operative oral antibiotics.

**METHODS:** Twenty-eight patients undergoing endoscopic sinus surgery at a tertiary care center were randomized prospectively. During surgery, a bio-absorbable sponge was placed in the middle meatus to prevent synechiae. In the experimental group, the sponge was soaked in bacitracin prior to placement. The control group received post-operative antibiotics for one week. SNOT-20 questionnaires were administered pre-operatively and at three months post-operatively. Endoscopic exam and infection rates were recorded at two weeks and three months.

**RESULTS:** The SNOT-20 scores were not statistically different between groups. The infection rate was 14% and 0% at two weeks and 7% and 0% at three months in the control and experimental groups respectively ( $p>0.5$ ). Endoscopy demonstrated one case of granulation tissue in each group at two weeks, and one case of granulation tissue and one case of synechia in the experimental group at 3 months.

CONCLUSIONS: Prophylactic antibiotic therapy can be delivered via bio-absorbable sponge after endoscopic sinus surgery. The efficacy and side effects of this approach are comparable to that of standard oral antibiotics. Further study of this promising technique is ongoing.

**Monday, May 24, 2010**  
**Strategy Room 2**

**Workshop #13** (CPD credit hrs – 0.50)  
**Chair: Dr. I. Witterick, TORONTO, ON**

09:30 – 10:00 *Rhinology Forum*

10:00 – 10:30 COFFEE AND VISIT TO THE EXHIBITS

**Monday, May 24, 2010**  
**Strategy Room 2**

**Paper Presentations: Laryngology** (CPD credit hrs – 1.00)  
**Chair: Dr. T. Brown, HALIFAX, NS**

10:30 – 10:38 *Validation and Cultural Modification of Arabic Voice Handicap Index* - K.H. Malki, M. F. Ibrahim, RIYADH, Saudi Arabia

LEARNING OBJECTIVES

1. To present the first Arabic version of Voice Handicap Index (VHI).
2. To present the cultural modifications performed on the Arabic VHI.
3. To prove validity and internal consistency of the Arabic VHI.
4. To compare Arabic VHI scores between a Saudi voice disorders group and a Saudi control group.

ABSTRACT

BACKGROUND AND OBJECTIVES: The Voice Handicap Index (VHI) is one of the most well studied and widely used instruments for measuring quality of life in patients with voice complaints. Although it has been applied for the English speaking population, it has no documented application in the Arabic speaking countries. The purpose of this study was to generate the first Arabic version of VHI, to modify it to the Arabic culture, and to assess its validity and consistency.

SUBJECTS AND METHODS: The English version of VHI was translated into Arabic using a standard scientific method. The preliminary Arabic version was applied on a small number of Saudi voice patients as a pilot study for cultural modification. The final Arabic version was validated, than it was applied on a Saudi control group and a group of fifty Saudi voice patients.

RESULTS: The Arabic VHI showed high internal consistency and high item-domain and domain-total correlation. There was a highly significant difference in VHI scores between the control and the voice disordered group.

CONCLUSION: The Arabic VHI demonstrates high validity and internal consistency. It can be used in clinical practice as a self assessment tool for voice disorders in Arabic language speakers.

10:38 – 10:46 ***The Point-Touch Technique for Botox Injection in Adductor Spasmodic Dysphonia: A Quality of Life Study*** - S. Morzaria, E. Damrose, STANFORD, CA

**ABSTRACT**

**BACKGROUND:** Botulinum toxin (Botox) injections using electromyographic (EMG) guidance are the gold-standard therapy for adductor spasmodic dysphonia (ADSD). An alternative injection technique which relies on anatomic landmarks, the “point-touch” method, is cheaper, quicker and more accessible but has not gained widespread acceptance due to concerns regarding patient satisfaction.

**OBJECTIVE:** To assess the swallowing and voice-related quality of life utilizing the “point-touch” technique for Botox injection in ADSD.

**SETTING:** Stanford University Voice and Swallowing Center.

**DESIGN:** Prospective cohort study (Level of evidence = 2b).

**METHODS:** Consecutive adductor spasmodic dysphonia patients with a stable Botox dose-response relationship were recruited prospectively. The Eating Assessment Tool (EAT-10) and Voice-Related Quality of Life (V-RQOL) instruments were obtained pre-treatment and at 10% and 30% point of the post-treatment injection cycle, respectively.

**RESULTS:** 37 patients completed follow-up. The average total Botox dose was 0.88 units. The pre-treatment V-RQOL reflected the burden of the disease. The post-treatment EAT-10 and V-RQOL were collected at 2.53 weeks and 7.84 weeks respectively. The post-treatment EAT-10 showed increased dysphagia but the difference was not significant. The post-treatment V-RQOL was significantly improved, both in domain and total scores.

**CONCLUSION:** The “point-touch” technique is a viable alternative for the injection of Botox in the treatment of ADSD.

**KEY WORDS:** spasmodic dysphonia, adductor spasmodic dysphonia, quality of life, eating assessment tool, EAT-10, voice-related quality of life, V-RQOL, injection, point-touch

10:46 – 10:54 ***Vocal Cord Paralysis Following Neck Hyperextension Injury: Does It Recover?*** - K. H. Mallet, P. F. Odell, OTTAWA, ON

**LEARNING OBJECTIVES:**

- 1) By the end of this session the audience member will be aware of the potential for vocal cord paralysis due to recurrent laryngeal nerve injury following neck hyperextension injury.
- 2) By the end of this session the audience member will be able to describe the chance of recovery for vocal cord paralysis following neck hyperextension injury.
- 3) By the end of the session the audience member will be able to describe the importance of a team approach (SLP and Oto-HNS) to the identification and treatment of vocal cord paralysis and dysphagia following neck hyperextension injuries.

**ABSTRACT**

**OBJECTIVE:** To determine if vocal cord paralysis due to recurrent laryngeal nerve injury following neck hyperextension injury is permanent or temporary.

**METHODS:** A prospective case series design was used for this study during the years 2005 to 2008. Only patients who underwent a Fiberoptic Endoscopic Evaluation of Swallowing (FEES) or a nasopharyngolaryngoscopy (NPL) following neck hyperextension trauma with

unilateral or bilateral vocal cord paralysis were included. Patients with other mechanisms of injury or pathology were excluded. Patients were followed for a minimum of 6 months.

**RESULTS:** Eight patients were initially identified, two were excluded due to other diagnoses and one patient with right vocal cord paralysis (RVP) was lost to follow-up. Of the five patients, one had bilateral vocal cord paralysis (BVP) while the remainder had RVP. Three patients had complete recovery of vocal cord function, one patient had partial recovery of RVP and one patient with RVP had no recovery. All patients returned to eating a regular oral diet.

**CONCLUSIONS:** 60% of patients had recovery of vocal cord paralysis following neck hyperextension injury in this series. All patients returned to a regular oral diet.

11:00 – 11:08 ***Longitudinal Evaluations of Laryngeal Overpressure and Voice-Related Quality of Life in Adductor Spasmodic Dysphonia*** - J.C. Yeung, K. Fung, A. M.B. Day, A. Dzioba, C. Bornbaum, T. Levee, P.C. Doyle, LONDON, ON

**LEARNING OBJECTIVES:**

By the end of this presentation, the participant will understand the auditory-perceptual measure of laryngeal overpressure and its relationship to self-assessments of voice-related quality of life in patients with adductor spasmodic dysphonia.

**ABSTRACT**

**OBJECTIVES:** Adductor spasmodic dysphonia (ADSD) is characterized by considerable intra- and inter-subject variability. Substantial and highly variable changes in voice-related disability also are a presenting feature. This project investigated longitudinal variability of ADSD with a focus on: (1) auditory perceptual judgments of laryngeal overpressure (LO) and (2) self-assessments of voice-related quality of life.

**METHODS:** Ten adults with ADSD were followed over time to monitor LO and self-ratings of voice. Standard voice recordings were obtained at multiple points and these samples were submitted to auditory-perceptual evaluation of LO by experienced listeners using a visual analog scale. At the time of each recording, participants also completed the Voice-Related Quality of Life (V-RQOL).

**RESULTS:** Based on perceptual judgments LO provides a reliable means of quantifying the severity of voice abnormalities in ADSD. However, the composite measure of LO does not always correlate with self-ratings of voice disability based on the V-RQOL. Variable changes in both sub-scores of the V-RQOL were observed.

**CONCLUSIONS:** Variability in self-ratings of the V-RQOL suggests that perceived disability related to ADSD should be actively monitored. Similarly, the use of LO as a simple and reliable measure of ADSD, was supported as a valuable index of voice change over time.

11:08 – 11:16 ***Endoscopic Microdebridement versus Tracheotomy in Tumour Obstructed Airways*** - S. M. Ghosh, D. Côté, J. Tibbo, H. Seikaly, EDMONTON, AB

**ABSTRACT**

**OBJECTIVE:** In many head and neck centers, tracheotomy is the standard of care for managing most obstructed upper airways. In select groups, such as those with airway obstruction from tumor mass effect, microdebridement of the larynx can be an effective

alternative for establishing patency of stenosed airways. The objective of this paper is to assess and compare the effectiveness and benefits of both forms of therapy.

**METHODS:** A review was performed including over 40 patients who presented with airway obstruction from tumor mass, receiving either debridement surgery or tracheotomy. Differences in analgesia requirements, ease of breathing, supplemental oxygen dependency, and overall satisfaction were evaluated.

**RESULTS:** Length of hospital stay was found to be statistically significantly less than patients who had received tracheotomies ( $p=0.04$ ). Analgesia requirements, ease of breathing, supplemental oxygen dependency, and overall satisfaction were superior in patients with debridement surgery in comparison to those who had received tracheostomies. No adverse complications were seen in either group.

**CONCLUSION:** Microdebridement of tumors obstructing the upper airway is a safe and effective method of maintaining airway patency.

## **Monday, May 24, 2010 Strategy Room 2**

**Workshop #14** (CPD credit hrs – 0.50)

**Chair: Dr. T. Brown, HALIFAX, NS**

11:30 – 12:00 *Laryngology Forum*

12:00 – 13:30 LUNCH AND VISIT TO THE EXHIBITS

13:30 – 17:00 *Poliquin Resident Competition* (see Great Room C)

## **Monday, May 24, 2010 Strategy Room 3**

**Paper s: Head and Neck Surgery #1** (CPD credit hrs – 2.00)

**Chair: Dr. W. Matthews, CALGARY, AB**

08:00 – 08:08 *Treatment of Upper Aerodigestive Tract Carcinoma with Transoral CO2 Laser Microsurgery - The Winnipeg Experience* - F. Bammeke, C. Myers, P. Kerr, D. Sutherland, N. Viallet, WINNIPEG, MB

### LEARNING OBJECTIVES

At the end of this session, the participant will:

- have a better understanding of the oncologic effectiveness of CO2 laser microsurgery in a variety of upper aerodigestive tract sites.
- have a better understanding of the expected functional outcomes of CO2 laser microsurgery.

### ABSTRACT

**OBJECTIVE:** To summarize the CancerCare Manitoba experience in using transoral CO2 laser microsurgery as treatment for upper aerodigestive tract carcinoma.

**STUDY DESIGN:** Retrospective, population based consecutive series

**METHODS:** The registry of CancerCare MB was searched for all cases of upper aerodigestive tract carcinoma treated with CO2 laser microsurgery between 2003-2008. Charts were

reviewed to determine oncologic outcome. Patients with laryngeal carcinoma participated in our comprehensive, prospective functional outcome monitoring program. These patients had functional results collected pretreatment, and at 3, 6, 12, 24, and 36 months post treatment.

**RESULTS:** 100 consecutive patients underwent transoral laser microsurgery for laryngeal carcinoma (N=50), or oral/oropharyngeal carcinoma (N=50). Survival and local control rates were comparable to traditional treatment modalities in each anatomic site. Our functional outcome results indicate that, for early glottic carcinoma, there is a trend toward better voice quality after radiotherapy relative to CO2 laser, but the level of patient satisfaction is high in both groups. Reduced voice quality in the laser group is offset by a trend toward better laryngectomy free survival.

**CONCLUSIONS:** Laser microsurgery has been an effective addition to the treatment armamentarium when treating carcinoma in a variety of upper aerodigestive tract sites.

08:08 – 08:16 **Modified Midfacial Translocation** - M. Shakeel, A. Hussain, M. Kamel, ABERDEEN, SCOTLAND

#### LEARNING OBJECTIVES

- By the end of our presentation the audience would have been made familiar with modified mid facial translocation technique.
- The audience would have been able to recognise the rationale, principles, technique, advantages and disadvantages of our modified mid facial translocation technique.
- The audience would have acquired enough knowledge of anatomy and technique that they may wish to incorporate the technique in their surgical repertoire.

#### ABSTRACT

**OBJECTIVES:** To describe our modified mid facial translocation (MMFT) technique for access to nasopharynx, anterior, central and lateral skull base tumours and to share our clinical experience of the utility and safety of this technique.

**METHODS:** Retrospective chart review. Along with demographics, other parameters studied were location, type of tumour and its extent, adequacy of exposure, partial or total resection of tumour, aesthetic outcome and complications.

**RESULTS:** A total of 48 patients underwent MMFT for nasopharyngeal, parapharyngeal, anterior, central and lateral skull base tumours at our institution over 10 years period, by the senior author (AH). In all cases the exposure deemed to be adequate. There were minimal complications. Aesthetic outcome was satisfactory.

**CONCLUSIONS:** MMFT is based on the fundamental principle of temporary craniofacial disassembly for access to the skull base. We have modified previously described techniques. Our two modifications offer adequate access and better aesthetic outcome. All incisions are placed through the aesthetic sub units of the nose with preservation of the lip and additional incision is made in the sub labial mucosa. This has enhanced the aesthetic outcome significantly. Preservation of mid facial soft tissue attachment to the underlying bones seem to enhance vascularity and minimize complications.

08:16 – 08:24 ***Submandibular Gland Transfer: Our 10-year Experience and Review of the Literature*** – J. Tibbo, H. Seikaly, N. Jha, J. Harris, D. Williams, EDMONTON, AB

LEARNING OBJECTIVES

1. To understand the current methods available in the management of radiation-induced xerostomia.
2. To understand the indications for submandibular gland transfer.
3. To understand the surgical method for submandibular gland transfer.
4. To review the world literature on submandibular gland transfer.
5. To learn of the success of this procedure, in terms of physiologic and quality-of-life studies.

ABSTRACT

Objective: To review our 10-year experience with submandibular gland transfer and to review the world literature.

Design: Literature Review

Background: Radiation therapy is commonly used in the treatment of head and neck malignancies. Xerostomia is a permanent devastating side-effect of head and neck irradiation. Ten years ago, our group described the submandibular gland transfer procedure which involves moving a submandibular gland outside the radiation field, forward into the submental space. The gland is mobilized by transecting the facial artery, with the gland receiving retrograde blood-flow. The gland is spared from radiation, and function is preserved.

Methods: A 10-year review of the submandibular gland transfer procedure was performed. The patients' salivary flow and quality of life was evaluated. A review of the world literature of this procedure was performed.

Results: At our centre, 349 patients had the procedure over the 10 years since it description. Xerostomia was prevented in 81% of the patients. A review of the literature showed similar results by other investigators.

Conclusion: Submandibular gland transfer has been used successfully in the prevention of radiation-induced xerostoma in our centre for 10 years. This method has been adopted by several centres across Canada and Internationally.

08:30 – 08:38 ***Prevalence and Association with Outcome of p16 and EGFR in Surgically Treated Oral Cavity and Oropharyngeal Cancer*** - S. Chandarana, D. Chepeha, J. Lee, E. Chanowski, B. Kumar, A. Sacco, C. Bradford, G. Wolf, ANN ARBOR, MI

LEARNING OBJECTIVES

1. By the end of this session, the listener will be able to describe the prevalence of 2 biomarkers in oral cavity and oropharyngeal squamous cell carcinoma in a cohort of surgically treated patients.
2. By the end of this session, the listener will be able to consider the association between expression of biomarkers and patient outcome.
3. By the end of this session, the listener will be able to consider the impact of biomarkers on treatment planning for head and neck cancer.

4. By the end of this session, the listener will be able to describe the role of a tissue microarray in identifying markers of tumor expression.

#### ABSTRACT

**OBJECTIVE:** To determine the significance of biomarkers (p16, EGFR) in a prospective cohort of surgically treated patients with oral cavity (OC) and oropharyngeal (OP) squamous cell carcinoma (SCC).

**PATIENTS AND METHODS:** Biopsies of previously untreated patients (49 OC and 36 OP) were scored for expression of p16 and EGFR. Biomarkers were assessed for prevalence and association with clinical covariates, overall survival (OS), disease-specific survival (DSS) and time to recurrence (TTR).

**RESULTS:** p16 was expressed in 12% and 56% of OC and OP patients respectively. EGFR was expressed in 88% and 86% of OC and OP patients respectively. No association between biomarker and outcome was detected in the OC group. In the OP group, p16 expression was associated with improved OS, DSS, and TTR ( $p < .01$ ,  $< .01$ ,  $< .01$ ). EGFR expression was associated with smoking status ( $p = .02$ ), and inversely associated with OS, DSS and TTR ( $p = .01$ ,  $< .01$ ,  $< .01$ ).

**CONCLUSIONS:** Within the OP group, high p16 and low EGFR were associated with improved outcome, suggesting a role for these biomarkers in surgically treated patients. The prevalence of p16 was lower in the OC group, resulting in a sample too small to power survival analysis.

08:38 – 08:46 ***Bcl-2 and EGFR Overexpression Predict Radiotherapy Failure in Early Glottic Carcinoma*** - F. Whelan, A. Nichols, J. Yoo, K. Fung, J. Franklin, B. Wehril, K. Kwan, H. Osborn, LONDON, ON

#### LEARNING OBJECTIVES

By the end of this paper presentation the conference delegate will have an understanding of the significance of biomarker expression in predicting radiation failure in glottic squamous cell carcinoma and how this may influence patient management.

#### ABSTRACT

**BACKGROUND:** BCL-2 is an anti-apoptotic protein previously reported to be overexpressed in radioresistant squamous cell carcinoma (SCC) of the larynx and oropharynx. Epidermal Growth Factor Receptor (EGFR) is a cell surface tyrosine kinase receptor. Its activation modulates cell proliferation, adhesion, migration, and angiogenesis. Overexpression has been reported to be a prognostic indicator in laryngeal cancer, and a marker for aggressive mucosal head and neck SCC. The aim of this study is to evaluate whether Bcl-2 and EGFR expression are correlated with treatment failure in patients with early glottic squamous cell carcinoma (SCC) treated primarily with radiation.

**METHODS:** A retrospective chart review was performed to identify patients with T1 and T2 SCC of the glottis treated solely with radiation. Patient demographics, tumor staging, smoking and drinking history, and treatment outcomes were extracted. Archival paraffin embedded pretreatment tumor specimens were sectioned and immunostained for Bcl-2 and EGFR. Univariate and multivariate analysis was performed using the Cox proportional hazard model to identify predictors of treatment failure.

RESULTS: Final results are pending. / CONCLUSIONS: Bcl-2 and EGFR over expression correlated with radiation failure.

08:46 – 08:54 ***The Effect of Oncologic Head and Neck Surgery on Vascular Progenitor Cell Recruitment*** - H. Javidnia, M. Corsten, D. Allan, L. Eapen, OTTAWA, ON

LEARNING OBJECTIVES

By the end of this session the audience will have knowledge of the effects of surgery on circulating levels of vascular progenitor cells.

ABSTRACT

OBJECTIVES: Vascular progenitor cells (VPCs) are blood-derived angiogenic precursors and are implicated in repair of ischemic tissue damage through development of new capillary networks (neovascularization). The purpose of this study was to determine the effect of surgery on circulating VPC levels and angiogenic cytokine responses.

METHODS: Study subjects were patients requiring surgery for oral cancer. VPCs were measured by plating mononuclear cells isolated from peripheral blood in angiogenic culture conditions and enumerating VPC cell clusters according to previously published methods. VPCs were enumerated pre-operatively and on their 2nd, 7th, and 14th day post-operatively. Plasma samples were also stored for angiogenic cytokine analysis.

RESULTS: Levels of circulating VPCs varied significantly prior to surgery (0 – 56 /ml). Although most patients demonstrated stable or increased VPC levels following surgery, the degree and rate of VPC mobilization was highly variable. Correlation with wound healing, vascular graft integrity, positive surgical margins, and tumor recurrence will be studied. Most patients exhibited VPC levels at or below baseline levels by day 14 after surgery.

CONCLUSION: Surgical trauma is associated with a general trend toward increased mobilization of vascular progenitors although the response appears highly variable and an association with post-operative healing and cancer progression is uncertain.

08:54 – 09:02 ***The Impact of Multifocal Pattern of Invasion on Patient Outcomes in Oral Squamous Cell Carcinoma*** - M. McNeil, M. Bullock, R. Hart, J. Trites, S.M. Taylor, HALIFAX, NS

ABSTRACT

OBJECTIVES: Multifocal squamous cell carcinoma (MSCC) of the oral cavity is thought to be associated with poor patient outcomes. We sought to determine the frequency of MSCC and associated outcomes to determine if the current standard of treatment is sufficient.

METHODS: 70 consecutive patients undergoing hemiglossectomy or total glossectomy between January 2000 and August 2008 were identified. Worst Pattern of Invasion (WPOI), Histological Risk Assessment (HRA), local recurrence (LR) and mortality were determined.

RESULTS: WPOI suggesting multifocality (grade 5) was associated with higher LR and mortality (38%, 25%) when compared to WPOI 1-4 (15%, 15%). Further, High HRA was associated with higher LR and mortality (38%, 38%) compared to combined Low and Intermediate (5.3%, 0%).

CONCLUSIONS: The results suggest that MSCC correlates with both LR and mortality. These data may impact standard of care for oral cancer.

09:10 – 09:18 ***Assessing the Safety of FEES in the Head and Neck Cancer Population -***  
M.W. Deutschmann, A. McDonough, J. Dort, and T.W. Matthews, CALGARY, AB

ABSTRACT

OBJECTIVE: To determine the risks of adverse outcomes from dietary recommendations made from post-treatment Fibre-optic Endoscopic Evaluation of Swallowing (FEES) in Head and Neck Cancer patients.

METHODS: A retrospective study will involve 120 Head and Neck Cancer patients who underwent 195 post-treatment FEES examinations from January 1, 2005 to December 31, 2008. The results of the FEES exams determine the diet that is recommended. The primary outcomes will be the incidence of hospitalization and death related to oral intake, specifically aspiration pneumonia and airway obstruction, occurring within 1 year of the last examination. Significant weight loss (>5%) will also be analyzed to determine if the diet recommendations are appropriate.

RESULTS: 21 of patients underwent surgery, 10 had radiation, 58 had surgery and radiation, and 20 had radiation and chemotherapy. The results of these patients will be analyzed and implications discussed.

09:18 – 09:26 ***Do Contrast Swallow Examination for Patients Following Major Ablative Pharyngeal and Laryngeal Surgery Help to Predict Enterocutaneous Fistula? A Retrospective Clinico-radiological Evaluation -*** R. Nassif, P. Gulland, E. Ho, D. Goldstein, TORONTO, ON

LEARNING OBJECTIVES

1. Present the evidence based data on the value of contrast swallow examination after major ablative laryngeal/pharyngeal surgery.
2. Examine our institute's experience with contrast swallow studies.
3. Evaluate the different contrast material in the swallow studies

ABSTRACT

Pharyngocutaneous fistula is a serious complication following any major ablative laryngeal or pharyngeal surgery. Contrast swallow studies have been used postoperatively over the last 2 decades to examine the mucosal integrity of the new surgically created swallowing conduit. Over the years, water contrast media have replaced the original barium sulphate in these studies due to presumed less morbidity with the accidental contrast aspiration. This would only allow detection of substantial anastomotic leakage without detailing the mucosal lining of the neopharynx. Previous studies in the literature of esophagectomy have shown barium sulphate with a favorable difference of 15-20% sensitivity over and above water contrast media alone in detecting early leakage after surgery. We are set to examine the rates of detection of radiological leak following all major ablative laryngeal and pharyngeal surgery and investigate their correlation to the final clinical outcome.

The other part of the study include a prospective comparative study between the two different radiological media in different forms (ie. Liquid, semi-solid, etc..) while investigating the same patient to evaluate any difference in sensitivity, specificity and predictive values. Detection of small leaks would potentially avoid premature start of oral feeding, and continuing assisted enteral feeding until healing is completed.

09:26 – 09:34 ***Intra-Operative Factors Associated with Adverse Outcomes in Head and Neck Cancer Patients*** - B. Williams, R. Hart, M. Al-Gilani, S. M. Taylor, J. Trites, M. Bullock, HALIFAX, NS

LEARNING OBJECTIVES

- To appreciate intra-operative factors that are significantly associated with free flap outcome.
- To appreciate the intra-operative factors that are significantly associated with patient complications and disposition.

ABSTRACT

**OBJECTIVES:** To identify intra-operative factors that are correlated to negative postoperative outcomes. This will allow surgeons to 1) plan post-operative patient care more accurately, and 2) be aware of intra-operative factors that may be altered to improve patient outcomes.

**METHODS:** Eleven intra-operative factors and 13 outcomes relevant to free flap patients were identified. Data on these factors were collected retrospectively from the charts of all H&N patients who underwent free flap reconstruction at the QEII Health Science Centre in Halifax between January 2005 and December 2008 (N=120). Each intra-operative factor was compared to each outcome to determine significant associations.

**RESULTS:** Many intra-operative parameters studied were correlated with adverse outcomes. Intra-operative transfusion is significantly associated with post-operative complications (P=0.004), length of stay in hospital (P=0.036), and death within 30 days (P=0.023). Lowest heart rate is associated with flap fate (P=0.039). Lowest core temperature and time under general anesthetic were also significantly associated with various negative outcomes (p<0.05)

**CONCLUSIONS:** These results underscore the importance of maintaining heart rate, core temperature, and multiple other factors during the procedure. Making an effort to control these parameters could potentially have a great impact on patient outcomes.

09:40 – 09:48 ***Management of Radiation Induced Mucositis in Head and Neck Cancer Patients*** - M. Shakeel, D. Hurman, A. Hussain, ABERDEEN, SCOTLAND

LEARNING OBJECTIVES

- To define radiation induced mucositis (RIM), discuss its underlying pathophysiology, elaborate the symptoms and signs caused by RIM and to learn about the role of any investigations in this condition.
- To explore any patients' factors influencing the incidence and severity of RIM.
- To identify the various treatment options used for RIM in our centre and to find out the best evidence based management of RIM.

ABSTRACT

**OBJECTIVES:** To investigate the incidence, symptomatology, investigations and treatment of radiation induced mucositis (RIM) in head and neck cancer patients.

**METHODS:** Retrospective chart review of patients attending our clinic (2006). Data were collected on demographics, diagnosis, investigations, treatment of primary malignancy, incidence, severity and treatment of RIM.

**RESULTS:** A total of 43 patients were identified (male 25, female 18, age range = 19 – 82y). Most common sites involved in malignancy were larynx, oropharynx, tongue base and nasopharynx. Fourteen patients had T4, while 12, 9 and 8 patients had T3, T2 and T1 disease respectively. The radiotherapy was given over 20-22 fractions (55-60Gy). Of the 43, 32 (75%) patients experienced RIM necessitating some treatment. Commonest symptoms were odynophagia, dysphagia and dysphonia. Fifty percent (16) required hospital admission where RIM was treated with analgesia, antibiotics, anti-fungals, steroids, and various mouth washes. Based on smoking status, the incidence of RIM was; current smokers 15/18 = 83%, ex-smokers 9/17 = 53%, non-smokers 8/8 = 100%.

**CONCLUSIONS:** There is a high incidence of RIM causing significant morbidity in our cohort. The unexpectedly high incidence of RIM in non-smokers needs further investigation. Universally agreed treatment of RIM remains to be determined.

09:48 – 09:56 ***Osteoradionecrosis of the Mandible: University of Toronto Experience*** - K. Wong, K. Higgins, D. Enepekides, R. Gilbert, D. Goldstein, TORONTO, ON

#### LEARNING OBJECTIVES

1. Discuss the current pathophysiology of ORN
2. Discuss the current treatment options for ORN
3. Discuss the University of Toronto Experience in management of ORN

#### ABSTRACT

**OBJECTIVES:** Examine the management of advanced osteoradionecrosis of the mandible at the University of Toronto.

**METHODS:** A retrospective chart review was performed of all patients who underwent surgical treatment of osteoradionecrosis from 2000-2008. Patient demographics, disease specific information, along with prior radiation therapy history were collected.

**RESULTS:** A total of 9 patients were identified (8 males and 1 female). Primary site of initial disease included oral tongue (3), parotid gland (1), Tonsil (1), soft palate (1) and retromolar trigone (1). Initial treatment modalities for these patients included radiation therapy alone (3), Surgery + post-operative radiation therapy (2) and Surgery + chemoradiation therapy (3) and chemoradiation alone (1). Five patients underwent successful mandibulectomy with a osseocutaneous free flap, while the remaining 4 patients were treated with equestrectomy/saucerization and conservative treatment. None of the patients required re-operation after treatment.

**CONCLUSIONS:** Osteoradionecrosis is a difficult entity to treat. Advanced osteoradionecrosis can be treated successfully with mandibulectomy and a vascularized free flap.

10:00 – 10:30 COFFEE AND VISIT TO EXHIBITS

## **Monday, May 24, 2010 Strategy Room 3**

**Papers: Head and Neck Surgery #2** (CPD credit hrs – 1.50)  
**Chair: Dr. M. Corsten, OTTAWA, ON**

10:30 – 10:38 ***Head & Neck Incidentalomas on PET Scan; Ignore or Investigate*** - H. F. Al-Hakami, M. Hier, M. Black, A. Mlynarek, R. Payne, J. Stern, W. Makis, S. Anand, MONTREAL, QC

### LEARNING OBJECTIVES

By the end of this session the resident in the training program will be able to evaluate the possibility of Whole-body CT/PET to detect a new, and unexpected primary malignant tumors when followed the inclusion criteria in high risk patients.

### ABSTRACT

**BACKGROUND AND OBJECTIVE:** Incidental head & neck abnormalities are increasingly detected with 18F-fluorodeoxyglucose positron emission tomogram (PET). Incidental thyroid lesions on PET are described in many studies, however, no reports have definitively identified incidental findings in multiple H&N sites. The aim of this study is to identify the incidence and significance of head and neck incidentalomas on PET Scan.

**DESIGN AND METHODS:** This prospective study reviewed head and neck incidentaloma cases from whole-body 18F-FDG PET/CT scans based on specific inclusion criteria from March 2006 to October 2009. The patients had been scanned for known or suspected malignant lesions in non head and neck sites. 31 cases revealed possible metastatic or new primary lesions in the head & neck.

**RESULTS:** 5 out of 31 cases (16.13%) discovered true malignancies in the incidentaloma lesion (3 thyroid, 1 parotid and 1 cervical lymph nodes) and all were new primary malignancies. 4 out of the 5 (80%) demonstrated high SUV.

**CONCLUSION:** Whole-body PET/CT detected new, unexpected 18F-FDG-avid primary malignant tumours in 16% of patients. High SUV strongly suggests the presence of malignancy. H&N incidentalomas merit consultation & exam. A minority will represent true malignancy.

10:38 – 10:46 ***The Use of Fluorescent light (VELscope) In Detecting Malignant and Premalignant Lesions In The Oral Cavity: A Prospective Single Blind Study*** - H. Marzouki, K. Kost, T. Vi Vu, P. Chauvin, J. Hanley, MONTREAL, QC

### LEARNING OBJECTIVES

We will give a brief introduction about the VELscope technology and its application in detecting premalignant and malignant lesions in the head and neck. By the end, head and neck surgeons will have a better understanding of the application of the VELscope and its role in diagnosing malignant oral cavity lesions.

### ABSTRACT

**OBJECTIVES:** To assess the usefulness of the VELscope in detecting malignant and premalignant oral cavity lesions, and to determine the value of the VELscope as a

screening tool in detecting oral cavity lesions that may not be detected by routine oral cavity examination.

**METHODS:** All patients were examined by a single blinded examiner and suspicious lesions were marked, then the VELscope were used by a different applicator to examine the oral cavity, blindly without knowing the results of the regular oral cavity examination and sites of abnormal cells were marked on a separate sheet. Biopsies were taken from the suspicious 'exam' and 'VELscope' sites if they were different.

**RESULTS:** We will aim for 50 instances where a biopsy was indicated by one of the modalities but not the other. So far we examined 23 patients, fifteen were found normal with both modalities. While, six were positive on the Velscope and normal on the regular exam, the biopsies for those patients showed inflammatory changes with no dysplasia in 4 of them (66.67%), 2 of them showed mild to moderate dysplasia (33.33%). 2 of the 23 patients were positive on both modalities, biopsies were performed for them, one showed squamous cell carcinoma, while the other showed moderate to severe dysplasia.

**CONCLUSION:** The VELscope, if found to be effective, can be used as a screening tool for premalignant lesions. However, it may be difficult to distinguish inflammatory changes from true dysplasia by the VELscope.

10:46 – 10:54 ***In Vivo Immediate Visualization of the Cytological Structure on Suspected Laryngeal and Oropharyngeal Lesions with Contact Endoscopy*** - M. Ceron, K. Fung, B. Wehrl, J. Franklin, J. Yoo, LONDON, ON

#### LEARNING OBJECTIVES

1. By the end of this session the participants will be able to evaluate the diagnostic potential and limitations of Contact Endoscopy on benign and malignant lesions of oral cavity, pharynx and larynx when presented with evidence from the literature and results from our study.
2. By the end of this session the participants will be able to establish a systematic comparison between Contact Endoscopy and the traditional histopathological analysis when presented with a systematic review of related papers in journals.
3. By the end of this session the participants will consider the clinical applicability of this new diagnostic tool to their personal practice as described in the literature.

#### ABSTRACT

**BACKGROUND:** Contact endoscopy (CE) is an emerging technology that enables real-time dynamic in vivo microscopic visualization of tissue.

**OBJECTIVES:** To evaluate the diagnostic potential, accuracy and limitations of CE in benign and malignant lesions of the oral cavity, pharynx and larynx.

**METHODS:** Patients with lesions of the oral cavity, pharynx and larynx will be enrolled in this pilot study. Patients with oral lesions will undergo CE visualization. The contralateral normal side will serve as a control. A biopsy will be obtained for histopathological analysis. Patients with pharyngeal and laryngeal lesions will undergo suspension microlaryngoscopy with CE visualization and histopathological analysis. Observation of intracellular patterns

InVivo and estimation of blood vessels changes will be performed. Findings obtained with CE and histopathology will be compared.

RESULTS: This is an ongoing trial therefore results are pending.

CONCLUSIONS: We hypothesize that CE is a promising technology that may play a role in the early detection and diagnosis of head and neck cancer.

10:54 – 11:02 ***Are Patients With Head and Neck Cancer More Likely to Suffer From Obstructive Sleep Apnea?*** - R. Varshney, R. Payne, V. Forest, M. Black, M. Hier, A. Zeitouni, J. Rappaport, S. Frenkiel, MONTREAL, QC

#### LEARNING OBJECTIVES

By the end of this session, the audience will be able:

- 1) To appreciate the incidence of obstructive sleep apnea in head and neck patients.
- 2) To evaluate which treatments are associated with a higher incidence of obstructive sleep apnea.

#### ABSTRACT

INTRODUCTION: Obstructive sleep apnea (OSA) is an underdiagnosed condition that leads to significant health problems. Previous studies have shown that head and neck cancer (HNC) patients with OSA have a higher incidence of cardiopulmonary complications following surgery.

OBJECTIVE: To screen patients for possible OSA in a general otolaryngology population, and more specifically in HNC patients, to compare the incidence of OSA in these groups.

METHODS: An Epworth Sleepiness Score (ESS), a validated tool to screen for OSA, was submitted to patients coming to general otolaryngology and HNC clinics. Clinicodemographic data, location and stage of the cancer as well as the point of treatment were collated.

RESULTS: 28 post-treatment HNC patients and 175 controls completed the ESS. The HNC group was composed of 16 women and 12 men (average age 60.7 +/- 16.6) , whereas the control group was composed of 97 women and 78 men (average age 51.2 +/- 16.6). 46.4% patients in the HNC group and 27.4% in the control group screened positive (p=0.048).

CONCLUSION: Preliminary results indicate that patients with HNC have a higher incidence of excessive daytime sleepiness on ESS, a surrogate of OSA, when compared to patients in the general otolaryngology clinic.

11:10 – 11:18 ***Objective Measures of Neck Fibrosis: Variability in Amongst Different Treatment Modalities with Quality of Life Correlates*** - C. Chin, J. Franklin, B. Turner, K. Fung, J. Yoo, D. Philip, LONDON, ON

#### LEARNING OBJECTIVES

1. To understand the morbidity associated with neck fibrosis
2. To know the utility of the cutometer in the objective measure of neck fibrosis
3. To associate neck fibrosis with quality of life

4. To acknowledge the heterogeneous response to cancer treatment

ABSTRACT

**BACKGROUND:** Neck fibrosis is a major side effect of head and neck cancer treatment. Until recently, there was no objective measure of fibrosis. The authors have validated a device to quantify fibrosis. The application of this measurement will allow for the assessment of fibrosis as it relates to the modality of cancer treatment. This is the first large study utilizing this recently validated tool.

**METHODS:** Retrospective analysis of consecutive head and neck cancer patients. Patients underwent measurements utilizing the validated cutometer as well as quality of life assessment by means of questionnaire. Bilateral assessments were taken to allow for patients with unilateral treatment to serve as their own internal controls.

**RESULTS:** 200 patients (400 necks) were recruited. The extent of fibrosis was higher in patients with combined modality treatment. This was mirrored in the quality of life assessment. There existed gender, racial and habitus differences in the extent of fibrosis experienced by patients undergoing similar treatments.

**CONCLUSIONS:** This study confirms the heterogeneous response to treatment for head and neck cancer and sheds light on some predictive factors in neck fibrosis.

11:18 – 11:26 ***Can Pathological Differentiation Predict N-Status in Head and Neck Squamous Cell Carcinoma?*** - M. Klein, J. Dort, W. Matthews, CALGARY, AB

LEARNING OBJECTIVES

After observing this presentation, listeners should:

- Have a better understanding of how the degree of differentiation, as reported by the pathologist, correlates with an important clinical outcome, lymph node status.
- Understand that the degree of differentiation in head and neck squamous cell carcinoma may be a prognostic indicator, however it is not yet included in any staging system.
- Be able to better recognize that gaps in pathology reporting exist, and specifically that differentiation status should be consistently reported.
- Understand that accurate reporting of differentiation status may help to optimize the clinical decision making process in centers where advanced molecular analysis is not available or cost-prohibitive.

ABSTRACT

**OBJECTIVES:** 1. To discover the correlation between pathological differentiation at surgery and N-stage in head and neck squamous cell carcinoma (HNSCC) treated initially with excision and neck dissection (ND). 2. To determine the percentage of pathology reports that include differentiation status.

**METHODS:** This is a retrospective review of 162 patients treated with surgical resection and ND for HNSCC from February 1995 to March 2006 at one Calgary hospital. Patients with previous cancer were excluded from the study. The correlation between pathological differentiation in the surgical specimen and pathological N-stage was determined by the Chi squared test and Logistical regression.

RESULTS: Only 1 out of 19 patients with well-differentiated HNSCC were pathologically N+ (5.26%). For patients with moderately differentiated cancer, 27 out of 51 were N+ (52.94%), and patients with poorly differentiated cancer, 6 out of 8 were pathologically N+ (75.00%). The correlation between nodal positivity and pathological N-status was determined to be statistically significant by the Chi squared test. Pathology reports did not contain differentiation status for 14% of patients.

CONCLUSION: The results suggest a correlation between pathological differentiation status and pathological nodal status in patients with HNSCC. They also demonstrate inconsistent reporting of differentiation status.

11:26 – 11:34 ***A Comparison of Radiation and Surgery for the Treatment of Early Glottic Carcinoma*** - H. Osborn, K. Fung, A. Hu, J. Yoo, J. Franklin, A. Nichols, LONDON, ON

LEARNING OBJECTIVES

Attendees will develop a better understanding of the voice effects of different treatment modalities for early glottic carcinoma.

At the completion of this presentation, attendees will have an enhanced understanding of transoral laser microsurgery as a voice-preserving treatment modality.

ABSTRACT

OBJECTIVE: Both radiation therapy (RT) and transoral laser microsurgery (TLM) are accepted modalities for the treatment of early glottic squamous cell carcinoma (SCC). As both modalities are similarly efficacious, clinicians must consider a multitude of other factors when recommending a treatment strategy. One such factor is voice-related quality of life (V-RQOL). This investigation sought to characterize differences in self-reported voice outcomes in patients undergoing radiotherapy or TLM for the treatment of T1A glottic SCC.

METHODS: Individuals with T1A glottic SCC presenting to a tertiary care multidisciplinary head and neck oncology clinic were included in this prospective cohort study. All patients after 2005 were offered TLM or RT. A historical age and gender matched control group was treated exclusively with RT. The primary outcome measure was post-treatment V-RQOL. Secondary outcome measures included local control, failure analysis, and laryngectomy-free survival. Minimum follow-up was six months.

RESULTS: Pending.

CONCLUSION: Radiation therapy and transoral laser microsurgery are established treatments for the management of T1A glottic SCC. The results of this investigation hope to contribute to the growing literature which supports the use of transoral laser microsurgery as a voice-preserving treatment modality.

11:34 – 11:42 ***Sinonasal Undifferentiated Carcinoma: Survival Outcomes and Systematic Review*** - C. Xu, H. Seikaly, P. Dziegielewski, J. Harris, EDMONTON, AB

LEARNING OBJECTIVES

- 1) To present the Alberta experience in treating SNUC over the last 23 years
- 2) To determine survival rates of SNUC based on treatment modality

- 3) To combine the results of the Alberta experience with a systematic review of the literature to hopefully elucidate the optimal treatment for the disease.
- 4) To review patient characteristics, presentation, diagnosis, and treatment outcomes based on the systematic review.

ABSTRACT

**BACKGROUND:** Sinonasal undifferentiated carcinoma (SNUC) is a rare, aggressive neoplasm of the nasal cavity or paranasal sinuses. Clinical onset is often subtle resulting in late diagnoses and advanced disease staging. Most authors recommend aggressive therapy; however, survival rates are often low.

**OBJECTIVES:** The purpose of this study was to review survival outcomes based on treatment modalities over the last 23 years in Alberta. In addition to this, a systematic review of the literature was conducted to help elucidate the optimal treatment of SNUC.

**METHODS:** A retrospective review of all patients with SNUC in Alberta over the last 23 years was performed. Patients were grouped based on treatment modality and survival rates were calculated. A systematic review of the literature was performed to examine patient characteristics, presentation, diagnosis, treatment and survival.

**RESULTS:** 16 patients were treated for SNUC between 1986 and 2009 in Alberta. Survival rates were highest for patients receiving surgery, radiation and chemotherapy with a 2 and 5 year rates of 85% and 63% respectively. In addition to these patients, more than 80 others were identified in the literature. Survival rates were highest for triple modality treatment with similar percentages.

**CONCLUSIONS:** With the addition of radiation and chemotherapy, the survival of SNUC has greatly improved since its discovery in 1986.

12:00 – 13:30      LUNCH AND VISIT TO EXHIBITS

13:30 – 16:30      *Poliquin Residents Competition* (Great Room C)

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**Tuesday, May 25, 2010**  
**Great Room C**

**Workshop #15** (CPD credit hrs – 1.00)

08:00 – 09:00      ***Current Management of Nasal Polyposis*** - B.W. Rotenberg, LONDON, ON, J. Lee, TORONTO, ON, E. Wright, EDMONTON, AB, S. Frenkiel, MONTREAL, QC, K. Payton

**LEARNING OBJECTIVES**

- 1) After attending the workshop, participants will be able to describe current thinking on the pathophysiology of nasal polyposis
- 2) After attending the workshop, participants will understand advances in both medical and surgical management of nasal polyposis.

ABSTRACT

**OBJECTIVE:** The purpose of our workshop is to review the current management of nasal polyposis.

METHODS: A panel of 3 Otolaryngologists (Frenkiel, Vescan, Wright) and an Allergist (Payton) will review and update the audience on current perspectives on nasal polyposis. A full Q&A session will ensue and, time permitting, case discussions will also take place.

RESULTS: Not applicable / CONCLUSIONS: Not applicable

**Workshop #16** (CPD credit hrs – 1.00)

09:00 – 10:00 **Obstructive Sleep Apnea - An Update** - B.W. Rotenberg, R. Payne, V. Forest, P. Campbell-Lownie, F. Michael, LONDON, ON

LEARNING OBJECTIVES

- 1) After attending the workshop, participants will be able to describe current thinking on the management of sleep apnea
- 2) After attending the workshop, participants will understand options available to manage sleep apnea both in the community and in academic settings
- 3) After attending the workshop, participants will understand the relative role of surgery versus medical management versus dental management in managing sleep apnea

ABSTRACT

OBJECTIVE: The purpose of our workshop is to review the current management of obstructive sleep apnea

METHODS: A panel of 2 Otolaryngologists (Payne, Forest), a Respiriologist (Mackenzie) and a dentist specializing in sleep management (Campbell-Lownie) will review and update the audience on current perspectives on obstructive sleep apnea. A full Q&A session will ensue and, time permitting, case discussions will also take place.

RESULTS: Not applicable / CONCLUSIONS: Not applicable

**Tuesday, May 25, 2010**  
**Foyer, Great Room ABC**

**Special Session**

**Chair: Dr. A. Tan, KINGSTON, ON**

10:30 – 12:00 **Poster Walk with the Experts** (CPD credit hrs – 1.50)

**Tuesday, May 25, 2010**  
**Great Room C**

**Paper Presentations: Pediatric Otolaryngology** (CPD credit hrs – 2.00)

**Chair: Dr. F. Kozak, VANCOUVER, BC**

13:30 – 13:38 **New Treatment Options for Children with Hemangiomas** - M. M. Al Gilani, L. Johnson, HALIFAX, NS

LEARNING OBJECTIVES

- To review the current gold standard for treating hemangiomas.
- To review new treatment modalities for hemangiomas.

- To discuss our experience with propranolol in the treatment of 2 cases with (*original incomplete*).

**ABSTRACT**

**OBJECTIVE:** To review the most recent treatment modalities for children with infantile hemangioma.

**BACKGROUND:** Infantile hemangiomas are benign vascular tumors. Depending on their location and size, they may be asymptomatic, disfiguring or cause a loss of function. Currently, the gold standard for treatment of these clinically significant and even life-threatening hemangiomas is systemic corticosteroids. Unfortunately, corticosteroids have a marked side effect profile which is especially notable in infants.. The recent use of systemic beta-blockers has revealed excellent results in the treatment of cutaneous hemangiomas as reported in the dermatology literature.

**CASE REPORT:** In this case series, a discussion centers on the results of treating aerodigestive hemangiomas with propranolol. Two cases will be discussed, namely a subglottic hemangioma and a parotid hemangioma, reviewing patient symptomatology, treatment protocol and clinical response.

**CONCLUSION:** New treatment modalities are being developed for infantile hemangiomas. They show promising (*incomplete text*)

13:38 – 13:46     ***Epidemiology and Risk Factors for Preauricular Tags and Pits in Colombia: Do They Have a Similar Genetic Origin?*** - M. Fandino, M.A. Caro, J.C. Garcia, J.C. Ospina, P.A. Vega, VANCOUVER, BC

**LEARNING OBJECTIVES**

By the end of this presentation the audience will:

1. Have a better understanding of the risk factors for nonsyndromic/nonchromosomal preauricular tags and pits.
2. Discuss the possible association of medications such as folic acid, ferrous sulfate, vitamin C, and nifedipine with these malformations.

**ABSTRACT**

**OBJECTIVE:** We studied several variables to determine possible risk factors in the development of nonsyndromic /nonchromosomal preauricular tags (PT) and preauricular pits (PP).

**METHODS:** The Latin-American Collaborative Study of Congenital Malformations (ECLAMC) database was used to collect information, from individuals born from 2001 to 2006 in 6 hospitals in Colombia, South America.

**RESULTS:** 174 nonsyndromic/nonchromosomal cases of PTs and 84 nonsyndromic/nonchromosomal PPs were found. Control population was 695 and 335, respectively. There was a positive family history for preauricular tags in newborns with preauricular tags (OR: 80, 16 CI 95% [18, 96 - 338, 96]) and pits (OR 21, 69 CI 95% [2, 50, 188, 31]). There was also a positive family history for preauricular pits in babies with preauricular pits at birth (OR 57, 26 CI 95% [7, 33 - 447, 55]) but not for preauricular tags. Medications such as folic acid, ferrous sulfate, vitamin C, and nifedipine may be associated with these malformations.

CONCLUSION: Our study suggests that PTs and PPs may have a common genetic cause based upon a higher prevalence among family members. We found that some medications (folic acid, ferrous sulfate, vitamin C, and nifedipine) may be associated with these malformations. Future prospective studies are required.

13:50 – 13:58 ***A New Modified Lund-Mackay Scale For Radiological Staging of Pediatric Rhinosinusitis*** - A. Fanous, J. Manoukian, T. Al-Khatib, C. Saint-Martin, S. Daniel, T. Tewfik, L. Nguyen, M. Schloss, MONTREAL, QC

LEARNING OBJECTIVES

1. By the end of this session, the students, residents, fellows and specialists will be able to describe the validity of the Lund Mackay scale when applied to children.
2. By the end of this session, the students, residents, fellows and specialists will be able to describe the differences between the classical Lund Mackay scale and a new modified one when applied to children.
3. By the end of this session, the students, residents, fellows and specialists will be able to describe the relation between the new modified Lund-Mackay scale and revision surgery.

ABSTRACT

BACKGROUND: The Lund Mackay scale is a radiological staging system developed to assess disease severity in patients suffering from chronic rhinosinusitis. Only scarce literature exists on its application in the pediatric population.

OBJECTIVES: To explore the validity of the Lund Mackay scale when applied to children. To also explore the possibility of modifying the Lund Mackay scale to better adapt it to a pediatric population.

METHODS: We present a consecutive case series of 81 children diagnosed with chronic sinusitis. Their medical records and CT scans were reviewed. The CT scans were graded for their overall sinus opacity using both the traditional Lund Mackay scale and a 'modified' version that takes into account the presence of undeveloped sinuses in children. Both scores were then compared for their value in predicting revision surgery in children.

RESULTS: There was a statistically significant difference between the classical Lund Mackay scale and the modified one when applied to children, as validated by the paired (t) test analysis ( $p < 0,0001$ ). Both scales had a sensitivity of 77% in predicting revision surgery. The specificity of our modified scale was found to be increased from 85% to 90%.

CONCLUSION: A modified Lund-Mackay scale is being proposed for children.

13:58 – 14:06 ***Linking Extraesophageal Gastric Reflux (EEGR) to Chronic Rhinosinusitis (CRS) in Children: Pepsinogen Study of Paranasal Sinus and Adenoid Tissue*** - M. Alessa, H. Alshemari, J.J. Manoukian, Y. Alrajhi, F. Chouiali, L.H. Nguyen, T. L. Tewfik, S.J. Daniel, M. Schloss, Q.A. Hamid, MONTREAL, QC

ABSTRACT

OBJECTIVES/HYPOTHESIS: The primary objective of this study was to determine the association between chronic rhinosinusitis in children (CRS) and extraesophageal laryngopharyngeal reflux (EEGR).

**METHODS:** Tissue from the paranasal sinus and adenoid were obtained from 13 patients with CRS (age 2-18 years) undergoing endoscopic sinus surgery (ESS) and 13 matched control subjects with no history of CRS (only adenoid) were obtained during adenoidectomy (+/- tonsillectomy). We have used immunocytochemistry (ICC) to evaluate the presence of pepsinogen in the paranasal sinus tissue of children with CRS group. And we have also examined the presence of pepsinogen in adenoid tissue of CRS group and compared them with adenoid tissue of control group.

**RESULTS:** Immunoreactivity for pepsinogen was identified in the epithelial layer of adenoid tissue (50%) and paranasal sinus tissue (65%) in the CRS group. Only occasional staining was observed in the epithelial layer of the adenoid tissue of the control group.

**CONCLUSIONS:** The detection of immunoreactivity of pepsinogen in paranasal sinus tissue suggested a possible role of EEGR in CRS in children.

14:10 – 14:18 ***Motor Speech Characteristics in Children with Bilateral Cochlear Implants*** -  
A. Wong, T. Holler, J. Allegro, P. Campisi, TORONTO, ON

#### ABSTRACT

**INTRODUCTION AND OBJECTIVES:** Empirically, there are clear differences between the speech of deafened and normal-hearing individuals. These differences include variations in intonation, syllabic rate, and dynamic range. In this study, we aim to elucidate the characteristics of motor speech in children with bilateral cochlear implants, thereby providing insight into the role of audiologic feedback on the development of motor speech in children.

**METHODS:** Cross-sectional, observational design at a university-based academic pediatric otolaryngology clinic. We used the Motor Speech Profile (KayPENTAX, Lincoln Park, NJ) software to record and analyse speech samples from 18 pre-lingually deafened children with bilateral cochlear implants. These data were compared to our database of motor speech characteristics in children (n=100) aged 4-18 years without hearing, developmental, or motor disorders.

**RESULTS:** Demographic data, including sex, age, and cigarette smoke exposure were obtained. The MSP analysed measures of diadochokinesis, intonation, and syllabic rates. A number of age-related changes were found, including increases in average syllabic rate and improved dynamic range following cochlear implantation.

**CONCLUSIONS:** The auditory feedback provided by cochlear implantation in children influences the development of motor speech.

14:18 – 14:26 ***Sensorineural Hearing Loss in Children: The Manitoba Experience*** - B.  
Hassouneh, D. Leitao, A. Mhanni, WINNIPEG, MB

#### LEARNING OBJECTIVES

- The audience will understand the characteristics of children with SNHL in the province of Manitoba. They will be able to compare these results to other epidemiologic studies and examine the possible impact of introducing a targeted screening program for hearing loss.

#### ABSTRACT

**INTRODUCTION AND OBJECTIVES:** Sensorineural hearing loss (SNHL) in children carries important implications to patients and their families. Early diagnosis and intervention is critical for the development of both communication and social skills. Screening programs for SNHL are often subject to cost-benefit arguments. Identifying populations at risk can help refine and better target the screening efforts. The objective of this study is to examine the characteristics of children diagnosed with SNHL in the province of Manitoba, and compare the results with those obtained by other epidemiologic studies in the literature.

**METHODS:** First, all children diagnosed with SNHL in the province of Manitoba are identified from the medical records of the tertiary referral centre as well as from the offices of practicing Otolaryngologists. The medical records are reviewed and an updated clinical assessment with an audiogram is obtained. The following characteristics are determined: age at diagnosis, severity and progression of SNHL, presence of a syndrome or genetic mutation, family and social background, intervention chosen and extent of communication impairment.

**RESULTS AND CONCLUSIONS:** The determined characteristics are summarized. The results are compared with other epidemiologic studies in the literature to identify possible benefits from implementing a targeted screening program in Manitoba.

14:26 – 14:34 ***Osteopathy for Otitis Media in Children: Shouldn't We be Looking Beyond Antibiotics and Tubes?*** - C. Morin, D. Dorion, J. M. Moutquin, SHERBROOKE, QC

#### LEARNING OBJECTIVES

By the end of this presentation, the participant will:

- better understand the role of temporal bone dysfunction as a risk factor for children under 3 years of age with acute otitis media;
- understand the role of osteopathy in the management of children with recurrent otitis media.

#### ABSTRACT

Tolerance toward middle ear effusion has increased tremendously in the last decade. Guidelines now recommend conservative management of AOM and indications for M and Ts have shrunk consistently. Although there is a burden associated with middle ear effusion, risks and costs associated with antibiotics or general anesthesia are higher, tilting the balance. There is a need therefore for alternative approaches to AOM and middle ear effusion.

We hypothesized that potentially correctable subtle positional anomalies of the temporal bone (TB) are responsible for Eustachian tube dysfunction in children. This has been postulated for decades by osteopathic medicine but is new to mainstream medical practice.

**MATERIAL AND METHODS:** Children of 6-18 m/old (n=65) were included in this prospective cohort study. Baseline temporal bone status and occurrence of AOM over the following six months were recorded.

**RESULTS:** TB dysfunction was identified in 47 of them (72.3%). Preliminary results show an increased number of AOM in children with TB dysfunction.

CONCLUSION: Potentially correctable temporal bone dysfunction as identified by an osteopathic practitioner seems to be a risk factor for otitis media in infants.

14:34 – 14:42 **Grading the Grades: Tympanic Retraction** - N. Sanjeevan, A. James, B. Papsin, TORONTO, ON

LEARNING OBJECTIVES

By the end of the presentation, Otolaryngology residents will be able to understand different type of Tympanic membrane retraction classification systems. Also will be able to assess inter reader variability with different classification systems

ABSTRACT

OBJECTIVES: Tympanic membrane retraction is a common problem. Retraction pockets can lead to incus erosion and cholesteatoma. To assess and describe the condition of retraction pockets and to monitor their progress, classification systems are used; gradings are of particular importance when follow up is conducted by more than one clinician. Sadè classification is used for pars tensa and the Tos classification is used for pars flaccida. However, both classification systems have low inter-rater reliability. Recently a new clinically orientated Erasmus classification for pars flaccida has been introduced, but this method has never been validated or evaluated for reliability when applied by different users.

METHOD: A series of 100 standardized slides of tympanic membrane from cleft palate children was shown to multiple Otolaryngologists. Participants were asked to classify each slide according to Sadè, Tos and Erasmus classification with the help of printed definition.

RESULTS (preliminary): The inter-rater agreement (kappa) for the Sade grade was 0.377 statistically significant ( $p < 0.001$ ). Agreement was weakest for grade 1 (kappa=0.290). Erasmus was 0.325 and was statistically significant ( $p < 0.001$ ). Agreement was weakest for grades 1 and 2 (kappa=0.198 and 0.158 respectively). Tos grade was 0.1745 and was statistically significant ( $p < 0.001$ ). Agreement was weakest for grades 1 and 2 (kappa=0.096 and 0.143 respectively)

14:50 – 14:58 **Botulinum Toxin A in the Management of Excessive Sialorrhea in Neurologically Disabled Pediatric Patients: A Systematic Review** - S. Nayan, D. D. Sommer, J.E. Strychowsky, HAMILTON, ON

LEARNING OBJECTIVES

1. To learn about the effectiveness and safety of botulinum toxin A in the management of sialorrhea in neurologically disabled pediatric patients.
2. To have a summary of the reported results in the literature with regards to BTX-A as determined by the systematic review.
3. With the presented data, the audience will be able to consider BTX-A as a therapeutic alternative for the management sialorrhea in neurologically disabled pediatric patients.

ABSTRACT

OBJECTIVES: To determine the efficacy and safety of botulinum toxin A (BTX-A) in the management of excessive sialorrhea in neurologically disabled children by conducting a systematic review.

**METHODS:** Two independent review authors conducted a search of the literature using Medline(R), EMBASE, the Cochrane Library, HealthSTAR and reference list review from 1950 to September 2009 to identify studies of neurologically disabled pediatric patients with sialorrhea treated with BTX-A. The outcome measures of interest were the efficacy and safety of BTX-A. Eligible studies were evaluated and also assessed for the methodological quality of the studies. A statistician used the appropriate statistical models to draw conclusions from the data.

**RESULTS:** Thirteen studies (3 randomized controlled trials, 8 prospective and 2 retrospective) were evaluated and included 218 patients. Injecting the submandibular gland alone or both submandibular glands and parotid glands were more effective than other methods of administration of BTX-A. Ultrasound guided injections and higher doses of BTX-A were safer and more effective in reducing sialorrhea in neurologically disabled pediatric patients.

**CONCLUSION:** This is the first systematic review of its kind in the literature and concludes that BTX-A is an effective and safe therapy for excessive sialorrhea in neurologically disabled pediatric patients.

14:58 – 15:06 ***Postoperative Airway Complications Following Esophageal Atresia/Tracheoesophageal Fistula Repair – a 10 Year Experience*** - J.S. Schwartz, J. Manoukian, STE-FOY, QC

#### LEARNING OBJECTIVES

- By the end of this presentation, the otolaryngologist and otolaryngology resident will be able to describe the incidence of persistent postoperative airways complications following repair of EA/TEF in children born with this congenital malformation in the last 10 years
- By the end of this presentation, the otolaryngologist and otolaryngology resident will be able to list factors significantly associated with postoperative respiratory status in these patients.

#### ABSTRACT

**OBJECTIVE:** To determine the incidence of airway complications following surgical repair of congenital esophageal atresia (EA) and tracheoesophageal fistula (TEF). To compare EA/TEF patients with persistent (> 3 months) vs nonpersistent ( $\leq$  3 months) post operative airway difficulty in order to identify a common variable(s) predictive of postoperative respiratory status.

**METHODS:** Retrospective chart review of all patients (n = 36) born with EA/TEF between 1998 and 2008 and cared for in a tertiary care hospital center. Thirty-five of 36 patients underwent surgical correction of their EA/TEF.

**RESULTS:** Twenty-seven of 35 (77.1%) patients had respiratory issues in the postoperative period of which 21 (60%) either persisted or subsequently died. Preliminary statistical analysis using Fischer's exact test revealed a significant association (P < .05) between postoperative respiratory status and prematurity (<37 weeks), low birth weight (<2500g) and use of conservative therapy for respiratory difficulty.

**CONCLUSION:** Our experience demonstrates that the incidence of persistent postoperative airway complications following repair of EA/TEF remains high (60%) despite surgical

advancements. Univariate analysis suggests that postoperative respiratory status in these patients is significantly associated with antenatal and natal risk factors and conservative medical intervention for postoperative respiratory difficulty.

15:30 – 16:00 COFFEE AND VISIT TO EXHIBITS

**Tuesday, May 25, 2010  
Great Room C**

16:00 – 17:00 *CSOHNS Business Meeting*

**Tuesday, May 25, 2010  
Great Room C**

**Workshop #17** (CPD credit hrs – 1.00) (Moved to Strategy Room 2)

17:00 – 18:00 *Spasmodic Dysphonia: Diagnosis and Management* – K. Kost, MONTREAL, QC, J. Anderson, TORONTO, ON, M. Morrison, VANCOUVER, BC., D. Eibling, USA, K. Fung, LONDON, ON (ABSTRACT TBA)

**Tuesday, May 25, 2010  
Strategy Room 2**

**Paper Presentations: Otology #1**(CPD credit hrs – 2.00)

**Chair: Dr. A. Zeitouni, MONTREAL, QC**

08:00 – 08:08 *Ossicular Implants – Design and Results* - B. Wu, B. Blakley, WINNIPEG, MB

ABSTRACT

This presentation will review the major ossicular implant designs, proposed mechanisms for action and clinical results. The talk will not discuss cochlear implants or implantable hearing aids or powered amplification devices. The goal will be to present a cross-section of different surgical implant designs in general, rather than reviewing each of the hundreds of implants on the market. Some weaknesses in the research and suggestions for clinical otologic practice will be offered.

08:08 – 08:16 *A Comparison of Three Different Assistive Listening Devices in Individuals with Single Sided Deafness* - J. Szudek, A. Ostevik, A. Ho, W. Hodgetts, EDMONTON, AB

LEARNING OBJECTIVES

By the end of this presentation, the otolaryngology student and consultant will be able to assess the effectiveness of various assistive listening devices for individuals with single sided deafness.

ABSTRACT

**BACKGROUND:** Individuals with single sided deafness (SSD) have difficulty hearing in background noise. The addition of a listening device on the side of the deaf ear enables sound to cross to the other, hearing ear. This may improve the ability to understand speech in noise and hearing-related quality of life.

**OBJECTIVE:** To compare 3 different devices among individuals with SSD: BAHA, the BAHA with an FM system coupled to it, and an FM system only in the good ear.

**METHODS:** 25 individuals with SSD who already use BAHA were assessed under different conditions: 1) no hearing aid; 2) their pre-existing BAHA, 3) their BAHA with an FM system attached, and 4) an FM system only in their good ear. Participants tested each condition for a 2-week period in random order. At the beginning and end of the 2-week trial we tested: understanding of speech in noise (QuickSIN); a Speech and Spatial Qualities of Hearing (SSQ) survey, and an Abbreviated Profile of Hearing Aid Benefit (APHAB). We also created an in-house survey to address some of the practicalities associated with each device's use.

**RESULTS AND CONCLUSIONS:** All 3 devices were found to provide some objective benefit on the QuickSIN. However, there were differences in terms of practicalities of device use and subjective questionnaires. We present our results along with a review of the literature.

08:16 – 08:24 ***Transcranial Transmission with the BAHA After Graded Temporal Bone Resections Pilot Data from a Human Cadaveric Study*** - D. Yohn, D. Morris, R. van Wijhe, HALIFAX, NS

#### LEARNING OBJECTIVES

- To appreciate the indication for BAHA in SSD.
- To appreciate the effect of transcranial attenuation.
- To understand the need for a thorough pre-operative trial of device in SSD especially after mastoidectomy and skullbase surgery.
- To appreciate the potential use of programming strategies to remove predictable transcranial transmission effects.

#### ABSTRACT

**OBJECTIVES:** To study the effect of temporal bone resection on the transmission of sound to the contralateral cochlear in the dry human cadaveric skull.

To understand how newer BAHA models might be programmed to overcome problems arising from such attenuation.

**METHODS:** A total of 5 dry human skulls were used to determine whether graded temporal bone resection would affect sound transmission to the contralateral cochlear promontory after placing an ipsilateral BAHA on a traditional BAHA abutment. Promontory displacements were recorded using the scanning laser Doppler vibrometer.

**RESULTS:** Data documents attenuation of sound transmission and analysis is made for predictable effects.

**CONCLUSION:** Removal of mastoid bone does affect the transcranial transmission of sound to the contralateral cochlea. This may have clinical implications in the fitting of BAHA for single sided deafness in mastoidectomy and skullbase patients.

08:24 – 08:32 ***Differences in Hearing Perception Between Patients with Unilateral Conductive Hearing Loss Treated with Ossicular Chain Reconstruction and Bone-anchored Hearing Aid*** - J. Yu, R. Liu, J. Dumper, B. Hodgetts, EDMONTON, AB

#### LEARNING OBJECTIVES

- To learn that perception of hearing improvement after bone-anchored hearing aid implantation (BAHA) for unilateral conductive hearing loss is comparable to successful ossicular chain reconstruction.
- To learn that unilateral conductive hearing loss is a potential indication for BAHA.

#### ABSTRACT

**OBJECTIVE:** To determine if patients with unilateral conductive hearing loss (UCLH) perceive as much hearing improvement after bone-anchored hearing aid (BAHA) implantation as those who have had successful ossicular chain reconstruction (OCR).

**METHODS:** Institutional ethics approval was obtained for this project. We undertook a retrospective chart review of patient who had undergone either BAHA or OCR for UCLH. Patients received audiograms pre- and post-operatively. Patients with OCR were selected based on successful closure of the air-bone gap to within 10 dB, so that the post-op audiograms were comparable to patients with BAHA. Perception of hearing improvement was determined by applying the Speech, Spatial, and Qualities of Hearing (SSQ) questionnaire to both groups, as well as the Abbreviated Profile of Hearing Aid Benefit (APHAB) questionnaire to the BAHA group.

**RESULTS:** 10 patients who had received BAHA for UCLH were compared to 10 patients who had undergone successful OCR. The scores on the SSQ for both groups post-operatively were very similar. The BAHA group showed significant improvement on the APHAB.

**CONCLUSION:** Patients with UCLH have similar perception of hearing improvement following BAHA implantation and successful ossicular chain reconstruction. This provides support for BAHA as a viable management option for UCLH.

08:40 – 08:48 ***Cochlear Implantation for Profound Hearing Loss due to Meningitis - W.***  
Alhazmi, D. Schramm, C. Seguin, L. Moran, OTTAWA, ON

#### LEARNING OBJECTIVES

- To appreciate that audiological outcomes after cochlear implantation are generally favourable in patients with profound sensorineural hearing loss due to meningitis
- To be aware of the possibility of cochlear ossification in patients with profound sensorineural hearing loss due to meningitis
- To appreciate that early cochlear implantation for profound bilateral sensorineural hearing loss due to meningitis reduces the possibility of partial electrode insertion due to cochlear ossification

#### ABSTRACT

**OBJECTIVES:** The purpose of this study is to evaluate speech perception outcomes in children and adults who have undergone cochlear implantation for profound sensorineural hearing loss due to meningitis.

**METHODS:** A retrospective chart review was performed at the Children's Hospital of Eastern Ontario and The Ottawa Hospital to identify cochlear implant recipients with a history of meningitis.

RESULTS: Twenty children undergoing cochlear implantation with a history of profound hearing loss post meningitis were identified. A complete insertion of the electrode array was possible in fourteen patients. One child had partial insertion of a standard electrode array. Five children with a history of meningitis underwent bilateral cochlear implantation. Sixteen adults undergoing implantation with a history of profound hearing loss post meningitis were identified. One adult underwent early bilateral implantation with full insertion of the electrode array. Audiological outcomes were generally very good, even if there was cochlear ossification and insertion of a double electrode array was required.

CONCLUSION: Overall, children and adults achieve very good audiological performance after cochlear implantation for profound sensorineural hearing loss due to meningitis. Early cochlear implantation for profound bilateral sensorineural hearing loss due to meningitis reduces the possibility of partial electrode insertion due to cochlear ossification.

08:48 – 08:56 **Cochlear Implantation in Inner Ear Anomalies** - J. Mondin, F. Kozak, R. Chia, R. Hunter, D. Myer, B. Brooks, R. Keith, T. Mitchell, VANCOUVER, BDC

#### LEARNING OBJECTIVES

By the end of this presentation the participants will:

1. Review the radiological classification of inner ear malformations.
2. Evaluate surgical aspects and audiological results of cochlear implantation in inner ear malformations.

#### ABSTRACT

OBJECTIVE: To review the cases of cochlear implantation in patients with inner ear anomalies (IEA) at B.C. Children's Hospital.

METHODS: Retrospective chart review of patients with IEA who received a cochlear implant between June 1988 and March 2009.

RESULTS: 14.2% (n= 27/190) of IEA in our Cochlear Implant population were documented by HRCT scan and/or Magnetic resonance of the temporal bones: common cavity (CC) (n=1), Incomplete Partition type 1 (IP1) (n= 2), hypoplastic cochlea (n=1), Incomplete Partition type 2 (IP2) + Large Vestibular Aqueduct (LVA) (n= 12), LVA isolated (n= 5) , labyrinthine dysplasia (n=4), and rudimentary or absent cochleovestibular nerve (n= 2). Four patients (15%) had cognitive impairment. One patient required explantation due to cholesteatoma; 3 patients presented perilymphatic gusher and three became non users. Speech perception outcomes noted substantial differences among the various types of IEA. Patients with CC, IP 1 and rudimentary or absent cochleovestibular nerve had a poorer performance.

CONCLUSIONS: Cochlear implantation can be successfully performed in children with IEA and families can expect auditory benefits. However, the various types of IEA may have a significant difference in prognosis depending on the additional disabilities and type of malformation. An individualized candidacy assessment is recommended.

09:04 – 09:12 **Experience of Music Appreciation in Cochlear Implant Patients; A Qualitative Study** - S. Greenberg, J. Chen, L. Bartel, K. Friesen, D. Shipp, V. Lin, J. Nedzelski, TORONTO, ON

#### LEARNING OBJECTIVES

By the end of this presentation participants will understand the many issues which impact on cochlear implant recipients ability to appreciate music. Participants will be able to understand the current challenges that exist in

improving this situation as well as possible future strategies to address these issues.

**ABSTRACT**

**OBJECTIVE:** To describe the experiences of cochlear implant recipients with regards to music appreciation.

**METHODS** The experience of five cochlear implant patients with regards to music appreciation was obtained through a structured interview process. The interviews were then transcribed, analyzed through restructuring of the transcript, narrative re-crafting, and thematic coding. The results together with medical case records were used to identify cross-case factors and similarities.

**RESULTS:** Patients experiences with music before and after the period of implantation is reviewed as well as information regarding their basic cochlear implant performance levels.

**CONCLUSIONS:** Music appreciation following cochlear implantation has significant quality of life issues for many patients. The participants' experiences in this study provide a valuable description of what patients encounter with regards to music appreciation following cochlear implant surgery. By documenting these experiences in this manner, we feel that we are able to provide an insight into the patient experience that will aid clinicians working in this area to better understand the needs of our patients.

09:12 – 09:20 ***The Impact of Unilateral Multichannel Cochlear Implant on Speech Recognition and Quality of Life in Postlingually Deaf Adults*** - E. Park, V. Lin, D. Shipp, J. Chen, J. Nedzelski, TORONTO, ON

**LEARNING OBJECTIVES**

1. To elucidate the positive impact of unilateral multichannel cochlear implant on speech recognition and quality of life in different age groups of postlingually deaf adults and to compare our results with those of previous studies with smaller sample sizes.
2. To determine whether age or previous use of hearing aid(s) has any influence on the extent of improvement in speech recognition and quality of life following cochlear implant.

**ABSTRACT**

**OBJECTIVE:** To assess speech recognition and quality of life in individuals who received unilateral multichannel cochlear implant (CI).

**METHODS:** This is a retrospective study involving 115 postlingually deaf adults. The subjects were divided into three age groups (<50, 50-65, >66) and completed hearing-in-noise test (HINT) in quiet environment to quantify speech recognition and hearing handicap inventory (HHI) questionnaire to measure quality of life before and after receiving CI.

**RESULTS:** Speech recognition (HINT) improved dramatically from 17.3% to 76.4% (scored out of 100;  $P < 0.01$ ) and to a similar extent in all three age groups (all  $P < 0.01$ ) following CI. Quality of life as quantified by HHI improved by 45% ( $P < 0.01$ ) and to a similar extent in all age groups (all  $P < 0.01$ ). Use of hearing aid(s) pre-implant did not have any effect on these two outcomes. There were no statistically significant correlations between pre-implant HINT scores and pre-implant HHI scores, between post-implant HINT scores and post-implant HHI scores, or between pre-implant word discrimination scores and pre-implant HHI scores.

CONCLUSION: Cochlear implant significantly improves speech recognition and quality of life in postlingually deaf adults regardless of age or prior use of hearing aid(s), thus validating results of previous studies with smaller sample sizes.

09:28– 09:36 ***The Impact of Asymmetrical Hearing Loss on Hearing Disability*** - R. Jaggi, M. Bance, R. van Wijhe, J. Astephen Wilson, A. Benton, A. Greene, HALIFAX, NS

LEARNING OBJECTIVES

By the end of this session the audience members will have a better understanding of what criteria are important when evaluating and counseling patients with asymmetric conductive hearing loss with regards to surgical intervention.

ABSTRACT

INTRODUCTION: A paucity of understanding exists regarding the relationship between asymmetric hearing loss and simple measures of hearing. The variables entered into the stepwise regression analysis were age, WRS, SRT, WHE-PTA/BHE-PTA, diff in PTA. Correlating these measures with self-reported real world functional limitations, as assessed by the SSQ, could lead to a better understanding of which parameters predict the most improvement in hearing disability and could potentially impact surgical interventions and provide patients with clearer pre-operative counselling.

METHODS: 115 patients at a tertiary care neurotology practice completed the SSQ and audiograms. From the database univariate correlations and multivariate regression models were calculated to demonstrate the percentage of variation of SSQ scores that could be explained by our simple measures of hearing loss.

RESULTS: The largest correlation was found between the SSQ and the better hearing ear pure tone average ( $r^2 = 0.428$ ,  $p < 0.0001$ ).

CONCLUSIONS: The majority (42.8%) of the measurable association between SSQ and audiogram measures was associated with pure tone average of the better hearing ear, making this the most reliable parameter when deciding to perform surgical interventions.

09:36 – 09:44 ***Etiology of Adult Sudden Sensorineural Hearing Loss - A Systematic Review*** - J. Lin, J. Chau, S. Atashband, R. Irvine, B. Westerberg, VANCOUVER, BC

LEARNING OBJECTIVES

1. To review the evidence for the etiologies of adult sudden sensorineural hearing loss.
2. To develop evidence-based guidelines for the evaluation of adult patients with sudden sensorineural hearing loss.

ABSTRACT

OBJECTIVE: To determine evidence for different etiologies of sudden sensorineural hearing loss (SSNHL) in the adult population.

STUDY DESIGN: Review of Medline (1950 - August 2008), EMBASE (1980 – August 2008) and EBM review databases in addition to manual reference search of identified papers. Randomized controlled trials, prospective cohort studies, and retrospective reviews of consecutive patients in which a clear definition of SSNHL was stated and data from consecutive patients were reported with respect to etiology of hearing loss. Three

researchers independently extracted data regarding patient demographic information, diagnostic tests employed and the identified presumed etiologies.

**RESULTS:** Twenty articles met the inclusion criteria. Multiple etiologies were identified, including viral infection, vascular impairment, autoimmune disease, inner ear pathology, and CNS anomalies. The diagnosis for the majority of patients remained idiopathic.

**CONCLUSIONS:** In the majority of patients suffering sudden sensorineural hearing loss the etiology remains idiopathic even after thorough diagnostic workup. Although numerous etiologies have been theorized, establishment of a direct causal link between SSNHL and these etiologies remains elusive. Diagnostic imaging is a useful method for identification of temporal bone or intracranial pathology that can present with SSNHL as a primary symptom.

09:44 – 09:54

***Characterization of V371 Pathogenicity in the Homozygous and Heterozygous States: Emergence of New Population Effects*** - D. Randall, F. Kozak, M. Fandino, S. Langlois, VANCOUVER, BC

#### LEARNING OBJECTIVES

- By the end of this session, the resident/medical student will be able to list the most common GJB2 mutations and their role in causing sensorineural hearing loss.
- By the end of this session, the otolaryngologist will be able to evaluate the need for continued audiologic follow-up in patients with V371 mutations.

#### ABSTRACT

**OBJECTIVES:** Recent observations suggest GJB2 mutations causing sensorineural hearing loss are progressive. The V371 mutation is the most prevalent mutation among people of Chinese descent and is the most common mutation among people of Chinese descent in Vancouver.

**METHODS:** We searched the Molecular Genetics database at BC Women & Children's Hospital to identify patients who possess a V371 mutation either in homozygosity or in compound heterozygosity with another pathogenic mutation. Audiograms were reviewed for hearing loss and progression.

**RESULTS:** We identified 85 patients possessing the V371 allele via genetic testing at BC Women & Children's Hospital; 33 homozygotes and 9 heterozygotes met criteria for inclusion. Neither V371 homozygotes nor heterozygotes showed mean progression of hearing loss in our data set. V371 compound heterozygotes express a phenotype intermediate between the predicted homozygous phenotypes. Interestingly, we observed mutations associated with specific ethnic populations at increased frequency among people of other ethnicities. This is likely reflective of the increasing population admixture in Vancouver.

**CONCLUSION:** We found the V371 mutation produces a static hearing loss during the timeframe of our follow-up data. Our study established a database which can be followed longitudinally to assess whether V371-associated hearing loss progresses over the long term.

10:00 – 10:30 COFFEE AND VISIT TO EXHIBITS

**Tuesday, May 25, 2010  
Foyer, Great Room ABC**

10:30 – 12:00 *Poster Walk with the Experts*

12:00 – 13:30 LUNCH AND VISIT WITH TO EXHIBITS

**Tuesday, May 25, 2010  
Strategy Room 2**

**Paper Presentations: Otology #2** (CPD credit hrs – 2.00)

**Chair: TBA**

13:30 – 13:38 *Transmastoid Resurfacing of Superior Semicircular Canal Dehiscence* - H. Amoodi, M. Bance, HALIFAX, NS

LEARNING OBJECTIVES

1. Briefly discuss the different surgical options in managing superior semicircular canal dehiscence syndrome (including the pros and cons each)
2. Describe a new surgical technique in treating superior semicircular canal dehiscence syndrome by resurfacing the canal defect via the transmastoid approach
3. Demonstrate the clinical and audiological results of the superior canal dehiscence repair using this technique
4. Video demonstration of the procedure

ABSTRACT

**INTRODUCTION:** Superior semicircular canal dehiscence syndrome is well described pathology. Patients with this syndrome may presents with vestibular or cochlear symptoms or both. Surgical procedures through the middle fossa approach to plug or resurface the superior canal, is considered as a main therapeutic option for patients with debilitating symptoms.

**OBJECTIVES:** To describe a new surgical technique in treating superior semicircular canal dehiscence syndrome by resurfacing the canal defect via the transmastoid approach and to demonstrate the clinical and audiologic results of the superior canal dehiscence repair using this technique.

**METHODS:** Three patients presented with classic symptomatic semicircular canal dehiscence syndrome with radiographic confirmation of their dehiscence had resurfacing procedure through transmastoid approach at the Queen Elizabeth II Hospital between November 2006 and May 2009.

**RESULTS:** The three patients had uncomplicated procedures and post operative courses. All of them reported resolution of their symptoms. Objectively, audiograms documented some improvement in the three subjects.

**CONCLUSION:** Transmastoid approach for resurfacing superior semicircular canal dehiscence is safe and less invasive technique than the standard middle fossa approach which has many potential complications and long hospitalization. In our study, the surgeries completed within 90 minutes and patients stayed in hospital only overnight.

13:38 – 13:46 ***Pre and Post Operative Magnetic Searching Scleral Coil and Electro-cochleography Measurements in a Patient Undergoing Transmastoid Occlusion of the Superior Semicircular Canal*** - C. H. Bae, J. Rutka, P. David, P. Das-Purkayastha, N. Bailie, TORONTO, ON

LEARNING OBJECTIVES

After listening to the presentation, the audience members will be able to understand the role of the transmastoid approach to a dehiscient semicircular canal. After listening to the presentation, the audience will be able to use advanced tests of balance to diagnose and monitor the surgical outcome of occlusion of the superior semicircular canal for SSCDS.

ABSTRACT

**OBJECTIVES:** Superior semicircular canal dehiscence syndrome (SSCCDS) is a recently described cause of a constellation of otologic symptoms including dizziness, particularly on straining. We present the first case of searching magnetic scleral coil and electrocochleography results for a canal occlusion undertaken via a transmastoid approach.

**METHODS:** Two patients undergoing occlusion of their superior semicircular canal via the transmastoid approach were tested with magnetic searching scleral coil tests, electrocochleography, VEMP and ENG.

**RESULTS:** Scleral coil studies (left posterior canal occlusion): Pre-operatively, the gain for the RPC and LSC was 1.08 and 0.93 respectively. Post-operatively, the gain for the RPC = 0.997 remained normal, but the gain for the LAC fell to 0.743, but remained clinically significant despite the fact that the patient was rendered asymptomatic.

**ELECTROCOCHLEOGRAPHY STUDIES:** Both patients had abnormalities of their ECoGs. The patient complaining of predominantly vestibular symptoms had an abnormal ECoG when not straining and a normal ECoG when straining, whereas the patient complaining of largely cochlear symptoms had the reverse of these symptoms.

**CONCLUSIONS:** The transmastoid approach offers many advantages over the standard middle fossa approach. The effectiveness of this technique has been demonstrated using objective tests of vestibular function. Scleral coil techniques provide valuable insights into the function of the SSCC.

13:46 – 13:54 ***Endoscope Assisted Cholesteatoma Surgery*** - V. Fanous, D. Reid, HAMILTON, ON

LEARNING OBJECTIVES

This study presents using the endoscope with the microscope in cholesteatoma surgery. By doing this the chance of leaving behind residual disease was reduced to a minimum. This increased the surgeon's confidence to do more conservative canal wall up ear operations and to do less radical canal wall down ear operations.

ABSTRACT

**OBJECTIVE:** To assess value of adding the endoscope intraoperatively to the operating microscope in middle ear cholesteatoma surgeries.

**STUDY DESIGN:** Case series (operations) all done by the senior surgeon in this study. A preliminary retrospective chart analysis of 50 ear operations to treat primary and recurrent/residual cholesteatoma (2004-2009).

SETTING: Hamilton Health Sciences Hospitals.

DISCLOSURE: None.

PATIENTS: 42 patients had 50 ear operations. Mean age was 33.4 years.

FOLLOW UP: An average of 21.3 months.

INTERVENTION: 21 ear operations utilizing both endoscope + microscope versus 29 ear operations utilising the microscope only ( present standard of care ).

RESULTS: Only one cholesteatoma recurrence in the endoscope group versus ten in the non-endoscope group (statistically significant).

CONCLUSION: Adding the endoscope to the microscope in middle ear cholesteatoma surgeries reduced recurrent/residual disease to <5% and reduced number of the unwanted canal down mastoidectomies. The study is being extended now to include all cases operated on since 2000 by the senior surgeon in this study according to information available in medical records.

14:00 – 14:08 ***Trends in Surgery for Chronic Ear Disease within the Province of Ontario (1987-2007) – Reasons and Implications on Service Provision and Surgical Training*** - P. Das-Purkayastha, J. Rutka, d. Pothier, TORONTO, ON

#### LEARNING OBJECTIVES

By the end of this presentation the participant will:

- 1) be able to describe of the demographic changes in population and chronic ear pathology within Ontario;
- 2) be able to evaluate the changes in demographics with respect to who should be performing chronic ear surgery;
- 3) consider whether the current trends have an implication on otological surgical training, and discuss possible alternative ways to ensure optimal patient care together with high quality surgical training.

#### ABSTRACT

OBJECTIVES: This study reviews the overall number of operations for chronic ear disease performed in Ontario and compares these figures with similar operations within a Toronto tertiary referral centre.

METHODS: Using Ontario Ministry of Health data, total numbers of operations for cortical, modified radical and revision mastoidectomy surgery was obtained from 1987-2007. Trends within these procedures performed for the whole of Ontario and by the lead author from the University Health Network (UHN), Toronto were compared.

RESULTS: Ontario - Total numbers have declined by 20% from 644 procedures since 1987 (R2=0.60) from yearly adjusted population demographics. Primary modified radical mastoidectomies have declined by 18% from 300 procedures in 1987 (R2=0.47). Revision mastoidectomies have declined by 36% from 276 procedures in 1987 (R2=0.68). UHN - Total numbers have increased by 3.3 fold from 13 procedures in 1987 (R2=0.58). Primary modified radical mastoidectomies have increased 4 fold from 7 procedures in 1987 (R2=0.64). Revision mastoidectomies have increased 2.5 fold from 6 procedures in 1987 (R2=0.37).

CONCLUSIONS: Whilst the population of Ontario has steadily increased, the number of procedures has inversely declined. This is in contrast to surgical numbers at a major tertiary referral hospital. This study discusses why this may have occurred and importantly where all major ear surgery should be undertaken, with implications on future training.

14:08 – 14:16 **Successful Hearing Outcomes in Ossicular Chain Reconstruction: An Analysis of Prognostic and Risk Factors** - M. Fandino, F. Kozak, VANCOUVER, BC

LEARNING OBJECTIVES

By the end of this presentation the audience will:

1. Get a better understanding of risk factors in ossiculoplasty;
2. Discuss the significance of negative middle ear pressure (MEP) in hearing outcomes;
3. Comment on the utility of using alternative interventions to equalize the MEP.

ABSTRACT

OBJECTIVE: To identify possible causative factors in unsuccessful ossiculoplasty.

METHODS: Retrospective chart review of pediatric patients undergoing ossiculoplasty with partial or total ossicular replacement (PORP/TORP) from 1999 to 2008 at BCCH. Patients with congenital ear atresia or stapes fixation were excluded.

RESULTS: Out of 79 patients 31 met the inclusion criteria. 40 ossicular chain reconstructions were performed in 31 children. PTA-ABGs were  $25.5 \pm 12.2$  dB for TORPs (n: 23) and  $19.1 \pm 8.8$  dB for PORPs (n: 9). Success rate in the PORP group was 77.8% and in the TORP group was 66.7%. Cartilage used as an interface showed PTA- ABG of  $24.1 \pm 12.4$ ; attachment to the handle of the malleus was statistical significant in hearing improvement (PTA ABGs:  $19 \pm 7$ ) (CI [0.0709, 0.485]). There was a correlation between negative Middle Ear Pressure (MEP) and displacement of the ossicular prosthesis, showing a decrease in the PTA ABGs 1 year post operatively in some cases.

CONCLUSIONS: In this case series it is suggested that the MEP may affect the displacement of the prosthesis resulting in a decrease of hearing outcome over time. Intervention to equalize the MEP may be of benefit in this specific population. Future prospective studies are required.

14:20 – 14:28 **An investigation of the Influence of Suctioning and Footplate Injury on the Outcome of Laser-assisted Stapedotomy** - N. Bailie, J. Halik, L. Kadhim, J. Ramsden, A. Safar, CRAIGAVON, NORTHERN IRELAND

LEARNING OBJECTIVES

At the end of this presentation, ENT surgeons will understand the influence of suctioning on the footplate after fenestration and damage to the footplate on the audiometric outcomes when performing laser-assisted stapes surgery.

ABSTRACT

OBJECTIVE: The objective of this interim investigation, which is part of a on-going prospective study, is to investigate the influence of suctioning after footplate fenestration and damage to the footplate on the audiometric results of laser-assisted stapedotomy.

**METHODS:** 100 laser-assisted stapedotomies were performed at Markham Stouffville Hospital between October 2007 and June 2008. 60 were female and 40 were male, with an average age of 46 years. The number of times the footplate area was cleared with 24-gauge Fr. suction after fenestration and the incidence of footplate damage was recorded and analysed for their influence on audiometric results: air-bone gap closure at 0.5 - 3 KHz; bone conduction at 4 KHz; air conduction at 8 KHz.

**RESULTS:** Suctioning to clear the footplate of accumulated perilymph or blood after fenestration did not adversely affect audiometric outcomes. Damage to the footplate, such as cracking or avulsion, was associated with a statistically significant poorer audiometric outcome, particularly at high frequencies.

**CONCLUSIONS:** Gentle suctioning of the footplate area after stapes fenestration may be performed without adversely affecting the audiometric results of stapedotomy. The utmost care should be taken to avoid footplate damage as this will produce sub-optimal audiometric results.

14:28 – 14:36 ***The Importance of the Contralateral Ear in the Conservative Management of Vestibular Schwannoma*** - J. Chung, J. Rutka, D. Pothier, TORONTO, ON

**LEARNING OBJECTIVES**

After listening to the presentation, the audience members will be able to describe the way extent to which inflammatory markers are altered in patients with a secondary post-tonsillectomy hemorrhage.

After listening to the presentation, the audience members will be able to make an informed decision about the extent to which infection contributes to secondary post-tonsillectomy hemorrhage

**ABSTRACT**

**OBJECTIVE:** To determine the clinical impact of hearing loss associated with the conservative management of vestibular schwannomas in the context of the contra-lateral ear.

**METHODS:** 72 patients with conservatively managed vestibular schwannoma with a median follow-up of 121 months were eligible for the study. Patients with NF2 were excluded. During conservative management of unilateral vestibular schwannoma, interval monitoring of tumor growth and hearing was undertaken.

**RESULTS:** Ipsilateral pure tone threshold average scores deteriorated more rapidly for CPA tumors (mean= 39.2 dB ± 17.7 SD) than IAM (mean=24.9 db ± 16.3 SD)( $p<0.05$ ), but there was also substantial deterioration of the thresholds for the contralateral ear (mean=18 db ± 11.7 SD) over the same period. Speech discrimination scores also deteriorated; 43.2% ± 29.1 SD for the CPA tumors and 36.8% ± 32.9 SD for the IAM tumors. The SDS for the contralateral ear remained high, but also showed some deterioration (13.7%± 9.7 SD). Using the Belfast rule of thumb, a third of patients still had useful hearing in the affected side.

**CONCLUSIONS:** A reason given for early surgery for vestibular schwannoma, an intervention that will usually result in a total loss of hearing, is that the patient's hearing will deteriorate to unuseable levels with conservative management. Thus far this has only been described in isolation of the contralateral ear. When this is added, given the decline in the hearing of contralateral ear, hea (INCOMPLETE)

14:36 – 14:44 **Delayed Complication of the KTP Laser in the Treatment of Cholesteatoma**  
- A. Eskander, B. Papsin, T. Holler, TORONTO, ON

LEARNING OBJECTIVES

1. Review the evidence for the use of the KTP laser in cholesteatoma surgery.
2. The presentation will include a brief video displaying how the laser is used in surgery.
3. The presentation will also discuss the use of the facial nerve monitor.
4. A major goal of this presentation will be to describe a delayed complication of the KTP laser in the treatment of cholesteatoma and how this can be prevented. A video will be shown to demonstrate the current technique being used to prevent this complication.

ABSTRACT

**OBJECTIVE:** To describe an unforeseen complication that occurred in three patients following the use of the KTP laser.

**METHODS:** We present a case series including three consecutive patients (two boys and one girl, mean age 11.7 years) who underwent tympanomastoidectomy using a KTP laser and standard intra-operative facial nerve monitoring, and in whom a post-operative facial nerve injury was identified.

**RESULTS:** Intra-operatively, the facial nerve was not encountered or exposed, and the KTP laser was not used directly on the nerve. The facial nerve monitor did not alarm. The three patients began experiencing a paresis from POD #7-9, with House-Brackmann facial nerve score of II-III at maximum severity. This resolved fully between 4-7 weeks after the onset of the paralysis.

**CONCLUSION:** The KTP laser during cholesteatoma surgery has been shown to decrease residual disease but may however also cause a temporary, delayed, mild facial nerve paresis. We discuss the mechanisms for injury and the role of intra-operative facial nerve monitoring in the context of this uncommon and unforeseen complication.

14:50 – 14:58 **Anatomical Analysis of Mastoid Tegmen: 3D Reconstruction Study Based on High-resolution CT Images** - F. Makki, M. Bance, H. Amoodi, HALIFAX, NS

LEARNING OBJECTIVES

- 1) Better anatomic knowledge of the superior boundary of the mastoid and middle ear cavity.
- 2) Different morphology of the tegmen.
- 3) Surgical implication of different tegmen shapes.
- 4) Three-dimensional model of the tegmen as a teaching tool for medical students and residents.
- 5) Proposing a tegmen shape classification based on high resolution computed tomography scan.

ABSTRACT

**OBJECTIVE:** Three-dimensional analysis of the tegmen shape to aid understanding the superior boundary of the mastoid and middle ear cavity. Better anatomic knowledge of different patterns of tegmen morphology

**METHODS:** Total of seventy-two high resolution computed tomography scans were used to create three-dimensional models of the tegmen shape. Measurements were obtained for two different slopes (anterior-to-posterior, & lateral-to-medial) of the superior surface of the tegmen and for the distance between the tegmen and superior external auditory canal wall.

**RESULTS:** The tegmen slopes downward from posterior to anterior in all cases; and slopes downward and then upward from lateral to medial in the majority of cases. The lateral-to-medial slope measurements were significantly variable on the study population. Depends on the degree of the mastoid slopping, the population in our study was divided into three groups: mild (0-3 mm), moderate (4-6 mm) and deep (> 6 mm) slop. Results showed that 49% of the study population had mild, 36% had moderate, and 15% had deep mastoid lateral-to-medial slope.

**CONCLUSION:** Understanding the tegmen shape is an integral step to perform a safe mastoid procedure. Based on our study, we are proposing a new mastoid tegmen classification.

14:58 – 15:06 ***Staging Retraction of the Tympanic Membrane cannot be Acheived Sufficiently Reliably for Clinical Purposes: Where are We Going Wrong?*** -  
D. Pothier, A. R. Maw, TORONTO, ON

#### LEARNING OBJECTIVES

After listening to the presentation, the audience members will be able to understand the limited reliability of staging systems of retraction of the tympanic membrane.

After listening to the presentation, the audience members will be able to understand the limited reliability of staging systems of retraction of the tympanic membrane.

After listening to the presentation, the audience members will be able to critically review the otologic literature where staging of retraction has been used in the context of low inter/intra-rater reliability.

#### ABSTRACT

**AIMS:** To determine the ability of clinicians to diagnose retractions using anatomical definitions.

**METHODS:** Thirty otolaryngologists assessed sixty images of retractions of the tympanic membrane. They were asked to assess the following: 1) if the TM was touching the long process of the incus (LPI), 2) touching the promontory, 3) whether the scutum was eroded, 4) whether the extent of the retraction was visible. Two days later the participants were asked to repeat the process with the same images placed in a different order.

**RESULTS:** As the images shown were identical, participants were expected to give the same answer at each session. This only occurred a mean of 52.6% of the time (SD = 5.8) for the LPI, 50.6% (SD=7.4) for the promontory, 55.3% (SD=7.3) for erosion of the scutum and 57.1% (SD=10.3) for extent of retraction. No correlation with experience was identified (r=0.13, P=0.8).

CONCLUSIONS: Experienced clinicians cannot reliably stage retractions when presented with the same image only two days apart. This casts considerable doubt on the ability of clinicians to reliably stage retraction of the tympanic membrane consistently enough to make this useful as a clinical measure. An objective system is required to reliably assess retraction of the tympanic membrane.

15:06 – 15:14 **Sensory Training in Acute and Chronic Tinnitus** - S. Banglawala, D. Bosnyak, L. Roberts, J. Archibald - TORONTO, ON

ABSTRACT

Sensory training (ST) has been shown to induce cortical response changes measured in EEG in normal subjects but in preliminary experiments chronic tinnitus patients have shown resistance to such changes. ST has not been comprehensively studied in acute tinnitus where the neural plasticity of the auditory cortex might respond differently.

OBJECTIVE: To compare ST in acute versus chronic tinnitus.

METHODS: Inclusion criteria included all patients between 18-70 years of age, English speaking and with subjective tinnitus. Acute tinnitus was defined as onset of stable tinnitus within the last two years; chronic was considered greater than two years. All patients completed Tinnitus Handicap Questionnaire and high frequency audiograms. ST and EEG acquisition was performed with specialized computer programs developed by our laboratory.

RESULTS: Preliminary results show chronic patients exhibit less robust EEG response changes after ST than controls. Our acute tinnitus population group is currently under recruitment and testing.

CONCLUSION: Pending

15:30 – 16:00 COFFEE AND VISIT TO EXHIBITS

**Tuesday, May 25, 2010  
Strategy Room 3**

**Papers: Head and Neck Surgery (Thyroid)** (CPD credit hrs – 1.50)  
**Chair: Dr. R. Payne, MONTREAL, QC**

08:00 – 08:08 ***The Surgical Management of Differentiated Thyroid Cancer in Ontario: A Population-based Study*** - S. F. Hall, J. Irish, S. Archibald, R. Walker, D. Hurlbut, P. Groome, A. Schneeberg, KINGSTON, AB

LEARNING OBJECTIVES

- At the end of this session attendees will have a greater understanding of the extent and origins of the variation in the treatment of differentiated thyroid cancer.

ABSTRACT

BACKGROUND: There is no agreement on the extent of surgery for the majority of patients with differentiated thyroid cancer.

OBJECTIVES: To describe and compare the extent of surgery by histology, tumor size, geographic region, surgeon specialty and surgeon age.

**METHODS:** A population-based study, based on the Ontario Cancer Registry, of 3500 Ontario patients from 1990 to 2002 with a new diagnosis of differentiated thyroid cancer using electronic data, pathology review and operative record review.

**RESULTS:** There was considerable variation in both tumor size and management by geographic region and there was variation in the extent of surgery for similar tumors by region and surgical specialty.

08:08 – 08:16 ***A Prospective Evaluation of Perioperative Concern Amongst Patients Considering Thyroidectomy: Preliminary Normative Data*** - H. A. Osborn, M. G. Brandt, J. Yoo, K. Fung, P.C. Doyle, LONDON, ON

#### LEARNING OBJECTIVES

- At the completion of the presentation, attendees will have an improved understanding of the areas of concern experienced by patients considering thyroidectomy.
- Attendees will become familiar with a novel assessment tool evaluating patient perioperative concerns.
- At the completion of the presentation, attendees will be able to direct their perioperative counseling to include the areas of greatest concern experienced by patients considering thyroidectomy.

#### ABSTRACT

**OBJECTIVES:** Patients considering surgery face many uncertainties and concerns. Through the use of a recently validated assessment tool, this investigation sought to characterize the areas of greatest concern amongst patients considering thyroidectomy.

**METHODS:** All patients considering thyroidectomy (hemi- or total) were voluntarily recruited. Those with lesions necessitating central or lateral neck dissection were excluded. 150 individuals completed a novel 18-item questionnaire during their initial clinical visit. Outcomes included descriptive statistics and preliminary normative data.

**RESULTS:** Areas of greatest concern varied by indication for thyroid surgery. As a group, patients considering thyroidectomy were most concerned by the risk of: cancer, a change in voice, and pain and discomfort. Areas of minor concern included the risk of being embarrassed by one's condition, being judged, or not having their questions answered. In those patients with intermediate risk (15-20% risk of papillary thyroid cancer) fine-needle aspiration biopsy results, those choosing hemi-thyroidectomy differed in concerns from those choosing total-thyroidectomy.

**CONCLUSIONS:** Patients considering thyroidectomy have unique concerns requiring surgeon initiated inquiry and counsel. This investigation provides preliminary normative data that builds on previous findings in establishing the Western Surgical Concern Inventory – Thyroid (WSCI - T) as a means of ensuring adequate patient co (original incomplete)

08:20 – 08:28 ***Endoscopic Thyroid Surgery Using the Minimally Invasive Video-Assisted Thyroidectomy Technique - Is It Safe?*** - N. Jowett, M. Black, M. Hier, S. Anand, V. Labajian, MONTREAL, QC

#### LEARNING OBJECTIVES

1. To discuss the potential advantages and disadvantages to minimally invasive video-assisted thyroid surgery, a new approach to subtotal thyroidectomy.
2. To demonstrate the surgical technique of minimally invasive video-assisted thyroid surgery.

#### ABSTRACT

**OBJECTIVES:** Endoscopic thyroidectomy, using the minimally invasive video-assisted thyroidectomy (MIVAT) approach, offers the potential for improved cosmetic outcome in thyroid surgery, but its safety profile has yet to be fully established.

**METHODS:** Patients with thyroid nodules underwent subtotal thyroidectomy using the endoscopic MIVAT approach and were compared with traditional subtotal thyroidectomy controls at a McGill University teaching hospital. Outcome measures included complication rates (recurrent laryngeal nerve injury, inadvertent parathyroid gland removal, and hematoma), incision length, operative time, and time in hospital.

**RESULTS:** Preliminary data shows that patients undergoing MIVAT surgery had smaller incisions when compared to those undergoing traditional surgery (1.5cm vs 3.0cm,  $p<0.05$ ). There was also no significant difference in complication rates (0.1 vs 0.1,  $p>0.05$ ), time in hospital (21.3hrs vs 21.1hrs,  $p>0.05$ ), or operative time (73.1min vs 75.0min,  $p>0.05$ ).

**CONCLUSIONS:** According to this study, endoscopic thyroidectomy performed using the MIVAT approach, appears to be safe when compared to traditional subtotal thyroidectomy. The length of incision is smaller with only a minimal increase in operative time. These results support the use of this technique in selected patients.

08:28 – 08:36 ***Mechanical Creep in Minimally Invasive Thyroidectomy Incisions: Quantification and Identification of Predictive Factors*** - M. Mohammed, K. Fund, J. Yoo, J. Franklin, LONDON, ON

#### LEARNING OBJECTIVES

1. To understand the entity of mechanical creep.
2. To know the predicted creep on the basis of the present literature.
3. To understand the quantification of mechanical creep identified in thyroid incisions.
4. To understand the forces and mechanism of creep and its resolution over time.
5. To acknowledge the importance of creep in the planning of incision size.

#### ABSTRACT

**BACKGROUND:** Minimally invasive thyroidectomy is an increasing trend. A limiting factor to the incision size is tumor size. Biological or mechanical creep have been documented and characterized in other surgical procedures. This study aims to characterize the expected mechanical stretch observed in minimally invasive thyroidectomy incisions and to define factors affecting the degree of creep.

**METHODS:** 50 Consecutive minimally invasive thyroidectomies performed by the senior author. Measurements were taken prior to the incision, after the incision and at the completion of the skin closure. Incisions were then measured at the first post-operative visit. Factors including surgical time, age and gender will be analyzed.

RESULTS: All incisions showed greater than 10% creep. The smaller incisions showed significantly greater percent creep than larger incisions. There were no other identified predictive factors.

CONCLUSIONS: Thyroid incisions extend significantly throughout a thyroidectomy thereby allowing for smaller planned incisions.

08:40 – 08:48 ***Positron Emission Tomography as a Preoperative Predictor of Malignancy in Thyroid Cancer*** - A.D. Amir, M.Tamilia, J. Rivera, O. Gologan, M. Hier, MONTREAL, QC

LEARNING OBJECTIVES

- By the end of this session, the clinician will understand the predictive value of the PET scan in determining whether malignancy is present, as well as how to apply it in concert with other data when available. In summary, the reader will understand the current role for PET scans in approaching patients with thyroid nodules.

ABSTRACT

OBJECTIVE: To evaluate the preoperative predictive value of a positive pet scan with respect to malignancy in patients undergoing thyroidectomy, particularly when the fine needle aspiration biopsy results in indeterminate findings. Also, to establish the role if any for this imaging modality in the preoperative workup of patients with thyroid nodules.

METHODS: This is a retrospective study examining 1048 thyroidectomy patients, of which 45 underwent PET scans for unrelated reasons, among which 13 were focally positive for thyroid nodules. Final pathology was evaluated in order to determine a correlation.

RESULTS: All patients with positive PET scans were shown post-thyroidectomy to have a thyroid malignancy (13/13) corresponding to a positive predicative value of 100%. There was no correlation between a negative PET scan and malignancy however. When integrating the PET scan criteria in the McGill Scoring System, 4 of these 13 patients are shifted into a high risk of malignancy group.

CONCLUSION: In comparison with previous data, these results indicate a strong relationship between a positive PET scan and malignancy. If available and used in conjunction with other preoperative tools this test may hold significant merit in determining a therapeutic strategy, particularly in the face of an indeterminate FNAB.

08:48 – 08:56 ***Comparison of Preoperative Ultrasonography, Radionuclide Scintigraphy, and SPECT in Localization of Parathyroid Adenomas*** - B. Barber, D.W. J. Cote, J. Harris, EDMONTON, AB

LEARNING OBJECTIVES

At the end of this session, the participator should be able to:

- 1) differentiate between ultrasound, radionuclide scintigraphy, and SPECT scanning,
- 2) understand the contribution and capability of each imaging modality to localizing a parathyroid adenoma,
- 3) understand the implications of our findings in minimally-invasive parathyroid surgery.

#### ABSTRACT

**BACKGROUND:** Recent advancements in minimally-invasive parathyroid surgery have influenced the use of imaging modalities for precise preoperative localization of parathyroid adenomas (PA). Ultrasonography (US), radionuclide scintigraphy (RS), and SPECT scanning have been used both individually and cooperatively to localize lesions, but to date all three modalities have not been collectively compared for their accuracy.

**OBJECTIVES:** To compare the accuracy of US, RS, and SPECT in localizing PAs.

**METHODS:** 198 patients with PAs were reviewed. The size, number, and quadrant shown by each imaging modality were compared to surgical findings. Localization results were classified as pass, fail, or undetected.

**RESULTS:** In preliminary analysis, 30% of PAs were undetected by US, as compared to 15% and 2% for RS and SPECT, respectively. 100% of the lesions undetected by SPECT were also undetected by US and RS. Rates of failure of localization were significantly higher with US when compared to RS ( $p < 0.05$ ) and SPECT ( $p < 0.05$ ). 11% of lesions incorrectly localized by US were situated in atypical locations when dissected surgically.

**CONCLUSIONS:** SPECT is superior to RS and US in localizing ectopic and atypically situated parathyroid adenomas. US is a convenient and economic modality for localizing abnormally enlarged glands, but requires complementary imaging when parathyroid adenomas are smaller or atypically situated.

09:00 – 09:08 ***Sentinel Lymph Node Biopsy in the Management of Thyroid Cancer: Where We Currently Stand*** - K. Richardson, S. Anand, O. Gologan, L. Rochon, J. How, M. Hier, M. Tamilia, MONTREAL, QC

#### LEARNING OBJECTIVES

- By the end of the session thyroid surgeons will have a better understanding of our current knowledge of the role of sentinel lymph node biopsy in the management of well differentiated thyroid carcinoma.

#### ABSTRACT

**OBJECTIVE:** To prospectively review the role of sentinel lymph node (SLN) biopsy in the management of well differentiated thyroid carcinoma (WDTC), and determine whether frozen section analysis accurately predicts the status of the SLN.

**METHODS:** SLN biopsy was performed on consecutive patients undergoing thyroidectomy for nodules suspicious for WDTC. Nodules were injected with 0.2-0.3cc's of methylene blue. A central compartment neck dissection was performed. Lymph nodes that stained blue were considered as SLNs. Frozen section analysis of the SLN was undertaken for twenty patients.

**RESULTS:** 191 patients underwent SLN biopsy and central compartment neck dissection. 138 patients had WDTC. 76% (105/138) of patients were found to have detectable SLNs. No patients (0/ 33) with an undetectable SLNs were found to have central compartment metastasis. 26% (27 of 105) of patients had positive SLNs for metastasis. A negative SLN corresponded with a negative central compartment 100% of the time (78/78, sensitivity 100%,  $p$ -value $<0.001$ ). Frozen section was able to detect metastasis in 25% (5 of 20) of patient's SLNs.

CONCLUSION: Our data shows that a negative SLN on final pathology correlates strongly with a negative central compartment. More data is needed to better understand the role of frozen section.

09:08 – 09:16 ***Use of USFNAB in the Management of Previously Biopsied Non-diagnostic Thyroid Nodules – Does Operator Experience Matter?*** - J. S. Schwartz, J. How, I. Lega, J. Cote, O. Gologan, J. Rivera, N. Garfield, A. Zeitouni, R. Payne, MONTREAL, QC

ABSTRACT

OBJECTIVE: To compare the specimen adequacy rate of ultrasound guided thyroid fine needle aspiration biopsies based on nodule size performed by an experienced thyroid surgeon vs otolaryngology residents in patients whose initial palpation guided FNA biopsies (PGFNAB) were non-diagnostic.

METHODS: Multiple logistic regression analysis was used to investigate the effect of operator experience on the probability of obtaining an adequate specimen, after adjusting for nodule size. SAS version 9.1.3 was employed for statistical analysis with P values < 0.05 indicating statistical significance.

RESULTS: The specimen adequacy rates of the staff and residents were 93.2% (179/192) and 42.9% (18/42) respectively. Multiple logistic regression demonstrated a significant difference of the staff vs residents in terms of the probability of obtaining an adequate specimen even after adjusting for nodule size with an odds ratio of 17.4 (95%CI (7.4, 41.2)). There was no interaction effect between examiner and nodule size.

CONCLUSION: Our experience suggests that specimen adequacy rates of thyroid nodules with USFNAB, is significantly influenced by operator experience. This finding highlights the high level of difficulty associated with this type of diagnostic intervention, and that proper training is necessary prior to performing USFNAB in the clinical setting.

09:16 – 09:24 ***Correlation of Preoperative Fine Needle Aspiration Findings with Histopathology following Diagnostic Hemithyroidectomy*** - J.A. Vaz, D.W.J. Cote, H. Seikaly, EDMONTON, AB

LEARNING OBJECTIVES

- 1) By the end of this session, the participant will be able to describe the types of thyroid nodules that are typically investigated with diagnostic hemithyroidectomy.
- 2) By the end of this session, the participant will be able to evaluate the diagnostic accuracy of fine needle aspiration biopsy.
- 3) By the end of this session, the participant will be able to evaluate the use of fine needle aspiration biopsy in pre-operatively predicting malignancy in nodules that subsequently investigated with diagnostic hemithyroidectomy.

ABSTRACT

BACKGROUND: Diagnostic hemithyroidectomy is indicated for suspicious and atypical thyroid nodules. There is limited literature on the accuracy of pre-operative diagnosis by fine needle aspiration biopsy (FNAB) and its correlation to final pathologic findings in diagnostics.

**METHODS:** A review of all patients undergoing diagnostic hemithyroidectomy who had pre-operative pathology confirmed by FNAB since Oct 1, 2001. FNAB results were classified as either benign, follicular, Hurthle cell, or malignant.

**RESULTS:** 171 cases were reviewed. Final pathology found 125 benign lesions and 46 malignant lesions, which included B cell lymphoma (n=1), medullary carcinoma (n=1), follicular carcinoma (n=6) and papillary carcinoma (n=38). Preoperative FNAB cytology predicted 3 malignant lesions, of which only one case of malignancy was confirmed by histopathology. When FNAB diagnosis suggested benign lesions (n=84), 31% (n=26) were found to be malignant lesions. Similarly, when FNAB suggested follicular(n=65) or Hurthle cell (n=19) lesions, 20% and 31.6% of cases respectively were found to be malignant post-operatively.

**CONCLUSIONS:** Of thyroid nodules that are typically sent for diagnostic hemithyroidectomy, malignancy is poorly predicted by FNAB.

**Tuesday, May 25, 2010  
Strategy Room 3**

**Workshop #18** (CPD credit hrs – 0.50)  
**Chair: Dr. R. Payne, MONTREAL, QC**

09:30 – 10:00     *Thyroid Panel*

**Tuesday, May 25, 2010  
Foyer, Great Room ABC**

10:30 – 12:00     *Poster Walk with the Experts*  
12:00 – 13:30     LUNCH AND VISIT WITH TO EXHIBITS

**Tuesday, May 25, 2010  
Strategy Room 3**

**Papers: Facial Plastic & Reconstructive Surgery** (CPD credit hrs – 1.50)  
**Chair: Dr. J. Trites, HALIFAX, NS**

13:30 – 13:38     *Describing the Orbital Decompression Approach with Decompression of the Optic Nerve by Endoscopy Method in Grave's Disease* - I. Arteau-Gauthier, D. Pouliot, Y. Molgat, S. Nadeau, Québec, QC

**LEARNING OBJECTIVE**

By the end of this session the doctor will be able to describe the method of orbital decompression with optic nerve decompression by endoscopy and will know the results and the rate of complication associated with this surgery.

**ABSTRACT**

**OBJECTIVE:** To assess the outcomes of endoscopic and external lateral orbital decompression in patients with dysthyroid orbitopathy. Secondly, to establish a correlation between the percentage of postoperative diplopia and the technique used.

**METHOD:** Retrospective review of 37 patients (68 orbits) who underwent endoscopic medial orbital decompression ± inferior and external lateral orbital decompression between 1997 and 2009 at the Hôpital Enfant-Jesus in Quebec City. All patients with neuropathy

underwent endoscopic decompression of the optic canal. Measurements of the visual acuity, the color vision, diplopia and orbital recoil were done before and after surgery.

RESULT: All patients had satisfactory improvement of their ocular pathologies including: visual acuity, color vision, optic neuropathy and orbital recoil. 80% of the patients had a complete resolution of their neuropathy, 77% had an improvement of their visual acuity and 67% had some diplopia post-op.

CONCLUSION: For the patient suffering from Grave's disease with exophthalmos and/or neuropathy, the endoscopic orbital decompression with optic nerve decompression offers a significant improvement in terms of visual acuity, color vision and orbital recoil without any significant complication.

13:38 – 13:46 ***Submental Liposuction: A New Treatment Option for Lymphedema in Head and Neck Cancer Patients*** - M. Brake, S. M. Taylor, M. Al-Gilani, R. Hart, J. Trites, HALIFAX, NS

#### LEARNING OBJECTIVES

1. To recognize the decreased quality of life for patients suffering from head and neck lymphedema.
2. To discuss liposuction as a treatment option for patients suffering with lymphedema resulting from head and neck cancer treatments.
3. To examine outcomes of patients who have undergone liposuction for head and neck cancer treatment-related lymphedema.
4. To provide new treatment options for patients suffering from this condition.

#### ABSTRACT

OBJECTIVES: Patients who have undergone extensive treatment for head and neck cancers are at risk for neck lymphedema, which can severely affect quality of life. Liposuction has been used successfully for cancer patients who suffer from post-treatment limb lymphedema. Our study was intended to review the outcomes of head and neck cancer patients at our centre who have undergone submental liposuction for post-treatment lymphedema.

METHODS: Two validated surveys (Rhinoplasty Outcome Evaluation and The Darriford Appearance Scale) were used to assess patients satisfaction pre- and post-operatively. All head and neck cancer patients who had undergone submental liposuction for post-treatment lymphedema between Oct 1, 2007 and Oct 1, 2009 were included in the study.

RESULTS: Eight patients met the criteria outlined by our study. There was a statistically significant improvement in patients' self-perception of appearance, mental health and quality of life.

CONCLUSIONS: Liposuction is a simple and feasible option to help improve the quality of life for head and neck cancer patients suffering from post-treatment lymphedema.

13:46 – 13:54 ***Systematic Review of Implantable Doppler Technology in Head and Neck Reconstruction*** - M. Gupta, M. Corsten, D. Coyle, D. Fergusson, OTTAWA, ON

#### LEARNING OBJECTIVES

To discuss the current evidence for the use of implantable Doppler technology in monitoring free tissue transfer in head and neck reconstructions.

To direct future research in free flap monitoring.

#### ABSTRACT

**OBJECTIVES:** To determine if there is the evidence in the literature that for the use of implantable Doppler technology in free flap reconstruction of head and neck defects is associated with lower free flap failure rates.

**METHODS:** A systematic review was designed using the exploded keywords "Head and Neck Neoplasms" and "Surgical Flaps" on Medline. In addition to the Medline search, Embase, Scopus, and Pubmed searches were also performed. To be included in the review, the study had to clearly state the number of Head and Neck defects in the study population. The study also had to clearly state the number of patients in the study population who received implantable Doppler monitoring. A pooled variance technique was used to calculate the failure rates.

**RESULTS:** A total of 20 papers met the inclusion criteria. Nineteen of the studies were case series. One was a randomized trial. The literature contained a total of 6930 free flap procedures which were monitored by non-implantable Doppler means. The number of free flap procedures monitored by implantable Doppler technology in the literature was 444. Using the pooled variance technique, clinical monitoring was associated with a failure rate of 4.2% (95% CI: 3.4-5.1%) and implantable Doppler technology was associated with a failure rate of 2.1% (95% CI: 1.1-4.0%).

**DISCUSSION:** The difference in failure rates between was not significant but there is a trend to lower failure rates with the use of implantable Doppler technology.

14:00 – 14:08 ***Restoration of the Orbital Aesthetic Subunit with the Thoracodorsal Artery System of Flaps*** - E. Chanowski, D. Chepeha, K. Casper, S. Chandarana, S. Paul, J. Lee, A. Sacco, M. Prince, ANN ARBOR, MI

#### LEARNING OBJECTIVES

1. By the end of this session, the listener will be able to describe the surgical utilities of the thoracodorsal artery system of flaps.
2. By the end of this session, the listener will be able to describe reconstructive options of the orbital aesthetic subunit that do not involve an ocular prosthesis.
3. By the end of this session, the listener will be able to describe the emerging role of the thoracodorsal artery system of flaps in the restoration of the orbital aesthetic subunit.
4. By the end of this session, the listener will be able to consider the positive outcomes associated with the reconstruction of the orbital aesthetic subunit with the thoracodorsal artery system of flaps and this reconstruction's role in the high functioning of patients postoperatively.

#### ABSTRACT

**Objective:** To demonstrate the utility of the thoracodorsal artery system of flaps using the thoracodorsal artery scapular tip autogenous transplant in a prospective case series of patients requiring reconstruction of the orbital aesthetic subunit.

Patients and Methods: 10 patients underwent reconstruction of the orbital aesthetic subunit between 2001 and 2008. All patients had bony defects with orbital exenteration in 9/10 patients. The two utilities of the thoracodorsal artery system for orbital reconstruction are a long pedicle and the suitability of the scapula tip to the three dimensional requirements of the orbit. Patients were assessed for orbital closure, cosmetic outcome, work status, socialization outside the home, and preference for an orbital prosthesis. Mean follow-up, 25 months (range, 6-77).

Results: 4/10 patients benefited from one utility and 5/10 patients benefited from two. Of the evaluable patients, 7/7 reported frequently socializing outside their home and 4/5 patients working pre-treatment returned to work post-treatment. 7/9 patients had minimal or no facial contour deformity and 1/6 patients would have preferred an orbital prosthesis.

Conclusions: The utility of the thoracodorsal artery system of flaps effectively restores orbital contour and has a long vascular pedicle. Patients have an acceptable cosmetic result and return to work and socialization.

14:08 – 14:16 **Functional and Cosmetic Outcomes of Patients with Maxillectomy Defects Reconstructed with Vascularized Free Tissue Transfer** - J. Tibbo, H. Seikaly, J. Harris, R. Reiger, EDMONTON, AB

#### LEARNING OBJECTIVES

1. To review the classification of maxillectomy defects.
2. To learn about the various methods of reconstruction of maxillectomy defects.
3. To learn about the most common reconstructive methods used at our centre.
4. To learn about the advantages of medical modelling.
5. To learn about the functional and cosmetic outcomes of patients reconstructed with free tissue transfer at our centre.
6. To learn about future endeavours: comparing functional and cosmetic outcomes of patients reconstructed with free tissue transfer reconstruction vs. palatal obturators.

#### ABSTRACT

**OBJECTIVES:** To assess the functional and cosmetic outcomes of patients with maxillectomy defects reconstructed with vascularized free tissue transfer.

**METHODS:** We analyzed prospectively collected data on 35 patients with maxillectomy defects reconstructed with vascularized free tissue transfer (mainly radial forearm and fibula free flaps). Functional outcomes after reconstruction was assessed using a comprehensive collection of outcomes parameters including: PERCI-SARS for assessment of velopharyngeal orofice area, nasometer for assessment of nasalance, and standardized recordings for assessment of speech intelligibility. Cosmetic analysis was performed using eight naïve viewers providing assessment via a 10 point Likert scale.

**RESULTS:** In all parameters measured for both functional and cosmetic outcomes, results were excellent for free tissue reconstruction.

CONCLUSIONS: Patients and reconstructive surgeons should expect excellent functional and cosmetic results with reconstruction of maxillectomy defects with free tissue transfer. Our next step will be to compare free tissue transfer reconstruction with the gold-standard at most institutions; palatal obturator.

14:16 – 14:24 **Posterior Tibial Free Flap in Reconstruction of the Head and Neck** - J. Vaz, H. Seikaly, D. Cote, J. Tibbo, J. Harris, EDMONTON, AB

#### LEARNING OBJECTIVES

- 1) By the end of this session, the program audience will be able to describe the surgical details of harvesting and anastomosing a posterior tibial microvascular free flap.
- 2) By the end of this session, the program audience will be able to evaluate the potential benefits of using the posterior tibial free flap in reconstruction of major defects of the head and neck.
- 3) By the end of this session, the program audience will be able to describe the post-operative outcomes of patients with posterior tibial free flap.

#### ABSTRACT

BACKGROUND: The posterior tibial flap is a soft tissue flap that has been described in foot, arm and lower leg reconstruction. This flap is potentially an excellent flap option for reconstruction of the head and neck because it offers thin, pliable and well vascularized tissue.

OBJECTIVE: To report a prospective series of patients who underwent resection of major head and neck carcinomas followed by reconstruction using the posterior tibial free flap.

METHODS: 7 patients that had undergone reconstruction with a posterior tibial flap at the University of Alberta from January 2009 to January 2010 were reviewed.

RESULTS: The posterior tibial flap was used to repair defects of the oral cavity (n=4) and oropharynx (n=3). On average, the free flap measured 12cm x 9.8cm with a pedicle length of 9cm. In all cases, the flap was elevated with at least 2 musculocutaneous perforators and, one flap was neurotized with the lingual nerve. All the flaps survived. Incomplete donor site skin graft take was seen in 2 patients.

CONCLUSIONS: The posterior tibial flap is well suited for head and neck reconstruction and should be added to the reconstructive surgeon's armamentarium.

14:30 – 14:38 **Local Complication Rates in Mandibular Reconstruction: Bone Impacted versus Traditional Fibular Free-flaps** - B. Barber, H. Seikaly, P. Dziegielewski, J. Harris, EDMONTON, AB

#### LEARNING OBJECTIVES

- At the end of this session, the participant should be able to:
- 1) Recognize the difference between the traditional fibular free flap and the bone-impacted fibular free flap.
  - 2) Appreciate the difference in complication rate and types in traditional and BIFFF for mandibular reconstruction.

3) Recognize the contribution of bone-impacted fibular flaps to dental rehabilitation, and its subsequent impact on post-operative functional outcomes.

#### ABSTRACT

**BACKGROUND** Bone impacted fibular free-flap (BIFFF) mandibular reconstruction was developed to improve dental implantation and prosthetic fitting. A previous study has demonstrated the efficacy of this technique; however, local complication rates of the BIFFF have not been assessed.

**OBJECTIVES:** To compare the long-term local complication rates of traditional fibular free-flaps to BIFFF used in mandibular reconstruction.

**METHODS:** A retrospective historical case-control trial was performed. All mandibular reconstruction cases involving a traditional or BIFFF at the University of Alberta from 1998-2009 were reviewed. Patient demographics, tumour characteristics as well as local complications were examined. A logistic regression analysis was performed to determine predicative factors of local complications.

**RESULTS:** The traditional fibular flap (n=89) demonstrated an overall higher complication rate of 15%, as compared to an 8% complication rate for the bone-impacted flap (n=75). The most common complication in both flaps was hardware exposure, with a significantly higher rate in the traditional fibular flap (p<0.05). The rates of malocclusion and dental implantation revision were also significantly lower in the BIFFF (p <0.05).

**CONCLUSIONS:** The BIFFF demonstrates a lower overall complication rate than the traditional fibular free flap, and allows for improved anchoring of dental implants with less malocclusion.

14:38 – 14:46 ***The History of Facial Plastic Surgery in Canada*** - M. Brandt, C. Moore, K. Conrad, LONDON, ON

#### LEARNING OBJECTIVES

At the completion of the presentation attendees will have an improved understanding of the development of Facial Plastic Surgery in Canada.

Attendees will become more aware of the challenges that have been overcome in the establishment of Facial Plastic Surgery as a recognized subspecialty of Otolaryngology - Head and Neck Surgery.

Attendees will become familiar with those Canadian Otolaryngologists-Head and Neck Surgeons who have made major contributions to the field of Facial Plastic Surgery.

#### ABSTRACT

**Objectives:** Canadians have played a significant role in the development of Facial Plastic Surgery nationally and internationally. This endeavor sought to trace the impact these Canadian pioneers have made on the field of facial plastic surgery and highlight the establishment of Facial Plastic Surgery as a subspecialty area of Otolaryngology-Head and Neck Surgery in Canada.

Methods: An extensive literature review and personal interviews were conducted over a 12-month term to trace the origins and establishment of Facial Plastic Surgery as a subspecialty area of Otolaryngology – Head and Neck Surgery in Canada.

Results: Canadian Otolaryngologists – Head and Neck Surgeons have been active practitioners in the field of Facial Plastic Surgery since its origins in North America. Many of these individuals have played a distinguished role in the advancement and development of this specialty both within Canada and abroad.

Conclusions: Canadian Otolaryngologists – Head and Neck Surgeons have practiced as regional plastic surgery specialists since the establishment of Facial Plastic Surgery in North America. Although the specialty of Facial Plastic Surgery and its practitioners have faced many challenges, it is now recognized as an integral component of otolaryngology and a core area of training within the majority of otolaryngology – head and neck surgery residency programs in Canada.

14:46 – 14:54 ***Eyelid and Brow Asymmetry in Patients Evaluated for Blepharoplasty*** - K. Macdonald, S.M. Taylor, A. Mendez, HALIFAX, NS

#### LEARNING OBJECTIVES

By the end of this session, the facial plastic surgeon will appreciate the lack of literature available on facial asymmetry in the normal population, and will be able to cite the incidence of eyelid and brow asymmetry in a population of 100 Canadians presenting for evaluation of blepharoplasty.

#### ABSTRACT

**OBJECTIVES:** Although symmetry is a defining quality of beauty, patients rarely present with a complaint of eyelid or brow asymmetry for evaluation of blepharoplasty. There is little literature available that describes the incidence of facial asymmetry in the normal population. We aimed to determine the incidence of asymmetry in patients evaluated for blepharoplasty.

**METHODS:** Patients who had an assessment for upper eyelid surgery from January 2004 to January 2009 were included in this retrospective study. Patients with an explanation for asymmetry were excluded. The presenting author (KIM) measured the following distances: the margin pupil (MPD), central eyebrow (CED), nasal eyebrow (NED) and temporal eyebrow (TED). The senior author did the same for 10% of randomly selected patients. A 95% confidence interval was used to calculate asymmetry between the right and left sides.

**RESULTS:** 100 patients (94 female, mean age 57.7) were included in the study. The average MPD, CED, NED and TED were 0.55mm (95%CI 0.45-0.65), 1.77mm (95%CI 1.47-2.07), 1.34mm (95%CI 1.14-1.54), and 1.78mm (95%CI 1.50-2.06), respectively. There were 93% of the patients who had at least one measurement of asymmetry greater than 1mm, 75% with at least one greater than 2mm, and 37% with at least one greater than 3mm.

**CONCLUSION:** There is a high level of eyelid and brow asymmetry in this population. This will help improve patient expectations and may impact the surgical plan.

**Tuesday, May 25, 2010  
Strategy Room 3**

**Workshop #19** (CPD credit hrs – 0.50)  
**Chair: Dr. J. Trites, HALIFAX, NS**

15:00 – 15:30 *Facial Plastic and Reconstructive Surgery Forum*

**Tuesday, May 25, 2010  
Strategy Room 3**

**Workshop #20** (CPD credit hrs – 1.00)

16:00 – 17:00 *Establishing an ENT Practice* - M.G. Maharaj, VANCOUVER, BC

LEARNING OBJECTIVES

- Residents attending this seminar will gain an appreciation for the factors that need to be considered in choosing a practice type and location, and the necessary steps in negotiating for a position that will meet their needs and lead to successful practice. They will learn to identify and assemble an appropriate team of advisory financial, insurance, and legal experts. They should further understand the role each of these experts will play on their "team".
- Attendees will also gain an understanding of the extent and distribution of the expenses involved in establishing a new community ENT practice.
- Finally, they will learn a simple organizational breakdown of the business components of an ENT practice, along with the relevant details of each component that require customization to the needs of each individual practitioner

ABSTRACT

The practical steps involved in making the transition from a learner to an independent practitioner have been traditionally inadequately taught in most residency training programs in Canada, including Otolaryngology programs. In recent years, efforts have been made by various individuals to address this shortcoming within our specialty by offering seminars and talks from Otolaryngologists and outside experts on a local or ad-hoc basis.

At prior years' CSO meetings, this workshop series was presented to Residents and others interested in establishing a new ENT practice in Canada, focussing particularly on decision-making with respect to choosing a practice type and location, and on the business aspects of establishing an ENT practice. The series will continue this year with a similar focus.

This year's workshop is planned for 90 minutes and in previous years has been scheduled simultaneously with the CSO Business Meeting.

**Tuesday, May 25, 2010  
Strategy Room 3**

**Workshop #21**

17:00 – 18:00 *The Royal College Examination* – I. Witterick, TORONTO, ON, M. Olivier, MONTREAL, QC

## ABSTRACT

This session is for residents in otolaryngology – head & neck surgery who plan on taking the certification examination in otolaryngology – head & neck surgery offered by the Royal College of Physicians and Surgeons of Canada. The Chief Examiners will discuss the structure and format of the exam, the domains examined, and try to answer common questions regarding the examination process.

**Sunday, May 23 to Tuesday, May 25, 2010**  
**Foyer, Great Room C**

## **2010 POSTERS**

### **GENERAL**

1. *The Dalhousie Eustachian Model: A Three-dimensional Model of the Eustachian Tube and Surround Temporal Bone Anatomy* - H. Amoodi ; M. Bance; S. Khalili, HALIFAX, NS
2. *Causes of Otolaryngology Same-day Surgery Cancellation at Two Canadian Centres* - H. Amoodi ; R. Hart, HALIFAX, NS
3. *Secondary Post-tonsillectomy Hemorrhage: Objective Measures of Infection in a Retrospective Study* - S. Ahmed; D. Pothier, TORONTO, ON
4. *Re-operative Parotid Surgery* - S. Archibald, HAMILTON, ON

### **FACIAL PLASTIC AND RECONSTRUCTIVE SURGERY**

1. *Cost Effectiveness of Simultaneous versus Sequential Surgery in Head & Neck Reconstruction* - K. Wong ; D. Enepekides; K. Higgins, TORONTO, ON
2. *A Canadian Based Survey on Pre and Post-operative Microvascular Free Flap Management* - S. Annamalai; R. Hart; S. Mark Taylor; J. Trites, SYDNEY, NS
3. *Porous Polyethylene Implant in the Correction of External Nasal Valve Collapse* - B. Lau ; J. Kibblewhite, VANCOUVER, BC
4. *Temporomandibular Joint Reconstruction After Major Head and Neck Extirpation Surgery: A Prospective Cohort Analysis* - M. Langille ; W. Dobrovolsky; H. Seikaly, EDMONTON, AB
5. *Cranioplasty with Pericranium and Temporalis Muscle* - M. Shakeel ; A. Hussain; M. Kamel; I. Fouyas, ABERDEEN, UK
6. *Outcomes in Microvascular Free Flap Transfer in the Elderly* - Jason Vaz ; H. Seikaly; D. Cote; J. Harris, EDMONTON, AB

### **EDUCATION AND RESEARCH**

1. *The Airway Basics Course: Teaching the ABC's of Airway Management to Surgical Residents* - L. Nguyen; F. Ramadori; B. Ng; A. Guzzo, MONTREAL, QC
2. *A Global Rating of Endoscopic Surgical Skills (GRESS) for the Assessment of Otolaryngology Residents* - T. Alandejani ; A. Javer; O. Marglani; A. Alherabi; A. Chalmers; A. Al-Zalabani, VANCOUVER, BC
3. *The Otolaryngology H & N Surgery Undergraduate Medical Education Working Group - A Canadian Initiative for Curriculum Development* - K. Fung, LONDON, ON
4. *Variation in Undergraduate Medical Education in Otolaryngology-H & N Surgery in Canada* - L. McLean, OTTAWA, ON

## LARYNGOLOGY

1. ***Acoustic Characteristics of Vowel Produced by Adolescents with Velopharyngeal Insufficiency*** - J. Theriault; A. Dzioba; M. Husein; G. Jeremic; A. Dworschak; D. Matic; P. Doyle, SUDBURY, ON
2. ***Injection Laryngoplasty: A Serious Complication with Hyaluronic Acid Gel, Case Report and a Review of the Literature*** - D. Bosch; S. Shamanna, CALGARY, AB
3. ***Accuracy of Flexible versus Rigid Laryngoscopic Photo-documentation in Diagnosing Confusing Laryngeal Pathology*** - A. Hilal; T. Brown; S. Mark Taylor, HALIFAX, NS
4. ***Laryngology Practice in Canada: Current Trends and Future Directions*** - M. McNeil; T. Brown, HALIFAX, NS
5. ***Incidence of Vocal Cord Paralysis Post Patent Ductus Arteriosus Ligation Surgery*** - G. Rukholm; D. Reid; M. Alto, HAMILTON, ON
6. ***Intra-lesional Cidofovir Injection for Recurrent Laryngeal Papillomatosis*** - J. Dautremont, D. Bosch, W. Yunker, SASKATOON, SK

## OTOLOGY

1. ***GABA Agonist Does Not Affect Threshold Shifts Due to Noise Trauma*** - S. Morong; R. Harrison, TORONTO, ON
2. ***Safety of Personal Music Players: What We Know in 2009*** - M. Aron; S. Daniel, SHERBROOKE, QC
3. ***A Re-evaluation of the Optimal Criteria for Using the Monothermal Caloric Screening Test*** - N. Bailie; J. Rutka; M. Armstrong, CRAIGAVON, NORTHERN IRELAND
4. ***Differences in Clinical Information Obtained from Otoendoscopy versus Standard Otoscopy in the Assessment of the Ear*** - P. Bradley; D. Pothier, TORONTO, ON
5. ***Joint Knives in Stapes Surgery: Are They Fit for Purpose?*** - A. Hilal; D. Morris; R. Van Wijhe, HALIFAX, NS
6. ***Side Selection and Asymmetric Caloric Reduction in Preoperative Cochlear Implant Planning*** - S. Hugh; V. Lin; D. Shipp; J. Chen; J. Nedzelski, TORONTO, ON
7. ***Prediction de la onction du nerf facial en post-op d'une chirurgie de neurinome acoustique selon la stimulation per-op*** - P. Marin; G. Fradet; D. Pouliot; C. Picard, QUEBEC CITY, QC
8. ***Clinical Significance of the Heat Generated by Otoendoscopes: An In-vitro Ovine Study*** - D. Pothier, TORONTO, ON
9. ***The Effect of Sensory Input from a Cochlear Implant on Balance*** - M. Rashid; Y. Karagama; C. Elliott; I. Johnson; Y. Mahalingappa, LONDON, ENGLAND
10. ***Surgery of Vestibular Schwannoma: 10 Years Experience at Laval University*** - S. Sahmkow; G. Fradet; M. Lachance; G. Lapointe; D. Pouliot; C. Picard, QUEBEC, QC
11. ***Electro-acoustic Stimulation*** - D. Schramm; W. Alhazmi; C. Seguin, OTTAWA, ON
12. ***The Effect of Mobile Phone Usage on Auditory System*** - I. Shami; A. Alsanosi; A. Hagr, RIYADH, SAUDI ARABIA

## PEDIATRIC OTOLARYNGOLOGY

1. ***Airway Management in Newborns with Pierre Robin Sequence: The McMaster University Experience*** - S. Banglawala; S. Nayan; D. Reid, TORONTO, ON
2. ***Tracheal Duplication Cyst*** - M. Al Gilani; L Johnson, HALIFAX, NS

3. ***Preseptal Cellulitis in the Pediatric Population: Clinical Features and Management of 117 Cases*** - S. Moubayed; S. Daniel; T. Vu; C. Quach, LAVAL, QC

## **RHINOLOGY**

1. ***Skull Base and Sinonasal Inflammatory Pseudotumor: An Emerging Clinical Entity?*** - M. Duval; M. Desrosiers; S. Kilty; F. Lavigne, OTTAWA, ON
2. ***The Use of Duraseal in Repair of Cerebrospinal Fluid Leaks*** - C. Chin; B. Rotenberg; L. Kus, LONDON, ON

## **HEAD AND NECK SURGERY**

1. ***Type I Thyroplasty: Risk Stratification Approach to Inpatient versus Outpatient Post-operative Management*** - X. Zhao; K. Fung; K. Roth, TORONTO, ON
2. ***A Prospective Evaluation of Perioperative Concerns Amongst Patients Considering Thyroidectomy*** - L. Abdul-Sater; R. Payne; T. Mijovic; M. Black; M. Hier; M. Tamilia; J. Rivera; M. Ladouceur, PIERREFONDS, QC
3. ***Sarcomatoid Carcinoma in Head and Neck: 25 Years Experience*** - H. Al-Hakami; M. Black; M. Hier; L. Rochon; R. Payne; K. Sultanem, MONTREAL, QC
4. ***Genetic Analysis in Monozygotic Twins with Papillary Thyroid Carcinoma*** - S. Banglawala; M. Gill; S. Archibald, TORONTO, ON
5. ***Wait Times for Head and Neck Cancer Patients in the Maritime Provinces*** - J. Belyea; S. Mark Taylor; M. Rigby; J. Trites; R. Hart, HALIFAX, NS
6. ***Distress and Quality of Life in Head and Neck Cancer*** - C. Bornbaum; P. Doyle; K. Fung; J. Franklin; A. Nichols; J. Yoo, LONDON, ON
7. ***Squamous Cell Carcinoma Arising in a Proliferating Pilar (tichilemmal) Cyst with Nodal and Distant Metastasis*** - A. Eskander; D. Goldstein; D. Ghazarian; P. Bray; L. Dawson, MISSISSAUGA, ON
8. ***Expression and Localization of Osteopontin, Homing Cell Adhesion Molecule/CD44 and Integrin  $\alpha$ v $\beta$ 3 in Selected Benign and Malignant Salivary Gland Tumors*** - T. Fok; M. Darling; A. Chambers; T. Daley; K. Fung; L. Jacson-Boeters; A. Tuck, LONDON, ON
9. ***Thyroglossal Duct Cyst Papillary Carcinoma: Series of Cases and Reflection on the Management*** - V. Forest; J. Clark; J. Zu; R. Murali, MONT-ROYAL, QC
10. ***Carotid Body Tumors: Clinical Outcomes Using a Multidisciplinary Surgical Approach to Treatment*** - M. Hoy; J. Dort, CALGARY, AB
11. ***The Effect of Multi-detector Computed Tomography on the Diagnosis of Abscesses in the Head and Neck*** - J. Cho; V. Anand; L. Rudmik; J. Lysack; J. Dort, CALGARY, AB
12. ***Oral Cancer Screening and Socio-economic Status: Is There a Relationship*** - S. Johnson; M. Corsten; J. McDonald, Ottawa, ON
13. ***Is Gender a Risk Factor for Thyroid Cancer in Patients Presenting with Palpable Thyroid Nodules*** - S. Karls; R. Payne; M. Tamilia; O. Gologan; M. Hier; M. Blac, MONTREAL, QC
14. ***Malignant Carotid Body Tumors*** - A. Mendez ; S. Mark Taylor; R. Hart; J. Trites, HALIFAX, NS
15. ***Functional Outcomes After Treatment of Advanced Oropharyngeal Carcinoma with Radiation or Chemoradiation*** - C. Myers; P. Kerr; F. Bammeker; J. Butler; A. Cooke; P. Lambert; K. Frudette, WINNIPEG, MB
16. ***Health Information for Laryngectomy Patients: Current Resources and Continuing Needs*** - H. Osborn; K. Fung; J. Franklin; J. Yoo; A. Nichols, LONDON, ON

17. **Outcomes of Endoscopic CO2 Laser Surgery for Recurrent Head and Neck Cancer** - L. Reynolds; S. Mark Taylor; M. Rigby; J. Trites; R. Hart; M. MacLean, HALIFAX, NS
18. **Minimally Invasive Parathyroidectomy: An Algorithm for Post-operative Care** - J. Tibbo; J. Harris; G. Kurien, EDMONTON, AB

## CASE REPORTS

1. **Late Complication in Posterior Tibial Microvascular Free Flap Reconstruction in the Head and Neck** - J. Vaz; H. Seikaly; D. Cote; J. Harris, EDMONTON, AB
2. **A Case of Sarcomatoid Carcinoma of the Maxilla** - M. Al Gilani; R. Hart; M. Taylor; B. Williams; J. Trites; M. Bullock, HALIFAX, NS
3. **Endoscopic Resection of a Giant Basal Cell Adenoma of the Nasal Septum** - D. AlMutairi; S. Kilty; J. Young; D. Wang, OTTAWA, ON
4. **Cochlear Implant Rehabilitation for Patients with Vestibular Schwannoma** - H. Amoodi; M. Bance; F. Makki, HALIFAX, NS
5. **Cervical Necrotizing Fasciitis a Complication of Acute Epiglottitis: Case Reports and Literature** - I. Arteau-Gauthier; E. Laurier, QUEBEC CITY, QC
6. **Malignant Paragangliomas: Case Report and Literature Review** - V. Biron; J. Glicksman; P. Dzegielewski; H. Seikaly; J. Harris, EDMONTON, AB
7. **Malignant Struma Ovarii: A Case Report and Review of the Literature with Emphasis on Post-operative Management** - B. Cross; T. Smith; K. Burrage; L. Savoury; B. Lee; W. Ingram; P.K. Ganguly, CONCEPTION BAY SOUTH, NL
8. **A Rare Case of Laryngeal Crohn's Disease with Airway Obstructive Symptoms: Presentation and Management** - R. Jaggi; T. Brown; E. Massoud; M. Bullock, HALIFAX, NS
9. **Solitary Amyloidosis of the Tongue Diagnosed by Minimally Invasive Transcutaneous Core Biopsy** - G. Jeremic; J. Franklin; B. Wehrli, LONDON, ON
10. **Bilateral Dacrocystoceles: A Rare Cause of Neonatal Respiratory Distress** - M. Lecavalier; L. Nguyen, OTTAWA, ON
11. **Undifferentiated High-grade Pleomorphic Sarcoma of the Face** - A. Mendez; S. Mark Taylor; R. Hart; J. Trites; M. Bullock, HALIFAX, NS
12. **Esophageal Wishbone Extraction: Not for the Chicken-hearted!** - R. Mondin; F. Kozak; L. Carpes; M. Fandino; J. Tang, VANCOUVER, BC
13. **Rapidly Progressing Pleomorphic Adenoma of the Palate in an Adolescent** - S. Moubayed; S. Daniel; F. Al Saab, LAVAL, QC
14. **Ewing's Sarcoma of the Masseter Muscle** - H. Osborn; K. Fung; J. Franklin; J. Yoo; B. Wehrli; D. Ho; A. Hammond; D. Logan, LONDON, ON
15. **Traumatic Thyroid Hematoma Associated with Thyroid Carcinoma** - C. Rivera-Serrano; B. Park; R. Ferris, PITTSBURGH, PA
16. **Extensive Temporal Bone Fibrous dysplasia - Presentation, Resection and Reconstruction** - M. Shakeel; A. Hussain; M. Kamel, ABERDEEN, SCOTLAND
17. **Facial Palsy and Nasal Mass: An Unusual Presentation of Wegener's Granulomatosis. Case Report and Review of Literature** - T. Shinghal; J. Lee, TORONTO, ON
18. **Large Antrochoanal Polyp Causing Sleep Disordered Breathing in a Child: A Case Report and Literature** - E. Martin, L. Nguyen, MONTREAL, QC