

## Abstract Selection

**Cross-sectional survey of paranasal sinus magnetic resonance imaging findings in schoolchildren.** Kristo, A., Alho, O. P., Luotonen, J., Koivunen, P., Tervonen, O., Uhari, M. Department of Otorhinolaryngology, University of Oulu, Oulu, Finland. aila.kristo@oulu.fi. *Acta Paediatrica* (2003), Vol. 92 (1), pp. 34–6. AIM: Sinus image abnormalities are common among children examined for indications other than sinus disease. The purpose of this study was to determine the frequency of sinus abnormalities among otherwise healthy children attending school. METHODS: Magnetic resonance imaging (MRI) was performed on 24 children aged eight to nine years, 18 of whom were re-examined after six to seven months. RESULTS: Sinus abnormalities were common. An abnormality was seen in 12 of the children (50 per cent, 95 per cent confidence interval (95 per cent CI) 29–71 per cent) and nine (38 per cent, 95 per cent CI 19–59 per cent) had abnormalities in the maxillary sinuses. As many as eight (42 per cent, 95 per cent CI 20–67 per cent) of the asymptomatic children (lacking clinical symptoms or findings) had abnormalities in the maxillary or ethmoidal sinuses. The follow-up examination showed that about half of the abnormal sinus MRI findings had resolved or improved without any intervention. CONCLUSION: Abnormal sinus MRI findings are common both among otherwise healthy children attending school and in totally asymptomatic children. As incidental findings, these should be interpreted as normal and do not indicate any need for treatment in children imaged for purposes other than sinus disease.

**A prospective controlled double-blind trial of great auricular nerve preservation at parotidectomy.** Hui, Y., Wong, D. S. Y., Wong, L. Y., Ho, W. K., Wei, W. I. Division of Otolaryngology, Head and Neck Surgery, Department of Surgery, University of Hong Kong Medical Centre, Queen Mary Hospital, 102 Pokfulam Road, Hong Kong, PR China, yhui@hkucc.hku.hk. *American Journal of Surgery* (2003) June, Vol. 185 (6), pp. 574–9. BACKGROUND: Earlier reports of the advantages of preserving the posterior branches of the great auricular nerve (GAN) at parotidectomy were conflicting. This prospective study was aimed at clarifying the controversy. METHODS: Eighty-one patients in a university otolaryngology department were recruited. The posterior branches were preserved whenever initial dissection showed that tumour clearance would not be compromised. Touch-pressure sensation was monitored in predefined territories supplied by the GAN using a Semmes-Weinstein aesthesiometer, preoperatively and postoperatively. Minimal pressure thresholds obtained were compared between the two groups. RESULTS: Preservation of the GAN was achievable in 69 per cent of patients; sensory deficit was transient. With the GAN divided, measurable sensory depression occurred up to two years after surgery. The difference is statistically significant. Patients' subjective assessment of numbness also conformed to these trends. Additional time taken for preservation of the GAN was about 10 minutes. CONCLUSIONS: The posterior branches should always be preserved if tumour clearance is not compromised.

**Evaluation of vestibular functions in children with vertigo attacks.** Uneri, A., Turkdogan, D. Marmara University, Institute of Neurological Sciences, Istanbul, Turkey. *Archives of Diseases in Childhood* (2003) June, Vol. 88 (6), pp. 510–1. AIM: To evaluate vestibular system functions in children with episodic vertigo attacks. METHODS: Thirty four children (20 males) aged four to 18 years with paroxysmal dizziness and/or vertigo attacks were evaluated. A medical history for vestibular symptoms and migraine was taken. Vestibular and auditory functions were assessed. RESULTS: Chronic headache attacks consistent with migraine were reported in 12 children and motion sickness was reported in 30. Family history in first degree relatives was positive for migraine in 29 children and for episodic vertigo in 22. Electronystagmography and videonystagmography showed

two types of nystagmus: spontaneous vestibular nystagmus (41 per cent) and benign paroxysmal positional nystagmus (BPPN) (59 per cent). The first type of nystagmus was assessed as a sign of vestibulopathy and the patients with BPPN were diagnosed as having benign paroxysmal positional vertigo (BPPV). Audiometric examination in four cases revealed bilateral sensory neural hearing loss in low frequencies. Pure tone averages in 30 cases were within normal ranges; however low frequencies in 28 of them were approximately 10 dB lower than high frequencies. Unilateral caloric responses diminished in eight children. CONCLUSIONS: Peripheral vestibular problems in childhood present in a wide spectrum, which varies from a short episode of dizziness to a typical vestibular attack with fluctuating sensory neural hearing loss or episodes of BPPV. A considerable number of these vestibular problems might be related to the migraine syndrome.

**Clinical studies of sudden upper airway obstruction in patients with hereditary angioedema due to C1 esterase inhibitor deficiency.** Bork, K., Hardt, J., Schicketanz, K H., Ressel, N. Department of Dermatology, Johannes-Gutenberg University, Langenbeckstrasse 1, 55131 Mainz, Germany. bork@hautklinik.klinik.uni-mainz.de. *Archives of Internal Medicine* (2003) May 26, Vol. 163 (10), pp. 1229–35.

BACKGROUND: Hereditary angioedema due to C1 esterase inhibitor deficiency is clinically characterized by recurrent and self-limiting skin, intestinal and laryngeal oedema. Asphyxiation by laryngeal oedema is the main cause of death among patients who die of hereditary angioedema. This study describes the age at which laryngeal oedema first occurs, the time between onset and full development, and the effectiveness of therapy and prophylaxis. METHODS: Information on 123 patients with hereditary angioedema was obtained from medical histories and reports by the general practitioners, emergency physicians, and hospitals involved. RESULTS: Sixty-one patients (49.6 per cent) experienced a total of 596 laryngeal oedema episodes. The ratio of laryngeal oedema episodes to skin swellings and abdominal pain attacks was approximately 1:70:54 in patients who had laryngeal oedema. The mean (SD) age at the first laryngeal oedema was 26.2 (15.3) years. Nearly 80 per cent of the laryngeal oedemas occurred between the ages of 11 and 45 years. The mean interval between onset and maximum development of laryngeal oedema was 8.3 hours. A total of 342 laryngeal oedemas cleared spontaneously without treatment and 208 laryngeal oedemas were successfully treated with C1 esterase inhibitor concentrate. Despite long-term prophylactic treatment with danazol, six patients developed subsequent laryngeal oedemas. CONCLUSIONS: Laryngeal oedema may occur at any age, although young adults are at greatest risk. In adults, the interval between onset of symptoms and acute risk of asphyxiation is usually long enough to allow for use of appropriate emergency procedures. To prevent a fatal outcome, it is essential to instruct patients and their relatives about the first signs of laryngeal oedemas and the necessary procedures to follow.

**Salivary duct carcinoma of the larynx: report of a rare case.** Goel, M. M., Agrawal, S. P., Srivastava, A. N. Department of Pathology, King George's Medical College, Lucknow-226004, Uttar Pradesh, India. madhukgmc@rediffmail.com. *Ear, Nose & Throat Journal* (2003) May, Vol. 82 (5), pp. 371–3.

Salivary duct carcinomas are primarily high-grade, aggressive malignancies that affect men in the fifth and sixth decades of life. These tumours are usually found in the major salivary glands; rarely do they originate in the minor salivary glands. The distinctive feature of these neoplasms is their remarkable histologic resemblance to infiltrating ductal carcinomas of the mammary gland; both types of tumour feature epithelial and myoepithelial cells arrayed in solid, papillary, and cribriform patterns. To the best of our knowledge, only one case of a primary

salivary duct carcinoma of the larynx has been previously reported. In this article, we describe a new case, and we review the literature on salivary duct carcinomas.

**Reconstruction with radial forearm flaps after ablative surgery for hypopharyngeal cancer.** Scharpf, J., Esclamado, R. M. Department of Otolaryngology and Communicative Disorders, A71, The Cleveland Clinic Foundation, 9500 Euclid Avenue, Cleveland, Ohio 44195, USA. *Head and Neck* (2003) April, Vol. 25 (4), pp. 261–6.

**BACKGROUND:** Patients afflicted with advanced hypopharyngeal cancer must contend with both potentially poor survival prognosis and a compromised quality of remaining life. After extensive ablative surgery, it is imperative to use a reliable, low morbidity reconstructive strategy that will allow for an expedient reconstitution of speech and swallowing. **METHODS:** Retrospective review of the records of 28 patients who underwent pharyngoesophageal reconstruction with radial forearm free flaps (RFFF) between 1996 and 2001 by a single surgeon (RE). Analysis was confined to patients requiring complete tubulation of the RFFF. Perioperative mortality, morbidity, and functional evaluation based on the parameters of speech and swallowing were analysed. **RESULTS:** Completely tubulated RFFF were required in 25 patients. There was 100 per cent RFFF survival with no perioperative mortalities. The median hospital stay was eight days. All patients acquired a reconstitution of oral alimentation; median time to swallowing was 18 days. Fourteen of the 16 patients (93 per cent) were able to rely on TEP speech as their main modality of communication. Two patients (eight per cent) had early fistulas develop, and five (20 per cent) had late fistulas develop. Nine patients (36 per cent) required mechanical dilatation; five of the nine patients required only one dilatation. **CONCLUSION:** Review of our experience has confirmed the reliability and excellent functional outcome associated with this flap.

**The impact of head and neck cancer and facial disfigurement on the quality of life of patients and their partners.** Vickery, L. E., Latchford, G., Hewison, J., Bellew, M., Feber, T. Department of Clinical and Health Psychology, St. James University Hospital, Beckett Street, Leeds LS9 7TF, UK. lindsey.vickery@leedsth.nhs.uk. *Head and Neck* (2003) April, Vol. 25 (4), pp. 289–96.

**BACKGROUND:** Psychological and physical stresses from head and neck cancer can be substantial for patients and partners. There is minimal research exploring treatment impact, particularly facial disfigurement after surgery. **MATERIALS AND METHODS:** Twenty-eight surgery and radiotherapy/brachytherapy/chemoradiation patients and 25 of their partners were compared with 23 radiotherapy/brachytherapy patients and 19 partners. Participants completed the Hospital Anxiety and Depression Scale, Psychosocial Adaptation to Illness Scale, Dyadic Adjustment Scale, and European Organisation for Research and Treatment of Cancer Quality of Life Scale, including the Head and Neck Cancer module. The Dropkin Disfigurement and Dysfunction scale classified surgical impairment. **RESULTS:** Partners reported greater distress than patients on some scales. Patients did not have a lower quality of life compared with normal populations and other cancer patients. However, on the EORTC they did and were comparable to a normed sample of head and neck cancer patients. Treatment modality was not predictive of psychological vulnerability. **DISCUSSION:** Head and neck cancer patients do not necessarily experience poor quality of life. The disease can have a significant impact on partners.

**Functional anatomy of the lymphatic drainage system of the upper aerodigestive tract and its role in metastasis of squamous cell carcinoma.** Werner, J. A., Duenne, A. A., Myers, J. N. Department of Otolaryngology, Head and Neck Surgery, Philipps University Marburg, Deutschhausstr. 3, 35037 Marburg, Germany. j.a.werner@mail.uni-marburg.de. *Head and Neck* (2003) April, Vol. 25 (4), pp. 322–32.

**BACKGROUND:** Although there is a significant understanding of the vascular anatomy of the upper aerodigestive tract (UADT), there is less detailed knowledge of the architecture and drainage patterns of the lymphatic system. Detailed knowledge of the lymphatic system is critical for understanding the role of sentinel node identification in the management of different cancers. **METHODS:** We have combined microscopic techniques with in

vivo and in vitro lymphographic studies to survey the architecture and drainage patterns of the lymphatic system of the UADT in 850 organ specimens. **RESULTS:** These studies show an interaction of superficial and deep lymphatic networks that vary in density but have a constant distribution characterized by predictable patterns of lymph drainage into the regional lymph nodes. **CONCLUSIONS:** Detailed knowledge of the lymphatic system of the UADT contributes to a better understanding of the patterns of metastatic spread of carcinomas of the UADT and provides a strong rationale for the practice of sentinel node identification in the management of these tumours.

**Hereditary hemorrhagic telangiectasis treated by the harmonic scalpel.** Ishibashi, T., Takamatsu, S. Department of Otolaryngology, Social Insurance Central General Hospital, 3-22-1, Hyakunincho, Shinjuku-ku, Tokyo, 169-0073, Japan. tisibasi-oto@umin.ac.jp. *Head and Neck* (2003) April, Vol. 25 (4), pp. 333–6.

**BACKGROUND:** Hereditary hemorrhagic telangiectasis (HTT) is a familial autosomal dominant genetic disorder that causes abnormalities of the wall of peripheral blood vessels. Severe nose bleed often is the dominant symptom. A variety of therapies have been proposed for epistaxis control in HHT but with limited success. **METHODS:** We report two cases of HHT in which recurrent nasal bleeding was successfully controlled using the Harmonic Scalpel. **RESULTS:** Use of the Harmonic Scalpel avoids the carbonization and incrustation of the nasal mucosa that commonly results from electrocautery and laser irradiation. Even during active bleeding, hemostasis can be achieved by repeated applications of the scalpel blade. **CONCLUSION:** This method can be performed quick and reliably on an outpatient basis. The Harmonic Scalpel may be the treatment of choice for recurrent epistaxis in HHT.

**Expanding the biological basis of tinnitus: crossmodal origins and the role of neuroplasticity.** Cacace, A. T. Department of Surgery, Division of Otolaryngology, Albany Medical College, 47 New Scotland Avenue, Albany, NY 12208, USA. cacacea@mail.amc.edu. *Hearing Research* (2003) January, Vol. 175(1–2), pp. 112–32.

Tinnitus is most often initiated by modality specific otopathologic disturbances affecting peripheral and central auditory pathways. However, there is growing evidence indicating that the anatomical location generating tinnitus occurs at sites different from the initial pathology. Support for this notion is found in individuals where tinnitus can be triggered or modulated by inputs from other sensory modalities or sensorimotor systems (somatosensory, somatomotor, visual-motor). The use of functional imaging methods combined with psychophysics, detailed physical examinations and questionnaire-based assessments has reinforced and validated these observations. Available data suggest that tinnitus-related crossmodal interactions are more common than previously anticipated. This communication reviews these advancements and suggests that a relatively broad multimodal network of neurons is involved in generating and sustaining the tinnitus perception in some forms of the disorder. Also implicated as part of the tinnitus experience are interactions within large-scale neural networks subserving attention, cognition, and emotion. Incorporating this knowledge into contemporary psychophysiological models will help facilitate the conceptualization of this phantom perception in a more comprehensive manner.

**The changing indications for paediatric tracheostomy.** Hadfield, P. J., Lloyd-Faulconbridge, R. V., Almeyda, J., Albert, D. M., Bailey, C. M. Department of Paediatric Otolaryngology, Great Ormond Street Hospital for Children, London WC1N 3JH, UK. *International Journal of Pediatric Tracheostomy* (2003) January, Vol. 67 (1), pp. 7–10.

**OBJECTIVE:** To investigate whether the incidence and indications for paediatric tracheostomy in this unit have changed over recent years. **METHODS:** All paediatric tracheostomies performed between 1993 and 2001 were identified from our departmental database. The indications for these were ascertained by retrospective case note review. **RESULTS:** Over the nine-year period studied 362 tracheostomies were performed, the number increased slightly between the first and second half of the period, with peaks in 1997 and 1999. The commonest indication was prolonged ventilation due to neuromuscular or respiratory problems. **CONCLUSIONS:** This large series shows that the increase in frequency of paediatric tracheostomy performed in this

unit over the past decade has been due to conditions such as subglottic and tracheal stenosis, respiratory papillomatosis, caustic alkali ingestion and craniofacial syndromes. Conditions in which tracheostomy are now less common are subglottic haemangioma and laryngeal clefts. Prolonged ventilation remains the commonest indication overall.

**The effect of aryepiglottoplasty for laryngomalacia on gastro-oesophageal reflux.** Hadfield, P. J., Albert, D. M., Bailey, C. M., Lindley, K., Pierro, A. Department of Paediatric Otolaryngology, Great Ormond Street Hospital for Children, London WC1N 3JH, UK. *International Journal of Pediatric Otorhinolaryngology* (2003) January, Vol. 67 (1), pp. 11–4.

**OBJECTIVE:** To investigate whether relief of airway obstruction in laryngomalacia by aryepiglottoplasty affects gastro-oesophageal reflux. **METHODS:** A prospective study of consecutive infants and children with suspected laryngomalacia. Gastro-oesophageal reflux was measured before and after diagnostic microlaryngobronchoscopy and aryepiglottoplasty. **RESULTS:** Of the six cases who underwent aryepiglottoplasty and completed the study, three had significant pre-operative reflux according to age. In this group the reflux improved significantly after aryepiglottoplasty. In the other three cases, reflux was not age-significant pre-operatively nor did it change significantly post-operatively. **CONCLUSIONS:** When partial airway obstruction due to laryngomalacia co-exists with gastro-oesophageal reflux, treatment of the airway problem improves respiratory symptoms in all cases and reduces gastro-oesophageal reflux in patients with age-significant reflux. This suggests that there are two clinical groups, those with severe, age-significant reflux, possibly caused by airway obstruction, whose gastro-oesophageal reflux benefits from aryepiglottoplasty; and those whose reflux is physiological and not influenced by aryepiglottoplasty. Therefore aryepiglottoplasty can be expected to reduce gastro-oesophageal reflux in those infants with laryngomalacia who have age-significant reflux.

**Vestibular activation by bone conducted sound.** Welgampola, M. S., Rosengren, S. M., Halmagyi, G. M., Colebatch, J. G. Institute of Neurological Sciences, Prince of Wales Hospital and UNSW Clinical School, Sydney, NSW, Australia. *Journal of Neurology, Neurosurgery, and Psychiatry* (2003) June, Vol. 74 (6), pp. 771–8.

**OBJECTIVE:** To examine the properties and potential clinical uses of myogenic potentials to bone conducted sound. **METHODS:** Myogenic potentials were recorded from normal volunteers, using bone conducted tone bursts of seven ms duration and 250–2000 Hz frequencies delivered over the mastoid processes by a B 71 clinical bone vibrator. Biphasic positive-negative (p1n1) responses were recorded from both sternocleidomastoid (SCM) muscles using averaged unrectified EMG. The best location for stimulus delivery, optimum stimulus frequency, stimulus thresholds, and the effect of aging on evoked response amplitudes and thresholds were systematically examined. Subjects with specific lesions were studied. Vestibular evoked myogenic potentials (VEMP) to air conducted 0.1 ms clicks, 7 ms/250–2000 Hz tones, and forehead taps were measured for comparison. **RESULTS:** Bone conducted sound evoked short latency p1n1 responses in both SCM muscles. Ipsilateral responses occurred earlier and were usually larger. Mean (SD) p1 and n1 latencies were 13.6 (1.8) and 22.3 (1.2) ms ipsilaterally and 14.9 (2.1) and 23.7 (2.7) ms contralaterally. Stimuli of 250 Hz delivered over the mastoid process, posterosuperior to the external acoustic meatus, yielded the largest amplitude responses. Like VEMP in response to air conducted clicks and tones, p1n1 responses were absent ipsilaterally in subjects with selective vestibular neurectomy and preserved in those with severe sensorineural hearing loss. However, p1n1 responses were preserved in conductive hearing loss, where VEMP to air conducted sound were abolished or attenuated. Bone conducted response thresholds were 97.5 (3.9) dB SPL/30.5 dB HL, significantly lower than thresholds to air conducted clicks (131.7 (4.9) dB SPL/86.7 dB HL) and tones (114.0 (5.3) dB SPL/106 dB HL). **CONCLUSIONS:** Bone conducted sound evokes p1n1 responses (bone conducted VEMP) which are a useful measure of vestibular function, especially in the presence of conductive hearing loss. For a given perceptual intensity, bone conducted sound activates the vestibular apparatus more effectively than air conducted sound.

**Anterior clinoidectomy and opening of the internal auditory canal using an ultrasonic bone curette.** Hadeishi, H., Suzuki, A., Yasui, N., Satou, Y. Department of Surgical Neurology, Research Institute for Brain and Blood Vessels-Akita, Akita, Japan. hade@akita-noken.go.jp. *Neurosurgery* (2003) April, Vol. 52 (4), pp. 867–70.

**OBJECTIVE:** During cranial base surgery, use of a high-speed drill for osteotomy has become common. We performed anterior clinoidectomy and opening of the internal auditory canal using an ultrasonic bone curette, and we report the advantages and clinical applications of this method. **DESCRIPTION OF INSTRUMENTATION:** The ultrasonic surgical equipment comprises a power supply unit, footswitch, and handpiece (weight, 110 g; diameter, 20 mm; length, 140 mm from tip to angled section). The handpiece tip is 2 mm wide, and the amplitude of longitudinal vibration can be varied from 120 to 365 microm at an ultrasonic frequency of 25 kHz. Cool-controlled irrigation fluid emerges near the tip, through the sheath. **EXPERIENCE AND RESULTS:** We performed anterior clinoidectomy in eight cases of paraclinoid aneurysm and opening of the internal auditory canal in six cases of acoustic neuroma without damage to the dura mater or nearby structures such as brain tissue, blood vessels, and cranial nerves. In addition, no damage to the facial nerve or labyrinthine organ resulted from heat or vibration caused by the ultrasonic bone curette. **CONCLUSION:** Ultrasonic bone curettage represents safe instrumentation for performance of anterior clinoidectomy and opening of the internal auditory canal without damage to surrounding structures. This technique allows surgeons to perform procedures on deep areas without incurring psychomotor stress.

**The lateral crural J-flap repair of nasal valve collapse.** O'Halloran, L. R. Georgetown University Medical School, Washington, DC, USA. *Otolaryngology–Head and Neck Surgery* (2003) May, Vol. 128 (5), pp. 640–9.

**OBJECTIVES:** Nasal valve collapse is a common cause of nasal airway obstruction. Although many techniques have been devised to correct both the functional and aesthetic aspects of this problem, none is uniformly successful. I propose that the true locus and solution to the problem lies lateral to the nasal valve angle in the fibroareolar tissue that connects the lateral aspect of the lateral crus to the bony pyriform aperture. Age-related or surgically induced weakening and loosening of these structurally important, fibroareolar connections result in a prolapse of the lateral aspect of the lateral crura away from the pyriform margin and toward the septum with a consequent narrowing of the nasal valve region. A new method of repair is described. **METHODS:** Bilateral marginal incisions are made following the curvature of the palpated caudal edge of the lower lateral cartilage starting at the dome region medially. The incision is extended laterally until the entire lateralmost aspect of the lateral crus is freed, generating a J-shaped chondrocutaneous flap that is medially and superiorly based. Following this, supraperichondrial dissection of the lateral crus is carried out, exposing the dome region and the upper lateral cartilage. The J-flap is then pulled caudally and laterally, and the excess overlapping tissue is evaluated. Two composite strips of vestibular skin and cartilage are resected: one parallel to the marginal incision and the second at the lateral edge of the J-flap. The flap is transposed and sutured into position, pulling open the nasal valve angle. **RESULTS:** Preliminary results are presented for 18 patients who underwent 19 lateral crural J-flap repairs of nasal valve collapse. Nine patients underwent concomitant septal, sinus, or turbinate procedures. Two patients underwent unilateral J-flap repair. One patient required revision. Eighty-nine per cent of patients reported markedly improved nasal airway patency and elimination of the subjective sensation of inspiratory collapse. Mean time to follow-up was 257 days. There has thus far been no noticeable decrement in benefit over time. **CONCLUSION:** This new technique for the treatment of nasal valve collapse may offer a simple and effective approach to the problem of nasal valve collapse with minimal morbidity and a high rate of success. The technique is based on a new view of the structural etiology of nasal valve collapse.

**Minimally invasive laser contraction myringoplasty for tympanic membrane atelectasis.** Ostrowski, V. B., Bojrab, D. I. Michigan Ear Institute, Farmington Hills, Michigan 48334, USA. *Otolaryngology–Head and Neck Surgery* (2003) May, Vol. 128 (5), pp. 711–8.

**OBJECTIVE:** We sought to develop a minimally invasive surgical technique using the CO<sub>2</sub> laser to reduce or eliminate tympanic membrane atelectasis in a select group of patients. **STUDY DESIGN:** Thirty-seven ears with varying degrees of tympanic membrane atelectasis underwent CO<sub>2</sub> laser myringoplasty with the patients under intravenous sedation in the operating room setting. Atelectasis severity was graded for each patient and documented before and after laser myringoplasty through photodocumentation. Patients were followed for one year with comparison tympanic membrane photography. **SETTING:** The study was conducted in a tertiary care private otology-neurotology practice. **RESULTS:** Laser myringoplasty significantly reduced retraction pocket severity in most patients. No patients required resection of the retraction pocket or tympanoplasty. The most favourable outcomes were observed in patients with atelectasis addressed early rather than later in its more advanced stages. **CONCLUSION:** Laser contraction myringoplasty can reduce or eliminate atelectatic areas of the tympanic membrane through immediate contraction and "tightening" of the tympanic membrane tissues. Clinicians should use a standardized tympanic membrane atelectasis grading format. **SIGNIFICANCE:** A minimally invasive surgical technique for addressing tympanic membrane atelectasis is described, and a tympanic membrane atelectasis grading system is presented based on size, location, and depth of the atelectatic region.

**Raynaud's phenomenon after radical radiotherapy for tumours of the head and neck.** Westbury, C. B., Harrington, K. J., Rhys-Evans, P., Archer, D. J., Searle, A. E., Henk, J. M., Black, C. M., Nutting, C. M. Head and Neck Unit, Royal Marsden Hospital NHS Trust, London, UK. *Postgraduate Medical Journal* (2003) March, Vol. 79 (929), pp. 176–7.

Endothelial cell injury is implicated in the development of radiation induced tissue damage and may also be involved in the pathophysiology of secondary Raynaud's phenomenon. Two patients are presented in whom the typical symptoms and signs of Raynaud's phenomenon developed as a late complication of radical radiotherapy. One had Raynaud's of the tongue and one of the lip. Both patients had a prior history of primary Raynaud's phenomenon and in each case the symptoms were repeatedly precipitated by sudden cold exposure. The possible pathogenesis of radiation induced Raynaud's phenomenon in the head and neck region is discussed.

**Acoustic neuroma in patients with completely resolved sudden hearing loss.** Nageris, B. I., Popovtzer, A. Department of Otolaryngology–Head and Neck Surgery, Rabin Medical Center, Petah Tiqva, Israel. *The Annals of Otolaryngology, Rhinology and Laryngology* (2003) May, Vol. 112 (5), pp. 395–7.

Approximately 30 per cent of patients with sudden hearing loss show complete recovery. Researchers have long questioned whether extensive evaluation is necessary in these cases. Recently, however, with the increasing widespread application of magnetic resonance imaging, a higher rate than expected of acoustic neuromas has been detected in patients with sudden hearing loss. Two studies have suggested that affected patients may even partially regain hearing. The aim of the present clinical study was to determine whether acoustic neuroma-induced hearing loss may be associated with full recovery. The files of 67 patients evaluated for sudden hearing loss at Rabin Medical Center from 1989 to 2000 were reviewed. All patients underwent pure tone audiometry, acoustic reflex tests, and auditory brain stem evoked response tests. Hearing evaluation was followed by magnetic resonance imaging scan and, one month later, a second hearing test. Findings were compared between patients with and without evidence of tumour on imaging, and between patients with tumour with and without full recovery. Twenty-four patients (36 per cent) had a diagnosis of acoustic tumour, of whom four (16.7 per cent) recovered hearing after one month. All four tumours were intracanalicular. Two of these patients had low-tone hearing loss, and two had flat curves; three had a pathological auditory brain stem evoked response. Of the 43 patients without tumours, 26 (60 per cent) showed complete resolution of the hearing loss. We conclude that complete recovery of hearing loss does not exclude acoustic tumour, and these patients therefore require full evaluation. The reason for the recovery remains unclear.

**Surgical anatomy of the recurrent laryngeal nerve: implications for laryngeal reinnervation.** Damrose, E. J., Huang, R. Y., Ye, M., Berke, G. S., Sercarz, J. A. Division of Head and Neck Surgery, Department of Surgery, University of California–Los Angeles School of Medicine, Los Angeles, California 90095, USA. *The Annals of Otolaryngology, Rhinology and Laryngology* (2003) May, Vol. 112 (5), pp. 434–8.

Functional laryngeal reinnervation depends upon the precise reinnervation of the laryngeal abductor and adductor muscle groups. While simple end-to-end anastomosis of the recurrent laryngeal nerve (RLN) main trunk results in synkinesis, functional reinnervation can be achieved by selective anastomosis of the abductor and adductor RLN divisions. Few previous studies have examined the intralaryngeal anatomy of the RLN to ascertain the characteristics that may lend themselves to laryngeal reinnervation. Ten human larynges without known laryngeal disorders were obtained from human cadavers for RLN microdissection. The bilateral intralaryngeal RLN branching patterns were determined, and the diameters and lengths of the abductor and adductor divisions were measured. The mean diameters of the abductor and adductor divisions were 0.8 and 0.7 mm, while their mean lengths were 5.7 and 6.1 mm, respectively. The abductor division usually consisted of one branch to the posterior cricoarytenoid muscle; however, in cases in which multiple branches were seen, at least one dominant branch could usually be identified. We conclude that the abductor and adductor divisions of the human RLN can be readily identified by an extralaryngeal approach. Several key landmarks aid in the identification of the branches to individual muscles. These data also indicate the feasibility of selective laryngeal reinnervation in patients who might be candidates for laryngeal transplantation after total laryngectomy.

**Endoscopic surgery for juvenile angiofibroma: when and how.** Nicolai, P., Berlucchi, M., Tomenzoli, D., Cappiello, J., Trimarchi, M., Maroldi, R., Battaglia, G., Antonelli, A. R. Department of Otorhinolaryngology, University of Brescia, Italy. *The Laryngoscope* (2003) May, Vol. 113 (5), pp. 775–82.

**OBJECTIVES/HYPOTHESIS:** In recent years, the indications for endoscopic surgery of the sinonasal tract, originally introduced for the treatment of inflammatory diseases, have been expanded to include selected cases of benign and malignant neoplastic lesions. The aim of the present study was to establish the efficacy of endoscopic surgery in the management of small and intermediate-sized juvenile angiofibromas. **STUDY DESIGN:** Retrospective study. **METHODS:** We reviewed the clinical records and the preoperative and postoperative imaging studies of 15 patients with juvenile angiofibroma who were treated with an endoscopic approach after embolization in the period from January 1994 to April 2000. All patients were prospectively followed by endoscopic and magnetic resonance imaging evaluations performed at regular intervals (every four months during the first year and, subsequently, every six months). **RESULTS:** According to a staging system reported in 1989, there were two patients with a type I, nine with a type II, three with a type IIIA, and one with a type IIIB juvenile angiofibroma. Angiography demonstrated that the vascular supply was strictly unilateral in 11 patients and bilateral in four. Intraoperative blood loss ranged from 80 to 600 ml (mean blood loss, 372 ml). During follow-up (range, 24–93 months; mean follow-up, 50 months (SD ± 19.9 months)), only one patient presented a residual lesion on magnetic resonance imaging, which was 16 mm in diameter and was detected 24 months after surgery. **CONCLUSIONS:** The endoscopic approach is a safe and effective technique that allows removal of small and intermediate-sized juvenile angiofibromas (without extensive involvement of the infratemporal fossa and cavernous sinus) with a low morbidity. Advanced lesions are more appropriately treated by external approaches.

**Long-term hearing outcome in patients receiving intratympanic gentamicin for Ménière's disease.** Wu, L. G., Minor, L. B., Department of Otolaryngology–Head and Neck Surgery, The Johns Hopkins University School of Medicine, Baltimore, Maryland 21287, USA. *The Laryngoscope* (2003) May, Vol. 113 (5), pp. 815–20.

**OBJECTIVE:** To determine the long-term hearing outcome in patients with intractable vertigo caused by unilateral Ménière's disease who were treated with intratympanic injection of gentamicin. **STUDY DESIGN:** The study was a longitudinal

analysis of hearing and control of vertigo in patients with unilateral Ménière's disease who received intratympanic gentamicin. **METHODS:** Pure-tone thresholds and speech discrimination scores on audiometry were analysed, along with the control of vertigo. Criteria described in 1995 by the American Academy of Otolaryngology–Head and Neck Surgery (AAO-HNS) were used. Patients treated with intratympanic gentamicin had 'definite' Ménière's disease and had intractable vertigo despite optimal medical therapy, no symptoms suggestive of Ménière's disease in the contralateral ear and serviceable hearing in the contralateral ear. The study analysed the outcomes of 34 patients for whom follow-up data were available for periods greater than 24 months after intratympanic gentamicin. **RESULTS:** Complete control of vertigo (AAOHNS Class A) was obtained in 90 per cent of the patients. Profound sensorineural hearing loss occurred as a result of gentamicin injection in one of the 34 patients (three per cent). When data from all patients were grouped together, hearing was improved in five (15 per cent), unchanged in 23 (68 per cent), and worse in six (17 per cent) patients. This distribution of hearing outcome is similar to that in patients whose symptoms of Ménière's disease were managed with medical measures. Recurrent vertigo developed in 10 patients (29 per cent) at an interval of four to 15 months after initially complete control. Treatment with additional intratympanic injection(s) of gentamicin did not result in a change in hearing. **CONCLUSION:** The risk of hearing loss in patients treated with infrequent intratympanic injection(s) of gentamicin is low.

**A randomized trial of the canalith repositioning procedure.**

Yimtae, K., Srirompotong, S., Srirompotong, S., Sae-Seaw, P. Department of Otolaryngology, Faculty of Medicine, Khon Kaen University, Thailand. kwayim@kku.ac.th. *The Laryngoscope* (2003) May, Vol. 113 (5), pp. 828–32.

**OBJECTIVE:** To compare the effectiveness and complications of our adaptation of the canalith repositioning procedure (CRP) with the expectation treatment for benign paroxysmal positional vertigo. **STUDY DESIGN:** A randomized, controlled trial in the setting of a neurotological clinic in Thailand. **METHODS:** Fifty-eight patients with posterior benign paroxysmal positional vertigo were randomly assigned to treatment and control groups using a block of four. The treatment group was treated with the modified CRP technique until the nystagmus disappeared. A mastoid oscillator was not used, nor were any instructions given for patients after the maneuver. Both groups recorded the daily grading of symptoms and the amount of anti-vertiginous drugs (cinnarizine) taken. Objective and subjective assessments were made weekly until the nystagmus disappeared or until four weeks had passed since treatment began. **RESULTS:** The rates of effectiveness of CRP treatment and the control treatment for benign paroxysmal positional vertigo were 75.9 per cent and 48.2 per cent, respectively. There was a significant difference in the treatment outcomes of the CRP and control groups ( $p = 0.03$ ). The CRP group used significantly fewer drugs than the control group ( $p = 0.001$ ). Complications in the CRP group, such as lateral canalithiasis and fainting, were observed in 13.8 per cent of the patients. **CONCLUSIONS:** The CRP was more effective than the expectation treatment for benign paroxysmal positional vertigo insofar as it provided faster recovery and required less dependence on medication. Complications of CRP were limited to 13.8 per cent of patients.

**Autograft ossiculoplasty in cholesteatoma surgery: is it feasible?**

Ng, S. K., Yip, W. W. L., Suen, M., Abdullah, V. J., Van Hasselt, C. A. Department of Surgery, Prince of Wales Hospital, New Territories East Cluster, The Chinese University of Hong Kong. *The Laryngoscope* (2003) May, Vol. 113 (5), pp. 843–7.

**OBJECTIVE:** To investigate whether autologous ossicles can be safely used in ossicular reconstruction in cholesteatoma surgery after attempting cholesteatoma removal under the operating microscope. **STUDY DESIGN:** A prospective fine-section histological study of formalin-stored ossicles, harvested from cholesteatomatous ears, to evaluate for existence of residual cholesteatoma after surface disease clearance under the operating microscope. **METHODS:** One hundred four ossicles were harvested from 76 patients with cholesteatoma for the study. These malleus heads and includes were categorized into three groups: group 1, ossicles with retained shape and useful bulk, treated by microscopic stripping alone; group 2, ossicles with retained shape and useful bulk, treated by microscopic stripping and drilling; and group 3, badly eroded ossicles, treated by microscopic stripping alone. These treated ossicles were then subjected to four microm histopathological study. **RESULTS:** Residual disease was identified in six of the 104 ossicles. Residual disease was found only in badly eroded ossicles that are not suitable for reconstruction. All the usable ossicles were free of disease. **CONCLUSIONS:** Autologous ossicles that have retained body and bulk are safe to use for reconstruction after surface stripping under the operating microscope. Additional burring probably adds a further margin of safety.

**Ventricular dysphonia: clinical aspects and therapeutic options.**

Maryn, Y., De Bodt, M. S., Van Cauwenberge, P. Department of Otorhinolaryngology, Speech and Language Pathology and Audiology, AZ Sint Hospital, Bruges Belgium, youry.maryn@azbrugge.be. *The Laryngoscope* (2003) May, Vol. 113 (5), pp. 859–66.

**OBJECTIVE/HYPOTHESIS:** Ventricular dysphonia, also known as dysphonia plica ventricularis, refers to the pathological interference of the false vocal folds during phonation. Despite its low incidence and prevalence, Vd is a well-known phenomenon in voice clinics. The present report reviews symptoms, etiology, diagnosis, and therapeutic options regarding this voice disorder. **STUDY DESIGN:** Literature review and case studies. **METHODS:** The literature pertaining to all clinical aspects of V(D) was reviewed to define diagnostic and therapeutical clinical decision making. **RESULTS:** Ventricular dysphonia is characterized by a typical rough, low-pitched voice quality resulting from false vocal fold vibration. Ventricular dysphonia may be compensatory when true vocal folds are affected (resection, paralysis). Noncompensatory types may be of habitual, psychoemotional, or idiopathic origin. Because perceptual symptoms may vary considerably, diagnosis should rely on a meticulous voice assessment, including laryngeal videostroboscopic, perceptual, aerodynamic, and acoustic evaluation. Various therapeutic approaches for the noncompensatory type of ventricular dysphonia may be considered: voice therapy, psychotherapy, anesthetic or botulinum toxin injections, or surgery. **CONCLUSION:** The study presents the state of the art with respect to ventricular dysphonia and may be helpful in diagnosis and therapeutic decision-making.