

Abstract Selection

Intraoperative electromyography for predicting facial function in vestibular schwannoma surgery. Axon, P. R., Ramsden, R. T. University Department of Otolaryngology, Manchester Royal Infirmary, United Kingdom. *Laryngoscope* (1999) June, Vol. 109 (6), pp. 922–6.

OBJECTIVE: To assess the validity of intraoperative minimal stimulation threshold (MST) for predicting long-term facial function after vestibular schwannoma surgery. **STUDY DESIGN:** Prospective blinded study. **METHODS:** MST after tumour dissection and postoperative clinical facial function, assessed using the House Brackmann grading system (HB), were used to predict long-term clinical facial function, recorded at least six months after surgery. **RESULTS:** Two hundred and nine consecutive patients fulfilled selection criteria and 184 had successful intraoperative electrophysiologic monitoring and were eligible for further study. MST of 0.05 mA had moderate accuracy for predicting good long-term facial function, with 94 per cent sensitivity, 91 per cent positive predictive value (PPV), 60 per cent specificity, and 70 per cent negative predictive value (NPV). A more relevant group of 77 patients with poor postoperative facial function (HB III–VI) were assessed for predicting good long-term function. Applying this criteria, test accuracy fell, with 83 per cent sensitivity, 64 per cent PPV, 60 per cent specificity, and 75 per cent NPV. Postoperative clinical facial function had a greater accuracy for predicting good long-term function, with 83 per cent sensitivity, 79 per cent PPV, 75 per cent specificity, and 79 per cent NPV. A model of predicted probabilities of good outcome (HB I and II) was derived from a logistic regression with two additive predictors (postoperative HB and MST). This demonstrated that for patients with postoperative HB grade V, MST aided prediction. **CONCLUSIONS:** Intraoperative stimulation thresholds, when assessed against a relevant group of patients with poor postoperative facial function, had poor predictive accuracy. The severity of immediate postoperative clinical facial function was the most accurate predictor of long-term outcome. MST aided long-term prediction in a small but relevant group of patients with postoperative HB grade V facial function.

Chronology of labyrinthitis ossificans induced by Streptococcus pneumoniae meningitis. Nabili, V., Brodie, H. A., Neverov, N. I., Tinling, S. P. School of Medicine, University of California, Davis, USA. *Laryngoscope* (1999) June, Vol. 109 (6), pp. 931–5.

OBJECTIVE: Labyrinthitis ossificans consists of novel osteogenesis that fills the normally patent cochlear and vestibular lumen as an end-stage sequelae to various pathologies. This study was designed to establish the sequence of events and chronology of the osteoneogenesis and calcification. **STUDY DESIGN:** A prospective randomized double-blind study. **METHODS:** By using serial application of different colored fluorochromes, which deposit in newly forming bone, the timing of bone deposition and bone remodelling can be established. Labyrinthitis ossificans was induced in six groups (n = 5) of gerbils by an intrathecal injection of live *Streptococcus pneumoniae*. Group 1 received no fluorochrome labels, group 2 received one label, group 3 received three labels, and groups 4, 5 and 6 received four labels. The temporal bones were harvested after two weeks (group 1), one month (group 2), three months (group 3), four months (group 4), six months (group 5), and 12 months (group 6). **RESULTS:** Sixteen of the 25 animals that received labels developed ossification, demonstrated with fluorescent microscopy. In the animals that developed labyrinthitis ossificans, newly formed disorganized bone began calcifying as early as three weeks (label 1) after *S. pneumoniae* injection. Osteoneogenesis continued as evidenced by the presence of the other labels when first applied at six weeks (label 2), and 10 weeks (label 3). Ossification, calcification, and remodelling proceeded through a 12-month course, wherein a

reduction of labels was present at six months and total disappearance by 12 months. **CONCLUSIONS:** The use of fluorescent stains in this animal model provides a means to establish a timeline of the ossification seen in labyrinthitis ossificans.

Postoperative care in functional endoscopic sinus surgery? Fernandes, S. V. Kurri Kurri District Hospital, New South Wales, Australia. *Laryngoscope* (1999) June, Vol. 109 (6), pp. 945–8.

OBJECTIVE: To assess the value of nonintervention after FESS. **STUDY DESIGN:** Prospective study. **METHODS:** Fifty-five patients with diagnosed chronic rhinosinusitis who failed adequate medical therapy were subjected to FESS. No postoperative care, apart from nasal douching with hypertonic saline after the tenth postoperative day, was done. No antibiotics or steroids were administered routinely. Because 10 patients were not available for follow-up, only 45 patients were included in the study. **RESULTS:** Success rate judged by at least 50 per cent subjective improvement of symptoms was 95.5 per cent. However, all patients derived some benefit. The occurrence of postoperative synechiae is discussed. **CONCLUSIONS:** The usefulness of postoperative care of the FESS cavity needs reappraisal.

Idiopathic bilateral vocal fold weakness. Dray, T. G., Robinson, L. R., Hillel, A. D. Department of Otolaryngology-Head and Neck Surgery, University of Washington Medical Center, Seattle 98195, USA. *Laryngoscope* (1999) June, Vol. 109 (6), pp.995–1002.

OBJECTIVE: To describe an unrecognized clinical entity, idiopathic bilateral vocal fold weakness, and propose recommendations regarding the diagnosis and management of these cases. **STUDY DESIGN:** Retrospective, nonrandomized case study. **METHODS:** All cases of bilateral vocal fold weakness evaluated at the University of Washington Voice Disorders Clinic between 1991 to 1998 were reviewed. **RESULTS:** Four patients with bilateral laryngeal weakness were determined to have idiopathic bilateral vocal fold paresis following exhaustive work-ups, including videostroboscopy, bilateral laryngeal electromyography (EMG), neurological consultation, and other pertinent studies. **CONCLUSIONS:** Performing bilateral laryngeal EMG is an essential aspect of the workup of any laryngeal weakness case, particularly if the etiology is unknown on presentation. Idiopathic bilateral vocal fold weakness is an under-recognized but real clinical diagnosis that will become more familiar with the increasing utilization of laryngeal EMG in clinical situations.

Radiofrequency energy tissue ablation for the treatment of nasal obstruction secondary to turbinate hypertrophy. Utley, D. S., Goode, R. L., Hakim, I. Division of Otolaryngology/Head and Neck Surgery, Stanford University Medical Center, Palo Alto, California, USA. *Laryngoscope* (1999) May, Vol. 109 (5), pp. 683–6.

OBJECTIVE/HYPOTHESIS: We hypothesized that the success rate of radiofrequency energy (RFe) tissue ablation of the inferior turbinate for nasal obstruction achieved by previous investigators would be improved by using a longer needle electrode and creating two lesions per turbinate. **METHODS:** Ten patients with nasal obstruction secondary to inferior turbinate hypertrophy were prospectively enrolled. A 4.0 mm needle delivered RFe to two sites in each inferior turbinate. Patients used a visual analog scale (VAS) to grade nasal obstruction preoperatively and at one week and eight weeks after surgery. Preoperative and postoperative digital images of the nasal cavity were graded for obstruction (0 per cent to 100 per cent) in a blinded manner. **RESULTS:** All patients (100 per cent) were subjectively improved at eight weeks. Mean obstruction (VAS) improved from 50 per

cent \pm 21 per cent to 16 per cent \pm 15 per cent (right side) and from 53 per cent \pm 29 per cent to 13 per cent \pm 13 per cent (left side). Mean improvements were 68 per cent (right side) ($P = 0.004$) and 75 per cent (left side) ($P = 0.001$). Mean obstruction graded during blinded review of nasal cavity images improved from 73.5 per cent \pm eight per cent to 51 per cent \pm eight per cent (right side) and from 76 per cent \pm six per cent to 64 per cent \pm seven per cent (left side). Of nine patients using medications for nasal obstruction before treatment, eight (89 per cent) noted no further need for medications at eight weeks. **CONCLUSION:** The use of RFe for submucosal tissue ablation in the hypertrophied inferior turbinate is an effective modality for reducing symptoms of nasal obstruction. Improved results may occur by using a longer needle and creating two lesions per turbinate. Of patients in this study, 100 per cent reported improvement of nasal obstruction.

Functional results of Plastipore prostheses for middle ear ossicular chain reconstruction. Bayazit, Y., Goksu, N., Beder, L. Ear Nose and Throat Department, Gaziantep University Hospital, Koleytepe, Turkey. *Laryngoscope* (1999) May, Vol. 109 (5), pp. 709–11. **OBJECTIVE:** Assessment of plastipore prostheses for middle ear ossicular chain reconstruction. Hearing results with total and partial Plastipore ossicular replacement prostheses (TORP and PORP) were evaluated in open- and closed-cavity operations. **STUDY DESIGN:** A retrospective review of 237 patients who underwent operation for chronic ear disease as well as ossiculoplasty with plastipore prostheses. In order to assess the functional results, only 156 of 237 patients were included in the study. Follow-up ranged from six to 46 months. **METHODS:** Canal wall up and canal wall down operations were performed. Either TORP or PORP ossiculoplasty was performed in each operation. An airborne gap closure to within 20 dB was considered successful. **RESULTS:** With TORPs, the airborne gap closure to within 20 dB was achieved in 43.1 per cent, and similar results were obtained with PORPs in 63.3 per cent. In canal wall down and canal wall up operations, the success rates were 55.8 per cent and 55.7 per cent, respectively. The best results were obtained with PORPs in canal wall down operations, with a success rate of 82 per cent. The extrusion rate of the prostheses was 4.2 per cent. **CONCLUSION:** Hearing results of PORPs are better than TORPs. In canal wall up and canal wall down operations similar hearing results are obtained. PORP ossiculoplasty in a canal wall down operation yields the most favourable hearing result.

Anatomical and theoretical observations on otolith repositioning for benign paroxysmal positional vertigo. Buckingham, R. A. Department of Otolaryngology, Head and Neck Surgery, University of Illinois at Chicago, College of Medicine, USA. *Laryngoscope* (1999) May, Vol. 109 (5), pp. 717–22. **OBJECTIVE:** To determine if there is an anatomic basis for the assumption that loose, 'rogue' otoliths presumed to arise from the utricular macula and theorized to cause benign paroxysmal positional vertigo (BPPV) by impinging on semicircular canal ampullae could be returned to their original site by a series of changes in the position of the head called particle repositioning maneuvers (PRMs). Further, if such otolith movement were possible, once they were replaced into the utricle, would they adhere to the utricular macula? **STUDY DESIGN:** Kodachrome photographs of 2 mm thick macrosections of human temporal bones were available for evaluation. The bones were sectioned in horizontal, coronal, and sagittal planes. Rice grains were placed on the photographs of the cross-sections to demonstrate the possible paths taken by loose otoliths under the influence of gravity in different positions of the head. **RESULTS:** A study of cross-sections of the temporal bone shows that loose macular otoliths after PRMs would tend to fall into the lumen of the utricle. Once the patient assumes the erect position, however, repositioned otoliths would tend to fall into the near or utriculopetral side of the cupula of the posterior semicircular canal, which opens directly into the inferior portion of the utricle, and could cause labyrinth stimulation and BPPV by the same mechanism of misplaced otoliths on the opposite or far side of the cupula. Loose otoliths in the utricle could also stimulate the horizontal ampullae. **CONCLUSIONS:** PRMs do not remove or fix otoliths in any specific site in the labyrinth. Repositioning of loose otoliths onto the original site in the macula of the utricle, which lies superiorly in the vestibule, could not be accomplished by any of the repositioning maneuvers. If otoliths were to be repositioned on

the utricular macula, there is no evidence that the otoliths would adhere to the macula when the patient assumes the erect position. The good results obtained by physiotherapeutic procedures suggest that some other mechanism than repositioning of otoliths is responsible for the relief of BPPV.

Bone modelling dynamics in acute otitis media. Caye-Thomasen, P., Hermansson, A., Tos, M., Prellner, K. Department of Otorhinlaryngology, Gentofte University Hospital of Copenhagen, Hellerup, Denmark. *Laryngoscope* (1999) May, Vol. 109 (5), pp. 723–9.

OBJECTIVE: A number of middle ear diseases are associated with pathologic bone modelling, either formative or resorptive. As such, the pathogenesis of a sclerotic mastoid has been controversial for decades. Experimental studies on acute middle ear infection have shown varying degrees of both osteoresorption and osteoneogenesis. This study presents data on the dynamics of bone modelling in a rat model of acute pneumococcal otitis media, studied longitudinally from day one through six months after inoculation. **RESULTS:** Qualitative, as well as quantitative histopathology revealed initial osteoresorption, followed by increasing apposition of new bone in the middle ear cavity, initiated at the outer periosteum. Measured bone thickness in four anatomically distinct locations peaked three months after inoculation, followed by some degree of normalization. However, bone thickness was still massively increased six months after the acute incident. Except in perilymphatic spaces of the otic capsule, resorptive and formative activity were found in all bone tissue structures surrounding the middle ear. **CONCLUSION:** These findings may support the existence of a perilymphatic barrier of specialized bone and suggest that even a single episode of acute infection may alter properties of ossicular chain conduction. The authors conclude that acute otitis media is accompanied by massive and progressing net osteoneogenesis, already evident at three days and peaking three months after inoculation, followed by some degree of normalization. This is conceivably in support of the environmental theory of mastoid pneumatization, claiming inflammatory disease as the cause of a sclerotic mastoid.

Incidence of vestibular schwannomas. Tos, M., Charabi, S., Thomsen, J. Ear, Nose and Throat Department, Gentofte Hospital, University of Copenhagen, Hellerup, Denmark. *Laryngoscope* (1999) May, Vol. 109 (5), pp. 736–40.

OBJECTIVE: To determine the incidence of vestibular schwannoma (VS) in Denmark in a period of 19?? years. **STUDY DESIGN:** Retrospective review of prospective registered data on all patients with VS operated on by the translabyrinthine, lateral suboccipital, or middle cranial fossa approach, as well as patients who were allocated to the 'wait-and-scan' group. **METHODS:** Charts were reviewed and tabulated for age, extrameatal tumour extension, and date of diagnosis. The available data were divided into three periods: June 1976 to June 1983, July 1983 to June 1990, and July 1990 to December 1995. **RESULTS:** The number of newly diagnosed tumours in the first period was 278, corresponding to an incidence of 7.8 tumours/million population per year; in the second period 337, corresponding to an incidence of 9.4 tumours/million population per year; and in the third period 355, corresponding to an incidence of 12.4 tumours/million population per year. A significant increase in incidence of the newly diagnosed intracanalicular tumours in the second and third periods was observed. **CONCLUSION:** The increase in incidence of VS can probably be explained by the awareness among otolaryngologists of the diagnosis of VS and better access to computed tomography and magnetic resonance imaging scans. The observed increase in the diagnosis of the small and intrameatal tumour creates a clinical dilemma, whether to operate on tumours in this early stage or to allocate patients to the wait-and-scan group. This problem will still be relevant in the upcoming years, since the incidence of intrameatal and small VS is expected to increase.

Relationship between cochleovestibular disorders in hemifacial spasm and neurovascular compression. Van, H. T., Deguine, O., Esteve-Fraysse, M. J., Bonafe, A., Fraysse, B. Department of Ear, Nose and Throat Medicine, Purpan Hospital, Toulouse, France. *Laryngoscope* (1999) May, Vol. 109 (5), pp. 741–7.

OBJECTIVE: To investigate the evolution of cochleovestibular symptoms before, during, and after microvascular decompression (MVD) of the facial nerve in hemifacial spasm. **STUDY DESIGN:**

Prospective study in patients with hemifacial spasm. Among our 13 patients who underwent MVD of the facial nerve from 1995 to 1997, six had associated cochleovestibular disorders confirmed by neurotologic tests. **RESULTS:** In four of these patients, a concomitant compression of the eighth and facial nerves was found at surgery. Preoperative magnetic resonance angiography studies had shown three cases of this double neurovascular compression. Intraoperative auditory brainstem response monitoring showed that interposition of Teflon between vessel and facial nerve was highly critical to the auditory function. Auditory brainstem response monitoring was used to guide the surgeon during this critical phase. Surgery improved at least one cochleovestibular symptom in each patient. **CONCLUSIONS:** The authors propose two pathophysiologic hypotheses. First, the concomitant facial and cochleo-vestibular symptoms may be due to a hyperactivity of both the facial and vestibular nuclei. According to theories about cryptogenic hemifacial spasm, the origin of this hyperactivity could be an ectopic excitation focus. However, the two nerves may have different sites of ectopic excitation. According to the second hypothesis, a pulsatile compression of the facial nerve may be transmitted to the eighth nerve. This could take place even if only the facial nerve is in contact with a vascular loop.

Benefits of stereolithography in orbital reconstruction. Holck, D. E., Boyd, E. M. Jr., Ng, J., Maufray, R. O. Department of Ophthalmology, Wilford Hall Medical Center, San Antonio, Texas 78236-5300, USA. olck@lafb.af.mil. *Ophthalmology* (1999) June, Vol. 106 (6), pp. 1214-8.

OBJECTIVE: To describe the benefits of the stereolithography (SLA) modeling system in the evaluation and surgical planning of selected bony orbital pathology. **DESIGN:** Two cases reports. **PARTICIPANTS:** One patient presented with a displaced left orbital roof fracture into his orbit causing globe compression and binocular vertical diplopia. A second patient underwent removal of his right orbital floor, medial wall, and inferior portion of his lateral wall during excision of a cylindrical cell papilloma of the paranasal sinuses. Postoperatively, he suffered from globe ptosis and binocular oblique diplopia. **INTERVENTION:** Stereolithographic models of the patients' orbits were obtained from computed tomography data to better assess the bony orbital pathology. In the second patient, the model was used as a template to create a temporary custom fit prosthesis to repair the defect of his orbital walls. **RESULTS:** The SLA models were useful in evaluating the dimensions of the bony defects and in preoperative surgical planning. Intraoperatively, the SLA models facilitated orbital surgical rehabilitation. Postoperatively, both patients noted resolution of their diplopia after reconstruction of more normal bony anatomy. **CONCLUSIONS:** In selected cases, SLA offers highly accurate models of the bony orbit for preoperative evaluation, surgical planning, and teaching and can act as a template for custom prosthesis manufacturing. This technology increases the orbital surgeon's options in managing complex orbital pathology.

Repairing the twisted nose. TerKonda, R. P., Sykes, J. M. Assistant Professor, Facial Plastic and Reconstructive Surgery, Department of Otolaryngology - Head and Neck Surgery, University of Florida College of Medicine, Gainesville, Florida, USA. *Otolaryngology Clinics of North America* (1999) February, Vol. 32 (1), pp. 53-5. Correction of the deviated nose presents a challenge to even the experienced rhinoplastic surgeon. This article describes the etiology, analysis, and surgical treatment for the severely twisted nose. The applied anatomy of the deviated nose is discussed in detail. Finally, a graduated approach to surgical management is described.

Microtia repair: creation of a functional postauricular sulcus. Eavey, R. D. Department of Otolaryngology, Massachusetts Eye and Ear Infirmary, Harvard Medical School, Boston, MA, USA. *Otolaryngology - Head and Neck Surgery* (1999) June, Vol. 120 (6), pp. 789-93.

OBJECTIVE: Auricular reconstruction for repair of severe congenital microtia can provide the patient with a realistic-looking pinna. However, an unseen functional cephaloauricular sulcus is necessary, especially for patients with eyeglasses. **TECHNIQUE:** (1) A skin graft is harvested. (2) The ear framework is separated substantially from the side of the head. (3) A crescent of hair-

bearing scalp skin is excised. (4) The donor skin graft is divided. On part of the graft surfaces the superolateral and medial portions of the auricular framework into the sulcus depth; the remainder covers the side of the head. **RESULTS:** This simple technique was effective. Minor transient sequelae have included granulation tissue (two patients), localized infection (two patients), and adhesion (one patient). Patients requiring glasses have worn frames soon after surgery, and no sulcus problems have resulted. **CONCLUSION:** Creation of this postauricular sulcus during microtia reconstruction is easily performed and offers the patient a durable and functional space, especially for eyeglass wear.

Reflux in infants with laryngomalacia: results of 24-hour double-probe pH monitoring. Matthews, B. L., Little, J. P., Mcguirt, W. F. J. R., Koufman, J. A. Department of Otolaryngology, Bowman Gray School of Medicine, Wake Forest University, North Carolina, USA. *Otolaryngology - Head and Neck Surgery* (1999) June, Vol. 120 (6), pp. 860-4.

Laryngomalacia is the most common cause of stridor in children. Previous studies using barium esophagrams or single-probe esophageal pH testing have indicated that 68 per cent to 80 per cent of infants with laryngomalacia have reflux. A recent study in a large series of pediatric patients has shown that these two testing modalities are relatively insensitive in detecting reflux when compared with 24-hour double-probe pH testing. This study was undertaken to determine the incidence and frequency of reflux in children with laryngomalacia by use of 24-hour double-probe pH monitoring. Twenty-four children with endoscopically diagnosed laryngomalacia underwent 24-hour double-probe pH testing. The distal probe was placed in the lower esophagus, and the proximal probe was placed just above the cricopharyngeus immediately posterior to the larynx. All 24 (100 per cent) children had pharyngeal acid exposure as judged by the proximal pH probe. These children had a mean of 15.21 episodes of reflux to the level of the pharynx during the 24-hour study period. In contrast, only 16 (66 per cent) children had abnormal acid exposure as measured by the distal esophageal probe. These results indicate that essentially all children with laryngomalacia have reflux of gastric acid to the pharyngeal level. Multiple authors have documented the detrimental effects of acid and the accompanying pepsin in the larynx and tracheobronchial tree. Persistent laryngeal edema is an almost universal finding in patients with reflux to the pharyngeal level and is a common finding in children with laryngomalacia. In some patients with laryngomalacia, reflux may be the primary cause of their airway compromise, whereas in others it may be a significant cofactor exacerbating a preexisting neurologic or anatomic abnormality.

Mucin production in the middle ear in response to lipopolysaccharides. Hunter, S. E., Singla, A. K., Prazma, J., Jewett, B. S., Randell, S. H., Pillsbury, H. C. 3rd. Division of Otolaryngology-Head and Neck Surgery, Department of Surgery, University of North Carolina School of Medicine, Chapel Hill, USA. *Otolaryngology - Head and Neck Surgery* (1999) June, Vol. 120 (6), pp. 884-8.

OBJECTIVE: This study examined the response of middle ear tissue to establish the lowest dose of lipopolysaccharide to induce mucin production in a rat otitis media model. **METHODS:** Twenty-six male Sprague-Dawley rats' eustachian tubes were obstructed before transtympanic inoculation of the bulla tympanica with 35 microL of Krebs Ringer or one, 10, 100 or 1000 microgram/mL lipopolysaccharide. After seven days the effusion and a lavage were collected for mucin ELISA measurement, and tissue was collected for histologic evaluation. **RESULTS:** Mucin secretion was significantly increased in the 100 microgram/mL 51.20 ± 13.6 microgram/mL (SE) and 1000 microgram/mL 69.41 ± 8.57 microgram/mL groups when compared with the Krebs Ringer control group 1.84 ± 0.28 microgram/mL ($P < 0.05$). Histologic evaluation shows goblet cell metaplasia and hyperplasia in the middle ear epithelium in the 1000 and 100 microgram/mL groups. **CONCLUSIONS:** The histology and ELISA results suggest that a middle ear effusion is generated with a dose of lipopolysaccharide as low as 100 microgram/mL.

Evidence of oxygen free radical damage in human otitis media. Takoudes, T. G., Haddad, J. Jr. Division of Pediatric Otolaryngology-Head and Neck Surgery, Babies & Children's Hospital of New York, Columbia-Presbyterian Medical Center, New York 10032,

USA. *Otolaryngology-Head and Neck Surgery* (1999) May, Vol. 120 (5), pp. 638–42.

Recent work with a guinea pig model of otitis media has demonstrated evidence of oxygen free radical damage to the middle ear mucosa. However, the relevance of an animal model to human disease is uncertain. Accordingly, the following pilot study was conducted to examine human middle ear fluid for lipid hydroperoxides as evidence of free radical damage. Thirty-five specimens of middle ear fluid from children with chronic otitis media were collected and described as mucoid (n = 19), purulent (n = 10), or serous (n = 6); specimens were weighed and analyzed for lipid hydroperoxide content. The results demonstrated the presence of lipid hydroperoxide in all three types of middle ear fluid. Additionally, there was a statistically significant elevation of total lipid hydroperoxide content in mucoid effusions compared with serous effusions, as well as a significant elevation of lipid hydroperoxide divided by weight of purulent effusions compared with serous effusions. This is the first study to document free radical damage in human otitis media.

Direct round window membrane application of gentamicin in the treatment of Meniere's disease. Silverstein, H., Arruda, J., Rosenberg, S. I., Deems, D., Hester, T. O. Ear Research Foundation, Sarasota, FL 34239, USA. *Otolaryngology – Head and Neck Surgery* (1999) May, Vol. 120 (5), pp. 649–55.

OBJECTIVE: To evaluate the effectiveness of the round window membrane (RWM) Gelfoam gentamicin technique in patients with Meniere's disease who were unresponsive to medical management or in whom surgical therapy failed. **STUDY DESIGN:** Protocol 1, single intratympanic gentamicin infusion; protocol 2 (the best method), two infusions, five days apart with reevaluation at one month; and protocol 3, multiple infusions one to four weeks apart. **PATIENTS:** In total, 32 patients (19 male, 13 female) were enrolled in the study. The mean age was 65 years (range 34 to 94 years). Seven of these patients were surgical salvage cases. **INTERVENTIONS:** Laser-assisted otoendoscopy with a 1.7 mm otoendoscope (Smith-Nephew Richards, Memphis, TN) was performed first. If the RWM was obscured by mucosa or adhesions, these were cleared before placing a 2 × 3 mm piece of dry Gelfoam against the middle ear (0.2 to 0.3 mL). **RESULTS:** Overall, vertigo was controlled in 75 per cent of the patients after the completion of the treatment, with subtotal vestibular ablation in two thirds of patients. Hearing was preserved in 90 per cent of the patients (within 15 dB pure-tone average or 15 per cent speech discrimination score), tinnitus improved in 48 per cent, and aural pressure improved in 62.5 per cent.

Pharyngeal pH monitoring in patients with posterior laryngitis. Ulualp, S. O., Toohill, R. J., Hoffmann, R., Shaker, R. Department of Medicine (Division of Gastroenterology and Hepatology), Medical College of Wisconsin, Milwaukee, USA. *Otolaryngology – Head and Neck Surgery* (1999) May, Vol. 120 (5), pp. 672–7.

OBJECTIVE: To evaluate the diagnostic value of three-site 24-hour ambulatory pH monitoring in patients with posterior laryngitis (PL) and the prevalence of esophageal abnormalities in this patient group. **METHODS:** Twenty patients with PL and 17 healthy volunteers were studied as controls. Control subjects had transnasal esophagogastroduodenoscopy (T-EGD) and ambulatory pH monitoring. Patients underwent T-EGD, ambulatory pH monitoring, and barium esophagram. **RESULTS:** T-EGD documented no abnormality in controls. Esophagitis was present in two PL patients, and hiatal hernia in three. Ambulatory pH monitoring showed that 15 PL patients and two controls exhibited pharyngeal acid reflux. Barium esophagram documented gastroesophageal reflux in 5 PL patients. However, none of these barium reflux events reached the pharynx. All PL patients with barium esophagram evidence of gastroesophageal reflux also showed pharyngeal acid reflux by pH monitoring. **CONCLUSION:** Pharyngeal acid reflux is more prevalent in patients with PL than in healthy controls. Patients with PL infrequently have esophageal sequelae of reflux disease. Ambulatory 24-hour simultaneous three-site pharyngoesophageal pH monitoring detects gastroesophagopharyngeal acid reflux events in most patients with PL.

Endoscopic septoplasty: indications, technique and results. Hwang, P. H., McLaughlin, R. B., Lanza, D. C., Kennedy, D. W. Department of Otolaryngology-Head and Neck Surgery, Oregon Health Sciences University, Portland, USA. *Otolaryngology –*

Head and Neck Surgery (1999) May, Vol. 120 (5), pp. 678–82.

Endoscopic septoplasty is an attractive alternative to traditional 'headlight' approaches to septoplasty. The primary advantage of the technique is the ability to reduce morbidity and postoperative swelling in isolated septal deviations by limiting the dissection to the area of the deviation. This ability to markedly reduce the extent of subperichondrial dissection is particularly valuable in patients who have undergone prior septal cartilage resection. Other advantages include improved visualization, particularly in posterior septal deformities; improved surgical transition between septoplasty and sinus surgery; and its use as an effective teaching tool. We present our experience with endoscopic septoplasty in a series of 111 patients. Surgical indications, technique, and complications are discussed.

Gastroesophageal reflux: A critical factor in pediatric subglottic stenosis. Halstead, L. A. Department of Otolaryngology, Medical University of South Carolina, Charleston 29425, USA. *Otolaryngology – Head and Neck Surgery* (1999) May, Vol. 120 (5), pp. 683–8.

Gastroesophageal reflux (GER) plays a causative role in the development of subglottic stenosis (SGS) in children. This study examined the impact of aggressive antireflux therapy on the clinical outcomes of 35 children. Since 1994, 25 children were treated aggressively with omeprazole and cisapride before endoscopic surgical repair of their stenoses, which ranged from Cotton grades 1 to 3. Nine patients became asymptomatic on antireflux therapy alone. Endoscopic repair was performed in 16 patients. Endoscopic repair failed in only one, who required tracheotomy. Before 1994, all children undergoing endoscopic repair of SGS were treated perioperatively for reflux. Endoscopic repair failed in 10 of the 57 children, and all required tracheotomy. The clinical outcome of these 10 patients after aggressive antireflux therapy is described. Five of the 10 have been decannulated. The role of double pH probe testing and the importance of the pharyngeal probe for monitoring the response to antireflux medication are described. The probe data suggest that in some instances GER may be limited to perioperative stress, but in many cases, especially in premature infants with SGS, GER can persist unabated for years and is not outgrown as the patient matures.

Isolated sphenoid lesions: diagnosis and management. Sethi, D. S. Department of Otolaryngology, Singapore General Hospital, Republic of Singapore. *Otolaryngology – Head and Neck Surgery* (1999) May, Vol. 120 (5), pp. 730–6.

Isolated sphenoid lesions are rare. It is likely that isolated sphenoid sinus disease is underreported for a number of reasons. First, the presenting symptoms are often nonspecific; second, the inaccessibility of the sinus precludes optimal physical examination; and third, before the advent of CT and MRI scanning, radiologic examination of the sinus was inadequate. Endoscopic evaluation and current imaging techniques with CT or MRI have contributed to an increase in diagnosis of these lesions. Twenty-one patients with isolated sphenoid lesions that I treated in a four-year period are presented. The pathology was unilateral sphenoid sinusitis (eight), sphenoid mucoceles (four), inflammatory sphenochanal polyp (three), inverting papilloma (two), invasive pituitary adenoma (one), carcinoma (one), aspergilloma (one), and fibrous dysplasia (one). Endoscopic biopsy was carried out in seven patients (33.3 per cent). A precise diagnosis after endoscopy, biopsy, and imaging studies was established in all patients. Definitive treatment included an endoscopic sphenoidotomy in 15 (71.4 per cent). Five patients (23.8 per cent) were treated with other therapeutic modalities. One patient did not require any definitive treatment. The combined use of imaging techniques and diagnostic nasal endoscopy allows for an accurate diagnosis and enables minimally invasive techniques to be tailored to the patient's disease.

Treatment of the patient with upper airway obstruction caused by cancer of the larynx. Bradley, P. J. University Hospital, Queens Medical Centre, Nottingham, United Kingdom. *Otolaryngology – Head and Neck Surgery* (1999) May, Vol. 120 (5), pp. 737–41.

The treatment of a patient with imminent airway obstruction caused by a malignant tumour of the larynx is an uncommon clinical problem. These cases need to be evaluated, diagnosed, and managed with care, skill, speed and above all, appropriateness of

intervention. Three methods are available to control the airway: tracheostomy, emergency laryngectomy and controlled tracheal intubation with or without tumour debulking. Two groups of patients had their airways managed either by tracheostomy and delayed elective surgery or by emergency laryngectomy. There was no survival advantage between the groups, and no increased risk of stomal recurrence was demonstrated. If time permits, the patient is considered suitable, and adequate anesthetic and surgical instrumentation is available, it is currently recommended that the obstructing laryngeal tumour be debulked by cold-steel or, preferably, CO₂ laser and that the emergency situation be stabilized and the definitive treatment of the patient be converted to an elective procedure without the need to create a tracheostomy.

Locally advanced nasopharyngeal cancer: long-term outcomes of radiation therapy. Lin, J. C., Jan, J. S. Department of Radiation Oncology, Taichung Veterans General Hospital, Taiwan, Republic of China. *Radiology* (1999) May, Vol. 211 (2), pp. 513–8.

PURPOSE: To investigate the clinical manifestations and treatment outcomes in patients with stage T₄M₀ nasopharyngeal carcinoma. **MATERIALS AND METHODS:** Findings in 179 patients (age range, 13–78 years) with American Joint Committee on Cancer stage T₄M₀ nasopharyngeal carcinoma treated from January 1983 to February 1992 with a minimum follow-up of at least five years were reviewed. Of the 179 patients, 166 (92.7 per cent) had World Health Organization type II or III diseases. Forty-one patients (22.9 per cent) had no lymph nodal involvement; 138 patients (77.1 per cent) had metastatic nodal involvement in the neck. All patients underwent radiation therapy; 39 patients also received different forms of chemotherapy. The radiation therapy doses were usually 70–74 Gy administered to the primary tumour over seven or eight weeks, 70–74 Gy to the neck region in patients with nodal involvement, or 50–60 Gy administered to the neck region over five or six weeks in patients without neck nodal involvement. **RESULTS:** In 100 patients, radiation therapy failed in the primary tumour alone (n = 28), neck nodes alone (n = 5), and distant metastases alone (n = 43) or at a combination of sites

(n = 24). The cumulative failure rates for the primary tumour, neck metastases, and distant metastases were 25.1 per cent (n = 45), 14 per cent (n = 25), and 33 per cent (n = 59) respectively. The five-year primary disease-free, distant disease-free, and overall survival rates were 68.7 per cent, 56.5 per cent and 28.6 per cent respectively. Results of salvage treatment for relapse were unsatisfactory. **CONCLUSION:** In about three-tenths of patients, T₄M₀ nasopharyngeal carcinoma can be cured with conventional high-dose radiation therapy.

Nasopharyngeal symptoms in patients with obstructive sleep apnea syndrome. Effect of nasal CPAP treatment. Brander, P. E., Soirinsuo, M., Lohela, P. Department of Pulmonary Medicine, Kiljava Hospital, Kiljava, Finland. *Respiration* (1999), Vol. 66 (2), pp. 128–35.

BACKGROUND: Nasal side effects are often reported during nasal continuous positive airway pressure (CPAP) treatment of obstructive sleep apnea syndrome (OSAS) and may make the use of nasal CPAP difficult. **OBJECTIVE:** The aim of this study was to evaluate the effect of nasal CPAP on nasopharyngeal symptoms in OSAS patients. **METHODS:** The frequency and severity of nasopharyngeal symptoms and signs were prospectively evaluated in 49 consecutive OSAS patients (37 men, 12 women, mean (SD) age 54 (seven) years, body mass index 35 (six) kg m²) immediately before and after six months' treatment with nasal CPAP. **RESULTS:** Nasopharyngeal symptoms were common already before starting nasal CPAP: 74 per cent of patients reported dryness, 53 per cent sneezing, 51 per cent mucus in the throat, 45 per cent blocked nose, and 37 per cent rhinorrhea. During nasal CPAP treatment, severity and frequency of sneezing (75 per cent) and rhinorrhea (57 per cent) increased. This increase was related to the season when nasal CPAP was applied, and was more profound in winter than in summer. Mild abnormalities on rhinoscopy and paranasal sinus X-rays were common both at baseline and at follow-up with no significant change during treatment. **CONCLUSIONS:** Nasopharyngeal problems were found to be frequent in patients with OSAS before nasal CPAP treatment, and tended to increase during the treatment.