

Abstract Selection

Closure mechanisms of laryngeal vestibule during swallow. Logemann, J. A., Kahriyas, P. J., Cheng, J., Pauloski, B. R., Gibbons, P. J., Rademaker, A. W., Lin, S. Department of Communication Sciences and Disorders, Northwestern University, Evanston, Illinois 60208. *American Journal Physiology* (1992) Feb, Vol. 262 (2 Pt 1), pp. G338–44.

This study examined the temporal effects of bolus volume on closure of the laryngeal vestibule at the arytenoid to epiglottic base and the mobile portion of the epiglottis, the temporal relationships between these levels of airway closure and cricopharyngeal opening for various bolus volumes, and the mechanisms responsible for these two levels of airway protection during deglutition. Closure of the laryngeal vestibule progressed inferiorly to superiorly at all bolus volumes. Duration of closure of the airway at the arytenoid to epiglottic base increased systematically with bolus volume, as did the duration of descent of the epiglottis below horizontal. Closure at the arytenoid to epiglottic base occurred earlier in relation to maximal laryngeal elevation as bolus volume increased. In contrast, descent of the epiglottis to horizontal and the temporal relationship between closure of the airway at the arytenoid to epiglottic base and cricopharyngeal opening were independent of bolus volume. These findings indicate a tightly organized neural program for some pharyngeal swallow events with systematic variability with volume in other pharyngeal events, possibly modulated by afferent input from the periphery. The neuromuscular mechanisms responsible for closure of the airway at the arytenoid to epiglottic base and at the mobile epiglottis appear to be quite different. Closure at the arytenoid to epiglottic base is apparently under direct neural control by active anterior tilting of the arytenoid cartilage and posterior projection of the epiglottic base as the larynx elevates, whereas epiglottic downward movement to closure is the biomechanical effect of hyolaryngeal movement, downward bolus movement, and tongue base retraction. Author.

Rapidly progressive laryngeal oedema associated with pregnancy-aggravated hypertension. Rocke, D. A., Scoones, G. P. Department of Anaesthetics, University of Natal, Congella, Durban, South Africa. *Anaesthesia* (1992) Feb, Vol. 47 (2), pp. 141–3.

We report a patient with pregnancy-aggravated hypertension who developed rapid progression of laryngeal oedema intraoperatively and in whom airway obstruction occurred immediately following extubation. There were no pre-operative signs to indicate potential airway problems. Author.

Relapsing polychondritis: an unusual cause of painful auricular swelling. Coppola, M., Yealy, D. M. Emergency Medicine Residency, Darnall Army Community Hospital, Fort Hood, Texas. *Annals of Emergency Medicine* (1992) Jan, Vol. 21 (1), pp. 81–5.

Auricular pain, redness, and swelling are usually the result of infectious cellulitis. However, relapsing polychondritis is another cause of this symptom complex and is the result of an autoimmune phenomenon. It presents with inflammation and destruction of both articular and nonarticular cartilage, with the external ear and joint cartilage most often involved. Although usually indolent with multiple acute exacerbations, relapsing polychondritis can be rapidly fatal if the airway or cardiovascular system is involved. We present a case of relapsing polychondritis initially mistaken for auricular cellulitis. The clinical manifestations and course of relapsing polychondritis are reviewed, along with the emergency department management. Author.

The deep inferior epigastric rectus abdominis muscle and myocutaneous free tissue transfer: further applications for head and neck reconstruction. Markowitz, B. L., Satterberg, T., Calcaterra, T., Orringer, J., Cohen, S., Burstein, F., Shaw, W. Division of Plastic Surgery, UCLA Medical Centre 90024. *Annals of Plastic Surgery* (1991) Dec, Vol. 27 (6), pp. 577–82.

The rectus abdominis muscle and myocutaneous free tissue transfer

is a well-recognized donor site for reconstruction of complex head and neck defects. Four composite deformities were successfully managed using this donor site. The rectus abdominis myocutaneous 'sandwich' flap was used for closure of a pharyngocutaneous fistula and to provide intraoral lining and external coverage for a composite mandibular defect. The rectus muscle flap was used to obliterate a compound frontal sinus injury and an orbitomaxillary defect. All flaps were based on the deep inferior epigastric vascular pedicle. Author.

Exposure of humans to a volatile organic mixture. III. Inflammatory response. Koren, H. S., Graham, D. E., Devlin, R. B. United States Environmental Protection Agency, Health Effects Research Laboratory, Research Triangle Park, North Carolina. *Archives of Environmental Health* (1992) Jan–Feb, Vol. 47 (1), pp. 39–44.

A set of symptoms has been described during the past two decades that has been called the 'sick building syndrome'. These symptoms include eye, nose, and throat irritation; headache; mental fatigue; and respiratory distress. It is likely that the volatile organic compounds (VOCs) present in synthetic materials used in homes and office buildings contribute to these symptoms. However, there have been very few studies in which humans have been exposed to known amounts of VOCs under carefully controlled conditions. In this study, 14 subjects were exposed to a mixture of VOCs (25 mg/m³ total hydrocarbon) that is representative of what is found in new homes and office buildings. Because irritations of the nose and throat are symptoms often associated with the upper respiratory tract and may result from an inflammatory response in the upper airways, we used nasal lavage to monitor neutrophil (PMN) influx into the nasal passages following exposure to VOCs. There were statistically significant increases in PMNs, both immediately after a 4-h exposure to VOCs and 18 h later. Author.

Protective property of azelastine against histamine challenge of rhinal mucosa in domestic pigs. Stroman, F., Herold, H., Szelenyi, I. Asta Pharma AG, Department of Pharmacology, Frankfurt/Main, Fed. Rep. of Germany. *Arzneimittelforschung* (1991) Oct, Vol. 41 (10), pp. 1092–4.

In anaesthetized domestic pigs a filter paper sampling technique was applied to estimate basal and histamine induced nasal secretion. Histamine (0.2 mg/nostril) increased secretion more than twofold, a dose of 2 mg/nostril more than 10 fold. Intranasally instilled azelastine (A-5610, CAS 58581-89-8) prevented this histamine induced rhinorrhea without reduction of basal secretion. The protective effect remained for more than 2 h even when histamine challenge was repeated. Author.

Prognostic validity of brainstem electric response audiometry in infants of a neonatal intensive care unit. Durieux-Smith, A., Picton, T. W., Bernard, P., MacMurray, B., Goodman, J. T. Children's Hospital of Eastern Ontario, Ottawa, Canada. *Audiology* (1991), Vol. 30 (5), pp. 249–65.

This study compared the results of brainstem electric response audiometry (BERA) in infants of a neonatal intensive care unit to those obtained on the same children with pure-tone audiometry at 3 years of age. Six hundred children were initially tested in infancy, and complete follow-up information was obtained in 333. In 297 (89 per cent) the BERA results accurately predicted the hearing status at the age of three years. Twenty-nine (9 per cent) of the discrepancies were related to conductive hearing losses: 17 patients with a conductive hearing loss in the first few months of life had normal hearing at three years, and 12 patients normal in infancy had a conductive loss at three years. Two patients evaluated as a sensorineural hearing loss by BERA had normal hearing. These may have been due to a conductive loss. Six patients assessed as normal by BERA had significant hearing losses at the age of three years. Five of these had normal hearing at one frequency between 1,000 and 4,000 Hz. the sixth may have developed a sensorineural hearing loss after birth. Author.

Cross-correlation function in the analysis of auditory brainstem response in spinocerebellar degeneration. Aoyagi, M., Suzuki, T., Yokoyama, J., Sakai, M., Kiren, T., Koike, Y. Department of Otolaryngology, Yamagata University School of Medicine, Japan. *Audiology* (1991), Vol. 30 (5), pp. 266–74.

Cross-correlation functions were derived from the analysis of auditory-evoked brainstem response (ABR) and compared with measurements of wave latency and computed tomography findings in the assessment of ABR findings in spinocerebellar degeneration (SCD). Gender-specific normative ABR templates were produced from 30 normal males and 30 normal females separately. The cross-correlation indices used were the correlation coefficient at time 0; the maximal correlation coefficient and the latency delay in milliseconds. The technique was applied to 33 patients with SCD. The incidence of abnormal cross-correlation functions (81.8 per cent) was greater than the incidence of abnormal ABR peak latencies assessed according to gender (75.8 per cent) which, in turn, was more common than the abnormal peak latencies assessed conventionally (69.7 per cent). Moreover, the incidence of abnormal cross-correlations and latencies in Meniere's disease was much lower (less than 8 per cent). These results suggest that the evaluation of ABR waveform characteristics with cross correlation functions using normative ABR templates of the same gender contributes to the precise detection of abnormality in the brainstem auditory pathway. Author.

Seasickness in totally-enclosed motor-propelled survival craft: five offshore oil rig disasters. Landolt, J. P., Light, I. M., Greenen, M. G., Monaco, C. Defence and Civil Institute of Environmental Medicine, North York, Ont., Canada. *Aviation, Space and Environmental Medicine* (1992) Feb, Vol. 63 (2), pp. 138–44.

Five mobile offshore drilling unit disasters, Alexander L. Kielland, Ocean Ranger, Vinland, Ocean Odyssey, and Rowan Gorilla I, were studied to assess the degree to which seasickness occurs and endangers the lives of occupants of totally-enclosed motor-propelled survival craft (TEMPSC). Thousands of other peace time marine incidents were reviewed and a literature search was conducted to assess the same seasickness problem. The one reported death in the Vinland abandonment appears to be the only one that could be associated, even remotely, with seasickness. It cannot be established whether or not seasickness contributed to the cause of death in the case of the Ocean Ranger victims, but it did occur in 75 per cent or more of TEMPSC occupants in the other four rig disasters. It has occurred both in relatively calm waters of 1-m wave height and in severe seas of 15-m heights. Evacuees in an intact TEMPSC are able to survive many hours of severe seas; consequently, they should not be rescued until the weather and sea conditions improve. Moreover, practical survival training and good leadership is a principal cornerstone in the amelioration of seasickness. Author.

Further evidence to support disconjugate eye torsion as a predictor of space motion sickness. Markham, C. H., Diamond, S. G. Department of Neurology, UCLA School of Medicine 90024-1769. *Aviation, Space and Environmental Medicine* (1992) Feb, Vol. 63 (2), pp. 118–21.

Disconjugate eye torsion in hypo- and hypergravity of parabolic flight was examined in four former astronauts and four previously tested ex-astronauts to replicate an earlier study and to further test the asymmetry hypothesis of otolith function. Results in the new subjects supported the asymmetry hypothesis and confirmed previous findings that those with low scores of torsional disconjugacy on the KC-135 did not suffer space motion sickness in their prior Shuttle missions while those with high scores did. Tilting subjects with high disconjugacy scores slightly to one side and the other failed to find a position that decreased disconjugacy in hypergravity, leading to the conclusion that a simple planar asymmetry about the y-axis was probably not the cause of the observed torsional differences in the two eyes. Disconjugacy increased at 0 G with increasing parabolas, much more so in subjects who had suffered SMS. Because of this, 10 to 20 parabolas were deemed to be a more certain discriminator than a fewer number. Author.

Treatment of motion sickness in parabolic flight with buccal scopolamine. Norfleet, W. T., Degioanni, J. J., Calkins, D. S., Reschke, M. F., Bungo, M. W., Kutyna, F. A., Homick, J. L. Department of Anesthesiology, Virginia Mason Hospital, Seattle, WA. *Aviation, Space and Environmental Medicine* (1992) Jan, Vol. 63 (1), pp. 46–51.

Treatment of acute motion sickness induced by parabolic flight with a preparation of scopolamine placed in the buccal pouch was investi-

gated. Twenty-one subjects flew aboard a KC-135 aircraft operated by the National Aeronautics and Space Administration (NASA) which performed parabolic maneuvers resulting in periods of 0 g, 1 g, and 1.8 g. Each subject flew once with a tablet containing scopolamine and once with a placebo in a random order; crossover design. Signs and symptoms of motion sickness were systematically recorded during each parabola by an investigator who was blind to the content of the tablet. Compared with flights using placebo, flights with buccal scopolamine resulted in significantly lower scores for nausea (31–35 per cent reduction) and vomiting (50 per cent reduction in number of parabolas with vomiting). Side effects of the drug during flight were negligible. We conclude that buccal scopolamine is more effective than a placebo in treating ongoing motion sickness. Author.

Are hearing loss and balance dysfunction linked in construction iron workers? Kilburn, K. H., Warshaw, R. H., Hanscom, B. University of Southern California School of Medicine, Environmental Sciences Laboratory, Los Angeles 90033. *British Journal of Industrial Medicine* (1992) Feb, Vol. 49 (2), pp. 138–41.

The objective was to determine whether an association existed between hearing loss and balance dysfunction in construction workers exposed to noise. Screening pure tone audiometry and balance testing were performed using a sound emitter and dual microphone system to evaluate 78 iron workers who were compared with 128 histology technicians. Most iron workers showed hearing loss at frequencies below 3000 Hz. Their sway speeds were significantly faster both with the eyes open (1.05 (SD 0.39) v 0.91 (SD 0.22) cm/s) and with eyes closed (1.66 (SD 0.82) v 1.31 (SD 0.51) cm/s) than those of histology technicians. Coefficients for sway speed with the eyes closed and hearing loss in the left ear were significantly correlated at 500 to 8000 Hz. They were also correlated with the sway speed, eyes open, at low and high Hz. It is concluded that the use of air impact power tools in an inordinately noisy work environment makes iron workers prematurely deaf and impairs their balance. Falls may be related to balance dysfunction and impaired equilibrium. Falls from height injure and kill iron workers. Further investigations will determine whether injuries from falls are linked to these impairments. Author.

Syndrome of inappropriate secretion of antidiuretic hormone in a patient with carcinoma of the nasopharynx. Kavanagh, B. D., Halperin, E. C., Rosenbaum, L. C., Shannon, E. M., Nilaver, G. Division of Radiation, Oncology, Duke University Medical Center, Durham, North Carolina. *Cancer* (1992) Mar 15, Vol. 69 (6), pp. 1315–9.

A patient with a primary undifferentiated carcinoma of the nasopharynx manifested the clinical syndrome of inappropriate antidiuretic hormone secretion (SIADH). Immunohistochemical techniques demonstrated the presence of vasopressin, neurophysin, and their precursor (proressopophysin) in the cancer cells. In situ hybridization additionally confirmed the expression of proressopophysin messenger RNA in these cells. To the knowledge of the authors, this represents not only the first case of SIADH caused by carcinoma of the nasopharynx, but also the first report of pathologic confirmation of the syndrome with the use of both molecular and immunologic probes. Author.

The value of flow cytometric analysis in multicentric glomus tumors of the head and neck. Sauter, E. R., Hollier, L. H., Farr, G. H. Jr. Department of Surgery, Ochsner Clinic, New Orleans, Louisiana 70121. *Cancer* (1992) Mar 15, Vol. 69 (6), pp. 1452–6.

Glomus tumors of the head and neck include those arising from the carotid body, jugular vein, and vagus nerve. Because these cannot be differentiated histologically, when encountering a large tumor mass involving more than one structure in the carotid sheath, one often cannot be sure whether the tumours are from one or more of these structures. The authors performed DNA flow cytometric analysis on a patient with a multicentric glomus tumour on the right side of the neck involving the carotid body, jugular vein, and vagus nerve, in an effort to determine the separate or similar origin of her tumor mass. Different DNA indices, including a double peak for the carotid body tumor, were obtained. There were three aneuploid tumors and one diploid tumor (DNA indices: carotid body 1.78, 2.04; jugular vein 2.20; vagus nerve 1.82). Different synthetic phase fractions were calculated for each aneuploid tumor except the second carotid body peak (carotid body 7.2; jugular vein 3.6; vagus nerve 4.8). The authors conclude that DNA flow cytometry may be useful in confirming the multicentric origin of tumors that encompass more than one histologically similar structure. Author.

A new form of X-linked, high frequency, sensorineural deafness. Wellesley, D., Goldblatt, J. Department of Clinical Genetics, Princess Margaret Hospital for Children, Perth, Western Australia. *Clinical Genetics* (1992) Feb, Vol. 41 (2), pp. 79–81.

A kindred is described in which five male members over three generations manifested a high-frequency deafness. Their isolated sensorineural hearing loss was non-progressive and only in the 1500–8000 Hz range. The pattern of inheritance and nature of the auditory deficit would suggest it is a previously undescribed X-linked form of deafness. Author.

Loss of radiogallium from lymphoma after initiation of chemotherapy. Dambro, T. J., Slavin, J. D. Jr., Epstein, N. F., Weiner, R. E., Spencer, R. P. Department of Nuclear Medicine, University of Connecticut Health Center, Farmington 06030. *Clinical Nuclear Medicine* (1992) Jan, Vol. 17 (1), pp. 32–3.

A man with a high-grade lymphoma had radiogallium imaging at 48 hours post-injection, revealing three distinct sites of uptake (neck and thorax). Unknown to the authors, the patient was given cytoxan, vincristine, and prednisone intravenously 27 hours after radiogallium administration. The images at 120 hours showed markedly reduced radiogallium activity at all three sites. Possible reasons for the loss of radiogallium from the tumor sites were presented. Author.

Nasoethmoid orbital fractures. Current concepts and management principles. Leipziger, L. S., Manson, P. N. Division of Plastic and Reconstructive Surgery, Long Island Jewish Medical Center, New Hyde Park, New York. *Clinics in Plastic Surgery* (1992) Jan, Vol. 19 (1), pp. 167–93.

The proper management of nasoethmoid orbital fractures relies upon early accurate diagnosis and treatment. A surgical plan must be established after careful review of the physical examination and CT scans. Identification of the extent and type of fracture pattern determines the operative approach. Extended (wide) exposure, using craniofacial techniques, facilitates precise reduction and rigid fixation of all bone fragments. Transnasal reduction of the canthus-bearing central segment (medial orbital rim) is the critical operative maneuver required to achieve normal intercanthal distance. Immediate bone grafting replaces severely comminuted or missing bone fragments. The skin overlying the nasoethmoid area is carefully redraped by gentle pressure from padded external compression bolsters. These principles form the basis for superior aesthetic and functional results. Author.

Management of frontal sinus fractures. Changing concepts. Rohrich, R. J., Hollier, L. H. Division of Plastic and Reconstructive Surgery, University of Texas Southwestern Medical Center, Dallas. *Clinics in Plastic Surgery* (1992) Jan, Vol. 19 (1), pp. 219–32.

Since the turn of the century, surgeons have handled frontal sinus fractures with a variety of different procedures. The optimal management procedure remains controversial. We have presented a graduated anatomic algorithm for treatment of frontal sinus fractures based on the degree of fracture displacement and nasofrontal duct involvement and presence of CSF leak. Nondisplaced fractures are best handled conservatively, without operative intervention. However, the majority of frontal sinus fractures require operative correction. Uncomplicated anterior table displacement with an aesthetic deformity is treated by fragment reduction and stabilization with miniplates or microplates or wires. Nasofrontal duct obstruction is usually managed by sinus obliteration with spontaneous osteoneogenesis or autologous bone grafting. Finally, comminuted, displaced anterior and posterior table fractures, especially those with persistent CSF leakage and associated nasofrontal duct involvement, are best handled with frontal sinus cranialization. The presented algorithm is simply a treatment guideline. Frontal sinus fracture management must be individualized. However, this graduated anatomic approach provides a pragmatic framework for decision making and understanding this complex and controversial topic. Author.

Localization ability in infants with simulated unilateral hearing loss. Auslander, M. C., Lewis, D. E., Schulte, L., Stelmachowicz, P. G. Boys Town National Research Hospital, Omaha, Nebraska. *Ear and Hearing* (1991) Dec, Vol. 12 (6), pp. 371–6.

This study investigated the feasibility of using a localization task to rule out unilateral hearing loss in infants. Four corner localization ability was assessed in 29 normal-hearing infants (9–20 mo) using four different test stimuli. In these same infants, a mild unilateral hearing loss was simulated by occlusion of the external auditory

canal and the test sequence was repeated. Analysis of front-back, right-left, and combined errors for each of the test stimuli revealed that this type of task may allow detection of unilateral hearing loss as slight as 25 dB HL. Author.

Middle latency auditory evoked potentials in temporal lobe disorders. Shehata-Dieler, W., Shimizu, H., Soliman, S. M., Tusa, R. J. Johns Hopkins Medical Institutions, Baltimore, Maryland. *Ear and Hearing* (1991) Dec, Vol. 12 (6), pp. 377–88.

Middle latency auditory evoked potentials (MAEP) were recorded in 30 normal subjects and in 19 age-matched patients with temporal lobe lesions. MAEP appeared to be differentially affected by the specific structures involved within the temporal lobe. In the majority of patients with lesions involving the auditory area and/or auditory radiation, Na-Pa amplitude was significantly reduced over the involved hemisphere. No similar reduction in amplitude was noted in subjects with lesions not involving the auditory structures within the temporal lobe. We also observed a shift in a Pa latency over the involved hemisphere in patients with temporal lobe lesions involving the auditory structures. This latency shift was less pronounced than the amplitude reduction. The generators of MAEP in humans are discussed according to these findings and to the available literature. Normal intersubject variability of the conventional amplitude measures, and the occasional myogenic contamination of the response, limits establishing reliable criteria for abnormality that can be applied clinically for the diagnosis of patients with temporal lobe disorders. Author.

Allowing for real ear venting effects when selecting the coupler gain of hearing aids. Dillon, H. National Acoustic Laboratories, Chatswood, Australia. *Ear and Hearing* (1991) Dec, Vol. 12 (6), pp. 406–16.

Vents in hearing aids have two major effects on the insertion gain of a hearing aid: they let low-frequency sound in without amplification, and they reduce the low-frequency gain of sound transmitted through the hearing aid. The net effect on low-frequency gain can thus be either negative or positive. This paper shows how to allow for both of these effects. One of the results is that for many hearing-impaired clients, there is a range of coupler gain curves which will result in the required insertion gain. The tables in this article are arranged to enable the user to specify a desired vent, and then determine the allowable range of coupler gains that will achieve a desired insertion gain to within a specified tolerance. The results of various studies comparing coupler gain and insertion gain are also compared and combined. The calculation method outlined in this paper can predict low-frequency real ear insertion gain for the individual subject with a prediction accuracy (root-mean-square-error) of 3.6 dB. Author.

What can be learned about hearing aids from cochlear implants? Tyler, R. S. Department of Otolaryngology—Head and Neck Surgery, University of Iowa, Iowa City. *Ear and Hearing* (1991) Dec, Vol. 12 (6 Suppl), pp. 177S–186S.

Cochlear implants have changed the rehabilitation of profoundly hearing-impaired patients. A wide range of performance is reported for postlingually deaf adult patients using multichannel (Nucleus and Inerad) cochlear implants. For the 63 patients described here, performance ranges from 0 to 62 per cent correct word recognition, from 0 to 98 per cent lipreading enhancement measured as a percentage of the possible enhancement, and from 0 to 98 per cent on understanding words in sentences. Prelingually deaf children also show benefit from their cochlear implants, but they require more time to obtain benefit than postlingually deaf children and adults. Experience with cochlear implants has suggested a few observations that could be useful to hearing aid development, including: (1) field trials are essential; (2) signal processing should preserve and enhance frequency resolution; (3) the fitting process for a sophisticated hearing aid may require several days to adjust properly; (4) fitting algorithms should focus on individuals rather than averages; (5) patients will wear a larger device if their handicap is great enough and if the improvement is sufficient; and (6) patients should and will accept expensive hearing aids. Author.

The relative contributions of occupational noise and aging in individual cases of hearing loss. Dobie, R. A. Department of Otolaryngology—Head and Neck Surgery, University of Texas Health Science Center, San Antonio. *Ear and Hearing* (1992) Feb, Vol. 13 (1), pp. 19–27.

A method is proposed for allocation of hearing handicap between

noise and aging in individual cases when noise exposure level and duration are known or can be estimated. A recently published international standard (ISO-1999, 1990) provides statistical models for hearing threshold changes associated with aging and noise exposure. When an individual's hearing threshold level exceeds the sum of the median levels expected given that individual's age, gender, exposure level, and exposure duration, the appropriate allocation depends on the correlation between age-related and noise-induced changes. However, the differences in allocation between assumptions of perfect and absent correlation are small. Only very small errors result from calculating the allocation based on median expectations for noise and aging. In most cases, age-related changes exceed noise-induced changes for the 0.5, 1, 2 and 3 kHz pure-tone average; for men age 65, this is true for all exposure levels below 100 dBA. Author.

Auditory brain stem responses in patients with human immunotropic virus infection of different stages. Welkoborsky, H. J., Lowitzsch, K. Department of Otorhinolaryngology, University Hospital, Mainz, Germany. *Ear and Hearing* (1992) Feb, Vol. 13 (1), pp. 55–7.

Thirty patients (26 men, 4 women) with human immunotropic virus infection of different stages were examined. Eleven patients had a history of i.v. drug abuse, nine patients had a history of treated lues infection, and one patient suffered from Kaposi's sarcoma. At the time of the examination, opportunistic infections or acute encephalitis were not apparent in any patient. All patients underwent otoneurological examinations, including pure-tone audiometry, caloric vestibular testing, and recording of the auditory brain stem responses (ABR). Six patients reported onset of hearing impairment during the last three year. Two of them had flat sensorineural hearing loss; in the other cases, pure-tone audiometry showed high tone hearing loss with negative recruitment. ABRs were normal in 19 cases, with the latencies for waves III and V and for the I–V interpeak latency significantly delayed when compared to the values of the control group. The frequency of abnormal ABR findings did not correlate to the stage of the disease. The results of the study indicate that auditory and, more specifically, ABR abnormalities commonly occur in human immunotropic virus disease. More studies are necessary to prove whether the ABR is suitable to monitor therapeutic effects. Author.

Normal conduction in pathways traversing an asymptomatic multiple sclerosis plaque. Ross, M. A., Leis, A. A., Krain, L., Mitchell, G. Department of Neurology, University of Iowa Hospitals and Clinics, Iowa City 52242. *Electroencephalography and Clinical Neurophysiology* (1992) Feb, Vol. 85 (1), pp. 42–5.

A 31-year-old woman developed right facial myokymia as the initial manifestation of multiple sclerosis (MS). An MRI scan revealed a focal signal abnormality confined to the left dorsolateral pontomedullary region. Brain-stem auditory evoked potentials (BAEPs), somatosensory evoked potentials (SEPs), and blink reflex (BR) failed to show a conduction abnormality through the left brain-stem lesion. Instead, BAEP and BR indicated a conduction defect in the right pons and EMG showed myokymic discharges in right facial muscles. Our findings provide rare documentation of normal conduction through a presumably asymptomatic MS plaque. The abnormal MRI signal likely represents tissue edema, rather than demyelination. This case demonstrates that physical findings in MS patients may correlate better with electrophysiological abnormalities than with MRI abnormalities. Author.

Midlatency auditory evoked responses: P1 abnormalities in adult autistic subjects. Buchwald, J. S., Erwin, R., Van-Lancker, D., Guthrie, D., Schwafel, J., Tanguay, P. Department of Physiology, UCLA School of Medicine 90024. *Electroencephalography and Clinical Neurophysiology* (1992) Mar-Apr, Vol. 84 (2), pp. 164–71. MLR recordings from a group of 11 high-functioning adult autistic subjects were compared with those from a control group of 11 normal subjects. Components selected for analysis were 'Pa', the maximum positivity in the 25–40 msec latency range following stimulus onset, 'P1', the maximum positivity within the 50–65 msec latency range, and 'Nb', the maximum negative deflection in the 40–50 msec latency range. Statistical analyses of amplitude and latency data were conducted using repeated measures analysis of variance and to test group comparisons. The Pa component showed no significant difference between autistic and control groups. However, two types of abnormality were noted in the P1 component: (1) the P1 component was significantly smaller in the autistic subjects as

rates of stimulation, and (2) the autistic P1 did not change at slow rates of click stimulation increased from 0.5 to 10/sec, in contrast to the normally produced P1 decrement. Data from the P1 model in the cat, and complementary data from the human, closely link the generator substrate of the P1 potential to cholinergic components of the ascending reticular activating system (RAS) and their thalamic target cells. This is the first report of abnormal P1 responses in autism and strongly suggests that the RAS and/or its post-synaptic thalamic targets may be dysfunctional in this syndrome. Author.

Esophagoglottal closure reflex: a mechanism of airway protection. Shaker, R., Dodds, W. J., Ren, J., Hogan, W. J., Arndorfer, R. C. Department of Medicine, Medical College of Wisconsin, Milwaukee. *Gastroenterology* (1992) Mar, Vol. 102 (3), pp. 857–61. Abrupt esophageal distention occurs commonly during gastroesophageal reflux, thereby generating a circumstance favorable to esophagopharyngeal regurgitation and laryngeal aspiration of gastric refluxate. The aims of the present study were to examine the glottal response to esophageal distention by air and regional esophageal distention by a balloon. Fifteen healthy volunteers (age, 25 ± 5 years) were studied while they were in an upright position. Using concurrent videoendoscopy and manometry, glottal and upper esophageal sphincter (UES) responses to abrupt esophageal distention by air injection (10–60 mL) and balloon distention (1.5, 2.0, and 2.5 cm) were recorded simultaneously. In addition, six subjects were studied with concurrent synchronized videofluoroscopy. Results showed that esophageal distention of air at a threshold volume of 10–60 mL caused vocal cord closure. The UES response to this threshold volume was variable. Volumes larger than the threshold value caused complete UES relaxation and belching. In addition to vocal cord closure, belching was accompanied by anterior movement of the glottis. On videofluoroscopy, the hyoid bone moved anteriorly in association with belching, but not with vocal cord closure without belching. Proximal esophageal distention by the balloon also provoked vocal cord closure. This response was less consistent for balloon distention in the middle and distal esophagus. It is concluded that (a) esophageal distention by either air or a balloon evokes a glottal closure mechanism, thereby suggesting the existence of an esophagoglottal reflex; (b) this reflex is elicited most easily by distention of the proximal esophagus; (c) glottal and UES responses to esophageal distention are independent from each other; and (d) the esophagoglottal closure reflex may play an important role in preventing laryngeal aspiration of acid due to gastroesophageal reflux accompanied by acid regurgitation into the pharynx. Author.

Mechanical properties of human tracheal cartilage. Rains, J. K., Bert, J. L., Roberts, C. R., Pare, P. D. Canadian Respiratory Health Network of Centers of Excellence, St Paul's Hospital, Vancouver, British Columbia, Canada. *Journal of Applied Physiology* (1992) Jan, Vol. 72 (1), pp. 219–25.

Biomechanical changes in airway cartilage could influence the mechanics of maximal expiratory flow and cough and the degree of shortening of activated airway smooth muscle. We examined the tensile stiffness of small samples of human tracheal cartilage rings in specimens obtained at autopsy from 10 individuals who ranged in age from 17 to 81 years. The tensile properties of the cartilage were compared with its content of water (% water), glycosaminoglycans (chondroitin sulfate equivalents, mg/mg dry weight), and hydroxyproline content (mg hydroxyproline/mg dry weight). The average values for tensile stiffness ranged between 1 and 15 MPa and increased significantly with increasing age (tensile stiffness = $0.19 \times (\text{age in year}) + 2.02$; $r = 0.83$, P less than 0.05). The outermost layer of cartilage was the most stiff in all individuals, and the deeper layers were progressively less stiff. Water content and hydroxyproline content both decreased with increasing age. Thus tensile stiffness correlated inversely with water content and hydroxyproline content (tensile stiffness = $-0.83\% \times (\% \text{ water}) + 16.4$; $r = 0.82$, P less than 0.05 and tensile stiffness = $-342 \times (\text{hydroxyproline content}) + 25$; $r = 0.87$, P less than 0.05). Total tissue content of glycosaminoglycans did not change with age, although changes in glycosaminoglycan type and proteoglycan structure with increasing age have been described. We conclude that there are age-related changes in the biomechanical properties and biochemical composition of airway cartilage that could influence airway dynamics. Author.

Nasal resonometer: an instrument for the assessment and treatment of hypernasality. Birch, M., Humphries, C., Stock, C. Depart-

ment of Medical Physics, London Hospital, UK. *Journal of Biomedical Engineering* (1991) Sep, Vol. 13 (5), pp. 429–32.

We describe an instrument which enables the measurement of the ratio of nasal to oral sound pressures to be made during normal speech. The technique incorporates a novel phase locking technique which effectively discriminates the spectral characteristic of resonant peaks occurring during nasalized speech from other nasal emissions. The results enable an assessment of the degree of resonance in real time, the trend of diagnostic measurements within a treatment session and the success achieved in reaching targets set during treatment. Author.

Oncocytic metaplasia of the nasopharynx or extra-parotid Warthin's tumour? Griffiths, A. P., Dekker, P. Department of Histopathology, University of Leeds. *Journal of Clinical Pathology* (1991) Dec, Vol. 44 (12), pp. 1030–2.

A case of oncocytic metaplasia obstructing the Eustachian tube in an elderly patient is described. Histologically, it was similar to Warthin's tumour of the parotid gland. The lymphocytes were predominantly T cell, unlike those of Warthin's tumour which are predominantly B cell. It is proposed that oncocytic metaplasia represents an early stage in the evolution of Warthin's tumour. Author.

Atypical Ph negative chronic myeloid leukaemia presenting sudden profound deafness. Smith, N., Bain, B., Michaels, L., Craven, E. Department of Haematology, St Mary's Hospital Medical School, London. *Journal of Clinical Pathology* (1991) Dec, Vol. 44 (12), pp. 1033–4.

A patient with atypical Ph negative chronic myeloid leukaemia presented with the sudden onset of profound deafness. He survived only eight months. Detailed histological investigation performed at necropsy showed loss of ganglion cells and afferent nerve fibres in the cochlea and vestibule associated with extensive fibrosis and new bone formation in the labyrinthine spaces. Both leucophoresis and high dose chemotherapy capable of rapid cytoreduction are recommended in patients with chronic myeloid leukaemia with profound hearing loss, as conventional chemotherapy is rarely followed by recovery. Author.

Prevalence of the A and B types of Epstein-Barr virus DNA in nasopharyngeal carcinoma biopsies from southern China. Chen, X. Y., Pepper, S. D., Arrand, J. R. Cancer Research Campaign Laboratories, Paterson Institute for Cancer Research, Christie CRC Cancer Centre, Manchester, UK. *Journal of General Virology* (1992) Feb, Vol. 73 (Pt 2), pp. 463–6.

Epstein-Barr virus (EBV) exists in the human population in two genetic forms, usually referred to as type A and type B. Although many earlier studies had indicated that the A type was generally predominant, there were suggestions that the B type may exhibit a preferential tropism for nasopharyngeal epithelial cells. This study examines the prevalence of the two forms of EBV DNA present in nasopharyngeal carcinoma biopsies obtained from the high incidence area of Southern China. The results obtained by Southern blot or polymerase chain reaction analyses show that in this patient group the A type of EBV is predominant. Author.

Abnormal muscle and skin mitochondria in family with myoclonus, ataxia, and deafness (May and White syndrome). Vaamonde, J., Muruzabal, J., Tunon, T., Perez, N., Artieda, J., Rodriguez, M., Obeso, J. A. Clinica Universitaria, University of Navarra, Pamplona, Spain. *Journal of Neurology, Neurosurgery and Psychiatry* (1992) Feb, Vol. 55 (2), pp. 128–32.

A mother and two of her daughters had deafness and cortical reflex myoclonus; the mother also had mild truncal ataxia. Muscle and skin biopsy specimens revealed abundant ragged-red fibres and abnormal mitochondria. The son of one of the daughters had sensorineural deafness. Three other grandchildren were asymptomatic. The two daughters also had diabetes mellitus, hypertension and cardiomyopathy. Another daughter died of renal failure. The mother lost her hearing in her 70s, one daughter in her 30s, and the other daughter and the grandson in their 20s. The mother has had transient episodes (24–48 hours) of temporal disorientation, severe action myoclonus, and ataxia for about eight years. This is the first reported family with inherited deafness, myoclonus, and ataxia with mitochondrial pathology. Author.

Central salivary gland tumors of the maxilla and mandible: a clinicopathologic study of 11 cases with an analysis of the literature. Brookstone, M. S., Huvos, A. G. Memorial Sloan-Kettering

Cancer Center, New York, NY 10021. *Journal of Oral and Maxillofacial Surgery* (1992) Mar, Vol. 50 (3), pp. 229–36.

Centrally occurring salivary gland neoplasms of the jaws are rare. The clinical and histologic features of 11 cases including mucoepidermoid carcinoma, adenoid cystic carcinoma, and adenocarcinoma were reviewed. The patients ranged in age from 10 to 67 years, with a mean age of 45 years. Males and females were almost equally affected. Ten cases were intramandibular and one case was of maxillary origin. Eight of 11 tumors either were histologically associated with an odontogenic cyst, or there was some recent history of exodontia in the tumor area. A review of the pertinent literature yielded 127 previously reported centrally occurring primary salivary gland tumors arising within the maxilla and mandible. An analysis of these cases, their clinical and histologic characteristics, as well as a discussion regarding their probable histogenesis and new suggestions for clinical staging, has been included. Author.

Auditory brain-stem responses in neonates receiving extracorporeal membrane oxygenation. Paccioretti, D. C., Haluschak, M. M., Finer, N. N., Robertson, C. M., Pain, K. S., Hagler, M. Audiology Centre, Vancouver Health Department, British Columbia, Canada. *Journal of Pediatrics* (1992) Mar, Vol. 120 (3), pp. 464–7.

Auditory brain-stem responses from 25 neonates treated with extracorporeal membrane oxygenation were compared with those of 11 control subjects. Results revealed no statistically significant differences for recorded responses, either between ears or between groups. We conclude that infants who receive extracorporeal membrane oxygenation, with or without carotid artery repair, are not at greater risk for auditory brain-stem dysfunction than similar infants who do not receive extracorporeal membrane oxygenation. Author.

Management of oral mucositis during local radiation and systemic chemotherapy: a study of 98 patients. Carl, W., Emrich, L. S. Roswell Park Memorial Institute, School of Dental Medicine, Buffalo, N.Y. *Journal of Prosthetic Dentistry* (1991) Sep, Vol. 66 (3), pp. 361–9.

Oral mucositis is among the complications of head and neck irradiation and systemic chemotherapy. To determine whether or not mucositis could be prevented or reduced in intensity by using Kamillosan Liquidum as an oral rinse, 98 patients were placed on study protocols. Twenty patients who were treated with radiation therapy and 46 patients who received systemic chemotherapy participated in prophylactic oral care with Kamillosan oral rinse. Thirty-two patients were treated therapeutically after mucositis had developed. Sixteen patients receiving chemotherapy were treated therapeutically and prophylactically with Kamillosan oral rinse during repeated cycles of chemotherapy. Only one of the 20 patients who had had radiation therapy developed grade 3 mucositis in the final week of treatment. Thirty-six of the 46 patients undergoing chemotherapy did not develop clinically noticeable mucositis. It appears that resolution of mucositis is accelerated by Kamillosan rinse. Prophylactic oral care appeared to modify the oral environment favourably and maintain tissue integrity. Author.

Oral manifestations of neurofibromatosis types I and II. Geist, J. R., Gander, D. L., Stefanac, S. J. University of Detroit School of Dentistry, Mich. *Oral Surgery, Oral Medicine and Oral Pathology* (1992) Mar, Vol. 73 (3), pp. 376–82.

The disease known as neurofibromatosis is now recognized to consist of distinct variants that differ from each other genetically, microscopically, and clinically. Neurofibromatosis type I (NF-I) is often referred to as von Recklinghausen's disease of skin, and its features are well-known. Neurofibromatosis type II (NF-II) is a much more uncommon manifestation that probably results from a structural defect in chromosome 22, as opposed to NF-I, which is related to chromosome 17. Although neurofibromas occur in NF-II, neurilemmomas and acoustic neuromas are the predominant neural tumors; bilateral acoustic neuromas are the hallmark of the disease. NF-II largely afflicts the central nervous system and has a more gradual onset than and different clinical features from NF-I. One case each of NF-I and NF-II is presented, with emphasis on oral manifestations. Diagnostic techniques, treatment, and prognosis are reviewed. Author.

A computed tomographic study of the distances between the maxillary sinus floor and the apices of the maxillary posterior teeth. Eberhardt, J. A., Torabinejad, M., Christiansen, E. L. Department of Endodontics, School of Dentistry, Loma Linda University,

Calif. *Oral Surgery, Oral Medicine, Oral Pathology* (1992) Mar, Vol. 73 (3), pp. 345–6.

The mean distance between the apices of the maxillary posterior teeth and the floor of the maxillary sinus was measured from computed tomographic display data from 12 autopsy specimens and 38 human subjects. The distance from these apices to the adjacent lateral bony surfaces was also measured. The apex of the mesiobuccal root of the maxillary second molar was closest to the sinus floor (mean 1.97 mm) but farthest from the buccal bony surface (mean 4.45 mm). The apex of the buccal root of the maxillary first premolar was closest to the adjacent lateral bony surface (mean 1.63 mm) but farthest from the floor of the sinus (mean 7.05 mm). Author.

Chondrocalcinosis of the temporomandibular joint: an external ear canal pseudotumor. Magno, W. B., Lee, S. H., Schmidt, J. Department of Pathology, Hospital of St Raphael, West Haven, Conn. *Oral Surgery, Oral Medicine, Oral Pathology* (1992) Mar, Vol. 73 (3), pp. 262–5.

An unusual case of calcium pyrophosphate arthropathy (pseudogout) involving the temporomandibular joint of a 53-year-old woman presented clinically as an ear canal tumor. Further evaluation and surgical exploration disclosed chondrocalcinosis of the temporomandibular joint with involvement of the bones at the left base of the skull. This case report emphasizes the importance of recognizing the lesion by frozen-section examination because excellent results can be obtained by intraoperative curettage of the calcareous deposits and local irrigation with saline solution. Author.

Nonsurgical management of deep neck infections in children. Broughton, R. A. Department of Pediatrics, University of Kentucky Medical Center, Lexington 40536-0084. *Pediatric Infectious Diseases Journal* (1992) Jan, Vol. 11 (1), pp. 14–8.

Of the 14 pediatric patients with deep neck infections hospitalized at our institution from 1981 through 1990, only six were managed surgically. The remaining eight patients received antibiotic therapy and their infection resolved without the need for surgical drainage. All eight patients were hospitalized within four days (mean, 1.8 days) of onset of illness. Computerized tomography of the neck was performed in seven and revealed soft tissue swelling and a round or oval cystic lesion in the parapharyngeal region in all seven. Parenteral antibiotic therapy was administered to all patients for two to nine days (mean, 5.5 days) before changing to oral therapy which was continued for 10 to 35 days (mean, 15.1 days). Clinical improvement was evident in all patients one to three days (mean, 1.6 days) after the onset of antibiotic therapy, with defervescence within seven days (mean, 3.8 days). Follow-up computerized tomography scans were obtained in four patients revealing improvement in three. It is known that patients with cellulitis of the deep neck tissues may respond well to antibiotic therapy; our experience suggests that some patients with apparent abscess formation as determined by computerized tomography scan may also respond favorably to antibiotic therapy and not require surgical drainage. Author.

Hypoplastic posterior arch of C-1 in children with Down syndrome: a double jeopardy. Martich, V., Ben-Ami, T., Yousefzadeh, D. K., Roizen, N. J. Department of Radiology, University of Chicago Hospitals, IL 60637. *Radiology* (1992) Apr, Vol. 183 (1), pp. 125–8.

Radiographs of 38 children with Down syndrome (aged two to three years) were retrospectively evaluated for hypoplasia of the posterior arch of the C-1 vertebra. The anteroposterior dimensions of the posterior arch of C-1 were measured and compared with those of an age- and sex-matched control group. The posterior arches of C-2 to C-5 were similarly evaluated. Radiographs demonstrated hypoplasia of the posterior arch of C-1 in 26 per cent. This anomaly of C-1 was an isolated event; sagittal diameters of C-2 to C-5 were within normal limits compared with those of the control group and published standards. Because of the known, potentially devastating atlantoaxial dislocation in Down syndrome, the increased prevalence of a second C-1 anomaly causing preexistent narrowing of the vertebral canal is of clinical concern. A hypoplastic posterior arch of C-1 may amplify the risk of spinal cord damage following atlantoaxial subluxation, as the subsequently smaller vertebral canal has less room for dorsal movement of the odontoid process. This potential 'double jeopardy' of C-1 vertebral abnormalities should be recognized and assessed on cervical spine screening radiographs in children with Down syndrome. Author.

Temporomandibular joint abnormalities associated with rheumatic disease: comparison between MR imaging and arthro-tomography. Larheim, T. A., Smith, H. J., Aspestrand, F. Department of Oral Radiology, Faculty of Dentistry, University of Oslo, Norway. *Radiology* (1992) Apr, Vol. 183 (1), pp. 221–6.

Nonenhanced magnetic resonance (MR) images and arthro-tomograms of temporomandibular joints (TMJs) were compared in 18 patients with rheumatic disease. Of 22 symptomatic TMJs, arthro-tomography was unsuccessful in three (14 per cent). MR imaging showed extensive rheumatic abnormalities in two of these three joints and internal derangement in one. In another three joints (14 per cent), both imaging modalities showed normal findings or internal derangement. In the remaining 16 joints (72 per cent), arthro-tomographic findings were interpreted as rheumatic, whereas MR findings were interpreted as rheumatic in 14 joints and as internal derangement in two. Surgical correlation in 11 joints indicated superiority of MR imaging for assessment of moderate and severe rheumatic TMJ involvement. MR imaging seemed to be of limited value in early diagnosis due to its inability to show synovial proliferation. Indirect signs of synovial proliferation could be shown with arthro-tomography, which may be helpful in early diagnosis of rheumatic TMJ disease. Author.

Spiral CT in evaluation of head and neck lesions: work in progress. Suojanen, J. N., Mukherji, S. K., Dupuy, D. E., Takahashi, J. H., Costello, P. Department of Radiology, New England Deaconess Hospital, Boston, MA 02215. *Radiology* (1992) Apr, Vol. 183 (1), pp. 281–3.

Spiral computed tomography (CT) was used in the evaluation of 21 patients with head and neck lesions. Scanning time ranged from 24 to 36 s, and high-quality diagnostic scans with excellent anatomic resolution and minimal motion artifact were produced. Vascular opacification was optimized with substantially less contrast medium than used in conventional studies. These preliminary results show spiral CT to be at least comparable with conventional CT in the evaluation of the head and neck. Author.