

Abstract Selection

Perioperative complications in acoustic neuroma (vestibular schwannoma) surgery. Sanna, M., Taibah A., Russo A., Falcioni M., Agarwal, M. Gruppo Otologico, Piacenza, Rome, Italy. mario.sanna@gruppoottologico.it *Otology & Neurotology* (2004) May, Vol. 25 (3), pp. 379–86, ISSN 1531-7129.

OBJECTIVE: Retrospective study and review of the complications other than those related to the facial nerve and hearing, encountered in acoustic neuroma surgery. Also, an evaluation of hospital stay and its relation with various factors. **STUDY DESIGN:** Retrospective case review. **SETTING:** Tertiary neurotologic and skull base referral center. **PATIENTS:** A series of 707 patients who underwent surgical removal of acoustic neuroma from April 1987 to December 2001. **INTERVENTIONS:** The surgical approaches used were the enlarged translabyrinthine approach, the enlarged middle fossa approach, and the retrosigmoid approach. In a small number of cases, the operations were performed through other approaches. **MAIN OUTCOME MEASURES:** The duration of hospital stay and appearance of complications in the perioperative period along with their management. Results related to the facial nerve and hearing were not considered in this study. **RESULTS:** The most frequent complication was abdominal subcutaneous hematoma (site of fat harvest), which occurred in 23 patients (3.2%). Cerebrospinal fluid leak was present in 20 patients (2.8%), 15 of whom needed revision surgery. Other complications included Vth cranial nerve dysfunction in 12 cases (1.68%), subdural hematoma in 3 cases (0.4%), cerebellopontine angle hematoma in 4 cases (0.6%), cerebellar edema in 2 cases (0.28%), brainstem hematoma in 1 case (0.14%), transitory aphasia in 1 case (0.14%), and lower cranial nerve dysfunction in 1 case (0.14%). Mortality occurred in only one case (0.14%). Medical complications seldom occurred. The post-operative hospital stay ranged from 2 to 36 days, with an average of 6.4 days. The overall hospital stay diminished over time from 10.2 days in 1987 to 1990, to 4.9 days in 2001. There was a significant relation between hospital stay and tumour size, approach used, and presence/absence of complications. **CONCLUSIONS:** Perioperative complications in acoustic neuroma surgery do exist, but this study demonstrated how low the incidence is. The authors believe that the low percentage of complications is mainly attributable to the majority of operations being carried out in specialized clinics, where they are considered routine operations. They believe that following individualized approaches, depending on tumour size and on the pre-operative function of the cranial nerves, is the proper way to reach a significant reduction in complications while maintaining a high percentage of total tumour removal. The results of this study, considered as a basis of comparison with other studies, will certainly be useful in pre-operative patient counseling.

Hearing results in stapes surgery using two different prosthesis. Casale, M., De-Franco, A., Salvinelli, F., Piazza, F., Vincenzi, A., Zini, C. Area of Otolaryngology, Interdisciplinary Center for Biomedical Research (CIR), University Campus Bio-Medico, Rome, Italy. m.casale@unicampus.it *Revue de Laryngologie – Otologie – Rhinologie* (2003), Vol. 124 (4), pp. 255–8, ISSN 0035-1334.

AIM OF THE STUDY: Evaluation of hearing results after implantation of a fluoroplastic-platinum piston (FP) and of a titanium piston (T) with a shaft diameter of respectively 0.6 mm and 0.4 mm, in cases of otosclerosis requiring stapedotomy. **MATERIAL AND METHODS:** Pre-operative and post-operative hearing results obtained after primary stapedotomy by implantation of 30 FP and 30 T performed by the same expert author (C.Z.) were reviewed. In each patient we evaluated pre- and post-operative auditory thresholds, as recommended. **RESULTS:** All patients of both groups showed a significant air-bone gap (ABG) improvement for all frequencies after surgery

($P < 0.001$). Post-operative ABG comparison between the two groups showed a better ABG for lower frequencies in the FP group and for higher frequencies in the T group, but the difference was not significant. No post-operative complications, including sensorineural hearing loss, were found. Bone conduction improvement was better in the FP group than in the T one and this difference was statistically significant at 1000 and 2000 Hz. There was no statistically significant difference in the post-operative outcomes between the two prosthesis. Better results of FP for lower frequencies suggest that an increase in diameter of the prosthesis results in a greater improvement in the hearing threshold at low frequencies, while a decrease of diameter results in a greater improvement in the hearing threshold at high frequencies, as indicated by previous international studies. **CONCLUSION:** Our data shows that titanium piston is as good as fluoroplastic piston in stapes surgery for otosclerosis.

Quality-of-life outcomes following laryngeal endoscopic surgery for non-neoplastic vocal fold lesions. Johns, M. M., Garrett, C. G., Hwang, J., Ossoff, R. H., Courey, M. S. Department of Otolaryngology-Head and Neck Surgery, Vanderbilt University School of Medicine, Nashville, Tennessee 37212-3102, USA. *The Annals of Otology, Rhinology, and Laryngology* (2004) Aug, Vol. 113 (8), pp. 597-601, ISSN 0003-4894.

Preservation of the vocal fold cover during laryngeal surgery should optimize vocal outcomes for patients with benign glottal lesions. The aim of this study was to evaluate changes in the quality of life, perceptual voice evaluation, and acoustic and aerodynamic measures of patients before and after endoscopic laryngeal microsurgery for true vocal fold cysts, polyps, and scarring. Pre-operative and post-operative Voice Handicap Index (VHI) scores, Short Form 36 scores, and perceptual, acoustic, and aerodynamic voice measures were obtained prospectively from 42 patients who underwent phonosurgery from February 2000 through May 2003. The mean (+/-SD) pre-operative VHI was 49.6 +/-21. The mean post-operative VHI score at a minimum of 3 months after surgery decreased to 26.8 +/- 21 ($p < .001$). When divided by lesion type, VHI scores improved significantly after surgery for vocal fold polyps and cysts. Although patients with vocal fold scarring demonstrated improvement in VHI scores after surgery, statistical significance was not achieved. For the entire group, the Short Form 36 scores were not significantly different from US norms either before or after operation. The acoustic data showed statistically significant decreases in jitter (2.05% to 1.26%), shimmer (7.06% to 4.03%), and noise-to-harmonics ratio (0.18 to 0.13) after surgery ($p < .05$) in female patients. The upper pitch limit increased after surgery in women (495.3 Hz to 654.9 Hz, $p < .001$). These results indicate that the voice-related quality of life and some acoustic parameters improve significantly for patients who have undergone laryngeal microsurgery for vocal fold cysts and polyps. Vocal fold scarring remains a difficult clinical problem with less favourable outcomes following surgical treatment in this patient set.

Findings of multiple muscle involvement in a study of 214 patients with laryngeal dystonia using fine-wire electromyography. Klotz, D. A., Maronian, N. C., Waugh, P. F., Shahinfar, A., Robinson, L., Hillel, A. D. Department of Otolaryngology-Head and Neck Surgery, University of Washington, Seattle, Washington, USA. *The Annals of Otology, Rhinology, and Laryngology* (2004) Aug, Vol. 113(8), pp. 602–12, ISSN 0003-4894.

Although perceptual and stroboscopic data help in diagnosing and classifying laryngeal dystonia, these measures do not aid the voice clinician in targeting which specific muscles to treat with botulinum toxin. Most patients achieve smoother, less effortful voicing with standard injection regimens. However, there is a notable failure rate. We performed fine-wire electromyography on

214 consecutive patients with laryngeal dystonia. We correlated voice ratings, stroboscopy data, and fine-wire electromyography data. Videostroboscopy was successful in visually demonstrating most of the audible findings in isolated vocal tremor, but it was much less successful in identifying breaks alone or a combination of breaks and tremor. Fine-wire electromyography revealed that the thyroarytenoid muscle was significantly more likely than the lateral cricoarytenoid muscle to be the predominant muscle associated with adductor spasmodic dysphonia, and that the thyroarytenoid and lateral cricoarytenoid muscles were equally likely to be predominantly involved in tremor spasmodic dysphonia. In addition, several patients in both the adductor spasmodic dysphonia and the tremor spasmodic dysphonia groups presented with interarytenoid muscle predominance. All of the intrinsic laryngeal muscles are capable of being the predominant muscle in laryngeal dystonia, and there are patterns of muscle abnormalities that differ between adductor spasmodic dysphonia and tremor spasmodic dysphonia. Some of the failures in treating adductor spasmodic dysphonia with botulinum toxin, and the greater difficulty with success in treating patients with tremor spasmodic dysphonia, are due to failure to deliver toxin to the appropriate muscles.

Use of injectable hydroxyapatite in the secondary setting to restore glottic competence after partial laryngectomy with arytenoidectomy. Lee, B., Woo, P. Dept of Otolaryngology-Head and Neck Surgery, Mount Sinai Medical Center, One Gustave L. Levy Place, New York, NY 10029, USA. *The Annals of Otolaryngology, Rhinology, and Laryngology* (2004) Aug, Vol. 113(8), pp. 618–22, ISSN 0003-4894.

Hydroxyapatite cement is a calcium phosphate putty, approved by the US Food and Drug Administration, that solidifies in 20 minutes and gains bone-like stability after four to six hours. It has been used for craniofacial reconstruction, spinal stabilization, and ossicular reconstruction. This is the first report of use of injectable hydroxyapatite to rebuild soft and hard tissue defects of the larynx after partial laryngeal surgery. Hydroxyapatite was injected in four patients to address glottic incompetence after partial laryngectomy. The patients were dependent on tracheotomy and/or gastrostomy tubes. Some had failed prior corrective surgeries. All of the operations were performed endoscopically and gave immediate improvement of glottic incompetence. All four patients reported improved symptoms. Three were able to have gastrostomy tubes removed, one was decannulated, and one had improved voice. In conclusion, hydroxyapatite injection is a technically simple procedure to restore glottic competence that may obviate the need for an open procedure.

Histologic behaviour of the inflammatory process in autologous fat implantation in rabbit vocal folds. Duprat, A. de C., Costa, H. O., Lancelotti, C., Ribeiro-de-Almeida, R., Caron, R. Department of Otorhinolaryngology, Santa Casa de Sao Paulo, Faculty of Medical Sciences, Sao Paulo, Brazil. *The Annals of Otolaryngology, Rhinology, and Laryngology* (2004) Aug, Vol. 113(8), pp. 636–40, ISSN 0003-4894. Fat implantation in the vocal fold is described as a method of repairing vocal fold histostructural lesions that correlate with mucosal wave abnormalities. The aim of this study was to evaluate the histologic behaviour of autologous fat implants. A fat block was implanted in pockets surgically created in the vocal folds of rabbits, and the inflammatory process induced was compared to the status of the contralateral vocal fold. Twenty-four rabbits were allocated into three groups to be sacrificed one week, three weeks, and three months after the implantation. The fat autograft did not cause any unexpected fibrosis, and we consider it a relatively safe material for implantation, with a low tendency to induce epithelial reaction and the ability to repair the histostructure of the vocal fold.

Bioactive glass and turbinate flaps in the repair of nasal septal perforations. Stoor, P., Grenman, R. Department of Maxillofacial Surgery, Helsinki University Central Hospital, Helsinki, Finland. *The Annals of Otolaryngology, Rhinology, and Laryngology* (2004) Aug, Vol. 113(8), pp. 655–61, ISSN 0003-4894.

Interpositional grafts between mucoperiosteal flaps are commonly used in the repair of septal perforations. We studied the use of bioactive glass (BAG) S53P4 as an interpositional graft and the use of turbinate flaps in 23 patients with septal perforations. Another 16 patients were treated with mucoperiosteal flaps only.

The perforations were successfully closed in 38 of the 39 patients. One patient had a near-total septal perforation due to hypophyseal surgery; it could not be closed. No extrusions of the BAG and no BAG-associated infections were seen; the average follow-up period was 28 months. BAG S53P4 seems to be a good interpositional graft in the repair of medium and large nasal septal perforations, and turbinate flaps are also reliable.

Magnesium treatment for sudden hearing loss. Nageris, B. I., Ulanovski, D., Attias, J. Department of Otolaryngology-Head and Neck Surgery, Rabin Medical Center, Petah Tikva, Israel. *The Annals of Otolaryngology, Rhinology, and Laryngology* (2004) Aug, Vol. 113 (8), pp. 672–5, ISSN 0003-4894.

Magnesium treatment has been repeatedly shown to reduce the incidence of both temporary and permanent noise-induced hearing loss. We hypothesized that it might also improve the permanent threshold shift in patients with acute-onset hearing loss. In a prospective, randomized, double-blind, placebo-controlled trial, 28 patients with idiopathic sudden sensorineural hearing loss were treated with either steroids and oral magnesium (study group) or steroids and a placebo (control group). Compared to the controls, the magnesium-treated group had a significantly higher proportion of patients with improved hearing (>10 dB hearing level) across all frequencies tested, and a significantly greater mean improvement in all frequencies. Analysis of the individual data confirmed that more patients treated with magnesium experienced hearing improvement, and at a larger magnitude, than control subjects. Magnesium is a relatively safe and convenient adjunct to steroid treatment for enhancing the improvement in hearing, especially in the low-tone range, in patients with sudden sensorineural hearing loss.

Middle ear disease in children with congenital velopharyngeal insufficiency. Sheahan, P., Miller, I., Earley, M. J., Sheahan, J. N., Blayney, A. W. Department of Otolaryngology, The Children's University Hospital, Dublin, Ireland. sheahanp@eircom.net *The Cleft Palate–Craniofacial Journal* (2004) Jul, Vol. 41 (4), pp. 364–7, ISSN 1055-6656.

OBJECTIVE: To examine the incidence and natural history of middle ear disease in children with congenital velopharyngeal insufficiency (VPI) without cleft palate. **SETTING AND SUBJECTS:** Children with congenital VPI attending the combined cleft clinic at a tertiary cleft center. The diagnosis of congenital VPI in all cases was confirmed by the observation of hypernasality, nasal air escape, or both by a speech and language therapist and the demonstration of incompetence of the velopharyngeal sphincter by means of nasoendoscopy or videofluoroscopy. Children with overt cleft palate or postsurgical VPI were excluded. **DESIGN:** The children's medical records were reviewed, and a questionnaire regarding history of ear problems was sent to all parents. Children were divided into those with Pruzansky type I VPI (showing bifid uvula, midline diastasis of soft palate, or submucous cleft of the hard palate) and Pruzansky type II VPI (no visible stigmata). **MAIN OUTCOME MEASURES:** Incidence of reported ear problems, ear infections, hearing loss, and surgical intervention for middle ear disease in the whole group and in each of the subgroups. **RESULTS:** Seventy-one parents returned completed questionnaires. The overall incidence of middle ear disease was 63%, with 28% reported to have below-normal hearing. There was no significant difference between children with Pruzansky types I and II VPI with respect to incidence of otopathology or hearing loss. **CONCLUSIONS:** Irrespective of the presence of any visible palatal abnormalities, children with congenital VPI showed a substantial incidence of otopathology and should thus be closely monitored.

Contribution of head shadow and pinna cues to chronic monaural sound localization. Van-Wanrooij, M. M., Van-Opstal, A. J. Department of Medical Physics and Biophysics, University of Nijmegen, 6525 EZ Nijmegen, The Netherlands. *The Journal of Neuroscience* (2004) Apr 28, Vol. 24 (17), pp. 4163–71, ISSN 1529-2401.

Monaurally deaf people lack the binaural acoustic difference cues in sound level and timing that are needed to encode sound location in the horizontal plane (azimuth). It has been proposed that these people therefore rely on spectral pinna cues of their normal ear to localize sounds. However, the acoustic head-shadow

effect (HSE) might also serve as an azimuth cue, despite its ambiguity when absolute sound levels are unknown. Here, we assess the contribution of either cue in the monaural deaf to two-dimensional (2D) sound localization. In a localization test with randomly interleaved sound levels, we show that all monaurally deaf listeners relied heavily on the HSE, whereas binaural control listeners ignore this cue. However, some monaural listeners responded partly to actual sound-source azimuth, regardless of sound level. We show that these listeners extracted azimuth information from their pinna cues. The better monaural listeners were able to localize azimuth on the basis of spectral cues, the better their ability to also localize sound-source elevation. In a subsequent localization experiment with one fixed sound level, monaural listeners rapidly adopted a strategy on the basis of the HSE. We conclude that monaural spectral cues are not sufficient for adequate 2D sound localization under unfamiliar acoustic conditions. Thus, monaural listeners strongly rely on the ambiguous HSE, which may help them to cope with familiar acoustic environments.

2-year review of a novel vestibular rehabilitation program in Montreal and Laval, Quebec. Dannenbaum, E., Rappaport, J. M., Paquet, N., Visintin, M., Fung, J., Watt, D. Research Center, Jewish Rehabilitation Hospital, Laval, QC. *The Journal of Otolaryngology* (2004) Feb, Vol. 33 (1), pp. 5–9, ISSN 0381-6605.

OBJECTIVE: To evaluate the benefits of a vestibular rehabilitation program (VRP) in the Montreal-Laval area. **DESIGN:** The VRP was conceptualized by a panel of experts including otolaryngologists, physiotherapists, and researchers from McGill University and its teaching hospitals. From February 1999 to December 2001, 117 patients were seen, and 88 of them completed the VRP. **SETTING:** The VRP has been established at the Jewish Rehabilitation Hospital in Laval, PQ, to provide specialized rehabilitation to clients suffering from vertigo, dizziness, and/or impaired balance owing to lesions or disorders of the vestibular system. **MAIN OUTCOME MEASURES:** Presence or absence of nystagmus or vertigo during the Dix-Hallpike test, Dizziness Handicap Inventory (DHI), and Dynamic Gait Index (DGI). **RESULTS:** Thirty-five patients with benign paroxysmal positional vertigo of the posterior canal were treated with canalith repositioning manoeuvres. All of the patients (100%) had absence of nystagmus or vertigo after one to four treatment sessions. Forty-six patients with vestibular deficits or dizziness-disequilibrium completed the VRP, which consisted mainly of individualized eye-head and balance home exercise programs. At the end of the VRP, there was a significant decrease in DHI score (31 vs 57; $p < .01$) and a significant increase in DGI score (18.4 vs 22.6; $p < .01$). **CONCLUSIONS:** A range of modest to major improvements was shown by comparing initial and discharge scores of patients who had completed vestibular rehabilitation. The VRP appears to be beneficial for patients with a variety of vestibular disorders. Further research is needed to continue optimizing vestibular rehabilitation.

Selective irrigation of the sinuses in the management of chronic rhinosinusitis refractory to medical therapy: a promising start. Lavigne, F., Tulic, M. K., Gagnon, J., Hamid, Q. Notre-Dame Hospital and Institut ORL de Montreal, Montreal, QC. *The Journal of Otolaryngology* (2004) Feb, Vol. 33 (1), pp. 10–16, ISSN: 0381-6605.

BACKGROUND: Although endoscopic sinus surgery has been widely used for the treatment of chronic rhinosinusitis, some patients fail to derive clinical benefit from this procedure. We evaluated the efficacy of a treatment regimen consisting of selective irrigation of diseased sinus mucosa with topical antibiotics and steroids in conjunction with oral antibiotics and steroids. **METHODS:** Twenty patients suffering from chronic rhinosinusitis and resistant to medical treatment (mean duration 3.4 years) underwent intubations of the affected maxillary and/or ethmoid sinuses for irrigation for a duration of 21 to 30 days. A computed tomographic (CT) scan of the paranasal sinus was taken both pre- and post-treatment and staged according to the Lund-MacKay system. Clinical symptoms were scored for rhinorrhea, facial pain, nasal congestion, and smell at least two months prior to treatment and approximately 18 months after the follow-up. **RESULTS:** The clinical experience with the technique of intubation and irrigation was well tolerated by all patients. We found an improvement in all symptom scores, including

rhinorrhea, nasal congestion, smell ($n = 20$; $p < .001$), and facial pain ($n = 20$; $p < .01$). Similar improvements were seen on the CT scans, with reduced staging from 14.6 \pm 1.1 to 5.6 \pm 1.1 ($p < .001$). Only three patients did not respond to selective irrigation of the sinuses and needed further surgery. **CONCLUSION:** These results suggest that sinus irrigation could provide a reasonable and effective alternative to ethmoidectomy with drainage procedures and offer promise for the treatment of patients with chronic rhinosinusitis who are resistant to medical treatment.

Respiratory retraining of refractory cough and laryngopharyngeal reflux in patients with paradoxical vocal fold movement disorder.

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OBJECTIVES/HYPOTHESIS: The objective was to describe a case series of patients with refractory cough and paradoxical vocal fold movement disorder treated with respiratory retraining therapy. **STUDY DESIGN:** Retrospective review of a case series in a tertiary medical care center. **METHODS:** Five patients with laryngopharyngeal reflux were identified with refractory cough and paradoxical fold movement disorder on transnasal fiberoptic laryngoscopy by a greater than 50% reduction in airway during inspiration. There were four women and one man (age range, 42–67 y). All patients had normal forced vital capacity and forced expiratory flow but decreased ratio of forced inspiratory volume at 0.5 seconds (FIV(0.5)) to forced inspiratory vital capacity (FIVC) before starting therapy. All patients were treated with more than 6 months of twice-daily proton pump inhibitor therapy with improvement in reflux symptoms but persistent and severe daytime cough. They were subsequently treated with respiratory retraining therapy. Patients were asked to rate subjectively the severity of cough at the onset and conclusion of therapy. All patients underwent pulmonary function testing before and after therapy. Long-term follow-up ranged from five to 17 months. **RESULTS:** Patients received two to seven sessions of respiratory retraining therapy. The mean severity score changed from 9.2 before therapy to 1.3 after therapy. All patients subjectively described an improvement in the severity of their cough. Transnasal flexible laryngoscopy demonstrated improvement in paradoxical vocal fold movement, and pulmonary function testing showed improvement in the FIV(0.5)/FIVC ratio. **CONCLUSION:** Patients with laryngopharyngeal reflux and refractory cough in the absence of pulmonary disease should be evaluated for paradoxical vocal fold movement disorder. Respiratory retraining therapy may represent an effective therapy for cough in the absence of relief from standard management of laryngopharyngeal reflux.

The status of the contralateral ear in established unilateral Ménière's disease. Perez, R., Chen, J. M., Nedzelski, J. M.

Department of Otolaryngology, Sunnybrook and Women's College Health Science Centre, Toronto, Ontario, Canada. *The Laryngoscope* (2004) Aug, Vol. 114(8), pp. 1373–6, ISSN: 0023-852X.

OBJECTIVES/HYPOTHESIS: To determine the incidence of measurable audiometric changes in the contralateral ear and clinical bilateral Ménière's disease in individuals with longstanding established unilateral Ménière's disease. **STUDY DESIGN:** Analysis of data in an ongoing prospective study. **METHODS:** One hundred and one patients who were treated with intratympanic gentamicin installation for disabling unilateral Ménière's disease were followed up for a minimum of two years. The mean follow-up time between the initial diagnosis to the last audiogram conducted was 12 \pm 7 (range 2–45) years, and the mean follow-up between the first and last audiograms conducted in our clinic was 5 \pm 3 (range 2–15) years. The incidence of Ménière's disease (clinical diagnosis) as compared with audiometric changes in the contralateral ear was analyzed. **RESULTS:** Compared with several published reports, the development of bilateral Ménière's disease in our series within the described observation period was much lower (5%). The incidence of contralateral isolated hearing loss in the low frequencies was 16% (average threshold of .25 and .5 kHz of 25 dB or more). The time interval between the initial diagnosis and the onset of contralateral findings ranged from 0 to 26 years.

CONCLUSION: In our experience, individuals with disabling longstanding unilateral disease are not likely to develop bilateral disease. However, a small but significant percentage of patients have audiometric changes in the low frequencies of the contralateral ear (.25, .5 kHz).

Giant cell arteritis: a new association with benign paroxysmal positional vertigo. Amor, D. J. C., Llorca, J., Costa, R. C., Garcia, P. C., Gonzalez, G. M. A. Department of Otorhinolaryngology, Hospital Xeral-Calde, Lugo, Spain. *The Laryngoscope* (2004) Aug, Vol. 114 (8), pp. 1420–5, ISSN 0023-852X.

OBJECTIVE: To assess the incidence and characteristics of both benign paroxysmal positional vertigo (BPPV) and positional nystagmus in a series of patients with giant cell arteritis (GCA). **STUDY DESIGN:** Patients diagnosed with GCA between June 1999 and May 2001 at the single hospital for a defined population were examined prospectively. **METHOD:** Patients included in this study fulfilled the 1990 American College of Rheumatology classification criteria for GCA. Otologic and oculographic studies were performed. Type, frequency, and outcome of positional oculographic findings was assessed. Patients were required to have been examined within one week after the onset of corticosteroid therapy. Data found in GCA patients were compared with those observed in an age, sex, and ethnically matched control population. Further studies in patients and controls were performed three and six months later. **RESULTS:** Forty-four patients and 44 matched controls were included in this study. Nine (20.5%) GCA patients fulfilled diagnostic criteria of BPPV compared with only one (2.3%) of the controls ($P = .007$). In seven of these nine GCA patients, BPPV was related to the posterior and two to the horizontal semicircular canals, respectively. Horizontal nystagmus was found in seven GCA patients who developed nystagmus in the head hanging position test compared with none in the controls ($P = .006$). **CONCLUSIONS:** The present study shows a higher frequency of BPPV in GCA than in matched controls. Because most clinical manifestations in GCA are caused by ischemic complications, our results suggest an ischemic etiology as responsible for BPPV in these elderly patients. According to these results, GCA may constitute a new association with BPPV.

Retrosigmoid versus middle fossa surgery for small vestibular schwannomas. Mangham, C. A. Jr. Seattle Ear Clinic, 600 Broadway, Suite 340, Seattle, Washington 98122-5371, USA. chasmangham21@msn.com *The Laryngoscope* (2004) Aug, Vol. 114 (8), pp. 1455–61, Refs 17, ISSN 0023-852X.

OBJECTIVES/HYPOTHESIS: The objective was to determine the effect of approach, middle fossa versus retrosigmoid, on the hearing and facial nerve outcome of surgery for small vestibular schwannomas. **STUDY DESIGN:** The study had two parts, a case study of patient data entered into a prospectively designed database at the author's institution, and a meta-analysis of similar published data. **METHODS:** There were 73 of the author's private practice patients who met the inclusion criteria of intracanalicular vestibular schwannoma and total tumour removal by a retrosigmoid approach. American Academy of Otolaryngology-Head and Neck Surgery standardized hearing and facial nerve classifications of these patients and similar data from 11 other institutions were used to compare results of the two surgical approaches. **RESULTS:** Median facial nerve results for all institutions were significantly better with the retrosigmoid approach (grade I: 95% for retrosigmoid and 81% for middle fossa). Median hearing results trended toward better outcome with the middle fossa approach (same pre-operative hearing class: 48% for middle fossa and 39% for retrosigmoid). Individual institution had an equal or greater effect on outcome than the choice of surgical approach. **CONCLUSION:** Surgical team accounted for more variability in hearing and facial nerve outcome than did approach. Retrosigmoid approach yielded significantly better facial nerve outcome. The trend toward better hearing outcome with the middle fossa approach may never achieve statistical significance across institutions because of high variability among surgical teams and small numbers of teams reporting results.

Surgical outcomes in patients with endolymphatic sac tumours. Hansen, M. R., Luxford, W. M. Department of Otolaryngology-Head and Neck Surgery, University of Iowa, Iowa City, IA 52242,

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OBJECTIVE: To determine the surgical outcomes in patients with endolymphatic sac tumours (ELSTs). **STUDY DESIGN:** Retrospective review of patients at a referral-based otology-neurotology practice. **METHODS:** A review of the records from the House Ear Clinic revealed 16 patients treated for ELSTs from 1971 to 2002. This article reports the treatment outcomes for the 14 patients for whom clinical data were available. **RESULTS:** Sensorineural hearing loss, tinnitus, and dizziness were the most common presenting signs and symptoms. Six patients presented with facial weakness, and three patients had symptoms characteristic of Ménière's syndrome. One patient suffered from Von Hippel-Lindau disease. Patients underwent microsurgical removal and were followed for an average of 59.6 months. Patients that presented with normal facial function maintained excellent post-operative function, and hearing was preserved in two patients with small tumours. Two patients suffered persistent, progressive disease despite multiple attempts at microsurgical removal and radiotherapy. Both had incomplete resections of their initial tumours. A third patient developed a small recurrent tumour that was successfully managed by a second attempt at microsurgical removal. **CONCLUSIONS:** Taken together with other reports, these results suggest that ELSTs are best managed by complete surgical resection. This can generally be accomplished with minimal additional morbidity.

Impact of anterior commissure involvement on local control of early glottic carcinoma treated by laser microresection. Steiner, W., Ambrosch, P., Roedel, R. M. W., Kron, M. Department of Otorhinolaryngology, University of Goettingen, Goettingen, Germany. wsteiner@med.uni-goettingen.de *The Laryngoscope* (2004) Aug, Vol. 114 (8), pp. 1485–91, ISSN 0023-852X.

OBJECTIVES: To analyze the impact of anterior commissure involvement on local control, survival, and laryngeal preservation in patients with early glottic cancer (pT1a-pT2a) treated with unimodality laser microsurgical resection. **STUDY DESIGN:** Retrospective review of 263 patients with early glottic cancer treated between 1986 and 1996. **METHODS:** Data on local control and overall survival rates were analyzed and calculated by the Kaplan-Meier method, the larynx preservation rates were given absolutely. **RESULTS:** Among 158 patients presenting with T1a glottic cancer, the anterior commissure was involved in 28 cases, the five-year local control rate was 84%, and the larynx preservation rate was 93%. In the 130 cases without anterior commissure involvement, the five-year local control rate was 90.0% and the corresponding larynx preservation rate 99%. In the T1b category consisting of 30 patients, anterior commissure involvement was observed in 16 patients; the five-year local control rate was 73%, and the larynx preservation rate was 88%. In the 14 cases without anterior commissure involvement, the five-year local control rate was 92% and the corresponding larynx preservation rate 100%. Seventy-five patients had T2a glottic carcinomas, with normal vocal cord movement. The anterior commissure was involved in 45 cases; the five-year local control rate was 79%, and the larynx preservation rate was 93%. In the 30 cases without anterior commissure involvement, the five-year local control rate was 74.0% and the corresponding larynx preservation rate 97%. **CONCLUSIONS:** This study shows the effectiveness of laser microsurgery for early glottic carcinoma regardless of anterior commissure involvement at presentation. This method can be performed as an outpatient procedure, even when conducting reresections.

Medicolegal analysis of injury during endoscopic sinus surgery. Lynn-Macrae, A. G., Lynn-Macrae, R. A., Emani, J., Kern, R. C., Conley, D. B. Department of Otolaryngology, Northwestern University Medical School, Chicago, IL 60611, USA. alastairlynnmacrae@yahoo.com *The Laryngoscope* (2004) Aug, Vol. 114 (8), pp. 1492–5, ISSN: 0023-852X.

OBJECTIVES: To survey the causes, characteristics, and outcomes of malpractice litigation resulting from injuries sustained during endoscopic sinus surgery (ESS). **STUDY DESIGN:** A retrospective analysis of United States state and federal civil litigation involving injuries resulting from ESS. **METHODS:** Sources were state and federal court decisions and jury verdict reports accessed through a computerized legal database. The 41 cases were decided or settled between 1990 and

2003. The cases and reports were analyzed for pertinent data regarding plaintiffs, defendants, allegations of wrongdoing, resulting injury, expert witnesses, and resulting verdict or settlement. Correlation between severity of injury and case outcome was analyzed. **RESULTS:** All suits reviewed involved ESS. Many cases included multiple causes of action, or types of malpractice, including negligent technique, 31 (76%); lack of informed consent, 15 (37%); and wrongful death, 2 (5%). The defendant-physician specialty was overwhelmingly otolaryngology, 40 (98%). The most common presenting complaint, or indication for surgery, was chronic sinusitis, 30 (73%). The injuries caused by surgery were frequently multiple, including cerebrospinal fluid (CSF) leak, 10 (24%); brain damage, 6 (15%); diplopia, 7 (17%); and death, 2 (5%). The majority of cases reviewed (83%) resulted in a verdict rather than settlement. The result of the verdict or settlement was 17 (41%) in favour of the plaintiff, 23 (56%) in favour of the defendant, and 1 (2%) unknown. The average award was 751,275 dollars, with a median of 410,239 dollars and a range of 61,000 dollars to 2,870,000 dollars. **CONCLUSIONS:** This is the first study to review malpractice litigation resulting from injuries sustained during ESS and shows a hitherto unexpected pattern between severity of injury and case outcome.

The canalith repositioning procedure for benign positional vertigo: a meta-analysis. Woodworth, B. A., Gillespie, M. B., Lambert, P. R. Department of Otolaryngology-Head and Neck Surgery, Medical University of South Carolina, Charleston, SC 29425, USA. *The Laryngoscope* (2004) Jul, Vol. 114 (7), pp. 1143–6, ISSN: 0023-852X.

OBJECTIVE: To review the effectiveness of the canalith repositioning procedure (CRP) in the treatment of benign paroxysmal positional vertigo (BPPV) with a critical review of the literature and meta-analysis. **STUDY DESIGN:** Meta-analysis. **METHODS:** Studies eligible for inclusion were randomized, controlled trials of the CRP performed on clearly defined cases of BPPV. A total of nine studies meeting inclusion criteria were identified by two independent literature searches of Medline. Treatment and control groups were compared for symptom resolution and elimination of a positive Dix-Hallpike test. **RESULTS:** Patients treated with CRP were more likely to demonstrate symptom resolution (odds ratio (OR) 4.6; 95% confidence interval (CI) 2.8–7.6) and negative Dix-Hallpike (OR 5.2; 95% CI 3.0–8.8) at the time of first follow-up. The effect of CRP for symptom improvement was strongest within the first month after treatment (OR 4.1; 95% CI 3.1–5.2) with some decline thereafter (OR 2.8; 95% CI 1.7–3.9). Conversely, the ability of CRP to produce a negative Dix-Hallpike strengthened between the first month after treatment (OR 3.0; 95% CI 1.8–4.0) and later follow-up times (OR 5.0; 95% CI 3.9–6.1). **CONCLUSIONS:** The CRP is more effective than control in resolving vertigo and positive Dix-Hallpike associated with BPPV. This finding was consistent among a variety of studies using different study designs. Untreated patients may demonstrate symptom improvement with time; however, many will continue to have a positive Dix-Hallpike when examined. Resolution of vertigo in untreated patients is therefore most likely because of avoidance of provocative positions.

Effectiveness of intratympanic dexamethasone injection in sudden-deafness patients as salvage treatment. Guan, M. H., Hung, C. L., Min, T. S., Cheng, C. Y., Hsun, T. T. Department of Otolaryngology, Mackay Memorial Hospital, Taipei, Taiwan. *The Laryngoscope* (2004) Jul, Vol. 114 (7), pp. 1184–9, ISSN: 0023-852X.

OBJECTIVE: To study the effectiveness of intratympanic dexamethasone (IT-DEX) in patients with severe or profound sudden sensorineural hearing loss (SSNHL) after treatment failure with conventional therapy. **STUDY DESIGN:** Randomized, controlled study. **METHODS:** Patients who met the criteria for SSNHL, with a severity of severe to profound, underwent 10 days of standard treatment with oral steroid and other facilitating agents. Patients showing poor response to standard treatment were assigned randomly to a control group or to a group receiving IT-DEX. IT-DEX injections were performed once a week for 3 consecutive weeks. Pure-tone audiometry was obtained before each injection. Minimum follow-up time was one month. Successful treatment was defined as a hearing improvement of greater than 30 dB. **RESULTS:** Thirty-nine

patients meeting the inclusion criteria were studied. After treatment with oral steroid, 10 of 39 (26%) patients demonstrated hearing improvement, whereas the remaining 29 (74%) patients showed a hearing improvement of less than 30 dB. For those without hearing improvement, 15 received IT-DEX, and 14 received further standard treatment (except oral steroid and carbogen inhalation). Hearing improved in 8 of 15 (53.3%) compared with 1 of 14 (7.1%), with an average decrease in threshold of 28.4 dB and 13.2 dB for the IT-DEX group and the control group, respectively ($P < .05$). Prognostic factors such as age, treatment delay time, and sex did not significantly affect the response to therapy. **CONCLUSIONS:** IT-DEX injection effectively improves hearing in patients with severe or profound SSNHL after treatment failure with standard therapy and is not associated with major side effects. It is therefore a reasonable alternative as salvage treatment.

Questioning the relationship between cochlear otosclerosis and sensorineural hearing loss: a quantitative evaluation of cochlear structures in cases of otosclerosis and review of the literature.

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BACKGROUND: The literature provides conflicting information regarding the prevalence and cause of sensorineural hearing loss (HL) in individuals with otosclerosis. **OBJECTIVE:** The purpose of this study was to further evaluate the association between involvement of the cochlear endosteal layer with otosclerosis and sensorineural HL. **STUDY DESIGN:** Retrospective case review. **METHODS:** Temporal bones and audiograms from five individuals with otosclerosis were evaluated. The cochlear elements were quantified. The location and extent of the cochlear element loss was correlated with the location and extent of endosteal involvement with otosclerosis. **RESULTS:** A reduction in the population of cochlear elements was observed in most individuals; however, the reduction was not proportional to the extent of endosteal involvement with otosclerosis. The cochlear elements remained normal adjacent to some areas of endosteal involvement with otosclerosis. One individual with extensive cochlear otosclerosis had normal hearing and predominantly normal cochlear elements. **CONCLUSION:** This study demonstrates a variable amount of degeneration of the cochlear elements in individuals with otosclerotic involvement of the endosteum. The reduction in the population of cochlear elements was not related to the extent and location of endosteal involvement with otosclerosis. These findings suggest that factors that limit the effect of otosclerotic endosteal involvement on the cochlear elements or processes that effect the cochlear elements directly and are independent of bone involvement may be present.

Pseudocyst of the auricle: a histologic perspective. Ming, L. C., Hong, G. Y., Shuen, C. S., Lim, L. Department of Otolaryngology, Singapore General Hospital, Singapore. lshuiming@hotmail.com *The Laryngoscope* (2004) Jul, Vol. 114 (7), pp. 1281–4, ISSN: 0023-852X.

OBJECTIVE: The aim of the study is to describe the histologic spectrum in the pseudocyst of the auricle and to identify any consistent histologic features of this condition. **STUDY DESIGN:** A prospective study was performed in which the tissue specimen from patients with pseudocyst of the auricle treated at the Department of Otolaryngology, Singapore General Hospital during a one-year period was sent for histology. **METHODS:** Consecutive patients with pseudocyst of the auricle who were treated had their tissue specimen sent for histology. These specimens were independently reviewed by one consultant pathologist. **RESULTS:** All 16 specimens revealed an intracartilaginous cyst devoid of epithelial lining. Interestingly, there were consistent perivascular mononuclear infiltrates of lymphocytes evident in the connective tissue layer just superficial to the anterior segment of the cartilage. **CONCLUSION:** Pseudocyst of the auricle is a benign condition predominantly affecting young Asian males. Histology characteristically reveals an intracartilaginous cyst devoid of epithelial lining, and there are no pathognomonic features. We postulate that an inflammatory response is crucial to the development of this condition on the basis of a consistent perivascular inflammatory response seen in all our specimens.