

Abstract Selection

The role of partial laryngeal resection in current management of laryngeal cancer: a collective review. Ferlito, A., Silver, C. E., Howard, D. J., Laccourreye, O., Rinaldo, A., Owen, R. Department of Otolaryngology–Head and Neck Surgery, University of Udine, Italy clorl@dsc.uniud.it. *Acta Oto-laryngologica* (2000) June, Vol. 120 (4), pp. 456–65.

A spectrum of treatment plans and surgical procedures is available for management of early and moderately advanced laryngeal cancer. While the approach of chemotherapy and irradiation, or irradiation alone, followed by total laryngectomy for failure is often employed in practice by present day clinicians, the options of conventional conservation surgery (CCS), transoral endoscopic laser surgery (TLS) and supracricoid partial laryngectomy (SCPL) provide a wide choice of treatments that may help attain the goal of cure with preservation of laryngeal function and integrity of the airway. While CCS has been supplanted for many early-stage lesions by TLS and for more advanced stages by SCPL, centres throughout the world have reported favourable results with CCS, which is often modified to include resection of more extensive tumours than was previously possible. During the past decade a number of extended CCS procedures have been developed for management of glottic tumours involving both vocal cords and the anterior commissure, the paraglottic space and with vocal cord fixation, and for supraglottic tumours involving the glottis or hypopharynx. TLS has proved an effective, minimally invasive and functionally satisfactory procedure for management of suitable T1 and T2 glottic cancers, and stage I–III supraglottic cancers. The procedure may be effectively employed in combination with neck dissection and postoperative radiotherapy when necessary, particularly for moderately advanced supraglottic carcinomas. SCPL has proven effective in management of glottic and supraglottic cancers of all stages, even with involvement of paraglottic space and thyroid cartilage, provided at least one arytenoid unit can be preserved with clear margins. Invasion of cricoid cartilage is the most significant limitation for this procedure. All three surgical approaches have been employed for irradiation failure, but with greatly increased failure and complication rates compared with the results of treatment of non-irradiated patients. Thus a decision to treat laryngeal cancer initially with irradiation may preclude a satisfactory result from partial laryngectomy should radiation fail. The treatment of laryngeal cancer should be individualized according to the size and extent of the tumour, the age and physical condition of the patient, and the skill and experience of the surgeon with various treatment modalities and surgical procedures.

Middle fossa approach in vestibular schwannoma surgery. Post-operative hearing preservation and EEG changes. Thomsen, J. Stougaard, M., Becker, B., Tos, M., Jennum, P. Department of Otolaryngology–Head and Neck Surgery, Gentofte University Hospital, Hellerup, Denmark. jetho@gentoftehosp.kbhamt.dk. *Acta Oto-laryngologica* (2000) June, Vol. 120 (4), pp. 517–22.

When the middle fossa (MF) approach was introduced in Denmark, we were concerned about the possible risk to the temporal lobe caused by the retraction of the lobe when exposing the internal acoustic meatus. EEG recordings were therefore obtained prospectively before (21 patients) and after MF tumour removal (all 23 patients operated from 1989 to 1997). Only three patients had normal EEG recordings before and after surgery, while 86 per cent had induction, or worsening, of focal and paroxysmic activity, even at the last follow-up (median 3.5 years). Sixteen patients operated prospectively via the translabyrinthine (TL) also had pre- and postoperative EEG and served as a control group. Only minor EEG changes were found in this group. In neither group did the patients display any clinical neurological signs (seizures). At the latest evaluation the facial function was reduced in eight patients (35 per cent) with six patients going one

step up the scale, one patient two steps up and one patient three steps up (from HB-1 to HB-4). The integrity of the facial nerve was maintained in all patients. Postoperatively, 10 patients (44 per cent) had useful hearing (hearing class A and B) on the operated side. Four patients had anacusis and an additional four patients were reduced to hearing class D with very low PTA and SDS. In total, nine patients (39 per cent) retained their preoperative hearing class, while 14 patients (61 per cent) had impairment in their hearing class. In conclusion, EEG changes (low frequency activity and IEA) may be provoked or worsened as part of the middle cranial fossa procedure. The mechanism is not fully known, but may reflect perioperative pressure on the temporal lobe. EEG changes are fewer and lighter in translabyrinthine-operated patients. The practical clinical implications of the possibility of developing EEG changes, even without clinical signs, are potentially serious, and must be included in the information given to the patients before surgery.

Vestibular and cochlear toxicity of aminoglycosides – a review. Nakashima, T., Teranishi, M., Hibi, T., Kobayashi, M., Umemura, M. Department of Otorhinolaryngology, Nagoya University School of Medicine, Japan. tsutomun@tsuru.med.nagoya.u.ac.jp. *Acta Oto-laryngologica* (2000) October, Vol. 120 (8), pp. 904–11. Recently, there have been many reports describing the efficacy of intratympanic aminoglycoside injection for the treatment of intractable vertigo in patients with Meniere's disease. However, the number of injections and the amount of drug injected varies, with concomitant variation in the side-effect of hearing deterioration. To identify drugs that are more selectively vestibulotoxic, we have reviewed the ototoxicity of aminoglycosides, focusing on differences between vestibulo- and cochleotoxicity. At present, the basis for the different effects of each drug is unknown. The mechanisms of vestibulo- and cochleotoxicity are deemed worthy of further study.

Mucin gene expression in cultured human middle ear epithelial cells. Moon, S. K., Lim, D. J., Lee, H. K., Kim, H. N., Yoo, J. H. Department of Cell Biology, House Ear Institute, Los Angeles, California, USA. *Acta Oto-Laryngologica* (2000) October, Vol. 120 (8), pp. 933–9.

For the advanced study of the cell and molecular biology of middle ear mucosa, an *in vitro* cell culture system is required. Although middle ear epithelial cells have been cultured from various species of laboratory animal, there have been no reports concerning a serial subculture system of human middle ear epithelial cells. In this paper, we describe the establishment of a primary culture system of human middle ear epithelial cells using a serum-free conditioned medium and the characterization of these cells by the expression of phenotypic characteristics of epithelial cells and mucin genes. Cultured cells were anchorage-dependent in terms of growth and showed a polygonal cobblestone-like appearance: desmosomes in the cell junction were observed by electron microscopy. In the immunocytochemical study, cytokeratin (epithelial cell marker) was expressed in all cultured cells but von Willebrand factor (endothelial cell marker) was not. Unexpectedly, vimentin (fibroblast marker) was locally expressed, and a double stain showed the co-expression of both cytokeratin and vimentin in the same cell. The products of reverse transcriptase polymerase chain reaction from cultured cells yielded distinct bands compatible with the expected sizes of the MUC1, MUC2, MUC5AC and MUC5B genes. This culture system will also be used to prepare the cell line and to perform advanced studies of human middle ear mucosal biology.

Clinicopathologic growth factors in vestibular schwannomas: a morphological and immunohistochemical study of 69 tumours. Labit-Bouvier, C., Crebassa, B., Bouvier, C., Andrac-Meyer, L., Magnan, J., Charpin, C. Department of Pathology, Hopital Nord,

Marseille, France. *Acta Oto-Laryngologica* (2000) October, Vol. 120 (8), pp. 950–4.

Tumour growth of vestibular schwannomas is still difficult to predict. The aim of our study was to determine whether any defined histopathological feature was correlated with the clinical course. We did a retrospective study with 69 paraffin-embedded tumours to establish whether the number of vessels, blood cells extravasation or degree of inflammation, all semi-quantitatively assessed, could be indicative of potential of growth. An immunohistochemical study was also performed with an endothelial marker CD34, the leukocyte common antigen CD45 and the estrogen and progesterone hormone receptors. All these parameters were correlated with patient's age, duration of symptoms (d), with a clinical growth index (CLI = tumour size/d). No clinical parameters proved to be predictive of tumour growth. Tumour size was significantly ($p = 0.01$) related to the number of vessels and we found a significant relationship between the clinical growth index (CLI) and total number of vessels, especially when duration of symptoms lasted less than one year ($P = 0.001$). However, we found no relationship between duration of symptoms or CLI and CD34 index. The degree of inflammation was significantly correlated ($p = 0.007$) with duration of symptoms when it lasted more than one year. The CD45 index and the semi-quantitative evaluation of the inflammation were well correlated ($p = 0.001$). No estrogen receptors antigenic site was detected and only seven tumours expressed progesterone receptor in a few cells without any significant clinical value. These results suggest that vessel density is determinant for sporadic acoustic neuroma growth especially for a short clinical course.

Regional cerebral blood flow during tinnitus: a PET case study with lidocaine and auditory stimulation. Andersson, G., Lyttkens, L., Hirvelae, C., Furmark, T., Tillfors, M., Fredrikson, M. Department of Audiology, Uppsala University Hospital, Uppsala University, Sweden. Gerhard.Andersson@psyk.uu.se. *Acta Oto-Laryngologica* (2000) October, Vol. 120 (8), pp. 967–72.

Brain imaging of tinnitus has suggested central correlates of tinnitus perception. This study presents positron emission tomographic (PET) measurements of regional cerebral blood flow (rCBF) in a female tinnitus patient with bilateral left dominant tinnitus. Lidocaine infusion (75 mg during five min (0.2 mg/kg/min)) resulted in a 75 per cent reduction of tinnitus and a temporary abolition of the dominant tinnitus in her left ear. Regional CBF was measured in four conditions: i) at rest while concentrating on tinnitus, ii) following maximum effect of lidocaine, iii) during sound stimulation, and iv) the following day at rest while concentrating on tinnitus. Subtraction analyses showed that tinnitus was associated with increased rCBF in the left parieto-temporal auditory cortex, including the primary and secondary auditory cortex with a focus in the parietal cortex (Brodmann areas 39, 41, 42, 21, 22). Activations were also found in right frontal paralimbic areas (Brodmann areas 47, 49 and 15). Sound stimulation resulted in bilateral activation of auditory areas. It is suggested that tinnitus is processed in primary, secondary and integrative auditory cortical areas. Tinnitus perception may involve areas related to auditory attention, while emotional processing relates to temporofrontal paralimbic areas.

Tympanic neurectomy and chronic parotitis. Vasama, J. P. Department of Otolaryngology, Helsinki University Central Hospital, Finland. juha-pekka.vasama@hus.fi *Acta Oto-Laryngologica* (2000) October, Vol. 120 (8), pp. 995–8.

The preoperative findings and operative outcome were evaluated in 49 patients who underwent tympanic neurectomy to treat chronic parotitis. Forty-two patients had chronic non-supportive parotitis and seven patients had chronic suppurative parotitis. The main symptoms prior to operation were recurrent swelling and pain of the parotid gland. After operation, 40 patients (82 per cent) had relief of their symptoms (28 patients were totally free of symptoms and 12 patients were markedly improved). In nine patients (18 per cent) the symptoms remained the same. Three patients (six per cent) had a tympanic membrane perforation due to the operation.

A single intramuscular dose of ceftriaxone changes nasopharyngeal bacterial flora in children with acute otitis media. Heikkinen, T., Saeed, K. A., McCormick, D. P., Baldwin, C., Reisner, B. S. Chonmaitree, T. Department of Pediatrics, University of Texas Medical Branch, Galveston, USA.

terho.heikkinen@utu.fi. *Acta Paediatrica* (2000) November, Vol. 89 (11), pp. 1316–21.

The increasing prevalence of drug-resistant bacteria is attributed to the extensive use of antibiotics, which causes selective pressure on the nasopharyngeal bacterial flora. Shortened courses of antibiotics have been proposed to decrease the development of resistant strains. We determined the effect of a single intramuscular dose of ceftriaxone (50 mg/kg) on the nasopharyngeal bacterial flora in 167 children (median age 13 mo) with acute otitis media. Nasopharyngeal samples for bacterial culture were obtained before and five days after treatment with ceftriaxone. Before treatment, *Moraxella catarrhalis* was isolated in 99 (59 per cent) children, *Streptococcus pneumoniae* in 87 (52 per cent) and *Haemophilus influenzae* in 53 (32 per cent). After treatment, *M. catarrhalis* was found in 62 (37 per cent) children, which constitutes a 37 per cent decrease in the colonization rate by this pathogen ($p < 0.001$). *S. pneumoniae* was isolated in 50 (30 per cent; 43 per cent decrease) and *H. influenzae* in 17 (10 per cent; 68 decrease) children after treatment ($p < 0.001$ for both). Before treatment, 60 per cent of pneumococcal isolates were sensitive to penicillin, 26 per cent were of intermediate susceptibility and 14 per cent were penicillin-resistant. Eradication of *S. pneumoniae* occurred mainly in children with penicillin-sensitive isolates. As a consequence, only 24 per cent of pneumococcal isolates that remained after treatment were sensitive to penicillin, 59 per cent were penicillin-intermediate, and 16 per cent were penicillin-resistant. A single dose of ceftriaxone resulted in significant changes in the nasopharyngeal bacterial flora, increasing the relative prevalence of pneumococcal strains with decreased susceptibility to penicillin.

Decongestant efficacy of desloratadine in patients with seasonal allergic rhinitis. Bachert, C. ENT Department, University Hospital Ghent, Belgium. *Allergy* (2001), Vol. 56 (Suppl 65), pp. 14–20.

Recent advances in experimental immunologic approaches to seasonal allergic rhinitis (SAR) have led to a shift in the concepts of its pathogenesis. The conventional view of SAR as a local response to inhaled allergens has largely given way to a new view of this disorder as a systemic condition with local tissue manifestations. This concept, together with an increasing recognition of specific mediators' distinct roles in driving the early- and late-phase allergic responses, has opened multiple lines of therapeutic attack within the allergic cascade. Potent inhibition of inflammatory mediator release at distinct points in this cascade is conferred by desloratadine. In addition to the familiar range of SAR symptoms amenable to antihistamine therapy, desloratadine uniquely attenuates patient ratings of nasal congestion. This novel, non-sedating histamine H1-receptor antagonist is the only once-daily antiallergic product with a consistent decongestant effect that begins within hours of the first morning dose and is sustained for the entire treatment period.

The effect of intranasal fentanyl on the emergence characteristics after sevoflurane anesthesia in children undergoing surgery for bilateral myringotomy tube placement. Finkel, J. C., Cohen, I. T., Hannallah, R. S., Patel, K. M., Kim, M. S., Hummer, K. A., Choi, S. S., Pena, M., Schreiber, S. B., Zalzal, G. Department of Anesthesiology, Children's National Medical Center and George Washington University Medical Center, 111 Michigan Ave., Washington, DC 20010, USA. *Anesthesia and Analgesia* (2001) May, Vol. 92 (5), pp. 1164–8.

Children undergoing placement of bilateral myringotomy tubes (BMT) often exhibit pain-related behaviour (agitation) in the postanaesthesia care unit. We compared the emergence and recovery profiles of pediatric patients who received sevoflurane with or without supplementary intranasal fentanyl for BMT surgery. By using a prospective, double-blinded design, 150 children six mo to five years of age, scheduled for routine BMT surgery, were anesthetized with sevoflurane (two to three per cent) in a 60 per cent N(2)O/O(2) gas mixture. Patients were randomized to receive equal volumes of intranasal saline (Control), one microg/kg fentanyl or two microg/kg fentanyl. A blinded observer evaluated each patient using a previously described four-point agitation scale and the Steward recovery scale. Response to parental presence was observed after a score of six (full recovery) was achieved on the Steward recovery scale. There were no significant differences among the three groups regarding age, weight, surgeon, duration of anesthesia, or ear

condition. Recovery times and emergence characteristic scores were not statistically different. Agitation scores were significantly reduced in the two microg/kg Fentanyl group as compared with the Control group ($p=0.012$). Fentanyl two microg/kg is recommended to reduce the incidence of agitation or discomfort after placement of bilateral myringotomy tubes in 150 children aged six mo to five years using a prospective, double-blinded design. Fentanyl two microg/kg was found to reduce the incidence of agitation in these patients.

Intranasal mometasone furoate reduces late-phase inflammation after allergen challenge. Ciprandi, G., Tosca, M. A., Passalacqua, G., Canonica, G. W. Allergy Respiratory Diseases, Department of Internal Medicine, University of Genoa, Italy. *giocip@unige.it. Annals of Allergy, Asthma and Immunology* (2001) April, Vol. 86 (4), pp. 433–8.

BACKGROUND: Allergen specific nasal challenge (ASNC) is an optimal model to study the pathophysiologic mechanisms sustaining allergic inflammation, particularly the adhesion molecules promoting cellular infiltration of nasal mucosa. Topical corticosteroids have been accepted as a highly effective anti-inflammatory therapy for allergic rhinitis. **OBJECTIVE:** The aim of this double-blind, randomized, placebo-controlled study was the evaluation of inflammatory events, during the late-phase, after a two week treatment with nasal mometasone furoate (MF), 200 microg daily, or placebo, using the model of ASNC. **METHODS:** A total of 42 patients with allergic rhinitis underwent nasal challenge before and after treatment. The following parameters were evaluated at baseline, and six hours (late-phase) after ASNC; 1) nasal symptoms (rhinorrhoea, itching, sneezing, obstruction); 2) inflammatory cells (eosinophils and neutrophils); 3) eosinophil cationic protein (ECP) and tumour necrosis factor-alpha (TNF-alpha) in nasal lavage; and 4) intercellular adhesion molecule-1 expression on late-phase reductions of: 1) clinical symptoms ($p<0.03$); 2) eosinophil ($p<0.004$) and neutrophil ($p<0.003$) infiltration; 3) ECP ($p<0.001$) and TNF-alpha ($p<0.05$); and 4) intercellular adhesion molecule-1 expression on nasal epithelial cells ($p<0.001$). **CONCLUSIONS:** The present results demonstrate that MF has a significant effect on late-phase events, reducing the cellular influx and activation.

Gastroesophageal reflux and pediatric otolaryngologic disease: the role of antireflux surgery. Suskind, D. L., Zeringue, G. P. 3rd, Kluka, E. A., Udall, J., Liu, D. C. Department of Otolaryngology, Louisiana State University Medical Center at New Orleans, 70118, USA. *susliu@lsuhsc.edu. Archives of Otolaryngology-Head and Neck Surgery* (2001) May, Vol. 127 (5), pp. 511–4.

OBJECTIVE: To determine the role of antireflux surgery in the treatment of gastroesophageal reflux-induced otolaryngologic disease (GEROD). **DESIGN:** A retrospective medical record analysis was performed. Patient demographics, otolaryngologic disease secondary to gastroesophageal reflux (GER), method of GER diagnosis, medical treatment used before antireflux surgery, and response to surgical intervention were considered. **SETTING:** Tertiary care children's hospital. **PATIENTS:** Among patients undergoing antireflux surgery between January 1, 1996, and December 31, 1999, children with GEROD were included in the study. **INTERVENTIONS:** Children with GEROD who failed medical therapy underwent antireflux surgery. **MAIN OUTCOME MEASURES:** The demographics of patients requiring antireflux surgery for treatment of their otolaryngologic disease and their clinical response to surgery were reviewed. **RESULTS:** Fourteen (17 per cent) of 82 children, ranging in age from 48 days to three years (mean age, 9.7 months), who underwent antireflux surgery for GER at our institution between 1996 and 1999 were diagnosed as having GEROD. Twelve (86 per cent) of the 14 patients were found to have upper airway abnormalities, including subglottic oedema, fixed subglottic stenosis, reflex apnoea, and recurrent croup. Two patients (14 per cent) had severe chronic sinusitis and otitis media. Nine (64 per cent) of the 14 had normal neurologic function for their age vs five (36 per cent) who had neurologic impairment. After antireflux surgery, all 14 patients with GEROD had complete resolution of clinical symptoms. **CONCLUSIONS:** Gastroesophageal reflux has an important role in the cause of numerous otolaryngologic disorders. Although medical management should remain the mainstay of GER therapy, antireflux surgery provided definitive and successful treatment of potentially life-threatening manifestations of GEROD.

Low cord blood pneumococcal antibody concentrations predict more episodes of otitis media. Becken, E. T., Daly, K. A., Lindgren, B. R., Meland, M. H., Giebink, G. S. Otitis Media Research Center, MMC 396, University of Minnesota, Minneapolis 55455, USA. *Archives of Otolaryngology-Head and Neck Surgery* (2001) May, Vol. 127 (5), pp. 517–22.

OBJECTIVE: To determine if cord blood anticapsular polysaccharide pneumococcal IgG antibody concentration was related to the number of otitis media (OM) and acute OM episodes during the first year of life. **DESIGN:** Prospective study following infants from birth to 24 months. **SETTING:** Health maintenance organizations. **PATIENTS:** The study population consisted of 415 infants whose mothers volunteered for the study during pregnancy. Cord blood samples were collected and infants were followed up for OM in the health maintenance organization. Ninety-seven per cent of the infants were white, 49 per cent male, three per cent from households with annual incomes of less than \$20 000, and 30 per cent from households with annual incomes of more than \$60 000. **MAIN OUTCOME MEASURE:** Number of physician-diagnosed OM episodes, including both OM with effusion and acute OM, and acute OM episodes from birth to 12 months. **RESULTS:** With univariate analysis, low cord blood antibody concentrations against serotypes three and 19F predicted more acute OM episodes ($p=0.04$ and $p=0.05$, respectively) over the first year of life. With Poisson regression, which adjusted for variables related to the recurrence of OM and having low cord blood antibody concentrations, serotype 19F remained significantly related to the number of OM episodes (relative risk for lowest quartiles vs upper three quartiles 1.23; 95 per cent confidence interval, 1.02–1.50; $p=0.03$). **CONCLUSIONS:** Low cord blood antibody concentrations to serotype 19F predicted more OM episodes over the first 12 months of life. These results suggest the potential benefit of maternal immunization to raise neonatal antipolysaccharide pneumococcal antibody concentration and delay the onset and reduce the number of OM episodes.

Evaluation of esterified hyaluronic acid as middle ear-packing material. Li, G., Feghali, J. G., Dinces, E., McElveen, J., van de Water, T. R. Department of Otolaryngology, Albert Einstein College of Medicine, Bronx, NY 10461, USA. *Archives of Otolaryngology-Head and Neck Surgery* (2001) May, Vol. 127 (5), pp. 534–9.

OBJECTIVE: To evaluate the efficacy of esterified hyaluronic acid (MeroGel) as a middle ear (ME)-packing material. **DESIGN:** Randomized controlled trial. **MATERIAL:** Twenty-four guinea pigs. **INTERVENTION:** Group 1, MeroGel-treated animals ($n=10$), bilateral wounding of ME mucosa with five of the animals receiving the MeroGel packing in the left ME and five of the animals receiving MeroGel in the right ME; group 2, absorbable gelatin sponge-treated animals ($n=10$), with the same experimental protocol as in group 1 except that the absorbable gelatin sponge was the packing material; group 3, untreated animals ($n=4$), unilateral wounding of the left ME mucosa in two animals and in two animals in the right ME, with no packing material. Auditory brainstem recordings were performed for all groups before the ME operation and five days and six weeks after the operation. **RESULTS:** Auditory brainstem response recordings at postoperative day five showed that all ears with ME packing had hearing losses in the frequency range of 500 to 4000 Hz. The recovery of hearing acuity at postoperative week six was significantly better in group 1 (MeroGel-sponge-treated) guinea pigs compared with group 2 (the absorbable gelatin sponge-treated) animals. In group 2 animals, 20 per cent of the packing material remained in the ME cavities and new bone formation was observed, while in group 1 animals, there was less packing material in the ME and no formation of new bone. **CONCLUSIONS:** MeroGel is a nonotoxic packing material with a high level of biocompatibility for ME mucosa; it is an effective supportive material following ME surgery and is easily expelled from the ME cavity.

Facial function in hearing preservation acoustic neuroma surgery. Arriaga, M. A., Chen, D. A. Pittsburgh Ear Associates, PA 15212, USA. *Archives of Otolaryngology-Head and Neck Surgery* (2001) May, Vol. 127 (5), pp. 543–6.

OBJECTIVE: To determine if facial function is worse after hearing preservation acoustic neuroma surgery (retrosigmoid and middle fossa) than in translabyrinthine surgery. **DESIGN:** Retro-

spective medical record review. **SETTING:** Private neuro-otology subspecialty practice of patients operated on in a tertiary care hospital. **PATIENTS:** This study evaluated 315 consecutive acoustic neuroma surgical procedures between April 1989 and July 1998. A total of 209 translabyrinthine procedures and 106 hearing preservation surgical procedures were performed. The hearing preservation procedures were equally divided between retrosigmoid ($n=48$) and middle fossa ($n=58$) procedures. **METHODS:** Medical records were reviewed and tabulated for tumour size, surgical approach, and House-Brackmann facial function grade at short-, intermediate-, and long-term intervals. **RESULTS:** Postoperative, facial function in hearing preservation surgical procedures at short- and long-term follow-up was not worse than facial function after translabyrinthine surgical procedures in comparably sized tumours. **CONCLUSION:** Concern about postoperative facial function should not be the deciding factor in selecting hearing preservation vs nonhearing preservation acoustic neuroma surgery.

Sphenoethmoid cerebrospinal fluid leak repair with hydroxyapatite cement. Costantino, P. D., Hiltzik, D. H., Sen, C., Friedman, C. D., Kveton, J. F., Snyderman, C. F., Gnoy, A. R. Center for Cranial Base Surgery, St Luke's-Roosevelt Hospital Center, New York, NY 10019, USA. pcostantino@slrhmc.org. *Archives of Otolaryngology-Head and Neck Surgery* (2001) May, Vol. 127 (5), pp. 588-93.

Despite advances in neurological, reconstructive, and endoscopic sinus surgery, sphenoethmoid cerebrospinal fluid (CSF) fistulae continually pose difficult management problems. Standard surgical techniques for fistulae closure succeed approximately 78 per cent to 90 per cent of the time. To improve this success rate, hydroxyapatite cement (HAC), a Food and Drug Administration-approved substance for cranial defect repair, was applied to this problem in a clinical setting. Twenty-one patients with spontaneous, posttraumatic, or postoperative CSF leaks of the sphenoid sinus, cribriform plate, or ethmoid region were treated with HAC. Study participants were prospectively accrued at five tertiary care medical centers in the eastern United States. The CSF leaks of all 21 patients treated with HAC were successfully sealed by its initial application. The sites of CSF leakage included the nasal cavity ($n=2$) and sphenoid sinus ($n=19$). Fifteen of the patients had previously undergone a failed repair by standard methods. There have been no recurrent CSF leaks with a maximum follow-up of 72 months, and an average follow-up of 36 months. All patients have survived to date. The only HAC-related morbidity was the extrusion of the HAC when placed in the nasal cavity. Hydroxyapatite cement is an effective method of repair for postoperative, posttraumatic, and spontaneous sphenoid CSF leaks. The efficacy of HAC in sealing the CSF leak was unaffected by previous attempts at leak closure by standard methods or by its origin. Hydroxyapatite cement should not be applied transnasally for the treatment of an ethmoid region fistula owing to its high probability of extrusion. Correct patient selection and technical familiarity with HAC are necessary for successful application.

Lesson of the week: "High" ear piercing and the rising incidence of perichondritis of the pinna. Hanif, J., Frosh, A., Marnane, C., Ghufoor, K., Rivron, R., Sandhu, G. Ear, Nose and Throat Department, University Hospital of Wales, Cardiff CF14 4XW, UK. naid@hanif.com. *British Medical Journal* (2001), April 14, Vol. 322 (7291), pp. 906-7.

Identification of neonatal hearing impairment: summary and recommendations. Norton, S. J., Gorga, M. P., Widen, J. E., Folsom, R. C., Sininger, Y., Cone-Wesson, B., Vohr, B. R., Fletcher, K. A. Multi-Center Consortium on Identification of Neonatal Hearing Impairment, Seattle, Washington, USA. *Ear and Hearing* (2000) October, Vol. 21 (5), pp. 529-35.

OBJECTIVES: This article summarizes the results of a multi-centre study, "Identification of Neonatal Hearing Impairment," sponsored by the National Institutes of Health. The purpose of this study was to determine the performance characteristics of three measures of peripheral auditory system status, transient evoked otoacoustic emissions (TEOAEs), distortion product otoacoustic emissions (DPOAEs) and auditory brain stem responses (ABR), applied in the neonatal period in predicting hearing status at eight to 12 mo corrected age. **DESIGN:** The design and implementation of this study are described in the first

two articles in this series. Seven institutions participated in this study; 7179 infants were evaluated. Graduates of the neonatal intensive care unit and well babies with one or more risk factors for hearing loss were targeted for follow-up testing using visual reinforcement audiometry (VRA) at eight to 12 mo corrected age. Neonatal test performance was evaluated using the VRA data as the "gold standard". **RESULTS:** The major results of the study are described in the nine articles preceding this summary article. TEOAEs in response to an 80 dB pSPL click, DPOAEs in response to $L1=65$ and $L2=50$ dB SPL and ABR in response to a 30 dB nHL click performed well as predictors of permanent hearing loss of 30 dB or greater at eight to 12 mo corrected age. All measures were robust with respect to infant state, test environment and infant medical status. No test performed perfectly. **CONCLUSIONS:** Based on the data from this study, the 1993 National Institutes of Health Consensus Conference-recommended protocol – an OAE test followed by an ABR test for those infants failing the OAE test – would result in low referral rate (96 to 98 per cent). TEOAEs for 80 dB pSPL, ABR for 30 dB nHL and DPOAEs for $L1=65$ dB SPL and $L2=50$ dB SPL perform well in predicting hearing status based on the area under the relative operating characteristic curve. Accuracy for the OAE measurements are best when the speech awareness threshold or the pure-tone average for 2.0 kHz and 4 kHz are used as the gold standard. ABR accuracy varies little as a function of the frequencies included in the gold standard. In addition, 96 per cent of those infants returning for VRA at eight to 12 mo corrected age were able to provide reliable ear-specific behavioural thresholds using insert earphones and a rigorous psychophysical VRA protocol.

Observation option toolkit for acute otitis media. Rosenfeld, R. M. Department of Otolaryngology, State University of New York, Health Science Center at Brooklyn, 339 Hicks Street, Brooklyn, NY 11201, USA. richrosenfeld@msn.com. *International Journal of Pediatric Otorhinolaryngology* (2001), April 6, Vol. 58 (1), pp. 1-8. The observation option for acute otitis media (AOM) refers to deferring antibiotic treatment of selected children for up to three days, during which time management is limited to analgesics and symptomatic relief. With appropriate follow-up complications are not increased, and clinical outcomes compare favourably with routine initial antibiotic therapy. Although used commonly in the Netherlands and certain Scandinavian countries, this approach has not gained wide acceptance in Europe and the United States. This article describes an evidence-based toolkit developed by the New York Region Otitis Project for judicious use of the observation option. The toolkit is not intended to endorse the observation option as a preferred method of management, not is it intended as a rigid practice guideline to supplant clinician judgement. Rather, it presents busy clinicians with the tools needed to implement the observation option in everyday patient care should they so desire.

New method for coating tympanostomy tubes to prevent tube occlusions. Kinnari, T. J., Salonen, E. M., Jero, J. Department of Otolaryngology, Helsinki University Central Hospital, P. O. Box 220, FIN-00029 HUCH Helsinki, Finland. teemu.kinnari@hus.fi. *International Journal of Pediatric Otorhinolaryngology* (2001) April 27, Vol. 58 (2), pp. 107-11.

OBJECTIVE: Tympanostomy tube insertion is currently the most common surgical procedure requiring general anaesthesia performed on children. Occlusion of the tube and prolonged otorrhoea through the tube are typical problems associated with the use of middle-ear ventilation tubes. In this study, a new method for coating ventilation tubes is introduced that prevents occlusion of the tube lumen by granulation tissue, blood clot or pus. **METHODS:** human serum albumin (HSA) was used to coat standard tympanostomy tubes of different materials. Fibronectin, a typical protein in serum and exudates and one of the most adhesive glycoproteins, was used as a model representative of exudates of the ear. **RESULTS:** when compared with the binding on uncoated tubes, the binding of fibronectin on HSA-coated tubes was inhibited from 59 to 85 per cent, depending on the tube material used. **CONCLUSIONS:** HSA-coating markedly reduced the binding of fibronectin on tube surfaces *in vitro*. The study shows the potential role of HSA-coating in preventing the adherence of foreign material to tympanostomy tubes and reducing tube occlusions.