

POSTER PRESENTATIONS

(Guildhall next to the Corn Exchange)

Assessment of inner ear anatomy by magnetic resonance imaging in a cochlear implant programme.

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Objective: To review the place of MRI scanning in a cochlear implant programme.

Method: Detailed review of 65 consecutive MRI examinations and the management decisions based upon the findings.

Results: The MRI features of syndromal conditions including Mondini deformity, Moebius syndrome, and dilated vestibular aqueduct syndrome will be displayed. The presence of an undiagnosed small acoustic neuroma is described. The correlation between the MRI assessment and the basal turn of the cochlea and the operative findings is extremely good.

Conclusion: MRI scanning is a safe and good predictor of cochlear anatomy for surgical cochlear implantation. As no irradiation is involved, it may be considered advantageous to high resolution CT scanning.

Electrical promontory stimulation as a predictive factor of outcome following cochlear implantation.

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Objective: To assess the correlation of pre-operative electrical promontory stimulation with post-operative measures of speech perception.

Method: Promontory stimulation was performed on 17 patients undergoing cochlear implantation. Burst and gap mode stimulation were selected and threshold, most comfortable levels and dynamic range were determined across six frequencies along with gap detection to six different gap lengths. Three sub-tests of the predicting and monitoring outcomes from cochlear implantation in adults (POCIA) study were used, namely, CUNY topic related sentences, BKB sentences and VCV bisyllables.

Results: There was poor correlation with inter- and intra-subject variability.

Conclusion: Further focused studies are needed before promontory stimulation can be considered a useful adjunct to the pre-operative assessment of the cochlear implant patient.

Canalplasty – A review of 100 cases.

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Objective: Canalplasty is a procedure where the bony external auditory meatus is widened. The indications can vary from exostoses to tympanic membrane perforation associated with a narrow or overhanging canal. The efficacy and potential complications of this procedure are assessed in this study. In addition an outline of the surgical technique is included.

Method: The notes of 100 consecutive cases were analysed. All operations were performed by one surgeon and all patients were reviewed post-operatively on a two-weekly

basis until healing had occurred. The indication for surgery, any other surgical procedures, time to healing and any complications resulting from surgery were recorded.

Results: Eighty-six patients underwent 100 procedures. The commonest indications were exostoses (34 per cent) and tympanic membrane repair (34 per cent). There were eight cases of stenosing otitis externa. In addition to the canalplasty 42 myringoplasties were performed and 11 intact canal wall mastoidectomies. A middle temporal artery flap was used to facilitate healing in seven cases. Four of these were complicated by mid-canal stenosis. Healing time varied from six weeks to 10 months. A mild, temporary facial palsy occurred in two cases.

Conclusion: Canalplasty is a useful and safe surgical procedure. If performed correctly re-stenosis rate is low. The use of the middle temporal artery flap in canalplasty is associated with the development of mid-canal stenosis.

Why do grommets extrude prematurely?

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Objective: To investigate the factors involved in ventilation tube (VL) extrusion.

Method: Three designs of Teflon ventilation tubes, Shah, Shepherd and Long Armstrong tubes that had been surgically removed from the ear canal were examined using light and scanning electron microscopy. Tissue retrieved was sectioned and stained with haematoxylin and eosin. Immunocytochemistry was carried out using antisera against human keratin and common leukocyte antigens.

Results: Light and scanning electron microscopy showed that all tubes were surrounded by a stratified epithelial layer. In the case of one Long Armstrong tube endothelial and mucosal layers of the tympanic membrane were also seen.

Conclusion: The results suggest that after insertion in the tympanic membrane the ventilation tube becomes covered by new superficial tissue with the histological characteristics of the normal adjacent epithelium, endothelium and mucosal layer. This reaction gradually lifts the tube from the tympanic membrane and it is the process of epithelial migration which carries the tube to the periphery and ejects it into the auditory canal.

Juvenile angiofibroma: modern imaging and its influence on the surgical treatment of juvenile angiofibroma.

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Over a period of 20 years, beginning in 1978, the Royal National Throat Nose and Ear Hospital has treated 72 boys with juvenile angiofibroma. Each of these has been investigated with computerized tomography and/or magnetic resonance imaging. Imaging confirms the supposition that juvenile angiofibroma appears to originate in the region of the pterygoid canal. Most importantly extension of the tumour along the pterygoid canal with invasion of the pterygoid base and greater wing of sphenoid is clearly demonstrated in 60 per cent of cases. We believe the high recurrence rate associated with this tumour is secondary to

incomplete excision and that it is tumour which has deeply invaded the sphenoid that is routinely left behind.

We conclude that accurate imaging and awareness of patterns of tumour spread will greatly reduce recurrence rates by enabling the surgeon to accurately match the degree of resection to actual tumour extent.

The mid-facial degloving approach is the procedure of choice for these patients it offers excellent cosmesis and access for deeper dissection of the pterygoid and sphenoid base.

A quantitative study of immunogold labelling for aspartate in the guinea-pig anteroventral cochlear nucleus.

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Previous physiological and biochemical studies have indicated a role for aspartate as well as glutamate in terminals made by the cochlear nerve in the mammalian anteroventral cochlear nucleus. In the present investigation, an immunocytochemical approach has been used to determine if aspartate is distributed and handled in terminals on spherical bushy cell somata in a similar way to glutamate. Ultrathin sections from perfusion-and-immersion-fixed guinea-pig brain stems used in a previous study of glutamate distribution were labelled for aspartate using the immunogold techniques. The immunoreactivity was quantified by determining the density of gold particles over various tissue profiles. In the perfusion-fixed material, the endbulbs of Held on the spherical bushy cells were more densely labelled than terminals of noncochlear origin. However, the difference between the labelling levels of the two types of terminals was considerably less than that which occurs for glutamate. In immersion-fixed slices taken from three animals and subjected *in vitro* to a high K^+ environment known to induce glutamate release from the endbulbs, no consistent changes in aspartate level were found in either type of terminal. This is in marked contrast to the situation for glutamate in the same slices which became depleted in the endbulbs but not the noncochlear terminals. Thus, although aspartate is slightly elevated in concentration in the endbulbs, it does not appear to be distributed or handled in quite the same way.

Predictor value of sleep nasendoscopy in the management of patients with snoring and obstructive sleep apnoea.

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Objective: To assess the predictor value and the usefulness of sleep nasendoscopy in management of patients with snoring and sleep apnoea.

Method: Retrospective analysis of 100 patients undergoing investigations and treatment. The treatment options specifically looked at in this study were a) laser palatoplasty, b) jaw retaining device or c) combined. Treatment allocation was governed by the grading of sleep nasendoscopy. The success rate of various treatment options was analysed subjectively as well as objectively.

Results: Satisfactory success rate was achieved in all groups. There was a problem with compliance in group b.

Conclusion: We found sleep nasendoscopy to be a good predictor in selecting treatment options.

The mastoid facial nerve: racial differences.

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Objective: Since racial differences in mastoid morphology exist, there may be racial differences in surgical anatomy of the facial nerve in the mastoid. The aim of this paper is to study the surgical anatomy of the facial nerve in Chinese mastoids.

Method: Thirty Chinese adult temporal bones were dissected, exposing the mastoid portion of the facial nerve. Findings were compared with those described in Western literature.

Results: The facial nerve in the mastoid coursed vertically (60 per cent), anteriorly (33.3 per cent) and posteriorly (6.7 per cent) in the sagittal plane. In the coronal plane, it coursed vertically (46.7 per cent) and laterally (53.3 per cent). The chorda tympani was found to have extra-temporal origin in 53.3 per cent and for the rest, the distance of its origin from the stylo-mastoid foramen averaged 3.17 mm (range 0.5 to 6.0 mm). The mean dimension of the extended facial recess was 4.40 mm (range 3.0 mm to 6.0 mm). The facial nerve was at a mean of 3.15 mm (range 2.0 to 5.0 mm) posterior to the most posterior point of the tympanic annulus and partially crossed the tympanic annulus from medial to lateral at this point.

Conclusion: The typical surgery anatomy of the mastoid facial nerve as described in western literature, may not apply to Chinese.

Apoptotic index is associated with outcome after radiotherapy for carcinoma of the larynx.

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Objective: A high percentage of cells undergoing apoptosis (apoptotic index/AI) is associated with poor five-year survival in carcinoma of the cervix. An attempt was made to establish if a similar relationship exists in head and neck cancer.

Methods: Survival and recurrence data was retrieved from the records of 80 patients undergoing radiotherapy for carcinoma of the larynx between 1992 and 1997. Apoptotic (AI) and mitotic (MI) indices were measured from archival paraffin sections of the same patients' pre-treatment tumour biopsies. Cox's proportional hazards model was used to assess whether, in the presence of known risk factors (age, smoking and alcohol consumption, stage of disease), AI, MI or AI:MI ratio were predictive of outcome.

Results: AI:MI ratio was predictive of recurrence ($p = 0.03$, categorical model). Patients with an $0.5 < AI:MI < 1$ had the lowest risk of recurrence (relative risk = 0.34) with risk greatest for the highest ratio ($AI:MI > 1.5$, relative risk = 1.52). AI was associated with death ($p = 0.074$, linear model), with risk of death increasing with increasing AI ($AI > 1.7$ relative risk = 6.07).

Conclusion: High apoptotic index is associated with poor survival. It is not clear what the mechanism of this

relationship is, but high apoptotic index may indicate increased cell turnover in laryngeal cancer.

Single-stage or stented laryngotracheal reconstruction? A comparison of techniques and outcomes.

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Objective: To determine if single stage laryngotracheal reconstruction (SSLTR) with prolonged post-operative ventilation offers any advantages over reconstruction with post-operative tracheostomy and in-dwelling stent (two stage/TSLTR).

Methods: Retrospective review of 69 patients who underwent LTR at Great Ormond Street Hospital. Patients undergoing SSLTR were compared to those undergoing TSLTR. Pre-operative variables recorded included grade of stenosis, age at surgery, history of previous laryngeal surgery, and aetiology of stenosis. Outcome variables included total number of surgical procedures needed after reconstruction, decannulation rate and requirement for further reconstruction.

Results: Patients with more severe subglottic stenosis and history of previous laryngeal surgery were more likely to undergo two stage reconstruction. To attempt to make a more direct comparison between the two procedures, multiple regression analysis was used to determine if the choice of procedure offered any independent benefit. SSLTR patients required fewer post-reconstruction surgical procedures ($p = 0.006$), were more likely to achieve long term de-cannulation ($p = 0.03$). No difference was noted in the requirement for further reconstruction between the two groups.

Conclusions: Although certain patients will continue to require a two-staged approach, single-stage reconstruction is now the procedure of choice for paediatric subglottic stenosis.

Evidence based medicine and otolaryngology.

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Objective: To assess the strength of the 'evidence base' of ENT surgery in the published literature.

Design: A three-stage retrospective literature review: classifying study design of all articles in five major journals over the period 1990-1994 inclusive; Surveying trends in published randomized control trials (RCTs) identified from Medline in 10 ENT journals over the period 1966-1996; Measuring the quality of these trials in the light of the CONSORT statement.

Main outcome measures: Study design according to standardized classification covering all possible types of article; numbers, source and subject matter of trials; quality of trials on a 12 point score derived by simplifying the CONSORT criteria for randomized trials, assessing issues such as power, randomization, blinding, etc.

Results: RCTs only comprised around three per cent of journal articles. Descriptive studies were the commonest; other quasi-experimental studies contributed around 15 per cent. A relatively small number of conditions, often those treated medically, were assessed by a comparatively

large number of trials. No trial scored 12. The mean score remained close to 7.3 each year over the period studied. Particular weaknesses were: lack of pilot studies, power analysis, description of randomization technique, blinding of subjects and researchers even when reasonably possible, and use of confidence intervals.

Conclusions: Many more RCTs are now conducted but the quality of reporting has yet to improve. There are recurring, often avoidable methodological weaknesses. Taken alone, this suggests a weak 'evidence base', but many situations in surgery are not appropriate for assessment by randomized trial and some surgical 'evidence' is unavoidably and justifiably observational.

Treatment of rhinophyma with carbon dioxide laser: long-term results.

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Introduction: Rhinophyma is a slowly progressive, disfiguring disorder of the nose which represents the end stage of acne rosacea. The cosmetic deformity is often the reason for patients seeking medical attention. Carbon dioxide laser (CO₂ laser) is currently one of the preferred methods of epidermal vaporization in the management of rhinophyma. Special concern about the droplet dispersion of blood in dermabrasion has made this method less acceptable as it poses a potential risk to health workers.

Aim: To assess the long term results of patients who have undergone excision of rhinophyma using the CO₂ laser.

Method: This is a retrospective review of patients with rhinophyma treated with CO₂ laser at the Royal Oldham Hospital in Greater Manchester over a period of eight years.

Results: Twelve patients have undergone CO₂ laser excision of rhinophyma over an eight-year period. Four of these patients had a minimum follow-up of five years following the procedure. All patients have had a very good cosmetic result. None of the patients had any re-growth of the rhinophyma and there have not been any complications such as scar contraction.

Conclusion: Carbon dioxide laser excision of the rhinophyma in our experience is a safe simple surgical technique which offers excellent cosmetic results, short-term as well as long-term, with minimal complications.

Ototoxicity of topical gentamicin preparations: mounting clinical evidence.

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The wide spectrum of activity of aminoglycosides, especially against Gram negative bacteria, and their low cost have made these compounds extremely useful as a topical treatment for infected ears. However, controversy exists regarding the actual risk of ototoxicity when using aminoglycoside-containing ear drops in patients with tympanic membrane (TM) defects. Most physicians readily acknowledge the theoretical possibility of ototoxicity in this situation but reported cases of topical aminoglycoside toxicity are rare in the world literature. It is important to recognize, however, that the majority of these reports have focused on the issue of suspected cochleotoxicity.

We question whether the incidence of ototoxicity from topical aminoglycoside preparations is highly underrated.

A series of 16 patients (22 ears in total) with TM defects is presented who we believe sustained inadvertent ototoxicity, primarily vestibular in nature, after using topical gentamicin/steroid-containing ear drops. An additional case of an intentional ablation of vestibular function with commercially available gentamicin-containing ear drops in a patient with unilateral Ménière's disease provides conclusive evidence of the ototoxic potential of these preparations.

The implications and recommendations of these findings will be discussed.

Conservative management of acoustic neuromas.

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Objective: To determine the outcome following the conservative management of acoustic neuromas.

Method: Eighty patients with a radiological diagnosis of acoustic neuroma who were managed conservatively between 1987 and 1998 are presented. The reasons for conservative management included poor medical condition, age, patient preference, small tumour size, minimal or no symptoms, and tumour in the only hearing ear. All patients were followed-up with serial MRI or CT scanning. Patients were deemed to have failed conservative management if there was evidence of interval tumour growth or if they developed new symptoms or signs.

Results: The mean tumour growth rate per year (A-P and medial-lateral diameter) was calculated and is presented in the context of change in clinical findings. The patients who failed conservative management are presented together with the results of their treatment (microsurgery, radiotherapy, shunt or nil).

Conclusion: Our findings suggest that there is a limited role for conservative management of acoustic neuromas and that regular follow-up with serial MRI scanning is mandatory.

Nasendoscopically-assisted nasogastric feeding tube positioning: A simple new technique.

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Objective: To describe a technique to facilitate nasogastric tube placement when conventional attempts have failed. The nasogastric tube can be used for enteral nutrition or insufflation of air in radiological percutaneous gastrostomy.

Materials and methods: Ten per cent lignocaine hydrochloride and 0.1 per cent xylometazoline hydrochloride is applied by aerosol to both nasal cavities. One operator performs a nasendoscopic examination of the pharynx. Simultaneously, an assistant advances the nasogastric tube into the contralateral nostril until it is seen in the nasendoscope. Both the tube and endoscope are then advanced until the larynx is visualized. The nasogastric tube is advanced into the stomach. Swallowing is not essential and tube placement can be achieved without the patient's assistance.

Results: This has resulted in 20 patients avoiding a general anaesthetic and the associated delays in establishing feeding. No complications have yet been seen.

Conclusion: This method of nasogastric tube placement is simple and straightforward. It requires skill in the use of the nasendoscope and careful co-operation between operators. It is recommended for use in all patients where blind nasogastric tube placement has failed and can be used to facilitate radiological gastrostomy.

Telomerase activity is upregulated in laryngeal squamous cell carcinoma.

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Objective: The immortalizing enzyme telomerase has been linked to carcinogenesis and is being targeted as a novel molecular marker. This study investigated telomerase expression in patients with laryngeal squamous cell carcinoma and correlated telomerase activity with conventional prognostic parameters.

Method: Twenty patient samples of laryngeal squamous cell carcinoma and 20 adjacent histologically normal mucosal samples were assayed using the telomeric repeat amplification protocol (TRAP) method for detection of telomerase activity. The leukaemic cell line, K562, acted as a positive control and the human fibroblast line, Hs21Fs, as a negative control. A sample was classified as telomerase positive when an RNase sensitive hexameric repeat ladder was observed. Absence of laddering was considered a negative result.

Results: Seventeen of 20 (85 per cent) tumour samples and four of 20 (20 per cent) adjacent histologically normal samples were telomerase positive. No statistically significant difference was observed when densitometric readings were compared by T category, tumour grade or site (by ANOVA).

Conclusions: While telomerase activity is present in laryngeal cancer, levels of activation do not correlate with conventional parameters used for prognostication. Our study indicates that the marker may be a useful adjunctive method in the diagnosis of malignancy following radiation failure.

Does dysphonia affect quality of life?

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Objectives: Dysphonia may affect social, lifestyle and employment. This study is we believe the first to document systematically the general health status of patients with dysphonia.

Methods: The Short Form 36 (SF-36), an extensively validated questionnaire, scored according to published algorithms and with eight subscales of general health, was given to 163 dysphonic voice clinic attenders (38 M, 125 F), mean age 50 years. Raw scores were normalized on a 0-100 scale and compared (*t*-test) with data from published

age matched healthy controls (n = 744) and 93 patients with chronic sinusitis.

Results: Dysphonia patients had significantly lower scores (poorer health) than controls on all eight SF-36 subscales (limitation of physical activity $p < 0.05$; other seven all $p < 0.005$). Dysphonia patients' values were even lower than sinusitis patients' for limitations of physical activities and problems related to emotional issues (both $p < 0.005$).

Conclusion: Dysphonia has a marked impact on general health status as measured by a well-validated scale for quality of life assessment. The health impact of the expressive communication difficulties associated with dysphonia emphasizes 1) the importance of including a generic quality of life measure in otolaryngology assessments and 2) support the economic case for continued investment in the treatment of dysphonia.

Endoscopic-guided percutaneous dilatational tracheostomy versus operative bedside tracheostomy: a prospective, randomized comparison.

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Objectives: Directly evaluate the procedural risks, duration, and subsequent complications associated with dilatational tracheostomy (PDT) relative to standard bedside tracheostomy, and to justify a minimum standard of training for physicians involved in airway management utilizing PDT.

Methods: Prospective, randomized, direct comparison of endoscopic-guided PDT and operative bedside tracheostomy (OBT) in a tertiary medical centre. Over an 18-month period all patients referred for tracheostomy placement were screened and 20 patients were randomized (PDT 10 and OBT 10). The evaluation included procedure time and complications, as well as subsequent complications and healing.

Results: We observed procedure-related complications in two out of 10 patients in the PDT group requiring transition to an open procedure while no complications occurred in the OBT group. Minor post-procedure complications (e.g. minor bleeding) occurred in five out of 10 patients in the OBT group and one out of eight patients in the PDT group. Mean procedure duration was 24 minutes in the PDT group and 21 minutes in the OBT group.

Conclusions: Minor wound problems are more common with open tracheostomy. The need for immediate conversion to OBT in 20 per cent of PDT patients argues strongly for physicians trained in open tracheostomy to be present during any PDT.

Laser palatoplasty: study of patient benefit.

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Objective: To measure the benefit of laser palatoplasty to the patient and to evaluate if there is any deterioration to this benefit with increasing post-operative time.

Method: Sixty-four patients identified as having laser palatoplasty from January 1995 to July 1998 were surveyed using the Glasgow Benefit Inventory (GBI) Questionnaire.

Based on the question asking what change the operation had on their overall life, patients were divided into worse, no change or benefited groups. Patients in the benefited group had analysis of their general outcome and of the subscales of GBI.

Results: There was a 80 per cent response. Early benefit assessment (<12 months) showed 52 per cent benefited from the operation and there was no deterioration in number of patients benefited over time. Comparison of the subscale scores of the <12 months with the >12 months follow-up showed deterioration that was statistically significant in the total score ($p = 0.05$) and general score ($p = 0.026$). The physical score was nearly significant ($p = 0.07$). There was no significant difference in the social score.

Conclusion: The overall benefit score of +22.4 compares favourably with other ORL procedures. There is deterioration after 12 months in the overall, general and physical benefit. This does not result in a concurrent reduction in social benefit.

The prevalence of rhinosinusitis and nasal polyps in an adult cystic fibrosis population.

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Objective: The relationship between cystic fibrosis (CF) and sinus pathology is well documented, however we are not aware of any study which has used a control group to verify this. The aim of this study was to evaluate the relationship between cystic fibrosis and the prevalence of rhinosinusitis and nasal polyps compared to a control group.

Method: A postal questionnaire-based survey was performed using a diabetic population as a control group from the South Manchester University Hospital database. The study group comprised of 104 CF patients and 102 diabetic patients. The main outcome measures were a report of sinusitis or nasal polyps and current related symptoms of rhinosinusitis and nasal polyps rated on a visual analogue scale.

Results: The prevalence of nasal polyps in the cystic fibrosis population (39 per cent) was significantly higher ($p < 0.001$) compared to the control group. The prevalence of rhinosinusitis was not significantly different ($p = 0.381$). CF patients with nasal polyps had more severe symptoms overall ($p = 0.05$) than those with rhinosinusitis.

Conclusion: This is the first study using a control group which demonstrates that the prevalence of rhinosinusitis is not significantly higher in adult cystic fibrosis patients. As expected the prevalence of nasal polyps is significantly higher when compared to a control group. Cystic fibrosis patients with sinus pathology may be separated into two groups, those with nasal polyps and those with rhinosinusitis.

Relative risk and workload of diagnosing cancer in patients with suspicious symptoms.

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ENT specialists perform a large volume of work in establishing the diagnosis of head and neck cancer.

Objectives: Measure the relative risk of particular symptoms. Quantify the work involved in establishing diagnosis.

Method: Data was gathered prospectively on patients referred specifically to exclude malignancy. Patients were graded high, medium and low risk. Diagnosis was reached and relative risk was calculated.

Results: Three hundred and forty-nine patients were seen (204 female, 145 male, mean age 52 years). There was 89 per cent symptom agreement between patients and referral letter. One hundred and thirty-seven panendoscopies, 23 node excisions, 10 local anaesthetic biopsies, and six tonsillectomies were performed. Cancer incidence was 7.7 per cent.

Conclusion: Malignancy is rare yet 'low risk' patients must be assessed, and this workload must be adequately resourced. The importance of hoarseness, dysphagia and careful neck examination must continually be highlighted to those outside ENT.

Nasal exercise tolerance and the effect of unilateral nasal obstruction.

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A simple functional test of nasal obstruction would be valuable in selecting patients for ENT referral.

Objective: To measure nasal exercise tolerance in healthy adults, and the effect of unilateral nasal obstruction.

Method: Healthy adults with clear nasal airways performed graded exercise on a 12 per cent inclined treadmill breathing only nasally until nasal-oral conversion was reached (nasal exercise tolerance: NET). After 10 minutes recovery this was repeated breathing naso-orally until tolerance (standard exercise tolerance: SET). A merocel pack was used to produce unilateral nasal obstruction.

Results: Ninety-five per cent confidence interval in parenthesis. Thirty-six adults (20 male, 16 female, age 18–58 years, mean 32 years) completed the exercise protocol. All patients could complete at least three minutes of 3 km/h on a 12 per cent incline. The mean NET was 5.4 km/h (± 0.3). Mean NET/SET was 83 per cent (± 4.6). Unilateral nasal obstruction ($n = 5$) reduces NET from 5.8 (± 0.39) km/h to 2.8 (± 2.3) km/h, ($p < 0.05$, $df = 4$, paired t test). NET/SET reduces from 83 (± 6) per cent to 41 (± 24) per cent ($p < 0.05$, $df = 4$, paired t test).

Conclusion: Healthy adults can comfortably rely on the nasal airway to walk up a 12 per cent hill. Artificial unilateral nasal obstruction significantly reduces nasal exercise tolerance. Asking about NET could aid patient selection for ENT referral.

A comparative study of publication trends in British otolaryngology – the Calman effect?

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Objective: Changes in the United Kingdom postgraduate surgical training (Calman) may have an effect on research output which will begin to appear in the late 90s. This study

compares research output in the 80s prior to the implementation of structured training programmes with that in the late 90s.

Methods: All issues of 10 English language otorhinolaryngology journals for the five year period January 1985–December 1989 and January 1994–December 1998 were studied. Articles were identified as British in origin based on the mailing address of the centre or corresponding author. The articles were classified as descriptive, clinical investigative, laboratory based or other. The total number of authors per article were recorded. Chi-squared tests were used for inter-group comparisons.

Results: The modal number of authors per article was two in the 80s and greater than three in the 90s ($p < 0.01$). The proportion of clinical investigative papers increased and laboratory-based research decreased ($p < 0.01$). Eleven departments accounted for 50 per cent of the United Kingdom research output over the periods studied.

Conclusion: The type of published research has changed and co-authorship is more prevalent.

Treatment of external nasal valve (alar rim) collapse.

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Introduction: Nasal airway obstruction is normally the result of septal deviation and/or mucosal hypertrophy. However, in an unknown percentage of cases obstruction is due to valvular obstruction. We have utilized a crural strut to treat cases where obstruction has been due to weakening of the external valve (alar collapse).

Method: The method adopted has been a modification of that previously described. A cartilage strut is placed deep to the lateral crus of the lower lateral cartilage. Seventeen cases have been treated over a three-year period. Functional outcome was assessed by the patients and cosmetic sequelae were evaluated by the senior author and patients at six months and one year.

Results: Improvements in nasal airway performance were sustained at follow up ($p < 0.001$). Two patients had minor collapse on one side but no revision has been necessary. One patient developed marked initial oedema but cosmetic was adjudged to be satisfactory or excellent at follow up.

Conclusions: Alar strut surgery seems to provide short- to medium-term correction of this abnormality without any adverse cosmetic sequelae.

Surgical voice restoration – the compromised party wall.

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Charing Cross Hospital, London has a large experience of surgical voice restoration. We have recently identified a group of patients with a 'compromised' tracheo-oesophageal party wall. This occurs when the party-wall thins and the length of the fistula decreases with a tendency to enlarge its diameter. In such cases there is an increased incidence of peri-valvular leakage. These patients require careful management and recognition of their particular potential problems.

The early reports of party-wall necrosis were generally attributed to previous radiotherapy. In the UK most

patients undergoing total laryngectomy have had previous radiotherapy, and it was uncommon in our practice prior to the use of the larger indwelling prostheses. Other factors in different parts of the world are cachexia or the aesthenic patient. Because of the relationship to the larger diameter valves of all makes we feel these prostheses are contraindicated. We therefore fitted these patients with 16FG prostheses and managed them as if they were an indwelling prosthesis. Particular care should also be taken when prostheses are changed to ensure minimal trauma to the party-wall. This includes cutting the tracheal flange off the prosthesis and introducing the new prosthesis with a gel cap whilst pushing the old valve into the oesophagus. In those cases that do not respond to conservative measures the party wall continues to narrow and may need surgically reinforcing with the sterno-mastoid muscle.

Over the last two years we have been using a prototype 18 FG indwelling prosthesis. This diameter valve gives a similar airflow to the 20 FG valves without over-expanding the tracheo-oesophageal fistula and avoids many of the problems of the compromised party-wall. The results of using this prototype prosthesis are discussed.

Defining boundaries in cricoid split and single stage laryngotracheal reconstruction.

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Objective: The ex-premature infant presenting with multiple 'failures to extubate' or compromising acquired subglottic stenosis may be a candidate for anterior cricoid split (ACS) or single-stage laryngotracheal reconstruction (SS-LTR), thereby avoiding a tracheostomy. The object of this paper is to examine the criteria for successful selection of each procedure.

Method: Of a consecutive series of 255 paediatric airway operations, performed in three years, and identified from the author's research database, 33 patients underwent open corrective surgery; 24 of these were managed without a tracheostomy, 12 underwent ACS and 12 received SS-LTR. The clinical parameters and surgical protocols of each sub-group were analysed.

Results: The median uncorrected age of the ACS infants was four months and of the SS-LTR children was 10.5 months. The stenosis was more likely to be a soft Cotton grade 1 in ACS patients, and a more mature and higher grade in SS-LTR cases. Successful extubation and outcome was achieved in all cases of cricoid split and in 11 of 12 (92 per cent) of SS-LTRs.

Conclusions: The variations in technique and protocols used here are successful. Contrary to established indications, a significant oxygen requirement has not been a contraindication to successful ACS surgery.

Loudness scaling evaluation in tinnitus patients.

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Objectives: This study was performed to evaluate the effect of tinnitus on loudness perception in patients complaining of tinnitus with either normal hearing or sensorineural hearing loss.

Methods: The study group consisted of 60 patients complaining of tinnitus (30 patients with normal hearing and 30 patients with sensorineural hearing loss) and 20 subjects without tinnitus (10 subjects with normal hearing and 10 subjects with sensorineural hearing loss). All subjects were submitted to basic audiological evaluation, narrow band noise (NBN) thresholds and loudness scaling.

Results: The pure-tone NBN gap was significantly larger in those with a sensorineural hearing loss with tinnitus than those without tinnitus. However, this gap was nearly similar in normal hearing subjects. Regarding the loudness scaling, normal subjects with tinnitus had a lower perception of magnitude when compared to those without tinnitus. In contrast, sensorineural hearing loss patients had a lower perception of loudness similar to those without tinnitus.

Conclusion: It could be concluded that loudness scaling is a valuable tool in the assessment of tinnitus patients especially those with normal hearing. We recommend that it should be included in the assessment of tinnitus patients.

Unilateral rhinorrhoea feigning CSF leak: nine illustrative cases.

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Objective: Before contemplating surgery for CSF rhinorrhoea it is important to confirm the diagnosis. The presence of CSF can be easily confirmed by immunofixation of beta-2-transferrin in the fluid. Intrathecal injection of fluorescein may be of use both in identifying a leak and in confirming the absence of a leak where clinical suspicion is high. The purpose of this study was to emphasize the importance of establishing the correct diagnosis before contemplating surgery.

Method: This was a retrospective case note review of nine patients referred with a presumed diagnosis of CSF leak.

Results: All had a history of unilateral clear rhinorrhoea. Three patients had undergone intracranial surgery for repair of a presumed anterior cranial fossa defect. None of these patients had had beta-2-transferrin measured preoperatively. All patients were negative for beta-2-transferrin, effectively excluding the diagnosis of CSF rhinorrhoea. All patients were effectively treated medically with resolution of their symptoms.

Conclusion: We would suggest that measurement of beta-2-transferrin should be considered mandatory before contemplating any surgery for presumed CSF rhinorrhoea. Where clinical suspicion is high but beta-2-transferrin is negative, fluorescein lumbar puncture in conjunction with endoscopic examination of the nose may be of use in confirming the absence of a leak.

Le Fort I maxillotomy and brachytherapy for the treatment of recurrent tumours of the nasopharynx.

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Objective: To review the results of combined surgery and brachytherapy for treatment of recurrent nasopharyngeal tumours.

Methods: Twelve patients with recurrent nasopharyngeal carcinoma were treated by a combination of surgery and

brachytherapy. The combined approach involved tumour resection or debulking, usually via a Le Fort I maxillectomy, and placement of afterloading catheters. This was followed by brachytherapy using high dose rate microselectron or iridium wires for afterloading.

Results: Follow-up ranged from seven to 86 months (mean 26.8). Local control ranged from five to 86 months (mean 25.6). There were no significant complications, although two patients had asymptomatic osteoradionecrosis of the cervical vertebrae and mild osteoradionecrosis of the external auditory canal.

Conclusions: We feel that this approach to the management of recurrent nasopharyngeal carcinoma offers significant advantages over other available techniques. Good access is provided to allow surgical excision or debulking of the recurrent tumour together with the accurate placement of afterloading catheters.

Recurrent laser treatment for recurrent respiratory papillomatosis: what should be the rôle of the pulsed dye laser?

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Objective: To determine the advantages and disadvantages of the laser in the treatment of recurrent respiratory papillomatosis (RRP) with special reference to the follow-up of the first cohort of patients in the world to undergo pulsed dye laser (PDL) therapy for this condition.

Method: Review of the first three patients to submit to PDL treatment for RRP and comparison of recurrence compared to simultaneous carbon dioxide CO₂ laser treatment of the contralateral hemilarynx in respect of recurrence and complications of treatment. This novel technique is critically assessed against those other lasers reported in the literature.

Results: Three patients at six, eight and 12 months demonstrate bilateral recurrence in only the first with none at the PDL treatment site in the latter two respectively. PDL and CO₂ site recurrence in the first patient was identical. There were no treatment complications. Literature review overwhelmingly supports the use of the CO₂ laser compared to lasers other than the PDL.

Conclusions: Preliminary results previously reported are confirmed at extended follow-up. The other advantages of the PDL cited in the body of this presentation suggest that this represents a challenge to the gold standard CO₂ management of RRP which the corpus of literature has documented.

Adverse effects of nasal continuous positive airway pressure (CPAP) therapy in sleep apnoea syndrome.

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Objective: Nasal continuous positive airway pressure (nCPAP) is the treatment of choice for patients with moderate to severe sleep apnoea syndrome although it is not without side-effects. These adverse reactions can thus indicate the acceptability and compliance of CPAP

therapy. Our study looks into those adverse features which may mitigate against compliance.

Methods: A questionnaire was sent to 350 patients treated with nCPAP at the London Chest Hospital Ventilatory Support Unit who had been treated over a 10-year-period. This asked about compliance and periodicity of the use of CPAP. All possible side effects and adverse reactions were recorded in detail.

Results: Three hundred and one completed questionnaires were returned (85.71 per cent). The average daily use of nCPAP recorded by the patients was 7.8 ± 4 hours with 83 per cent of the patients using the device every night. Two hundred and eighty-eight patients (96 per cent) complained of at least one side-effect resulting from the therapy. The side-effects could be categorized as either being due to the nasal mask, to local intranasal adverse effects or to problems due to the noise and bulk of the machine.

Conclusion: Nasal CPAP is the method of choice for the treatment of moderate to severe sleep apnoea syndrome. Our study has shown that the incidence of side-effects from this therapy is high but the treatment remains acceptable to most patients because of perceived benefits. Better design of masks and machines will alleviate some of the difficulties in compliance but greater awareness of the nasal side-effects is required and more insight as to the pathophysiology of these symptoms. These results will be presented.

Altered MUC1 and MUC2 glycoprotein expression in laryngeal cancer.

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Objective: Mucins are ubiquitous glycoproteins. Altered mucin biosynthesis is thought to be an important mediator in otolaryngological conditions such as glue ear and rhinosinusitis. MUC1 and MUC2 are mucins reported as tumour markers in breast and colorectal cancers respectively. The aim of this study is to determine the expression of mucin proteins in laryngeal cancer and dysplasia.

Method: Thirty-six laryngeal cancers and 23 dysplasias were identified from the pathology archives. Immunohistochemistry (ABC) with MUC1 and MUC2 monoclonal antibodies employed. Positive, negative and normal controls were used. Staining was recorded at $\times 100$ magnification on 10 random fields and graded positive if greater than 50 per cent positive cells.

Results: Positive MUC1 staining was detected in 19/23 (83 per cent) of dysplasias and 32/36 (89 per cent) carcinomas ($p = 0.689$ Fisher's exact test). No dysplasias were found to express MUC2 but nine out of 36 (25 per cent) of carcinomas expressed MUC2 ($p = 0.009$ Fisher's exact test). Mucin staining was detected in the submucous glands and surface epithelial cells.

Conclusion: MUC1 is widely expressed in both laryngeal dysplasia and cancer. MUC2 however is not detectable in dysplasia but is expressed by cancer cells. Therefore altered mucin expression may be an important feature in laryngeal carcinogenesis and hence mucins may have a role as tumour markers.

Differentiation of benign and malignant disease of the head and neck with 18-F-fluorodeoxyglucose and positron emission tomography: is standardized uptake value helpful?

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Objective: To evaluate whether standardized uptake value (SUV) of 18-F-fluorodeoxyglucose (FDG) and positron emission tomography (PET) can help in differentiating benign and malignant disease of the head and neck.

Method: SUV was calculated in 78 lesions (seven benign, 71 malignant) from 72 patients (42 at staging, 30 at follow-up) with squamous cell carcinoma of the head and neck. Sites of the lesions were: larynx (seven), tongue (23), oral cavity (34), tonsil (four) and mandible (four). Benign lesions were histologically described as fibrosis, granuloma, histiocytosis and inflammatory cells. A mean dose of 270 MBq of FDG was injected. Emission and transmission scans were obtained with a Siemens ECAT 951R PET scanner after 30–50 minute fasting. Diabetic patients were excluded. SUV was calculated for the highest value pixels in each lesion.

Results: All benign lesions showed an SUV < 6. In the staging group 32 of 46 malignant lesions exhibited an SUV > 6. In the follow-up group only nine of 32 lesions showed an SUV > 6 and 23 of 32 lesions had an SUV < 6.

Conclusion: With a low SUV (>6) there is overlap between benign and malignant lesions. A high SUV is more likely to represent malignancy.

The reproducibility of acoustic rhinometry and peak inspiratory flow rate in assessment of nasal function.

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Objectives: To assess the reproducibility of acoustic rhinometry and nasal spirometry.

Methods: The reproducibility of acoustic rhinometry and peak nasal inspiratory flow rate was studied in 10 subjects following decongestion with xylometazoline. For each individual, acoustic rhinometry was performed 10 times on two separate visits. Using a face mask and spirometer flow volume loops were obtained and peak nasal inspiratory flow rate calculated. Nasal spirometry was performed on two separate occasions. The peak inspiratory airflow rate through the mouth was also measured.

Results: The mean coefficient of variation of acoustic rhinometry for all patients, was calculated as 9.92 per cent. With 10 recordings the Spearman correlation coefficient between visits in all the patients was good, at 0.6727 ($p = 0.033$) and 0.9515 ($p < 0.0001$) for the left and right nostrils respectively. However, had only one recording been done at each visit this would have reduced the Spearman correlation coefficient to 0.6364 and 0.7091 (left/right). A significant gain in reproducibility is yielded by doing multiple recordings with a plateau effect of reproducibility after six recordings. Nasal spirometry was found to be a good reproducible rhinometric measure with a Spearman correlation coefficient of 0.8424 between visits. The ratio of nose to mouth flow rate was calculated and this naso-pulmonary index produced even greater reproducibility with a Spearman correlation coefficient of 0.8909 between the first and second visits.

Conclusions: Multiple acoustic rhinometry measurements improve reproducibility, with a plateau effect after six recordings. The use of a naso-pulmonary index improves the reproducibility of spirometry.

Continuous pharyngo-oesophageal manometry, a useful tool in the management of habitual snoring (HS).

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Objectives: The use of polysomnography to diagnose obstructive sleep apnoea (OSA) in habitual snoring (HS) is expensive and does not indicate the site of any obstruction detected. This study tests the sensitivity and specificity of overnight pharyngo-oesophageal manometry for identification and classification of OSA.

Method: Fifty-nine snoring patients undergoing polysomnography also had simultaneous pharyngo-oesophageal manometry using four microtip sensors mounted on a solid state catheter (Gaeltec, Scotland, UK).

Results: The apnoea hypopnoea indices (AHIs) measured by the two methods were highly correlated ($r = 0.971$). The confidence interval for the mean difference on the same subject was (-0.931, 1.832). Manometry was 100 per cent sensitive and specific in excluding OSA (AHI < 15) and identifying severe OSA (AHI > 40). It is 90 per cent sensitive in identifying moderate OSA and 80 per cent sensitive in identifying mild OSA. Manometry allowed additional diagnosis upper airway resistance syndrome (UARS) in 14 patients (25 per cent).

Conclusion: Overnight pharyngo-oesophageal manometry is a reliable tool for the exclusion of OSA and identification of severe OSA. It has three additional advantages: 1) localizing the level of obstruction, 2) identifying UARS, 3) it can be performed at home. It is thus more cost-effective than polysomnography and may aid in treatment selection for individual patients.

Oropharyngeal morphology in habitual snorers.

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Objectives: We aimed: 1) to define the differences in palatal and uvular dimensions between habitual snorers and healthy non-snoring controls, 2) to document the changes in palatal configuration after different types of palatoplasty.

Methods: A prospective controlled clinical study was designed capturing video-recordings of the soft palate and oropharynx of 225 subjects using a rigid endoscope with a reference measure applied to the soft palate. We analysed the captured pictures using the specially designed (Quantim) software for correction of fish eye deformity in endoscopic pictures.

Results:

	Healthy Volunteers n = 51 (26M, 25F)		Habitual Snorers n = 121 (87M, 34F)		Postop. patients n = 79 (57M, 22F)	
	X	SD	X	SD	X	SD
Age-y	42	12	45	10	47	9
Soft palate length-mm	24.0	3	28.1*	5	24.2 ²	4
length of Uvula-mm	10.2	3	12.2**	3		
width of Uvula-mm	6.4	1	7.3****	1		
Bet. Post. Pillars-mm	21.8 ⁰⁰⁰	4	20.4****	4	15.7 ⁰⁰	5
Versus Volunteers:-	* $p < 0.00001$		** $p < 0.0002$		*** $p < 0.00001$	
Versus Preop:-	† $p < 0.00001$		‡ $p < 0.00001$		§ $p < 0.00001$	
Versus Postop:-	¶ $p < 0.00001$		‡‡ $p < 0.00001$		§§ $p < 0.00001$	

Conclusions: Habitual snorers have increased soft palate length, increased uvula length and width, and narrowed oropharyngeal isthmus. LAUP removes the uvula and corrects the elongated palate to a normal length. LAUP, however significantly reduces the space between the posterior pillars, which may not be desirable, given the pre-existing transverse narrowing of the pharynx in habitual snorers. The Quantim software for correction of distortion deformity in images taken by endoscopes, is a simple, efficient, and commercially available technique for image analysis.

Cochlear implantation in unilateral congenital deafness in individuals with acquired contralateral deafness.

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Objective: To study the effects of cochlear implantation in unilateral auditory deprivation with its consequences on subsequent development of the auditory pathways and its plasticity in humans. The results following cochlear implantation are compared to those currently obtainable with auditory brainstem implantation so as to find the most appropriate mode of auditory rehabilitation in such patients.

Method: Two post-lingual patients who underwent cochlear implantation of the congenitally deafened ear were studied prospectively. Anacusis had resulted in adulthood from loss of hearing in the contralateral ear due to an acoustic neuroma. Both these patients were subjected to round window stimulation tests, high resolution CT scanning and MR imaging of the temporal bones. The first patient underwent cochlear implantation following removal of the tumour, whereas the second case was implanted prior to tumour removal.

Results: Post-implantation results in these patients are compared to those currently obtainable by auditory brainstem implantation in patients suffering with neurofibromatosis type 2.

Conclusion: These cases form a human model and illustrate the consequences of unilateral congenital auditory deprivation on the subsequent development of the auditory pathways and its plasticity, which has previously been well described on animal models.

The intranasal anatomy of the naso-lacrimal sac in endoscopic dacryocystorhinostomy.

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Objectives: To determine the anatomical relationship between the lacrimal sac and the insertion of the middle turbinate on the lateral nasal wall. In addition the relationship between the sac and the common canaliculus insertion will be documented.

Method: Thirty-eight patients underwent CT DCGs resulting in 47 CT DCGs. The following measurements were performed on the CT scanner: the height of the sac above and below the insertion of the common canaliculus; the amount of sac above and below the insertion of the middle turbinate on the lateral nasal wall. The CTs of the lacrimal that did not receive contrast (n = 27) were used in

conjunction with the CT DCGs (n = 47) for the measurements of the sac relative to the middle turbinate (total n = 76). Forty-seven individual lacrimal sacs were measured in relation to the common canaliculus and 76 to the insertion of the middle turbinate.

Results: Measurements taken from the long axis of the sac showed the mean height of the sac above the middle turbinate insertion was 8.8 mm (SD = 0.2; 95 per cent CI = ± 1.3) and below it was 4.1 mm (SD = 2.3; 95 per cent CI = ± 1.1). The average measurement of the sac above the common canaliculus on CT DCGs was 5.3 mm (SD = 1.7; 95 per cent CI = ± 0.56) while the average measurement below the common canaliculus was 7.7 mm (SD = 2; 95 per cent CI = ± 1.3) (n = 47 CT DCGs).

Conclusions: The findings in this study show that the major portion of the sac is located above the insertion of the anterior end of the middle turbinate and in addition, that a significant part of the sac lies above the entry point of the common canaliculus. Knowledge of these findings can ensure that the sac is adequately exposed by removal of bone and mucosa above the anterior insertion of the middle turbinate.

'Bath plug' technique for the endoscopic management of cerebrospinal fluid leaks.

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Objectives: To assess a new technique for the endoscopic closure of cerebro-spinal fluid (CSF) leaks.

Method: Most patients had lumbar drains inserted and intra-thecal fluorescein injected to localize the site of the leak. The technique consists of introducing a fat plug with a suture running the length of the plug into the intracranial cavity. As traction is applied to the suture the leak is sealed. A free mucosal graft is glued on the nasal surface of the leak followed by gelfoam packing. Tension is maintained on the suture for five days post-operatively.

Results: Nine patients have undergone CSF leak closure with this technique and have been followed up for an average of 18 months. There has been no recurrence of the CSF leak in any of the patients. There were no complications in any of the patients either intra- or post-operatively.

Conclusions: The 'bath plug' technique for closing CSF leaks is safe and reliable.

Desmoid tumours of head and neck – a report of four cases.

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Objective: Desmoid tumours are rare benign locally aggressive lesions, 12 per cent occurring in the head and neck. We present four cases and discuss the management and prognostic factors with a review of the literature to clarify aspects of the treatment of this destructive lesion.

Method: The patients with histologically confirmed desmoid of the head and neck presented between 1990 and 1994 and details of management and outcome were recorded (including illustrative computed tomography (CT) radiographs).

Results: The patients were aged 29 and 49 years (3 F, 1 M). Duration of symptoms was eight to 18 months. The site of

origin of the lesion was obvious in three cases. Pre-operative histological confirmation was obtained in three cases and all were assessed with computerized tomography. Surgical resection was performed in all cases and clear resection margins obtained in one. Three received post-operative radiotherapy. Recurrence in two cases was treated with chemotherapy. Two cases died and two were disease-free at 20 and 41 months follow up.

Conclusions: The need for accurate pre-operative assessment with histological confirmation and radiological evaluation of extent are discussed. Treatment with primary surgery and chemotherapy for recurrence and the role of radiotherapy are reviewed. The detection of recurrence and prognostic factors are considered.

Matrix metalloproteinases and their inhibitors in the nose.

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Objectives: 1) To investigate whether matrix metalloproteinases (MMPs) are present in nasal mucosa and implicated in the pathogenesis of perennial allergic rhinitis. 2) To investigate whether tissue inhibitors of the metalloproteinases (TIMPs) are also present in nasal mucosa and implicated in the relative preservation and thickening of the nasal mucosa in allergic rhinitis compared to the disruption and desquamation seen in the bronchial mucosa in asthma.

Method: Nasal biopsies were taken from well characterized subjects with perennial allergic rhinitis and non-allergic non-rhinitis controls. Proteins were detected using Western blotting and immunostaining, and mRNAs were detected using the competitive reverse transcriptase polymerase chain reaction (RT-PCR).

Results: Small amounts of mRNA for the metalloproteinases MMP-1, MMP-2, MMP-3 and MMP-9 were detected in rhinitic and non-rhinitic subjects, and small amounts of the corresponding proteins were also detected. However, large amounts of mRNA for TIMP-1 and TIMP-2 were detected, of the order of 10^5 transcripts per μg of total RNA, and 30 $\text{pg}/\mu\text{g}$ of TIMP-1 and 56 $\text{pg}/\mu\text{g}$ of TIMP-2 protein were detected.

Conclusions: Matrix metalloproteinases are present in nasal mucosa, but the high levels of tissue inhibitors may exert a protective effect.

Treatment of palatal myoclonus with *Clostridium botulinum* toxin.

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Objective: This paper reviews 15 patients referred to this unit since 1988 with palatal myoclonus and includes eight patients treated with botulinum toxin injection.

Method: The presentation and management of patients was reviewed retrospectively using case notes. Patients selected for botulinum toxin injection are injected with toxin using an electrode needle inserted into the levator palati muscle. The dosage, duration of symptomatic relief

and side-effects experienced were recorded for each injection. Recently we have measured changes in middle-ear compliance in order to obtain objective documentation of the condition.

Results: Five patients had associated movement disorders at presentation. Four patients that were treated with botulinum toxin had received a variety of previous unsatisfactory treatments. All patients treated with botulinum toxin injection gained symptomatic relief. The period of relief varied with the dose of toxin used and the patients individual sensitivity. Some improvement in symptoms was observed in 85 per cent of injections lasting up to a maximum of nine months.

Conclusion: The injection of botulinum toxin into the soft palate has proved to be a successful treatment in palatal myoclonus and may be particularly useful in cases refractory to other forms of treatment.

Systemic hydrocortisone appears to up-regulate epithelial cell proliferation in human nasal polyps: a randomized controlled trial.

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Objective: To determine if high systemic concentrations of corticosteroids can induce measurable changes in indices of cell turnover in nasal polyps.

Methods: Randomized controlled trial of 17 patients with nasal polyps requiring surgical excision. The study group (seven patients) received a single dose (100 mg) of intravenous hydrocortisone four to five hours pre-operatively. The control group (10 patients) received no injection. After nasal polypectomy sections of the excised polyps were examined for indices of cell turnover by counting apoptosis and mitosis on H+E sections, Ki-67 immunostaining and by in situ end labelling (ISEL).

Results: There was no significant difference in the apoptotic index (H+E or ISEL) in either epithelium or stroma between the two groups. There was a significant increase in mitotic index in the epithelial layer in the treatment group ($p = 0.049$). An insignificant increase in Ki-67 labelling index was noted in the hydrocortisone group.

Conclusion: Corticosteroid treatment appears to upregulate cell proliferation in the epithelium of human nasal polyps. Studies in intestinal epithelium have demonstrated corticosteroid receptors which act to stimulate epithelial turnover. It is possible that similar receptors exist in respiratory epithelium. The relation of this finding to corticosteroid treatment of nasal polyps is unclear.

The significance of high signal areas in the brainstem found on magnetic resonance imaging screening for vestibular schwannomas.

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Objective: The otolaryngologist who requests magnetic resonance imaging (MRI) scans to exclude vestibular schwannomas is frequently presented with reports containing the incidental finding of multiple high signal areas (MHSAs) in the brain, which are commonly thought to be due to cerebrovascular disease.

The objectives of the study were to ask: What is the incidence of incidental MHSAs in the brain, particularly the brainstem, found in MRI scans screening for vestibular schwannomas? Could high signal areas (HSAs) in the brain stem be responsible for the symptoms and signs resulting in the scan being performed? What is the correct management of patients with HSAs in the brainstem on their MRI scans?

Patients and method: We retrospectively analysed the results of 644 consecutive MRI scans screening for vestibular schwannomas as ordered by our Department of Otolaryngology during the years 1995–1997. The presence of asymmetrical audiovestibular symptoms including sudden and gradual sensorineural hearing loss, tinnitus, vertigo, facial numbness and facial palsy provided an indication for a screening MRI scan.

Results: Of the 644 MRI screening scans 135 (21 per cent) scans showed MHSAs in the brain. Areas particularly involved were the deep white matter, periventricular areas and brain stem. Forty-one (6.4 per cent) scans were reported to have HSAs in the brain stem.

Discussion: The significance and management of patients with HSAs in the brainstem on their MRI scans is discussed.

Mechanisms of apnoea in children with obstructive sleep apnoea syndrome: prospective study by sleep nasendoscopy.

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Objective: To examine the mechanisms of upper airway obstruction during simulated sleep in children with obstructive sleep apnoea syndrome (OSAS).

Method: Between March 1997 and February 1999, 35 children with features suggestive of obstructive sleep apnoea syndrome were examined by transnasal flexible pharyngolaryngoscopy under simulated sleep induced by intravenous administration of Midazolam. The patterns of upper airway obstruction were recorded and analysed.

Results: Thirty-two procedures (91 per cent) were successfully performed. Seventy-two per cent (23/32) of patients had features of adenotonsillar hypertrophy. Twenty-five patients (78 per cent) exhibited paradoxical breathing and apnoeic episodes with oxygen desaturation (range: 47–94 per cent). No case required oxygen therapy nor termination of the procedure. Four patterns of obstruction caused by tonsils and adenoids were documented. Uvula, tongue base, epiglottis and lateral pharyngeal walls were not observed to contribute to the obstruction.

Conclusion: This study visually documents the mechanisms of apnoeic obstruction in children with OSAS. The size and contour of both the tonsils and adenoids significantly affect the patterns of obstruction. Contrary to their adult counterparts, generalized hypotonia is not the major cause of apnoea in children.

Patient-centred benefit outcomes following endoscopic sinus surgery.

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Benefit from endoscopic sinus surgery (ESS) has not been evaluated by current literature.

Objectives: 1. This study assesses benefit following ESS using patient-centred outcomes, and compares it with satisfaction scores.

2. To identify any differences in the benefit gained by different subgroups of ESS patients to further clarify indications for this procedure.

Method: Patients undergoing ESS were surveyed with a nasal symptom questionnaire, satisfaction score and the GBI at least 12 months post-operatively.

Results: One hundred and forty patients were sent questionnaires. One hundred and one (72 per cent) responded. Mean follow-up time was 18 months (range = 12 to 51).

	n	Satisfaction score (S.D.)	GBI score
Overall	101	19	23
By diagnosis:			
Chronic sinusitis	48	17	17
Nasal polyposis	34	17	29
By symptom (for chronic sinusitis):			
Nasal obstruction	13	17	23.5
Headaches	21	18	23
Facial pain	14	15	7.6
Rhinorrhoea	9	14	5.6

There was no statistically significant differences between any of above subsets.

Conclusion: Patient benefit gained from ESS is in the middle of the range scored by other otolaryngological procedures. There was no statistical differences when analysed by age, sex, diagnosis, symptom or procedure. Importantly, there was no correlation between scores of satisfaction and benefit.

The minimally invasive use of the otoendoscopes in second look combined approach tympanoplasty.

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Objective: Otoendoscopes have been used by some surgeons to aid visualization in mastoid surgery, particularly in Europe and North America. We set out to assess the effectiveness of the otoendoscopes in achieving the goals of minimally invasive second-look combined-approach tympanoplasty.

Methods: The notes of 43 patients who had undergone second- and third-look combined-approach tympanoplasty by the senior author (D.B.) over the last five years were retrieved. Information regarding the difficulties documented were noted. The incidence of residual and recurrent cholesteatoma in second- and third-looks as well as the need to convert to full incision for re-exploration are documented.

Results: We present our results with the use of otoendoscopy in these patients with regard to the success of minimally invasive surgery.

Conclusion: We conclude that otoendoscopy is essential in minimally invasive second-look combined-approach tympanoplasty and subsequent looks. We find the endoscopes particularly useful in visualizing the sinus tympani, facial recess and hypotympanum and in reconstruction of the ossicles.

Decision making in laryngotracheal reconstruction.

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Objective: Audit of results of surgery for subglottic stenosis at Great Ormond Street Hospital for Sick Children suggested that results of surgery in very small children (under 1.5 kg) and those with co-existing medical conditions are unsatisfactory. A rational pathway for management in all children with subglottic stenosis is required.

Methods: The indications for medical treatment, endoscopic resection, cricoid split, and one and two-stage laryngotracheal reconstruction were reviewed. From the department's experience of previous results of differing procedures, the optimum treatment for a variety of presentations of subglottic stenosis was determined.

Results: Very small children may benefit from a period of waiting prior to surgery or require tracheostomy until they are large enough to consider reconstruction. Soft subglottic stenosis may respond to cricoid split alone. Endoscopic treatment may suffice in very mild stenosis but established stenosis generally requires reconstruction with graft. A flow chart was produced, identifying the appropriate conservative and surgical treatment options for all grades of subglottic stenosis and variations in patient factors such as age, weight and co-existent disease.

Conclusion: Laryngotracheal reconstruction with cartilage grafting is not suitable as a treatment for all cases of paediatric subglottic stenosis. Less extensive forms of treatment may be suitable for selected cases.

Fatal penetrating trauma of the neck – the Cape Town experience.

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Objective: We describe the injuries and management used in a large study of fatal penetrating trauma of the neck.

Methods: Retrospective case review and review of the literature.

Results: Four hundred and twenty-three patients were identified with penetrating trauma to the neck. Three hundred and four patients (71.8 per cent) survived and 119 patients (28.2 per cent) deceased. In this last group 107 were male and 12 were female. Mean age was 28.9 years. Single wounds occurred in 68 cases (57 per cent) and multiple wounds occurred in 51 cases (43 per cent). Injuries were located into three zones. Zone 1 (50 per cent) between the cricoid cartilage and the suprasternal notch, Zone 2 (34 per cent) between the angle of the mandible and the cricoid cartilage and Zone 3 (16 per cent) above the angle of the mandible. One hundred and thirty-seven vascular injuries and 63 visceral injuries were identified. Exsanguination following injury occurred in six cases (five per cent).

Conclusions: Mortality of penetrating trauma to the neck varies between three and seven per cent. The main cause of death is vascular injury and hypovolaemia. Blood loss may be internal or external. Air embolism/aspiration is an important cause of death. Injuries to the pharynx/larynx

are uncommon. Routine exploration of penetrating neck injuries is not necessary.

Spiralling audit of regular analgesia and secondary tonsillar haemorrhage.

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Objective: We carried out an audit spiral to assess the impact of regular analgesia on post-operative pain and secondary haemorrhage rates in tonsillectomy.

Method: Three cycles were completed. Change of practice were instituted after each cycle.

Results: In the first cycle, 73 per cent of 137 adult post-tonsillectomy patients responded to our questionnaires. A secondary haemorrhage rate of eight per cent were noted. In the second cycle, attempts were made to discharge every patient home on a seven-day course of regular analgesia. Seventy per cent of 114 patients responded. Seventy-eight per cent of patients received regular analgesia on discharge and a further eight per cent obtained them from their general practitioner. Four patients (3.5 per cent) were readmitted, three with secondary haemorrhage and one with dysphagia. The pain scores were significantly reduced in the second cycle. In the third cycle, attempts were made to discharge patients home on a two weeks course of diclofenac (Voltarol). Sixty-three per cent of 112 patients responded. Seventy-nine per cent of patients were prescribed Voltarol and a further 19 per cent, other analgesics. Twelve respondents (17.5 per cent) reported minor bleeding lasting an average of three days and eight patients (seven per cent) were readmitted with secondary haemorrhage. The pain scores were not significantly reduced in the third cycle.

Conclusion: We conclude that regular analgesia is indicated in every post-tonsillectomy patient but care should be given to non-steroidal anti-inflammatory drugs (NSAIDs) as these may account for the increased secondary haemorrhage rate as shown in our third cycle.

Otogenic lateral sinus thrombosis and the 'empty delta' sign.

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Objective: Lateral sinus thrombosis is a rare complication of otitis media, now with low mortality figures but still surrounded by controversies regarding the diagnosis, timing of surgical intervention, nature of such surgery and how to manage the lateral sinus/internal jugular complex. Review of published cases in the past 15 years and our own experience with five cases attempts to clarify these controversies.

Method: Since 1982, 144 cases have been reported in the literature. Our five cases had pre-operative contrasted computed tomography (CT)-scan, four had surgery, two had ultrasound of the neck veins to assess blood flow and two had post-operative CT-scan. All five had microscopy, culture and sensitivity of the ear and operative field sepsis.

Results: The reviewed cases showed 12 per cent to 27 per cent 'empty delta' sign (regarded as specific for dural sinus thrombosis) while all our cases were positive. Ninety-eight per cent of the reviewed cases and 80 per cent of ours had

mastoidectomy. The thrombosed lateral sinus was opened in 67 per cent of the reviewed and none of our cases.

Conclusion: Of prime importance in treating this disease is clearance of the ear sepsis and early, aggressive and appropriate antibiotic therapy. Surgery to the thrombosed vein itself is seldom necessary and ligation of the jugular vein rarely, if at all, necessary.

Ultrasound in the evaluation of local spread of cancer of the larynx and hypopharynx.

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Objective: Advanced carcinoma of the larynx and hypopharynx being difficult to assess clinically, imaging has to be employed to determine local infiltration. Compound tomography (CT) and magnetic resonance imaging (MRI) have certain limitations, some of which can be overcome by ultrasound.

Method: All head and neck patients in the ORL department undergo sonography of both primary and regional disease. Special emphasis being placed on local spread and vocal fold mobility. After laryngectomy the pathological specimens undergo whole organ serial sectioning and comparison with ultrasound images obtained pre-operatively.

Results: Fifty-one patients have been included. Ultrasound proved a highly accurate imaging modality to assess tongue-base, pre-epiglottic space and pre-laryngeal soft tissues, correctly identifying all patients with such involvement. The cartilaginous skeleton was easily assessed. Non-homogeneous ossification proved problematic in two, cricoid cartilage involvement was wrongly diagnosed in one and paraglottic space involvement missed in one patient. Larynx/hypopharynx infiltration was readily identified in all cases and vocal fold mobility assessed where clinical examination was impossible.

Conclusion: Ultrasound is equal to CT and MRI in certain areas and superior to CT in assessing tongue-base infiltration. It is cost-effective, accurate and non-invasive and should be employed as first-line investigation to evaluate laryngeal and hypopharyngeal malignancy.

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