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Abstract selection

Effects of head and neck radiation therapy on vocal function. Fung, K., Yoo, J., Leeper, H. A., Bogue, B., Hawkins, S., Hammond, J. A., Gilchrist, J. A., Venkatesan, V. M. Department of Otolaryngology, London Health Sciences Centre, University of Western Ontario. *The Journal of Otolaryngology* (2001) June, Vol. 30 (3), pp. 133–9.

OBJECTIVE: Radiotherapy (RT) is used to treat a variety of head and neck malignancies. The larynx may receive high radiation doses even in the absence of disease. The effects of RT on the nondiseased larynx are unknown. This study will evaluate subjective and objective parameters of vocal function in patients treated with RT for nonlaryngeal malignancies. DESIGN: Cross-sectional observational study. METHODS: Videostroboscoic, aerodynamic, and acoustic analyses were performed. Results were compared to age- and gender-matched controls. Self-assessment of voice quality was measured using the Voice Handicap Index. RESULTS: A majority of patients demonstrated increased supraglottal activity (i.e. ventricular fold constriction) during stroboscopic evaluation. Significant differences compared to normative data were found in many aerodynamic and acoustic parameters. A substantial proportion (27 per cent) of patients reported significant voice handicap. Younger patients reported greater handicap, and voice quality was worse with time. CONCLUSIONS: Significant objective and subjective changes in vocal function occur in patients radiated for nonlaryngeal head and neck malignancies. Young patients may have the worst impact, and vocal dysfunction may increase with time. A prospective study of this patient population should include a baseline voice quality assessment.

Cardiovascular safety of cocaine anaesthesia in the presence of adrenaline during septal surgery. Kara, C. O., Kaftan, A., Pinar, H. S., Ogmen, G. Otolaryngology Department, Medicine School, Pamukkale University, Denizli, Turkey. *The Journal of Otolaryngology* (2001) June, Vol. 30 (3), pp. 145–8.

OBJECTIVE: The purpose of this study was to investigate the possible cardiovascular side effects of four per cent cocaine solution in the presence of adrenaline during septal surgery. METHOD: Sixty adult patients undergoing elective septal surgery with local anaesthesia were included in the study. Noses were packed with 5 ml four per cent cocaine (200 mg) solution on cotton pledgets, which were left in the nose for 15 minutes. Then, 10 ml of local anaesthetic (lidocaine two per cent and adrenaline 1:100 000) were infiltrated in septal mucosa, and 15 minutes later, the surgical procedure was initiated. At the beginning of the operation, intervals from 12-lead surface electrocardiograms and vital signs including blood pressures and heart rate were recorded as a baseline. All measurements were repeated just before local anaesthetic infiltration, just before the beginning of the surgical procedure, and, finally, at the end of the operation. All four measurements and electrocardiographic tracings were examined. Systolic and diastolic blood pressures and QT parameters, RR intervals, and heart rates obtained from electrocardiogram were compared statistically with repeated-measures analysis of variance. RESULTS: No statistically significant difference was found among all four staged measurements. None of the patients developed tachycardia, hypertension, hypotension, or any chest pain. In electrocardiogram tracings, no sinus tachycardia depression, elevation, or bundle branch block was noted. CONCLUSION: This study shows that concomitant use of cocaine and adrenaline in the proper concentration and volume and in a carefully screened patient group was safe for the cardiovascular system.

Intraoperative management of the thyroid gland in laryngeal cancer surgery. Dadas, B., Uslu, B., Cakir, B., Ozdogan, H. C., Calis, A. B., Turgut, S. Department of Otolaryngology and Head and Neck Surgery, Sisli Etfal Education and Research Hospital, Istanbul, Turkey. *The Journal of Otolaryngology* (2001) June, Vol. 30 (3), pp. 179–83.

OBJECTIVE: To determine if it is necessary to perform a hemithyroidectomy routinely with all total laryngectomies or if it should be reserved for selected cases. DESIGN: A retrospective analysis of 215 cases who had been operated on due to laryngeal cancer in our clinic between 1985 and 1999. SETTING: In only 182 cases, hemithyroidectomy and isthmectomy were performed together with laryngeal surgery. Of these, 98 per cent were male. Their ages ranged between 42 and 70 years. The tumour was located in the supraglottic region in 93 (51 per cent) and in the glottic region in 24 (13 per cent) cases. In 65 cases (36 per cent), the tumour was transglottic. Twenty cases of transglottic tumours (31 per cent) and three cases of glottic tumours (12.5 per cent) were found to have subglottic extension. METHODS: Total laryngectomy with unilateral or bilateral neck dissection and hemithyroidectomy on the tumour side plus isthmectomy were performed on all patients. On the pathologic specimens, subglottic extension was measured anteriorly and posteriorly from the free edges of the vocal cords. The specimens were stained with hematoxylin and eosin and examined under a light microscope. MAIN OUTCOME MEASURES: With glottic and transglottic carcinomas, the need for thyroidectomy may be based on the intraoperative assessment of the thyroid gland. In subglottic carcinomas, a hemithyroidectomy should routinely be performed. There may be no need to perform thyroidectomy in all total laryngectomy cases. RESULTS: The thyroid gland was invaded by squamous cell carcinoma in only two cases (one per cent). Both of these cases were transglottic tumours staged as T3 and T4 and had a subglottic extension more than 1 cm. CONCLUSIONS: We recommend routine hemithyroidectomy and isthmectomy during total laryngectomy only in cases with subglottic extensions more than 1 cm or thyroid cartilage invasion with tumour. In the other cases, assessment of extralaryngeal invasion and thyroid gland invasion by the tumour will determine whether thyroidectomy should be performed.

Treatment outcomes of benign paroxysmal positional vertigo. Sherman, D., Massoud, E. A. Department of Surgery, Dalhousie University, Halifax, Nova Scotia. *The Journal of Otolaryngology* (2001) October, Vol. 30 (5), pp. 295–9.

OBJECTIVE: The purpose of this study was to examine the efficacy of the particle repositioning manoeuvre (PRM) in the treatment of benign paroxysmal positional vertigo (BPPV). DESIGN: A randomized prospective study of patients with BPPV. METHODS: Seventy-one patients were randomized to one of three groups at their first clinic visit. These groups included the PRM, a sham PRM, and a control group. Patients were followed up in clinic at two weeks and three months. The mean long-term follow-up was 12 months. A telephone questionnaire was also conducted. RESULTS: At two-week follow-up, 81.8 per cent of patients in the PRM group had a resolution of symptoms had a negative Dix-Hallpike test compared with 15.3 per cent in the sham PRM group and 60 per cent in the control group. This difference was statistically significant between the treatment (PRM) and sham PRM groups and between the sham and control groups. It nearly reached significance between the treatment and control groups ($p = 0.06$). The sham treatment group had by far the worst outcome at the two-week interval. There was no statistically significant difference between the groups after two weeks. CONCLUSION: The PRM is side specific. It may help induce remission of the vertiginous symptoms of BPPV in the short term. This cannot be attributable to a placebo effect. The PRM does not seem to affect the natural history of the disorder in the long term. The sham treatment causes a delay in spontaneous recovery, possibly by preventing the particles from falling into the utricle. This study has not compared the frequency or severity of symptoms.

Hearing preservation in acoustic neuroma surgery. Browning, S., Mohr, G., Dufour, J. J., Rappaport, J. M., Zeitouni, A., Provencal, C., Hernandes, Y., Surkis, S., Druker, S., Davis, N. L. Department of Otolaryngology, Jewish General Hospital, Montreal, Quebec. *The Journal of Otolaryngology* (2001) October, Vol. 30 (5), pp. 307–15.
This article reviews the Montreal experience of hearing preservation in acoustic neuroma surgery. The medical records since 1995 of 36 patients who underwent acoustic neuroma extirpation with the intent to preserve hearing were examined. Intraoperative monitoring was conducted using auditory brainstem response measurement with electrocochleography via a transtympanic electrode. The role of intraoperative monitoring in guiding surgical technique and its correlation with postoperative hearing outcome are discussed. A review of the literature regarding hearing preservation in acoustic neuroma surgery is included.

Reconstruction of the posterior auditory canal with hydroxyapatite-coated titanium. Magliulo, G., D'Amico, R., Forino, M. ENT Clinic, University La Sapienza, Rome, Italy. *The Journal of Otolaryngology* (2001) December, Vol. 30 (6), pp. 330–3.
There are a variety of techniques for treating chronically discharging radical mastoid cavities. The purpose of this article is to report the preliminary results of an original technique for reconstruction of the posterior auditory canal using a titanium net combined with porous hydroxyapatite coating. Titanium is fixed with two screws to the mastoid tip and zygomatic root to prevent the risk of implant dislocation. Eight patients with chronically discharging radical mastoid cavities that failed medical management underwent reconstruction of the mastoid cavity using this technique. After surgery, all cases had rapid healing and good aeration of the middle ear and mastoid. One tympanic membrane reperforated, and no extrusion of the prostheses were detected clinically or on computed tomography scanning. The minimum postoperative follow-up period has been 12 months (range 12–48 months). To date, there has been no evidence of cholesteatoma recurrence. The preliminary results remain encouraging. Larger series and longer follow-up, however, are advisable to prove real validity.

Modelling of the human middle ear using the finite-element method. Koike, T., Wada, H., Kobayashi, T. Department of Mechnical Engineering, Tohoku University, Sendai, Japan. *The Journal of the Acoustical Society of America* (2002) March, Vol. 111 (3), pp. 1306–17.
In this study, a three-dimensional finite-element model (FEM) of the human middle ear was established, including features of the middle ear which were not considered in the previous model, i.e. the ligaments, tendons, I-S joint, loading of the cochlea, external auditory meatus (EAM), middle-ear cavities etc. The unknown mechnical properties of these parts and the boundary conditions were determined so that the impedance obtained from the FEM analysis resembled the measurement values. The validity of this model was confirmed by comparing the motion of the tympanic membrane and ossicles obtained by this model with the measurement data, and the effects of the newly considered features on the numerically obtained results were examined. By taking the ligaments and tendons into account and assuming that the cochlea acts as a damper, with this model it was possible to realistically reproduce complex ossicular chain movement. It was found that the middle-ear cavities did not affect the vibration mode of the tympanic membrane. Although the EAM enhanced the sound pressure applied to the tympanic membrane compared with that at the entrance of the EAM, the pressure distribution on the surface of the tympanic membrane was not affected by the EAM.

Effects of antibiotics and steroid on middle ear mucosa in rats with experimental acute otitis media. Park, S. N., Yeo, S. W. Department of Otolaryngology–Head and Neck Surgery, Kangnam St. Mary's Hospital, The Catholic University of Korea, College of Medicine, Seocho-Gu, Seoul, South Korea. *Acta Oto-Laryngologica* (2001) October, Vol. 121 (7), pp. 808–12.
The prevention of mucosal changes induced by experimental pneumococcal otitis media by means of antibiotics has been demonstrated previously. However, the effect of combined antibiotic and steroid therapy on the middle ear mucosa in acute otitis media (AOM) has not been determined. The right middle ears of 27 rats were inoculated with a log-phase type 3 Streptococcus pneumoniae, with the left ears serving as controls. Penicillin G was administered to nine rats and penicillin G and dexamethasone in combination were administered to nine rats after bacterial challenge; the remaining nine rats were not treated. Three animals from each group were sacrificed on days four, seven and 14 after challenge. Tympanic membranes and middle ear mucosa were examined using otomicroscopy and light microscopy. Structural changes were diminished in both the antibiotic-treated and antibiotic + steroid-treated groups, compared with those in the untreated infected controls. The antibiotic + steroid-treated group showed the most marked decrease in structural change, especially in the mucosal metaplasia to the secretory epithelium. The results suggest that combination therapy with antibiotics and steroid in AOM is the most effective at reducing the treatment period and preventing persistent mucosal changes, which may decrease the risk of development of secretory otitis media as a sequela of AOM.

A follow-up study of patients suffering from sudden sensorineural hearing loss. Kallinen, J., Laurikainen, E., Bergroth, L., Grenman, R. Department of Otorhinolaryngology–Head and Neck Surgery, Turku University Central Hospital, Finland. *Acta Oto-Laryngologica* (2001) October, Vol. 121 (7), pp. 818–22.
Sudden sensorineural hearing loss (S-SNHL) is a common problem with a high recovery rate. However, little is known of the long-term prognosis of affected patients. The purpose of this follow-up study was to evaluate the long-term hearing results of S-SNHL patients. The sample consisted of 168 patients with S-SNHL treated with carbogen inhalation and/or anticoagulant therapy during the period 1982–89. A questionnaire was sent to these patients, and audiological investigations were carried out in a selection of these patients in 1997. Comparison of the different treatment methods showed that the difference observed in improvement of hearing was statistically significant between the carbogen inhalation and anticoagulant treatment groups. The hearing improvement achieved was stable for, on average, eight years of follow-up. During the follow-up period, Meniere's disease was diagnosed in only one of the 116 patients who answered the questionnaire and no cases of acoustic neurinoma were diagnosed, indicating that establishment of a careful patient history and clinical and audiological investigations are sufficient for the diagnosis of S-SNHL. In general, the hearing improvement achieved in S-SNHL patients is stable during long-term follow-up.

Serum and cerebrospinal fluid pathology in patients with sudden sensorineural hearing loss. Finizia, C., Joensson, R., Hanner, P. Department of Otorhinolaryngology, Sahlgrenska University Hospital, MoeIndal, Sweden. *Acta Oto-Laryngologica* (2001) October, Vol. 121 (7), pp. 823–30.
The serum and cerebrospinal fluid (CSF) pathology of patients with sudden sensorineural hearing loss (SHL), both seropositive and seronegative to Borrelia burgdorferi (Bb), was prospectively studied. Nineteen consecutive patients were included and trends between the degree of hearing recovery and serum/CSF pathology and given therapy were examined. The pilot study showed a high prevalence (68 per cent) of pathology in serum and CSF in patients with SHL. In 54 per cent of the patients, elevated levels of CSF proteins and/or pathological CSF cell counts were present without positive antibodies to Bb. Positive levels of antibodies against Bb or pathological proteins in CSF were associated with better hearing recovery (means of 47.2 and 51.7 per cent, respectively). The audiometric configuration 'high frequency sloping' hearing impairment was associated with the lowest degree of hearing recovery. Patients with SHL and positive serology to Bb who received antibiotic treatment (oral tetracycline), with or without steroids, had the best hearing recovery in this study (61.7 and 48.4 per cent, respectively). In conclusion, we found a high prevalence of serum and CSF pathology in a consecutive group of patients with SHL. Early appropriate antibiotic treatment may prevent the development of major late complications of Lyme disease/borreliosis. We also find it justified to perform more general serological analyses, including CSF analysis, in patients with SHL. A more liberal approach to testing and development of test protocols for SHL patients will increase our knowledge in this field.

Effect of aggressive therapy on laryngeal symptoms and voice characteristics in patients with gastroesophageal reflux. Hamdan, A. L., Sharara, A. I., Younes, A., Fuleihan, N. Department of Otolaryngology–Head and Neck Surgery, American University of Beirut Medical Center, Lebanon. *Acta Oto-Laryngologica* (2001) October, Vol. 121 (7), pp. 868–72.
Gastroesophageal reflux (GER) is associated with a variety of laryngopharyngeal signs and symptoms. Injury of the laryngopharynx as a result of GER can be refractory to conventional antireflux therapy. This prospective study was undertaken to evaulate the prevalence of laryngopharyngeal signs and symptoms in patients with documented GER and to assess the response to a high-dose combination antireflux therapy consisting of cisapride and pantoprazole. Twenty-two patients with symptoms of GER were enrolled. After baseline evaluation using a history questionnaire for symptoms, laryngeal endoscopy and vocal acoustic analysis, patients were started on treatment consisting of pantoprazole 40 mg b.d. and cisapride 20 mg twice daily. Repeat history and otolaryngologic evaluation was performed at four weeks. Laryngopharyngeal symptoms were frequent in most patients, with throat clearing and globus being the most prevalent symptoms followed by vocal fatigue and excess mucus production. Almost 90 per cent of the patients had abnormal endoscopic laryngeal findings but the acoustic parameters did not show any abnormal results except for mild elevation in the shimmer. After treatment, all symptoms and endoscopic abnormalities improved significantly except for intermittent dysphonia and laryngeal mucosal redness. Acoustic abnormalities did not change significantly following therapy. Laryngeal symptoms and voice abnormalities are highly prevalent in patients with GER. Combination antireflux therapy with a proton pump inhibitor and a prokinetic agent results in rapid symptomatic and endoscopic response in the majority of patients.

Missense mutations in GJB2 encoding connexin-26 cause the ectodermal dysplasia keratitis-ichthyosis-deafness syndrome. Gabriele, R., Fatima, R., Willoughby, C. E., Brown, N., Chung, P., Ryynaenen, M., Jabs-Ehylin, W., Bale-Sherri, J., Di Giovanna, J. J., Uitto, J., Russell, L. Department of Dermatology and Cutaneous Biology and Jefferson Institute of Molecular Medicine, Thomas Jefferson University, Philadelphia, PA 19107, USA. gabriele.richard@mail.tju.edu. *American Journal of Human Genetics* (2002) May, Vol. 70 (5), pp. 1341–8.
Keratitis-ichthyosis-deafness syndrome (KID) is a rare ectodermal dysplasia characterized by vascularizing keratitis, profound sensorineural hearing loss (SNHL), and progressive erythrokeratoderma, a clinical triad that indicates a failure in development and differentiation of multiple stratifying epithelia. Here, we provide compelling evidence that KID is caused by heterozygous missense mutations in the connexin-26 gene, GJB2. In each of 10 patients with KID, we identified a point mutation leading to substitution of conserved residues in the cytoplasmic amino terminus or first extracellular domain of Cx26. One of these mutations was detected in six unrelated sporadic case subjects and also segregated in one family with vertical transmission of KID. These results indicate the presence of a common, recurrent mutation and establish its autosomal dominant nature. Cx26 and the closely related Cx30 showed differential expression in epidermal, adnexal, and corneal epithelia but were not significantly altered in lesional skin. However, mutant Cx26 was incapable of inducing intercellular coupling in vitro, which indicates its functional impairment. Our data reveal striking genotype-phenotype correlations and demonstrate that dominant GJB2 mutations can disturb the gap junction system of one or several ectodermal epithelia, thereby producing multiple phenotypes: nonsyndromic SNHL, syndromic SNHL with palmoplantar keratoderma, and KID. Decreased host defense and increased carcinogenic potential in KID illustrate that gap junction communication plays not only a crucial role in epithelial homeostasis and differentiation but also in immune response and epidermal carcinogenesis.

The purpose of this study was to evaluate retrospectively the distribution of histologic damage and its correlation with various risk factors in a group of patients affected by Reinke's edema. Marcotullio, D., Magliulo, G., Pezone, T. Department of Otorhinolaryngology, 'La Sapienza' University, Rome, Italy. *American Journal of Otolaryngology* (2002) March–April, Vol. 23 (2), pp. 81–4.
MATERIALS AND METHODS: The study subjects comprised 125 patients with bilateral Reinke's edema consecutively presenting at the Department of Otorhinolaryngology, 'La Sapienza' University, Rome. The patients were divided into four groups according to Hellquist, Lundgren, and Olofsson's histologic classification and were then further categorized according to the number of cigarettes they smoked daily. Average exposure to cigarette smoke, occupation, habitual voice use, and gastroesophageal reflux were also considereed. RESULTS: Fifty-two patients did not exhibit histologic lesions, 64 patients were histologically classified as Group 1 (epithelial hyperplasia and/or keratosis with or without mild dysplasia), and six patients exhibited moderate dysplasia (Group 2). In three patients, histologic examination showed evidence of unilateral carcinoma in situ (Group 3). Forty-four patients suffered recurrences within the first 2.5 years. Both daily cigarette consumption and duration of exposure to cigarette smoke were found to influence the severity of the histologic lesion. An association with gastroesophageal reflex was observed in four patients (3.2 per cent). Prolonged vocal abuse did not prove to be a noteworthy factor in our study. CONCLUSIONS: The main risk factor for Reinke's edema and for its recurrence is tobacco use. Our study results showed that the clinical manifestation of this disease is related to the number of cigarettes smoked daily and the duration of exposure to smoke. Longer durations of exposure to cigarette smoke result in higher degrees of histologic damage.

Interaction of sleep disturbances and gastroesophageal reflux in chronic laryngitis. Konermann, M., Radue-Hans, J., Teschler, H., Rawert, B., Heimbucher, J., Sanner-Bernd, M. Medical Department, Marienkrankenhaus, Marburger Strasse 85, 34127 Kassel, Germany. *American Journal of Otolaryngology* (2002) January–-February, Vol. 23 (1), pp. 20–6.
BACKGROUND: A considerable percentage of patients with reflux laryngitis do not respond to conventional treatment with proton pump inhibitors or prokinetics. At the present time, the reasons for this are not well known. PURPOSE: To investigate whether nocturnal reflux associated with sleep-related respiratory disorders is the cause of refractory laryngitis. METHOD: The data from 227 patients (133 women, ages 18 to 75 years, body mass index 17.4 to 38.3, mean 32.1 kg/m^2) with LG were analysed retrospectively. All received laryngoscope and gastroscopy. All patients initially received 40- to 80 mg omeprazole and underwent a follow-up laryngoscopy after six weeks. Of the patients, 202 showed a clear improvement, whereas 25 (11.1 per cent) did not. All underwent 24-hour pH monitoring and cardiorespiratory polysomnography. RESULTS: All of the patients showed laryngoscopic signs of LG. Of the patients, 102 (45 per cent) had a hiatal hernia and 53 (28 per cent) suffered from reflux esophagitis. Forty-two patients (19 per cent) were found to have Helicobacter pylori in the stomach. Among the 25 patients who failed to respond to omeprazole, pH monitoring showed nocturnal acid reflux in 15 (60 per cent). Twenty-four patients (96 per cent) showed a sleep related respiratory disturbance manifesting as pathologic snoring (16 patients) or obstructive sleep apnea (eight patients, respiratory disturbance index (RDI) 11 to 33, mean 16.3/h). All received nasal continuous positive airway pressure (nCPAP) treatment, 16 with constant mask pressure (four to 12, mean, 5.6 mbar) and eight with autoadjusting pressure. One patient abandoned treatment; the other 23 showed clear subjective and objective improvement after three months of treatment. CONCLUSIONS: Even without pH monitoring evidence of nocturnal reflux, refractory LG is very often associated with sleep-related respiratory disorders and responds well to nCPAP treatment. Prospective studies are needed to clarify the details of this association.

Amaurosis: a complication of bilateral radical neck dissection. Worrell, L., Rowe, M., Petti, G. Division of Otolaryngology/Head and Neck Surgery, Loma Linda University, 11234 Anderson Street, P. O. Box 2000, Loma Linda, CA 92354, USA. *American Journal of Otolaryngology* (2002), January–February, Vol. 23 (1), pp. 56–9.
Blindness is a devastating complication of bilateral radical neck dissection. To our knowledge, it has been reported in the literature only 12 times. Although the cause is still controversial, many common factors have been identified. We present a case of blindness after bilateral neck dissection and discuss the perio-

perative circumstances and the possible causes. We also compare and contrast the other cases described in the literature and suggest methods in which this complication can be prevented.

The burden of allergic rhinitis: beyond dollars and cents. Fineman, S. M., Emory University School of Medicine, Atlanta Allergy and Asthma Clinic, Marietta, Georgia 30060-7290, USA. sfineman@atlantaallergy.com *Annals of Allergy, Asthma and Immunology* (2002) April, Vol. 88 (4 Suppl 1), pp. 2–7.
OBJECTIVE: This article presents information about the economic burden of allergic rhinitis and its effect on quality of life. After reading this article, readers should have a greater awareness of the economic impact of this disesae and how important it is for both patient and society to diagnose and treat it properly. DATA SOURCES: Relevant and appropriately controlled clinical studies, data compiled from surveys and patient questionnaires, and studies of direct and indirect costs associated with allergic rhinitis were used. Only literature in the English language was reviewed. STUDY SELECTION: Material was taken from academic/scholarly journals and appropriate reviews. RESULTS: Allergic rhinitis occurs in approximately 20 per cent of the general population in the United States. In recent years, its economic impact has increased, with spending for direct and indirect medical costs estimated between 1.5 and $2 billion a year. In addition to its financial burden, however, allergic rhinitis exacts a considerable toll on patients' quality of life, cognitive and learning functions, decision-making, and self-perception. Low energy levels associated with allergic rhinitis can lead to impairments of both memory and decision-making abilities. CONCLUSIONS: Effective treatment and greater understanding on the part of both physicians and patients can help to reduce direct and indirect costs as well as to lessen the impact of allergic rhinitis on quality of life for both patient and society.

Rethinking our approach to allergic rhinitis management. Storms, W. W. University of Colorado Health Sciences Center, Colorado Springs, USA. sneezedoc@aol.com. *Annals of Allergy, Asthma and Immunology* (2002) April, Vol. 88 (4 Suppl 1), pp. 30–5.
OBJECTIVE: This article reviews the recommendations by the World Health Organization's new guidelines, 'Allergic, Rhinitis and Its Impact on Asthma' (ARIA), and the paradigm for treating allergic rhinitis based on disease classification. After reading this article, readers should understand the ARIA guidelines and the salient issues involving the challenges inherent in the management of allergic rhinitis. DATA SOURCES: Relevant and appropriately controlled clinical studies and results of patient surveys were used. Only literature in the English language was reviewed. STUDY SELECTION: Material was taken from academic/scholarly journals, published abstracts, and presentations at a major congress. RESULTS: The ARIA guidelines' new classification categorizes patients' allergic rhinitis as either intermittent or persistent with gradations from mild to moderate-severe. These guidelines propose a stepwise approach to management guided by symptom severity and evaluation of treatment response, with the underlying concept for treatment being to select therapies that address individual patients' symptoms. Although few data were available at the time of their inception, the guidelines recognize that antileukotriene medications may play an important role in the treatment of allergic rhinitis. Results of recent clinical trials support the use of antileukotriene medications in allergic rhinitis, alone or concomitantly with an antihistamine. CONCLUSIONS: Targeting specific and multiple mechanisms of allergic rhinitis and individualizing all available and effective treatments to each patient, with specific medications for specific symptoms, will be of particular benefit to patients with allergic rhinitis.

Inferior vestibular neuritis. Halmagyi, G. M., Aw, S. T., Karlberg, M., Curthoys, I. S., Todd, M. J. Neurology Department, Royal Prince Alfred Hospital, Camperdown, NSW 2050, Sydney, Australia, michael@icn.usyd.edu.au. *Annals of the New York Academy of Sciences* (2002) April, Vol. 956, pp. 306–13.
Sudden, spontaneous, unilateral loss of vestibular function without simultaneous hearing loss or brain stem signs is generally attributed to a viral infection involving the vestibular nerve and is called acute vestibular neuritis. The clinical hallmarks of acute vestibular neuritis are vertigo, spontaneous nystagmus, and unilateral loss of lateral semicircular function as shown by impulsive and caloric testing. In some patients with vestibular neuritis the process appears to involve only anterior and lateral semicircular function, and these patients are considered to have selective superior vestibular neuritis. Here we report on two patients with acute vertigo, normal lateral semicircular canal function as shown by both impulsive and caloric testing, but selective loss of posterior semicircular canal function as shown by impulsive testing and of saccular function as shown by vestibular evoked myogenic potential testing. We suggest that these patients had selective inferior vestibular neuritis and that contrary to conventional teaching, in a patient with acute spontaneous vertigo, unilateral loss of lateral semicircular canal function is not essential for a diagnosis of acute vestibular neuritis.

Genetics of familial episodic vertigo and ataxia. Baloh, R. W., Jen, J. C. Department of Neurology and Division of Surgery (Head and Neck), UCLA School of Medicine, Los Angeles, California 90095-1769, USA. rwbaloh@ucla.edu. *Annals of the New York Academy of Sciences* (2002) April, Vol. 956, pp. 338–45.
The familial episodic ataxias are prototypical inherited channelopathies that result in episodes of vertigo and ataxia triggered by stress and exercise. Episodic ataxia type 1 (EA-1) is caused by missense mutations in the potassium channel gene KCNA1, whereas episodic ataxia type 2 (EA-2) is caused by missense and nonsense mutations in the calcium channel gene CACNA1A. These ion channels are crucial for both central and peripheral neurotransmission. Within the last few years, the genetic mechanisms underlying these relatively rare familial episodic ataxia syndromes have been worked out. They provide a model for understanding the mechanisms of more common recurrent vertigo and ataxia syndromes, particularly those associated with migraine. Migraine affects as many as 15–20 per cent of the general population, and it has been estimated that about 25 per cent of patients with migraine experience spontaneous attacks of vertigo and ataxia. We identified 24 families with migraine and benign recurrent vertigo inherited in an autosomal dominant fashion. These families have numerous features in common with EA-1 and EA-2 (particularly EA-2), suggesting that benign recurrent vertigo may be an inherited channelopathy. An ion channel mutation shared by brain and inner ear could explain the combined central and peripheral features of the syndrome.

Are autopsies useful? Do premorbid findings predict postmortem results in head and neck cancer patients? Jennings, C.R., Bradley, P. J. Department of ENT, Queens Medical Centre, University Hospital, Nottingham, UK. *Annals of the Royal College of Surgeons of England* (2002) March, Vol. 84 (2), pp. 133–6.
A total of 53 autopsies were analysed in patients with head and neck squamous carcinoma. The discordance rate, that is the proportion of autopsies that revealed new information, was 53 per cent. One-third of patients did not die of cancer. Clinical findings either misdiagnosed or under-diagnosed loco regional disease in 34 per cent of cases, and distant malignant disease in 36 per cent of cases. It appears that the autopsy reveals new and useful information in the head and neck cancer patient, and consent should be sought.

Predictors of perioperative complications in head and neck patients. Farwell, D. G., Reilly, D. F., Weymuller, E. A. Jr., Greenberg, D. L., Staiger, T. O., Futran, N. A. University of Washington, Department of Otolaryngology–Head and Neck Surgery, Box 356515, Seattle, WA 98195-6515, USA. *Archives of Otolaryngology–Head and Neck Surgery* (2002) May, Vol. 128 (5), pp. 505–11.
BACKGROUND: Patients with significant medical problems requiring major otolaryngology procedures are at high risk for both medical and surgical complications. OBJECTIVE: To identify risk factors associated with perioperative complications in medically compromised patients undergoing major otolaryngology procedures. METHODS: Ninety-three consecutive patients with significant comorbid medical illnesses (e.g. diabetes, hypertension) undergoing major head and neck surgical procedures were referred to a medical consultation center for preoperative assessment and medical management. Patient and surgical characteristics as well as perioperative complications were identified and recorded. Univariate and multivariate analyses were performed to determine which characteristics were associated with complications. RESULTS: Thirty-two patients (34 per cent) had postoperative complications. Twenty-six patients (28 per

cent) had serious medical complications, and 18 (19 per cent) had surgical complications. No deaths occurred in the study population. On univariate analysis, the factors associated with all complications included history of hepatitis, flap reconstruction, oncologic surgery, preoperative radiation therapy, preoperative gastrostomy placement, intraoperative transfusion, anesthesia time (> or = eight hours), and those with greater intraoperative fluid replacement and estimated blood losses. Only anesthesia time (> or = eight hours) remained independently significant on multivariate analysis. A history of hepatitis and prolonged anesthesia time were the only independent predictors of medical complications. The only independent predictor of surgical complications was the volume of intraoperative fluid administered. CONCLUSIONS: Prolonged anesthesia times of eight hours or more, a history of hepatitis, and large-volume intraoperative fluid resuscitations predicted adverse outcomes. Special care must be taken in counselling these patients preoperatively and in caring for them during their operative and postoperative course.

Markers for nodal metastasis in head and neck squamous cell cancer. Takes, R. P., Baatenburg, De, J. R. J., Alles, M. J. R. C., Meeuwis, C. A., Marres, H. A. M., Knegt, P. P. M., De La Riviere, G. B., De Wilde, P. C. M., Mooi, W. J., Hermans, J. Van Krieken, J., Han, J. M. Department of Otorhinolaryngology and Head and Neck Surgery, University Hospital, Leiden, the Netherlands, r.takes@kno.azn.nl. *Archives of Otolaryngology–Head and Neck Surgery* (2002) May, Vol. 128 (5), pp. 512–8.
OBJECTIVE: To identify markers that are relevant as predictors of lymph node metastasis in head and neck squamous cell cancer. DESIGN: Expression of p53, Rb, cyclin D1, E-cadherin, and epithelial cell adhesion molecule was examined using immunohistochemical analsis and traditional histological parameters, and the correlation of these markers with the histologically verified presence of regional metastases was determined. SUBJECTS: The study sample comprised 121 patients with head and neck squamous cell cancer from whom paraffin-embedded material of primary tumours was used. RESULTS: Lymph node metastasis was correlated with the loss of expression of Rb ($p = 0.04$) and marginally correlated with the loss of expression of E-cadherin ($p = 0.06$). If the results are broken down to subsites, loss of E-cadherin expression in oral cancer ($p = 0.04$) and absence of eosinophilic infiltration in laryngeal cancer ($p = 0.003$) correlated with nodal metastasis. None of the other markers correlated. A combination of relevant parameters did not result in a much stronger correlation. CONCLUSIONS: The expression of the investigated genetic markers and histopathological features of primary tumours can supply limited information on the metastatic behaviour of tumours. Although the use of markers for regional metastasis would be a welcome additional tool, these results do not warrant the use of these parameters for clinical decision making concerning the treatment of the neck in patients with head and neck squamous cell cancer.

Three-dimensional imaging of the inner ear by volume-rendered reconstructions of magnetic resonance data. Klingebeil, R., Thieme, N., Kivelitz, D., Enzweiler, C., Werbs, M., Lehmann, R. Neuroradiology Section, Department of Radiology, Charite CM, Schumannstr 20/21, 10098 Berlin, Germany. Randolf.Klingebiel @charite.de. *Archives of Otolaryngology–Head and Neck Surgery* (2002) May, Vol. 128 (5), pp. 549–53.
OBJECTIVE: To evaluate three-dimensional inner ear visualization by volume rendering of high-resolution magnetic resonance data in patients with clinically suspected inner ear abnormality. DESIGN: Prospective comparative study of different postprocessing techniques, based on blinded film readings. SETTING: Tertiary referral hospital. SUBJECTS: Fifty patients (17 females and 33 males) aged one to 77 years (average age, 42 years) with sensorineural hearing loss, vertigo and/or tinnitus. INTERVENTION: Postprocessing of magnetic resonance data to inner ear reconstructions by the use of volume rendering as well as maximum-intensity projection; caloric testing by electronystagmography. MAIN OUTCOME MEASURES: Film was read blindly by four radiologists using a five-point parameter scale for image quality and diagnostic value. The assessibility of inner ear subsegments wsa evaluated. The specificity of volume-rendered reconstructions for detecting semicircular canal obliterations was assessed in a subgroup of nine patients by caloric testing. The time required for data postprocessing as well as film reading was recorded by means of a stopwatch. RESULTS: Volume-rendered inner ear reconstructions were superior in image quality (p 0.001), diagnostic value (p 0.001), subsegment inner ear assessment (p 0.01 to p 0.001), and film reading time (p 0.001) compared with maximum-intensity projections. The data postprocessing time was comparable for both techniques. Caloric weakness was noted in all patients assessed by electronystagmography. CONCLUSION: Volume rendering is the postprocessing technique of choice for three-dimensional inner ear visualization, performing better than maximum-intensity projections with respect to various parameters.

The impact of atopy on neutrophil activity in middle ear effusion from children to adults with chronic otitis media. Hurst, D. S., Venge, P. Department of Medical Sciences, Laboratory for Inflammation Research, University Hospital, Uppsala University, Sweden. meear@earthlink.net. *Archives of Otolaryngology–Head and Neck Surgery* (2002) May, Vol. 128 (5), pp. 561–6.
OBJECTIVE: To identify the relationship of neutrophil activity to allergy as reflected by the level of myeloperoxidase (MPO) in ears of atopic patients with chronic otitis media with effusion (OME) by objective testing. DESIGN: Evidence of neutrophils was measured in the effusion of atopic patients with chronic OME. Atopy was determined by intradermal and/or in vitro testing of allergic reaction to 10 inhalants, two molds, and five foods. SUBJECTS: Effusion MPO was measured prospectively in 138 ears from 106 consecutive patients with chronic OME. RESULTS: A total of 86 (81 per cent) of 106 patients with OME tested atopic by in vitro or in vivo testing. Excluding 36 ears with purulence, the mean MPO level was 3132 microg/l in 84 atopic vs 142 microg/L in 18 nonatopic ears (p 0.001). A total of 78 (90 per cent) of 87 patients with OME were atopic. CONCLUSIONS: The surprising finding of marked elevation of effusion MPO in atopic patients but very low levels in nonatopic patients (p 0.001) suggests that atopy may contribute to elevated levels of neutrophil activity in OME. An atopic patient may respond differently from a nonatopic one to the microbial or viral products of acute inflammation owing to the presence of primed inflammatory cells. This study provides confirmation on a cellular level that neutrophils are an integral part of the inflammatory process in OME to a disproportionate degree among atopic patients.

Bacteriology of acute and chronic frontal sinusitis. Brook, I. Department of Pediatrics, Georgetown University School of Medicine, Washington, DC, USA. IB6@Georgetown.edu. *Archives of Otolaryngology–Head and Neck Surgery* (2002) May, Vol. 128 (5), pp. 583–5.
Aspirates of 15 acutely and 13 chronically infected frontal sinuses were processed for aerobic and anaerobic bacteria. A total of 20 isolates (1.3 per specimen) were recovered from the 15 cases of acute frontal sinusitis, 16 aerobic and facultative isolates (1.1 per specimen) and four anaerobic isolates (0.3 per specimen). Aerobic and facultative organisms alone were recovered in 13 specimens (87 per cent) and mixed aerobic and anaerobic bacteria were recovered in two (13 per cent). The predominant aerobic and facultative organisms were Haemophilus influenzae (six), Streptococcus pneumoniae (five) and Moraxella catarrhalis (three). A total of 32 isolates were recovered from the 13 cases (2.5 per patient) of chronic frontal sinusitis, 12 aerobic and facultative isolates (0.9 per specimen) and 20 anaerobic isolates (1.5 per specimen). Aerobic and facultative organisms only were recovered in three instances (23 per cent), anaerobes only in seven instances (54 per cent), and mixed aerobic and anaerobic bacteria in three instances (23 per cent). The predominant aerobic bacteria were gram-negative bacilli (H influenzae, Klebsiella pneumoniae, and Pseudomonas aeruginosa). The predominant anaerobes included Prevotella species (eight), Peptostreptococcus species (six), and Fusobacterium species (four). These findings illustrate the microbiologic features of acute and chronic frontal sinusitis.

Hearing in the elderly: a population study. Martini, A., Mazzoli, M., Rosignoli, M., Trevisi, P., Maggi, S., Enzi, G., Crepaldi, G. Servizio di Audiologia, Clinica ORL dell'Universita di Ferrara, Italy. *Audiology, Journal of Auditory Communication* (2001) November–December, Vol. 40 (6), pp. 285–93.
An epidemiological study comparing speech audiometry with self-assessed hearing disability and an analysis of other factors influencing the quality of life was conducted. In the Veneto region (Italy), a representative sample of 2700 independently living

individuals of 65 years of age and older was selected for the study. All participants were administered a comprehensive questionnaire and a brief examination at their home, including a general physical examination, speech audiometry, Sanders' Speech Disability test, part I and III, Mini Mental State Examination, CES-D scale for depression, visual acuity, self-reported diseases and physical function. Auditory function was worst in the older individuals: auditory performance was within acceptable limits up to the 75–79 age group, while it rapidly deteriorates in the older groups. This trend is consistent with self-reported auditory disability (Sanders' test). A detailed analysis of the type of errors made in the speech audiometry was conducted for each subject. Speech audiometry is a good indicator of real hearing difficulties faced by the elderly, and it might be preferred to pure-tone audiometry, since hearing deficits with age are not always limited to an increased detection threshold, but include other aspects of hearing such as distortion of sounds, comprehension of speech and noise discrimination.

Determination and classification of the problems experienced by hearing-impaired elderly people. Stephens, D., Gianopoulos, I., Kerr, P. Welsh Hearing Institute, University Hospital of Wales, Cardiff, UK. *Audiology, Journal of Auditory Communication* (2001) November–December, Vol. 40 (6), pp. 294–300.
The aim of this study was to determine whether participation restrictions and contextual factors could be elicited in an elderly hearing-impaired population using an open-ended questionnaire. The study also tested the value of the World Health Organization's ICF in the classification of the problems experienced by the elderly hearing-impaired. To this end, we administered the 'Life Effects Questionnaire', in which the subjects were asked to list the effects of their hearing loss on their lives. With this approach, significantly more participation restrictions, environmental factors, and personal factors were elicited than with a traditional approach. ICF proved useful in classifying these, but the Activity and Participation Scales had a major weakness in terms of non-communication-related hearing problems. Furthermore, a high proportion of the responses came into the personal factors, for which a formal classification does not exist within ICF. This highlights a signficant need in that classification.

Management of otosclerosis in the UK. Raut, V. V., Toner, J. G., Kerr, A. G., Stevenson, M. Department of Otolaryngology, Belfast City Hospital, Queens University, Belfast, UK. rautvivek@hotmail.com. *Clinical Otolaryngology and Allied Sciences* (2002) April, Vol. 27 (2), pp. 113–9.
The last 30 years has seen a gradual change in the management of otosclerosis. The aim of this study is to evaluate the current practice among British otolaryngology consultants using a questionnaire, and to compare it with the practice reported in a survey eight years ago. A total of 353 valid responses (64.5 per cent) were available for analysis. The overall trend is towards centralization, with a reduction in the number of surgeons undertaking stapes surgery (49.9 per cent). The majority of consultants (81.3 per cent) who undertake stapes surgery would operate for a unilateral conductive loss and 75.1 per cent would undertake bilateral stapes surgery. Stapedotomy is the operation of choice (82 per cent), with a few consultants performing partial or rarely total stapedectomies. Postoperative restrictions and follow-up times vary widely amongst surgeons, with the senior surgeons tending to be more conservative than the younger consultants.