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Abstract Selection

Effect of blood pressure changes on air flow dynamics in the upper airway of the decerebrate cat. Mayor, A. H., Schwartz, A. R., Rowley, J. A., Willey, S. J., Gillespie, M. B., Smith, P. L., Robotham, J. L. Sir Humphry Davy Department of Anaesthesia, Bristol Royal Infirmary, United Kingdom. *Anesthesiology* (1996) January, Vol 84 (1), pp 128–34.

BACKGROUND: Previous studies suggest that upper airway neuromuscular activity can be affected by changes in blood pressure via a baroreceptor-mediated mechanism. It was hypothesized that increases in blood pressure would increase upper airway collapsibility predisposing to airway obstruction at a flow-limiting site in the hypopharynx. METHODS: To examine the effect of blood pressure on upper airway function, maximal inspiratory air flow was determined through the isolated feline upper airway before, during, and after intravenous infusion of phenylephrine (10–20 micrograms kg^{-1} min) in six decerebrate, tracheotomized cats. Inspiratory flow, hypopharyngeal pressure, and pressure at the site of pharyngeal collapse were recorded as hypopharyngeal pressure was rapidly decreased to achieve inspiratory flow limitation in the isolated upper airway. Pressure-flow relationships were used to determine maximal inspiratory air flow and its mechanical determinants, the upper airway critical pressure (a measure of pharyngeal collapsibility), and the nasal resistance upstream to the site of flow limitation. RESULTS: An increased mean arterial blood pressure of 71 ± 16 mmHg (mean ± SD) was associated with significant decrease in mximal inspiratory air flow from 147 ± 38 ml/s to 115 ± 27 ml sec^{-1} ($p<0.01$). The decrease in maximal inspiratory air flow was associated with an increase in upper airway critical pressure from −8.1 ± 3.8 to −5.7 ± 3.7 cm H_2O ($p<0.02$), with no significant change in nasal resistance. When blood pressure was decreased to baseline by discontinuing the phenylephrine infusion, maximal inspiratory air flow and upper airway critical pressure returned to their baseline values. CONCLUSIONS: Increased blood pressure increased the severity of upper airway air flow obstruction by increasing pharyngeal collapsibility. Previous studies relating baroreceptor activity to neuromuscular regulation of upper airway tone, are consistent with this effect being mediated by afferent activity from baroreceptors. These findings warrant further study because they suggest the possibility that upper airway obstruction in postoperative patients could either be caused or exacerbated by an increase in blood pressure. Author.

Recognition and management of hot liquid aspiration in children. Sheridan, R. L. Shriners Burns Institute, Boston Unit, Massachusetts, USA. *Annals of Emergency Medicine* (1996) January, Vol 27 (1), pp 89–91.

Although infrequently reported, aspiration of hot liquid can occur in conjunction with upper-body scald burns, leading to acute compromise of the small paediatric airway with clinical features similar to those of acute infectious epiglottitis. This can be a very difficult problem if subtle signs of impending airway compromise are not appreciated. Reported here are four such cases managed over a three-year period at a regional paediatric burn centre, emphasizing points of history and physical examination that facilitate early recognition of this life-threatening problem. Aspiration of hot liquid should be suspected in children with burns in or around the mouth, particularly if there are any subtle signs of upper airway oedema. If this complication is suspected, immediate endotracheal intubation should be performed in those with acute respiratory embarrassment, and prompt investigation by direct laryngoscopy in the operating room is appropriate in those who have not developed overt respiratory distress. Author.

Lemierre's syndrome: a case of postanginal septicemia and bilateral flank abscesses. Karanas, Y. L., Yim, K. K., Shuster, B. A., Lineaweaver, W. C. Department of General Surgery, Stanford University Medical Center, CA 94305, USA. *Annals of Plastic Surgery* (1995) November, Vol 35 (5), pp 525–8.

Lemierre's syndrome is characterized by pharyngeal infections in young healthy adults with secondary septic thrombophlebitis and multiple metastatic infections. In the preantibiotic era, Lemierre's syndrome was common and lethal. With the advent of antibiotics, Lemierre's syndrome has become such a rare entity that the diagnosis is often delayed or missed. With prompt recognition, appropriate antibiotic therapy, and surgical drainage of metastatic abscesses, the majority of patients can be cured. A case of Lemierre's sydnrome in a 22-year-old previously healthy man treated on a plastic surgery service is presented. Surgeons who can be consulted for deep space infections should be aware of this disease so that the diagnosis and treatment can be initiated promptly to prevent patients from succumbing to this life-threatening but curable disease. Author.

Rhinocerebral mucormycosis. Therapy with amphotericin B lipid complex. Strasser, M. D., Kennedy, R. J., Adam, R. D. University of Arizona, College of Medicine, USA. *Archives of Internal Medicine* (1996) February 12, Vol 156 (3), pp 337–9.

Rhinocerebral mucormycosis with intracranial involvement has a high mortality. The standard therapy consists of aggressive surgical debridement accompanied by high doses of amphotericin B deoxycholate. Even with this therapy, the mortality rate has been 48 per cent in the series reported since 1980. We treated a 60-year-old diabetic woman with rhinocerebral mucormycosis involving the cavernous sinus whose infection responded to medical therapy with amphotericin B lipid complex. To our knowledge, this is the only well-documented medical cure of a patient with rhinocerebral mucormycosis and intracranial involvement. Author.

Cochlear implants in China. Zeng, F. G. House Ear Institute, Los Angeles, CA 90057, USA. *Audiology* (1995) March–April, Vol 34 (2), pp 61–75.

China has approximately six million totally deaf people according to an official survey conducted in 1990, although the actual number is probably higher. A primary cause of deafness is the use of ototoxic drugs. There does not appear to be any emergent deaf culture in China at present. As the only available medical device that can restore partial hearing to a totally dead person, the cochlear implant has been in development in China since 1979. This paper provides an overview of cochlear implants in China and is based on a review of published materials, visits to research institutes and hospitals, and personal communciation with Chinese colleagues. As of 1993, about 1000 deaf people, including 50 children below age 12 years, have received four types of single-electrode cochlear implants that were developed and fabricated by institutions in China. These single-electrode devices have provided an aid to lip reading, but are no longer in use due to their inability to produce open-set speech recognition. Present implant research in China focuses on development of multi-electrode devices. Basic research in electrical stimulation is relatively lacking and standardized audiological evaluation for cochlear implant effectiveness needs to be developed. The present economic growth and legal system reform in China, combined with advances in implant technology, may make it possible to produce an affordable yet effective cochlear implant system. This paper discusses cochlear implants only in China, but the social and economic factors are similar in many developing countries in Asia, South America, Eastern Europe, and Africa, where a low-cost, high-performance cochlear implant system is also needed. Author.

Application of the Audioscan in the detection of carriers of genetic hearing loss. Stephens, D., Meredith, R., Sirimanna, T., France, L., Almqvist, C., Haugen, H. Welsh Hearing Institute, University Hospital of Wales, Cardiff, UK. *Audiology* (1995) March–April, Vol 34 (2), pp 91–7.
The authors describe the establishment of normative stimulus parameters for the Audioscan, an automated sweep frequency audiometer, for its application in the detection of audiometric notches in carriers of recessive genetic hearing loss. A sweep rate of 30 s/octave over the frequency range 300 to 4000 Hz pulsing at 2.5 pulses/s at −5 dB with a step size of 5 dB were ultimately adopted. The criterion for notches was 15 dB or greater within the frequency range 500–3000 Hz. Adopting this criterion, 14.2 per cent of control subjects had notches. Among parents of children with non-syndromal recessive hearing loss 55 per cent were found to have notches. Notches were found more frequently among mothers and sisters than among fathers and brothers of the patients. Author.

Interferon-induced sudden hearing loss. Kanda, Y., Shigeno, K., Matsuo, H., Yano, M., Yamada, N., Kumagami, H. Department of Otolaryngology, Nagasaki University School of Medicine, Japan. *Audiology* (1995) March–April, Vol 34 (2), pp 98–102.
With the increasing long-term use of interferon (IFN), several new adverse effects have been recognized. Very little attention, however, has been paid to auditory acuity. We encountered three cases of sudden hearing loss associated with IFN. We then conducted a prospective study to assess the auditory function of 73 patients receiving IFN. Auditory disability (tinnitus and/or hearing loss) occurred in 32 patients (43.8 per cent) during IFN therapy, among which audiometry documented sensorineural hearing loss in 27 cases (36.9 per cent); 17 (48.6 per cent) of the 35 patients receiving IFN-beta had auditory disability, including hearing loss in 13 cases (37.1 per cent), and 15 (39.5 per cent) of 38 patients receiving IFN-alpha suffered from auditory disability. There was not much difference between the influences of IFN-alpha and -beta. Auditory disability frequently developed in the later stages of treatment, and most patients recovered 7–14 days after the discontinuation of IFN. The results demonstrate that sudden hearing loss can occur as a side effect of treatment with IFN. This may reveal the association between autoimmunity and sudden hearing loss. Author.

Effect of intranasal fluticasone proprionate on the immediate and late allergic reaction and nasal hyperreactivity in patients with a house dust mite allergy. de Graaf in t Veld, C., Garrelds, I. M., Jansen, A. P., Van Toorenenbergen, A. W., Mulder, P. G., Meeuwis, J., Gerth van Wijk, R. Department of Allergology, University Hospital Rotterdam-Dijkzigt, The Netherlands. *Clinical Experiments in Allergy* (1995) October, Vol 25 (10), pp 966–73.
BACKGROUND: Patients with perennial allergic rhinitis develop nasal symptoms not only after allergen exposure, but generally also after non-specific stimuli. OBJECTIVE: To evaluate the effect of two weeks' treatment with fluticasone proprionate aqueous nasal spray (FPANS) on the nasal clinical response, inflammatory mediators and nasal hyperreactivity. METHODS: Twenty-four rhinitis patients allergic to house dust mite (HDM), participated in a double-blind, placebo-controlled crossover study. After two weeks' treatment with placebo or 200 micrograms FPANS twice daily, patients were challenged with HDM extract. Symptoms were recorded and nasal lavages were collected for up to 9.5 h after challenge. Nasal hyperreactivity was determined by histamine challenge 24 h later. RESULTS: Because of a carry-over effect for the immediate symptom score, for this variable only the data from the first treatment period were used. FPANS treatment resulted in a significant decrease of nasal symptoms with 70 per cent, 69 per cent and 63 per cent after 100, 1000 and 10 000 Biological Units (BU)/mL of HDM extract respectively. Active treatment resulted in a 76 per cent decrease of the late-phase symptoms. FPANS treatment significantly reduced albumin influx after HDM 1000 BU/mL with 62 per cent and tended to reduce tryptase release after HDM 1000 BU/mL ($p = 0.0629$). During the late phase FPANS treatment reduced albumin influx with 67 per cent and oesinophil cationic protein (ECP) release with 83 per cent. No effect of FPANS was seen on histamine levels. FPANS significantly decreased histamine-induced symptom score with 34 per cent, secretion with 32 per cent and sneezes with 41 per cent. CONCLUSION: FPANS significantly inhibits the immediate and late allergic response, and nasal hyperreactivity, probably by suppressing mast cells and oesinohpils in the nasal mucosa. Author.

Mechanisms of oral-pharyngeal dysphagia in patients with Parkinson's disease. Ali, G. N., Wallace, K. L., Schwartz, R., DeCarle, D. J., Zagami, A. S., Cook, I. J. Department of Gastroenterology, St. George Hospital, University of New South Wales, Sydney, Australia. *Gastroenterology* (1996) February, Vol 110 (2), pp 383–92.
BACKGROUND AND AIMS: Oral-pharyngeal dysphagia in Parkinson's disease is well recognized. The aim of this study was to establish the mechanisms of oral-pharyngeal dysphagia in these patients. METHODS: Using simultaneous videoradiography and pharyngeal manometry, we studied 19 patients with Parkinson's disease (12 with oral-pharyngeal dysphagia and seven without oral-pharyngeal dysphagia) and compared them with 23 healthy controls. RESULTS: The clinical severity of Parkinson's disease predicted neither the presence nor the severity of dysphagia. Minor alterations in oral function were common in controls and patients, but pharyngeal dysfunction was significantly more prevalent in patients. Incomplete upper oesophageal sphincter (UES) relaxation was present in four patients (21 per cent), all of whom showed increased hypopharyngeal intrabolus pressure, but not all of whom had a diminished UES opening. The patients had a reduced UES diameter ($p = 0.004$) and a higher intrabolus pressure compared with the controls ($p = 0.007$). Pharyngeal contraction pressures were lower in patients, but six patients with dysphagia and an abnormal pharyngeal wall motion had normal peak pressures. CONCLUSIONS: An incomplete UES relaxation and a reduced UES opening, both associated with high intrabolus pressure, are prevalent in Parkinson's disease. Oral-pharyngeal dysphagia in Parkinson's disease is multifactorial, with the majority of patients showing oral and pharyngeal dysfunction, even before the clinical expression of dysphagia. Impaired pharyngeal bolus transport is the major determinant of dysphagia. Author.

Nitroprusside suppresses cochlear potentials and outer hair cell responses. Chen, C., Nenov, A., Skellett, R., Fallon, M., Bright, L., Norris, C. H., Bobbin, R. P. Kresge Hearing Research Laboratory of the South, Department of Otorhinolaryngology and Biocommunication, Louisiana State University Medical Center, New Orleans 70112-2234, USA. *Hearing Research* (1995) July, Vol 87 (1–2), pp 1–8.
Biochemical and pharmacological evidence supports a role for nitric oxide (NO) in the cochlea. In the present experiments, we tested sodium nitroprusside (SNP), an NO donor, applied by intracochlear perfusions on sound-evoked responses of the cochlea (CM, cochlear microphonic; SP, summating potential; EP, endocochlear potential; CAP, compound action potential) and *in vitro* on outer hair cell (OHC) voltage-induced length changes and current responses. *In vivo* application of SNP in increasing concentrations (10, 33, 100, 330 and 1000 microM) reduced all sound-evoked responses starting at about 300 microM. The responses continued to decline after a post-drug wash. At 1 mM SNP decreased EP slowly (approximately 80 min) whereas at 10 mM it reduced EP more rapidly (approximately 20 min). Ferricyanide (1 mM) and S-nitroso-N-acetylpenicillamine (SNAP; 1 mM) had no effect on sound-evoked cochlear potentials. Ferricyanide (1 mM and 10 mM) and ferrocyanide (10 mM) had no effect on EP. *In vitro*, SNP (10 mM) significantly reduced both OHC voltage-induced length changes and whole-cell outward currents. Results suggest that SNP, possibly acting by released NO, influences cochlear function through effects at the stria vascularis and at the OHCs. Author.

Time course of axonal myelination in the human brainstem auditory pathway. Moore, J. K., Perazzo, L. M., Braun, A. Department of Neuroanatomy, House Ear Institute, Los Angeles, CA, USA. *Hearing Research* (1995) July, Vol 87 (1–2), pp 21–31.
Structures in the human brainstem auditory pathway, from the proximal end of the cochlear nerve to the inferior colliculis, undergo myelination between the 26th and 29th fetal weeks. By the 26th week of gestation, axons in the cochlear nerve and brainstem pathways have acquired linear arrays of oligodendrocytes, and faint myelin sheaths can be distinguished. By the 29th week, definitive myelination is present in all auditory pathways,

including the proximal end of the cochlear nerve, trapezoid body, lateral lemniscus, dorsal commissure of the lemniscus, commissure of the inferior colliculus and brachium of the inferior colliculus. Subsequent to the 29th gestational week, density of myelination increases in all pathways until at least one year post-natal age. The time of onset of myelination coincides with the onset of acousticomotor reflexes and brainstem auditory evoked responses, processes which depend on rapid synchronized conduction of auditory impulses in the cochlear nerve and brainstem. The cotemporality in appearance of myelin, reflex responses, and evoked responses supports the idea that the 26th to 28th gestational weeks are a critical period in the onset of human central auditory function. The subsequent increase in myelin density is likely to be a factor in the steady decrease in ABR wave III–V latencies observed during the perinatal period. Author.

Identification of three neurofibromatosis type 2 (NF2) gene mutations in vestibular schwannomas. Sainz, J., Figueroa, K., Baser, M. E., Pulst, S. M. Neurogenetics Laboratory, Cedars-Sinai Medical Center, University of California at Los Angeles 90048, USA. *Human Genetics* (1996) January, Vol 97 (1), pp 121–3.
Vestibular schwannomas (VSs) are common benign tumours of Schwann cell origin and are frequently found in patients with neurofibromatosis type 2 (NF2). We analysed 15 sporadic VSs for mutations in the tumours, two of which contained loss of heterozygosity (LOH). One of the tumours contained a novel mutation, a 19-bp deletion in exon 4. The two other tumours contained an identical mutation, a complete exon 4 deletion. The exon 4 deletion represents the second most frequently reported mutation of the NF2 gene in VSs. Author.

Aneurysmal bone cyst of the temporal bone presenting as hearing loss in a child. Sawin, P. D., Muhonen, M. G., Sato, Y., Smith, R. J. Division of Neurosurgery, University of Iowa Hospitals and Clinics, Iowa City, USA. *International Journal of Pediatric Otorhinolaryngology* (1995) November, Vol 33 (3), pp 275–84.
We present an unusual case of a temporal bone and skull base tumour in a 10-year-old child. The patient presented with unilateral hearing loss and headaches. Radiologic, surgical, and histologic findings were consistent with an aneurysmal bone cyst. This is the first report on this rare entity to document its appearance in the temporal bone and skull base using magnetic resonance imaging. Treatment consisted of surgical removal, cranioplasty, and reconstruction of the external auditory canal. Author.

Nodular fasciitis of the nose in a child. Harrison, H. C., Motbey, J., Kan, A. E., de Silva, M. Royal Alexandra Hospital for Children, Camperdown, Australia. *International Journal of Pediatric Otorhinolaryngology* (1995) November, V ol 33 (3), pp 257–64.
Nodular fasciitis is an unusual benign tumour composed of fibroblasts. It presents as a rapidly growing mass arising from subcutaneous or deep fascia. Less than 20 per cent of cases occur in children. Diagnosis can only be made by histopathological examination of a biopsy of the lesion. A case of nodular fasciitis presenting as a mass arising from the right nasal cavity in a 19-month-old female is presented. The lesion was successfully eradicated by surgical removal. There has been no recurrence at four-year review. Nodular fasciitis is a benign condition that may mimic malignancy clinically and histologically. Recognition of this condition is important to avoid unnecessarily aggressive treatment. Relevant clinical, radiological and histological features are discussed. Author.

A prevalence study of ear problems in school children in Kiambu district, Kenya, May 1992. Hatcher, J., Smith, A., Mackenzie, I., Thompson, S., Bal, I., Macharia, I., Mugwe, P., Okoth-Olende, C., Oburra, H., Wanjohi, Z., *et al.* Hearing Impairment Research Group, Liverpool School of Tropical Medicine, UK. *International Journal of Pediatric Otorhinolaryngology* (1995) November, Vol 33 (3), pp 197–205.
Information on the prevalence of hearing impairment and related ear pathologies in children in sub-Saharan Africa is scarce. A pilot study for a clinical trial of simple treatments for chronic suppurative otitis media (CSOM) in school children in Kiambu district, Kenya, provided information on the prevalence of hearing impairment and ear pathologies. Five thousand, three hundred and sixty-eight children from 57 randomly chosen primary schools in Kiambu district were examined. Simple otoscopy was performed by clinical officers with specialty training in ENT, and hearing testing was performed by trained nurses, using a hand held field audiometer. Microbiological specimens were obtained from those children with CSOM. Five point six per cent of the children had a hearing impairment of >30 dB HL in one or both ears, with 2.2 per cent having bilateral hearing impairment. Two point four per cent had at least one perforated tympanic membrane, and 1.1 per cent had CSOM. Eight point six per cent of the children had wax obstructing the tympanic membrane. There is evidence of a relationship between hearing impairment and both CSOM and wax obstructing the tympanic membrane. The most common organisms found were Pseudomonas spp. (34 per cent), Proteus spp. (34 per cent) and Eschericia coli (19 per cent). These results are comparable with other studies in Africa and indicate a considerable burden of ear disease in Kiambu district, Kenya. Author.

An analysis of mandibular bone complications in radiotherapy for T1 and T2 carcinoma of the oral tongue. Fujita, M., Hirokawa, Y., Kashiwado, K., Akagi, Y., Kashimoto, K., Kiriu, H., Ohtani, K., Wada, T. Department of Oral and Maxillofacial Radiology, Hiroshima University School of Dentistry, Japan. *International Journal of Radiation, Oncology, Biology and Physics* (1996) January 15, Vol 34 (2), pp 333–9.
PURPOSE: To examine the incidence of mandibular bone complication in patients who underwent radiotherapy for T1 and T2 carcinomas of the oral tongue and to analyse the factors contributing to its occurrence. METHODS AND MATERIALS: The clinical records of 148 patients with T1 and T2 carcinoma of the oral tongue treated with radiotherapy alone between 1978 and 1989 were examined retrospectively. Interstitial brachytherapy, used as the major treatment modality, was performed using cobalt needles, radium needles, or iridium hairpins. The prescribed dose at the plane 5 mm from the plane of the radioactive sources was 65–70 Gy in interstitial brachytherapy alone, and 50–60 Gy in the combined treatment with external irradiation. An external irradiation dose of 30 Gy was usually used. RESULTS: Eleven of the patients showed radiation-induced mandibular bone complication. Two (one T1, one T2) had been treated with interstitial brachytherapy alone, and nine (two T1, seven T2) with the combination of external irradiation and interstitial brachytherapy. The incidence of radiation complication of bone was significantly higher in the patients with T2 tumours ($p = 0.04$) and in those who received the combined treatment ($p<0.01$). Multivariate analysis revealed that the total dose ($p = 0.04$) and dose rate of interstitial brachytherapy ($p = 0.03$) were significant factors contributing to radiation bone complication. A significant difference in the incidence of bone complication was also seen between patients who received a total dose of 90 Gy or more and those who received less tha 90 Gy ($p<0.01$), as well as between patients who were treated with 0.55 Gy/h or higher and those who were treated with less than 0.55 Gy/h ($p = 0.03$). CONCLUSION: A significant increase in the incidence of bone complication was found at the total dose of 90 Gy or more and at the dose rate of 0.55 Gy/h or higher. In combined treatment with external irradiation and interstitial brachytherapy, the interstitial brachytherapy dose of 60 Gy appears to be the threshold at which mandibular bone complication is induced when the external irradiation dose is 30 Gy. Author.

Benign paroxysmal positional vertigo of the horizontal canal. De la Meilleure, G., Dehaene, I., Depondt, M., Damman, W., Crevits, L., Vanhooren, G. Department of Neurology, University Hospital, Gent, Belgium. *Journal of Neurology, Neurosurgery and Psychiatry* (1996) January, Vol 60 (1), pp 68–71.
OBJECTIVES: To review the clinical features, electronystagmography findings, the possible mechanism, and a possible therapeutic approach to benign paroxysmal positional vertigo (BPPV). METHODS: Sixty-three cases of BPPV of the horizontal canal type have been reviewed. It is characterized by horizontal nystagmus and an intense vertigo, provoked by rotation of the head in a supine patient. The horizontal nystagmus beats towards the ground on both sides, becomes more pronounced when lying on the pathological side, and then the nystagmus often changes direction. RESULTS: Forty-eight patients underwent electronystagmography. On the pathological side, the first phase nystagmus had a mean latency of three seconds and a mean duration of 31.6

seconds. Nystagmus inversion occurred in 36 patients after a nystagmus free interval. The mean second phase nystagmus duration lasted 33.4 seconds. On the healthy side, the nystagmus had a mean latency of 3.4 seconds and a mean duration of 39.5 seconds. Fatigue was seen in six patients. Simultaneous involvement of the posterior canal was present in 16 patients. A liberatory manoeuvre was successful in six patients. CONCLUSIONS: The liberatory manoeuvre should be tried in patients with horizontal canal vertigo. It should not be performed in patients with severe cervical arthrosis, vertebrobasilar insufficiency, or when the patient has neck pain during the manoeuvre. Author.

Staged removal of acoustic tumors: technqiues and lessons learned from a series of 83 patients. Comey, C. H., Jannetta, P. J., Sheptak, P. E., Joh, H. D., Burkhart, L. E. Department of Neurosurgery, University of Pittsburgh, Pennsylvania, USA. *Neurosurgery* (1995) November, Vol 37 (5), pp 915–20; discussion 920–1.
The removal of large acoustic tumours is associated with increased mortality and cranial nerve injury. One method for treating these difficult lesions is staged resection. Between 1972 and 1992, more than 600 acoustic tumours were resected at our institution. Of these, 83 were removed in stages. This represents the largest series of staged acoustic tumour resections reported to date. A review of available films and patient records was performed for all acoustic tumours resected in stages between 1972 and early 1993 to analyse demographic information, tumour size, operative technique, outcome, and complications. The information was collected on standardized data sheets and entered into a computer database. Virtually all tumours were large, with the average size being 4 cm in greatest diameter. The average patient age was 41 years, and there was a slight preponderance of female patients. Ten patients had neurofibromatosis Type 2. The suboccipital approach was used in most patients. Anatomic preservation of the VIIth cranial nerve was achieved in >72 per cent of patients, with an average House-Brackmann score of Grade 3 at the longest follow-up (mean, 43 mo). Facial reanimation was performed in 19 of 23 patients with transected VIIth cranial nerves. Complications included cerebrospinal fluid fistulas in 11 patients, with eight of 11 fistulas resolving after lumbar drainage. Six patients had meningitis (bacterial in three and aseptic in three). Two patients developed wound infections, and 10 patients developed exposure keratitis. There were two documented recurrences. There were no operative deaths. In most series, the incidence of cranial nerve deficits as well as morbidity and mortality is directly related to tumour size. Our operative strategy involved debulking the lateral aspect of large tumours during Stage I. Second stage removal is performed after the remaining tumour is shown to decompress out of the pons on computed tomographic or magnetic resonance images. During the second procedure, the residual tumour is less vascular and no longer densely adherent to the brain stem. Although staged removal is not without risk, there seems to be no apparent increase in morbidity when these results are comapred with the results of series from the literature. Although there remain no absolute indications for staged resection of acoustic tumours, we think that it may represent the safest option for these difficult lesions. Author.

Combined molecular genetic studies of chromosome 22q and the neurofibromatosis type 2 gene in central nervous system tumors. Ng, H. K., Lau, K. M., Tse, J. Y., Lo, K. W., Wong, J. H., Poon, W. S., Huang, D. P. Department of Anatomical and Cellular Pathology, Chinese University of Hong Kong, Hong Kong. *Neurosurgery* (1995) October, Vol 37 (4), pp 764–73.
Monosomy of chromosome 22 or deletions of 22q have been described in meningiomas and astrocytic tumours, the incidence of which is increased in Type 2 neurofibromatosis. Recently, the gene for neurofibromatosis Type 2 (NF2) has been identified at Chromosome 22q12, and a tumour suppression role has been suggested. Because there have been only a few studies of the NF2 gene on central nervous system tumours other than vestibular schwannomas, we investigated the potential role of NF2 as a tumour suppressor gene in a group of sporadic meningiomas and astrocytomas. Forty-four tumours (26 meningiomas and 18 astrocytic tumours of different grades) were screened for NF2 mutations for the entire 17 exons by the polymerase chain reaction-single-strand conformation polymorphism method. In addition, 37 tumours and their respective constitutional deoxyribonucleic acid were analysed for loss of heterozygosity of 22q alleles by four polymorphic microsatellite markers. Seven inactivating mutations were found in Exons 4, 5, 6, and 10 in 7 of 26 (27 per cent) meningiomas, but none were found in astrocytic tumours. Altogether, 69 per cent of meningiomas and 20 per cent of astrocytic tumours revealed a loss of heterozygosity of 22q markers. All tumours with NF2 mutations showed concurrent loss of alleles on 22q, thus fulfilling Knudson's criteria for tumour suppressor genes in meningiomas. We conclude that inactivation of the NF2 gene is involved in the pathogenesis of a proportion of meningiomas but not in astrocytic tumours. Because many meningiomas and some astrocytic tumours had allelic loss of 22q but intact NF2, there is a possibility that other tumour suppressor genes exist on 22q and may be involved in the pathogenesis of central nervous system tumours. Author.