



Western

**Department of Otolaryngology**

*Thirtieth Annual*

**RESIDENTS' RESEARCH DAY**

Friday, April 23, 2004  
The London Hunt and Country Club

# RESIDENTS' RESEARCH DAY PROGRAM 2004

9:00-9:15

**WELCOME**

**Drs. Leboldus/Lampe**

## CHAIRMAN - DR. GORDON LEBOLDUS

9:15-9:25

**Mr. Michael Brandt**

Fluorescence Guided Surgical Excision of Nonmelanotic Cutaneous Malignancies

9:25-9:30

**Interactive Discussion**

9:30-9:40

**Dr. Sumit Agrawal**

The Role of Infrared Videonystagmography in the Head Impulse Test and Head-Shake Nystagmus: A Double-Blind Analysis

9:40-9:45

**Interactive Discussion**

9:45-9:55

**Dr. Khaled Eljallah**

The Biophysics of Septopalatal Protraction in Cleft Palate Infants

9:55-10:00

**Interactive Discussion**

10:00 - 10:30

**COFFEE**

10:30-10:40

**Dr. Avik Banerjee**

Intratympanic Steroids for Sudden Sensorineural Hearing Loss

10:40-10:45

**Interactive Discussion**

10:45-10:55

**Dr. Brian Hughes**

Revised Diagnostic Terminology for Thyroid Fine Needle Biopsy

10:55-11:00

**Interactive Discussion**

11:00-12:00

**Ms. Rebecca Parkes**

Presentation and Interactive Discussion on Strategies for Change and Transition

12:00-1:30

**LUNCH**

## CHAIRMAN - DR. LORNE PARNES

- 1:30-1:40 **Dr. Jason Atlas** An Assessment of the Utility of Activity Limitations Following the Particle Repositioning Manuever
- 1:40-1:45 **Interactive Discussion**
- 1:45-1:55 **Dr. Timothy Wallace** Cervical Rhytidosis: A Prospective Study for Improvement of Neck Skin Texture Using Microdermabrasion and Chemical Peeling Techniques
- 1:55-2:00 **Interactive Discussion**
- 2:00-2:20 **Dr. Kevin Fung** Gene Therapy for the Injured Recurrent Laryngeal Nerve
- 2:20-2:30 **Interactive Discussion**
- 2:30-2:50 **Dr. Murad Husein** Trans-Thoracic Tracheal Reconstruction
- 2:50-3:00 **Interactive Discussion**
- 3:00-3:20 **COFFEE**
- 3:20-3:35 **Dr. Dale Brown** Quality of Life Analysis in Patients with Anterior Skull Base Neoplasms
- 3:35-3:40 **Interactive Discussion**
- 3:40-4:00 **Dr. Lorne Parnes** Snap Shots in the History of the Department of Otolaryngology

# **FLUORESCENCE GUIDED SURGICAL EXCISION OF NONMELANOTIC CUTANEOUS MALIGNANCIES**

**M.G. Brandt, C. C. Moore, K. Jordan**

Protoporphyrin IX (PpIX) is an endogenous photosensitizer commonly used in photodynamic therapy. Malignant and pre-malignant lesions feature alterations to heme metabolism and consequently maintain higher concentrations of PpIX. When 5-aminolevulinic acid (ALA) – a precursor of PpIX, is applied topically to these lesions, they fluoresce under activating light. This study seeks to assess if this fluorescent effect can be applied clinically to aid in the adequate excision of nonmelanotic cutaneous malignancies by delineating accurate tumor borders; thus providing more precise excision and ultimately smaller but more complete resections.

Individuals presenting with cutaneous cervicofacial malignancies were randomly separated into two groups. Group A was offered surgical excision with surgeon delineated excision margins based on routine examination. Group B was administered topical ALA to their cutaneous malignancy and had their excision margins delineated while under fluorescence. The pathological resection margins, size of lesion, and size of resection margins were then compared amongst the two groups.

# THE ROLE OF INFRARED VIDEONYSTAGMOGRAPHY IN THE HEAD IMPULSE TEST AND HEAD-SHAKE NYSTAGMUS: A DOUBLE-BLIND ANALYSIS

S. Agrawal, L. Parnes

**Background:** The head impulse test (HIT) and post head-shake nystagmus (HSN) have long been used as clinical tests to help diagnose unilateral vestibular weakness. Most studies have shown that these tests have a low sensitivity and the use of infrared videonystagmography with these tests has never been studied. This study examines traditional HIT and HSN compared with HIT and HSN performed with infrared videonystagmography.

**Materials and Methods:** Eleven patients having undergone translabyrinthine acoustic neuroma resection were selected along with normal controls. Two investigators examined each patient (a junior resident along with a senior resident or staff neurotologist), and each investigator was blinded to the side of surgery, past medical history, or ENG results. The tests were also conducted using infrared videonystagmography and the videos were later examined by a blinded investigator. Additional information including age, time since surgery, dizziness handicap inventory (DHI-S), and ENG results was collected.

**Analysis:** The effect of infrared videonystagmography on the sensitivity and specificity of HIT and HSN was determined. Results from the junior resident were also compared against the senior resident/staff to determine if differences in technique and experience affected results. These results were then correlated against age, time since surgery, and the dizziness handicap inventory.

# THE BIOPHYSICS OF SEPTOPALATAL PROTRACTION IN CLEFT PALATE INFANTS

K. Eljallah, C. Moore, M. Brandt

**Background:** Previous study (1) has shown potential for septopalatal protraction to be an effective method for realigning the nasal septum in unilateral cleft lip and palate infants. Details regarding forces applied to the septopalatal unit are sought.

**Purpose:** To study the stress/relaxation characteristics of standard H8 orthodontic elastics when a 85 gram protraction force is applied over three hours using a model protraction session.

**Methods:** Stress relaxation characteristics of protraction elastics were evaluated by a model created to provide a steady state force of 85 grams. The change in elasticity of  $n = 30$  H8 orthodontic elastics over 3 hours was studied. Protraction time of 3 hours has been predetermined as the maximum time infants have tolerated septopalatal protraction using this technique (1).

**Results:** The force of protraction decreases over time due to stress relaxation of elastics. This was quantified as loss of elastic force of  $2.52 \pm 0.16$ g over 3 hours resulting in a mean protraction force of  $83.251 \pm 0.148$ grams. The stress relaxation curve appeared logarithmic with the most marked change in elastic force occurring over the first hour of protraction. This finding paralleled the differences in elasticity, as elasticity decreased most significantly over the first 70 minutes with the greatest drop in elasticity occurring over the first 5 minutes. The elastics appeared to reach a steady rate elasticity loss at 70 minutes of protraction. Following that time, the rate of loss of elasticity averaged  $0.0066$ g/min  $\pm$   $0.0003$ g/min

**Conclusions:** Although the overall change in elastic force of  $2.52 \pm 0.16$  g was significant ( $p \leq 0.00001$ ) over the three hour protraction, we are unsure as to the tangible effect of this minimal loss in force when applied to septopalatal protraction. The loss in force is certainly statistically significant but may not be clinically significant.

# INTRATYMPANIC STEROIDS FOR SUDDEN SENSORINEURAL HEARING LOSS

A. Banerjee, L.S. Parnes and M. Brandt

**Objective:** To determine if instillation of intra-tympanic steroids is effective in the treatment of sudden sensorineural hearing loss.

**Methods:** A retrospective chart review was carried out of all patients who underwent intratympanic steroid treatment (Solumedrol and/or Decadron) between 1996 and 2002. Thirty-three patients were identified and their pre-treatment and post-treatment pure tone audiograms and speech discrimination scores were compared.

**Results:** Treatment with intratympanic steroids led to a 27.2 dB +/- 5.7dB improvement in the pure tone thresholds and a 25.4% +/- 6.2% improvement in speech discrimination scores. No adverse reactions or complications were reported.

**Conclusions:** Instillation of intratympanic steroids represents a safe and effective treatment for sudden sensorineural hearing loss.

## **REVISED DIAGNOSTIC TERMINOLOGY FOR THYROID FINE NEEDLE BIOPSY**

**B. Hughes, H. Lampe, M. Weir, C. M. McLachlin**

The diagnosis of thyroid pathology by fine needle aspiration biopsy can be a confusing issue for the clinician due to frequently changing diagnostic terminology. Recently, in an effort to improve communication between the pathologist and clinician, a revised set of criteria for the diagnosis of fine needle thyroid biopsies was introduced at our centre. The standardization of terminology and diagnostic categories is intended to help simplify clinical decision making. Our revised system employs 11 diagnostic categories which can be pooled into 4 larger categories which have either a low, intermediate, high or indeterminate risk of malignancy. The risk of malignancy for each group was estimated from previous fine needle biopsy experience and this study is the first examination of the actual malignancy rates in each group. Since the introduction of this revised system, our centre has examined approximately 650 thyroid fine needle aspiration biopsies. We report our experience with over 100 biopsies which ultimately were excised surgically.

The goals of this study include: (1) To disseminate our centre's revised thyroid fine needle biopsy diagnostic categories. (2) To report our experience over one year with biopsies using the revised diagnostic system. (3) To evaluate the accuracy and validity of these new categories by comparing the fine needle biopsy diagnosis with the final surgical pathology result. (4) To compare the clinical-cytopathologic diagnosis with the appropriateness of recommended treatment.



# **AN ASSESSMENT OF THE UTILITY OF ACTIVITY LIMITATIONS FOLLOWING THE PARTICLE REPOSITIONING MANUEVER**

**J. Atlas, L. Parnes**

Benign paroxysmal positional vertigo (BPPV) is the most common disorder of the peripheral vestibular system. This condition is believed to be caused by free-floating otoconial particles in the posterior semicircular canal endolymph. The Particle Repositioning Manuever attempts to transport these particles from the affected canal into the utricle where they can no longer precipitate vertiginous attacks. Most clinicians empirically recommend that patients remain in the upright position for 48 hours following treatment of BPPV with the PRM. Requiring patients to sleep sitting in a chair and to limit many other of their daily activities in order to keep their head in a neutral position. Unfortunately, most patients report that they have great difficulty sleeping in this manner and they often develop both back and neck pain. This study assessed in a systematic method the overall effectiveness of the PRM and the utility of these activity limitations. We found that the PRM was very effective in treating BPPV (84%) in patients who were given instructions to remain upright following treatment. However, the PRM was at least equally as effective (95%) in those given no activity limitations. Therefore, we do not recommend any limitations following successful treatment of BPPV with the PRM.

# **CERVICAL RHYTIDOSIS: A PROSPECTIVE STUDY FOR IMPROVEMENT OF NECK SKIN TEXTURE USING MICRODERMABRASION AND CHEMICAL PEELING TECHNIQUES**

**T. Wallace, C. Moore**

**Objectives:** The purpose of this study was to evaluate a regimen of combined medical microdermabrasion and chemical peeling techniques, using objective and subjective measures, on the improvement of coarse wrinkling, fine wrinkling, skin elasticity and skin texture in photo-damaged cervical skin.

**Methods:** Twenty women between the ages of fifty and sixty-six underwent microdermabrasion followed by 33% glycolic acid chemical peel for six weekly treatments. One side of each patient's neck was randomized for treatment, and two follow-up visits at one and two months after the last treatment was required for photographic evaluation. Clinical end-points of the study included: a subjective patient questionnaire (visual analogue scale), a blinded photographic analysis by two clinical investigators, and an objective instrument analysis (Cutometer) of skin texture and elasticity.

**Results:** Eighty-five percent of patients noted much improvement to the overall look and feel of their neck skin, where 10% noted a slight improvement and 5% felt no improvement was made. Furthermore, the change in skin elasticity was found to be statistically significant at 23% ( $p < 0.01$ ) comparing the treated and non-treated necks. Despite this, the blinded clinical investigators identified the treated versus non-treated sides of only 11 of 20 patients (55%;  $p > 0.01$ ).

**Conclusions:** The regime of microdermabrasion followed by 33% glycolic acid chemical peel does demonstrate an objective improvement in skin elasticity of the cervical skin. Although the blinded investigators results may have been affected by photographic limitations, the subjective results of the patients are encouraging.

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**The winner of one award is automatically excluded from winning any other awards, i.e., no resident can win more than one award.**

**SCIENTIFIC ACHIEVEMENT AWARD:**

*Presented for the most outstanding scientific achievement.*

Charles A. Thompson Plaque  
Thomas A. Martin Award  
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*Presented for the most innovative research.*

St. Joseph's Health Centre Award  
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**GOLDEN THROAT AWARD**

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

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*Presented to the resident who demonstrates excellence in compassionate care.*

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