Department of Otolaryngology –
Head and Neck Surgery

44th ANNUAL RESIDENTS' RESEARCH DAY

Friday May 4th, 2018
Joanne and Kenny Theatre
Darryl J. King Student Life Centre
King's University College
266 Epworth Avenue
Western University • Canada

Schulich MEDICINE & DENTISTRY

Western UNIVERSITY · CANADA

CONTINUING PROFESSIONAL DEVELOPMENT PLANNING COMMITTEE MEMBERS Disclosure Form

I have a relationship with a for-profit and/or a not-for-profit organization to disclose:

1. **Lorne Parnes:** None
2. **Josee Paradis**: None
3. **Kathryn Roth**: Hoffmann La-Roche, EMD Serono
4. **Kevin Fung:** None
5. **Leigh Sowerby:** Mylan Pharmaceuticals, GlaxoSmithKline, Hoffmann La-Roche, AstraZeneca, InTouch Technologies
6. **Nadine Yammine:** Takeda, Mylan

LEARNING OBJECTIVES

To critically appraise the scientific presentations with respect to methodology and clinical applicability pertaining to Otolaryngology – Head and Neck Surgery

STUDY CREDITS

This event is an Accredited Group Learning Activity (Section 1) as defined by the Maintenance of Certification Program of The Royal College of Physicians and Surgeons of Canada, and approved by Continuing Professional Development, Schulich School of Medicine & Dentistry, Western University. You may claim a maximum of **5.0 hours (credits are automatically calculated).**

Each participant should claim only those hours of credit that he/she actually spent participating in the educational program.

DEPARTMENT OF OTOLARYNGOLOGY – HEAD AND NECK SURGERY
44th ANNUAL RESIDENTS' RESEARCH DAY

8:00 – 8:30	COFFEE IN THE EXHIBITOR AREA	
8:30 – 8:40	WELCOME	**Dr. Kevin Fung**
8:40 – 8:50	EDUCATIONAL OBJECTIVE OVERVIEW	**Dr. Lorne Parnes**

AM CHAIR: DR. JULIE STRYCHOWSKY

8:50 – 9:00	Dr. Stefan Hamilton	A Retrospective Study of Patients with Pierre Robin Sequence: Patient Characteristics and Their Impact on Clinical Outcomes *(Supervisor: Dr. M. Husein)*
9:00 – 9:05	*INTERACTIVE DISCUSSION*	
9:05 – 9:15	Dr. Kiersten Pianosi	Near Infrared Heating of Skin to Delineate Non-Melanoma Skin Cancer Lesions *(Supervisor: Dr. C. Moore)*
9:15 – 9:20	*INTERACTIVE DISCUSSION*	
9:20 – 9:30	Dr. Camilla Stepniak	The Current Use of Steroids in Pediatric Airway Surgery *(Supervisor: Dr. M. Husein)*
9:30 – 9:35	*INTERACTIVE DISCUSSION*	
9:35 – 10:05	**NUTRITION BREAK WITH EXHIBITORS**	
10:05 – 10:15	Dr. Benjamin van der Woerd	Functional Outcomes in Early (T1/T2) Supraglottic Cancer: A Systematic Review *(Supervisor: Dr. D. MacNeil)*
10:15 – 10:20	*INTERACTIVE DISCUSSION*	
10:20 – 10:30	Dr. Neil Mundi	Genomic and Human Papillomavirus Profiling of a Canadian Oral Cancer Cohort *(Supervisor: Dr. A. Nichols)*
10:30 – 10:35	*INTERACTIVE DISCUSSION*	
10:35 – 10:40	Dr. Lorne Parnes	**INTRODUCTION OF THE DISTINGUISHED VISITING PROFESSOR – DR. KONSTANTINA STANKOVIC**

10:40 – 11:25	Dr. Konstantina Stankovic	Cellular-level Diagnosis and Personalized Therapy of Sensorineural Hearing Loss
11:25 – 11:40	*INTERACTIVE DISCUSSION*	
11:40 – 12:00	Group Photo	
12:00 – 1:00	**LUNCH IN LABATT HALL**	

1:00 – 1:15	WELCOME BACK	**Dr. Lorne Parnes**

PM CHAIR: DR. LEIGH SOWERBY

1:15 – 1:25	Dr. Laura Kim	Intra-operative Nasal Compression after Lateral Osteotomy to Minimize Post-operative Peri-orbital Ecchymosis and Edema *(Supervisors: Dr. L. Sowerby & Dr. C. Moore)*
1:25 – 1:30	*INTERACTIVE DISCUSSION*	
1:30 – 1:40	Dr. Peng You	Temporo-mandibular (TM) Force Simulator – a Novel Way of Studying Craniofacial Stresses *(Supervisor: Dr. C. Moore)*
1:40 – 1:45	*INTERACTIVE DISCUSSION*	
1:45 – 1:55	Dr. Christopher Dwyer	Safety of Outpatient Parathyroidectomy for Primary Hyperparathyroidism in a Cohort of Unilateral Neck Explorations *(Supervisor: Dr. D. MacNeil)*
1:55 – 2:00	*INTERACTIVE DISCUSSION*	
2:00 – 2:10	Dr. Rakhna Araslanova	Nasal Stenting During Superior Based Pharyngeal Flap Surgery for Pediatric Velopharyngeal Dysfunction is Safe and is it Associated with Reduced Rates of Airway Related Complications *(Supervisor: Dr. M. Husein)*
2:10 – 2:15	*INTERACTIVE DISCUSSION*	
2:15 – 2:45	**NUTRITION BREAK WITH EXHIBITORS**	
2:45 – 2:55	Dr. Horace Cheng	Round Window Reinforcement Versus Transmastoid Superior Canal Occlusion in the Treatment of Superior Semicircular Canal

		Dehiscence Syndrome *(Supervisors: Dr. L. Parnes & Dr. S. Agrawal)*
2:55– 3:00	*INTERACTIVE DISCUSSION*	
3:00 – 3:05	Dr. Kathryn Roth	**INTRODUCTION OF THE DISTINGUISHED GUEST ALUMNUS – DR. SHAMIR CHANDARANA**
3:05 – 3:50	Dr. Shamir Chandarana	Variations in Surgical Practice: Lessons Learned from the Management of Thyroid Cancer
3:50 – 4:05	*INTERACTIVE DISCUSSION*	
4:05 – 4:15	RESIDENTS' DAY ATTENDEE DRAW	**Dr. Kevin Fung**
	SIMON KIRBY MOST CARING RESIDENT AWARD	**Karen Canton, Monique Erratt, & Denise Taylor**
4:15 – 4:20	EVALUATION FORM COMPLETION AND ANNOUNCEMENTS	**Dr. Lorne Parnes**
4:20 – 4:30	FINAL EDUCATIONAL COMMENTS	**Dr. Lorne Parnes**

DISTINGUISHED VISITING PROFESSOR

Dr. Konstantina Stankovic

Konstantina M. Stankovic, MD, PhD, FACS, is Associate Professor of Otolaryngology at Harvard Medical School, Sheldon and Dorothea Buckler Chair in Otolarynoglogy, Attending Neurotologic Surgeon and the Director of the Molecular Neuro-otology and Biotechnology Laboratory at Massachusetts Eye and Ear (MEE). She graduated from MIT (BS degrees in Physics and Molecular Biology and PhD degree) and Harvard Medical School (MD *magna cum laude*). She completed her residency in otolaryngology and clinical fellowship in neurotology at Harvard and MEE, and postdoctoral research fellowship in molecular neuroscience from Howard Hughes Medical Institute at Boston Children's Hospital. Dr. Stankovic's basic research and surgical practice are focused on improving diagnostics and therapeutics for sensorineural hearing loss. Her recent research highlights include the discovery of secreted molecules that mediate hearing loss due to vestibular schwannoma; demonstration that a novel, synthetic AAV vector enables safe and efficient gene transfer to the inner ear; optical imaging of cells inside the inner ear without contrast dyes; the development of a prototype chip for a fully implantable cochlear implant; and energy extraction from the inner ear to run electronics. Her research has appeared in leading scientific and medical journals and has earned international media coverage. She has received numerous awards, including Burt Evans Young Investigator Award from the National Organization for Hearing Research in 2011, Thomas A. McMahon Mentoring Award from Harvard-MIT Division of Health Sciences and Technology in 2014, Benjamins Prize from the Collegium Oto-Rhino-Laryngologicum Amicitiae Sacrum in 2015. The American Academy of Otolaryngology-Head and Neck Surgery honored her by Howard House, MD Lectureship for Advances in Otology in 2015. She is Guest of Honor for the 2018 meeting of the American Otological Society. She is past president of the American Auditory Society.

DISTINGUISHED GUEST ALUMNUS

Dr. Shamir Chandarana

Shamir Chandarana, MD, MSc, FRCSC, completed Medical School and Otolaryngology-Head and Neck Surgery residency training at University of Western Ontario in London, Ontario. He then pursued a 2-year fellowship in Head and Neck Cancer Surgery and Microvascular Reconstruction at the University of Michigan. Concurrently he also completed a Masters in Public Health. In 2010, Shamir joined the section of Otolaryngology-Head and Neck surgery (ENT) at the University of Calgary and is a core member of the Head and Neck Surgery Program. Since 2016 he has also assumed the role of the Co-chair of the Provincial Head and Neck Cancer Tumor Team. This team oversees the delivery of Head and Neck Cancer treatment for the province of Alberta. He enjoys a busy practice focused on head and neck cancer surgery, thyroid/parathyroid surgery and reconstructive surgery. His research focus includes clinical outcomes/systems improvement in head and neck surgery, biomarker research and practice pattern variation in the management of thyroid cancer.

ABSTRACTS IN SPEAKER ORDER

A RETROSPECTIVE STUDY OF PATIENTS WITH PIERRE ROBIN SEQUENCE: PATIENT CHARACTERISTICS AND THEIR IMPACT ON CLINICAL OUTCOMES

Dr. Stefan Hamilton

BACKGROUND:
Pierre Robin sequence (PRS) is a congenital set of abnormalities of the head and neck, consisting of a hypoplastic mandible (micrognathia), a tongue that is displaced posteriorly (glossoptosis), and obstruction of the airway. A clear set of diagnostic criteria for this complex condition has recently been established, but there is still a lack of consensus in the literature with respect to managing the associated airway, feeding, and hearing difficulties.

OBJECTIVES:
This study examines various characteristics of pediatric PRS patients (e.g. associated syndromes, airway and feeding management strategies, etc.) and their impact on several clinical outcomes (e.g. initial length of admission, introduction of oral feeding, tympanostomy tube requirements, etc.). The objective is to illustrate the wide range of morbidity in the PRS population; this will ultimately allow for optimal, individualized patient care.

METHODS:
A retrospective study was conducted of all pediatric patients diagnosed with PRS at London Health Sciences Centre from January 1995 until September 2017. Data regarding associated syndromes, airway management, feeding strategies, hearing outcomes, and initial length of admission were gathered via chart review. Statistical analysis was then carried out using independent samples t-testing and ANOVA for continuous data, and chi-square/Fisher's exact testing for categorical data.

RESULTS:
24 pediatric patients with PRS were identified following a chart review. 2 patients (8%) had associated syndromes (Stickler syndrome), 5 patients (21%) required airway surgery, and 18 patients (75%) required enteral feeding. Airway surgery was significantly associated with a longer ICU admission (16 vs. 4 days), a longer overall hospital admission (73 vs. 25 days), a delay in introducing oral feeds (223 vs. 12 days of age), and a higher frequency of tympanostomy tube insertions. Enteral feeding was significantly associated with a longer ICU admission (9 vs. 0 days) and a longer overall hospital admission (44 vs. 6 days). The presence of an associated syndrome had no significant effect on the tested outcomes.

CONCLUSION:
This study demonstrates the substantial impact that airway and feeding difficulties have on PRS patient morbidity, particularly with respect to length of hospital and ICU admission. This information has prognostic value and may be helpful in generating a management algorithm for this complex patient population.

Supervisor: Dr. M. Husein

NEAR INFRARED HEATING OF SKIN TO DELINEATE NON-MELANOMA SKIN CANCER LESIONS

Dr. Kiersten Pianosi

BACKGROUND:
Non-melanoma skin cancer (NMSC) is the most common cancer diagnosis in Canada, and its incidence is still increasing. Visual examination followed by biopsies of suspicious lesions are the gold standard for skin cancer diagnosis; photodynamic therapy, radiation therapy, and surgical excision are the mainstays of treatment for NMSC. The margins of these skin lesions are typically determined via visual inspection, and excised based on delineating normal from abnormal tissue, with a roughly 5mm margin. These lesions frequently occur on cosmetically sensitive areas of the head and neck, therefore accurate margins and excision can help to preserve the overall appearance. Accurate lesion delineation with proper margins can also reduce the need for further treatment if the margins are positive. Near-infrared radiation(NIR) represents the light spectrum from 0.7 to 1.5 micrometers.. At the shorter wavelengths, it merges with the red spectrum of visible light. These forms of light have the ability to heat the skin up to a 5 mm depth. Previous studies have examined the relationship between skin blood flow and temperature when heating skin.

OBJECTIVE:
The objective of this study is to determine if the vasculature of normal skin and NMSC skin appears differently following heating with NIR light, and if this difference can better delineate the margins of the lesion.

METHODS:
All individuals presenting to the outpatient Skin Cancer Clinic at a tertiary care centre have their lesions evaluated by the senior author for participation in the study. Twenty patients with biopsy proven non-melanoma skin cancer were selected for participation. Prior to heating the skin, the biopsy-proven NMSC lesion margins were traced out directly on the patient's skin, and subsequently traced on acetate paper. Lesions were photographed before intervention
and before excision. The tumors and a margin of surrounding normal skin were heated for ten minutes under a 175W NIR heating bulb in all patients. The lesions were then assessed for changes in hyperemia and appearance. Based on these changes, tumor margins were then re-traced out on acetate paper. In half of the patients the lesions were excised based on the pre-heating margins; in the remaining half they were excised based on the post-heating margins. All specimens were sent for pathology to assess margin status, and the quantitative value of the closest margin to normal skin.

RESULTS:
NIR light causes visible changes to skin, particularly hyperemia. Skin cancer lesion margins were best differentiated from normal skin vasculature using the red light filter. There were differences between normal and abnormal skin vasculature on visual inspection.

CONCLUSION:
Infrared and near-infrared light can be used in an outpatient setting to better delineate skin cancer lesions. Future research could use thermography to gain measures of the skin temperature in the NMSC lesion and normal skin.

Supervisor: Dr. Corey Moore

THE CURRENT USE OF STEROIDS IN PEDIATRIC AIRWAY SURGERY

Dr. Camilla Stepniak

BACKGROUND:
Perioperative administration of corticosteroids is common among otolaryngology airway procedures. However, no guidelines exist for the use of steroids in airway surgeries. As such, there is not standardized perioperative steroid dosing among otolaryngologists and anesthesiologists.

OBJECTIVE:
The objective of this study was to determine the current practice patterns for the use of steroids in both adult and pediatric otolaryngology airway cases among Canadian otolaryngologists and anesthesiologists.

METHODS:
A national bilingual, cross-sectional survey was administered online. The survey was sent to practicing otolaryngologists and anesthetists in the Canadian Society of Otolaryngology and the Canadian Anesthesiologists' Society respectively.

RESULTS:
The questionnaire collected information regarding perioperative management of airway cases such as: supraglottoplasty, laryngotracheoplasty, bronchoscopy, subglottic stenosis dilatation and cordotomy. Pediatric versus adult cases were compared in regards to the types of steroids administered and dosages. Furthermore, both surgical and patient factors affecting the decision to administer perioperative steroids were investigated (type of procedure, length of procedure, complications, patient age, and comorbidities).

CONCLUSIONS:
Findings from this study may lead to further research regarding the benefits and complications of perioperative steroid use in airway cases and possibly result in the creation of clinical practice guidelines.

Supervisor: Dr. Murad Husein

FUNCTIONAL OUTCOMES IN EARLY (T1/T2) SUPRAGLOTTIC CANCER: A SYSTEMATIC REVIEW

Dr. Benjamin van der Woerd

OBJECTIVES:
Organ preserving surgery (OPS) and radiotherapy (RT) are treatment options for early stage supraglottic cancer (SGC). Radiation has supplanted surgery in most cases because of the perception that surgery resulted in poorer functional outcomes. However, evidence suggests that OPS with a neck dissection may be associated with improved survival. Our objective was to conduct a systematic review of the literature to compare functional outcomes of OPS and RT for early SGC.

METHODS:
We searched Medline and EMBASE to identify studies. We selected studies of early SGC where functional outcomes on 10 or more patients were reported. Two reviewers independently screened articles for relevance using pre-determined criteria.

RESULTS:
From 5,867 references, we included 6 articles (n=461). 78.3% of patients were treated with surgery, (n=361). Two head-to-head RT versus surgery papers were included, but different outcome measures were used for each group. Intractable aspiration management following OPS (total laryngectomy or permanent tracheostomy) was reported in three papers, with 265 patients; definitive management rate was 6% (CI3-10%). Two papers reported permanent G-tube rate for the surgical group (n=99), calculating a rate of 7% (CI3-14%). These objective measures were not reported for RT group in any papers. Two studies reported quality of life. Two studies reported objective voice measures.

CONCLUSIONS:
This systematic review revealed a paucity of objective measures and significant data heterogeneity, rendering the comparison of functional outcomes following OPS versus RT for early SGC limited. Future research should include objective measures of functional outcomes including g-tube rate, tracheostomy dependence and voice quality.

Supervisor: Dr. Danielle MacNeil

GENOMIC AND HUMAN PAPILLOMAVIRUS PROFILING OF A CANADIAN ORAL CANCER COHORT

Dr. Neil Mundi

BACKGROUND:
The molecular landscape of head and neck cancer has been reported, however robust biomarkers of treatment outcome have not been identified. Here we attempt to determine if high-risk human papillomavirus (HPV) or frequently mutated genes are correlated with survival in an oral cancer cohort.

METHODS:
Ninety-six patients were included in this investigation, all undergoing primary surgical resection for oral cavity squamous cell carcinoma. Patient demographic data along with data from final pathology was collected. Tumour tissue was analyzed using a custom Ion Torrent sequencing panel to identify selected genetic mutations; and assessed for the four most common high-risk HPV types (HPV16, 18, 33, 35) by qPCR. Univariate and multivariate analysis were used to examine for associations between patient outcomes and mutational and HPV status.

RESULTS:
Conventional risk factors such as nodal status, T stage and perineural invasion were significant determinants of overall survival and progression free survival. Mutations were identified in *TP53* (65%), *PIK3CA* (10%), *HRAS* (5%) and the *TERT* promoter (48%). High-risk HPV was identified in 7% of cases. There was no correlation between mutational and HPV status and patient outcomes.

CONCLUSIONS:
The mutational landscape of our oral cavity cohort was consistent with the literature, with targetable PIK3CA mutations identified in 10% of cases. HPV status and mutations identified did not predict survival. Expanding our sample size and increasing the number of genes tested may identify novel predictors of outcome to direct customized cancer care.

Supervisor: Dr. Anthony Nichols

CELLULAR-LEVEL DIAGNOSIS AND PERSONALIZED THERAPY OF SENSORINEURAL HEARING LOSS

DISTINGUISHED VISITING PROFESSOR

Dr. Konstantina Stankovic

Nearly half a billion people in the world suffer from disabling hearing loss. The annual cost of unaddressed hearing loss is $790 billion globally. Most of this burden is due to sensorineural hearing loss (SNHL) that typically originates from defects in the inner ear. Despite these staggering statistics, the cellular basis of human SNHL is unclear; consequently, available therapies are severely limited. We will discuss our work on optical imaging of the inner ear to enable progress in understanding, diagnosing, and treating SNHL. We will illustrate our approach to develop personalized therapies in SNHL using vestibular schwannoma as an example. We will demonstrate the promise of gene therapy, nanotechnology and computational drug repositioning.

INTRA-OPERATIVE NASAL COMPRESSION AFTER LATERAL OSTEOTOMY TO MINIMIZE POST-OPERATIVE PERI-ORBITAL ECCHYMOSIS AND EDEMA

Dr. Laura Kim

BACKGROUND:
Post-operative periorbital ecchymosis and edema following rhinoplasty is a well-known side effect. Unfortunately, this can be a significant source of distress for the patients, resulting in a longer post-operative recovery time and resumption back to work. Trauma caused by lateral osteotomies is one of the most significant cases of periorbital edema and ecchymosis that occurs in rhinoplasty. There have been various strategies proposed to minimize swelling and ecchymosis with varying success rates and accompanied risks. One potential strategy that may reduce post-operative edema and ecchymosis with minimal risk may be to apply intra-operative nasal compression in this region.

OBJECTIVE:
To determine whether applying direct continual pressure intraoperatively after performing lateral ostetomies will help reduce post-operative edema and ecchymosis.

METHODS:
A prospective randomized double blinded study analysis on patients undergoing rhinoplasties with lateral osteotomies in a single academic tertiary care medical center. Each of the participants were randomized into having direct pressure applied post- lateral osteotomies on the right or the left hand side. Intra-operatively, direct pressure was performed on the pre-determined side for 5 minutes. No additional changes or variables were introduced to the surgery itself. Post-operatively, standard photographs were taken of the patient on post-operative days 1, 3, and 7. These photographs were then shown to 20 blinded-physicians who were not involved in the care of the patient and the degree of ecchymosis was graded. Once all the data had been collected, patient assignments were revealed and the degree of ecchymosis was compared between the sides that have been treated with intra-operative pressure application.

RESULTS:
A total of 16 patients were included in this study. Based on our blinded-grading, 13 of the 16 patients had a clear asymmetry in the degree of peri-orbital post-operative edema and ecchymosis. In 10 of the 13 patients, there was a significant decreased in ecchymosis and edema in the post-operative period up to 7 days with the application of direct pressure to the lateral osteotomy sites.

CONCLUSIONS:
Application of direct continual pressure intraoperatively after performing lateral osteomtoies can help reduce post-operative edema and ecchymosis. Although the effect may be variable to some degree, this is an intervention with no additional risks associated and thus can be used in a safe manor.

Supervisors: Dr. Leigh Sowerby & Dr. Corey Moore

TEMPORO-MANDIBULAR (TM) FORCE SIMULATOR – A NOVEL WAY OF STUDYING CRANIOFACIAL STRESSES

Dr. Peng You

BACKGROUND:
Forces in the human masticatory system are complex and poorly understood. Existing simulators for craniofacial stresses rely mostly on external manipulation of the skull. However, this is not physiologically accurate, since in vivo craniofacial loads are generated by internal muscle forces. Improved understanding of craniofacial stresses ultimately helps advance reconstructive techniques.

OBJECTIVE:
To introduce a novel Temporo-mandibular (TM) Force Simulator, designed to reproduce internal masticatory forces.

METHODS:
Custom 3D-printed mounts with pneumatic pistons were attached to fresh frozen cadaveric heads, with orientation that replicates vectors of the temporalis and masseter muscle forces. Linear strain gauges were placed at various midface buttresses, and simulated bite force was measured with a load cell. Bone strains were measured at 5, 10, and 15% of physiological masticatory forces. Various zygomatic complex fractures were simulated along with craniofacial plating to study the effect on strain at midface buttresses.

RESULTS:
Four fresh frozen cadaveric heads were studied using the novel simulator. The TM force simulator reliably generated bite force progression from 5 to 15% physiological force. Reproducible strain gauge results were achieved. Variations in midface strain were observed with different craniofacial plating strategies for zygomatic complex fractures.

CONCLUSIONS:
The TM force simulator generated bite forces that replicate physiological masticatory action. The model also allowed for measurement of strain at key midface buttresses. This baseline investigation is encouraging and has numerous potential clinical applications, such as the study of bone strain as it relates to various craniofacial reconstructions.

Supervisor: Dr. Corey Moore

SAFETY OF OUTPATIENT PARATHYROIDECTOMY FOR PRIMARY HYPERPARATHYROIDISM IN A COHORT OF UNILATERAL NECK EXPLORATIONS

Dr. Christopher Dwyer

OBJECTIVE:
Increasingly there is a movement towards minimizing surgical costs and hospital length of stay while maintaining safe and successful patient outcomes. We sought to evaluate the safety of outpatient surgical management in a select cohort of patients undergoing unilateral neck exploration for primary hyperparathyroidism, particularly with regards to post-operative hypocalcemia and overall complication rates.

METHODS:
A retrospective review of consecutive patients undergoing successful unilateral neck exploration for primary hyperparathyroidism at a single tertiary care institution between January 2011 and July 2016 was conducted. Patients with previous parathyroid or thyroid surgery, parathyroid carcinoma, and MEN related disease were excluded, along with those who were inpatients prior to their surgery. Rates of post-operative hypocalcemia, intravenous and oral calcium requirements, surgical related complications, emergency department visits and readmission within 30 days were evaluated.

RESULTS:
The study cohort included 159 patients (122 female, 37 male; mean age 62 years, range 25 – 88 years) undergoing successful unilateral exploration for primary hyperparathyroidism. Average length of stay (range) was 1.1 (0-3) days, and 12 patients (7.5%) underwent same day discharge. The rate of biochemical hypocalcemia (corrected calcium < 2.15 mmol/L) was 34.6%. This hypocalcemia was predominantly mild and transient; 92.7% of cases had a lowest corrected calcium > 2.00 mmol/L, and no serum calcium levels below 1.95 mmol/L were identified. Only 9 patients were prescribed supplemental calcium. No patients required IV calcium.

Within 30 days of parathyroidectomy, there were a total of 28 emergency department visits (17.6%) and 4 readmissions (2.5%). Only one readmission was directly attributable to surgery (deep venous thrombosis). There were 17 presentations (10.7%) for symptoms of hypocalcemia (paresthesia and cramping). Only one of these patients had biochemical hypocalcemia, albeit mild. Other surgical related complications were infrequent and would not have impacted safety for ambulatory management.

CONCLUSION:
Patients with uncomplicated primary hyperparathyroidism undergoing first-time parathyroidectomy via unilateral neck exploration can be safely considered for same day discharge. Hypocalcemia is transient and mild, and observed post-operative complications in our cohort would not preclude outpatient management.

Supervisor: Dr. Danielle MacNeil

NASAL STENTING DURING SUPERIOR BASED PHARYNGEAL FLAP SURGERY FOR PEDIATRIC VELOPHARYNGEAL DYSFUNCTION IS SAFE AND IT IS ASSOCIATED WITH REDUCED RATES OF AIRWAY RELATED COMPLICATIONS

Dr. Rakhna Araslanova

BACKGROUND:
Superiorly based pharyngeal flap surgery is an effective surgery for VPD yet carries approximately a 3.2% postoperative airway obstruction risk. Life threatening airway compromise occurs in first 24 hours post operatively. Nasopharyngeal airway has been shown to decrease these complications but its routine use is not commonplace. At our center, surgical technique involves routine placement of bilateral nasopharyngeal airway referred to as nasal stenting.

OBJECTIVE:
To demonstrate safety of nasal stenting for children with velopharyngeal dysfunction (VPD) undergoing superiorly based pharyngeal flap surgery. Rates and types of perioperative complications in this cohort were compared to previously published results.

METHODS:
Retrospective review of pediatric patients aged 1 through 18 at the time of VPD diagnosis, who underwent superiorly based pharyngeal flap surgery at London Health Sciences Centre was conducted. Patients were admitted to a regular ward with bihourly oxygen saturation checks. Nasal stent care was standardized and they were removed on postoperative day two. Demographic data along with patient outcomes and complications were collected. Anesthesia records were carefully screened. Perioperative complications attributable to nasal stenting were separately recorded and analyzed.

RESULTS:
Eighty-five patients underwent superior based pharyngeal flap surgery at London Health Sciences Centre from 2004 through February 2017. Mean age at the time of surgery was 11.0 years whereas average age at diagnosis was 8.7 years. The majority of patients (60.0%) had history of cleft palate repair. Yet only 28.2% had additional comorbidities most common being Pierre-Robin Sequence. Average length of stay was 2.7 days. No patients required admission to a monitored or intensive care unit.
Overall surgical complication rate was 9.4%. No postoperative airway obstruction events were encountered. Two patients (2.3%) underwent pharyngeal flap reversal for obstructive sleep apnea and one for persistent nasal obstruction.
Five (5.9%) minor stent-related complications were captured. Two patients developed self-limiting epistaxis. Two patients had partially extruded stents prior to their removal. One patient developed nasopharyngeal port granuloma which resolved with a course of intranasal corticosteroids.

CONCLUSION:
Nasal stenting for pharyngeal flap surgery is safe. Stent related complications were minor and did not influence the length of stay. Postoperative airway obstruction was not observed. Therefore, designing a prospective study to determine if routine stenting would lead to decreased serious airway complications would be worthwhile.

Supervisor: Dr. Murad Husein

ROUND WINDOW REINFORCEMENT VERSUS TRANSMASTOID SUPERIOR CANAL OCCLUSION IN THE TREATMENT OF SUPERIOR SEMICIRCULAR CANAL DEHISCENCE SYNDROME

Dr. Horace Cheng

BACKGROUND:
Superior semicircular canal dehiscence syndrome (SCDS) is an uncommon disorder characterized by a myriad of vestibular and cochlear symptoms. Over the past two decades, the diagnosis and management of this condition has progressed significantly. Surgical treatments include occlusion and/or resurfacing of the superior semicircular canal via the middle fossa or transmastoid approaches. The round window reinforcement procedure has also been shown to be an effective modality with presumed lower risk profile. Further study in the surgical outcomes of transmastoid canal occlusion (CO) and round window reinforcement (RWR) is beneficial in guiding clinical decision-making and improving informed consent.

OBJECTIVE:
Outcome study of round window reinforcement and canal occlusion to treat superior canal dehiscence syndrome.

METHODS:
Prospective case series comparing RWR and CO procedures at LHSC. Diagnosis of superior semicircular canal dehiscence by clinical history, physical exam, imaging, and other ancillary testing. Consecutive patients undergoing primary surgery between 2010 – 2016. Twenty-four RWR procedures and sixteen CO procedures included in the study. A previously published nine-item superior semicircular canal dehiscence patient survey was used to characterize patient symptoms pre- and post-operatively. Audiometric data before and after the operation was also collected and analyzed to evaluate hearing changes.

RESULTS:
We collected and analyzed data using a published, nine-category SSCD symptom questionnaire from 2010 to 2016. Both surgical techniques achieved statistically significant improvement in symptom scores: 40% improvement ($p < 0.001$) for RWR and 56.5% improvement ($p < 0.001$) for CO. The improvement in total SSCD symptom scores was more pronounced in CO compared to RWR though the difference did not reach statistical significance with Bonferroni correction. Preoperative and postoperative audiometric data showed no difference in hearing outcomes using the two surgical interventions. One patient who failed RWR went on to receive CO with a good result.

CONCLUSIONS:
Round window reinforcement and transmastoid canal occlusion are both effective and safe treatments for symptoms associated with SCDS. The former is less invasive while the latter seems more effective. Treatment decisions should be made on a case by case basis using a patient-centered approach.

Supervisors: Dr. Lorne Parnes & Dr. Sumit Agrawal

VARIATIONS IN SURGICAL PRACTICE: LESSONS LEARNED FROM THE MANAGEMENT OF THYROID CANCER

DISTINGUISHED GUEST ALUMNUS

Dr. Shamir Chandarana

BACKGROUND:

The cost of maintaining our current healthcare system is continually on the rise; the onus is on us to identify cost-saving measures and to inform policy makers on necessary change. Variation in practice pattern amongst surgeons remains a leading cause of cost-inefficiency.

OBJECTIVE:

1) To define variation, identify the types of variation, demonstrate the sources of variation and highlight the impact of unwarranted, as well as necessary variation.
2) To identify ways in which unwarranted variation can be diminished.

METHODS:

Current cross-sectional/observational research projects that evaluate practice patterns in the management of thyroid cancer will be reviewed, and used to model the different concepts surrounding variation. In addition, work that has been done at the institutional level at the University of Calgary will demonstrate ways to reduce unwarranted variation, while maximizing on positive variation.

CONCLUSIONS:

The audience will be familiar with the concepts of variation, and will be equipped with tools to make improvements.

AWARDS & PRIZES

SIMON KIRBY MOST CARING RESIDENT AWARD

Presented to the resident who demonstrates excellence in compassionate care

SCIENTIFIC ACHIEVEMENT AWARD

Presented for the most impactful research project

Charles A. Thompson Plaque

PETER CHESKI INNOVATIVE RESEARCH AWARD

Presented for the most innovative research project

DEPARTMENT OF OTOLARYNGOLOGY – HEAD AND NECK SURGERY AWARD FOR PERFECT PITCH

Presented for the most eloquent presentation

RESIDENT AWARDS

Presented to residents who did not receive one of the above awards

UNDERGRADUATE TEACHING AWARD

Presented to the resident with the highest teaching evaluation

OUTSTANDING RESIDENT TEACHER AWARD FOR POSTGRADUATE EDUCATION

Presented to a senior resident (PGY 4 or 5) who has provided consistently outstanding teaching experiences to their junior residents

CONTINUING PROFESSIONAL DEVELOPMENT PLANNING COMMITTEE MEMBERS

Lorne Parnes (Director)

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NOTES

THANK YOU FOR ATTENDING THE 44th ANNUAL RESIDENTS' RESEARCH DAY IN OTOLARYNGOLOGY – HEAD & NECK SURGERY