

Abstract Selection

Skin cancer of the head and neck with clinical perineural invasion. McCord, M. W., Mendenhall, W. M., Parsons, J. T., Amdur, R. J., Stringer, S. P., Cassisi, N. J., Million, R. R. Department of Radiation Oncology, University of Florida College of Medicine, Gainesville, USA. *International Journal of Radiation Oncology, Biology, Physics* (2000) April 1, Vol. 47 (1), pp. 89–93.

PURPOSE: To review treatment and outcomes in 62 patients with clinical and/or gross evidence of perineural invasion from skin cancer of the head and neck. **METHODS AND MATERIALS:** Sixty-two patients received radiotherapy at the University of Florida as part of all of their treatment between January 1965 and April 1995. All patients had clinical signs and symptoms of perineural involvement and/or documentation of tumour extending to grossly involve nerve(s). Twenty-one patients underwent therapy for previously untreated lesions, including 12 who received radiotherapy alone and nine who had surgery with postoperative radiotherapy. Forty-one patients underwent therapy for recurrent lesions, including 18 treated with radiotherapy alone and 23 who received preoperative or postoperative radiotherapy. **RESULTS:** Factors on multivariate analysis that predicted local control included patient age, previously untreated vs. recurrent lesions, presence of clinical symptoms, and extent of radiotherapy fields. Recurrence patterns were predominantly local; 26 of 31 patients (84 per cent) who developed local recurrence after treatment had recurrent cancer limited to the primary site. **CONCLUSIONS:** Many patients with skin cancer and symptomatic perineural invasion have disease that is incompletely resectable. Approximately half these patients will be cured with aggressive irradiation alone or combined with surgery. Age, prior treatment, and clinical symptoms influence the likelihood of cure.

Acute onset of decreased vision and hearing traced to hemodialysis treatment with aged dialyzers. Hutter, J. C., Kuehnert, M. J., Wallis, R. R., Lucas, A. D., Sen, S., Jarvis, W. R. Center for Devices and Radiological Health, Food and Drug Administration, Rockville, MD 20852, USA. *JAMA* (2000) April 26, Vol. 283 (16), pp. 2128–34.

CONTEXT: A recent event in which seven patients at one hospital developed decreased vision and hearing, conjunctivitis, headache, and other severe neurologic symptoms seven to 24 hours after hemodialysis drew attention to the issue of the long-term integrity of dialysis machines and materials. **OBJECTIVE:** To determine the cause of the adverse reactions that occurred during this event. **DESIGN, PATIENTS, AND SETTING:** Retrospective cohort study of all nine patients who received hemodialysis at hospital A on September 18, 1996, the day of the outbreak. A case-patient was defined as any hospital A patient with acute onset of decreased vision and hearing and conjunctivitis after dialysis at hospital A on that day but did not develop adverse reactions. In an attempt to reproduce the conditions of the event, cellulose acetate dialysis membranes of various ages were retrieved from other sources and tested for physical and chemical degradation, and degradation products were identified, characterized, and injected intravenously into rabbits. **MAIN OUTCOME MEASURES:** Clinical signs and symptoms, time to resolution of symptoms, mortality, and dialyzer type and age, for case- vs non-case-patients. **RESULTS:** Seven of the nine patients met the case definition. In addition to diminished vision and hearing, conjunctivitis, and headache, some case-patients had blood leak alarm activation (n = 6), confusion/lethargy (n = 5), corneal opacification (n = 4), cardiac arrest (n = 2), or other neurologic signs and symptoms. One case-patient died during hospitalization after the event; five of seven case-patients died within 13 months. Resolution of signs and symptoms varied but persisted more than three years or until death in three out of the six patients who survived hospitalization. All case-patients but no non-case-patients were exposed to 11.5-year-old cellulose acetate dialyzers (all of these dialyzers were discarded by the hospital before our

investigation). Laboratory investigation of field-retrieved 0- to 13.6-year-old dialyzers of similar type indicated significant chemical degradation in the older membranes. In vivo injection of extracts of membrane degradation products produced iritis and hemorrhages in rabbits' eyes. **CONCLUSIONS:** Severe patient injury was associated with exposure to aged cellulose acetate membranes of dialyzers, allowing cellulose acetate degradation products to enter the blood. Clinicians should be aware that aged cellulose acetate membranes may cause severe adverse reactions.

Treatment of severe retromastoid pain secondary to C1-2 arthrosis by using cervical fusion. Holly, L. T., Batzdorf, U., Foley, K. T. Division of Neurosurgery, UCLA Medical Centre, Los Angeles, California, USA. *Journal of Neurosurgery* (2000) April, Vol. 92 (2 Suppl), pp. 162–8.

OBJECT: In this report the authors review their five-year experience in the diagnosis and management of nine patients with severe retromastoid pain secondary to C1-2 arthrosis. Patients with symptomatic joints unresponsive to nonoperative therapy underwent cervical fusion procedures. **METHODS:** The mean age of the patients was 71 years, and the onset of prior symptoms ranged from six months to 18 years. All patients suffered similar discrete nonneuropathic pain without radicular symptoms ipsilateral to the diseased facet joint. Four patients experienced relief from pain with the use of nonoperative therapy. Five patients continued to experience intractable pain and underwent C1-2 fusion. The follow-up period ranged from six to 26 months. The cervical fusion procedure was successful in treating the retromastoid pain in all patients. In patients who underwent surgery, complete relief of pain was demonstrated in four and significantly reduced in the fifth. **CONCLUSIONS:** The authors have drawn several conclusions. First, C1-C2 arthrosis has a rather unique presentation and is a potential cause of upper posterior neck and head pain predominantly in elderly patients. Second, nonoperative management significantly improved the pain in nearly half of their patients and should be the first line of treatment. Last, C1-2 fusion was successful in treating the pain in patients in whom nonoperative management had failed to resolve symptoms.

Diagnosis and documentation of central nervous system dysfunctions with craniocorpography after surgical removal of acoustic neurinomas. Gomez-Angel, D., Fierek, O., Madrazo, J., O'Connor-Reina, C., Galera-Ruiz, H. Department of Otolaryngology – Head and Neck Surgery, University of Seville, School of Medicine, Seville, Spain. *Otolaryngology – Head and Neck Surgery* (2000) April, Vol. 122 (4), pp. 592–5.

Among other tests, craniocorpography (CCG) was performed in 21 patients after acoustic neurinoma surgery. After surgery, 17 patients (81 per cent) had a developing vestibular compensation or an already normal CCG pattern; three patients (14 per cent) had signs of persisting central nervous system dysfunction, either localized to the brain stem or in combination with a cerebellar dysfunction, and one patient showed a delayed but sufficient compensation after removal of a neurinoma that compressed central nervous system structures. Brain stem and cerebellar dysfunctions caused by tumor compression demonstration a better vestibular compensation than dysfunctions caused by surgical manipulation, despite no evidence of cerebellar alteration. As an adjunct to complete neuro-otologic and neurologic examinations CCG could become a useful tool in the topodiagnosis of central nervous system dysfunctions after acoustic neurinoma surgery and therefore in the documentation and follow-up process of these patients.

Effects of dietary restriction and antioxidants on presbycusis. Siedman, M. D. Department of Otolaryngology – Head and Neck Surgery, Henry Ford Health System, West Bloomfield, Michigan

48323, USA. *The Laryngoscope* (2000) May, Vol. 110 (5 Pt 1), pp. 727–38.

OBJECTIVES/HYPOTHESIS: The premise of this study is that the membrane hypothesis of aging, also known as the mitochondrial clock theory of aging, is the basis for presbycusis. Furthermore, it is proposed that treatment with antioxidants or dietary restriction can attenuate age-related hearing loss. Many studies have demonstrated a reduction in blood flow to specific tissues, including the cochlea, with aging. Hypoperfusion leads to the formation of reactive oxygen metabolites (ROM). ROM are highly toxic molecules that directly affect tissues including inner ear structures. In addition, ROM can damage mitochondrial DNA (mtDNA), resulting in the production of specific mtDNA deletions (mtDNA del4977 (human) or mtDNA del4834 may be associated not only with aging but also with presbycusis, thus further strengthening the basis of the current studies. In this study, experiments provide compelling evidence that long-term treatment with compounds that block or scavenge reactive oxygen metabolites attenuate age-related hearing loss and reduce the impact of associated deleterious changes at the molecular level. **STUDY DESIGN:** Prospective randomized study. **METHODS:** One hundred thirty rats were randomly assigned to one of six groups with appropriate controls. Animals were divided into the following treatment arms: group 1, 30 per cent caloric restriction; group 2, vitamin E oversupplementation; group 3, vitamin C oversupplementation; group 4, melatonin treatment; group 5, lazaroid treatment; and group 6, placebo. In addition, 10 animals were used to determine the appropriate caloric restriction. All subjects underwent baseline and every-three-month testing until their health failed (range, 18–28 mo; average, 25 mo). This testing included auditory sensitivity studies using auditory brainstem response (ABR) testing, as well as tissue analysis for mtDNA deletions using molecular biological techniques. At the conclusion of the study, animals underwent a final ABR test and were tested for mtDNA deletions in brain and inner ear tissues, and the opposite ear was used for histological analysis. **RESULTS:** Results indicated that the 30 per cent-caloric-restricted group maintained the most acute auditory sensitivities, the lowest quantity of mtDNA deletions, and the least amount of outer hair cell loss. The antioxidant-treated subjects had improved auditory sensitivities, and a trend for fewer mtDNA deletions was observed compared with the placebo subjects. The placebo subjects had the poorest auditory sensitivity, the most mtDNA deletions, and the greatest degree of outer hair cell loss. **CONCLUSIONS:** Intervention designed to reduce reactive oxygen metabolite damage appears to protect against age-related hearing loss specifically and aging in general. This is reflected by an overall reduction in mtDNA deletions. These data also suggest that the common aging deletion appears to be associated with presbycusis, as demonstrated by an increased frequency of the mtDNA del4834 in the cochlea with the most significant hearing loss. Nutritional and pharmacological strategies may very well provide rational treatment options that would limit the age-associated increase in ROM generation, reduce mtDNA damage, and reduce the degree of hearing loss as the organism advances in age.

Laryngeal reinnervation with the hypoglossal nerve: II. Clinical evaluation and early patient experience. Paniello, R. C. Department of Otolaryngology – Head and Neck Surgery, Washington University School of Medicine and the John Cochran Veterans Affairs Medical Center, St Louis, Missouri 63110-1007, USA. *The Laryngoscope* (2000) May, Vol. 110 (5 Pt 1), pp. 739–48.

OBJECTIVES/HYPOTHESIS: To determine whether the hypoglossal nerve (XII) can serve as a suitable donor for human laryngeal reinnervation. **STUDY DESIGN:** Prospective, nonrandomized. **METHODS:** Measurements were made on patients undergoing open neck procedures to determine the length of XII available and that required to perform XII-recurrent laryngeal nerve (RLN) anastomosis. The morbidity of combined XII and RLN injuries was studied using temporary lidocaine block of the ipsilateral XII in patients with unilateral vocal fold paralysis (UVFP). A pilot series of patients with UVFP who underwent XII-RLN reinnervation was evaluated for morbidity of the procedure, and for improvement in voice and swallowing. **RESULTS:** In 89 necks the average available length of XII was 2 cm less than that needed to reach the larynx, indicating the RLN stump must be at least 3 cm to allow tension-free anastomosis. Twenty-five patients with untreated UVFP underwent temporary

lidocaine block of XII; eight had slight changes in their speech, none had increased aspiration. Nine patients underwent XII-RLN reinnervation. Postoperative speech analysis correlated well with the findings of the temporary lidocaine block of XII. One-year follow-up of five patients showed excellent voice quality, resolution of any preoperative aspiration, and minimal morbidity. Slight adductory movement of the reinnervated vocal fold was seen during tongue thrust. Electromyography confirmed substantial polyphasic action potentials in the thyroarytenoid muscle. **CONCLUSIONS:** The hypoglossal nerve is a very suitable donor for reinnervation of patients with UVFP. There should be enough length for primary XII-RLN anastomosis in most patients. Donor site morbidity is acceptable. Preoperative lidocaine block of XII is a good predictor of actual donor site morbidity and could be used to assess patients undergoing facial-hypoglossal anastomosis as well.

Pharyngolaryngeal, neck, and jaw discomfort after anesthesia with the face mask and laryngeal mask airway at high and low cuff volumes in males and females. Brimacombe, J., Holyoake, L., Keller, C., Brimacombe, B. N., Scully, M., Barry, J., Talbutt, P., Sartain, J., McMahon, P. Department of Anaesthesia and Intensive Care Medicine, Cairns Base Hospital, Australia. *Jbrimacombe@north.net.au. Anesthesiology* (2000) July, Vol. 93 (1), pp. 26–31.

BACKGROUND: There is controversy over (1) the relative incidence of sore throat between the face mask (FM) and laryngeal mask airway (LMA), (2) the efficiency of LMA intracuff pressure reduction as a mechanism for minimizing sore throat, and (3) the relative incidence of sore throat with the LMA between males and females. In a randomized double-blind study, the authors compared laryngopharyngeal, neck, and jaw discomfort with the FM and LMA at high and low cuff volumes in males and females. **METHODS:** Three hundred adult patients were randomly assigned to three equal-sized groups for airway management: (1) the FM, (2) the LMA with a fully inflated cuff (LMA-High), or (3) the LMA with a semi-inflated cuff (LMA-Low). Anesthesia was administered with propofol, nitrous oxide, oxygen, and isoflurane. In the FM group, a Guedel-type oropharyngeal airway and jaw thrust were used only if necessary. In the LMA groups, cuff inflation was achieved with either 15 or 30 ml for the size 4 cuff inflation was achieved with either 15 or 30 ml for the size 4 (females) and 20 or 40 ml for the size 5 (males). The LMA was removed when the patient was awake. Patients were questioned 18–24 h postoperatively about surgical pain, sore throat, sore neck, sore jaw, dysphonia, and dysphagia, and about whether they were satisfied with their anesthetic. **RESULTS:** The incidence of sore throat was lower in the FM (eight per cent) than the LMA-High (42 per cent) and LMA-Low (20 per cent) groups (both: $p < 0.02$). The incidence of sore neck was higher for the FM (14 per cent) than the LMA-High group (six per cent; $p = 0.05$) but similar to the LMA-Low group (eight per cent). The incidence of sore jaw was higher in the FM (11 per cent) than the LMA-High (three per cent) and LMA-Low (three per cent) groups (both: $p = 0.02$). There were no differences among groups for surgical pain or dysphonia. The incidence of dysphagia was lower in the FM (one per cent) than the LMA-High group (11 per cent; $p = 0.003$), but similar to the LMA-Low group (one per cent). The incidence of sore throat and dysphagia was lower in the LMA-Low group than the LMA-High group for both males and females (all: $p < 0.04$). There were no differences in discomfort levels between males and females in any group. Two patients from the FM group and one from the LMA-High group were not satisfied with their anesthetic. These complaints were unrelated to postoperative morbidity. **CONCLUSION:** The LMA causes more sore throat and dysphagia but less jaw pain than the FM. Sore throat and dysphagia are more common with the LMA if the initial cuff volume is high. There are no differences in discomfort levels between males and females. However, these discomforts do not influence patient satisfaction after LMA or FM anesthesia.

Ramsay Hunt syndrome in children. Haton, N., Kasaki, H., Honda, N., Gyo, K., Murakami, S., Yanagihara, N. Department of Otolaryngology, Ehime University School of Medicine, Onsen-gun, Japan. *Annals of Neurology* (2000) August, Vol. 48 (2), pp. 254–6. In a retrospective study, 52 children were diagnosed with Ramsay Hunt syndrome. The facial palsy was milder and complete recovery of the function was achieved in 78.6 per cent of patients. Associated cranial neuropathies were less common in children than in adults. The timing of vesicle appearances tended to be

delayed in children. In preschool children, Ramsay Hunt syndrome was rare, although the frequency has recently increased. The syndrome is relatively common in older children. This study suggested that vaccination can prevent or reduce the occurrence of Ramsay Hunt syndrome.

Management of neck lumps – a triage model. Smith, O. D., Ellis, P. D., Bearcroft, P. W., Berman, L. H., Grant, J. W., Jani, P. Addenbrooke's Hospital Cambridge, UK. *Annals of the Royal College of Surgeons of England* (2000) July, Vol. 82 (4), pp. 223–6. We report our experience in the out-patient triage of 100 patients presenting with a lump in the neck. The out-patient visit consisted of a general history and examination, assessment of the upper air and food passages and, where indicated, ultrasound and core needle biopsy of the lump. Other investigations were performed as appropriate. One hundred neck lump patients were seen in a nine month period. Ninety-six of these lumps were diagnosed formal excision biopsy. Among the diagnoses were 11 lymphomas, nine parotid neoplasms, nine lymph node metastases, five thyroglossal cysts, and four branchial cysts. Almost half the patients seen had either a reactive lymphadenopathy, or no abnormality. The establishment of a tissue diagnosis on an out-patient basis allowed appropriate referrals to be made and management plans to be formulated. The theoretical risk of seeding of malignant cells in the needle tract is acknowledged and discussed.

In vitro bacterial interference in the nasopharynx of otitis media prone and non-otitis media-prone children. Brook, I., Gober, A. E. Department of Pediatrics, Georgetown University School of Medicine, Chevy Chase, MD, USA. *Archives of Otolaryngology – Head and Neck Surgery* (2000) August, Vol. 126 (8), pp. 1011–3. **OBJECTIVE:** To compare the frequency of recovery of potential pathogens and aerobic- and anaerobic-interfering bacteria in the nasopharynx of otitis media-prone (OMP) with that in non-OMP (N-OMP) children. **PATIENTS AND METHODS:** Nasopharyngeal cultures were obtained from 20 OMP and 20 N-OMP children. Potential pathogens and aerobic and anaerobic bacteria with interfering capabilities against these organisms were identified. **RESULTS:** Eighteen potential pathogens were isolated from 12 of the 20 OMP children, and nine were recovered from five of the 20 N-OMP children ($p < 0.05$). Fifty-eight aerobic and anaerobic isolates with interfering capability against four potential pathogens were recovered from five of the OMP group, and 139 from 17 of the N-OMP group ($p < 0.05$). These interfering organisms included alphahemolytic streptococci, nonhemolytic streptococci, Prevotella species, and Peptostreptococcus species. **CONCLUSION:** The nasopharyngeal flora of N-OMP children contains more aerobic and anaerobic organisms with interfering capability and less potential pathogens than that of OMP children.

Histopathologic features of the temporal bone in Usher syndrome type I. Wagenaar, M., Schuknecht, H., Nadol, J. Jr., Benraad van Rens, M., Piek Dahl, S., Kimberling, W., Cremers, C. Department of Otorhinolaryngology, University Hospital Nijmegen, the Netherlands. *Archives of Otolaryngology, Head and Neck Surgery* (2000) August, Vol. 126 (8), pp. 1018–23. Temporal bones of two patients with Usher syndrome type I were examined using light microscopy. In both patients, findings from histopathologic examination of the cochlea were characterized by degeneration of the organ of Corti, which was most marked in the basal turn, atrophy of the stria vascularis, and a decrease in the number of spiral ganglion cells. The cochlear nerve appeared to be diminished. The sensory epithelium of the saccular and utricular maculae of patient one was normal for age. The left temporal bone of patient two, classified as Usher syndrome genetic subtype USH1D or USH1F, demonstrated the typical signs of severe cochleosaccular degeneration. Present cases and cases from the literature were reviewed in search of an explanation for the above-described differences in histologic findings.

Quinolone ear drops for chronic otitis media. They are safer and more effective than aminoglycosides (editorial). Ghosh, S., Libetta, C., Flavin, B., Butler, J., Tong, N., Sammy, I. Department of Emergency Medicine, Manchester Royal Infirmary, Manchester M13 9WL. s.carley@btinternet.co.m. *British Medical Journal* (2000) July 1, Vol. 321 (7252), pp. 20.

Performance and standards for the process of head and neck cancer care: South and West audit of head and neck cancer 1996–1996 (SWAHN I). South and West Regional Cancer Organization Tumour Panel for Head and Neck Cancer. Birchall, M. A., Bailey, D., Lennon, A. University Department of Otolaryngology, Head and Neck Surgery, Southmead Hospital, Bristol, UK. *British Journal of Cancer* (2000) August, Vol. 84 (4), pp. 421–5.

Evidence suggests wide variation in cancer care between different hospitals in the UK. To establish bench-marking data, we designed a prospective, one year regional study comparing key performance measures with established standards for the 28 hospital Trusts in the South and West of England involved in head and neck cancer care. Five hundred and sixty-six sequential patients with a newly-diagnosed head and neck cancer were included. Numbers referred and treated per hospital Trust were one to 58 and one to 65 respectively. Fifty-nine per cent of patients received a pretreatment chest X-ray (standard 95 per cent). Forty-five per cent of patients were seen in a multidisciplinary clinic pretreatment (standard 95 per cent) and this was proportional to the frequency of clinics held ($p < 0.0001$). Median number of cases treated per surgeon was four (one to 26) and by radiotherapist was 10 (one to 51). Times between parts of the process of oral cancer care were closer to the standards than those for laryngeal cancer. Two patients were entered into a clinical trial. One had a quality-of-life score. Thus, in 1996–1997, in the South and West of England, there were major discrepancies between actual performance and established standards in many fundamental aspects of head and neck cancer care. Re-audit is essential to determine if the implementation of the Calman-Hine report has resulted in improvements.

Sonographic appearances of preauricular sinus. Ahuja, A. T., Marshall, J. N., Roebuck, D. J., King, A. D., Metreweli, C. Departments of Diagnostic Radiology and Organ Imaging and Division of Otorhinolaryngology, Department of Surgery, Chinese University of Hong Kong, Prince of Wales Hospital, Shatin, N.T., Hong Kong. *Clinical Radiology* (2000) July, Vol. 55 (7), pp. 528–32.

AIM: Preauricular sinuses are a common congenital abnormality. This study was performed to determine their sonographic features. **MATERIALS AND METHODS:** Fifteen preauricular sinuses (in 13 patients) were examined using a 5–10 MHz transducer to evaluate the nature of the sinus. Surgical correlation was obtained in 11 cases. **RESULTS:** Sonography detected the sinus in all cases. The maximum width of the sinus tract was 3 mm; it showed a branching pattern in four (27 per cent) patients. Nine sinuses (60 per cent) led to a cystic component, and the remaining six (40 per cent) showed terminal ramification. Gas was identified within the sinus in nine (60 per cent) cases. In the patients that underwent surgery, the diagnosis and the relationship of the sinus/cystic component to the superficial temporal artery (STA), anterior crus of the helix and the tragus was confirmed and correlated well with the sonographic findings. However, the branching pattern of the sinus tract was difficult to confirm. **CONCLUSION:** Sonography readily detects preauricular sinuses and demonstrates their relationship to the STA, anterior crus of the helix, and the tragus, and can therefore be helpful in pre-operative assessment. Ahuja, A. T. (2000). *Clinical Radiology* Vol. 55, pp. 528–32.

The surgical treatment of traumatic hematoma of the auricle. O'Donnell, B. P., Eliezri, Y. D. Department of Dermatology, Columbia University, College of Physicians and Surgeons, New York, USA. *Dermatologic Surgery* (1999) October, Vol. 25 (1), pp. 803–5.

BACKGROUND: The auricular hematoma occurs secondary to trauma and can present a therapeutic dilemma for clinicians. Early intervention can be limited to simple incision and drainage. Delay in treatment may allow the growth of ectopic fibrocartilage derived from the damaged perichondrium. Removal of this abnormal tissue is imperative to avoid permanent ear deformity. **OBJECTIVE:** Surgical intervention was utilized to treat auricular hematomas in two teenage boys. **METHODS:** The auricular hematomas were treated by raising a cutaneous flap over the injury site. The clot and serosanguinous fluid were drained and, because the injuries were one month old, the developing plate of fibrocartilage and associated perichondrium was extirpated. The exposed cartilage was fenestrated prior to repairing the

cutaneous flap. **RESULTS:** Both auricles healed without evidence of fibrosis or distortion. **CONCLUSION:** Appropriate surgical intervention can avoid the cosmetic deformity associated with an auricular hematoma (i.e. cauliflower ear).

A case of barotrauma-induced pneumolabyrinth secondary to perilymphatic fistula. McGhee, M. A., Dornhoffer, J. L. Department of Otolaryngology – Head and Neck Surgery, University of Arkansas for Medical Sciences, Little Rock, USA. Snotdoc3@aol.com. *Ear, Nose and Throat Journal* (2000) June, Vol. 79 (6), pp. 456–9

We report a case of a 62-year-old woman who experienced pneumolabyrinth associated with a perilymphatic fistula. Her condition was diagnosed with the help of computed tomography, which detected the presence of an air bubble in the labyrinth, and middle ear exploration, which revealed that clear fluid was emanating from the round window niche in a manner consistent with the presence of a perilymphatic fistula. The niche was repaired with tragal perichondrium and bolstered with Gelfoam.

Current role of gene therapy in head and neck cancer. Ganly, I., Soutar, D. S., Kaye, S. B. Department of Head and Neck Plastic and Reconstructive Surgery, Canniesburn Hospital, Switchback Road, Bearsden, Glasgow G61 1BD, Scotland. ig8j@udcf.gla.ac.uk. *European Journal of Surgical Oncology* (2000) June, Vol. 26(4), pp. 338–43.

Our increasing knowledge of cancer molecular biology was led to the development of new genetic therapies for the treatment of cancer. Such therapies are advantageous in that they can selectively target tumour tissue leaving normal tissue relatively unaffected. In squamous cell cancer of the head and neck, such therapies may be beneficial in the treatment of loco-regional recurrence, minimal residual disease and in the treatment of distant metastatic disease. This article describes the principles of cancer gene therapy reviews some early clinical trials of gene therapy in head and neck cancer.

Epstein-Barr virus detection in neck metastases by in-situ hybridization in fine-needle aspiration cytologic studies: an aid for differentiating the primary site. Lee, W. Y., Hsiao, J. R., Jin, Y. T., Tsai, S. T. Department of Pathology, National Cheng Kung University Medical College, Tainan, Taiwan. *Head and Neck* (2000) July, Vol. 22(4), pp. 336–40.

BACKGROUND: Nasopharyngeal carcinoma (NPC) is strongly associated with Epstein-Barr virus (EBV). The metastasis to cervical lymph nodes represents a frequent initial manifestation of NPC. The usefulness of EBV detection by polymerase chain reaction (PCR) in the diagnosis of occult NPC with cervical metastasis has been reported. Our previous study showed that EBER1 in-situ hybridization was somewhat more sensitive and specific than PCR in detecting EBV in the evaluation of specimens from a population at high risk for NPC. **METHODS:** Fine-needle aspiration cytologic specimens of neck masses from 30 patients were investigated, including 10 NPC primary tumours, 19 squamous cell carcinomas from other sites of the head and neck (nine oral cavity, two paranasal sinuses, two oropharynx, three larynx and three hypopharynx), and one diffuse large-cell lymphoma. EBER1 in-situ hybridization was performed on direct smears made from aspirates. **RESULTS:** EBER1 signals were detected in all neck metastases from the nasopharynx but none of the specimens from other primary sites. **CONCLUSIONS:** This study suggests that EBER1 in-situ hybridization can be used as a supplemental tool for differential diagnosis whenever fine-needle aspiration cytologic examination is presented with a neck metastasis without knowing the primary site.

MRI-guided needle localization in the head and neck using contemporaneous imaging in an open configuration system. Wang, S. J., Sercarz, J. A., Lufkin, R. B., Borges, A., Wang, M. B. Division of Head and Neck Surgery, UCLA Medical Center, Los Angeles, CA 90095, USA. *Head and Neck* (2000) July, Vol. 22(4), pp. 355–9. **BACKGROUND:** MRI-guided procedures have previously been limited by technical difficulties, including the need for MRI-compatible instruments, slow image acquisition time, and the closed nature of conventional MRI scanners. The development of open configuration MRI systems with in-rooms, contemporaneous imaging has greatly increased the potential for MRI-guided interventional procedures. We evaluated our clinical experience

applying this technology to the head and neck. **METHODS:** An open design 0.2T magnet combined with an in-room monitor was used for 24 MRI-guided needle localization procedures in the head and neck. Success of the procedures was based on the ability to accurately position the instrument in the target region to allow biopsy or treatment. **RESULTS:** In all 24 cases placement of the instrument within the target tissue was successful. **CONCLUSION:** MRI-guided needle-localization procedures in an open design magnet with in-room, contemporaneous image monitoring offer advantages over previous conventional interventional MRI systems by allowing interactive guidance with near real-time imaging feedback. As a result, procedure time is reduced and accuracy of instrument positioning is increased.

Pretreatment factors predicting quality of life after treatment for head and neck cancer. De Graeff, A., de Leeuw, J. R., Ros, W. J., Hordijk, G. J., Blijham, G. H., Winubst, J. A. Department of Internal Medicine, University Medical Center Utrecht, The Netherlands. *Head and Neck* (2000) July, Vol. 22(4), pp. 398–407. **BACKGROUND:** Quality of life (QOL) has become an important issue in head and neck cancer. Explanation of factors predicting QOL after treatment has important implication for patient management. **METHODS:** In this prospective study we analysed which pretreatment factors predicted QOL after surgery and/or radiotherapy with curative intent in a cohort of 153 patients with cancer of the oral cavity, oropharynx, hypopharynx, or larynx. The patients completed the EORTC Core Questionnaire, the EORTC Head and Neck Cancer module, and the Centre for Epidemiologic Studies Depression scale before treatment and six and 12 months later. The influence of gender, age, performance status, and depressive symptoms at baseline, site, stage, and treatment on QOL (and its dimensions) and depressive symptoms after six and 12 months was studied, using linear regression analysis. **RESULTS:** A high level of depressive symptoms and a low performance status at baseline and combination treatment were significant predictors of increased severity of symptoms and poor functioning after treatment. Treatment was a predictor of head and neck symptoms, whereas performance status and depressive symptoms were predictors of general symptoms and functioning. Gender and age had little predictive value. **CONCLUSIONS:** Patients with depressive symptoms or a low performance status who receive combination treatment for cancer of the head and neck are at risk for physical and psychologic morbidity after treatment. Special attention should be given to these patients in rehabilitation programs.

A review of evidence in support of a role for 5-HT in the perception of tinnitus. Simpson, J. J., Davies, W. E. Department of Pharmacology, Division of Neuroscience, Medical School, University of Birmingham, Vincent Drive, B15 2TT, Birmingham, UK. j.j.simpson@bham.ac.uk. *Hearing Research* (2000) July, Vol. 145 (1–2), pp. 1–7.

Tinnitus is a debilitating condition from which some 0.5–1 per cent to one per cent of the population of the Western world suffer sufficiently badly to interfere with their normal working and leisure life. There is no satisfactory treatment at the present time and the uncertainty surrounding the mechanism of its generation makes it difficult to devise an effective cure. After much debate, the consensus of opinion amongst researchers regarding its site of origin is that it is primarily a central nervous system pathology although there certainly exists a class of patients whose tinnitus is peripherally based. In this paper, we provide some speculative ideas on how an initial auditory insult can be translated into central neurological substrates that represent tinnitus. Plastic changes arising from sensory deprivation trigger a change in synaptology and neurotransmission with a consequent change in receptor configuration. From neuroanatomical considerations and analogies with other clinical conditions, we postulate the involvement of serotonin (5-HT) in these plastic changes and consider the evidence available from the use of serotonergic drugs in different conditions. A possible relationship between 5-HT and lidocaine is also discussed.

Organic change of effusion in the mastoid in otitis media with effusion and its relation to attic retraction. Hasebe, S., Takahashi, H., Honjo, I., Sudo, M. Department of Hearing and Speech Science, Kyoto University Graduate School of Medicine, Sakyo-ku, 606-8507, Kyoto, Japan. *International Journal of Pediatric*

Otorhinolaryngology (2000) June 9, Vol. 53(1), pp. 17–24.

To try to solve the pathogenesis of severe attic retraction viewed from mastoid condition, we examined the residual soft tissue density (RSTD) in the mastoid by computed tomography (CT) in 85 patients (107 ears) with otitis media with effusion (OME) three months after tympanostomy tube insertion or later. The incidence of RSTD in the mastoid was significantly higher in OME of adults (52.6 per cent) than in children (24.1 per cent). Ears with severe attic retraction had RSTD significantly more frequently (80 per cent) than those with no or mild attic retraction, and many of the mastoids with severe attic retraction were occupied totally by RSTD. The area of the mastoid (mastoid pneumatization) was significantly smaller, and CT density of the mastoid (sclerotic tendency) was significantly higher in ears with RSTD than in those without. RSTD after tympanostomy tube insertion in the mastoid indicating organic change of effusion was considered one of the important factors relating to the pathogenesis of severe attic retraction.

Intratumoral microvessel density predicts local treatment failure of radically irradiated squamous cell cancer of the oropharynx. Aebersold, D. M., Beer, K. T., Laissue, J., Hug, S., Kollar, A., Greiner, R. H., Djonov, V. Department of Radiation Oncology, University of Berne, Inselspital, Bern, Switzerland. *International Journal of Radiation Oncology, Biology, Physics* (2000) August 1, Vol. 48 (1), pp. 17–25.

PURPOSE: To determine the predictive value of intratumoral microvessel density (IMD), and of the expression of p53, vascular endothelial growth factor (VEGF) and thrombospondin-1 (TSP-1) for the radiocurability of patients with squamous cell cancer of the oropharynx. **MATERIALS AND METHODS:** 139 patients with squamous cell cancer of the oropharynx were radically irradiated (median dose, 74 Gy) between 1991 and 1997. Biopsies from 100 patients were processed for immunohistochemistry. IMD was determined in hot spots areas of tissue stained with anti-CD31 at a magnification of x200. Staining for p53 was considered positive if more than 10 per cent of the cell nuclei overexpressed the protein. Immunostaining of VEGF and TSP-1 was assessed semiquantitatively. **RESULTS:** Increasing IMD (range, 54–282) was strongly correlated with incomplete remission of both the primary tumors ($p=0.01$) and lymph node metastases ($p=0.02$). Moreover, multivariate Cox regression analysis revealed local failure-free survival to decline with increasing IMD (IMD continuous: risk ratio = 1.01 per increase of one microvessel, $p=0.0001$; IMD categorical: $</= 80$: baseline, 81–110: risk ratio = 2.71, 111–130: risk ratio = 4.55, > 130 : risk ratio = 13.01). Neither the expression of p53, nor that of VEGF or TSP-1 was associated with the treatment outcome or IMD, but VEGF and TSP-1 expression were positively correlated ($p=0.02$). **CONCLUSION:** IMD represents a powerful and independent predictive factor for local treatment failure in radically irradiated patients with squamous cell cancer of the oropharynx.

Risk factors for neurological complications after acoustic neuroma radiosurgery: refinement from further experiences. Ito, K., Shin, M., Matsuzaki, M., Sugawara, K., Sasaki, T. Department of Otolaryngology, Faculty of Medicine, University of Tokyo, Tokyo, Japan. itoken-tky@umin.ac.jp. *International Journal of Radiation Oncology, Biology, Physics* (2000), August 1, Vol. 48 (1), pp. 75–80.

PURPOSE: Further actuarial analyses of neurological complications were performed on a larger population treated by stereotactic radiosurgery at our institution, to establish the optimal treatment parameters. **METHODS AND MATERIALS:** Between June 1990 and September 1998, 138 patients with acoustic neuromas underwent stereotactic radiosurgery at Tokyo University Hospital. Of these, 125 patients who received medical follow-up for six months or more entered the present study. Patient ages ranged from 13 to 77 years (median, 53 years). Average tumour diameter ranged from 6.7 to 25.4 mm (mean, 13.9 mm). Maximum tumour doses ranged from 20 to 40 Gy (mean, 29.8 Gy) and peripheral doses from 12 to 25 Gy (mean, 15.4 Gy). One to 12 isocenters were used (median, four). Follow-up period ranged from six to 104 months (median, 37 months). The potential risk factors for neurological complications were analysed by two univariate and one neurological actuarial analyses. Neurological complications examined include hearing loss, facial palsy, and trigeminal nerve dysfunction. Variables

included in the analyses were four demographic variables, two variables concerning tumour dimensions, and four variables concerning treatment parameters. A variable with significant p values ($p<0.05$) on all three actuarial analyses was considered a risk factor. **RESULTS:** The variables that had significant correlation to increasing the risk for each neurological complication were: Neurofibromatosis type 2 (NF2) for both total hearing loss and pure tone threshold (PTA) elevation; history of prior surgical resection, tumour size, and the peripheral tumour dose for facial palsy; and the peripheral tumour dose and gender (being female) for trigeminal neuropathy. In facial palsies caused by radiosurgery, discrepancy between the course of palsy for neurological complications seem to have been almost established, without large differences between institutions treating a large number of patients by radiosurgery. Radiosurgical doses and tumour dimensions were considered the two important risk factors for the seventh and fifth nerve injuries. Neurofibromatosis type 2 was an important factor for hearing loss.

Detailed flow patterns in the nasal cavity. Kelly, J. T., Prasad, A. K., Wexler, A. S. Department of Mechanical Engineering, University of Delaware, Newark, Delaware 19716-3140, USA. *Journal of Applied Physiology* (2000) July, Vol. 89(1), pp. 323–37. The human nasal cavity filters and conditions inspired air while providing olfactory function. Detailed experimental study of nasal airflow patterns has been limited because of the complex geometry of the nasal cavity. In this work, particle image velocimetry was used to determine two-dimensional instantaneous velocity vector fields in parallel planes throughout a model of the nasal cavity that was subjected to a nonoscillatory flow rate of 125 ml/s. The model, which was fabricated from 26 computed tomography scans by using rapid prototyping techniques, is a scaled replica of a human right nasal cavity. The resulting vector plots show that the flow is laminar and regions of highest velocity are in the nasal valve and in the inferior air way. The relatively low flow in the olfactory region appears to protect the olfactory bulb from particulate pollutants. Low flows were also observed in the nasal meatuses, whose primary function has been the subject of debate. Comparison of sequentially recorded data suggests a steady flow.

No evidence of measles virus in stapes samples from patients with otosclerosis. Grayeli, A. B., Palmer, P., Tran-Ba-Huy, P., Soudant, J., Sterkers, O., Lebon, P., Ferrary, E. INSERM U.426, Faculté Xavier Bichat, Université Paris 7, France. grayeli@bichat.inserm.fr. *Journal of Clinical Microbiology* (2000) July, Vol. 38 (7), pp. 2655–60.

Otosclerosis is a localized bone dystrophy of unknown etiology mainly involving the stapes. The hypothesis of a persistent infection by the measles virus was based on the inconstant detection of the virus by various methods, including reverse transcription-PCR (RT-PCR) of patients' stapes samples. The aim of this work was to investigate the presence of the measles virus in stapedial otosclerosis foci by different sensitive methods. Pathologic stapes samples were obtained from 35 patients suffering from otosclerosis. Measles virus detection was performed by (i) cocultures of Vero cells and primary cell cultures of bone samples ($n=7$), (ii) immunofluorescence study of these cocultures ($n=3$), and (iii) RT-PCR on RNA directly obtained from fresh frozen samples ($n=28$) and on RNA extracted from the primary cell cultures ($n=2$). Viral genomic regions coding for N (nucleoprotein) and M (Matrix) proteins were separately amplified. PCR sensitivity was optimized on measles Edmonston strain. Glycerol-3-phosphate dehydrogenase mRNA was used as a marker of total RNA recovery. PCR products were tested by Southern blot hybridization technique to improve sensitivity and specificity. PCRs amplifying the M and the N protein genes were able to detect the control measles virus RNA at titres as low as 0.1 and 0.01 50 per cent tissue culture infective dose, respectively. With these highly sensitive methods we could not evidence the presence of the measles virus in any of our bone samples or primary bone cell cultures. Our results do not confirm the hypothesis of persistent measles virus infection in otosclerosis.

Microvascular decompression for cochlear symptoms. Okamura, T., Kurokawa, Y., Ikeda, N., Abiko, S., Ideguchi, M., Watanabe, K., Kido, T. Department of Neurosurgery, Ube Institute Central Hospital, Yamaguchi, Japan. okam123@lime.ocn.ne.jp. *Journal of Neurosurgery* (2000) September, Vol. 93 (3), pp. 421–6.

OBJECT: The object of this study was to evaluate the efficacy of a new neurovascular decompression technique in relieving symptoms of cochlear nerve dysfunction. **METHODS:** Nineteen patients with slowly progressive hearing loss, low-frequency fluctuating hearing loss, and high-pitched tinnitus due to neurovascular compression (NVC) of the eighth cranial nerve in a triangular space between the seventh and eighth cranial nerves (the VII–VIII triangle) of the cerebellopontine angle (CPA) were tested using a new technique for microvascular decompression that was developed by anatomical study in 24 cadaver specimens of the CPA. In 12 of 19 patients the anterior inferior cerebellar artery (AICA) was observed to cause compression in the VII–VIII triangle and this vessel was easily mobilized medially for placement of a silicone sponge or Teflon cushion between the compressing artery and nerve. Postoperatively, hearing loss of 20 dB or more that was present in 11 of the 19 patients with NVC improved by more than 5 dB in seven (64 per cent), including the patient with the most severe hearing loss. Of 18 patients presenting with tinnitus preoperatively, eight (44 per cent) had no tinnitus and an additional nine (for a total of 94 per cent) had good improvement in tinnitus after surgery and at long-term follow up. **CONCLUSIONS:** The microvascular decompression technique described is highly successful in treating symptoms due to direct or indirect compression of the cochlear nerve, with minimal risk of complications. Recordings of auditory brainstem responses confirmed the clinical diagnosis of NVC of the eighth cranial nerve and correlated with clinical results after microvascular decompression of the cochlear nerve.

Medical hypnosis for temporomandibular disorders: treatment efficacy and medical utilization outcome. Simon, E. P., Lewis, D. M. Department of Psychology, Multi-Disciplinary Pain Clinic, Tripler Regional Medical Center, University of Hawaii, USA. EricSimon@yahoo.com. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology and Endodontics* (2000) July, Vol. 90(1), pp. 54–63.

AIM: The aim of this study was to examine the effectiveness of a particular behavioural medicine treatment modality, medical hypnosis, on reducing the pain symptoms of temporomandibular disorders (TMD). **METHODS:** Twenty-eight patients who were recalcitrant to conservative treatment for TMD participated in a medical hypnosis treatment program and completed measures of their pain symptoms on four separate occasions: during wait list, before treatment, after treatment, and at a six month follow-up. In addition, pretreatment and posttreatment medical use were examined. **RESULTS:** Statistical analysis of this open trial suggests that medical hypnosis is a potentially valuable treatment modality for TMD. Patients reported a significant decrease in pain frequency ($F(3, 87) = 14.79, p < 0.001$), pain duration ($F(3, 87) = 9.56, p < 0.001$), and pain intensity ($F(3, 87) = 15.08, p < 0.001$), an increase in daily functioning. Analysis suggests that their symptoms did not simply spontaneously improve, and that their treatment gains were maintained for six months after hypnosis treatment. Further, after hypnosis treatment, patients exhibited a significant reduction in medical use. **CONCLUSION:** Medical hypnosis appears to be an effective treatment modality for TMD, in terms of reducing both symptoms and medical use.

Neuro-otologic history. Rosenberg, M. L., Gizzi, M. Neuro-ophthalmology, New Jersey Neuroscience Institute, Edison, New Jersey 08818, USA. *Otolaryngologic Clinics of North America* (2000) June, Vol. 33(3), pp. 471–82.

Throughout medicine, the clinical history is the most important diagnostic tool. This is particularly true in vestibular disease, where pathologic confirmation of the disease process is rare. Many vestibular conditions are more appropriately called syndromes, rather than diseases, because the pathology is either variable or unknown. Knowledge of the anatomy and physiology provides the basis of understanding the control of balance and the symptoms that might occur should something go wrong. History taking should cover the elements of the balance system, including vestibular function, vision, hearing, somatosensation, and motor function.

Distinguishing and treating causes of central vertigo. Solomon, D. Department of Neurology and Otorhinolaryngology – Head and Neck Surgery, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania 19104-4283, USA. dsolomon@mail-

med.upenn.edu. *Otolaryngologic Clinics of North America* (2000) June, Vol. 33(3), pp. 579–601.

A patient's dizziness can be caused by a peripheral vestibular disorder, VIIIth nerve compression, brain stem ischemia, or cerebellar stroke. Clues from the history and physical examination are mentioned, and diagnostic entities, such as demyelination, cerebrovascular disease, migraine, Arnold-Chiari malformation, cerebellar degeneration, and neoplastic disease are discussed. Treatment options are outlined so that therapeutic and diagnostic trials can be initiated. Guidelines are offered for when to image the brain or posterior circulation vasculature and when a patient with acute vertigo should be admitted for observation.

Prevalence of allergy in Meniere's disease. Derebery, M. J., Berliner, K. I. House Ear Clinic and House Ear Institute. *Otolaryngology – Head and Neck Surgery* (2000) June, Vol. 123 (1 Pt 1), pp. 69–75.

OBJECTIVES: The goal of this study was to determine the prevalence of allergy in a population of patients with Meniere's disease. **METHODS:** A survey was mailed to all patients with Meniere's disease seen at our institution from 1994 to July 1998 ($n = 1490$). As a control group, 172 patients with otologic problems other than Meniere's disease completed the same survey. **RESULTS:** Of 734 respondents with Meniere's disease, 59.2 per cent reported possible airborne allergy, 40.3 per cent had or suspected food allergies, and 37 per cent had had confirmatory skin or in vitro tests for allergy. These prevalence rates were significantly higher than those found in the control group, of which 42.7 per cent reported having or suspected airborne allergies and 25 per cent had or suspected food allergies (differences all significant at $p < 0.005$). **CONCLUSION:** The prevalence of allergy appears to be much higher in patients with Meniere's disease than in the general population or the population of patients visiting an otologic clinic for other symptoms.

Imaging of tinnitus: a review. Weissman, J. L., Hirsch, B. E. Department of Radiology and Otolaryngology, Oregon Health Sciences University, 3181 SW Sam Jackson Park Road, Mail Code CR-135, Portland OR 97201-3098, USA. weissmaj@ohsu.edu. *Radiology* (2000) August, Vol. 216(2), pp. 342–9.

Tinnitus, a buzzing or ringing in the ear, may be pulsatile or continuous (nonpulsatile). The distinction, with a detailed clinical evaluation, determines the most appropriate imaging study. Pulsatile tinnitus suggests a vascular neoplasm, vascular anomaly, or vascular malformation. Most of the neoplasms are glomus tympanicum and glomus jugulare tumours. Vascular anomalies may cause pulsatile tinnitus, but the mechanism is unknown, and another (treatable) cause should be sought. Most neoplasms and anomalies are best seen on bone algorithm computed tomographic (CT) studies. Dural vascular malformations are often elusive on all cross-sectional imaging studies; conventional angiography may be necessary to make this diagnosis. Flow-sensitive magnetic resonance (MR) images show vascular loops compressing the eighth cranial nerve. Carotid dissections, aneurysms, atherosclerosis, and fibromuscular dysplasia can be identified on both MR imaging or MR angiographic studies and CT or CT angiographic studies. Otosclerosis and Paget disease are CT diagnoses. Benign intracranial hypertension often has no abnormal imaging findings. For patients with nonpulsatile tinnitus, MR imaging is the study of choice to exclude a vestibular schwannoma or other neoplasm of the cerebellopontine angle cistern. Multiple sclerosis and a Chiari I malformation are rare cause of pulsatile tinnitus, also best seen on MR studies. Many patients with tinnitus have no abnormal imaging findings.

Use of methotrexate for autoimmune hearing loss. Matteson, E. L., Tirzaman, O., Facer, G. W., Fabry, D. A., Kasperbauer, J., Beatty, C. W., McDonald, T. J. Division of Rheumatology, Mayo Clinic and Foundation, Rochester, Minnesota 55905, USA. *The Annals of Otolaryngology, Rhinology and Laryngology* (2000) August, Vol. 109 (8 Pt 1), pp. 710–4.

To assess the efficacy of low-dose methotrexate (MTX) given long-term for the treatment of autoimmune hearing loss, we performed a prospective open-label study of 11 patients with treatment-refractory autoimmune hearing loss. All patients had ongoing episodic worsening of hearing in one or both ears before enrollment despite traditional medical therapy. The MTX dose was 7.5 to 17.5 mg/wk. Hearing loss and vertigo were evaluated at

baseline and at completion of the study. Hearing improvement was defined as an improvement in the pure tone threshold (PT) average of >10 dB or an increase in speech discrimination (SD) of >15 per cent, whereas worsening was defined as a worsening of >10 dB in PT or a decrease of >15 per cent in SD in at least one ear. The MTX was well tolerated. Among the six patients with Meniere's disease. Four had improvement or resolution of vertigo, while two had no improvement. Disequilibrium improved in all three patients with Cogan's syndrome. According to the parameters defined above, hearing improved in nine patients (82 per cent), was unchanged in one patient (nine per cent), and worsened in one patient (nine per cent). Long-term low-dose MTX therapy may be a useful therapy for some patients who have hearing loss with a presumptively autoimmune-mediated component that is refractory to traditional therapies.

Efficacy of computed tomographic image-guided endoscopic sinus surgery in residency training programs. Casiano, R. R., Numa, W. A., Jr. Department of Otolaryngology, University of Miami School of Medicine, Miami, Florida, USA. *The Laryngoscope* (2000) August, Vol. 110 (8), pp. 1277–82.

OBJECTIVE: To determine the efficacy of computed tomographic image-guided endoscopic surgery in the hands of inexperienced surgeons. **STUDY DESIGN:** Four second-year otolaryngology residents, with no prior experience performing ethmoidectomies, performed endoscopic sinus surgery (ESS) on formalin-fixed human cadaveric specimens with and without the aid of computer-assisted surgery (CAS). **METHODS:** Each resident was asked to identify critical sinus, orbital, and skull base structures while performing a total ethmoidectomy and multiple sinusotomies. Their surgical accuracy (percentage of correctly identified structures), total operative time, and incidence of major complications were recorded for each side. A total of 16 sides were evaluated (eight with and eight without CAS). Statistical significance between groups was determined by means of Pearson's χ^2 analysis. **RESULTS:** Statistical analysis showed a significant difference ($p = 0.001$) in the mean accuracy of identifying critical anatomical landmarks between the CAS (97 per cent) and non-CAS (76.8 per cent) groups. Although not statistically significant, operative time appeared to be longer in the group using CAS (average of 67 vs. 80 min). Three major intracranial complications were documented only in the group not using CAS. **CONCLUSIONS:** Although, unquestionably, a thorough knowledge of the anatomy remains essential for performing ESS, CAS improves surgical accuracy and reduces the risk of major intracranial or intraorbital complications for residents. In addition, our data suggest that this technology may enhance surgical efficiency and improve the learning curve by reducing operative time (below one's normal baseline) while maintaining a greater than 90 per cent accuracy in identifying critical anatomical landmarks.

Cranioplasty in acoustic neuroma surgery. Wazen, J. J., Sisti, M., Lam, S. M. Department of Otolaryngology – Head and Neck Surgery, Columbia-Presbyterian Medical Center, New York, New York 10032, USA. *The Laryngoscope* (2000) August Vol. 110(8), pp. 1294–7.

OBJECTIVES: To measure the incidence of postoperative headaches after retrosigmoid resections of acoustic neuromas and to evaluate the impact of cranioplasty on the prevention and management of these headaches. **STUDY DESIGN:** A prospec-

tive evaluation was performed on 30 consecutive patients who underwent a cranioplasty after retrosigmoid excision of their acoustic neuroma. The results were compared with 30 historical control patients who underwent the same procedure but did not have reconstruction with a cranioplasty. The patients were evaluated by review of office records and via telephone questionnaire. **METHODS:** One group of patients (30 patients) had no cranioplasty, and the other group of 30 patients had primary reconstruction with a titanium mesh-acrylic cranioplasty. All 60 patients were asked to report on the duration and severity of their headaches by means of a standard questionnaire, grading their symptoms on a scale of one to four. The data were subjected to χ^2 and student t test statistical analyses. **RESULTS:** New-onset, postoperative headaches occurred in 27 per cent of patients, 23 per cent in the cranioplasty group compared with 30 per cent in the group without cranioplasty (a difference that was not statistically significant ($p = 0.158$)). However, there was statistically significant difference in the severity of the headaches ($p < 0.03$). The headaches in the cranioplasty group were less severe and were not disabling. There were no complications, infections, or extrusions related to the cranioplasty. **CONCLUSIONS:** Cranioplasty has not been able to eliminate postoperative headaches. However, the use of cranioplasty has significantly decreased the severity of postoperative headaches after retrosigmoid excision of acoustic neuromas.

Intratympanic gentamicin for the treatment of unilateral Menieres disease. Kaplan, D. M., Nedzelski, J. M., Chen, J. M., Shipp, D. B. Department of Otolaryngology, Sunnybrook and Women's College Health Science Centre, and the University of Toronto, Ontario, Canada. *The Laryngoscope* (2000) August, Vol. 110 (8), pp. 1298–305.

OBJECTIVE: To determine the efficacy of intratympanic gentamicin instillation as treatment of incapacitating unilateral Meniere's disease, using a predetermined regimen with a fixed dose. **STUDY DESIGN:** A prospective study from a single institution between 1988 and 1998. **METHODS:** One hundred and fourteen patients were enrolled in this study. Gentamicin (26.7 mg/mL) was administered three times daily for four consecutive days. The Committee on Hearing and Equilibrium Guidelines for Reporting Treatment Results in Meniere's Disease of the American Academy of Otolaryngology and Head and Neck Surgery (1985) were used. **RESULTS:** Comprehensive data were available for 90 individuals. Complete control of vertigo was achieved in 76 (84.4 per cent) substantial control in eight (nine per cent), limited control in two (2.2 per cent) and insignificant control in four (4.4 per cent) patients. Disability scores at the end of two years were as follows: 76 patients (84.4 per cent) had no disability, five (5.6 per cent) had mild disability, two (2.2 per cent) had moderate disability, and seven (7.8 per cent) had severe disability. Caloric testing responses, as determined using electronystagmography, were as follows: 71 per cent of the patients had an absent ice-water response, 16 per cent had a positive ice-water response, and in 13 per cent there continued to be present a bithermal response. Hearing was worse in 22 patients (25.6 per cent), unchanged in 41 (48.2 per cent) and improved in 22 (25.6 per cent). **CONCLUSIONS:** Intratympanic gentamicin administration using this particular protocol is an effective treatment option for patients with disabling unilateral Meniere's disease. Hearing loss is a distinct possibility, and patients should be advised accordingly.