

Abstract Selection

Retrosigmoid approach for small and medium-sized acoustic neuromas. Magnan, J., Barbieri, M., Mora, R., Murphy, S., Meller, R., Bruzzo, M., Chays, A. ORL Unit, Hopital Nord, Marseille cedex, France. *Otolaryngology and Neurotology* (2002) March, Vol. 23 (2), pp. 141–5.

OBJECTIVE: clinical study of the keyhole acoustic neuroma retrosigmoid approach for facial nerve and hearing preservation. **STUDY DESIGN:** This was a prospective case review from October 1993 to December 1998 in a referral hospital care unit. **PATIENTS:** A total of 119 consecutive patients with a tumour size of 25 mm in the cerebellopontine angle corrected by a retrosigmoid approach were included in the study. **INTERVENTIONS:** Standard audiometric and imaging assessments, complete tumor removal by using endoscopy-assisted control, and nerve monitoring. **MAIN OUTCOME MEASURES:** House-Brackmann facial nerve grade and hearing level by the American Academy of Otolaryngology–Head and Neck Surgery classification. **RESULTS:** Grades I and II facial nerve function was obtained in 96 per cent of cases, measurable hearing was preserved in 49 per cent of cases, and 30 per cent of cases achieved serviceable hearing. **CONCLUSION:** The retrosigmoid approach is a safe and reliable approach in random patients with small and medium-sized acoustic neuromas.

Laser stapedotomy minus prosthesis (laser STAMP): absence of refixation. Silverstein, H., Jackson, L. E., Conlon, W. S., Rosenberg, S. I., Thompson, Jr J. H. Ear Research Foundation, Sarasota, Florida USA. hsilverstein@aol.com. *Otology and Neurotology* (2002) March, Vol. 23 (2), pp. 152–7.

OBJECTIVE: To determine what percentage of patients with otosclerosis could successfully undergo a laser stapedotomy minus prosthesis over a five-year period, and to determine the percentage of patients in whom refixation develops during follow-up. **STUDY DESIGNS:** Retrospective case review of 136 patients (137 ears) who underwent primary surgery for otosclerosis. **SETTING:** An otology/neurotology tertiary referral centre. **PATIENTS:** Patients were chosen if they had clinical evidence of otosclerosis without a history of otologic surgery. **INTERVENTIONS:** A standard stapes approach was used for all patients. For the laser stapedotomy minus prosthesis, a hand-held laser probe was used to vaporize the anterior crus of the stapes and perform a linear stapedotomy across the anterior one third of the footplate. If otosclerosis was confined to the fistula ante fenestram, the stapes became completely mobile. The stapedotomy opening was sealed with an adipose tissue graft from the ear lobe. **MAIN OUTCOME MEASURES:** Pure-tone audiometry with appropriate masking and auditory discrimination testing was performed before surgery, six weeks after surgery, and every year thereafter. **RESULTS:** Of the 137 cases, favourable anatomy and minimal otosclerosis allowed 46 (33.6 per cent) of these patients to undergo laser stapedotomy minus prosthesis. Fifty-seven patients (41.6 per cent) could not undergo the procedure because of extensive otosclerosis. The remaining 34 patients (24.8 per cent) did not receive laser stapedotomy minus prosthesis because of other anatomic or technical difficulties. Of the 34 patients in the laser stapedotomy minus prosthesis group with more than four months follow-up, the average air-bone gap was closed from a mean of 22 dB (SD 10 dB) to 6 dB (SD 4 dB) six weeks postoperatively. Follow-up periods ranged from five months to 53 months (mean 767 days, SD 437 days). The long-term air-bone gap improved slightly to an average of 5 dB (SD 6 dB) in comparison with the sixth postoperative week value. **CONCLUSION:** Laser stapedotomy minus prosthesis is a minimally invasive procedure, which over the follow-up period has a very low incidence of refixation, as evidenced by a lack of progressive conductive hearing loss. The success of this procedure depends on the correct selection of cases. The procedure has been successfully performed on 33.6 per cent of patients undergoing primary stapes surgery. Laser stapedotomy

minus prosthesis seems to be a viable alternative to conventional stapedotomy that yields good results without evidence of refixation over an extended time.

Translabyrinthine approach for the management of large and giant vestibular schwannomas. Mamikoglu, B., Wiet, R. J., Esquivel, C. R. Division of Otolaryngology, Northwestern University Medical School, Evanston Hospital, Evanston Northwestern Health Care System, Evanston, Illinois 60201, USA. *Otology and Neurotology* (2002) March, Vol. 23 (2), pp. 224–7.

BACKGROUND: The removal of large vestibular schwannomas through the translabyrinthine approach is still controversial. **MATERIALS AND METHODS:** A retrospective review was performed of 81 patients (58 men and 23 women) with vestibular schwannomas 3 cm or greater, who underwent tumour removal via the translabyrinthine approach between 1985 and 2000. The mean tumour size was 3.7 ± 0.81 cm, and the mean age of the patients was 47 ± 16.1 years. The largest tumour was 6 cm. All surgical procedures were performed in collaboration with a neurosurgery team. **RESULTS:** Total tumour removal was accomplished in 77 cases (95.1 per cent). The facial nerve was preserved anatomically in 69 (85.2 per cent) of the patients. In four patients, divided nerves were repaired by primary anastomosis. Facial nerve function was assessed immediately after surgery and one year or more after discharge. Good function (House-Brackmann facial nerve Grade I or II) was present in 45 per cent of patients and acceptable function (Grades I–IV) in 80 per cent of patients one year after resection of the tumour. Cerebrospinal fluid leakage occurred in 12 patients (17 per cent), meningitis developed in three patients (four per cent), and one patient experienced a stroke immediately after surgery. There were no deaths caused by surgery in this series. **CONCLUSION:** The translabyrinthine approach offers an excellent anatomical view of the cerebellopontine angle and a direct approach to the tumour with functional preservation of the facial nerve. Total removal is accomplished in most cases, with minimum incidence of morbidity and no incidence of mortality.

Exostosis of the external auditory canal: a technical note. Longridge, N. S. Division of Otolaryngology, University of British Columbia, Vancouver General Hospital, 805 W. 12th Avenue, Vancouver, British Columbia V5Z 1M9, Canada. *Otology and Neurotology* (2002) May, Vol. 23 (3), pp. 260–1.

OBJECTIVE: To describe the author's method of managing occlusive exostosis of the external auditory canal. **STUDY DESIGN:** Retrospective chart review. **SETTING:** Tertiary referral ambulatory otology clinic. **PATIENTS:** A case series of patients treated sequentially by the author over 15 years, all of whom had occlusive external auditory canal exostoses that could not be treated by medical management. **INTERVENTION:** Permeatal surgical removal of the anterior exostosis only. **MAIN OUTCOME MEASURE:** Surgical relief of occlusive external auditory canal disease by restoration of hearing and absence of infection with persistence of an external auditory canal and no symptoms of recurrence. **RESULTS:** A total of eight men were treated by anterior exostosis removal. Follow-up continued on these patients for a period of five to 15 years after the operation, and none showed any evidence of recurrence or tendency to narrowing of the deep ear canal. One patient incurred a tympanic membrane perforation at exostosis surgery that was repaired during the operation. **CONCLUSION:** Anterior exostosis removal by a permeatal route is a safe, rapid, and effective method of relieving patients of occlusive external auditory canal exostosis. By leaving the posterior exostosis intact, patients are not put at risk for injury to the facial nerve, chorda tympani nerve, or ossicles. When the deep ear canal is drilled blind, there are no landmarks to indicate the true path of the external canal.

Three-dimensional modelling of middle ear biomechanics and its applications. Gan, R. Z., Sun, Q., Dyer, R. K. Jr., Chang, K. H., Dormer, K. J. Hough Ear Institute, 3400 NW 56th Street, Oklahoma City, OK 73112, USA rgan@ou.edu. *Otology and Neurotology* (2002) May, Vol. 23 (2), pp. 271–80.

HYPOTHESIS: This study investigated whether combined technologies of finite element (FE) analysis and three-dimensional reconstruction of human temporal bones could be used to construct a computational model, useful in describing normal and pathologic middle ear sound conduction. **BACKGROUND:** FE models for biologic systems have been used in ear biomechanics. Three-dimensional reconstructions have also been made, but not in combination with FE modelling and laser interferometry measuring of human temporal bones. Furthermore, the FE model for the human middle ear with its ossicular attachments has not been reported on the basis of temporal bone histologic sections and morphometric reconstruction, to the authors' best knowledge. Because of the size, variability, and complexity of the middle ear, accurate morphologic data and boundary conditions are necessary for accurate FE modelling. **METHODS:** A fresh temporal bone was decalcified, embedded in celloidin, sectioned and stained, scanned, and digitized, and the normal middle ear was reconstructed. The histologic sections were used to construct a computer-aided design model with ligaments, muscles, and tendons as boundary conditions. The data thus obtained were converted into an FE mechanical model that was validated by comparison with displacements obtained by laser Doppler interferometry on 17 fresh human temporal bones. **RESULTS:** An FE model was generated, demonstrating dynamic behaviour that moderately approximated the laser interferometric data from human temporal bones receiving 90 dB sound pressure level auditory frequencies at the tympanic membrane. **CONCLUSION:** Accurate FE modelling, incorporating both morphometric and interferometric performance data, predicted both normal and pathologic mechanical performance of the human ossicular chain.

Treatment of sudden sensorineural hearing loss with systemic steroids and valacyclovir. Tucci, D. L., Farmer, J. C. Jr., Kitch, R. D., Witsell, D. L. Division of Otolaryngology–Head and Neck Surgery, Department of Surgery, Duke University Medical Center, Durham, NC 27710, USA. tucci001@duke.edu. *Otology and Neurotology* (2002) May, Vol. 23 (3), pp. 301–8.

OBJECTIVE: To determine if the addition of an antiviral medication to systemic steroids improves recovery in the treatment of idiopathic sudden sensorineural hearing loss. **STUDY DESIGN:** Randomized, double-blind, placebo-controlled prospective multicenter clinical trial. **SETTING:** The study was administered from a tertiary care centre and clinical research institute; patients were enrolled by otolaryngologists in academic and private practice outpatient settings. **PATIENTS:** Inclusion criteria included 1) loss of at least 30 dB in three contiguous frequencies over three days in patients with previous audiometry, 2) marked loss of hearing in patients with prior subjectively normal hearing and no previous audiometry, with contralateral hearing taken as baseline, and 3) patients seen within 10 days of onset of hearing loss. Pretreatment evaluation included audiometry and complete blood cell count, complete blood chemistry, and fluorescent treponemal antibody absorption test. Auditory brainstem-evoked response or magnetic resonance imaging was recommended. **INTERVENTION:** Patients received prednisone (80 mg/d for four days, then tapered over eight days) with placebo or prednisone with valacyclovir (1 g, three times a day for 10 days). **MAIN OUTCOME MEASURE:** 1) Audiometric assessment at presentation, Week 2, and Week 6; 2) Hearing Screening Inventory questionnaire twice weekly for six weeks; and 3) acute Short Form-12 questionnaire at presentation and Week 2. **RESULTS:** Of 105 subjects enrolled in the study, 84 subjects were evaluable. There were no significant differences between placebo and valacyclovir treatment groups in terms of hearing recovery or symptom recovery on the basis of the Hearing Screening Inventory or Short Form-12 questionnaires. No adverse events were related to the use of valacyclovir. **CONCLUSION:** Within the paradigm used in the current study, an antiviral medication did not provide more benefit than steroid alone in the treatment of idiopathic sudden sensorineural hearing loss.

Sensory auricular branch of the facial nerve. Eshraghi, A. A., Buchman, C. A., Telischi, F. F. Department of Otolaryngology, University of Miami School of Medicine, Miami, Florida, USA. *Otology and Neurotology* (2002) May, Vol. 23 (3), pp. 393–6. **GOAL:** To better describe the anatomy of the sensory auricular branch of the facial nerve. **BACKGROUND:** Clinical experience and the medical literature suggest that the facial nerve supplies sensory fibres to the external auditory canal and pinna. The anatomic distribution of these fibres remains poorly defined. **METHODS:** Ten cadaveric temporal bone dissections with photographic documentation, two clinical cases, and histologic examination of a candidate nerve fibre were collected. **RESULTS:** The anatomic distribution and histologic confirmation of a facial nerve branch coursing through the posterior wall of the external auditory canal is described. Mean (\pm SD) measurements along the mastoid segment of the facial nerve from the short process of the incus and chorda tympani nerve origin to the auricular branch origin were 11.6 ± 1.4 mm (range 9–13 mm) and 3.9 ± 3.0 mm (range 0–8 mm), respectively. Sacrifice of this nerve in a patient resulted in posterior external auditory canal and inferior conchal bowl hypesthesia. **CONCLUSION:** The anatomy of a facial nerve branch coursing through the external auditory canal is presented. The anatomic and functional findings of this study suggest that this nerve represents an auricular sensory branch. Understanding these anatomic details may help in identifying the main trunk of the facial nerve in surgery, preventing postoperative external auditory canal hypesthesia, as well as understanding the significance of Ramsay-Hunt Syndrome and Hitselberger's Sign.

Extraoesophageal reflux in patients with contact granuloma: a prospective controlled study. Ylitalo, R., Ramel, S. Department of Logopedics and Phoniatrics, Huddinge University Hospital, Stockholm, Sweden. *The Annals of Otolaryngology, Rhinology and Laryngology* (2002) May, Vol. 111 (5 Pt 1), pp. 441–6.

The aim of this study was to compare the incidences of extraoesophageal reflux in patients with contact granuloma and healthy controls. A 24-hour ambulatory pH monitoring technique was used to measure reflux parameters in the pharynx and distal esophagus. Pharyngeal acid reflux events occurred in 17 of 26 granuloma patients (one to 20 episodes per patient) and five of 19 controls (one to eight episodes per subject). The reflux episodes were typically short and occurred predominantly in an upright position. A comparison between the groups showed a significant difference in the number of pharyngeal reflux episodes ($p = 0.009$) and in the total time of pH below four ($p = 0.006$). On the other hand, we found no significant differences in any oesophageal reflux parameters, except for the percentage of distal oesophageal reflux episodes that reached the pharynx ($p = 0.006$). In this study, pharyngeal acid exposure was significantly more prevalent in patients with contact granuloma than in healthy controls.

Chemotherapy in the management of squamous-cell carcinoma of the head and neck. Vokes, E. E. Section of Hematology-Oncology, Cancer Research Center, University of Chicago, IL 60637, USA. elamont@medicine.bsd.uchicago.edu. *The Lancet Oncology* (2001) May, Vol. 2 (5), pp. 261–9.

Previously reserved for palliation, chemotherapy is now also a central component of several curative approaches to the management of patients with advanced-stage head and neck cancer. Here we review the results of both induction chemotherapy and chemoradiotherapy trials in patients with curable disease, and chemotherapy trials in patients with recurrent and metastatic disease, and we highlight current areas of investigation. Compared with traditional treatment modalities, chemotherapy given on induction schedules to patients with advanced laryngeal cancer allows greater organ preservation without compromise to survival; when given concomitantly with radiotherapy to patients with resectable or unresectable advanced disease, chemotherapy again improves survival.

Objective measurement of nasal airway dimensions using acoustic rhinometry: methodological and clinical aspects. Hilberg, O. Department of Environmental and Occupational Medicine, University of Aarhus, Denmark. *Allergy* (2002), Vol. 57 (Suppl 70), pp. 5–39.

INTRODUCTION: Nasal congestion is an important symptom in many diseases of the upper airways. Nasal congestion may also affect personal well-being and quality of life. Furthermore, as the

nasal mucosa is the first part of the airways in contact with the environment, objective evaluation of nasal congestion or nasal patency is important. Systematic evaluation of nasal patency was described in the last part of the 19th century by Zwaardemaker. Measurement of the pressure drop over the nasal cavity at a passive dow has been described in 1903 by Courtade and is one of first descriptions rhinomanometry. The technique is still in use and computer technology has made the measurements much easier but the method has not yet been accepted for side clinical use. **METHODOLOGY:** Acoustic methods have also been used for evaluation of nasal patency. A qualitative method was the hum-test by Spiess (1902), where external occlusion of the nonoccluded side of the nasal cavity is experienced as a change in the timbre of the sound during humming. Acoustic reflections have been used in geophysical investigations especially with regard to search for oil. The use of acoustic reflections from the airways gained special interest in 1960-70 for determining the geometry of the vocal tract shape with regard to speech reconstruction. A method described by A. Jackson (1977) was adopted for the first time applied to the nasal cavity. The method for determining the cross-sectional area as function of distance in the airways by acoustic reflections is impulse or relatively simple. The incident sound pseudorandom noise in the audible frequency range is compared with the response – the reflections from the airways. Intuitively, if the size of the entrance to the airways is known, the size of the reflections may represent changes of the airway size and the time between reflections may give the distance between the changes, dependent on the speed of sound. In this way it is possible to determine the area as function of distance in the airways. The technique has some assumptions and the major effort has been to sound loss in the airways and resolution. Therefore, the acoustic reflection technique – named acoustic rhinometry – was compared with other methods like MRI, CT, and rhinomanometry. Allergic and nonallergic subjects were also compared. **RESULTS:** Acoustic rhinometry showed reasonable correlation with CT in a cadaver and in 10 subjects in comparison with MRI for the first 6 cm of the nasal cavity. Models based on MRI scanings of subjects also showed good correlation for the first 6 cm of the nasal cavity. Posteriorly in the nasal cavity and the epipharynx, differences were found mainly due to 'sound loss' to the paranasal sinuses. Sound loss due to viscous loss or fraction at increasing surface/area ratio (the complex geometry in the nose) and loss due to nonrigidity the nasal mucosa were also examined. Neither these factors affected the area-distance function significantly. Acoustic rhinometry seems to reflect the area-distance function in the nose reasonably accurately. In allergic subjects acoustic rhinometry has been used to evaluate hypersensitivity. More pronounced spontaneous variation in nasal mucosa congestion was found in patients suffering from hay fever compared to nonallergic subjects. Furthermore, a tendency to a more swollen mucosa in the allergic subjects compared to the normal state, and increased sensitivity to histamine was found. This and reduction in swelling of the mucosa in allergic subjects during nasal steroid treatment out of the pollen season indicate an ongoing inflammatory process or hypersensitivity in allergic subjects out of the pollen season. During allergen challenge the change in nasal cavity dimension as well as inflammation may affect olfaction in hay fever patients. **DISCUSSION:** Acoustic rhinometry has not only been used to examine hay fever patients but in many different aspects of rhinology. Since the introduction of the acoustic reflection technique in the nose more than papers using the technique have been published. Most of the papers find the technique valuable for evaluation of nasal patency. Fortunately, some critical papers have drawn attention to some practical aspects of the technique. Standard operating procedures, and calibration checks as well as training operators will enhance the accuracy and reproducibility of results. **CONCLUSION AND PERSPECTIVES:** A decade after its introduction acoustic rhinometry is a well-established method for evaluation of nasal patency, but further improvement can be obtained by continued validation and adjustments of the technique.

A technique for implantation of a 3-dimensional penetrating electrode array in the modiolar nerve of cats and humans. Badi, A. N., Hillman, T., Shelton, C., Normann, R. A. Department of Bioengineering, The University of Utah, 20 S 2030E, Room 506, Salt Lake City, UT 84112, USA. *Archives of Otolaryngology – Head and Neck Surgery* (2002) September, Vol. 128 (9),

pp. 1019–25.

BACKGROUND: We believe that direct intraneural stimulation of the modiolar nerve using an array of electrodes will have lower thresholds, offer greater frequency selectivity and more stimulation sites, and have a greater frequency representation than conventional cochlear implants. **OBJECTIVES:** To describe a potential auditory prosthesis based on electrical stimulation of the modiolar cochlear nerve and to report the development of a surgical approach in human and animal models. **DESIGN:** Cadaveric human and animal studies conducted in temporal bones indicated that an array of penetrating microelectrodes could be implanted in the modiolar nerve. Cat studies using anaesthesia were performed to develop the surgical procedure in an animal model. Nerve viability was assessed by measurement of electrically evoked auditory brainstem responses at different stages of the surgery. **SUBJECTS:** Two fresh cadaveric human temporal bones, three cat cadavers, one pig cadaver, and six anaesthetized cats were used in the experiments. **RESULTS:** We were able to implant arrays containing 20 microelectrodes in the human modiolar nerve after exposure by a modified extended facial recess approach. In animals, the modiolar nerve was accessed by the transbulla and the middle fossa approach. The cat was chosen as the appropriate animal model, and the transbulla approach was selected. The round window was exposed by ventral access to the bulla and after cochleostomy; drilling the modiolar bone exposed the modiolar nerve. The mean \pm SD diameter of the exposed nerve in cats was 1.64 ± 0.07 mm ($n = 9$), and the mean \pm SD exposed length was 2.50 ± 0.11 mm ($n = 9$), this is adequate to accommodate 20 microelectrodes. The electrically evoked auditory brainstem responses indicated nerve survival during and after the surgery. **CONCLUSIONS:** The surgical technique allows implantation of up to 20 microelectrodes in the cat and human modiolar nerve. The nerve survives the surgical procedure. This work enables studies in the electrophysiological properties and consequences of long-term implantation.

Clinical and audiological features in auditory neuropathy. Madden, C., Rutter, M., Hilbert, L., Greinwald, J. H. Jr., Choo, D. I. Center for Hearing and Deafness Research, Department of Pediatric Otolaryngology, Children's Hospital Medical Center, 3333 Burnet Ave, Cincinnati, OH 45229, USA. John.Greinwald@chmcc.org. *Archives of Otolaryngology–Head and Neck Surgery* (2002) September, Vol. 128 (9), pp. 1026–30.

To medically and audiologicaly characterize a population of children diagnosed as having auditory neuropathy (AN). **STUDY DESIGN:** Retrospective medical chart review. **SETTING/SUBJECTS:** We identified 22 patients from a paediatric otology clinic in a tertiary care paediatric hospital setting. **RESULTS:** A genetic factor in AN is suggested by our identification of three families with two affected children and two other children with family histories that were positive for hearing loss. Clinical features common among our population included a history of hyperbilirubinemia ($n = 11$ (50 per cent)), prematurity ($n = 10$ (45 per cent)), ototoxic drug exposure ($n = 2$ (nine per cent)). Full clinical and audiological data were available for 18 of the 22 children, including otoacoustic emissions, auditory brainstem responses with cochlear microphonics, and age-appropriate audiometric findings. Significantly, nine of these 18 patients showed improvement in behavioral thresholds over time, indicating that a subset of children with AN may recover useful hearing levels. Also significant was the success of cochlear implantation in four children. **CONCLUSIONS:** Management of AN in children requires serial clinical and audiometric evaluations, with a prominent role for behavioural testing. Prematurity, genetics, and hyperbilirubinemia appear to be significant factors in the development of AN; hyperbilirubinemia can be associated with spontaneous improvement of hearing thresholds. For those children not benefiting from amplification or FM systems, cochlear implantation remains a potentially successful method of habilitation.

Craniofacial resection of advanced juvenile nasopharyngeal angiofibroma. Bales, C., Kotapka, M., Loevner, L. A., Al Rawi, M., Weinstein, G., Hurst, R., Weber, R. S. University of Pennsylvania Medical School, Philadelphia, USA. *Archives of Otolaryngology–Head and Neck Surgery* (2002) September, Vol. 128 (9), pp. 1071–8. **OBJECTIVE:** To describe the results of a craniofacial approach to

resection of stage IIIB juvenile nasopharyngeal angiofibroma, performed by an integrated skull base surgical team. **DESIGN:** A retrospective case-series review was conducted with postoperative follow-up ranging from 28 to 63 months. **SETTING:** Operations were performed at a tertiary medical centre. **PATIENTS:** A referred sample of five male patients, ranging in age from 10 to 23 years (mean, 15 years). **INTERVENTIONS:** All patients underwent resection of nasopharyngeal angiofibromas with intracranial extension. The procedure involved an infratemporal fossa approach via zygomatic osteotomy and subtemporal craniectomy. Anterior exposure was gained through a standard facial translocation. Dissection of the cavernous carotid artery was required in three patients. **MAIN OUTCOME MEASURES:** Intraoperative and postoperative morbidity. **RESULTS:** The average operating time was 12 hours 47 minutes. Estimated blood loss ranged from 700 to 1750 mL (mean, 1120 mL), with two patients requiring intraoperative transfusion. Patients were hospitalized for a mean duration of 5.6 days. Long-term morbidity includes facial dysesthesia, nasal crusting, and malodorous nasal discharge. No patients sustained stroke, oculomotor dysfunction, vision loss, or auditory impairment. At most recent follow-up, which ranges from 28 to 63 months, tumor recurrence has been confirmed in one patient. **CONCLUSIONS:** A combined craniofacial approach is appropriate for juvenile nasopharyngeal angiofibroma that extends intracranially. Complete tumour removal with acceptable morbidity can be expected.

Cancer of the nasal cavity: survival and factors influencing prognosis. Bhattacharyya, N. Division of Otolaryngology, Brigham and Women's Hospital, Department of Otolaryngology and Laryngology, Harvard Medical School, Boston, Mass, USA. *Archives of Otolaryngology-Head and Neck Surgery* (2002) September, Vol. 128 (9), pp. 1079-83.

OBJECTIVE: To determine overall survival and prognostic factors for cancer of the nasal cavity. **DESIGN:** Cross-sectional analysis of a national cancer database. **METHODS:** All cases of nasal cavity cancer were extracted from the Surveillance, Epidemiology and End Results database for 1988 through 1998. Cases with distant metastatic disease were excluded. Tumour histologic types, TNM staging, and pathological features were computed. Kaplan-Meier and Cox proportional hazards analyses were conducted to determine factors influencing overall survival. **RESULTS:** A total of 981 cases were identified, with 3.5 per cent presenting with distant metastatic disease. After exclusion of missing variables, 783 cases were analysed, with a mean patient age of 63.8 years. Squamous cell carcinoma was the most common tumour histologic type (49.3 per cent), followed by esthesioneuroblastoma (13.2 per cent). More than half of the cases presented with early (T1) primary site disease, and only five per cent had positive nodal disease at presentation. Overall mean (median) survival was 76 (81) months, with an overall five year survival rate of 56.7 per cent. On multivariate analysis, male sex, increasing age, T stage, N stage, and poorer tumour grade independently adversely affected survival ($p=0.05$). Radiotherapy was administered in 50.5 per cent of patients and also independently predicted poorer survival ($p=0.03$). The mean (median) survival for squamous cell carcinoma was 79 (84 months); only melanoma showed a statistically significantly poorer mean survival of 40 (30) months when compared with other tumours ($p=0.001$). **CONCLUSIONS:** Age, sex and staging variables have a significant prognostic impact in nasal cavity cancer. Melanomas of the nasal cavity manifest very poor survival.

Optokinetic stimuli: motion sickness, visual acuity, and eye movements. Webb, N. A., Griffin, M. J. Institute of Sound and Vibration Research, University of Southampton, England, UK. *Aviation, Space, and Environmental Medicine* (2002) April, Vol. 73 (4), pp. 351-8.

BACKGROUND: It is commonly assumed that motion sickness caused by moving visual scenes arises from the illusion of self-motion (i.e.vection). **HYPOTHESES:** Both studies reported here investigated whether sickness and vection were correlated. The first study compared sickness and vection created by real and virtual visual displays. The second study investigated whether visual fixation to suppress eye movements affected motion sickness or vection. **METHOD:** In the first experiment subjects viewed an optokinetic drum and a vertical simulation of the optokinetic drum. The second experiment investigated two

conditions on a virtual display: a) moving black and white stripes; and b) moving black and white stripes with a stationary cross on which subjects fixated to reduce eye movements. **RESULTS:** In the first study, ratings of motion sickness were correlated between the conditions (real and the virtual drum), as were ratings of vection. With both conditions, subjects with poor visual acuity experienced greater sickness. There was no correlation between ratings of vection and ratings of sickness in either condition. In the second study, fixation reduced motion sickness but had no effect on vection. Motion sickness was correlated with visual acuity without fixation, but not with fixation. Again, there was no correlation between vection and motion sickness. **CONCLUSIONS:** Vection is not the primary cause of sickness with optokinetic stimuli. Vection appears to be influenced by peripheral vision whereas motion sickness is influenced by central vision. When the eyes are free to track moving stimuli, there is an association between visual acuity and motion sickness. Virtual displays can create vection and may be used to investigate visually induced motion sickness.

Eustachian tube function after translabrynthine vestibular schwannoma surgery. Chiossone, K. J. A., Quaranta, N., Baguley, D. M., Moffat, D. A. Otoneurosurgery and Skull Base Surgery Department, Addenbrooke's University Hospital, Cambridge, UK. *Clinical Otolaryngology and Allied Sciences* (2002) August, Vol. 27 (4), pp. 263-6.

The objective of this study was to evaluate the short-term and long-term effect of the obliteration of the middle ear and the eustachian tube on its function and on middle ear anatomy. Forty-two patients who underwent a translabrynthine removal of a vestibular schwannoma were randomly selected from the 329 patients operated on in the last five years. According to the length of follow-up they were divided in two groups. The eustachian tube was found to open in 40 per cent of cases eight months (group mean) after the operation and at four years in 70 per cent of cases (group mean) after the operation. The mechanisms leading to the opening of the tube are discussed. In addition the absence of long-term middle ear disorders in those with a permanently closed eustachian tube showed that the presence of atrophied connective tissue and scar tissue in the middle ear prevented the retraction of the tympanic membrane. Obliteration of the eustachian tube and middle ear is an easy and rapid procedure, which is temporary in most cases and does not increase the risk of long-term middle ear disease.

A simple technique for treatment of nasal telangiectasia using trichloroacetic acid and CO2 laser. Kim, J. Y., Shin, B. S., Chung, B. S., Cho, S. H. Department of Dermatology, Chosun University Hospital, Gwangju, Korea. *Dermatologic Surgery* (2002) August, Vol. 28 (8), pp. 729-31.

BACKGROUND: Nasal telangiectasia is a common disfiguring condition and may cause significant psychological distress. Although lasers are effective in treating such lesions, there are many disadvantages, such as purpura, scarring, and cost. **OBJECTIVE:** To assess the effectiveness of a combination therapy of CO2 laser and trichloroacetic acid (TCA) for nasal telangiectasia. **METHODS:** Twenty patients with nasal telangiectasia were treated with CO2 laser two weeks after modified sclerotherapy using 80 per cent TCA. **RESULTS:** After one treatment session, all patients had excellent results with more than 75 per cent vessel clearance. There were mild side effects, such as transient erythema and fine frosting. After follow-up of one year, there were no relapses. **CONCLUSION:** We conclude that CO2 laser after modified sclerotherapy using 80 per cent TCA appears to be a simple, effective, and inexpensive method for the treatment of nasal telangiectasia.

The impact of second opinion surgical pathology on the practice of head and neck surgery: a decade experience at a large referral hospital. Westra, W. H., Kronz, J. D., Eisele, D. W. Department of Pathology, The Johns Hopkins Medical Institutions, The Weinberg Cancer Center, Room 2242, 410 N. Broadway, Baltimore, MD 21231, USA. wwestra@jhmi.edu. *Head and Neck* (2002) July, Vol. 24 (7), pp. 684-93.

BACKGROUND: A second review of histopathologic diagnoses is a quality assurance practice that helps expose diagnostic errors and guide management of patients being referred from outside hospitals. Identification of anatomic regions and specimens types

that are prone to diagnostic error will be helpful in guiding policy decisions regarding mandatory second opinion surgical pathology. **METHODS:** All available outside pathology reports were retrieved for patients referred to The Johns Hopkins Hospital Department of Otolaryngology–Head and Neck Surgery between January 1, 1990 and January 1, 2000. The outside diagnosis was compared with diagnosis rendered at the referral hospital. A discrepant diagnosis was regarded as any change resulting in a significant modification in therapy or prognosis. **RESULTS:** Of the 814 cases reviewed, the second opinion surgical pathology diagnosis resulted in 54 (seven per cent) changed diagnoses. Of the changed diagnosis, 13 (24 per cent) involved a change from a benign to a malignant diagnosis; eight (15 per cent) involved a change from a malignant to a benign diagnosis; and 33 (61 per cent) involved a change in tumour classification. Follow-up information supported the second opinion diagnosis in 41 of 43 cases (95 per cent). **CONCLUSIONS:** In a consequential number of cases, second opinion surgical pathology results in major therapeutic and prognostic modifications for patients sent to large referral hospitals for head and neck oncologic surgery.

Human papillomavirus and p53 mutational status as prognostic factors in head and neck carcinoma. Sisk, E. A., Soltys, S. G., Zhu, S., Fisher, S. G., Carey, T. E., Bradford, C. R. Department of Otolaryngology/Head and Neck Surgery, University of Michigan, 1904 Taubman Center, 1500 East Medical Center Drive, Ann Arbor, Michigan, 48109, USA. *Head and Neck* (2002) September, Vol. 24 (9), pp. 841–9.

BACKGROUND: Mutations of the p53 tumour-suppressor gene are common in squamous cell carcinoma of the head and neck (SCCHN) and may portend a worse prognosis. Human papillomavirus (HPV) represents another potential prognostic factor for SCCHN. The oncogenic potential of HPV may be due to the ability of its E6 oncoprotein to promote degradation of wild-type p53 protein. We wish to determine whether there is a lower incidence of p53 mutations in HPV-positive versus HPV-negative tumours, and if HPV and/or p53 status has an impact on survival. **METHODS:** Thirty-two SCCHN specimens were analysed for mutations of the p53 gene using single-strand conformational polymorphism (SSCP) analysis followed by DNA sequencing. The HPV status of all specimens was evaluated by use of polymerase chain reaction with HPV consensus primers and Southern blot hybridization. Pertinent clinical information was obtained from chart review. **RESULTS:** Nonsilent p53 mutations were present in two of 15 (13 per cent) of HPV-positive tumours compared with six of 17 (35 per cent) of HPV-negative tumours ($p = 0.229$; Fisher's exact test, odds ratio 0.28). A survival advantage was found between HPV-positive compared with HPV-negative specimens ($p = 0.0264$) and between p53 wild type compared with p53 mutant specimens ($p = 0.01$) by univariate log rank analysis. When stratified according to both HPV and p53 status, a statistically significant survival difference was observed largely because of a 100 per cent survival for the HPV-positive/p53 status wild-type group ($p = 0.003$). **CONCLUSIONS:** This preliminary study supports the notion that the presence of HPV confers a survival advantage among HNSCC patients, particularly when p53 is wild type.

Oxidative DNA damage is associated with intense noise exposure in the rat. Van Campen, L. E., Murphy, W. J., Franks, J. R., Mathias, P. I., Toraason, M. A. Engineering and Physical Hazards Branch, Division of Applied Research and Technology, National Institute for Occupational Safety and Health, Cincinnati, OH 45226, USA. vancampen_1_e@lilly.com. *Hearing Research* (2002)

February, Vol. 164 (1-2), pp. 29–38.

Increasing evidence suggests that noise-induced hearing loss may be reduced or prevented with antioxidant therapy. Biochemical markers of reactive oxygen species (ROS)-induced damage can help elucidate possible treatment timing constraints. This study examined the time course of ROS damage following a two hour, broad-band noise exposure resulting in permanent threshold shift in 35 Long-Evans rats. Cochlea, brain, liver, serum and urine were analysed at one, three, eight, 72, and 672 h (28 days) after exposure. Oxidative DNA damage was assessed by measuring 8-hydroxy-2'-deoxyguanosine (8OHdG) by high performance liquid chromatography with electrochemical detection. Lipid peroxidation was measured via the thiobarbituric acid-reactive substances (TBARS) colorimetric assay for detection of aldehydes (e.g. malondialdehyde). Auditory brainstem response and distortion product otoacoustic emission thresholds showed progressive elevation for the three- and eight-hour groups, then notable recovery for the 72 hours group, and some worsening for the 672 hour group. 8OHdG was significantly elevated in cochlea in the eight hour group, and in brain and liver for the 72 hour group. TBARS were significantly elevated in serum for the 72 hour group. Based upon oxidative DNA damage present in cochlea following intense noise, we postulate that the first eight hours following exposure might be a critical period for antioxidant treatment.

Tuberculous mastoiditis: when is surgery indicated? Saunders, N. C., Albert, D. M. Department of Paediatric Otolaryngology, Great Ormond Street Hospital, Great Ormond Street, London WC1N 3JH, UK. n.c.saunders@talk21.com. *International Journal of Pediatric Otorhinolaryngology* (2002) August 1, Vol. 65 (1), pp. 59–63. Mycobacterium tuberculosis is a rare cause of mastoiditis, but diagnosis is often delayed, with potentially serious results. We present the case of a seven-year-old child who failed to improve even once the diagnosis was made and appropriate medical treatment initiated. At mastoidectomy, a bony sequestrum was found which had not been evident on CT scanning. We review the diagnosis and management of this condition and suggest that failure to respond to drug therapy even in the absence of demonstrable complications be added to the list of indications for surgical intervention.

Post-traumatic orbital floor reconstruction with nasoseptal cartilage in children. Kraus, M., Gatot, A., Kaplan, D. M., Fliss, D. M. Department of Otolaryngology, Ben-Gurion University of the Negev, Beer-Sheva, Israel. *International Journal of Pediatric Otorhinolaryngology* (2002) July 9, Vol. 64 (3), pp. 187–92.

OBJECTIVE: Repair of orbital floor fractures may require the placement of a graft or implant. Both autogenous and alloplastic materials have been used for this purpose. This article reports the use of nasal septal cartilage for the repair of orbital floor defect secondary to blunt facial trauma in children. **METHODS:** Three children with disruption of the orbital floor after facial trauma were included in this prospective review. All children underwent open reduction with rigid fixation of the facial fractures and reconstruction of the orbital floor with nasoseptal cartilage. **RESULTS:** All of the cases were successfully treated by restoration of the orbital floor continuity. On follow-up clinical examination, one patient had persistent mild enophthalmus. **CONCLUSIONS:** Nasal septal cartilage is a readily accessible autogenous material with minimal donor site morbidity, and should be considered when an autogenous orbital implant is needed for the repair of a traumatic orbital floor defect.