

Abstract Selection

Acute treatment of noise trauma with local caroverine application in the guinea pig. Chen, Z., Ulfendahl, M., Ruan, R., Tan, L., Duan, M. Department of Otolaryngology, National University of Singapore, Singapore. *Acta Oto-Laryngologica* (2003) October, Vol. 123 (8), pp. 905–9, ISSN: 0001-6489

Intense sound stimulation may result in excessive glutamate release from the inner hair cells, resulting in binding to the postsynaptic glutamate receptors and leading to neuronal degeneration and functional impairment. In this study we investigated the therapeutic effect and time window of caroverine, an N-methyl-D-aspartate and alpha-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid receptor antagonist, on noise-induced hearing loss. Guinea pigs were exposed to one-third octave band noise centred at 6.3 kHz (110 dB sound pressure limit) for 1 h. One or 24 h after noise exposure, caroverine was applied to the round window membrane. Auditory brainstem responses were recorded at regular time intervals. It was shown that caroverine could significantly decrease hearing impairment after noise trauma when applied one but not 24 h after noise exposure.

Early rehabilitation of facial nerve deficit after acoustic neuroma surgery. Barbara, M., Monini, S., Buffoni, A., Cordier, A., Ronchetti, F., Harguindey, A., Di-Stadio, A., Cerruto, R., Filipo, R. Department of Neurology and Otorhinolaryngology, Ospedale S. Andreas, II Medical School, University of Rome La Sapienza, Rome, Italy. maurizio.barbara@uniroma1.it. *Acta Oto-Laryngologica* (2003) October, Vol. 123 (8), pp. 932–5, ISSN: 0001-6489

OBJECTIVE: To determine whether an early physical rehabilitative program could improve and/or accelerate recovery from a post-operative deficit of facial nerve (FN) function. **MATERIAL AND METHODS:** A retrospective study of the charts of patients who presented a post-operative FN deficit after surgery for acoustic neuroma (AN) was carried out. Twenty-nine patients were enrolled and divided into two groups: 18 who underwent early physical rehabilitation and 11 who did not undergo rehabilitation. All the AN patients underwent translabrynthine removal and were classified pre-operatively according to the House-Brackmann staging system. Physical rehabilitation was performed according to Kabat (i.e. neuromuscular facilitation). FN function was assessed post-operatively and classified according to the House-Brackmann grading system. **RESULTS:** In Grade IV and V patients, early rehabilitation allowed a faster and better recovery with respect to AN patients for whom rehabilitation was not carried out. **CONCLUSION:** Early physical rehabilitation has proved to be effective as a helpful tool for recovery from FN deficit and it is therefore advisable to use it soon after surgery, especially for FN deficits worse than Grade IV.

Correlation between blood group and noise-induced hearing loss. Dogru, H., Tuez, M., Uygur, K. Ear Nose and Throat-Head and Neck Surgery Department, School of Medicine, Suleyman Demirel University, Isparta, Turkey. *Acta Oto-Laryngologica* (2003) October, Vol. 123 (8), pp. 941–2, ISSN: 0001-6489

OBJECTIVE: To investigate the correlation between blood group and noise-induced hearing loss (NIHL). **MATERIAL AND METHODS:** The study was conducted in 176 factory workers who had been exposed to a noise level of 85–90 dB for eight h a day for a period of > or = 10 years. Pure-tone audiometric measurements were performed in a standard silent room. The blood groups of the workers were obtained from the factory files. **RESULTS:** NIHL was found in 23 (32.0 per cent), 35 (58.3 per cent), 10 (38.5 per cent) and seven (38.9 per cent) persons with blood groups A, O, B and AB, respectively NIHL was determined to be significantly more frequent in workers with blood group O. **CONCLUSION:** We suggest that people with blood group O are more prone to develop NIHL.

Electron microscopy assessment of the recovery of sinus mucosa after sinus surgery. Toskala, E., Rautiainen, M. Department of Otorhinolaryngology, Helsinki University Hospital, Helsinki, Finland. elina.toskala-hanmkainen@hus.fi. *Acta Oto-Laryngologica* (2003) October, Vol. 123 (8), pp. 954–9, ISSN: 0001-6489

OBJECTIVES: To determine the level of injury to the maxillary sinus mucosa due to chronic infection and the capacity of sinus mucosa to recover after sinus surgery. **MATERIAL AND METHODS:** Scanning and transmission electron microscopy (SEM and TEM, respectively) were used for examination of maxillary sinus mucosa at the time of endoscopic sinus surgery and six months post-operatively. **RESULTS:** SEM showed non-ciliated cells, metaplasia, ciliary disorientation, abundant goblet cells, microvilli and compound cilia peri-operatively. Six months post-operatively the numbers of non-ciliated cells and microvilli had increased but the degree of metaplasia and disorientation and the number of compound cilia had decreased. Peri-operative TEM revealed metaplasia, disorientation, tubulus anomalies, compound cilia and one patient with short dynein arms. **CONCLUSIONS:** As a result of this study we conclude that sinus mucosa repair slowly after surgery. There are still many pathological findings in the mucosa six months post-operatively and some of these findings may even be irreversible. Patients need frequent follow-up after their operation and we suggest that a follow-up time for sinus surgery patients of at least one year should be allowed before final evaluation of the operation and its outcomes is made.

Montelukast improves symptoms of seasonal allergic rhinitis over a 4-week treatment period. van-Adelsberg, J., Philip, G., Pedinoff, A. J., Meltzer, E. O., Ratner, P. H., Menten, J., Reiss, T. F. Merck Research Laboratories, Rahway, NJ, USA. *Allergy* (2003) December, Vol. 58 (12), pp. 1268–76, ISSN: 0105-4538

BACKGROUND: Proinflammatory mediators such as the cysteinyl leukotrienes are important in the pathophysiology of allergic rhinitis. This study evaluated the efficacy and tolerability of montelukast, a cysteinyl leukotriene receptor antagonist, given once daily in the morning for treatment of seasonal (fall) allergic rhinitis for four weeks. **METHODS:** This was a randomized, double-blind trial with a placebo run-in and a four-week treatment period. Patients (n = 1079) with a history of allergic rhinitis and a positive skin test to seasonal pollen allergens were assigned to placebo, montelukast 10 mg, or loratadine 10 mg. Symptoms were assessed with a daily diary. **RESULTS:** Montelukast was more effective than placebo in improving scores for the primary endpoint of daytime nasal symptoms ($p = 0.003$) and the secondary endpoints of night-time, composite, and daytime eye symptoms, patient's and physician's global evaluations of allergic rhinitis, and rhinoconjunctivitis quality-of-life ($p \leq 0.006$). The positive control loratadine also improved scores for the primary endpoint ($p \leq 0.001$) and the majority of the secondary endpoints ($p < 0.03$). When analyzed by week, the treatment effect of montelukast was more persistent than loratadine over all four weeks of treatment. **CONCLUSION:** Montelukast provided effective relief of seasonal allergic rhinitis symptoms when given once daily in the morning, showed significant and sustained improvement in symptoms of allergic rhinitis over four weeks of treatment, and was well-tolerated.

Incidence of occult thyroid carcinoma metastases in lateral cervical cysts. Seven, H., Gurkan, A., Cinar, U., Vural, C., Turgut, S. Ear Nose Throat Department, Sisli Etfal Training and Research Hospital, Istanbul, Turkey. hseven1@hotmail.com. *American Journal of Otolaryngology* (2004) January–February, Vol. 25 (1), pp. 11–7, ISSN: 0196-0709.

PURPOSE: To establish the incidence of thyroid carcinoma metastasis in adult patients presenting with apparently benign cervical cysts. The authors report their experience with four cases of papillary thyroid carcinoma who present with a lateral cervical cystic mass and no palpable disease in the thyroid gland. **MATERIALS AND METHODS:** A retrospective review of patients undergoing surgery for solitary cervical cysts in our clinic from 1994 to 2002 was performed. Patients with a clinically obvious primary malignancy, age less than 16 years were excluded from the study. **RESULTS:** Thirty-seven patients were identified. A diagnosis of benign cervical cyst was shown by histological examination of the resected specimen in 32 patients (86.4 per cent), with a mean age of 34 years (range, 16–59 years). A diagnosis of squamous cell carcinoma metastasis arising from an occult tonsillar primary was confirmed histologically in one patient (2.7 per cent). Papillary thyroid carcinoma metastasis was confirmed by histological examination of the resected specimen in four patients (10.8 per cent), with a mean age of 29 years (range, 18–37 years). Diagnostic studies performed included ultrasound, computed tomography scan, fine-needle aspiration (FNA), and excisional biopsy. FNA was found to be helpful in only one of the three cases with papillary thyroid carcinoma metastasis. Final histopathological examination exhibited primary focus in the thyroid gland in all four patients, with a mean size of 0.5 cm (range, 0.3–0.8 cm). **CONCLUSION:** Our data indicate that nearly one out of every 10 lateral cervical cysts in young adult patients represents lymphatic metastases from occult thyroid carcinoma. An excisional biopsy for definitive diagnosis should be undertaken without prolonged delay, even if FNA does not reveal malignancy.

Management of acoustic schwannoma. Mendenhall, W. M., Friedman, W. A., Amdur, R. J., Antonelli, P. J. Department of Radiation Oncology, University of Florida College of Medicine, Gainesville, 32610-0385, USA. mendewil@shands.ufl.edu. *American Journal of Otolaryngology* (2004) January–February, Vol. 25 (1), pp. 38–47, Refs: 56, ISSN: 0196-0709.

PURPOSE: To discuss the optimal management for patients with acoustic schwannoma. **MATERIALS AND METHODS:** Review of the pertinent literature. **RESULTS:** Microsurgery, stereotactic radiosurgery, and fractionated radiotherapy result in cure rates that approximate 90 per cent at five years. Depending on tumour extent and surgical approach, the morbidity of microsurgery may exceed that of stereotactic radiosurgery and fractionated radiotherapy. Patients with useful hearing before treatment may have a higher likelihood of hearing preservation after radiotherapy compared with radiosurgery. **CONCLUSION:** Both microsurgery and radiosurgery are good options for patients with tumours less than 3 cm. Depending on tumour extent and the surgical approach, the morbidity of microsurgery may exceed that of radiosurgery. Patients with useful hearing may have a higher likelihood of hearing preservation after radiotherapy. Microsurgery is preferred for patients in whom the disease progresses after initial irradiation and in patients with tumours larger than 3 cm.

A national survey of health-related quality of life questionnaires in head and neck oncology. Kanatas, A. N., Rogers, S. N. Examinations Department, Liverpool University Dental Hospital, Liverpool, UK. md0u01a1@liv.ac.uk. *Annals of the Royal College of Surgeons of England* (2004) January, Vol. 86 (1), pp. 6–10, ISSN: 0035-8843.

AIMS: To identify the health-related quality of life (HRQOL) questionnaires employed by the physicians and surgeons who manage patients with head and neck cancer. Also, to gain an impression of the perceived difficulties and advantages of their use. **METHODS:** A national survey was performed of active UK consultant clinicians on the mailing list of the British Association of Head and Neck Oncologists. **RESULTS:** Of 267 questionnaires, there were 191 replies (71.5 per cent) from clinical oncologists (40), ENT surgeons (53), general surgeon (one), oral and maxillofacial surgeons (59), and plastic surgeons (38). Fifty-five consultants (29 per cent) used HRQOL questionnaires and the most popular questionnaire was the University of Washington Head and Neck Cancer (65 per cent). Questionnaires were most likely to be used both before and after treatment (67 per cent) and administered in clinic by either nursing staff or consultants. The main reasons for not using

HRQOL questionnaires included lack of resources and proven value. **CONCLUSIONS:** Despite the vast amount of literature on the importance of HRQOL in head and neck cancer, this survey shows that there is still a substantial amount of work required before HRQOL measurement becomes an established part of routine practice.

Symptom outcomes after endoscopic sinus surgery for chronic rhinosinusitis. Bhattacharyya, N. Division of Otolaryngology, Brigham and Women's Hospital, and the Department of Otolaryngology and Laryngology, Harvard Medical School, Boston, MA 02115, USA. neiloy@massmed.org. *Archives of Otolaryngology-Head & Neck Surgery* (2004) March, Vol. 130 (3), pp. 329–33, ISSN: 0886-4470.

OBJECTIVE: To determine the effectiveness of endoscopic sinus surgery (ESS) for individual symptoms, medication use, and related factors in patients with chronic rhinosinusitis (CRS). **DESIGN:** Nonrandomized, prospective, clinical trial. **INTERVENTIONS:** Adult patients with medically refractory CRS were examined before ESS with the Rhinosinusitis Symptom Inventory to catalogue major and minor symptoms, medication use, physician visits, and missed workdays due to CRS. After a minimum six-month follow-up after ESS, patients were examined to determine response to therapy. After computation of Rhinosinusitis Symptom Inventory domains, comparisons were conducted and effect sizes were computed for the change in symptoms after surgery. **RESULTS:** One hundred adults completed the examination, with a mean follow-up of 19.0 months. Before surgery, the mean major symptom scores ranged from 2.5 to 3.5 (Likert scale, from 0 (symptom absent) to 5 (maximum severity)) and the minor symptom scores ranged from 0.8 to 2.8. After surgery, statistically significant decreases in major and minor symptoms were noted ($p < .001$ for all). The largest effect sizes were noted for the decreases in facial pressure, congestion, nasal obstruction, rhinorrhoea, and headache (absolute value of effect size > 0.85 for all). Similarly, large effect sizes were noted for decreases in symptoms in the nasal (–1.30), facial (–1.13), and total (–1.25) symptom domains of the Rhinosinusitis Symptom Inventory. Medication use actually increased for topical nasal corticosteroids, but decreased for prescription antihistamines. A mean reduction of 1.1 antibiotic courses (mean decrease of 2.3 weeks taking antibiotics) was noted after ESS. **CONCLUSIONS:** Endoscopic sinus surgery provides significant symptom relief for the nasal and facial symptoms associated with CRS. Patients will often still require topical nasal corticosteroids for the management of their CRS, but can expect decreases in antibiotic requirements after ESS.

The immunohistochemical localisation of somatostatin receptors 1, 2, 3, and 5 in acoustic neuromas. Stafford, N. D., Condon, L. T., Rogers, M. J. C., Helboe, L., Crooks, D. A., Atkin, S. L. Department of Otolaryngology-Head and Neck Surgery, Hull Royal Infirmary, Anlaby Road, Hull HU3 2JZ, UK. N.D.Stafford@hull.ac.uk. *Journal of Clinical Pathology* (2004) February, Vol. 57 (2), pp. 168–71, ISSN: 0021-9746.

AIMS: Acoustic neuroma is a benign tumour, which develops through an overproliferation of Schwann cells along the vestibular nerve. Somatostatin is a naturally occurring peptide, which exerts antiproliferative and antiangiogenic effects via five membrane bound receptor subtypes. The aim of this study was to determine whether somatostatin receptor subtypes (SSTRs) 1, 2, 3, and 5 are present in acoustic neuromas. **METHODS:** The expression of SSTRs 1, 2, 3, and 5 was studied in both the Schwann cells and blood vessels of eight acoustic neuroma specimens, by means of immunohistochemistry using novel rabbit polyclonal antibodies raised against human SSTR 1, 2, and 5 subtype specific peptides, and a commercial anti-SSTR3 antibody. **RESULTS:** SSTR2 was the most prevalent subtype in Schwann cells (seven of eight), with intermediate expression of SSTR3 (six of eight), and lower expression of SSTRs 1 and 5 (four of eight and five of eight, respectively). There was ubiquitous vascular expression of SSTR2, with no evidence of SSTR 1, 3, or 5 expression in blood vessels. **CONCLUSION:** SSTRs 1, 2, 3, and 5 are differentially expressed in acoustic neuromas. Somatostatin analogues may have a therapeutic role in the management of this rare and challenging condition.

Identification of recurrent regions of chromosome loss and gain in vestibular schwannomas using comparative genomic hybridisation. Warren, C., James, L. A., Ramsden, R. T., Wallace, A., Baser, M. E., Varley, J. M., Evans, D. G. Cancer Research UK Department of Cancer Genetics, The Paterson Institute for Cancer Research, Manchester, UK. *Journal of Medical Genetics* (2003) November, Vol. 40 (11), pp. 802–6, ISSN: 1468-6244

BACKGROUND: Schwannomas are benign tumours of the nervous system that are usually sporadic but also occur in the inherited disorder neurofibromatosis type 2 (NF2). The NF2 gene is a tumour suppressor on chromosome 22. Loss of expression of the NF2 protein product, merlin, is universal in both sporadic and NF2 related schwannomas. The GTPase signalling molecules RhoA and Rac1 regulate merlin function, but to date only mutation in the NF2 gene has been identified as a causal event in schwannoma formation. **METHODS:** Comparative genomic hybridization (CGH) was used to screen 76 vestibular schwannomas from 76 patients (66 sporadic and 10 NF2 related) to identify other chromosome regions that may harbour genes involved in the tumorigenesis. **RESULTS:** The most common change was loss on chromosome 22, which was more frequent in sporadic than in NF2 related tumours. Importantly, eight tumours (10 per cent) showed gain of copy number on chromosome 9q34. Each of the two NF2 patients who had received stereotactic radiotherapy had non-chromosome 22 changes, whereas only one of eight non-irradiated NF2 patients had any chromosome changes. Three tumours had gain on 17q, which has also been reported in malignant peripheral nerve sheath tumours that are associated with neurofibromatosis type 1. Other sites that were identified in three or fewer tumours were regions on chromosomes 10, 11, 13, 16, 19, 20, X, and Y. **CONCLUSIONS:** These findings should be verified using techniques that can detect smaller genetic changes, such as microarray-CGH.

Risk of laryngeal cancer by occupational chemical exposure in Turkey. Elci, O. C., Akpınar, E. M., Blair, A., Dosemeci, M. Division of Cancer Epidemiology and Genetics, National Cancer Institute, Rockville, Maryland, USA. oae3@cdc.gov. *Journal of Occupational and Environmental Medicine* (2003) October, Vol. 45 (10), pp. 1100–6, ISSN: 1076-2752.

Laryngeal cancer is the second most common cancer among men in Turkey. In this hospital based case-control study, we evaluated laryngeal cancer risks from occupational chemical exposures. We analyzed 940 laryngeal cancer cases and 1519 controls. Occupational history, tobacco, and alcohol use and demographic information were obtained by a questionnaire. The job and industries were classified by special seven-digit codes. We calculated odds ratios (ORs) and 95 per cent confidence intervals (CIs) based on a developed exposure matrix for chemicals, including diesel exhaust, gasoline exhaust, polycyclic aromatic hydrocarbons (PAHs), formaldehyde, and solvents. An excess of laryngeal cancer occurred with diesel exhaust (OR = 1.5, 95 per cent CI = 1.3–1.9), gasoline exhaust (OR = 1.6, 95 per cent CI = 1.3–2.0), and PAHs (OR = 1.3, 95 per cent CI = 1.1–1.6). There was a dose-response relationship for these substances with supraglottic cancers ($p < 0.000$). The PAH association only occurred among those who also had exposure to diesel exhaust.

Otitis media. Rovers, M. M., Schilder, A. G. M., Zielhuis, G. A., Rosenfeld, R. M. Julius Centre for Health Sciences and Primary Care, University Medical Centre, PO Box 85060, 3508 AB, Utrecht, Netherlands. MRovers@umcutrecht.nl. *Lancet* (2004) February 7, Vol. 363 (9407), pp. 465–73, Refs: 142, ISSN: 1474-547X.

Otitis media (OM) continues to be one of the most common childhood infections and is a major cause of morbidity in children. The pathogenesis of OM is multifactorial, involving the adaptive and native immune system, eustachian-tube dysfunction, viral and bacterial load, and genetic and environmental factors. Initial observation seems to be suitable for many children with OM, but only if appropriate follow-up can be assured. In children younger than two years with a certain diagnosis of acute OM, antibiotics are advised. Surgical candidacy depends on associated symptoms, the child's developmental risk, and the anticipated chance of timely spontaneous resolution of the effusion. The recommended approach for surgery is to start with tympanostomy tube

placement, eventually followed by adenoidectomy. The ideal intervention for OM, however, does not yet exist, and an urgent need remains to explore new and creative options based on modern insights into the pathophysiology of OM.

Brainstem auditory evoked potential monitoring during microvascular decompression for hemifacial spasm: intraoperative brainstem auditory evoked potential changes and warning values to prevent hearing loss-prospective study in a consecutive series of 84 patients. Polo, G., Fischer, C., Sindou, M. P., Marneffe, V. Department of Neurosurgery, Hôpital Neurologique Pierre Wertheimer, Lyon, France. *Neurosurgery* (2004) January, Vol. 54 (1), pp. 97–104; discussion 104–6, ISSN: 0148-396X.

OBJECTIVE: The nerve function of Cranial Nerve VIII is at risk during microvascular decompression for hemifacial spasm. Intra-operative monitoring of brainstem auditory evoked potentials (BAEPs) can be a useful tool to decrease the danger of hearing loss. The aim of this study was 1) to assess the side-effects of surgery on hearing and describe the main intra-operative BAEP changes observed in the authors' series, and 2) to define warning values beyond which the probability of hearing impairment rises significantly. These values were calculated by correlating the (possible) post-operative hearing disturbances evaluated in terms of pure tone average with intra-operative BAEP changes (especially delay in Wave V latency). **METHODS:** This series included 84 consecutive patients affected with hemifacial spasm who underwent microvascular decompression during which BAEPs were monitored. During surgery, Wave I, I to V interpeak interval, latency, and amplitude of Wave V were recorded and measured. Auditory function was studied before and after surgery and expressed as a pure tone average in all patients. Then, correlations were made between hearing impairment after surgery and intra-operative BAEP changes in an attempt to define warning values. **RESULTS:** Seventy-four patients (88 per cent) had no hearing loss after surgery (Group 1). Eight patients (9.5 per cent) had hearing impairment with a decrease in pure tone average of more than 20 dB (Group 2). Two patients (2.3 per cent) experienced a definitive and complete hearing loss on the side operated on (Group 3). Among intra-operative BAEP changes, latency of Peak V was the most frequently observed and the most significant phenomenon, especially during cerebellar retraction and the decompression step of the microvascular decompression procedure. In the group of patients without hearing loss (Group 1), the mean delay in latency of Peak V was 0.61 millisecond (standard deviation, ± 0.36 ms); in the group with hearing decrease (Group 2), the mean delay was 1.05 milliseconds (standard deviation, ± 0.64 ms); and in the group with deafness (Group 3), Wave V was abolished. **CONCLUSION:** From a practical standpoint, three warning values, based on delay in latency of Peak V, were established for use during surgery: an initial one at 0.4 millisecond ('watching' signal) at the safety limit; a second one at 0.6 millisecond (risk 'warning' signal), which is the mean value corresponding to the group of patients without post-operative hearing loss; and an ultimate one at 1 millisecond ('critical' warning), before irreversibility. These warnings should help the surgeon to avoid or correct manoeuvres that are dangerous for hearing function, which is mandatory in functional surgery.

Resolution of hoarseness after endovascular repair of thoracic aortic aneurysm: a case of Ortner's syndrome. Stoob, K., Alkadhi, H., Lachat, M., Wildermuth, S., Pfammatter, T. Institute of Diagnostic Radiology, University Hospital Zurich, Zurich, Switzerland. *The Annals of Otolaryngology, Rhinology, and Laryngology* (2004) January, Vol. 113 (1), pp. 43–5, ISSN: 0003-4894.

We report the case of a 75-year-old man with a six-month history of hoarseness due to a left recurrent laryngeal nerve palsy. Investigations revealed a thoracic aortic aneurysm compressing the left recurrent nerve; thus, the diagnosis of Ortner's syndrome, ie, cardiovocal syndrome, could be established. The aortic aneurysm was repaired by implantation of an endovascular stent graft under local anaesthesia. The patient was discharged five days later, and at the one-year follow-up visit the hoarseness had resolved completely. This case demonstrates for the first time the reversal of Ortner's syndrome after endoluminal aneurysm repair.

Indications for mastoidectomy in acute mastoiditis in children.

Taylor, M. F., Berkowitz, R. G. Department of Otolaryngology, Royal Children's Hospital, Melbourne, Australia. *The Annals of Otolaryngology, Rhinology, and Laryngology* (2004) January, Vol. 113 (1), pp. 69–72, ISSN: 0003-4894.

The objective of this study was to identify clinical features of acute mastoiditis in children that are indicative of the need for mastoidectomy. We performed a retrospective chart review of 40 children (20 male, 20 female) between two months and 12 years nine months of age with a diagnosis of acute mastoiditis who were managed in our institution between July 1998 and June 2002. All patients received intravenous antibiotics; this was the only treatment in 14 patients (35 per cent). Tympanostomy tubes were inserted in 22 patients, together with postauricular needle aspiration in 12 (30 per cent), and incision and drainage of subperiosteal abscess in 10 (25 per cent). Mastoidectomy was performed in four cases (10 per cent), and cholesteatoma was found in three. One other child was subsequently found to have cholesteatoma. We conclude that children who present with acute mastoiditis should undergo mastoidectomy if cholesteatoma is clinically suspected, or if extratemporal suppurative complications have occurred.

Audiologic presentation of cerebellopontine angle cholesteatoma.

Quaranta, N., Chang, P., Baguley, D. M., Moffat, D. A. Department of Otoneurological and Skull Base Surgery, Addenbrooke's Hospital, Cambridge, England. *The Journal of Otolaryngology* (2003) August, Vol. 32 (4), pp. 217–21, ISSN: 0381-6605.

OBJECTIVE: The aim of this study was to examine the audiologic presentation of patients with cerebellopontine angle (CPA) cholesteatoma. DESIGN: Retrospective case review. SETTING: Neuro-otologic tertiary referral centre. METHODS: The study population consisted of 11 patients with CPA cholesteatomas. The patients underwent a standard audiological investigation in the pre-operative setting, which consisted of pure-tone audiometry, speech audiometry, and auditory brainstem response (ABR). MAIN OUTCOME MEASURES: The audiologic parameters that were analyzed were the pure-tone threshold, pure-tone average (PTA), and speech discrimination scores (SDSs). The morphology and latency of the ABR were evaluated. In addition, the clinical and radiological presentations of the lesions were reviewed. RESULTS: The mean PTA in the diseased ear was 22.6 dB HL (SD 18.2), whereas in the contralateral ear, it was 19.1 dB HL (SD 19.6). In four patients, the hearing loss was asymmetric, with the diseased ear being the worse ear. The mean SDS was 82.28 per cent in the affected ear and 95.28 per cent in the contralateral ear. ABR was abnormal in nine of 10 cases (90 per cent), with only the affected ear being abnormal in four cases. In the other five cases, the ABR was bilaterally abnormal. CONCLUSIONS: CPA cholesteatomas are very slow-growing lesions that involve the VIIIth cranial nerve. The paucity and insidious onset of symptoms mean that the diagnosis is often late, permitting the lesions to reach impressive dimensions at the time of diagnosis. Although magnetic resonance imaging represents the gold standard in the diagnosis of these lesions, ABR proved to be of value in the assessment of the auditory pathway, especially in those patients referred with a vague symptomatology and with normal hearing.

Migraine patients with or without vertigo: comparison of clinical and electronystagmographic findings.

Bir, L. S., Ardic, F. N., Kara, C. O., Akalin, O., Pinar, H. S., Celiker, A. Department of Neurology, Pamukkale University, School of Medicine, Denizli, Turkey. *The Journal of Otolaryngology* (2003) August, Vol.: 32 (4), pp. 234–8, ISSN: 0381-6605.

OBJECTIVE: To find the differences between patients with migraine with and without vertigo. STUDY DESIGN: A prospective study. SETTING: Ambulatory dizziness centre of a tertiary referral hospital. METHODS: Eighty-four patients with migraine (31 with headache, 53 with headache and vertigo) according to the diagnostic criteria of migraine published by the International Headache Society in 1988 were included in the study. Patient history, vestibular tests, electronystagmography (ENG), and imaging studies were performed for differential diagnosis. MAIN OUTCOME MEASURES: Clinical findings and ENG parameters. RESULTS: Fifty-three of 84 patients (63 per cent) had episodic vertigo attacks. Vertigo was independent from headache in 24 patients (45 per cent). Vertigo symptoms

always appeared later in the history of migraine headache. Headache started at age 27 +/- 8.3 years and vertigo symptoms began 7.7 +/- 8.7 years later. The beginning age of the migraine and female-to-male ratio were significantly greater in the vertigo group. Fifty-eight of the 84 patients had ENG testing. Fifty-eight per cent of the patients with migraine and 55 per cent of the patients with migraine + vertigo had abnormal ENG findings. None of the tests except the Dix-Hallpike manoeuvre had a statistically significant difference between the two groups. CONCLUSION: The presence of the same ENG abnormalities in patients with pure headache shows that the vestibular pathways are also affected in these patients, even when there are no vestibular symptoms.

Assessment of the accuracy and safety of the different methods used in mapping the frontal sinus.

Ansari, K., Seikaly, H., Elford, G. Division of Otolaryngology-Head and Neck Surgery, University of Alberta, Edmonton, Alberta. *The Journal of Otolaryngology* (2003) August, Vol. 32 (4), pp. 254–8, ISSN: 0381-6605.

INTRODUCTION: Frontal sinus obliteration continues to be the gold standard for frontal disease control and is often employed as a last resort of treatment after more conservative therapies fail. Different methods of sinus mapping have been previously reported and include (1) 6-foot Caldwell radiography, (2) sinus probing, and (3) sinus transillumination. Image-guided technology was recently introduced to clinical practice, but its utility in frontal sinus mapping has not been evaluated. OBJECTIVE: To assess the accuracy and safety of the previously reported methods of frontal sinus mapping and compare them with image-guided mapping. STUDY DESIGN: Five cadaveric heads were used. The four mapping methods were applied to each head along five different axes of the frontal bone: 0, 45, 90, 135, and 180 degrees. The true frontal sinus margin was ascertained. Measurements were made from the true sinus limits to the margin points estimated by the four frontal sinus mapping methods. RESULTS: The image-guided mapping method provided was the most accurate when compared with the other mapping methods ($p < .01$). The image-guided mapping method was also the least likely to overshoot the real margin compared with the other mapping methods ($p < .001$). The template method was the least accurate and least safe method. CONCLUSIONS: Image-guided mapping is the most accurate and safest method of mapping the frontal sinus margins.

Different endoscopic surgical strategies in the management of inverted papilloma of the sinonasal tract: experience with 47 patients.

Tomenzoli, D., Castelnuovo, P., Pagella, F., Berlucchi, M., Pianta, L., Delu, G., Maroldi, R., Nicolai, P. Department of Otorhinolaryngology, University of Brescia, Brescia, Italy. *The Laryngoscope* (2004) Feb, Vol. 114 (2), pp. 193–200, ISSN: 0023-852X.

OBJECTIVE: To demonstrate the potentials and limitations of three different endoscopic procedures employed for treatment of inverted papilloma (IP) of the sinonasal tract. STUDY DESIGN: Retrospective analysis of a cohort of patients treated at two University hospitals. METHODS: From January 1992 to June 2000, 47 patients with IP underwent endoscopic resection. Pre-operative workup included multiple biopsies of the lesion and imaging evaluation by computed tomography or magnetic resonance imaging. Massive skull base erosion, intradural or intraorbital extension, extensive involvement of the frontal sinus, abundant scar tissue caused by previous surgery, or the concomitant presence of squamous cell carcinoma were considered absolute contraindications for a purely endoscopic approach. Three types of resection were used: ethmoidectomy with wide antrostomy and sphenoidotomy (type 1) for IPs confined to the middle meatus, medial maxillectomy with ethmoidectomy and sphenoidotomy (type 2) for IPs partially invading the maxillary sinus, and a Sturmann-Canfield operation (type 3) for IPs involving the mucosa of the alveolar recess or of the anterolateral corner of the maxillary sinus. All patients were followed by periodic endoscopic evaluations. RESULTS: Type 1, 2, and 3 resections were performed in 26, 15, and six patients, respectively. No recurrences were observed after a mean follow-up of 55 (range 30–132) months. One patient, who underwent a type 2 resection, developed a stenosis of the lacrimal pathways requiring endoscopic dacryocystorhinostomy.

CONCLUSIONS: Our experience confirms that endoscopic surgery is an effective and safe method of treatment for most IPs. The availability of different endoscopic techniques allows the entity of the dissection to be modulated in relation to the extent of disease. Strict application of selection criteria, meticulous use of subperiosteal dissection in the involved areas, and regular follow-up evaluation are key elements for success.

Vestibular nerve section versus intratympanic gentamicin for Ménière's disease. Hillman, T. A., Chen, D. A., Arriaga, M. A. Pittsburgh Ear Associates, 429 East North Avenue, Suite 422, Pittsburgh, PA, USA. *The Laryngoscope* (2004) February, Vol. 114 (2), pp. 216–22, ISSN: 0023-852X.

OBJECTIVES/HYPOTHESIS: Vestibular nerve section and transtympanic gentamicin administration are procedures with proven efficacy in the treatment of vertigo associated with Ménière's disease refractory to medical management. Hearing loss is a known complication of each of these procedures; however, there has not been a report of hearing results of both treatments from a single institution. **STUDY DESIGN:** Retrospective review. **METHODS:** Review was made of 25 patients undergoing gentamicin injection and 39 patients undergoing vestibular nerve section for Ménière's disease. Rate of vertigo control and pre-treatment and post-treatment pure-tone average values and speech discrimination scores were reported. **RESULTS:** The mean pre-operative pure-tone average for patients having vestibular nerve section was 47.2 dB, with a speech discrimination score of 75.4 per cent. In these patients, the post-operative pure-tone average was 49.1 dB and the speech discrimination score was 75 per cent. Patients undergoing gentamicin injection had a mean pretreatment pure-tone average of 55.9 dB and a speech discrimination score of 62 per cent. The post-treatment pure-tone average and speech discrimination score for the gentamicin group were 68.8 dB and 49.3 per cent, respectively. Five of 25 patients (20 per cent) in the gentamicin treatment group and one of 39 (three per cent) in the vestibular nerve section treatment group had an increase in bone-conduction threshold greater than 30 dB. The amount of postprocedure hearing loss was significantly greater in the gentamicin treatment group ($p = .006$). Control of vertigo was good to excellent in 95 per cent of the patients treated with vestibular nerve section and in 80 per cent of the patients treated with gentamicin. **CONCLUSION:** Although vestibular nerve section and transtympanic gentamicin are both acceptable treatment options for vertigo associated with Ménière's disease, gentamicin causes a higher level of hearing loss related to treatment and vestibular nerve section has higher vertigo control rates.

Current applications of microarrays in head and neck cancer research. Warner, G. C., Reis, P. P., Makitie, A. A., Sukhai, M. A., Arora, S., Junsica, I., Wells, R. A., Gullane, P., Irish, J., Kamel, R. S. Department of Cellular and Molecular Biology, Ontario Cancer Institute and Princess Margaret Hospital, University Health Network and University of Toronto, Toronto, Ontario, Canada. *The Laryngoscope* (2004) February, Vol. 114 (2), pp. 241–8, Refs 35, ISSN: 0023-852X.

OBJECTIVES/HYPOTHESIS: The objective was to introduce microarray technology and its applications in cancer research to the head and neck clinician. **STUDY DESIGN:** Literature review combined with methodology and examples from the authors' experiences with microarray analysis of tumours of the head and neck. **METHODS:** Search of literature and the authors' experience was made for technical details, alternative methods of data analysis, available bioinformatics tools, and applications of microarrays in cancer research. **RESULTS:** Microarrays allow the simultaneous analysis of the expression of thousands of genes. The use of a well-developed microarray study design leads to informative results. There are various bioinformatics resources widely available to aid in the analysis of microarray data. However, there is not yet a gold standard for analysis because this methodology is still evolving. **CONCLUSION:** Microarray studies

may allow researchers to identify genetic changes relevant to diagnosis and prognosis in patients with head and neck cancer. Although still relatively new, this powerful methodology has immense potential to aid in understanding of the genetic changes that are important in head and neck cancer.

Optimum tension for partial ossicular replacement prosthesis reconstruction in the human middle ear. Morris, D. P., Bance, M., van-Wijhe, R. G., Kieft, M., Smith, R. Ear & Auditory Research Laboratory, Dalhousie University, Halifax, Nova Scotia, Canada. *The Laryngoscope* (2004) February, Vol. 114 (2), pp. 305–8, ISSN: 0023-852X.

OBJECTIVE: Hearing results from ossiculoplasty are unpredictable. There are many potentially modifiable parameters. One parameter that has not been adequately investigated in the past is the effect of tension on the mechanical functioning of the prosthesis. Our goal was to investigate this parameter further, with the hypothesis that the mechanical functioning of partial ossicular replacement prostheses (PORP) from the stapes head to the eardrum will be affected by the tension that they are placed under. **METHODS:** Fresh temporal bones were used to reconstruct a missing incus defect with a PORP-type prosthesis. Three different lengths of PORP were used, and the stapes vibrations were measured with a laser Doppler vibrometer using a calibrated standard sound in the ear canal. Eight temporal bones were used. **RESULTS:** Tension had a very significant effect on stapes vibration. In general, loose prostheses resulted in the best overall vibration transmission. The effects were most marked at the lower frequencies. There was a slight advantage to tight prostheses in the higher frequencies, but much less than the decrement in lower frequencies with tight prostheses. **CONCLUSION:** In ossicular reconstruction, best stapes vibration results in our model are achieved by shorter prostheses, which result in lower tension.

Long-term effects of cerebellar retraction in the microsurgical resection of vestibular schwannomas. Kim, H. H., Johnston, R., Wiet, R. J., Kumar, A. Department of Otolaryngology/Head and Neck Surgery, Northwestern University School of Medicine, Chicago, Illinois, USA. galbey@yahoo.com. *The Laryngoscope* (2004) February, Vol. 114 (2), pp. 323–6, ISSN: 0023-852X

OBJECTIVE: To determine the long-term effects, if any, of the greater cerebellar retraction that is required for retrosigmoid vestibular schwannoma versus resection as compared with the minimal, if any, cerebellar retraction required for translabyrinthine versus resection. **STUDY DESIGN:** Retrospective case control. **METHODS:** All patients who underwent retrosigmoid versus resection between 1988 to 2000 by one surgeon were identified. These patients were contacted and asked to complete the Dizziness Handicap Inventory (DHI). These patients were then matched to patients who underwent translabyrinthine versus resection according to age at surgery, age at time of study, sex, and size of tumour. Total DHI and subcategory DHI scores were compared using the Student *t* test. **RESULTS:** Thirty-three patients underwent the retrosigmoid approach, and 27 were contacted for completion of the survey, with a 81.3 per cent response rate. Forty-six patients who underwent translabyrinthine versus resection were matched to the retrosigmoid group. Thirty-six were contacted and completed the survey for a 75 per cent response rate. Twenty-seven patients that most closely matched the retrosigmoid group comprised the translabyrinthine group used for comparison. Minimal differences were seen between the two groups. Mean total DHI score for the retrosigmoid group was 17.6, which was not significantly different from the mean score of 16.8 seen in the translabyrinthine group ($p = .888$). When comparing small tumours (<1.5 cm), total DHI scores were not found to be significantly different ($p = .859$). We observed similar findings in those with intermediate-sized tumours (1.5–3 cm). **CONCLUSION:** The significantly greater cerebellar retraction that is necessary for retrosigmoid versus resection does not result in greater long-term balance and disability as compared with those patients who have undergone the translabyrinthine approach.