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Abstract Selection

Delayed irradiation effects on nasal epithelium in patients with nasopharyngeal carcinoma. An ultrastructural study. Lou, P. J., Chen, W. P., Tai, C. C. Department of Otolaryngology, National Taiwan University Hospital, Taipei. *Annals of Otology, Rhinology and Laryngology* (1999) May, Vol. 108 (5), pp. 474–80.
The ostiomeatal complex is responsible for the clearance of most sinus secretions. To evaluate the delayed effects of irradiation. This study examined the infundibulum mucosa of 10 patients who developed sinusitis after receiving radiotherapy for nasopharyngeal carcinoma (NPC). Pathologic findings under the light microscope revealed an increased deposition of dense collagenous fibres in the lamina propria. The epithelial cells also transformed into a stratified arrangement and showed gradual reduction of cytoplasmic volume. Ultrastructural observations detected areas of ciliary loss, intercellular and intracellular vacuolation, and ciliary dysmorphism. Most of these pathologic findings were observed even in a patient 23 years after irradiation. The results presented herein suggest that radiotherapy may cause long-term damage to the nasal epithelium that may be responsible for the prolonged sinusitis of irradiated NPC patients.

Core cutter for harvesting cortical bone grafts for reconstructions of the ossicular chain. Mills, R. P., Drew, T. S. Department of Otolaryngology, Ninewells Hospital and Medical School, Dundee. *Annals of the Royal College of Surgeons of England* (1999) March, Vol. 81 (2), pp. 124–6.
Cortical bone autografts have been used to reconstruct the ossicular chain for more than 30 years. We describe a core cutter burr which facilitates the rapid harvesting of grafts which are suitable for a number of different types of reconstruction. The use of these grafts to reconstruct different defects of the ossicular chain is also presented.

New modification of hot-water irrigation in the treatment of posterior epistaxis. Stangerup, S. E., Dommerby, H., Siim, C., Kemp, L., Stage, J. Department of Otolaryngology, Gentofte University Hospital, Denmark. *Archives of Otolaryngology – Head and Neck Surgery* (1999) June, Vol. 125 (6), p. 686–90.
BACKGROUND: Tamponade treatment for epistaxis is painful and traumatic to the nasal mucosa, and may necessitate hospitalization for several days. Hot-water irrigation (HWI) was introduced as a treatment of epistaxis more than 100 years ago. In a previous study the treatment proved to be effective, less painful, and less traumatic, and required a shorter hospital stay than tamponade treatment. However, HWI has the risk of aspiration during treatment. To minimize this risk, a special catheter has been designed. OBJECTIVES: To evaluate the modified HWI and to compare the results with tamponade treatment, with respect to patient compliance, effectiveness, recurrence of bleeding, pain, complications, and length of hospital stay. PATIENTS: A total of 122 patients, hospitalized for posterior epistaxis, were randomized to receive either HWI or tamponade treatment. RESULTS: In the HWI group, 31 (55 per cent) of the patients could be discharged from the hospital after the initial treatment only, compared with 29 (44 per cent) of the patients treated with tamponade. Using a 10 cm visual analog scale, the mean pain score during treatment was 4.7 in the HWI group compared with 7.5 in the tamponade group. The mean hospital stay was 2.9 days for the HWI group vs 4.0 days for the tamponade group. After discharge from the hospital, necrosis or synechia was found on rhinoscopy in 12 patients (40 per cent) in the tamponade group compared with none in the HWI group. CONCLUSIONS: Compared with tamponade treatment, HWI is as effective, requires a significantly shorter hospital stay, is less traumatic to the nose, and is significantly less painful.

A prospective multicentre study in Sweden and Norway of mental distress and psychiatric morbidity in head and neck cancer patients. Hammerlid, E., Ahlner-Elmqvist, M., Bjordal, K., Biorklund, A., Evensen, J., Boysen, M., Jannert, M., Kaasa, S., Sullivan, M., Westin, T. Department of Otolaryngology and Head and Neck Surgery, Sahlgrenska University Hospital, Goteborg University, Sweden. *British Journal of Cancer* (1999) May, Vol. 80 (5–6), pp. 766–74.
A Swedish/Norwegian head and neck cancer study was designed to assess prospectively the levels of mental distress and psychiatric morbidity in a heterogeneous sample of newly diagnosed head and neck cancer patients. A total of 357 patients were included. The mean age was 63 years, and 72 per cent were males. The patients were asked to answer the HAD scale (the Hospital Anxiety and Depression scale) six times during one year. The number of possible or probable cases of anxiety or depression disorder was calculated according to standardized cut-offs. Approximately one-third of the patients scored as a possible or probable case of a major mood disorder at each measurement point during the study year. There were new cases of anxiety or depression at each time point. The anxiety level was highest at diagnosis, while depression was most common during treatment. Females were more anxious than males at diagnosis, and patients under 65 years of age scored higher than those over 65. Patients with lower performance status and more advanced disease reported higher levels of mental distress and more often scored as a probable or possible cases of psychiatric disorder. Our psychometric analyses supported the two-dimensional structure and stability of the HAD scale. The HAD scale seems to be the method of choice for getting valid information about the probability of mood disorder in head and neck cancer populations. The prevalence of psychiatric morbidity found in this study emphasizes the importance of improved diagnosis and treatment.

Investigations into the natural history of vestibular schwannomas. Mirz, F., Jorgensen, B., Fiirgaard, B., Lundorf, E., Pedersen, C. B. Department of Otorhinolaryngology, Arhus University Hospital, Denmark. *Clinical Otolaryngology* (1999) February, Vol. 24 (1), pp. 13–8.
In the period from 1977 to 1996 143 vestibular schwannomas were diagnosed in 138 patients in the County of Aarhus, Denmark. The natural history of vestibular schwannomas was observed in 50 patients with 52 tumours who did not undergo immediate surgical removal of their tumour due to small tumour size, advanced age, poor general health and the patients' refusal of surgery. The management included serial CT- or MR-imaging and complete otoneurological evaluation. The imaging interval was between six months and two years and depended on the recorded growth rate. Thirty-three (64 per cent) of the tumours showed continuous growth with a mean growth rate of 1.6 mm/year. In 11 (21 per cent) of the tumours the size was unchanged and eight (15 per cent) remitted. The last group consisted mainly of the largest tumours. Among the tumours with positive growth, 15 (45 per cent) had a growth rate of one mm/year or less. Generally, our findings showed that approximately two-thirds of all the tumours did not grow, were getting smaller or had a growth rate sufficiently small to be simply watched. Additionally, our results suggest that some symptomatic tumours will grow to a certain point whereupon stagnation or remission occurs.

Short-term benefits of grommet insertion in children. Issa, A., Bellman, M., Wright, A. Nuffield Centre, Royal National Throat, Nose and Ear Hospital, London, UK. *Clinical Otolaryngology* (1999) February, Vol. 24 (1), pp. 19–23.
It is commonly acknowledged that otitis media with effusion (OME) can cause behavioural disturbances and that this can be relieved by grommet insertion. However, this widely-held perception has not been documented in the literature. In this study parents were asked to complete a short behavioural questionnaire on the day of the admission and six weeks later. A total of 32 children admitted to the Day Care Unit for insertion of grommets

at The Royal National Throat, Nose and Ear Hospital, London, UK, were recruited. There was a significant behavioural change, evident by the difference in the scores before and after grommet insertion ($p<0.001$).

Twenty-four hour ambulatory nasal pH monitoring. Hehar, S. S., Mason, J. D., Stephen, A. B., Washington, N., Jones, N. S., Jackson, S. J., Bush, D. Department of Otorhinolaryngology/Head and Neck Surgery, University Hospital, Nottingham, UK. *Clinical Otolaryngology* (1999) February, Vol. 24 (1), pp. 24–5.
The nasal delivery of drugs, both for systemic and local use, is an expanding field with many drugs being delivered by this route. It is known that changes in pH can affect drug absorption but there is no data regarding intranasal pH over time. We present the results of 24-h ambulatory nasal pH monitoring in four subjects, each of whom had monitoring on two separate occasions. The apparatus consisted of a pH monitor with two electrodes, thus enabling us to take readings from one and four cm behind the anterior end of the inferior turbinate. Measurements were recorded every six seconds by the posterior electrode and every 30 s by the anterior electrode. The recording apparatus was worn around the subjects waist. Analysis of the results showed that there was no diurnal variation and no significant differences between the subjects. The mean pH from the anterior electrode was higher than that from the posterior (7.1 versus 6.6). The pH did not fluctuate with daily activities such as eating, drinking or sleeping. The results are interesting and may be of importance with regard to the design of formulations for nasal drug delivery systems.

The effect of severity of unilateral vestibular dysfunction on symptoms, disabilities and handicap in vertiginous patients. Bamiou, D. E., Davies, R. A., McKee, M., Luxon, L. M. Audiology Department, Great Ormond Street Hospital, London, UK. *Clinical Otolaryngology* (1999) February, Vol. 24 (1), pp. 31–8.
This study compares the symptoms, disabilities and handicap, as assessed by means of a questionnaire, in two groups of patients with a unilateral peripheral vestibular disorder: those with a total canal paresis and those with a partial canal paresis, as judged by the duration parameter using the Fitzgerald Hallpike caloric test in the absence of optic fixation. The results of the study indicate that the severity of dizziness, the Dizziness Index (severity × frequency) and the overall level of disabilities related to visual vertigo are less severe in unilateral profound or total loss of vestibular function than in unilateral mild vestibular loss.

The outcome of endoscopic sinus surgery: correlation with computerized tomography score and systemic disease. Sharp, H. R., Rowe-Jones, J. M., Mackay, I. S. Department of Otorhinolaryngology/Head and Neck Surgery, Charing Cross Hospital, London, UK. *Clinical Otolaryngology* (1999) February, Vol. 24 (1), pp. 39–42.
We have prospectively analyzed the outcome of patients undergoing endoscopic sinus surgery for chronic rhinosinusitis in relation to the Lund and Mackay system of scoring the preoperative computerized tomography scan for extent of disease, and also investigated the possible links of outcome to the presence or absence of systemic respiratory tract conditions which may relate to the pathogenesis of chronic rhinosinusitis. Statistical analysis of the data by Chi^2 test, unpaired t-test and logistic regression analysis has shown significant correlation between outcome at two years and preoperative computerized tomography scan score, but that the most statistically significant factor determining the success or failure of surgery is the presence of a systemic disease known to predispose to chronic rhinosinusitis.

Epley's manoeuvre for benign paroxysmal positional vertigo: a prospective study. Wolf, M., Hertanu, T., Novikov, I., Kronenberg, J. Department of Otorhinolaryngology/Head and Neck Surgery, Sheba Medical Center, Tel Hashomer, Israel. *Clinical Otolaryngology* (1999) February, Vol. 24 (1), pp. 43–6.
The treatment of benign paroxysmal positional vertigo (BPPV) by the Epley, canalith repositioning, manoeuvre was popularized following clinical reports which demonstrated a significant success rate. Benign paroxysmal positional vertigo is considered a self-limiting disease, yet only few authors have analyzed the effect of this manoeuvre in randomized, controlled terms. A prospective three year, controlled study of patients with BPPV of long duration (mean = six months) verified its benefit: the recovery course differed significantly between a group of 31 patients treated with the manoeuvre and a control group of 10 untreated patients. Symptoms subsided within 72 h in 35 per cent and within a week in 74 per cent of patients after one session of treatment. Only two treated patients (6.5 per cent) did not recover versus a 50 per cent failure rate among untreated patients ($p = 0.0005$). The rate of recovery was not affected by the duration of symptoms before initiation of treatment, or by the patient's age and gender.

The effects of oral pseudoephedrine on nasal patency in the common cold: a double-blind single-dose placebo-controlled trial. Taverner, D., Danz, C., Economos, D. Department of Clinical and Experimental Pharmacology, University of Adelaide, Australia. *Clinical Otolaryngology* (1999) February, Vol. 24 (1), pp. 47–51.
A placebo-controlled double-blind randomized trial was carried out to assess the efficacy of pseudoephedrine in relieving nasal congestion in the common cold. Fifty-four previously healthy persons who had a common cold for at least five days or less at the start of the study with moderate to severe nasal congestion were recruited, 52 completed the trial. Following a single dose of oral pseudoephedrine (60 mg capsule) or placebo, symptoms of congestion improved significantly compared with placebo at times 60, 90, 120 and 150 min after the dose. Total nasal minimum cross-sectional area and nasal volume measured by acoustic rhinometry increased significantly compared to placebo ($p = 0.018$ and $p = 0.003$, respectively) after the dose. There was no significant change in nasal area as measured by active posterior rhinomanometry after pseudoephedrine compared to placebo. We conclude that in the acute common cold, a single 60 mg dose of pseudoephedrine produces significant increases in the dimensions of the nasal cavity compared to placebo and this is associated with a reduction in the symptom of congestion.

Does a joint ultrasound guided cytology clinic optimize the cytological evaluation of head and neck masses? Robinson, I. A., Cozens, N. J. Department of Histopathology, Derbyshire Royal Infirmary, Derby, UK. *Clinical Radiology* (1999) May, Vol. 54 (5), pp. 312–6.
AIM: To compare the results of fine-needle aspiration (FNA) of head and neck masses performed in an ultrasound-guided cytology clinic (USGCC) staffed by a radiologist and pathologist to those obtained with specimens sent from other sources. METHODS: Comparison of broad-category FNA diagnoses (malignant, uncertain, benign or inadequate) with the patient's ultimate clinical or pathological outcome. Because FNA outcomes are semi-quantitative, accuracy of the procedure (the proportion of all tests resulting in a true- positive or negative fine-needle aspirate) is a better measure than sensitivity or specificity. Specimens (n = 292) from the first two years of the USGCC are compared with 600 specimens received from other sources over the previous four years. RESULTS: Accuracy was 23.4 per cent better for specimens from the USGCC compared with those obtained by clinician guided aspiration (83.9 per cent, 95 per cent CI 79.7–88.1 per cent, vs 60.5 per cent, 95 per cent CI 56.6–64.4 per cent). There was an 84 per cent reduction in inadequate specimens (from 21.5 per cent to 3.4 per cent). The proportion resulting in an uncertain result did not alter; 12 per cent for USGCC and 11.9 per cent for clinician-derived specimens. Improvement in accurate identification of salivary gland, lymph node, soft tissue and thyroid pathology was 27 per cent, 21.2 per cent, 18.3 per cent and 15.8 per cent respectively. CONCLUSIONS: The common practice of FNA performed by clinicians produces sub-optimal results in head and neck masses. A combined approach of ultrasound-guided fine-needle aspiration of head and neck masses, with immediate assessment of the material by a pathologist, is more accurate than with specimens obtained in other ways. If the results of FNA are to be incorporated into clinical decision making, the samples are best obtained using the USGCC model.

Central electrical stimulation of the auditory pathway in neurofibromatosis type 2. Laszig, R., Marangos, N., Sollmann, W. P., Ramsden, R. T. Department of Otolaryngology, University of Freiburg, Germany. *Ear, Nose, and Throat Journal* (1999) February, Vol. 78 (2), pp. 110–1, 115–7.
The auditory brainstem implant (ABI) is a viable treatment option for patients with neurofibromatosis type 2 (NF2) whom either vestibular schwannomas or the surgery used to remove them has reduced totally deaf. This device stimulates the central auditory

pathways in a hearing loss. A multichannel model with transcutaneous signal transmission is in use experimentally in both the United States and Europe. Of 14 patients implanted with the ABI in a European pilot study, 13 received auditory sensations at initial tuning. Surgical implantation of the ABI is generally, but not always, performed at the same time as tumour removal, with the preferred route being the transmastoid-translabyrinthine approach. After insertion, monitoring of the device is required to optimize the location of its electrode on the cochlear nucleus complex.

Management of neurofibromatosis type 2 (see comments). Bance, M., Ramsden, R. T. Department of Otolaryngology, Manchester Royal Infirmary, UK. *Ear, Nose and Throat Journal* (1999) February, Vol. 78 (2), pp. 91–4, 96. Comment in *Ear, Nose, and Throat Journal* (1999) February, 78 (2): 74.
Neurofibromatosis type 2 (NF2), an as-yet incurable disease that predisposes patients to multiple intracranial and spinal tumours, requires a team approach to treatment, because of its multisystem nature. Included on the team should be neuro-otologists, neurosurgeons, ophthalmologists, geneticists, audiologists, speech therapists and other rehabilitative personnel, including counsellors, psychologists and, occasionally, psychiatrists. The challenge is to arrive at a treatment strategy that preserves useful hearing and quality of life without increasing the risk of complications to the facial nerve or compromising neurologic status. Choosing the best treatment approach involves considering a complex set of competing factors that affect various aspects of the patient's outcome.

Neurofibromatosis type 2: genetic and clinical features. Evans, D. G. Department of Clinical Genetics, St Mary's Hospital, Manchester, England. *Ear, Nose, and Throat Journal* (1999) February, Vol. 78 (2), pp. 97–100.
For decades, neurofibromatosis type 2 (NF2) was misclassified with the more common neurofibromatosis type 1 (NF1), until 1987 when it was found via genetic linkage analysis that the gene for NF1 was localized to chromosome 17 and the gene for NF2 was localized to chromosome 22. Large, population-based studies have shown that vestibular schwannomas (VS), the hallmark of NF2, do not occur at increased frequency in patients with NF1. Typical clinical features of NF2 are bilateral VS or a family history of NF2, plus either unilateral VS or any two of the following: meningioma, glioma, neurofibroma, schwannoma or posterior subcapsular lenticular opacities. Presymptomatic genetic tests are now possible in the majority of families, and it is hoped that somatic gene therapy will be developed for the treatment of this disease.

Intensity-modulated radiotherapy: first results with this new technology on neoplasms of the head and neck. Kuppersmith, R. B., Greco, S. C., The, B. S., Donovan, D. T., Grant, W., Chiu, J. K., Cain, R. B., Butler, E. B. Bobby R. Alford Department of Otorhinolaryngology and Communicative Sciences, Baylor College of Medicine, Houston, TX 77030, USA. *Ear, Nose and Throat Journal* (1999) April, Vol. 78 (4), pp. 238, 241–6, 248.
Intensity-modulated beam radiotherapy (IMRT) delivers a highly conformal, three-dimensional (3-D) distribution of radiation doses that is not possible with conventional methods. When administered to patients with head and neck tumours, IMRT allows for the treatment of multiple targets with different doses, while simultaneously minimizing radiation to uninvolved critical structures such as the parotid glands, optic chiasm, and mandible. With 3-D computerized dose optimization, IMRT is a vast improvement over the customary trial-and-error method of treatment planning. We retrospectively reviewed the charts of the first 28 head and neck patients at our institution who were treated with IMRT. All had head and neck neoplasms, including squamous cell carcinoma, adenoid cystic carcinoma, paraganglioma, and angiofibroma. Total radiation doses ranged from 1,400 to 7,100 cGy, and daily doses ranged from 150 to 400 cGy/day. A quality assurance system ensured that computer-generated dosimetry matched film dosimetry in all cases. For midline tumours, this system allowed us to decrease the dose to the parotid glands to less than 3,000 cGy. The incidence of acute toxicity was drastically lower than that seen with conventional radiotherapy delivery to similar sites. This is the first report of the application of IMRT strictly to head and neck neoplasms. We discuss the indications, technique, and initial results of this promising new technology. We also introduce the concept of the Simultaneous Modulated Accelerated Radiation Therapy boost technique, which has several advantages over other altered fractionation schemes.

Carcinoma of the external auditory canal and middle ear. Pfreundner, L., Schwager, K., Willner, J., Baier, K., Bratenegier, K., Brunner, F. X., Flentje, M. Department of Radiation, Oncology, University of Wuerzburg, Germany. *International Journal of Radiation Oncology, Biology, Physics* (1999) July 1, Vol. 44 (4), pp. 777–88.
PURPOSE: To evaluate therapeutic modalities used at our institutions regarding local control, disease-free survival and actuarial survival in carcinoma of the external auditory canal and middle ear, in an attempt to provide guidelines for therapy. METHODS AND MATERIALS: A series of 27 patients with carcinoma of the external auditory canal and middle ear treated between 1978 and 1997 in our institutions were analyzed with particular reference to tumour size and its relation to surrounding tissues, patterns of neck node involvement, surgical procedures, and radiation techniques employed. Clinical endpoints were freedom from local failure, overall survival, and disease-free survival. The median follow-up was 2.7 years (range 0.1–17.9 years). RESULTS: Treatment by surgery and radiotherapy resulted in an overall five-year survival rate of 61 per cent. According to the Pittsburgh classification, the actuarial five-year survival rate for early disease (T1 and T2 tumours) was 86 per cent, for T3 tumours 50 per cent, and T4 stages 41 per cent. Patients with tumours limited to the external auditory canal had a five year survival rate of 100 per cent, patients with tumour invasion of the temporal bone 63 per cent, and patients with tumour infiltration beyond the temporal bone 38 per cent. The rate of freedom from local recurrence was 50 per cent at five years. Unresectability by dural and cerebral infiltration, and treatment factors such as complete resection or resection with tumour beyond surgical margins are of prognostic relevance. All patients with dural invasion died within 2.2 years. The actuarial five-year survival rate of patients with complete tumour resection was 100 per cent, but 66 per cent in patients with tumour beyond surgical margins. 192iridium high-dose-rate (HDR) afterloading branchytherapy based on three-dimensional computed tomography (3D CT)-treatment planning was an effective tool in management of local recurrences following surgery and a full course of external beam radiotherapy. CONCLUSION: Surgical resection followed by radiotherapy adapted to stage of disease and grade of resection is the preferred treatment of cancer of the external auditory canal and middle ear.

Comparison between observation policy and fractionated stereotactic radiotherapy (SRT) as an initial management for vestibular schwannoma (see comments). Shirato, H., Sakamoto, T., Sawamura, Y., Kagei, K., Isu, T., Kato, T., Fukuda, S., Suzuki, K., Soma, S., Inuyama, Y., Miyasaka, K. Department of Radiology, Hokkaido University School of Medicine, Sapporo, Japan. hshirato@radi.med.hokudai.ac.jp. *International Journal of Radiation Oncology, Biology, Physics* (1999) June 1, Vol. 44 (3), pp. 545–50. Comment in: *International Journal Radiation Oncology Biology Physics* (1999) June 1, 44 (3): 481–2.
PURPOSE: To compare the use of an observation policy with that of stereotactic radiotherapy (SRT) for treatment of vestibular schwannoma. METHODS AND MATERIALS: The study group consisted of 27 patients who underwent observation as an initial treatment (observation group) and 50 who received SRT (SRT group). The mean follow-up period was 35 months and 31 months, respectively. Stereotactic radiotherapy consisted of small-field fractionated radiotherapy (36–44 Gy in 20-22 fractions over six weeks) with or without a subsequent four Gy single irradiation boost. RESULTS: Actuarial tumour control rate of the SRT group was significantly better than that of the observation group ($p<0.0001$). The mean growth was 3.87 mm/year in the observation group and −0.75 mm/year in the SRT group ($p<0.0001$). Eleven patients (41 per cent) in the observation group and one (two per cent) in the SRT group received salvage therapy ($p<0.001$). There was no difference in the actuarial Gardner and Robertson's class preservation curves after five years after the initial presentation. CONCLUSION: Stereotactic radiotherapy using a fractionated schedule provides a better tumour control rate and a similar rate

of deterioration for hearing levels compared to an observation policy. Initial SRT may be a reasonable alternative to a wait-and-see policy.

Diagnostic criteria for sarcoidosis of the sinuses. deShazo, R. D., O'Brien, M. M., Justice, W. K., Pitcock, J. Division of Allergy and Clinical Immunology, School of Medicine, University of Mississippi Medical Centre, Jackson, MS, USA. *Journal of Allergy and Clinical Immunology* (1999) May, Vol. 103 (5 Pt 1), pp. 789–95.
BACKGROUND: Although newer technologies facilitate its diagnosis and treatment, little is known about sarcoidosis of the paranasal sinuses. OBJECTIVES: We sought to better characterize sarcoidosis of the sinuses and establish criteria for diagnosis. METHODS: Case-finding criteria were established, and over 50 reports of sarcoidosis of the sinuses in the medical literature were reviewed. Nine case reports of patients fulfilling the case-finding criteria were identified, as were six additional patients from our clinics. RESULTS: Nasal obstruction and chronic sinusitis were the usual initial complaints from patients and were associated with mucosal crusting, studding, plaque-like changes, or polyps in the nose in five of six of our patients. The most consistent finding in nose and sinuses was an erythematous, edematous, friable, hypertrophied mucosa. Like five of six of our patients, most patients had extra-pulmonary sarcoidosis involving multiple organs, but some had isolated upper respiratory disease. Radiologic studies showed extensive and often complete opacification of the sinuses and nose similar to that seen in diffuse polyposis associated with chronic bacterial and fungal sinusitis. No specific histopathologic findings distinguished sinus disease from those reported with pulmonary involvement. Pharyngeal involvement was present in two case reports and caused the apparent asphyxiation of one of our patients. CONCLUSION: Sarcoidosis of the sinuses should be considered in the differential diagnosis of sinusitis, especially in association with nasal polyposis, even when the sarcoidosis has not been otherwise diagnosed. On the basis of this experience, we propose diagnostic criteria for sarcoidosis of the sinuses. These include (1) radiologic evidence of sinusitis, (2) histopathologic confirmation of noncaseating granuloma in the sinus tissue supported by negative stains for fungus and acid-fast bacilli, (3) negative serologic test results for syphilis and antineutrophil cytoplasmic antibodies, and (4) no clinical evidence of other disease processes associated with granulomatous nasal and sinus inflammation. These criteria will provide the basis for further studies to assess both the natural history and the effectiveness of treatment in sarcoidosis of the sinuses.

Probability of bilateral disease in people presenting with a unilateral vestibular schwannoma. Evans, D. G., Lye, R., Neary, W., Black, G., Strachan, T., Wallace, A., Ramsden, R. T. Department of Medical Genetics, St Mary's Hospital, Manchester, UK. *Journal of Neurology, Neurosurgery and Psychiatry* (1999) June, Vol. 66 (6), pp. 764–7.
BACKGROUND: Some four to five per cent of those who develop vestibular schwannomas have neurofibromatosis type 2 (NF2). Although about 10 per cent of these patients present initially with a unilateral vestibular schwannoma, the risk for a patient with a truly sporadic vestibular schwannoma developing contralateral disease is unknown. METHODS: A United Kingdom survey of 296 patients with NF2 was reviewed for laterality of vestibular schwannoma at presentation and the presence of other NF2 related features. The time to presentation of bilateral disease was calculated for patients presenting with a unilateral tumour. Mutation analysis of the NF2 gene was carried out on all available cases presenting initially with unilateral disease. RESULTS: Of 240 patients with NF2 with vestibular schwannomas, 45 (18 per cent; 32 sporadic, 13 familial) had either a unilateral tumour or delay in detection between the first and contralateral tumours. Among those tested for NF2 mutations, eight of 27 and nine of 13 were identified among sporadic and familial cases respectively. Sporadic cases showed a high female to male ratio and 19 of 32 have not as yet developed a contralateral tumour (mean 4.1 years after diagnosis of the first). Thirteen of 32 sporadic patients developed a contralateral tumour (mean 6.5 years after the first tumour diagnosis, range 0–22 years) compared with 11 of 13 familial patients (mean delay five years, range 0-16 years). Seven of the 45 patients had neither a family history of NF2 nor evidence of related tumours at initial presentation (six before the age of 35 years). CONCLUSION: The risk of patients with sporadic unilateral vestibular schwannomata developing a contralateral tumour in the absence of family history or other tumours in addition to vestibular schwannoma are at high risk of harbouring an NF2 mutation in at least a proportion of their somatic cells.

A comparison of language achievement in children with cochlear implants and children using hearing aids. Tomblin, J. B., Spencer, L., Flock, S., Tyler, R., Gantz, B. Department of Speech Pathology and Audiology, The University of Iowa, Iowa City 52242, USA. J-Tomblin@UIOWA.EDU. *Journal of Speech, Language, and Hearing Research* (1999) April, Vol. 42 (2), pp. 497–509.
English language achievement of 29 prelingually deaf children with three or more years of cochlear implant (CI) experience was compared to the achievement levels of prelingually deaf children who did not have such CI experience. Language achievement was measured by the Rhode Island Test of Language Structure (RITLS), a measure of signed and spoken sentence comprehension, and the Index of Productive Syntax (IPSyn), a measure of expressive (signed and spoken) English grammar. When the CI users were compared with their deaf age mates who contributed to the norms of the RITLS, it was found that CI users achieved significantly better scores. Likewise, we found that CI users performed better than 29 deaf children who used hearing aids (HAs) with respect to English grammar achievement as indexed by the IPSyn. Additionally, we found that chronological age highly correlated with IPSyn levels only among the non-CI users, whereas length of CI experience was significantly correlated with IPSyn scores for CI users. Finally, clear differences between those with and without CI experience were found by two years of post-implant benefit in the form of improved English language comprehension and production.