

Abstract Selection

Comparison of allergic rhinitis and vasomotor rhinitis patients on the basis of a computer questionnaire. Lindberg, S., Malm, L. Department of Oto-Rhino-Laryngology, University Hospital, Lund, Sweden. *Allergy* (1993) November, Vol. 48 (8), pp. 602–7.

From 1 July 1990 to 31 December 1991, all patients referred to the Allergy Section of the ENT Department, University Hospital, Lund, Sweden, ($n = 678$) answered a 134-item questionnaire presented on the screen of a personal computer by pressing Y (for yes) or N (for no) on the keyboard. The objective of this study was to compare the questionnaire responses from patients with allergic rhinitis (AR) with those of patients with perennial nonallergic rhinitis or vasomotor rhinitis (VMR). Nasal blockage was the predominant symptom in the VMR group, whereas the AR patients mainly suffered from eye irritation, sneezing, and, to some extent, rhinorrhea. Concomitant asthma was more prevalent in the AR group than in the VMR group, whose histories were characterized by symptoms associated with airway infections. About 60 per cent of both groups reported problems with such nonspecific airway irritants as cigarette smoke and perfumes. With respect to the diagnostic reliability of the history, in the AR group the order of accuracy (according to the skin prick test results) of reported hypersensitivity to allergens was as follows: cat > timothy > birth > dust mite > mugwort. A history of hypersensitivity to molds as a cause of symptoms was of no diagnostic value. The findings suggest that there are several differences in the medical histories of AR and VMR patients that merit further investigation. Author.

Tightly linked flanking microsatellite markers for the Usher syndrome type I locus on the short arm of chromosome II. Keats, B. J., Nouri, N., Pelias, M. Z., Deininger, P. L., Litt, M. Department of Biometry and Genetics, Louisiana State University Medical Centre, New Orleans 70112. *American Journal of Human Genetics* (1994) April, Vol. 54 (4), pp. 681–6.

Usher syndrome type I is an autosomal recessive disease characterized by profound congenital hearing impairment and vestibular dysfunction followed by the onset of progressive pigmentary retinopathy in childhood or early adolescence. A locus (USH1C) for one form of this disease was previously assigned to the short arm of chromosome II through linkage studies in the Acadian population of southwestern Louisiana. Linkage analyses of a set of microsatellite markers in 27 Acadian families provide evidence that USH1C lies between D11S861 and D11S928. Three markers (D11S419, D11S921, and D11S899) that lie between the flanking markers show no recombination with USH1C, and all 54 chromosomes with the abnormal allele at the disease locus have identical alleles for D11S419 and D11S921. This haplotype was found on only 10 of 50 chromosomes with the normal allele at the disease locus, suggesting a strong founder effect. Of the 54 chromosomes with the abnormal allele, 12 had a divergent allele at D11S899. These results suggest that USH1C is in the 2–3-cM interval between D11S861 and D11S899. Author.

A modification of the pressure-flow technique for measuring breathing of cold air and its effect on nasal cross-sectional area. Laine, M. T., Huggare, J. A., Ruoppi, P. Department of Oral Development and Orthodontics, University of Kuopio, Finland. *American Journal of Orthodontics and Dentofacial-Orthopedics* (1994) March, Vol. 105 (3), pp. 265–9.

The purpose of this article was to develop a method based on the pressure-flow technique for measuring cold air breathing and to observe the immediate reactions of breathing function to cold air inhalation in 40 subjectively healthy adults. The pressure-flow technique was used to measure airflow rate and oral/nasal pressure and to calculate the smallest cross-sectional area of the nasal airway. The equipment was modified to allow measurements both at room temperature and with cooled air by connecting the nasal mask to a free-

zer with a two-valve cylinder and tubing. Nasal cross-sectional area showed a significant decrease from 42.3 mm² at room temperature to 37.6 mm² with cooled air. Correspondingly, the airflow rate changed from 411 ml/s to 369 ml/s, whereas the differential pressure remained about the same, 1.2 and 1.3 cm H₂O, respectively. The interindividual variation was fairly large. The results suggest that the breathing of cold air seems to cause changes in nasal cross-sectional area and airflow rate. In general, the cross-sectional area diminishes, the change being quantitatively more pronounced in subjects with an initially large area. Author.

Myxomas of the external ear and their significance. Ferreiro, J. A., Carney, J. A. Division of Anatomic Pathology, Mayo Clinic, Rochester, Minnesota 55905. *American Journal of Surgical Pathology* (1994) March, Vol. 18 (3), pp. 274–80.

Myxomas of the external ear are extremely rare. We describe 27 such tumours in 22 of 152 patients with the complex of myxomas, spotty pigmentation, endocrine tumours, and schwannomas—a familial (autosomal dominant) syndrome. Eleven of the patients were male, and 11 were female; age range was from birth to 41 years. Nine patients were members of three affected families. The external auditory canal and the external ear were involved in 18 and five patients, respectively; in two, the exact ear location was not known. Three patients had both ear canal and external ear lesions. Two patients with ear canal myxomas had bilateral lesions. Six patients had recurrences after simple excision. The ear canal lesions often were accompanied by deafness due to occlusion of the canal; attachment to the canal wall was usually by a pedicle. Grossly, the lesions were mucoid and from 3 mm to 2 cm in greatest dimension. Microscopically, they were circumscribed but not encapsulated and were composed of scattered stellate and spindle cells set in a myxoid, capillary-rich matrix. An epithelial component (epidermal inclusion cysts or basaloid buds or both) was present in 14 tumours. Cardiac myxoma occurred in nine patients, Cushing's syndrome in three, and psammomatous melanotic schwannoma in three. In two patients, the ear myxoma was the presenting sign of the complex. Patients with myxoma of the external ear (and their primary relatives) should be considered at risk for the complex of myxomas, spotty pigmentation, endocrine tumours, and schwannomas and should be examined accordingly. Author.

Detection of Epstein-Barr viral RNA in sinonasal undifferentiated carcinoma from Western and Asian patients. Lopategui, J. R., Gaffey, M. J., Frierson, H. F. Jr., Chan, J. K., Mills, S. E., Chang, K. L., Chen, Y. Y., Weiss, L. M. Department of Pathology, City of Hope National Medical Centre, Duarte, California 91010. *American Journal of Surgical Pathology* (1994) April, Vol. 18 (4), pp. 391–8. Undifferentiated carcinoma of the nasopharynx has a well-known association with Epstein-Barr virus (EBV), but only an inconsistent relationship has been identified in undifferentiated carcinomas occurring at other sites. We investigated 22 formalin-fixed, paraffin-embedded cases of sinonasal undifferentiated carcinomas (SNUCs) occurring in Western and Asian patients. A highly sensitive in situ hybridization method was performed using an antisense oligonucleotide probe to the EBV1 gene of EBV. We identified EBV RNA in seven of 11 SNUCs from Asian patients, but in none of the Western SNUC patients (0/11). The EBV1 signal was present in all or virtually all of the tumour cell nuclei in the seven EBV-RNA-positive Asian SNUCs. The latent membrane protein-1 (LMP1) of EBV was not identified in any of the five positive cases tested. Our results suggest that genetic predisposition or environmental/geographical cofactors play an important role in determining the strength of the association of SNUC with EBV. Author.

Midlatency auditory evoked potentials and explicit and implicit memory in patients undergoing cardiac surgery. Schwender, D.,

Kaiser, A., Klasing, S., Peter, K., Poppel, E. Institute for Anesthesiology, Ludwig-Maximilians University, Munich, Germany. *Anesthesiology* (1994) March, Vol. 80 (3): pp. 493–501.

BACKGROUND: A high incidence of intraoperative awareness during cardiac surgery has been reported. Midlatency auditory evoked potentials (MLAEP) have been used recently as an indicator of awareness. In the current study, memory for information presented during anesthesia was investigated using MLAEP as one experimental indicator in 45 patients scheduled for elective cardiac surgery. **METHODS:** In all patients general anesthesia was maintained using high-dosage fentanyl (1.2 mg h⁻¹). In addition, the patients of group 1 (n = 10) received flunitrazepam (1.2 mg h⁻¹), the patients of group 2 (n = 10) isoflurane (0.6–1.2 vol per cent), and the patients of group 3 (n = 10) propofol 4–8 mg kg⁻¹ h⁻¹). Group 4 (n = 15) served as a control, and those patients were assigned randomly to one of the anesthetic regimes. After sternotomy and before cardiopulmonary bypass, an audiotape, which included an implicit memory task, was presented to the patients of groups 1–3. Auditory evoked potentials were recorded while the patients were awake and during general anesthesia immediately before and after the audiotape presentation. Latencies of the brainstem peak V and the early cortical potentials Na and Pa were measured. **RESULTS:** Three to five days postoperatively no patient had a clear explicit memory of intraoperative events. However, there were statistically significant differences in the incidence of implicit recall among the groups. Five patients in the flunitrazepam-fentanyl group, one patient in the isoflurane-fentanyl group, one patient in the propofol-fentanyl group, and no patient in the control group showed an implicit memory of the intraoperative tape message. In the awake state, MLAEP showed high peak-to-peak amplitudes and a periodic waveform. In the patients with implicit memory postoperatively, MLAEP continued to show this pattern during general anesthesia. The early cortical potentials Na and Pa did not increase in latency or decrease in amplitude before or after the audiotape presentation. In contrast, in the patients without implicit memory, MLAEP waveform was severely attenuated or abolished. Na and Pa showed marked increases in latencies and decreases in amplitudes or were completely suppressed. In 9 patients, including all patients (7 of 9) with implicit memory, Pa latency increased less than 12 ms, and 21 of 23 patients without implicit memory showed a Pa latency increase of greater than 12 ms during anaesthesia and the audiotape presentation. Therefore, the Pa latency increase of greater or less than 12 ms may provide sensitivity of 100% and specificity of 77% in distinguishing patients with implicit memory from patients without implicit memory postoperatively.

Conclusions: When the early cortical potentials of MLAEP are preserved during general anaesthesia, auditory information may be processed and remembered postoperatively by an implicit memory task. (Key words: Anaesthetics, intravenous: fentanyl; flunitrazepam; propofol. Anaesthetics, volatile: isoflurane. Surgery: cardiac. Memory: explicit; implicit. Monitoring: auditory evoked potentials.)

The use of acetone to dissolve a Styrofoam impaction of the ear. White, S. J., Broner, S. Department of Emergency Medicine, Vanderbilt University Medical Centre, Nashville, Tennessee. *Annals of Emergency Medicine* (1994) March, Vol. 23 (3), pp. 580–2.

Foreign bodies in the ear occasionally thwart conventional means of removal. Styrofoam can be particularly problematic because it can be compressed and become tightly impacted in an ear canal. Furthermore, Styrofoam is friable and tends to fragment with usual removal methods. We report the case of a six-year-old girl who was referred from another tertiary care hospital after failed efforts to remove a painfully impacted piece of Styrofoam from her left ear canal. Instillation of the organic solvent acetone into the ear canal was well tolerated and caused rapid and near-complete dissolution of the Styrofoam impaction. This is the first reported case of organic solvent dissolution of an otic foreign body. Ototoxic considerations are discussed as is a method for safe acetone instillation that minimizes the amount of acetone introduced into the ear canal. Author.

Subglottic airway hemorrhage associated with idiopathic thrombocytopenic purpura. Sadowitz, D., Terndrup, T. E. Department of Emergency Medicine, State University of New York Health Science Centre at Syracuse. *Annals of Emergency Medicine* (1994) March, Vol. 23 (3), pp. 591–5.

A case of subglottic airway hemorrhage in a six-year-old child with acute idiopathic thrombocytopenic purpura is presented. No previous cases have been reported in which idiopathic thrombocyto-

penic purpura was associated with this life-threatening complication. In this case, stridor responded to racemic epinephrine and oxygen. Emergency physicians and pediatricians should be aware of this rare complication. Author.

Nasal bones and pyriform apertures in blacks. Ofodile, F. A. Department of Plastic Surgery, Harlem Hospital Centre, New York, NY. *Annals of Plastic Surgery* (1994) January, Vol. 32 (1), pp. 21–6. The nasal bones and pyriform apertures of 20 skulls were measured for length and width. There were six skulls from the Ashanti tribe in West Africa, five black American skulls, five skulls from Austria in northern Europe, and four American Indian skulls. The nasal bones were measured for length and width at the narrowest and widest portions and the pyriform apertures were measured for height and for width at the base, the mid section, and near the apex at the nasomaxillary suture line. The Ashanti nasal bones were the shortest with a length of 2.18 cm. They were the narrowest with mean widths of 0.47 and 0.83 cm. The Austrian nasal bones were the longest (mean, 3.02 cm). The mean widths were 0.68 and 1.11 cm. The Indian nasal bones had a mean height of 3.0 cm and were the widest with mean widths of 0.61 and 1.28 cm. The measurements of the American black nasal bones fell between the Ashanti on the one hand, and the Austrian and Indian on the other, with a mean height of 2.79 cm and mean widths of 0.49 and 1.03 cm, reflecting the triethnic origin. The pyriform aperture in the Ashanti was oval whereas the white and Indian pyriform apertures were triangular. The black American pyriform apertures varied from oval to triangular, also reflecting the triethnic origin. The clinical implication of these differences in black rhinoplasty are discussed. Author.

Relationships among psychoacoustic judgments, speech understanding ability and self-perceived handicap in tinnitus subjects. Newman, C. W., Wharton, J. A., Shivapuja, B. G., Jacobson, G. P. Department of Otolaryngology–Head and Neck Surgery, Henry Ford Hospital, Detroit, MI 48202. *Audiology* (1994) January–February, Vol. 33 (1), pp. 47–60.

Tinnitus is often a disturbing symptom which affects 6–20 per cent of the population. Relationships among tinnitus pitch and loudness judgments, audiometric speech understanding measures and self-perceived handicap were evaluated in a sample of subjects with tinnitus and hearing loss (THL). Data obtained from the THL sample on the audiometric speech measures were compared to the performance of an age-matched hearing loss only (HL) group. Both groups had normal hearing through 1 kHz with a sloping configuration of < or = 20 dB/octave between 2–12 kHz. The THL subjects performed more poorly on the low predictability items of the Speech Perception in Noise Test, suggesting that tinnitus may interfere with the perception of speech signals having reduced linguistic redundancy. The THL subjects rated their tinnitus as annoying at relatively low sensation levels using the pitch-match frequency as the reference tone. Further, significant relationships were found between loudness judgment measures and self-rated annoyance. No predictable relationships were observed between the audiometric speech measures and perceived handicap using the Tinnitus Handicap Questionnaire. These findings support the use of self-report measures in tinnitus patients in that audiometric speech tests alone may be insufficient in describing an individual's reaction to his/her communication breakdowns. Author.

A case of Tullio phenomenon in a subject with oval window fistula due to barotrauma. Ildiz, F., Dundar, A. GATA Aerospace Medical Centre, Air Force Hospital, Eskicsehir, Turkey. *Aviation, Space and Environmental Medicine* (1994) January, Vol. 65 (1), pp. 67–9.

The Tullio phenomenon is defined as vertigo that occurs as a result of extremely high acoustic stimuli. Stimulation of the system of semi-circular canals and otoliths causes nystagmus, reflex head tilt and body sway, and vertigo to occur. This condition is quite rare. The Tullio phenomenon was diagnosed in a patient with a fistula of the oval window due to barotrauma. It was diagnosed after a careful examination by Frenzel's glasses. The complaints of vertigo disappeared after the fistula had been closed surgically. Author.

Environmental and dietary risk factors for nasopharyngeal carcinoma: a case-control study in Zangwu County, Guangxi, China. Zheng, Y. M., Tuppin, P., Hubert, A., Jeannel, D., Pan, Y. J., Zeng, Y., de The, G. Cancer Institute of Wuzhou, Guangxi Autonomous Region, People's Republic of China. *British Journal of Cancer* (1994) March, Vol. 69 (3), pp. 508–14.

A case-control study was conducted on 88 incident cases of histologically confirmed undifferentiated nasopharyngeal carcinoma (NPC) in Zangwu County, China, and 176 age- sex- and neighbourhood-matched controls. The design of this study was defined after an anthropological survey on living habits in regions of high NPC incidence and the evidence of carcinogenic substances in some commonly consumed preserved foods. Subjects were interviewed regarding living conditions and diet in the year preceding the diagnosis of NPC and, with the help of their families, during childhood and weaning. After adjustment for a living conditions score to eliminate a confounding effect, an increased risk associated with consumption of salted fish during weaning and childhood was confirmed, especially for salted fish in rice porridge. The consumption of leafy vegetables was associated with a reduced risk for NPC, and consumption of melon seeds between 2 and 10 years of age with an increased risk. After multivariate analysis and adjustment according to the living conditions score, the consumption of salted fish in rice porridge before age 2 (OR = 3.8, P = 0.005), exposure to domestic woodfire (OR = 5.4, P = 0.01) and consumption of herbal tea (OR = 4.2, P = 0.02) were found to be independently related to the risk of NPC. The excess risk associated with the use of domestic wood fire increased if there were no windows in the house and with poor ventilation and cooking outside the house in a shack. As well as confirming the importance of the consumption of salted fish in childhood, this study has been the first to provide unequivocal evidence for two other factors implicated in increasing the risk of NPC in China, the adult consumption of traditional medicines (herbal tea) and exposure to domestic wood fumes. Author.

Afterloading radiotherapy for local persistence of nasopharyngeal carcinoma. Teo, P., Leung, S. F., Choi, P., Lee, W. Y., Johnson, P. J. Department of Clinical Oncology, Prince of Wales Hospital, Shatin, Hong Kong. *British Journal of Radiology* (1994) February, Vol. 67 (794), pp. 181–5.

Seventy-one patients suffering from local persistence of nasopharyngeal carcinoma after primary external radiotherapy were treated by afterloading intracavitary ¹⁹²Ir. 66 (93 per cent) had a complete response as evidenced by fiberoptic nasopharyngoscopy examination and biopsy four weeks after the treatment. Significant prognosticators were studied by both monovariate and multivariate analysis. The early overall clinical stage at first presentation predicted a favourable survival. Local tumour control was adversely affected by advanced T-stage at first presentation, and by using a single ¹⁹²Ir source, unilaterally applied to treat only one side of the nasopharynx. The intracavitary treatment was tolerated well and treatment complications were confined to the nasopharynx: chronic radiation ulceration (five patients) and diffuse telangiectasia (three patients). Author.

The cortical topography of temporal lobe hypometabolism in early Alzheimer's disease. Jagust, W. J., Eberling, J. L., Richardson, B. C., Reed, B. R., Baker, M. G., Nordahl, T. E., Budinger, T. F. Department of Neurology, University of California at Davis. *Brain Research* (1993) December 3, Vol. 629 (2), pp. 189–98.

Alzheimer's disease (AD) is characterized by a pathological process with specific predilection for association neocortex and the mesial temporal lobes. Recently developed high-resolution positron emission tomographs (PET) are able to quantitate regional cerebral metabolic rates for glucose (rCMRglc) in these brain regions and map the distribution of the metabolic consequences of Alzheimer pathology. In order to evaluate the relative involvement of mesial and neocortical temporal lobe brain regions in AD, we studied 22 AD patients, 11 of whom were mildly demented and 11 of whom were moderately demented in comparison to eight age-matched control subjects. We used a PET instrument with 2.6 mm in-plane resolution and quantitated rCMRglc in anterior, middle, and posterior temporal neocortex, visual association cortex, primary visual cortex, and mesial temporal cortex. Although the moderately demented AD patients showed significantly lower metabolic rates than controls in visual association cortex and all temporal lobe regions except right anterior temporal neocortex, the mildly demented patients were different from the controls in only middle temporal neocortex. Considerable variability was found in the relative involvement of mesial temporal lobes and temporal neocortex in the AD patients, however, as shown by greater variance of a ratio of mesial temporal lobe rCMRglc to temporal neocortical rCMRglc (MES/NEO ratio) in the AD patients than the controls. A series of stepwise multiple regressions showed that this ratio was related to patient cognitive symptomatology, with more severely memory-impaired patients showing

lower MES/NEO ratios, while patients with visuospatial disturbances showed higher MES/NEO ratios. In addition, the only biological variable that was related to this ratio was patient age, with older patients showing lower MES/NEO ratios. These results indicate that mesial temporal lobe structures are not invariably the earliest nor the most severely metabolically involved brain regions in AD and that the relative involvement of the mesial and neocortical temporal lobe is related to the patient's cognitive symptoms and age. Author.

Recurrent acoustic neuroma presenting as central alveolar hypoventilation. Lee, D. K., Wahl, G. W., Swinburne, A. J., Fedullo, A. J. Rochester General Hospital, University of Rochester School of Medicine and Dentistry, NY. *Chest* (1994) March, Vol. 105 (3), pp. 949–50.

Centrally mediated hypoventilation causes respiratory failure without respiratory distress. We present a case of recurrent acoustic neuroma at the cerebellopontine angle causing acute and chronic respiratory failure. Tumour resection eliminated recurrence of respiratory failure. Author.

Auditory event related potentials in chronic tinnitus patients with noise induced hearing loss. Attias, J., Urbach, D., Gold, S., Shemesh, Z., Attias, J., Urbach, D., Gold, S., Shemesh, Z. Institute for Noise Hazards Research, Chaim-Sheba Medical Centre, Ramat-Gan, Israel. *Hearing Research* (1993) December, Vol. 71 (1–2), pp. 106–13.

In order to explore a possible deficit in auditory central neural activity in tinnitus with noise induced hearing loss (NIHL), auditory event related potentials (ERP) and reaction time (RT) were recorded (measures of central processing) from tinnitus patients (n = 12) and hearing and age matched controls (n = 12). Testing procedure included oddball paradigms and 1 KHz repetitive stimulus, as well as click-induced brainstem auditory evoked potentials (BAEP). ERP amplitudes (waves N1, P2 and P3) in tinnitus patients were significantly lower than in controls in all testing paradigms. No differences were found in ERP peak latencies, BAEP, RT, or response scoring. The lower ERP amplitudes may indicate attenuated or 'abnormal' auditory central processing in NIHL tinnitus patients. It is suggested that this dysfunction reflects an adaptive brain process response to the tinnitus and points to auditory central involvement in tinnitus sensation. Author.

Dose-response relationships for furosemide ototoxicity in rat. Whitworth, C., Morris, C., Scott, V., Rybak, L. P. Department of Surgery, Southern Illinois University School of Medicine, Springfield 62794–9230. *Hearing Research* (1993) December, Vol. 71 (1–2), pp. 202–7.

Furosemide is an ototoxic loop diuretic which is highly bound to serum albumin. Previous studies have shown that rats deficient in albumin are more susceptible to furosemide ototoxicity than are rats with normal serum albumin concentrations. The present study was designed to compare the dose-response relationships for furosemide ototoxicity in rats with normal serum albumin concentration to rats without albumin in their serum. Young adult rats 50–80 days of age from each group were anesthetized with Rompun, and the endocochlear potential (EP) and compound action potential (CAP) thresholds were measured before and after furosemide injection. After a stable EP and CAP threshold were measured, each animal was injected with a single dose of furosemide through a cannula in the jugular vein. Rats with normal serum albumin had very little change in the EP or CAP threshold until the dose of furosemide was 40 mg/kg or greater. The dose-response curves for EP reduction and CAP threshold elevation then rose steeply to reach a maximum at 50 mg/kg. Albumin-deficient rats were much more sensitive to the effects of furosemide. The dose-response curves for both EP and CAP were shifted to the left. The doses resulting in half-maximal effects in the albumin-deficient rats were about half that found in the normal rats. These findings support the hypothesis that the access of furosemide to its site of ototoxic action in the cochlea depends on the quantity of unbound furosemide in the serum. Author.

Nasal mucociliary clearance and mucus pH in patients with diabetes mellitus. Sachdeva, A., Sachdeva, O. P., Gulati, S. P., Kakkar, V. Department of Otolaryngology, Medical College, Rohtak. *Indian Journal of Medical Research* (1993) December, Vol. 98, pp. 265–8.

Nasal mucociliary clearance (NMC) time and nasal mucus pH were studied in 50 patients suffering from diabetes mellitus and in a group of 50 healthy non-smokers and non-alcoholic controls. NMC time

and pH values were found to be significantly increased in diabetics (NMC = 18.02 ± 5.08 and pH = 7.96 ± 0.75) as compared to controls (NMC = 7.49 ± 1.06 and pH 6.43 ± 0.67). The increase in NMC and pH was much more in patients having insulin dependent diabetes mellitus (IDDM) (NMC -20.87 ± 4.71 and pH -8.38 ± 0.56) than in non-insulin dependent diabetes mellitus (NIDDM) (NMC -15.16 ± 3.67 and pH -7.53 ± 0.687) and also when the duration of disease was more than 10 year (NMC -22.36 ± 4.36 and pH -8.47 ± 0.607). This impairment was attributed to osmotic diuresis with loss of water and electrolytes from all parts of the body and also small vessel abnormalities encountered in diabetes. Author.

A case of rhinoscleroma cured with ciprofloxacin. Trautmann, M., Held, T., Ruhnke, M., Schnoy, M. Abt. Bakteriologie, Universität Ulm, Germany. *Infection* (1993) November–December, Vol. 21 (6), pp. 403–6.

The diagnosis of rhinoscleroma was confirmed in a 17-year-old female patient from Tehran, Iran, suffering from a roundish tumour of the nose. Prior treatment with streptomycin and tetracycline had been unsuccessful. A three-month course of high-dose oral ciprofloxacin (750 mg b.i.d.) led to prompt cessation of the growth of the granuloma which was removed later by plastic surgery. Although serology alone appeared to have little value for the specific diagnosis of rhinoscleroma, a significant increase of IgG antibodies during treatment with ciprofloxacin confirmed infection by *Klebsiella rhinoscleromatis* in this case. Author.

Dosimetric effects of abutting extended source to surface distance electron fields with photon fields in the treatment of head and neck cancers. Johnson, J. M., Khan, F. M. Department of Therapeutic Radiology, University of Minnesota, Minneapolis 55455. *International Journal of Radiation, Oncology, Biology and Physics* (1994) 1 February, Vol. 28 (3), pp. 741–7.

PURPOSE: In the management of head and neck cancer, it is often necessary to junction photon and electron fields. When patients are treated supine, electron cones or applicators may have to be positioned at source to surface distance (SSD) greater than the standard 100 cm because of the patient's shoulders. We have studied the dosimetric effects of abutting 6 MV photon fields with 9 MeV electron fields at extended SSDs to assess changes in the 90 per cent isodose width, dose uniformity in the target, and the extent of hot and cold spots in the junction region. **METHODS AND MATERIALS:** Four independent film studies were conducted, in a polystyrene phantom, for evaluation of the dose distribution in the junction region. Measured distributions were also compared with computer generated distributions using a treatment planning computer system. **RESULTS:** At the junction line between photon and extended SSD electron beams, hot and cold spots were observed. A 20 per cent hot spot occurred on the photon side because of the electron scatter from the adjoining field. The width of this hot spot increased in dimension but not in magnitude as electron SSDs were increased. The cold spot occurred on the electron side due to the decrease in 90 per cent isodose width at extended electron SSDs. This cold spot was minimal (less than 10 per cent) at shorter electron SSDs, but increased as electron SSDs approached 120 cm. Computer dosimetry underestimated these results because of limitations of the electron beam treatment planning algorithm. **CONCLUSION:** These hot and cold spots may be clinically acceptable compared to the loss of treatment accuracy and the added possibility of more extensive hot or cold spots if the patient were to be removed from the original supine position and repositioned on his/her side. Author.

Carcinoma of the nasopharynx in young patients. Martin, W. D., Shah, K. J. Georgia Radiation Therapy Centre, Medical College of Georgia Hospital and Clinics, Augusta 30912. *International Journal of Radiation, Oncology, Biology and Physics* (1994) March 1, Vol. 28 (4), pp. 991–9.

PURPOSE: To provide an analysis of eighteen cases of adolescent nasopharyngeal carcinoma treated between 1971 and 1989. **METHODS AND MATERIALS:** Between 1971 and 1989, 48 cases of nasopharyngeal carcinoma were evaluated at the Medical College of Georgia Hospital and Clinics. Eighteen patients between the ages of 9 and 29 years were treated at the Georgia Radiation Therapy Centre. All patients presented for treatment with (AJCC) Stage IV disease. Fifteen patients with lymphoepithelioma and three with squamous cell carcinoma histologies received definitive radiation therapy to a median dose of 64.8 Gy. Males outnumbered females by more than 2:1 and the majority of patients (67 per cent) were black.

Nine patients received multiagent adjuvant chemotherapy. **RESULTS:** Thirteen patients are alive from 7 to 166 months (median 32 months) including three with disease at 17, 24, and 132 months. Overall and disease-free survival at 5 and 10 years were 63 and 54 per cent, respectively. Five patients died from disease; four patients had pulmonary metastases while one had CNS metastasis. Eighty per cent of relapses occurred within the first two years following treatment. Acute and chronic toxicities were limited, consisting primarily of mucositis and xerostomia. Radiation doses of 65 Gy or more ($p = 0.049$) and age greater than 20 years ($p = 0.005$) were positive prognosticators for survival. Adjuvant chemotherapy, race, and sex were not found to be of prognostic value. Disparities in the distribution of patients with lymphoepithelioma and squamous cell histologies and the presentation of advanced regional disease precluded analysis for prognostic significance of histology and nodal status in this series. **CONCLUSION:** The results of the present series compare favourably with those published from other institutions. High doses of radiation and a high systemic failure rate continue to be the fundamental obstacles to effective management and enhanced survival for patients with nasopharyngeal carcinoma. Author.

Quality of life in patients treated for head and neck cancer: a follow-up study 7 to 11 years after radiotherapy. Bjordal, K., Kaasa, S., Mastekaasa, A. Department of Medical Oncology and Radiotherapy, Norwegian Radium Hospital, Oslo. *International Journal of Radiation, Oncology, Biology and Physics* (1994) 1 March, Vol. 28 (4), pp. 847–56.

PURPOSE: To compare health-related quality of life factors in 845 head and neck cancer patients randomized to receive either conventional radiotherapy (2 Gy, five days a week) or a hypofractionated regimen (2.35 Gy, four days a week), a follow-up study was carried out seven to 11 years after treatment in the surveying patients, representing 30 per cent of the original patient number. **METHODS AND MATERIALS:** The cancer-specific EORTC Core Quality of Life Questionnaire (30 item version; the EORTC QLQ-C30) and a 19 item head and neck cancer-specific questionnaire were mailed to the 245 surviving patients of the trial. The EORTC QLQ-C30 is comprised of six multi-item function scales, three symptom scales, and six single items which assess both symptoms and economic consequences of the disease. Two hundred and four patients (83 per cent) completed the questionnaire. The two groups of patients ($n = 103$ and $n = 101$) treated by different fractionating schedules, were comparable with regard to sociodemographic variables, tumour site, treatment variables (including different types of surgical treatment), and secondary primary cancers. Patients in the conventional group had more advanced disease and a higher recurrence rate compared to patients in the hypofractionated group. **RESULTS:** Unexpectedly, patients in the hypofractionated group, reported similar or better quality of life compared to patients in the conventional fractionated group. Patients in both groups described a high level of symptoms, like dryness in the mouth and mucus production. Clinical and sociodemographic variables did not explain variance in social function, emotional function or fatigue, except for the type of surgery performed, which significantly influenced the patients' emotional function. **CONCLUSION:** Long-term survivors of head and neck cancer reported a high level of disease and treatment related symptoms. Emotional function was significantly influenced by the type of surgical procedure. Strategies for future trials in head and neck cancer should continue to attempt to stress conservative surgical approaches and coordinated adjuvant therapy to maximize local regional control and quality of life. Functional and emotional outcome are important parameters which should prospectively be evaluated in future clinical trials in head and neck cancer. Author.

Linear accelerator-based stereotactic radiosurgery for acoustic schwannomas (see comments). Mendenhall, W. M., Friedman, W. A., Bova, F. J. Department of Radiation, Oncology, University of Florida College of Medicine. *International Journal of Radiation, Oncology, Biology and Physics* (1994) March 1, Vol. 28 (4), pp. 803–10. Comment in: *International Journal of Radiation, Oncology, Biology and Physics* (1994) March 1, 28 (4): 1039–41; discussion 1047.

PURPOSE: Stereotactic radiosurgery (SRS) is currently being investigated for treatment of acoustic schwannomas in patients who are not good surgical candidates. The vast majority of the available data is based on gamma knife-treated patients. We present the largest series of patients treated with linear accelerator-based SRS. **METHODS AND MATERIALS:** Thirty-two patients with acoustic schwannomas were treated with SRS between July 1988 and

February 1993; follow-up ranged from 4–59 months. Age ranged from 34–88 years (mean, 62 years). The primary presenting symptom was hearing loss in 30 patients and dementia in two patients. Indications for SRS were age > 65 years (17 patients); recurrence after surgery (13 patients); and medical infirmity (two patients). Dose to the periphery of the lesion ranged from 10–22.5 Gy (mean, 15.5 Gy) specified at the 68–90 per cent isodose line (mean, 80 per cent). Collimator size ranged from 12–35 mm (mean, 23 mm), indicating that the sizes of the tumours were significantly larger than those reported in most gamma knife series. **RESULTS:** Follow-up magnetic resonance imaging (MRI) and/or computed tomography (CT) scans revealed the following at one year: tumour regression, 12 patients (63 per cent); and no change, seven patients (37 per cent). At two years, 11 tumours (73 per cent) were smaller and four tumours (27 per cent) were unchanged. At three years, seven patients (78 per cent) had experienced tumour regression and two (22 per cent) had no change. No patient experienced tumour progression after SRS. Seven patients (22 per cent) suffered one or more treatment complications: new onset of Vth and/or VIth cranial nerve deficit (six patients), ataxia (two patients), and/or hydrocephalus necessitating VP shunt (two patients). **CONCLUSION:** Linear accelerator-based SRS provides excellent short-term local control and a relatively low incidence of complications for acoustic schwannomas. Our data compare favourably with results obtained with gamma knife-based SRS. Additional follow-up will be necessary to evaluate the long-term results of treatment. Author.

Results of primary and adjuvant CT-based 3-dimensional radiotherapy for malignant tumours of the paranasal sinuses. Roa, W. H. Y., M.D.,* Hazuka, M. B., M.D.,* Sandler, M. H., M.D.,* Martel, M. K., Ph.D.,* Thornton, A. F., M.D.,* Turrisi, A. T., M.D.,* Urba, S., M.D.,† Wolf, G. T., M.D.,‡ Lichter, A. S., M.D.* *Department of Radiation, Oncology, †Division of Medical Oncology, ‡Department of Otolaryngology, University of Michigan Medical Centre, Ann Arbor, MI 48109. *International Journal of Radiation, Oncology, Biology and Physics* (1994), Vol. 28, No. 4, pp. 857–865.

PURPOSE: This study reports our clinical experience supporting the normal tissue-sparing capability of 3-dimensional (3-D) treatment planning when applied to advanced neoplasms of the paranasal sinuses. **METHODS AND MATERIALS:** Between 1986 and 1992, computed tomography (CT)-based 3-D radiotherapy was used to treat 39 patients with advanced stage malignant tumours of the paranasal sinuses as all or part of initial treatment. Fifteen unresectable patients were treated with primary radiotherapy to a median prescribed total dose of 68.4 Gy. Twenty-four patients were treated with postoperative adjuvant radiotherapy for close margins (<5 mm), microscopic or gross residual disease. The median prescribed total doses were 55.8 Gy, 59.4 Gy and 67.8 Gy, respectively. Globesparing fields were used in the primary treatment plans of 37 patients (95 per cent). The median follow-up is 4.5 years (range, 19–86 months). **RESULTS:** For the unresectable patients who were treated with radiotherapy alone, the local control rate at three years is 32 per cent. The actuarial overall survivals at three and four years are 32 per cent. For the patients who received postoperative adjuvant radiotherapy, none of the five patients irradiated for close surgical margins recurred locally. Three of the 14 with microscopic residual (21 per cent) recurred locally at 26, 63, and 74 months from the start of irradiation. Four of the five with gross residual (80 per cent) recurred locally with a median time to recurrence of two years. The local control rates at three and five years for the adjuvant group are 75 per cent and 65 per cent, respectively. The actuarial overall survival at three and five years are 65 and 60 per cent, respectively. None of the first sites of local disease progression were judged to have occurred outside the high-dose region. There was one case of mild osteoradionecrosis successfully treated with conservative treatment, one case of limited optic neuropathy and one case of possible radiation-induced cataract. There was no blindness related to irradiation. **CONCLUSION:** This study indicates that computed tomography-based 3-D radiotherapy can preserve critical structures unaffected by tumour invasion and achieve the generally expected local control rates when it is used as all or part of initial treatment for extensive malignant tumours of the paranasal sinus. The presence of gross disease was a major adverse prognostic factor in this study. Additional therapeutic manoeuvres are essential to improve the local control and survival rate in patients with advanced paranasal sinus carcinomas.

Radiotherapy for nasolacrimal tract epithelial cancer. Sagerman, R. H., M.D.,* Fariss, A. K., M.D.,* Chung, C.T., M.D.,* King,

G. A., M.D.,* Yuo, H. S., M.D.,† Fries, P. D., M.D.‡ *Radiation Oncology Division, Department of Radiology, SUNY Health Science Centre, Syracuse, NY 13210, †Radiation Oncology Service, and ‡Orbital and Oncology Service, Letterman Army Medical Centre, San Francisco, CA 94129. *International Journal of Radiation, Oncology, Biology and Physics* (1994), Vol. 29, No. 1, pp. 177–181.

PURPOSE: Tumours of the lacrimal sac are rare and have traditionally been treated surgically. We investigated the use of irradiation for treatment. **METHODS AND MATERIALS:** Three consecutive patients with primary epithelial cancer of the nasolacrimal apparatus were treated with irradiation. A tumour dose of 52–66 Gy was delivered with conventional fractionation to fields limited to the primary site and immediately surrounding tissues. **RESULTS:** Local tumour control was achieved in all three patients. Two patients subsequently developed metastatic cervical adenopathy; both were controlled with irradiation to the neck. One of these two died of distant metastases. Two patients are alive and well at 13 years and at 26 months. **CONCLUSION:** We conclude that epithelial lacrimal sac tumours are controllable by radiation therapy and with a good cosmetic result. Poorly differentiated lesions require elective cervical nodal irradiation.

Measurement of acoustic impedance and reflectance in the human ear canal. Voss, S. E., Allen, J. B. Acoustics Research Department, AT&T Bell Labs, Murray Hill, New Jersey 07947–2070. *Journal of the Acoustical Society of America* (1994) January, Vol. 95 (1), pp. 372–84.

The pressure reflectance $R(\omega)$ is the transfer function which may be defined for a linear one-port network by the ratio of the reflected complex pressure divided by the incident complex pressure. The reflectance is a function that is closely related to the impedance of the one-port. The energy reflectance $R(\omega)$ is defined as magnitude of $(R)^2$. It represents the ratio of reflected to incident energy. In the human ear canal the energy reflectance is important because it is a measure of the inefficiency of the middle ear and cochlea, and because of the insight provided by its simple frequency domain interpretation. One may characterize the ear canal impedance by use of the pressure reflectance and its magnitude, sidestepping the difficult problems of (a) the unknown canal length from the measurement point to the eardrum, (b) the complicated geometry of the drum, and (c) the cross-sectional area changes in the canal as a function of distance. Reported here are acoustic impedance measurements, looking into the ear canal, measured on ten young adults with normal hearing (ages 18–24). The measurement point in the canal was approximately 0.85 cm from the entrance of the canal. From these measurements, the pressure reflectance in the canal is computed and impedance and reflectance measurements from 0.1 to 15.0 kHz are compared among ears. The average reflectance and the standard deviation of the reflectance for the 10 subjects have been determined. The impedance and reflectance of two common ear simulators, the Bruel and Kjaer 4157 and the Industrial Research Products DB-100 (Zwislocki) coupler are also measured and compared to the average human measurements. All measurements are made using controls that assure a uniform accuracy in the acoustic calibration across subjects. This is done by the use of two standard acoustic resistors whose impedances are known. From the experimental results, it is concluded that there is significant subject variability in the magnitude of the reflectance for the 10 ear canals. This variability is believed to be due to cochlear and middle ear impedance differences. An attempt was made at modelling the reflectance but, as discussed in the paper, several problems presently stand in the way of these models. Such models would be useful for acoustic virtual-reality systems and for active noise control earphones. Author.

A quantitative model of voice F0 control. Farley, G. R. Boys Town National Research Hospital, Omaha, Nebraska 68131. *Journal of the Acoustical Society of America* (1994) February, Vol. 95 (2), pp. 1017–29.

A mathematical model of the larynx, based on biomechanical principles, is described. Components represented include two cartilage elements (cricoid with locked arytenoids, and thyroid), three muscles (thyroarytenoid (TA), cricothyroid pars rectus (CTr), and cricothyroid pars oblique (CTo)), and two ligaments (cricothyroid and vocal ligaments), as well as subglottal pressure (PS). For any combination of muscle activities and PS level, equilibrium positions and tensions could be calculated for components in the system. The tensions and lengths of vocal fold elements were then used to calculate fundamental frequency (F0) of vocal fold vibration. Systematic

variation of model muscle activation and PS patterns allowed study of the behaviour of the model. TA activity tended to shorten the vocal folds; increased levels of CTr and CTo activity, and PS, had the opposite effect. Increased activity of any muscle tended to increase vocal fold tension, while PS increases were mainly ineffective. F0 was generally increased by increased CTr, CTo, and PS values. However, TA activity had a strongly nonmonotonic effect on F0. Best control of F0 could be achieved only by a process of cocontraction of all muscles at low frequencies, followed by sustained contraction of CTr and CTo with decreasing TA activity for F0's increasing above this low-frequency range. These results are discussed in terms of their possible implications for normal and abnormal voice production, and as a set of constraints for neural modelling efforts. Author.

Assessment of quality of life in adolescents with allergic rhinoconjunctivitis: development and testing of a questionnaire for clinical trials. Juniper, E. F., Guyatt, G. H., Dolovich, J. Department of Clinical Epidemiology and Biostatistics, McMaster University, Hamilton, Ontario, Canada. *Journal of Allergy and Clinical Immunology* (1994) February, Vol. 93 (2), pp. 413–23.

BACKGROUND: The objectives of the study were to evaluate impairment in quality of life in 12- to 17-year-old patients with seasonal allergic rhinoconjunctivitis and to develop and test a questionnaire suitable for evaluating change in quality of life during clinical trials. **METHODS:** Patients were asked to identify physical and emotional impairments associated with allergic rhinoconjunctivitis. The resultant questionnaire was tested for responsiveness and validity in a clinical trial in which fluticasone nasal spray and loratadine were compared for treatment of ragweed pollen-induced rhinoconjunctivitis. Eighty-three patients, 12 to 17 years of age, with grass- or ragweed-induced hayfever participated in the instrument development phase. They were recruited for the study from an allergy clinic and local schools and recreational organizations. Two hundred forty patients with ragweed hayfever participated in the clinical trial and provided quality of life data. **RESULTS:** The survey showed that in addition to local symptoms, patients experienced impairment of quality of life because of systemic symptoms, activity limitations, and emotional and practical problems. The resultant questionnaire has 25 items in six domains. In the clinical trial responsiveness was demonstrated by the questionnaire's ability to detect change over time and differences between treatments. Construct validity was demonstrated by moderate to strong relationships between changes in diary symptom scores and quality of life. **CONCLUSIONS:** The items identified by 12- to 17-year-old patients were not identical to those previously identified by adults. This suggests that impairment of quality of life may not be the same in the two groups and that it is appropriate to have a questionnaire specifically designed for adolescent rhinoconjunctivitis clinical trials. Author.

Pathways and mechanisms involved in neural control of laryngeal submucosal gland secretion. Hejal, R., Strohl, K. P., Erokwu, B., Cherniack, N. S., Haxhiu, M. A. Department of Medicine, University Hospitals of Cleveland, Case Western Reserve University, Ohio 44106. *Journal of Applied Physiology* (1993) December, Vol. 75 (6), pp. 2347–52.

The purpose of this study was to define the pathways and mechanisms involved in the neural regulation of laryngeal mucosal gland functions. In anesthetized, paralyzed, and artificially ventilated dogs, the responses of laryngeal submucosal glands to stimulation of laryngeal mechanoreceptors and peripheral chemoreceptors were examined by measuring the number of hillocks and volume of secreted fluid before and after activation of sensory nerve endings. Compared with a control period, the number of hillocks and volume of secreted fluid significantly increased ($P < 0.05$) with mechanical stimulation of the vocal folds ($n = 13$) and with chemical activation of peripheral chemoreceptors by systemic administration of sodium cyanide (100 micrograms/kg; $n = 11$). The reflex responses induced by vocal fold stimulation and activation of peripheral chemoreceptors were slightly decreased by interrupting transmission in the recurrent laryngeal nerves ($P > 0.05$) and were abolished by subsequent sectioning of superior laryngeal nerves or prior intravenous administration of atropine methylnitrate ($P < 0.05$). In denervated animals, topical application of nicotine on laryngeal epithelium caused significant activation of submucosal glands ($p < 0.05$). We conclude that laryngeal secretion can be significantly altered reflexly by stimulation of laryngeal sensory nerve endings and peripheral chemoreceptors, that both superior and recurrent laryngeal

nerves convey cholinergic outflow to laryngeal submucosal glands, and that nicotine acting locally activates laryngeal submucosal glands. Author.

Nasal airway geometry: comparison between acoustic reflections and magnetic resonance scanning. Hilberg, O., Jensen, F. T., Pedersen, O. F. Institute of Environmental and Occupational Medicine, University of Aarhus, Denmark. *Journal of Applied Physiology* (1993) December, Vol. 75 (6), pp. 2811–9.

To evaluate the accuracy of the acoustic reflection (AR) technique for determination of nasal cavity cross-sectional areas, the area-distance function of both sides of the nose was determined in 10 subjects and compared with magnetic resonance imaging (MRI). Inter-individual variation for the correlation between MRI and AR was seen, but in general the areas from 1 to 6 cm into the nasal cavity measured by AR were larger than areas measured by MRI, especially where the surface was most convoluted. The total volume for this region was 6.47 ± 1.83 (SD) cm^3 for AR and 5.65 ± 1.34 cm^3 for MRI. It was demonstrated that this could be due to errors in calculation of the areas on the basis of MRI and AR. In the posterior part of the nasal cavity and the epipharynx, there was a convincingly higher correlation between acoustic measurements and a scan perpendicular to the assumed geometrical axis of the epipharynx than between acoustic measurements and coronal scanning. This indicates that the sound axis roughly follows the geometrical axis. In a model of two tubes (nasal cavities) joined in a larger tube (the epipharynx), closure of the posterior part of the latter revealed that the contralateral nasal cavity is likely to cause overestimation of the posterior part of the epipharynx during AR compared with MRI. Author.

Prevalence of Taiwan variant of Epstein-Barr virus in throat washings from patients with head and neck tumours in Taiwan. Jeng, K. C., Hsu, C. Y., Liu, M. T., Chung, T. T., Liu, S. T. Department of Medical Research, Taichung Veterans General Hospital, Republic of China. *Journal of Clinical Microbiology* (1994), January, Vol. 32 (1), pp. 28–31.

The prevalence of the Epstein-Barr virus (EBV) Taiwan variant was investigated in the throat washing (TW) samples from patients with head and neck tumours, persons with nonmalignant diseases, and healthy adults in Taiwan. By using the EBV (BNLF-1 gene)-specific primers and PCR, the EBV latent membrane protein gene BNLF-1 was detected in 91 (61 per cent) of the 150 TW samples from patients with tumours, including 25 (78 per cent) of 32 patients with nasopharyngeal carcinoma and 66 (56 per cent) of 118 other patients with head and neck tumours. The TW samples from the 26 patients with nonmalignant tumours and 53 healthy adults were also examined. Approximately 47 per cent of these samples were positive for the EBV gene. The PCR products of the BNLF-1 gene were then subjected to XhoI digestion. Sixty-eight of 91 PCR products (75 per cent) showed the loss of the XhoI site, which indicated the presence of a Taiwan strain of EBV in patients with tumours. The DNA sequence of the BNLF-1 gene of the Taiwan variant revealed that the loss of the XhoI site was due to a nucleotide change from a G to a T at position 169,426 in comparison with the sequence of prototype EBV B95-8 cells. Furthermore, the Taiwan strain appeared significantly more frequently in the TWs and tissue samples from patients with nasopharyngeal carcinoma (88 per cent; $P < 0.001$) and laryngeal carcinoma (80 per cent; $P < 0.02$) than in those samples from healthy adults (about 40 per cent). Author.

DNA heterogeneity in metastasizing squamous cell head and neck cancer. Sloodweg, P. J., Giessen, M. C., Rutgers, D. H., Wils, I. S. Department of Pathology, University Hospital, Utrecht, The Netherlands. *Journal of Craniomaxillofacial Surgery* (1993), December, Vol. 21 (8), pp. 348–50.

This study was carried out to determine whether analysis of DNA content of tumour cells (expressed as DNA-index: DI) from patients with head and neck squamous cell cancer (HNSCC) and lung squamous cell cancer (LSCC) could be helpful in distinguishing HNSCC patients with LSCC as a second primary from those in which LSCC represents a distant metastasis. Based on the assumption that metastasizing tumours retain their original DNA content, the same DI at both locations would suggest LSCC to be a distant metastasis from HNSCC, whereas a difference in DI at both tumour locations makes LSCC to be a second primary more likely. The study comprised 21 cases with HNSCC as well as LSCC. However, the basic assumption that the identity of a tumour can be inferred from its DI proved to be false as seven of the 21 cases were charac-

terized by more than one DI signifying several tumour cell populations. This DNA heterogeneity was further substantiated by differences in DI between the primary tumour and cervical lymph node metastasis in a second series composed of 16 HNSCC patients. These data indicate that due to variation in DI within one and the same tumour, DNA-analysis does not offer reliable information when trying to differentiate between lung cancer as a second primary or a distant metastasis in HNSCC patients. Author.

Acute epiglottitis in a rural area: experiences with an anesthesiologist-staffed ambulance helicopter. Søreide, E., M.D., Smedvig, J. P., M.D., Harboe, S., M.D., Mikkelsen, H., M.D., Eielsen, O. V., M.D. Norwegian Air Ambulance and Department of Anesthesiology, Rogaland Central Hospital, 4011 Stavanger, Norway. *Journal of Emergency Medicine* (1994), Vol. 12, No. 2, pp. 213–216.

The majority of fatalities due to acute epiglottitis (AE) result from prehospital airway problems. We reviewed the courses of 14 patients with AE treated by an aeromedical team consisting of an anesthesiologist and a paramedic. Eight patients were transported from a physician's office or from the patient's own home. One patient was intubated at the scene, and two received ventilatory support with mask and bag en route to the hospital. Two patients suffered cardiopulmonary arrest before arrival of the aeromedical team, both resulting in severe hypoxic encephalopathy. All six patients transported from hospitals were intubated prior to the helicopter transport. Based on our own experience and a review of the literature, we discuss prehospital airway management in this group of patients.

Clonality, expression and methylation patterns of the Epstein-Barr virus genomes in lethal midline granulomas classified as peripheral angiocentric T cell lymphomas. Minarovits, J., Hu, L. F., Imai, S., Harabuchi, Y., Kataura, A., Minarovits-Kormuta, S., Osato, T., Klein, G. Department of Tumour Biology, Karolinska Institute, Stockholm, Sweden. *Journal of General Virology* (1994), January, Vol. 75 (Pt. 1), pp. 77–84.

We analyzed the terminal repeats of Epstein-Barr virus (EBV) in DNAs isolated from six lethal midline granuloma (LMG) biopsies. A single fused terminal fragment could be detected in each case, indicating that these angiocentric peripheral T cell lymphomas represent clonal proliferations of cells infected with EBV on a single occasion. Using reverse transcriptase-PCR, we detected EBV nuclear antigen (EBNA) one and latent membrane protein (LMP) one, but not EBNA two messages in LMG biopsy RNAs. The splicing pattern of the EBNA one message was consistent with the usage of a promoter localized in the BamHI F fragment (F promoter). The BamHI W fragment repeats and LMP-coding sequences were highly methylated in all cases. In contrast, the LMP regulatory sequences were found to be hypomethylated or partially methylated, as in LMP-expressing nasopharyngeal carcinomas. Author.

Herpes simplex encephalitis in the temporal cortex and limbic system after trigeminal nerve inoculation. Barnett, E.M., Jacobsen, G., Evans, G., Cassell, M., Perlman, S. Neuroscience Program, College of Dentistry, University of Iowa, Iowa City. *Journal of Infectious Diseases* (1994) April, Vol. 169 (4), pp. 782–6.

Herpes simplex virus type 1 causes an encephalitis in humans that is primarily restricted to the temporal lobe and limbic system. The distribution of lesions suggests that virus enters the brain from a single site and then spreads transneuronally to infect connected structures. Two obvious sites of potential viral entry are the olfactory and trigeminal nerves. Trigeminal nerve entry is more likely because it innervates the oral cavity, a common site of initial infection, and the trigeminal ganglion is the most common site of viral latency. In previous reports, however, experimental trigeminal nerve infection has never led to the pattern of disease observed in humans. By directly inoculating virus into the murine tooth pulp, the mandibular division of the trigeminal nerve was selectively infected. This division, which innervates the oral cavity, is the one most commonly infected in humans. Intrapulp inoculation led to an encephalitis primarily affecting the temporal cortex and limbic system. Thus, spread via the trigeminal nerve provides an explanation for the distribution of herpes simplex virus observed in the human encephalitis. Author.

Azathioprine in combination with steroids in the treatment of autoimmune inner-ear disease. Saraccaydin, A., Katircioglu, S., Katircioglu, S., Karatay, M. C. Department of Otorhinolaryngology, Istanbul University Faculty School of Medicine, Turkey. *Journal of International Medical Research* (1993), July–August, Vol. 21 (4), pp. 192–6.

A total of twelve patients with a relatively uncommon form of progressive sensorineural deafness (autoimmune inner-ear disease) were treated orally with 1 mg/kg azathioprine, once daily, and with 30 mg prednisolone, every other day, for four weeks. Statistically significant increases in the ability to hear pure tones or in discrimination on audiometry took place in 10/12 patients. This condition was initially described as 'sensorineural hearing loss', but it is now clear that the term 'autoimmune inner-ear disease' is more appropriate since the vestibular compartment as well as the cochlear compartment is involved. This relatively uncommon disease is one of the few forms of sensorineural deafness that can be successfully treated. Author.

A comparison of the efficacy of azelastine nasal spray and loratidine tablets in the treatment of seasonal allergic rhinitis. Gambardella, R. Physiopathology and Respiratory Allergy Department, AC Cartoni Hospital, Rome, Italy. *Journal of International Medical Research* (1993), September–October, Vol. 21 (5), pp. 268–75.

A total of 30 patients suffering from seasonal allergic rhinitis were treated in a six-week randomized, double-blind, double-dummy parallel-group study, comparing azelastine nasal spray (0.14 mg/nostril administered twice daily) and loratidine tablets (10 mg once daily). Symptoms evaluated were sneezing, nose and/or eye itching, lacrimation, rhinorrhoea, photophobia, nasal occlusion, throat irritation, smell loss, nasal mucosa swelling, conjunctivitis, and pharyngeal mucosa reddening. Each symptom was assessed according to severity and given a score on a four-point rating scale. Compared with baseline, total symptom scores for both the azelastine and loratidine treatment groups were reduced at each of the assessments during treatment. No significant differences were observed between the two treatment groups. The investigator concluded that azelastine, formulated as a nasal spray, is as effective as loratidine tablets in the relief of the symptoms of seasonal rhinitis and that it has a rapid onset of action. Author.

Myogenic potentials generated by a click-evoked vestibulocollic reflex. Colebatch, J. G., Halmagyi, G. M., Skuse, N. F. Department of Neurology, Prince of Wales Hospital, Randwick, Sydney, Australia. *Journal Neurology, Neurosurgery and Psychiatry* (1994), February, Vol. 57 (2), pp. 190–7.

Electromyograms (EMGs) were recorded from surface electrodes over the sternomastoid muscles and averaged in response to brief (0.1 ms) clicks played through headphones. In normal subjects, clicks 85 to 100 dB above our reference (45 dB SPL: close to perceptual threshold for normal subjects for such clicks) evoked reproducible changes in the averaged EMG beginning at a mean latency of 8.2 ms. The earliest potential change, a biphasic positive-negativity (p13–n23), occurred in all subjects and the response recorded from over the muscle on each side was predominantly generated by afferents originating from the ipsilateral ear. Later potentials (n34, p44), present in most but not all subjects, were generated bilaterally after unilateral ear stimulation. The amplitude of the averaged responses increased in direct proportion to the mean level of tonic muscle activation during the recording period. The p13–n23 response was abolished in patients who had undergone selective section of the vestibular nerve but was preserved in subjects with severe sensorineural hearing loss. It is proposed that the p13–n23 response is generated by activation of vestibular afferents, possibly those arising from the sacculle, and transmitted via a rapidly conducting oligosynaptic pathway to anterior neck muscles. Conversely, the n34 and p44 potentials do not depend on the integrity of the vestibular nerve and probably originate from cochlear afferents. Author.

Neuro-ophthalmological presentation of non-invasive aspergillus sinus disease in the non-immunocompromised host. Brown, P., Demaerel, P., McNaught, A., Revesz, T., Graham, E., Kendall, B. E., Plant, G. National Hospital for Neurology and Neurosurgery, London, UK. *Journal of Neurology, Neurosurgery and Psychiatry* (1994), February, Vol. 57 (2), pp. 234–7.

Two cases of non-invasive aspergillosis of the nose and paranasal sinuses are described. The first presented with left proptosis and ophthalmoplegia. Imaging and histology showed a maxillary sinus aspergilloma. The second case presented as a compressive optic neuropathy and histology showed allergic aspergillus sinusitis. The pathological distinction between invasive and non-invasive forms of aspergillus sinusitis is important as in invasive aspergillosis surgical treatment is most effectively combined with systemic antifungal treatment, whereas in aspergilloma of the paranasal sinuses surgical

drainage of the sinuses alone is usually sufficient, and in allergic aspergillus sinusitis surgery is best combined with systemic or topical steroids. The distinction between invasive and non-invasive forms is particularly important as both may present with cranial neuropathies. Author.

Interface between the facial nerve and large acoustic neuromas. Immunohistochemical study of the cleavage plane in NF2 and non-NF2 cases. Jaaskelainen, J., Paetau, A., Pyykko, I., Blomstedt, G., Palva, T., Troupp, H. Department of Neurosurgery, University of Helsinki, Finland. *Journal of Neurosurgery* (1994) March, Vol. 80 (3), pp. 541–7.

In acoustic neuroma surgery, the surgeon is required to find a cleavage plane between the facial nerve and the tumour, and with the aid of the operating microscope this is usually achieved by fine dissection. A histological specimen of the nerve-tumour interface is available only if the facial nerve was hopelessly adherent to the tumour (usually a large or giant neoplasm) and the surgeon decided to sever the nerve to obtain a complete removal. The authors have examined immunohistochemically the nerve-tumour interface of 20 such facial nerves (six cases of neurofibromatosis 2 (NF2) and 14 of non-NF2) in a series of 351 acoustic neuromas. The largest extrameatal dimension of the 20 tumours ranged from 20 to 51 mm (median 39 mm). In all of these 20 instances the nerve-tumour contact area was at least partially devoid of a clear-cut histological cleavage plane. Where the facial nerve trunk was attached to the surface of the tumour, nerve fibres of the contact areas either abutted directly against tumour cells or nerve fibres were seen to penetrate into the tumour tissue. Frank embedding of nerve fibres was more frequent in NF2. Author.

Modified double mandibular osteotomy for tumours of the parapharyngeal space. Biedlingmaier, J. F., Ord, R. Division of Otolaryngology, University of Maryland Hospital, Baltimore. *Journal of Oral and Maxillofacial Surgery* (1994), April, Vol. 52 (4), pp. 348–52.

In 1984, Attia *et al.* described the double mandibular osteotomy as a more direct approach for tumours of the ptergomaxillary and parapharyngeal space. The procedure incorporates the traditional parasymphiseal osteotomy of the mandible with a horizontal osteotomy of the ascending ramus. Several modifications of this technique are described that increase the surgical exposure, while requiring less surgical dissection. The incorporation of rigid fixation with miniplates has improved postoperative recovery by avoiding maxillomandibular fixation and improving oral nutrition. Author.

Clinical efficacy of antimicrobial drugs for acute otitis media: metaanalysis of 5400 children from thirty-three randomized trials (see comments). Rosenfeld, R. M., Vertrees, J. E., Carr, J., Cipolle, R. J., Uden, D. L., Giebink, G. S., Canafax, D. M. Department of Otolaryngology, Children's National Medical Centre, Washington, D. C. *Journal of Pediatrics* (1994), March, Vol. 124 (3), pp. 355–67. Comment in: *Journal of Pediatrics* (1994), March, 124 (3): 431.

OBJECTIVE: To reconcile conflicting published reports concerning the absolute and comparative clinical efficacy of antimicrobial drugs for acute otitis media in children. **STUDY SELECTION:** Articles were identified by MEDLINE search, Current Contents, and references from review articles, textbook chapters, and retrieved reports. Randomized, controlled trials of therapeutic antimicrobial drugs used in the initial empiric therapy for simple acute otitis media were selected by independent, blinded observers, and scored on 11 measures of study validity. Thirty English and three foreign-language articles met all inclusion criteria. **DATA EXTRACTION:** Data were abstracted for an end point of complete clinical resolution (primary control), exclusive of middle ear effusion, within 7 to 14 days after therapy started. **DATA SYNTHESIS:** The spontaneous rate of primary control—without antibiotics or tympanocentesis was 81 per cent (95 per cent confidence interval, 69 per cent to 94 per cent). Compared with placebo or no drug, antimicrobial therapy increased primary control by 13.7 per cent (95 per cent confidence interval, 8.2 to 19.2 per cent). No significant differences were found in the comparative efficacy of various antimicrobial agents. Extending antimicrobial coverage to include beta-lactamase-producing organisms did not significantly increase the rates of primary control or resolution of middle ear effusion. Pretreatment tympanocentesis was positively associated with individual group primary control rates, negatively associated with the ability to detect differences in clinical efficacy and unassociated with resolution of MEE. **CON-**

CLUSIONS: Antimicrobial drugs have a modest but significant impact on the primary control of acute otitis media. Treatment with beta-lactamase-stable agents does not increase resolution of acute symptoms or middle ear effusion; initial therapy should be guided by considerations of safety, tolerability, and affordability, and not by the theoretical advantage of an extended antibacterial spectrum. Author.

Role of congenital hypothyroidism in hearing loss in children. Francois, M., Bonfils, P., Leger, J., Czernichow, P., Narcy, P. Department of Otorhinolaryngology, Hopital Robert Debre, Faculty Bichat, University Paris VII, France. *Journal of Pediatrics* (1994), March, Vol. 124 (3), pp. 444–6.

No significant difference was found for the auditory thresholds at conversational and high frequencies between 42 children with congenital hypothyroidism treated with L-thyroxine and an age-matched control group, regardless of the cause of the thyroid failure or hormone level and the age at the start of treatment. Author.

Rapidly progressing atrophy of medial temporal lobe in Alzheimer's disease. Jobst, K. A., Smith, A. D., Szatmari, M., Esiri, M. M., Jaskowski, A., Hindley, N., McDonald, B., Molyneux, A. J. University Department of Pharmacology, Radcliffe Infirmary, Oxford, UK. *Lancet* (1994), April 2, Vol. 343 (8901), pp. 829–30.

The symptoms of Alzheimer's disease are associated with pathological change and loss of neurons in the medial temporal lobe. By yearly temporal-lobe-oriented computed tomograms the average rate of atrophy of the medial temporal lobe was 15.1 per cent per year (95 per cent CI 10.0, 20.2) in 20 patients with histopathologically confirmed Alzheimer's disease and 1.5 per cent (0.2, 2.8) in 47 healthy ageing controls. Such excessive atrophy presumably reflects the vulnerability of the medial temporal lobe to a catastrophic event, probably a pathological cascade process. Thus, Alzheimer's disease may not be due simply to an acceleration of normal ageing but, rather, is the consequence of a true disease process. Author.

Carcinosarcoma of the nose and paranasal sinuses. Podlesak, T., Sibl, O., Roubkova, H., Kudrman, J. Departments of Otolaryngology, Radiotherapy and Histopathology, Hospital NaBulovce, Prague. *Otolaryngologie* (1994), March, vol. 43 (1), pp. 39–42.

A case of carcinosarcoma of the nose and paranasal sinuses is described in a 44-year-old woman complaining of nasal obstruction and epistaxis from the right nostril. CT investigation revealed an extensive mass occupying the right nasal cavity and the ethmoidal sinus with destruction of the medial orbital wall. Microscopy showed biphasic neoplastic tissue composed of both a squamous cell carcinoma and a fibrosarcoma. This was confirmed electron microscopically but not immunohistochemically. Carcinosarcoma was diagnosed and the tumour was resected by external ethmoidectomy followed by radiotherapy and chemotherapy. However the patient died four months later following the recurrence of the fibrosarcoma. Microscopy of the recurrence showed no evidence of the carcinoma which seemed to be less resistant to treatment than was the fibrosarcoma as reported in earlier cases. The authors reviewed five similar cases reported in the literature.

Theoretical cost effectiveness of management options for children with persisting middle ear effusions. Berman, S., Roark, R., Luckey, D. Department of Pediatrics, University of Colorado School of Medicine, Denver. *Pediatrics* (1994) March, Vol. 93 (3), pp. 353–63.

OBJECTIVE: The purpose of this theoretical study is to assess the cost effectiveness of options involving observation, antibiotics alone, corticosteroids alone, corticosteroids plus antibiotics, and surgery to clear persisting middle ear effusions during three visits. **METHODOLOGY:** In a hypothetical case the expected average per patient expenditures are calculated using the efficacy rates determined by the meta-analysis of randomized controlled clinical trials involving corticosteroids plus an antibiotic (six trials), corticosteroids alone (three trials), and antibiotic alone (four trials). In this analysis, all children whose bilateral middle ear effusions persist for 12 weeks despite medical management are referred for ventilating tubes. **RESULTS:** The most cost-effective intervention combination is corticosteroid plus an antibiotic at visit one (six weeks after diagnosis of acute otitis media) followed by a second antibiotic in nonresponders at visit two (nine weeks after diagnosis of acute otitis media) and referral for ventilating tubes in nonresponders at visit three (12 weeks after diagnosis of acute otitis media). The expected average expenditures per case to clear the bilateral middle ear effu-

sions is \$600.91 based on reimbursement of private practice charges and \$350.27 based on Medicaid reimbursement (all payments to providers are based on 1992 data from Colorado). The difference in the expected average total expenditures per case between this most cost-effective approach versus the use of sequential courses of antibiotics followed by surgery is \$372.81 (\$973.72–\$600.91) with full reimbursement of private practice charges and \$202.57 (\$552.84–\$350.27) with Medicaid reimbursement. In clearing the middle ear effusion, the average estimated travel expenses per case is \$21.46, and lost parental wages per case are \$45.12. When the expenditures associated with an additional six-month follow-up period are included, the expected average per case expenditures is \$1088.54 with reimbursement of private practice charges and \$659.00 with Medicaid reimbursement. The difference in the expected average per case expenditures to clear the effusions and follow-up for six months between the most cost-effective approach using corticosteroids plus antibiotics at the six- and nine-week visits followed by surgery in nonresponders at 12 weeks versus sequential courses of antibiotics is \$405.30 (\$1493.84–\$1088.54) with reimbursement of private practice charges and \$217.32 (\$876.32–\$659.00) with Medicaid reimbursement. **RECOMMENDATIONS.** Although the analysis does not consider risks, side effects, and parental or provider preferences, the findings suggest that the implementation of cost-effective clinical guidelines can potentially reduce national expenditures for managing persistent middle ear effusions. Author.

Head and neck cancer: effect of food ingestion on uptake of C-11 methionine. Lindholm, P., Leskinen-Kallio, S., Kirvela, O., Nagren, K., Lehtikainen, P., Pulkki, K., Peltola, O., Ruotsalainen, U., Teras, M., Joensuu, H. Department of Oncology and Radiotherapy, Turku University Cyclotron/PET Centre, Finland. *Radiology* (1994), March, Vol. 190 (3), pp. 863–7.

PURPOSE: To determine the influence of a standardized meal on tumour uptake measured with positron emission tomography (PET) and L-(methyl-carbon-11) methionine. **MATERIALS AND METHODS:** Five patients with untreated squamous cell cancer of the head and neck underwent PET, first in a fasting state and then six to seven days later after ingesting a liquid meal. **RESULTS:** All tumours were seen on PET scans, and image quality remained good after food ingestion. The standardized uptake values of the tumours were 3.7–11.4 in the fasting state but decreased after the meal (range, 3.3–10.0; $P < 0.04$). No substantial change was measured in tumour C-11 methionine influx constants (Ki values). **CONCLUSION:** Although cancer imaging with PET and C-11 methionine can be performed even in the patient has not fasted, a standardized meal may decrease tumour C-11 methionine uptake. Author.

Globus pharyngeus: radiographic evaluation and 24-hour pH monitoring of the pharynx and esophagus in 22 patients. Ott, D. J., Ledbetter, M. S., Koufman, J. A., Chen, M. Y. Department of Radiology, Bowman Gray School of Medicine, Wake Forest University, Winston-Salem, NC 27157. *Radiology* (1994) April, Vol. 191 (1), pp. 95–7.

PURPOSE: The authors correlated the radiographic evaluation and 24-hour pH monitoring of the pharynx and the esophagus in patients with globus pharyngeus. **MATERIALS AND METHODS:** Radiographic examination of the pharynx of 22 patients (13 women and nine men, aged 23–73 years (mean, 47 years)) included videofluoroscopy and static radiography. Twenty-four hour double-probe pH monitoring of the pharynx (abnormal, pH <4) and esophagus (abnormal, six per cent or more total acid exposure) was performed in all patients. **RESULTS:** Radiographic results were normal in 17 patients; results were abnormal in five, with four having pharyngeal dysfunction and one showing a persistent cricopharyngeal impression. Zenker diverticulum was not seen. Results at pH monitoring of the pharynx and esophagus were normal in 20 and 18 of the 22 patients, respectively. In four of five patients with abnormal radiographic studies of the pharynx, results of pharyngeal pH monitoring were normal. **CONCLUSION:** Most patients with globus pharyngeus had normal results at pH monitoring and radiographic examination of the pharynx. Author.

Tracheal reconstruction after lower tracheal resection using the inverted right bronchus—an experimental study. Murakami, S., Sato, H., Uno, Y., Ishikawa, N., Hayashi, Y., Shimizu, J., Watanabe, Y. Department of Surgery, Kanazawa University School of Medicine, Japan. *Thoracic and Cardiovascular Surgery* (1993), December, Vol. 41 (6), pp. 335–9.

An experimental study of tracheal reconstruction after lower tracheal resection using the inverted bronchus was performed in eight dogs. After right upper lobectomy, the five cartilage rings of the lower trachea, ending three cartilage rings above the carina, was circumferentially resected; the right bronchus was transected trachea above the carina was closed, and the right bronchus was inverted. The peripheral end of the upper trachea was anastomosed to the inverted right bronchus, and the intermediate bronchus was anastomosed to the lateral wall of the left bronchus. After completion of the airway reconstruction, the anastomotic site was wrapped with an omental flap. Although anastomotic complication were observed in two dogs, all the dogs survived the operation. Bronchoscopically and histopathologically, the findings for the inverted bronchus were almost normal three to four weeks after the operation. The clinical relevance of such a tracheal reconstruction is discussed. Author.

Melanocytes in a vocal cord polyp. Černý, K., Buček, J., Chaloupkova, J. The Institute of Pathology, University, Brno (Czech Republic). *Otolaryngologie (Prague)* (1994), Vol. 43 (1), pp. 42–44.

Microscopy of a vascular vocal cord polyp removed from a 33 year old man complaining of hoarseness is described. An unusual finding was the presence of melanin-containing, S-100 positive melanocytes in the basal layers of the squamous cell epithelium of the vocal cord. This observation may explain the occasional finding of a malignant melanoma in the larynx.

