The Journal of Laryngology and Otology
August 1995, Vol. **109,** pp. 798–801

Abstract Selection

Pharyngeal edema caused by occupational exposure to cellulase enzyme. Hytonen, M., Vanhanen, M., Keskinen, H., Tuomi, T., Tupasela, O., Nordman, H. Institute of Occupational Health, Helsinki, Finland. *Allergy* (1994) October, Vol 49 (9), pp 782–4.
Enzymes can cause allergic asthma and rhinitis. Although patients sometimes complain of symptoms in their throat, we have not been able to find any published report of pharyngeal edema caused by exposure to enzymes. We present the case of a maintenance foreman who worked in a factory producing enzymes, and who had pharyngeal edema, asthma, and rhinitis at work. Prick tests for cellulase enzyme and cellulase RAST were positive. The causal association between his pharyngeal symptoms and cellulase was demonstrated with inhalation provocation tests in an exposure chamber. Author.

Magnetic resonance imaging and computed tomography features of nasopharyngeal carcinoma with maxillary sinus involvement. Chong, V. F., Fan, Y. F., Toh, K. H., Khoo, J. B., Lim, T. A. Department of Diagnostic Radiology, Singapore General Hospital. *Australasian Radiology* (1995) February, Vol 39 (1), pp 2–9.
Anterior spread of nasopharyngeal carcinoma (NPC) may infiltrate the maxillary sinus. In a prospective study of 114 patients comparing magnetic resonance imaging (MRI) and computed tomography (CT) in the staging of NPC, 10 (9 per cent) patients were noted to have tumour infiltration of the maxillary sinuses. All of the patients except one had associated infiltration of the sphenoidal sinuses indicating advanced local spread. Computed tomography was excellent in outlining the extent of bony erosion and associated soft tissue mass within the antra. T1-weighted images could not demonstrate bony erosions directly although soft tissue extension into the sinuses could be clearly visualized. Both CT and MRI showed good demarcation between tumour and mucosal thickening within the maxillary sinus. Although MRI demonstrated soft tissue involvement more elegantly than CT, it did not appear to offer significantly more information that may affect clinical management. Author.

Simultaneous measurement of tinnitus pitch and loudness. Penner, M. J., Saran, A. Psychology Department, University of Maryland at College Park. *Ear and Hearing* (1994) December, Vol 15 (6), pp 416–21.
OBJECTIVE: Simultaneous measures of the frequency and level of a pure tone matching the predominant pitch and loudness of tinnitus were obtained using four interleaved staircases. DESIGN: Two staircases in a forced-choice procedure tracked two frequencies, one higher and one lower than the predominant pitch of the tinnitus, while two staircases tracked two levels, one louder and one softer than the tinnitus. RESULTS: The standard deviation of the pitch matches to tinnitus using the forced-choice procedure with four staircases (4SFC) exceeded that from a double staircase (2SFC) task in which the level of the matching tone was fixed, whereas the 2SFC and 4SFC tasks had similar SDs for loudness matches to tinnitus when the frequency of the matching tone was fixed and for matches to the pitch or loudness of external tones. As the level of the tone matching the tinnitus pitch in the 4SFC task increased relative to that of the 2SFC task, so did its frequency. CONCLUSION: These data may be interpreted as indicating that tinnitus is a fluctuant signal, and that matches of pure tones to tinnitus are not single-valued. Author.

Assessment of an implementation of a narrow band, neonatal otoacoustic emission screening method. Brass, D., Watkins, P., Kemp, D. T. Institute of Laryngology and Otology, London, United Kingdom. *Ear and Hearing* (1994) December, Vol 15 (6), pp 467–75.
OBJECTIVE: To validate a narrow band method for the detection of transient evoked otoacoustic emissions (TEOAEs) in neonates. DESIGN: A method for the assessment of TEOAEs was implemented. The method was based upon assessing the estimated signal to noise ratio of a narrow band of TEOAEs from 1.6 kHz to 2.8 kHz. This method was tested against a commercially available broad band TEOAE test, the Otodynamics ILO88 in quickscreen mode. Trials were performed on 162 ears from a group of normal neonates aged from 3 to 6 wk. RESULTS: The sensitivity of the method was 100% and its specificity was 92 per cent, against the ILO88 test when looking for the absence of TEOAEs. When the ILO88 test was limited in time so that the number of undetected TEOAEs from both tests were similar, the narrow band test took 40 per cent less time than the ILO88 test. CONCLUSIONS: The narrow band TEOAE detection method, as implemented here, did not miss any neonate ears without TEOAEs. However, the narrow band test did not detect TEOAEs in 8 per cent of the group in which TEOAEs were detected by the ILO88. With a two-stage screening test and a 0.6 per cent incidence of sensorineural hearing loss, it is predicted that 1.9 per cent of neonates with TEOAEs would be misclassified, by the narrow band test. (It is predicted that the ILO88 quickscreen test would misclassify 1.1 per cent under the same conditions.) The test is faster and easier to perform than the broad band ILO88 test. Author.

Neurophysiological model of tinnitus: dependence of the minimal masking level on treatment outcome. Jastreboff, P. J., Hazell, J. W., Graham, R. L. University of Maryland School of Medicine, Department of Surgery, Baltimore 21201. *Hearing Research* (1994) November, Vol 80 (2), pp 216–32.
Validity of the neurophysiological model of tinnitus (Jastreboff, 1990), outlined in this paper, was tested on data from multicentre trial of tinnitus masking (Hazell *et al.*, 1985). Minimal masking level, intensity match of tinnitus, and the threshold of hearing have been evaluated on a total of 382 patients before and after 6 months of treatment with maskers, hearing aids, or combination devices. The data has been divided into categories depending on treatment outcome and type of approach used. Results of analysis revealed that: (i) the psychoacoustical description of tinnitus does not possess a predictive value for the outcome of the treatment; (ii) minimal masking level changed significantly depending on the treatment outcome, decreasing on average by 5.3 dB in patients reporting improvement, and increasing by 4.9 dB in those whose tinnitus remained the same or worsened; (iii) 73.9 per cent of patients reporting improvement had their minimal masking level decreased as compared with 50.5 per cent for patients not showing improvement, which is at the level of random change; (iv) the type of device used has no significant impact on the treatment outcome and minimal masking level change; (v) intensity match and threshold of hearing did not exhibit any significant changes which can be related to treatment outcome. These results are fully consistent with the neurophysiological interpretation of mechanisms involved in the phenomenon of tinnitus and its alleviation. Author.

Artifacts associated with acoustic rhinometric assessment of infants and young children: a model study. Buenting, J. E., Dalston, R. M., Smith, T. L., Drake, A. F. Division of Otolaryngology/Head and Neck Surgery, University of North Carolina School of Medicine, Chapel Hill 27599-7070. *Journal of Applied Physiology* (1994) December, Vol 77 (6), pp 2558–63.
The present study was undertaken to determine in model studies whether currently available acoustic rhinometry instrumentation might be used to analyze the nasal cavity configuration of infants and children. A simple nasal cavity model was constructed using eight

Lucite inserts that were placed between standard nosepieces provided by the manufacturer and a 35-cm-long polyvinyl chloride pipe closed at its distal end. To simulate the nasal valve, the inserts were 12 mm in length and had apertures ranging in diameter from 2 to 9 mm. A series of experiments was conducted to evaluate the accuracy with which the acoustic rhinometer measured the size of each insert aperture and the configuration of the model system distal to that aperture. Transmission losses caused errors in the area measurement of the insert aperture and the tube distal to the insert. When the insert aperture was <6 mm in diameter (0.28 cm2), the aperture area was overestimated by >10 per cent, whereas the area of the distal tube was underestimated by >10 per cent. As a result of response lags, the acoustic rhinometer also failed to provide an accurate indication of insert length. Finally, oscillation artifacts caused estimates of the distal pipe area to fluctuate. These three systematic errors are described, and their potential impact on acoustic rhinometry in children is discussed. Author.

Randomized controlled trial of 3 vs 10 days of trimethoprim/sulfamethoxazole for acute maxillary sinusitis. Williams, J. W., Jr., Holleman D. R., Jr., Samsa, G. P., Simel, D. L. Ambulatory Care Service, Audie L. Murphy Memorial Veterans Hospital, San Antonio, TX 78284, USA. *JAMA* (1995) April 5, Vol 273 (13), pp 1015–21.
OBJECTIVE: To compare 14-day outcomes and relapse and recurrence rates among patients with acute maxillary sinusitis randomized to 3-day (3D) vs 10-day (10D) treatment with trimethoprim/sulfamethoxazole (TMP/SMX). SETTING: University-affiliated Veterans Affairs general medical and acute care clinics. PATIENTS: Consecutive patients with sinus symptoms and radiographic evidence of maxillary sinusitis (complete opacity, air-fluid level, or > or = 6 mm of mucosal thickening). Patients were excluded for antibiotic use within the past week, TMP/SMX allergy, symptoms for more than 30 days, or previous sinus surgery. METHODS: All subjects (n = 80) received oxymetazoline nasal spray 0.05 per cent, two sprays twice daily for 3 days. Subjects were randomly assigned to TMP/SMX double strength: one tablet twice daily for 10 days or one tablet twice daily for 3 days followed by 7 days of placebo. At 7 and 14 days, patients rated their overall sinus symptoms on a Likert scale. Radiographs were scored at baseline and 14 days by radiologists masked to clinical symptoms and treatment assignment. The primary outcome was number of days to 'cure' or 'much improvement' in sinus symptoms. Patients who were clinical successes by day 14 were assessed for symptomatic relapse or recurrence at 30 and 60 days, respectively. RESULTS: Groups were comparable at randomization: male, 100 per cent; black, 53 per cent; median age, 48 years (interquartile range, 41 to 63 years); symptom duration, 10 days (interquartile range, 6 to 17 days); bilateral maxillary disease, 51 per cent; and radiograph score, 4 (interquartile range, 2 to 4). Outcome assessment was completed in 95 per cent of patients at day 14 (n = 76). Medication side effects and use of nonstudy sinus medications were equal between groups. By 14 days, 77 per cent of 3D subjects and 76 per cent of 10D subjects rated their sinus symptoms as cured or much improved (95 per cent confidence interval for difference, −15 per cent to 17 per cent). Median days to cure/much improvement were 5.0 and 4.5 for the 3D and 10D groups, respectively; distributions of time to cure were not different (P = 0.34). Radiograph scores improved in both groups compared with baseline (2 points; P<0.001), but improvement did not differ between groups (P = 0.31). Eight per cent of 3D subjects and 13 per cent of 10D subjects missed work due to sinus symptoms. Of the 52 patients who were clinical successes at 14 days and completed follow-up, three (11 per cent) of 27 3D subjects and one (4 per cent) of 25 10D subjects relapsed symptomatically by day 30; one (4 per cent) of 27 3D subjects and one (4 per cent) of 25 10D subjects suffered symptomatic recurrence between days 30 and 60 (P = 0.45 for the relapse and recurrence rates combined). CONCLUSION: At the 2-week follow-up, clinical symptoms and radiograph scores improved equally following 3 or 10 days of TMP/SMX plus oxymetrazoline nasal spray. Symptomatic relapse and recurrence were similar between groups. Three days of antibiotics were as effective as 10 days and, because of the high disease prevalence, hold the potential for substantial cost savings. Author.

US, CT, and MR imaging of neck lesions in children. Vazquez, E., Enriquez, G., Castellote, A., Lucaya, J., Creixell, S., Aso, C., Regas, J. Department of Radiology, Hospital Materno-Infatil and I.D.I. Vall d'Hebron, Barcelona, Spain. *Radiographics* (1995) January, Vol 15 (1), pp 105–22.
Neck lesions are common findings in paediatric patients and can be classified as congenital, vascular, inflammatory, or tumoral. They can be evaluated with ultrasonography (US), computed tomography (CT), and magnetic resonance (MR) imaging, either alone or in combination. US should be considered first for studying suspected congenital, vascular, and inflammatory lesions, although CT and MR imaging are best for demonstrating the extent of benign and malignant tumours and the presence or absence of bone erosion, vascular encasement, and airway compromise. MR imaging is also preferred for ruling out intracranial and intraspinal extension (e.g. as occurs in rhabdomyosarcoma and neuroblastoma, respectively). In the authors' experience, thyroglossal duct cysts and lymphangiomas are the most common congenital anomalies; jugular vein aneurysms are the most common vascular lesion; lymphadenitis is the most common inflammatory lesion; fibromatosis colli is the most common benign tumour or tumourlike condition; and lymphoma is the most common malignant neoplasm. Author.

Budesonide powder administration for the treatment of grass–pollen-induced allergic rhinitis. Pedersen, B., Larsen, B. B., Dahl, R., Hedbys, L., Mygind, N. Department of Respiratory Diseases, University Hospital of Aarhus, Denmark. *Allergy* (1994) December, Vol 49 (10), pp 855–60.
The new dry-powder inhaler system, Turbuhaler, has proved to be equivalent to metered-dose inhalers when used in the nose, and the objective of this study was to investigate the efficacy, dose-response effects, and safety of budesonide power given in the morning during the grass pollen season to patients with grass–pollen-induced allergic rhinitis. Of 190 randomized patients, 186 were treated and 180 completed this double-blind study, which comprised a four-week treatment period, preceded by a one-week run-in period. The patients were randomized to three parallel treatment groups: budesonide 400 micrograms, budesonide 200 micrograms, or placebo once in the morning. Assessment of efficacy, by comparing changes in mean scores of nasal symptoms from run-in to treatment, showed a statistically significant effect for all symptoms with active treatments, as compared with placebo. The mean reduction of symptom severity was more pronounced in the 400-micrograms group than in the 200-micrograms group, and this difference was statistically significant for runny nose (P<0.02) and combined nasal symptoms (P<0.02). Nasal peak-inspiratory flow improved significantly in both budesonide-treated groups, as compared with placebo (P<0.01 and P<0.01). During the treatment period, patients on active treatment showed, on average, a reduction of all nasal symptoms, whereas the placebo-treated patients, on average, showed an increase of nasal symptoms. Approximately 40 per cent in the high-dose group felt total control of rhinitis symptoms, as compared with 26 per cent in the low-dose group. There was no difference between budesonide- and placebo-treated groups in side-effects. Author.

Waardenburg syndrome type II: phenotypic findings and diagnostic criteria. Liu, X. Z., Newton, V. E., Read, A. P. Center for Audiology, Education of the Deaf and Speech Pathology, University of Manchester, United Kingdom. *American Journal of Medical Genetics* (1995) January 2, Vol 55 (1), pp 95–100.
The Waardenburg syndrome (WS) consists of at least two distinct autosomal dominant hereditary disorders. WS Type I has been mapped to the distal part of chromosome 2q and the gene identified as PAX3. Other gene(s) are responsible for WS Type II. Mapping WS Type II requires accurate diagnosis within affected families. To establish diagnostic criteria for WS Type II, 81 individuals from 21 families with Type II WS were personally studied, and compared with 60 personally studied patients from eight families with Type I and 253 cases of WS (Type I or II) from the literature. Sensorineural hearing loss (77 per cent) and heterochromia iridium (47 per cent) were the two most important diagnostic indicators for WS Type II. Both were more common in Type II than in Type I. Other clinical manifestations, such as white forelock and skin patches, were more frequent in Type I. We estimate the frequency of phenotypic traits and propose diagnostic criteria for WS Type II. In practice, a diagnosis of WS Type II can be made with confidence given a family history of congenital hearing loss and pigmentary disorders, where individuals have

been accurately measured for ocular distances to exclude dystopia canthorum. Author.

Treatment of velopharyngeal incompetence by the Furlow Z-plasty. Hudson, D. A., Grobbelaar, A. O., Fernandes, D. B., Lentin, R. Department of Plastic Surgery, Red Cross Children's Hospital, Cape Town, South Africa. *Annals of Plastic Surgery* (1995) January, Vol 34 (1), pp 23–6.
Velopharyngeal incompetence occurs in approximately 25 per cent of cases after primary palatoplasty. There is controversy regarding the best method of surgical management of velopharyngeal incompetence. Between 1986 and 1993, 13 children with velopharyngeal incompetence after primary palatoplasty underwent Furlow Z-plasty repair. All children were assessed by a speech therapist and with videofluoroscopy pre- and postoperatively. The Furlow Z-plasty was performed at a mean age of 7.8 years (range, 4–12 years). Eleven children achieved normal resonance, and all 13 demonstrated improved velopharyngeal function on videofluoroscopy. The Furlow Z-plasty is effective treatment for children with velopharyngeal incompetence. Author.

Three years of experience with the free vastus lateralis flap: an analysis of 30 consecutive reconstructions in maxillofacial surgery. Wolff, K. D., Howaldt, H. P. Department of Maxillofacial ~Plastic Surgery, Free University of Berlin, Germany. *Annals of Plastic Surgery* (1995) January, Vol 34 (1), pp 35–42.
Free vastus lateralis flaps for maxillofacial reconstruction were used in 30 patients. On the basis of its anatomy, this flap can be inserted as a musculocutaneous or musculofacial transplant in slim or normal-weight patients if extensive defects exist. The microvascular transfer is facilitated and accelerated by the long and high-calibre vascular pedicle and flap raising, which can be performed at the same time as tumour resection. We see indications for the musculocuntaeous transplant in almost all sections of the oral cavity, particularly for tongue reconstruction; the vastus lateralis flap can be inserted in a purely muscular form for defect coverage on the scalp in connection with split skin. The donor defect is minimal functionally and aesthetically, and the success rate is approximately 90 per cent for all flap transfers. Author.

Comparison of otoplasty techniques in the rabbit model. Rohrich, R. J., Friedman, R. M., Liland, D. L. Division of Plastic and Reconstructive Surgery, University of Texas Southwestern Medical Center, Dallas 75235-9132. *Annals of Plastic Surgery* (1995) January, Vol 34 (1), pp 43–7.
The relative merit of cartilage scoring versus suturing in otoplasty remains a subject of debate among leading plastic surgeons. We compared a variety of otoplasty techniques in 42 rabbit ears using anterior or posterior scoring, horizontal or vertical mattress sutures, and combinations of scoring and suturing. The ears were splinted with a right-angle fold for 10 postoperative days, and the animals were killed after 8 weeks. Suturing techniques, alone or in combination with scoring, maintained an angulation significantly closer to the desired 90 degrees than anterior or posterior cartilage scoring ($P<0.05$). The greatest accuracy and consistency were seen with horizontal mattress suturing, which provided an average angle ($\pm$ SD) of 86 $\pm$ 8.5 degrees. Histological analysis demonstrated a significant increase in cartilage hyperplasia with suturing alone, whereas the other techniques achieved only mild to moderate increases. Our findings support the usage of horizontal mattress sutures to create the antihelical fold in otoplasty. Author.

'Boomerang' rectus abdominis musculocutaneous free flap in head and neck reconstruction. Yamamoto, Y., Nohira, K., Minakawa, H., Sasaki, S., Yoshida, T., Sugihara, T., Shintomi, Y., Yamashita, T., Hosokawa, M., Ohura, T. Department of Plastic and Reconstructive Surgery School of Medicine, Hokkaido University, Sapporo, Japan. *Annals of Plastic Surgery* (1995) January, Vol 34 (1), pp 48–55.
Immediate head and neck reconstruction after cancer resection using the 'boomerang' rectus abdominis musculocutaneous (RAM) free flap was performed in 13 patients over the past two years. The skin paddle of the flap is designed as a boomerang shape based on the anatomical construction of the dominant perforators from the inferior epigastric vascular system. A versatile technique of the boomerang RAM flap provides effective use for reconstruction of the complex defects at the skull base, orbital, nasal cavity, paranasal sinuses, oropharynx, palate, buccal mucosa, tongue, floor of mouth, and neck. It also allows a reconstructive surgical team to elevate the flap simultaneously with a head and neck surgical team before the size and location of the defect are exactly determined and greatly reduces operating time. This flap will be a routine technique for immediate head and neck reconstruction after cancer resection. Author.

Simple surgical correction of Stahl's ear. Noguchi, M., Matsuo, K., Imai, Y., Furuta, S. Department of Plastic and Reconstructive Surgery, Shinshu University School of Medicine, Matsumoto, Japan. *British Journal of Plastic Surgery* (1994) December, Vol 47 (8), pp 570–2.
We describe a simple method of correction of the Stahl's ear deformity. The deformed portion of the auricular cartilage is cut into tiny pieces and put back into the abnormal area. The helix and the scapha are then moulded into a normal ear shape and maintained in position with a tie-over bolster. A gutta-percha splint is used for a further month. Over a three-year period, six Stahl's ear deformities in five patients were treated with this procedure. All patients were followed up for at least one year. We believe that this procedure can be applied to other partial auricular deformities as well. Author.

A 163-bp deletion at the C-terminus of the schwannomin gene associated with variable phenotypes of neurofibromatosis type 2. Kluwe, L., Pulst, S. M., Koppen, J., Mautner, V. F. Department of Neurological Surgery, University Hospital Eppendorf, Hamburg, Germany. *Human Genetics* (1995) April, Vol 95 (4), pp 443–6.
We have analyzed cDNA from a 46-year-old atypical neurofibromatosis type 2 (NF2) patient who had lumbar tumours, cataract and schwannomas of peripheral nerves but no vestibular schwannomas, and have identified a 163-bp deletion in the NF2 transcript. The deletion is predicted to remove 54, alter 15 and add four extra amino acids at the C-terminus of the NF2-gene product. The same deletion was found in her two daughters and in a three-year-old grandson. Bilateral vestibular schwannomas were detected in the two asymptomatic daughters, whereas no abnormality was found in the grandson. Author.

Bifurcations in an asymmetric vocal-fold model. Steinecke, I., Herzel, H. Humboldt-Universitat zu Berlin, Institut fur Theoretische Physik, Germany. *Journal of the Acoustical Society of America* (1995) March, Vol 97 (3), pp 1874–84.
A two-mass model of vocal-fold vibrations is analyzed with methods from nonlinear dynamics. Bifurcations are located in parameter plants of physiological interest (subglottal pressure, stiffness of the folds). It is shown that a sufficiently large tension imbalance of the left and right vocal fold induces bifurcations to subharmonic regimes, toroidal oscillations, and chaos. The corresponding attractors are characterized by phase portraits, spectra, and next-maximum maps. The relevance of these simulations for voice disorders such as laryngeal paralysis is discussed. Author.

Rare sites of melanoma: melanoma of the external ear. Benmeir, P., Baruchin, A., Weinberg, A., Nahlieli, O., Neuman, A., Wexler, M. R. Department of Plastic Surgery, Hadassah University Hospital, Jerusalem, Israel. *Journal of Craniomaxillofacial Surgery* (1995) February, Vol 23 (1), pp 50–3.
A small series of melanomas of the external ear is presented. The presentation in general was late and they varied from 2.6 mm to 4.8 mm in thickness. The outcome in most of the patients (nine patients) was bad and within three years only four survived. The fact that nine patients remembered having a nevus that suddenly changed to melanoma emphasizes the need for early removal of such nevi. Author.

Outcome analysis of acoustic neuroma management: a comparison of microsurgery and stereotactic radiosurgery. Pollock, B. E., Lunsford, L. D., Kondziolka, D., Flickinger, J. C., Bissonette, D. J., Kelsey, S. F., Jannetta, P. J. Department of Neurological Surgery, University of Pittsburgh Medical Center, Pennsylvania. *Neurosurgery* (1995), January, Vol 36 (1), pp 215–24; discussion 224–9.
Currently, microsurgical resection of acoustic neuromas by an

experienced, multidisciplinary team is thought to be the treatment of choice. During the past 20 years stereotactic radiosurgery has been used as an alternative to surgical removal. To compare the results of both microsurgery and stereotactic radiosurgery, we conducted a study of 87 patients with unilateral, previously unoperated acoustic neuromas with an average diameter less than 3 cm treated by the neurosurgical service during 1990 and 1991. Preoperative patient characteristics and average tumour size were similar between the treatment groups. State of the art microsurgical or radiosurgical techniques were used by experienced surgeons in both treatment groups. The treatment groups were compared based on cranial nerve preservation, tumour control, postoperative complications, patient symptomatology, length of hospital stay, total management charges, effect on employment status, and overall patient satisfaction. Stereotactic radiosurgery was more effective in preserving normal postoperative facial function ($P<0.05$), and hearing preservation ($P<0.03$) with less treatment associated morbidity ($P<0.01$). Effect on preoperative symptoms were similar between the treatment groups. Postoperative functional outcomes and patients' satisfaction of their tumour management were greater after stereotactic radiosurgery when compared to the microsurgical group, although they did not reach statistical significance ($P = 0.07$ and $P = 0.10$, respectively). Patients returned to independent functioning sooner after stereotactic radiosurgery ($P<0.001$). Hospital length of stay and total management charges were less in the radiosurgical group ($P<0.001$). When compared to microsurgical removal, stereotactic radiosurgery proved to be an effective and less costly management strategy of unilateral acoustic neuromas less than 3 cm in diameter. For many acoustic neuroma patients, stereotactic radiosurgery should be offered as an alternative management strategy. Author.

Contribution of asphyxia to the induction of hearing impairment in jaundiced Gunn rats. Silver, S., Kapitulnik, J., Sohmer, H. Department of Physiology, Hebrew University-Hadassah Medical School, Jerusalem, Israel. *Pediatrics* (1995) April, Vol 95 (4), pp 579–83.

OBJECTIVES: This study was designed to determine whether asphyxia contributes to the induction of hearing impairment during neonatal jaundice. METHODS: Asphyxia was induced in jaundiced and nonjaundiced Gunn rats on postnatal days 1 (low bilirubin levels) and 10 (elevated bilirubin levels). Auditory nerve-brainstem evoked response thresholds were assessed in 21- and 28-day and 3-month-old rats. RESULTS: Asphyxia by itself or jaundice by itself did not lead to any type of hearing impairment. However, the combination of both high plasma bilirubin levels and asphyxia in 10-day-old rats but not in 1-day-old rats was accompanied by a progressive hearing loss in these rats. CONCLUSIONS: the contributory effect of asphyxia on neonatal jaundice may have important clinical relevance if asphyxia, for example, respiratory distress, accompanies neonatal jaundice. Author.