



Department of Otolaryngology

Thirty-First Annual

RESIDENTS' RESEARCH DAY

Friday, April 22, 2005
The London Hunt and Country Club

RESIDENTS' RESEARCH DAY PROGRAM 2005

10:00-10:15

WELCOME

Drs. Lampe/Parnes

CHAIRMAN - DR. HOWARD LAMPE

10:15-10:25

Dr. Matthew Bromwich

"The Dizzy Fix": Turning Vertigo on its Ear

10:25-10:30

Interactive Discussion

10:30-10:40

Dr. Maya Sardesai

Donor Site Morbidity Following Radial Forearm Free Tissue Transfer in Head and Neck Surgery

10:40-10:45

Interactive Discussion

10:45-11:15

COFFEE

11:15-11:25

Dr. Sumit Agrawal

Mass-Spring Model of the Tympanic Membrane: Surgery Meets Virtual Reality

11:25-11:30

Interactive Discussion

11:30-11:40

Dr. Khaled ElJallah

Pigment Reactivation for Hypopigmented Scars of the Face, Head and Neck

11:40-11:45

Interactive Discussion

11:45-11:50

Dr. Lorne Parnes

INTRODUCTION OF DR. SIMON KIRBY

11:50-12:15

Dr. Simon Kirby

Life as a Patient: What we can Learn

12:15-12:20

Interactive Discussion

12:20-1:30

LUNCH

CHAIRMAN - DR. COREY MOORE

1:30-1:45	PRESENTATION OF AWARDS "Simon Kirby Most Caring Resident Award" "Undergraduate Teaching Award"	Dr. Parnes
1:45-1:55	Dr. Avik Banerjee	Rounding of the Inferior Rectus Muscle as an Indication of an Orbital Floor Fracture with Periorbital Disruption
1:55-2:00	Interactive Discussion	
2:00-2:10	Dr. Brian Hughes	Autologous Platelet-Rich and Platelet-Poor Plasma in Hemithyroidectomy - A Randomized, Controlled Trial
2:10-2:15	Interactive Discussion	
2:15-2:30	Dr. Jason Franklin	Paraganglioma of the Head and Neck
2:30-2:35	Interactive Discussion	
2:35-2:40	Dr. Lorne Parnes	INTRODUCTION OF DR. PETER CHESKI
2:40-3:10	Dr. Peter Cheski	From London to Los Angeles: Minimally Invasive Approaches to Facial Rejuvenation
3:10-3:15	Interactive Discussion	

"THE DIZZYFIX" - TURNING VERTIGO ON ITS EAR

Dr. Matthew Bromwich

Benign positional paroxysmal vertigo (BPPV) is the most common disorder of the peripheral vestibular system. It affects between 1 and 9 percent of people worldwide. Fortunately, a number of relatively simple clinical manoeuvres exist to effectively treat this disorder. However, while BPPV is both benign and self limited, it recurs in up to 1/3rd of patients. Such recurrence necessitates further clinic visits. This study evaluates the effectiveness of a visual analogue in improving patient repetition of the particle repositioning manoeuvre. This "DizzyFix" device was newly designed and manufactured to encourage patients to reach the critical endpoints needed for the successful treatment of BPPV. A prospective, randomized and controlled study was designed to objectively evaluate performance of the repositioning manoeuvre with and without "The DizzyFix". Statistical analysis as well as device design and parameters will be presented.

DONOR-SITE MORBIDITY FOLLOWING RADIAL FOREARM FREE-TISSUE TRANSFER IN HEAD AND NECK SURGERY

Dr. Maya Sardesai

Objective: To comprehensively evaluate long-term quantitative and qualitative donor site morbidity following radial forearm free tissue harvest.

Design: A single-centre retrospective cohort study with internal controls was undertaken.

Methods: Quantitative measurements of range of motion (ROM) of the forearm, wrist, and digits were performed. Grip and pinch strength, and hand dexterity were also evaluated. Qualitative assessment was performed using the Michigan Hand Outcomes Questionnaire (MHQ), a validated quality-of-life instrument.

Main Outcome Measures: Quantitative primary outcome measures were (i) wrist flexion and extension, (ii) forearm pronation and supination, and (iii) hand dexterity. The qualitative primary outcome measure was overall MHQ score.

Results: The operated side demonstrated decreased hand dexterity ($p = 0.008$) with no change in wrist and forearm ROM. An increase of ROM of the little finger was found (0.002). The MHQ demonstrated perceived decrease of function ($p = 0.031$), increase of pain ($p = 0.045$), and no difference in appearance ($p = 0.486$).

Conclusions: The radial forearm free flap results in measurable quantitative changes in hand function, and limited changes in patient perception. Donor site appearance does not seem to be an important factor.

MASS-SPRING MODEL OF THE TYMPANIC MEMBRANE: SURGERY MEETS VIRTUAL REALITY

Dr. Sumit Agrawal

Simulator training has become a standard in the aerospace industry for pilot and astronaut training. With the rapid progress in technology, simulator training for surgical residents will soon become a reality.

Otologic surgery is difficult to teach residents as it carries high risk, has experienced a decreased caseload, and is performed by a single surgeon.

Current tympanic membrane models involve finite-element methods which are computationally very intensive and are not amenable to real-time simulation. The objective of this study was to create a novel mass-spring model of the tympanic membrane. This model will be optimized to allow for real-time computation and be used as the base of a virtual reality simulator for otologic surgery.

PIGMENT RE-ACTIVATION FOR HYPOPIGMENTED SCARS OF THE FACE, HEAD AND NECK

Dr. Khaled ElJallah

Objective: to develop a technique for improving the appearance of hypopigmented scars of the face, head and neck using post-inflammatory photo reactivation of melanocytes.

Methods: Twenty patients presenting to a facial plastic outpatient clinic for hypopigmented head and neck scars were assessed for treatment. Subjects were randomized in two groups (UDT, UO) of ten each. Treatment for the UDT group consisted of a novel technique creating an intense inflammation of the scar using a motorized hypodermic 50-gauge needle oscillating at 150 Hz. Numerous passes over the scar were performed. The scar was then treated conservatively for 7 days using Vaseline ointment to prevent desiccation. On day 7 the scar was exposed to an 800Watt UVA light source for 10 minutes. Irritating agents such as chlorine were then avoided for a further 7 days. The control group (UO) had only the UVA exposure without creating the inflammatory reaction with the hypodermic needle. Scars were evaluated at 71-75 days post treatment using a spectrophotometric measurement (DermaSpectrometer) in addition to pre- and post-treatment validated, assessment scoring systems answered by both the patients and a blinded observer.

Results: All surrounding skin was unaffected for either melanin or erythema indices. All scars in the UDT group increased in melanin index (ratio increased 11.05 points) and this was significantly greater than the control group ($p < 0.009$). All UDT scars were perceived by the independent, blinded observer and subjects themselves, to have improved pigmentation and color match with the surrounding skin unlike the control group ($p < 0.0009$ for both). There were no significant complications beyond self-limited erythema following UVA exposure.

Conclusions: Our data suggests Photoreactivation of hypopigmented scars in the face, head and neck appears to be a safe and effective alternative treatment for scar camouflage.

ROUNDING OF THE INFERIOR RECTUS MUSCLE AS AN INDICATION OF AN ORBITAL FLOOR FRACTURE WITH PERIORBITAL DISRUPTION

Dr. Avik Banerjee

Objective: To determine if rounding of the inferior rectus muscle on coronal CT scan is a reliable indicator of orbital floor fracture with periorbital disruption.

Methods: CT scans of five cadaveric orbits were performed before and after creation of orbital floor fractures. Half of the orbits underwent disruption of the periorbita while the other half did not. The shape of the inferior rectus muscle was analysed using imaging software.

Results: Periorbital disruption led to greater rounding of the inferior rectus muscle than the corresponding fracture without periorbital disruption.

Conclusions: Orbital floor fractures with periorbital disruption cause rounding of the inferior rectus muscle. This may be a reliable indication for repair of orbital floor fractures so that delayed enophthalmos and diplopia can be prevented.

**AUTOLOGOUS PLATELET-RICH AND PLATELET-POOR PLASMA IN
HEMITHYROIDECTOMY:
A BLINDED, RANDOMIZED CONTROLLED STUDY**

Dr. Brian Hughes

Introduction: Biocompatible adhesives have been used for many years for multiple surgical applications. Most of the commercially available adhesives use pooled human plasma which in recent years has raised concerns about the transmission of blood borne disease. Autologous plasma products likely represent the future of surgical adhesives as they employ the patient's own plasma for preparation of fibrin glue, thereby eliminating the risk of disease transmission. They also are reported to have the added benefits of decreasing postoperative pain and improving wound healing. We set out to examine the effect of autologous plasma adhesives in a relatively homogeneous surgical population in a blinded, randomized controlled fashion.

Objective: To evaluate the effect of autologous plasma adhesives on postoperative drainage, pain and wound healing in hemithyroidectomy patients.

Methods: Consecutive patients are randomized to one of two treatment groups: application of autologous platelet-rich and platelet-poor plasma or saline to the operative site following standard hemithyroidectomy. Both groups received identical perioperative care. Patients and data collectors were blinded to the group assignments. Collected data include postoperative surgical site drainage, visual analog scale postoperative pain levels, amount and type of analgesic medication utilized, surgical site appearance and complications.

Results: There were differences in postoperative drainage, postoperative pain and analgesic usage found between the two groups, favouring the group administered autologous platelet rich and platelet poor plasma.

Conclusions: The use of autologous platelet rich and platelet poor plasma in hemithyroidectomy results in less postoperative drainage, pain and analgesic usage. It should be considered for routine use and may result in outpatient hemithyroidectomy surgery in the future.

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THE UNIVERSITY OF WESTERN ONTARIO
Department of Otolaryngology
AWARDS AND PRIZES

SCIENTIFIC ACHIEVEMENT AWARD:

Presented for the most outstanding scientific achievement.

Charles A. Thompson Plaque
Thomas A. Martin Award

PETER CHESKI INNOVATIVE RESEARCH AWARD

Presented for the most innovative research.

GOLDEN THROAT AWARD

Presented for the most eloquent presentation including evaluation of audio-visual aids.

St. Joseph's Health Care London Award

RESIDENT BOOK AWARDS

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

SIMON KIRBY MOST CARING RESIDENT AWARD

Presented to the resident who demonstrates excellence in compassionate care.

UNDERGRADUATE TEACHING AWARD

Sponsored by Abbott Laboratories and presented to the resident with the highest teaching evaluation.