

Abstract Selection

Optimizing treatment of nasal fractures. Staffel J. G. The Shea Ear Clinic, Memphis, Tennessee, USA. gregory.staffel@sheaclinic.com. *The Laryngoscope* (2002) October, Vol. 112 (10), pp. 1709–19.

OBJECTIVE/HYPOTHESIS: A graduated protocol involving closed reduction, septoplasty, osteotomies, upper lateral cartilage release, anterior perpendicular plate fracture, and camouflaging cartilage grafts yields a higher percentage of straight noses in cases of acute fracture than treatment with closed reduction alone. **STUDY DESIGN:** Retrospective chart and literature review followed by a prospective, non-randomized sequential trial. **METHODS:** Closed reduction was performed on 26 cases of acute nasal fracture and the results were compared with a subsequent series of 79 cases treated using a more complete protocol. **RESULTS:** The cases treated with the more complete protocol yielded straighter noses. The difference was statistically significant using Wilcoxon rank sum analysis at the $p = 0.028$ level. **CONCLUSIONS:** Treatment of the acutely fractured nose involving an individually tailored protocol of closed reduction, septoplasty, osteotomies, release of the upper lateral cartilages, fracture of the anterior extension of the perpendicular plate of the ethmoid, and camouflaging cartilage grafts yields straighter noses than treatment by closed reduction alone.

Otogenic sigmoid sinus thrombosis: what is the role of anticoagulation? Bradley, D. T., Hashisaki, G. T., Mason, J. C. Department of Otolaryngology–Head and Neck Surgery, University of Virginia Hospitals, Charlottesville, Virginia 22908, USA. *The Laryngoscope* (2002) October, Vol. 112 (10), pp. 1726–9.

OBJECTIVES: The treatment of otogenic sigmoid sinus thrombosis with surgery and antibiotics is well established. However, the role of anticoagulation remains unstudied. The study reviews the signs, symptoms, radiological evaluation, surgical treatment, and medical management of patients with otogenic sigmoid sinus thrombosis treated with or without anticoagulation. **STUDY DESIGN:** Retrospective review of nine patients from 1995 to 2001 with sigmoid sinus thrombosis. **METHODS:** Patients were identified by a review of all medical and radiological records. Signs, symptoms, diagnostic studies, treatments, and outcomes were recorded. In addition, telephone follow-up was performed. **RESULTS:** Nine patients were identified over a six-year period from 1995 to 2001. Patients had a mean follow-up time of nine months (range, one to 24 mo). Of the nine patients identified, eight patients (89 per cent) had tympanostomy tube placement, six patients (67 per cent) had canal wall intact mastoidectomy, and one patient (11 per cent) had canal wall down mastoidectomy. Needle aspiration of the sinus was performed in four of nine patients (44 per cent) and incision of the sinus in two of nine (22 per cent). Treatment with broad-spectrum antibiotics occurred in all patients with a mean duration of 12 d (range, two to 22 d) intravenously and seven days (range, 0–21 d) orally. Sixty-seven percent of patients (six of nine) were anticoagulated. Five patients received low-molecular-weight heparin, and one patient received heparin-coumadin. No mortality occurred in either the anticoagulated or non-anticoagulated group. One anticoagulated patient did have persistent headaches and otorrhea. **CONCLUSIONS:** Surgery and antibiotic therapy are the cornerstones of the management of otogenic sigmoid sinus thrombosis. However, the role of anticoagulation remains unclear. Because complications of embolization and persistent sepsis are low in otogenic sigmoid sinus thrombosis patients treated with or without anticoagulation, withholding anticoagulation in selected patients is reasonable. Serial imaging to monitor for thrombus progression is advisable.

Tumour volume predicts outcome for advanced head and neck cancer treated with targeted chemoradiotherapy. Doweck, I., Denys, D., Robbins K. T. Department of Otolaryngology–Head and Neck Surgery, College of Medicine, University of Tennessee Health Science Center, Memphis, Tennessee, USA. *The Laryngoscope* (2002) October, Vol. 112 (10), pp. 1742–9.

OBJECTIVES/HYPOTHESIS: Just as tumour volume is a prognostic indicator for local disease control among patients with head and neck cancer of intermediate size treated with radiation therapy, we hypothesized a similar association for patients with advanced disease treated with chemoradiation therapy. **STUDY DESIGN:** Retrospective analysis of primary and nodal tumour volume was correlated with prospectively collected treatment outcome measures. **METHODS:** Sixty-four patients with stage III–IV disease who were treated with targeted intra-arterial chemotherapy and radiation therapy (RADPLAT) were studied. Tumour volume was correlated with local disease control and survival. **RESULTS:** Primary tumour volume correlated with local disease control and survival. The greatest risk for local failure was found among patients with primary tumour volume correlated with local disease control and survival. The greatest risk for local failure was found among patients with primary tumour volume as being the only significant parameter related to local failure. Survival was only 14.1 per cent among patients with primary tumour volume greater than 19.6 cc (93.8 per cent vs. 57 per cent ($p = 0.001$)). A nominal logistic regression analysis demonstrated primary tumour volume as being the only significant parameter related to local failure. Survival was only 14.1 per cent among patients with primary tumour volume greater than 19.6 cc compared with 41.5 per cent for patients with volume less than 19.6 cc ($p = 0.0018$). A proportional hazard model indicated that the most significant and independent parameters associated with survival were primary tumour volume ($p = 0.0007$) and the site of the tumour ($p = 0.05$). **CONCLUSION:** Tumour volume is the most important factor predictive of treatment outcome among patients with advanced head and neck cancer and should be used to stratify favourable versus unfavourable patient subsets.

Acoustic properties of different cartilage reconstruction techniques of the tympanic membrane. Muerbe, D., Zahnert, T., Bornitz, M., Huettenbrink, K. B. Department of Otorhinolaryngology–Head and Neck Surgery, Dresden University Hospital, Dresden, Germany. dirk.muerbe@mailbox.tu-dresden.de. *The Laryngoscope* (2002) October, Vol. 112 (10), pp. 1769–76.

OBJECTIVES/HYPOTHESIS: The use of cartilage in reconstruction of the tympanic membrane has been established especially in cases such as tubal dysfunction and adhesive processes. Cartilage offers the advantage of higher mechanical stability compared with membranous transplants but may alter the acoustic transfer characteristics of the graft. Apart from material properties, it can be assumed that, also, the microsurgical reconstruction technique might influence the sound transmission properties of the reconstructed tympanic membrane. The purpose of the study was to investigate the acoustic transfer characteristic of different cartilage transplants being typically used in different reconstruction techniques of the tympanic membrane. **METHODS:** Cartilage plates of different thicknesses (1.0, 0.7, 0.5, and 0.3 mm), cartilage palisades, and cartilage island transplants of varying size were investigated by means of an ear canal-tympanic membrane model. In contrast to former single-point measurements, sound-induced vibrational amplitudes of the entire transplant were measured by scanning laser Doppler vibrometry (measuring points, $n = 133$) (PSV-200, Polytec, Waldbronn, Germany). Frequency response functions (displacement vs. sound pressure) of all measured points were determined in the frequency range of 200 Hz to 4 kHz for the different transplants. **RESULTS:** Cutting thick cartilage transplants into thin plates or palisades decreased the first resonance frequency and increased its amplitude, reflecting improved sound transmission properties of the transplant. From an acoustical point of view, the 0.5 mm cartilage plate seems preferable compared with the palisade technique. Cartilage island techniques showed vibration characteristics superior to plate or palisade techniques. **CONCLUSIONS:** Apart from material characteristics, the sound transmission properties of the reconstructed tympanic membrane are strongly influenced by the reconstruction technique. The

choice of the surgical technique should consider requirements based on mechanical stability and acoustic transfer characteristics of the transplant.

Sphenoid encephaloceles: disease management and identification of lesions within the lateral recess of the sphenoid sinus. Lai, S. Y., Kennedy, D. W., Bolger, W. E. Department of Otorhinolaryngology--Head and Neck Surgery, University of Pennsylvania Health System, USA. *The Laryngoscope* (2002) October, Vol. 112 (10), pp. 1800–5. **OBJECTIVES:** Encephaloceles usually involve herniation of frontal lobe tissue through an anterior cranial fossa defect into the ethmoid sinus or nasal cavity. Encephaloceles can also result from temporal lobe herniation through a middle fossa defect into the sphenoid sinus. Within the sphenoid, encephaloceles are thought to occur most commonly in the central or midline aspect of the sinus. Lateral sphenoid encephaloceles, especially within the lateral aspect of the sphenoid sinus when the sphenoid sinus has pneumatized extensively into the pterygoid recess, are considered exceedingly rare. The objectives of the study were to review our experience with sphenoid encephaloceles to understand the relative frequency and the locations in which they occur within the sphenoid sinus and to report our experience in caring for patients with this condition. **STUDY DESIGN:** Retrospective review. **METHODS:** Retrospective review of patient records and operative records from 1991 to 2000. **RESULTS:** Twelve patients were treated for intrasphenoid encephaloceles during a 10-year period. Eight patients had lesions located in the lateral recess of the sphenoid sinus. Surgical repair was undertaken in all 12 cases using endoscopic techniques. In 11 of 12 cases, the repair was successful with follow-up times of 12 to 69 months (mean follow-up, 31.9 mo). **CONCLUSIONS:** Temporal lobe encephaloceles in the lateral sphenoid sinus have been reported rarely in the literature. Careful preoperative evaluation and localization of the sphenoid defect are critical for the selection of the optimal surgical approach for repair of the skull base defect. Our 10-year experience represents the largest group of patients treated endoscopically for intrasphenoid encephaloceles reported to date.

Surgical anatomy of the sphenopalatine artery in lateral nasal wall. Lee, H. Y., Kim, H. U., Kim, S. S., Son, E. J., Kim, J. W., Cho, N. H., Kim, K. S., Lee, J. G., Chung, I. H., Yoon, J. H. Department of Otorhinolaryngology, Yonsei University College of Medicine, Seoul, Korea. *The Laryngoscope* (2002) October, Vol. 112 (10), pp. 1813–8.

OBJECTIVE: We investigated the surgical anatomy of the sphenopalatine artery. First, the location of the sphenopalatine foramen on the lateral nasal wall and the pattern of the main branches of the sphenopalatine artery from the sphenopalatine artery were studied. Second, the course of the posterior lateral nasal artery with respect to the posterior wall of the maxillary sinus, the perpendicular plate of the palatine bone, and the pattern of distribution of its branches on the fontanelle was determined. Third, the distribution pattern on the inferior turbinate was analysed. **STUDY DESIGN:** Fifty midsagittal sections of randomly selected Korean adult cadaver heads with intact sphenoid sinus and surrounding structures were used in the study. **METHODS:** The mucosa on the sphenopalatine foramen and its surrounding mucosa were removed with a microscissors, a fine forceps, and a pick to expose the sphenopalatine artery under an operating microscope (original magnification $\times 6$). **RESULTS:** The feeding vessels of the superior turbinate were from the septal artery in 36 cases (72 per cent). The feeding vessels to the middle turbinate branch originated from the proximal portion of the posterior lateral nasal artery just after exiting the sphenopalatine foramen in 44 cases (88 per cent). Some portion of the posterior lateral nasal artery ran anterior to the posterior wall of the maxillary sinus in 38 per cent. The major feeding arteries to the fontanelle were from the inferior turbinate branch in 25 cases (50 per cent). In most cases, the inferior turbinate branch was the end artery of the posterior lateral nasal artery (98 per cent). **CONCLUSIONS:** The study provides detailed information concerning the sphenopalatine artery, which we hope will help explain the arterial bleeding that may occur during ethmoidectomy, middle meatal antrostomy, conchotomy, and endoscopic ligation of the sphenopalatine artery.

Intraoperative electromyography for identification of the trapezius muscle innervation: clinical proof of a new anatomical concept. Kierner, A. C., Burián, M., Bentzien, S., Gstoettner, W. Department of Otolaryngology--Head and Neck Surgery, University Hospital

Frankfurt A.M., Frankfurt, Germany. kierner@em.uni-frankfurt.de. *The Laryngoscope* (2002) October, Vol. 112 (10), pp. 1853–6.

OBJECTIVES/HYPOTHESIS: There is still considerable controversy among surgeons on trapezius muscle innervation. In addition, the rate of unexpected postoperative trapezius paresis is unacceptably high. Recent anatomical findings might answer most of the questions. The objective of the present study was to clinically prove the recent anatomical findings, especially the concept of the innervation of the descending part of the trapezius muscle. **STUDY DESIGN:** Intraoperative electromyography of the spinal accessory nerve and its branches in the posterior triangle of the neck. **SETTING:** Intraoperative electromyography was performed during 17 modified radical neck dissections on 14 patients of both sexes ranging in age from 44 to 68 years (mean age, 56 years). Potentials were registered through pairs of needle electrodes placed in each of the three parts of the trapezius muscle. Intraoperatively, the spinal accessory nerve and its fine cranial branch passing toward the descending part of the muscle were identified and stimulated in the posterior triangle of the neck. **RESULTS:** Stimulation of the fine cranial branch of the spinal accessory nerve led to a clearly visible and recordable contraction in the descending part of the trapezius muscle in all patients. Stimulation of the main trunk of the spinal accessory nerve in the posterior triangle of the neck distal to the above-mentioned branching led to a clearly visible and recordable contraction in the transverse and ascending parts of the muscle. **CONCLUSIONS:** The results strongly support recent anatomical findings showing that, functionally, the most important descending part of the trapezius muscle is innervated by a fine single branch arising from the spinal accessory nerve in the posterior triangle of the neck. This may help to prevent more patients undergoing modified radical neck dissections from shoulder-arm syndrome.

The male predisposition to pharyngeal collapse: importance of airway length. Malhotra, A., Huang, Y., Fogel, R. B., Pillar, G., Edwards, J. K., Kikinis, R., Loring, S. H., White, D. P. Division of Sleep Medicine, Department of Medicine, Brigham and Women's Hospital, Massachusetts General Hospital, and Harvard Medical School, Boston, Massachusetts 02115, USA. amalhotra1@partners.org. *American Journal of Respiratory and Critical Care Medicine* (2002) November 15, Vol. 166 (10), pp. 1388–95.

Obstructive sleep apnea is an important disorder because of both its prevalence and its cardiovascular and neurocognitive sequelae. Despite the fact that male sex is a major risk factor for this disorder, the mechanisms underlying this predisposition are unclear. To understand the pathophysiologic basis of the male predisposition for pharyngeal collapse, we performed a detailed analysis of the anatomic and physiologic features of the upper airway in a cohort of normal and near-normal subjects (equal number of men and women). Although no important physiologic (genioglossal electromyogram, airflow resistance) differences were observed between sexes, a number of anatomic differences were apparent. The pharyngeal airway length was substantially longer in men compared with women. There was also an increased cross-sectional area of the soft palate and an increased airway volume in men compared with women. Using signal-averaged anatomic data from male and female subjects, we developed representative male and female finite element airway models. This model demonstrated the male airway to be substantially more collapsible than the female airway, solely on the basis of anatomic differences. This study suggests that the male predisposition to pharyngeal collapse is anatomically based, primarily as the result of an increased length of vulnerable airway as well as increased soft palate size.

Retained ventilation tubes: should they be removed at two years? El Bitar, M. A., Pena, M. T., Choi, S. S., Zalzal, G. H. Department of Pediatric Otolaryngology--Head and Neck Surgery, Children's National Medical Center, 111 Michigan Ave NW, Washington, DC 20010, USA. *Archives of Otolaryngology--Head and Neck Surgery* (2002) December, Vol. 128 (12), pp. 1357–60.

OBJECTIVES: To assess the complications of ventilation tubes that were retained in children for two years or longer and the necessity of removal. **DESIGN:** A retrospective chart review of all patients who underwent ventilation tube removal from 1997 to 2000, with the exclusion of patients with craniofacial anomalies. **SETTING:** A tertiary children's hospital. **PATIENTS:** One hundred twenty-six children with ventilation tubes that were retained for two years or longer. **INTERVENTIONS:** Ventilation tube removal and tympanic membrane (TM) patching. **MAIN**

OUTCOME MEASURES: Otorrhea, formation of granulation tissue, TM perforation, development of cholesteatomas, and tube insertion. **RESULTS:** A total of 126 patients aged two and a half to 14 years (59 girls and 67 boys) underwent removal of their ventilation tubes after two years or more. The patients were divided into two groups. Group 1 included 67 patients (29 girls and 38 boys) who were younger than seven years at the time of tube removal. The tubes were retained for two to five and a half years (mean retention time, 3.3 years). Group 2 included 59 patients (30 girls and 29 boys) aged seven years and older at the time of tube removal. The tubes were retained for two to 10 and a half years (mean retention time, 4.2 years). Complications such as otorrhea, formation of granulation tissue, and TM perforation were seen in 10.3 per cent, 13.8 per cent and 5.2 per cent of the patients with tube retention of two to three years, compared with 40 per cent, 40 per cent and 46.7 per cent of patients with tube retention of more than five years. In group 1, transient otorrhea, formation of granulation tissue, and TM perforation occurred in 13.4 per cent, 7.4 per cent and six per cent of the patients, respectively, after two years of tube retention. In group 2, similar complications occurred in 23.7 per cent, 25.4 per cent and 27.1 per cent of the patients, respectively. Forty-six patients in group 1 underwent TM patching (31 with paper and 15 with absorbable gelatin film, with a success rate of 91.3 per cent; however, eight patients (11.9 per cent) required tube reinsertion. In group 2, patching of the TM was done in 40 patients (13 with paper, 24 with absorbable gelatin film, and three with fat), with a success rate of 67.5 per cent. Tube reinsertion was necessary in 1.7 per cent of the patients in group 2. No cholesteatoma was encountered. **CONCLUSIONS:** Higher complication rates are seen in children when ventilation tubes are retained longer than two years. Children seven years and older have a higher incidence of complications from the tube retention than children younger than seven years. Early removal of ventilation tubes in children younger than seven years of age, when the risk for otitis media is still present, may result in the need for tube reinsertion.

Presentation, diagnosis, and management of deep-neck abscesses in infants. Cmejrek, R. C., Cotichia, J. M., Arnold, J. E. Department of Otolaryngology, University Hospitals of Cleveland, 11100 Euclid Avenue, Cleveland, OH 44106-6010, USA. *Archives of Otolaryngology-Head and Neck Surgery* (2002), December, Vol. 128 (12), pp. 1361-4.

OBJECTIVE: To clarify the presenting signs and symptoms, clinical course, pathogenic organisms, and management of deep-neck-space abscesses in infants. **DESIGN:** Retrospective chart review. **SETTING:** Tertiary care academic children's hospital. **PATIENTS:** Records of 25 patients nine months or younger with deep-neck-space abscesses from July 1989 through May 1999 were reviewed. **MAIN OUTCOME MEASURE:** Resolution of abscess. **RESULTS:** Presenting symptoms included neck mass, 92 per cent ($n = 23$); fever, 60 per cent ($n = 15$); and dysphagia and/or poor intake by mouth, 36 per cent ($n = 9$). Overall, patients were symptomatic for a mean duration of 3.8 d before presenting to the hospital; 21 of 22 evaluated patients had elevated white blood cell counts. Imaging included 68 per cent computed tomographic scan ($n = 17$) and 44 per cent plain radiographs ($n = 11$). On the basis of radiology and operative findings, locations of the abscesses were as follows: anterior triangle, eight; parapharyngeal, five; posterior triangle, retropharyngeal, and undefined, three each; submandibular, two; and parotid, one. Of 17 scanned patients, 13 had some degree of airway compromise evident on computed tomography. All were treated with incision and drainage, three of 25 intraorally and 22 of 25 externally. Pus was identified in all 25; 20 of these grew *Staphylococcus aureus*, one grew group A *Streptococcus*, and four grew no organism. All patients received intravenous antibiotics for a mean of 4.8 d and oral antibiotics for a mean of 11 d. Only one patient required a second procedure. **CONCLUSIONS:** Deep-neck-space abscesses in infants are rapidly progressive, often cause airway compromise, and usually present with fever and neck mass. The most common pathogen is *S aureus*. Patients are effectively treated with incision and drainage coupled with intravenous followed by oral antibiotics.

Otolaryngologic surgery in children with von Willebrand disease. Jimenez, Y. V., Prim, M. P., De Diego, J. I., Villar, A., Quintana, M., Rabanal, I., Sastre, N., Hernandez, N. F. C/Arzobispo Morcillo No. 12, 1 C 28029, Madrid, Spain. *Archives of Otolaryngology-*

Head and Neck Surgery (2002), December, Vol. 128 (12), pp. 1365-8. **OBJECTIVE:** To assess the efficacy, safety, and complications of otolaryngologic surgery in children with von Willebrand disease (vWD) undergoing surgery. **DESIGN:** A prospective, controlled study of 41 children with vWD who underwent surgery between June 1, 1999, and January 31, 2001. **SETTING:** A tertiary care, university-based children's hospital. **INTERVENTIONS:** All children had a preoperative diagnosis of vWD. The patients were treated with either a protocol that includes the use of desmopressin acetate and tranexamic acid (37 children) or factor VIII concentrate in children with a positive history of seizures (four children). **MAIN OUTCOME MEASURES:** Immediate and delayed postoperative bleeding, hyponatremia, seizures, and urine output. **RESULTS:** Two adenotonsillectomy patients (five per cent) had an immediate postoperative hemorrhage. Delayed postoperative bleeding was not detected in our patients. Severe hyponatremia occurred in two patients (one of them with clinical manifestations). **CONCLUSIONS:** Our management of children with vWD was efficacious in otolaryngologic surgery. Our child had important adverse effects with the use of desmopressin (seizure). Thus, the use of desmopressin should be weighed and closely monitored.

Nonsurgical treatment of prominent ears with the Auri method. Sorribes, M. M., Tos, M. Jyllingeparken 156, 4040 Jyllinge, Denmark. *Archives of Otolaryngology-Head and Neck Surgery* (2002) December, Vol. 128 (12), pp. 1369-76.

OBJECTIVE: To present and test a new method for conservative correction of prominent pinnae in children aged between two weeks and 5.5 years. **DESIGN:** Prospective study on 56 pinnae from 44 children aged between 0.25 and 5.5 years, treated with Auri method, which consists of a clip and a strip. The clip is a specially designed plastic clamp used during the night for an average of 4.3 hours per night. It squeezes the cartilage and makes a fold at the place of the missing antihelix. The strip is a double adhesive fixture used during daytime for an average of 8.9 hours per day. To test the efficiency of the treatment objective (thickness and stiffness of the pinna, cephaloauricular distance, and photodocumentation) and subjective (investigators' and parents' judgment of the shape and grade of the correction of the pinnae) parameters have been applied. **RESULTS:** Of the children, 38 (86 per cent) achieved good to fair correction of their pinnae. Of the parents, all 44 (100 per cent) were satisfied with the treatment and 35 (80 per cent) reported good to fair correction of their child's pinnae. Slight complications were observed in 13 children (30 per cent): 10 (23 per cent) had temporary irritation of the skin of the pinna and three (seven per cent) had slight temporary squeeze marks of the pinnae. Of the 44 children, 31 were evaluated 10 months after completing treatment, and the pinnae of 38 children (86 per cent) maintained their corrected shape. **CONCLUSIONS:** Correction of the prominent pinnae can be done by the new nonsurgical Auri method in children aged between 0.25 and 5.5 years, which provided good to fair results in 89 per cent of pinnae in this study. The method is efficient in the short term and easy to use by the parents, but it requires long-term motivation of the parents as well as the child. The child can be treated at early age, avoiding psychosocial and cosmetic problems during school age.

A proposal for redefining the boundaries of level V in the neck: is dissection of the apex of level V necessary in mucosal squamous cell carcinoma of the head and neck? Hamoir, M., Desuter, G., Gregoire, V., Reyckler, H., Rombaux, P., Lengele, B. Department of Otolaryngology-Head and Neck Service, St Luc University Hospital, 10 Hippocrate Avenue, 1200 Brussels, Belgium. hamoir@orlo.ucl.ac.be *Archives of Otolaryngology-Head and Neck Surgery* (2002) December, Vol. 128 (12), pp. 1381-3.

In 1991, the Committee for Head and Neck Surgery and Oncology of the American Academy of Otolaryngology-Head and Neck Surgery proposed to define the anatomic boundaries between the lymph node levels in the neck, as initially described by the Memorial Sloan-Kettering Cancer Center (New York, NY). Recently, radiological parameters have been outlined to identify boundaries between various neck levels. The lymphatics of the posterior triangle of the neck are gathered in level V, recently subdivided into two subgroups: level Va and level Vb. The superior boundary of level Va is defined by the apex of the convergence of the sternocleidomastoid muscle and trapezius muscle. Based on anatomic evidence and surgical experience, we advocate the subdivision of level Va into two sections: the apex of

level Va or level Vas (superior) and level Vai (inferior), demarcated by the lower two thirds of the spinal accessory nerve. Dissection of level Vas is not necessary in most head and neck cancers but should be considered only in selected skin cancer of the posterior cephalic area (retroauricular region, occipital scalp).

Laparoscopic harvest of the jejunal free flap for reconstruction of hypopharyngeal and cervical esophageal defects. Wadsworth, J. T., Futran, N., Eubanks, T. R. Department of Otolaryngology–Head and Neck Surgery, Eastern Virginia Medical School, 825 Fairfax Avenue, Suite 510, Norfolk VA 23507, USA. wadswojt@evmsmail.evms.edu. *Archives of Otolaryngology–Head and Neck Surgery* (2002) December, Vol. 128 (12), pp. 1384–7.

BACKGROUND: Reconstruction of hypopharyngeal and cervical esophageal defects remains one of the greatest challenges to head and neck and reconstructive surgeons. Although the jejunal free flap is a well-known reconstructive choice, many authors prefer alternative methods because of the complication rates and donor site morbidity associated with traditional jejunal flap harvest. Laparoscopic resection of the small intestine is a well-documented surgical technique. However, laparoscopic harvest of a jejunal segment for use in free tissue transfer reconstruction of defects of the hypopharynx and cervical esophagus has primarily been described in animal models, with only a few clinical studies existent in the recent literature. **OBJECTIVE:** To evaluate the use of a laparoscopic technique for harvesting jejunal segments for use in free tissue transfer reconstruction of pharyngoesophageal defects. **PATIENTS AND METHODS:** The records of 12 patients who underwent laparoscopic jejunal flap harvest for reconstruction of large hypopharyngeal or cervical esophageal defects at the University of Washington, Seattle, from January 1998 through April 2001 were retrospectively reviewed. Time of harvest, need to convert to ‘open’ technique, failure rate, complications, and length of hospital stay were evaluated. **RESULTS:** All harvests were completed laparoscopically. The average operative time for the abdominal portion of the procedure was 2.4 hours. Warm ischaemia time required for flap removal from the peritoneal cavity was less than four minutes. Each patient received a completely endoscopic jejunum harvest, bowel reanastomosis, and placement of a feeding jejunostomy tube. Enteral feedings began on the first postoperative day. No major complications were seen resulting from this technique, and no donor site morbidity was identified. All flaps were viable, with no revisions required. Activity in hospital and time to discharge were independent of the abdominal procedure. **CONCLUSION:** Given the low complication rate and relative ease of harvest, we conclude that this new technique is currently the best way to harvest jejunal flaps for reconstructing these challenging defects and should renew enthusiasm for this versatile flap.

Bilateral vocal fold paresis and multiple system atrophy. Blumin, J. H., Berke, G. S. PENN Center for Voice, Pennsylvania Hospital, 800 Spruce Street, Philadelphia, PA 19107, USA. bluminj@pahosp.com. *Archives of Otolaryngology–Head and Neck Surgery* (2002) December, Vol. 128 (12), pp. 1404–7.

OBJECTIVE: To review a case series of patients with systemic neurodegenerative disease presenting to a laryngologist for workup of dysphonia and found to have bilateral vocal fold paresis. **DESIGN:** Case series. **SETTING:** Tertiary care voice center. **PATIENTS:** Series of patients with neurodegenerative disorders examined for dysphonia. **MAIN OUTCOME MEASURES:** History and physical examination including fiberoptic laryngoscopy were performed on all patients. Some patients underwent polysomnography. **RESULTS:** Seven patients during a two-year period were noted to have bilateral abductor vocal fold paresis. Five of seven (71 per cent) had the diagnosis of multiple system atrophy proposed by the laryngologist. All seven patients described sleep-disordered breathing with stridor. **CONCLUSIONS:** Patients with systemic neurodegenerative disorders such as Parkinson disease should be examined for multiple system atrophy and for evidence of bilateral vocal fold paresis. Workup for stridor should include polysomnography. Treatment of glottic obstruction in these patients includes constant positive airway pressure at night or tracheotomy. The finding of bilateral vocal fold paresis can be life threatening.

Evaluation and surgical management of isolated sphenoid sinus disease. Martin, T. J., Smith, T. L., Smith, M. M., Loebl, T. A. Medical College of Wisconsin, 9200 W. Wisconsin Avenue,

Milwaukee, WI 53226, USA. *Archives of Otolaryngology–Head and Neck Surgery* (2002) December, Vol. 128 (12), pp. 1413–9.

OBJECTIVES: To evaluate the pathologic conditions, preoperative evaluation, treatment, and clinical outcomes associated with sphenoid sinus disease. **DESIGN:** Retrospective study. **SETTING:** Tertiary university-based referral center. **PATIENTS:** All patients with isolated sphenoid sinus disease managed surgically or in which surgery was considered a primary treatment option. **MAIN OUTCOME MEASURES:** Demographic data, presenting signs and symptoms, endoscopic and imaging findings, surgical management, surgical pathology, and clinical outcomes were investigated in patients presenting with sphenoid sinus disease to the Medical College of Wisconsin, Milwaukee, between January 1, 1991, and December 31, 2001. **RESULTS:** The study population included 17 women and 12 men with a mean age of 52.3 years (range, 15–82 years). The most common presenting symptom was headache (20 patients (69 per cent)). Imaging evaluation included computed tomography and/or magnetic resonance imaging studies in all cases. Sphenoid sinus abnormality was variable and included sinusitis (11 patients (38 per cent)), tumour (seven (24 per cent)), mucocele (five (17 per cent)), fungal process (three (10 per cent)), and cerebrospinal fluid fistula (three (10 per cent)). Twenty-one cases (72 per cent) were managed endoscopically and four (14 per cent) were managed with a transseptal approach. One patient (three per cent) underwent combined extracranial-endoscopic transnasal approach, while another (three per cent) underwent a midface degloving approach. The remaining two patients (seven per cent) did not undergo surgical intervention. **CONCLUSIONS:** Given the high prevalence of noninflammatory lesions within the sphenoid sinus, thorough preoperative evaluation is imperative. Initially, this should include nasal endoscopy and computed tomography to help define the location, extent, and character of the lesion. In some cases, magnetic resonance imaging may help further define the nature and extent of a lesion. Angiography should be considered if a vascular lesion is suspected. The clinical and imaging findings should all be taken into consideration when the surgical approach is planned.

Role of short latency evoked potentials in the diagnosis of brain death. Facco, E., Munari, M., Gallo, F., Volpin, S. M., Behr, A. U., Baratto, F., Giron, G. P. Department of Pharmacology and Anesthesiology E. Menghetti, University of Padua, via C. Battisti 267, 35121 Padua, Italy. enrico.facco@unipd.it. *Clinical Neurophysiology* (2002) November, Vol. 113 (11), pp. 1855–66.

OBJECTIVE: The aim of this study is to confirm the effectiveness of auditory brain-stem responses (ABRs) and somatosensory evoked potentials (SEPs) in the diagnosis of brain death (BD). **METHODS:** ABRs and SEPs were recorded at the same session in 130 BD patients (age range eight to 77 years, 81 male and 49 female). Twenty-four cases were submitted to serial recordings from preterminal conditions through BD. **RESULTS:** ABRs were absent in 92 cases (70.8 per cent), only waves I or I-II were present in 32 cases (24.6 per cent), while in the remaining six patients (4.6 per cent) waves V and/or III were still present, excluding the death of the brain-stem. In four cases (3.1 per cent) SEPs showed the absence of all components following the cervical N9, preventing the diagnosis of BD. Among 126 cases (96.9 per cent) with preserved cervical N9-N13 SEPs confirmed the absence of brain-stem activity in 122 cases (93.7 per cent), in whom no waves following P11 or P13 were recordable. SEPs excluded the diagnosis of BD in the remaining four cases (3.2 per cent) showing preserved P14 and/or N18. In all pre terminal patients the far-field P14-N18 were present, and their disappearance was closely related to the onset of BD. **CONCLUSIONS:** The combined use of ABRs and SEPs was able to confirm BD in almost all patients, providing an objective confirmation of the diagnosis, and to exclude it in seven cases, thus improving the reliability of diagnosis.

Anatomy and embryology of the external ear and their clinical correlation. Park, C., Roh, T. S. Department of Plastic Surgery, Yong Dong Severance Hospital, Yonsei University College of Medicine, Seoul, South Korea, chulpark@yumc.yonsei.ac.kr. *Clinics in Plastic Surgery* (2002) April, Vol. 29 (2), pp. 155–74. The vascular anatomy for design and execution of various flaps of the auricular region is outlined with emphasis on clinical correlation. A new classification of various flap compositions from the postauricular region based on histologic and anatomic observations is proposed, together with a corresponding clinical

example used in different clinical situations. Sound knowledge of the vascular pattern surrounding the auricle provides immense versatility in performing flap operations in this region. A summary of the controversy and updates on auricular embryology is provided in relation to various congenital malformations.

Microvascular ear replantation. Kind, G. M. The Buncke Clinic, California-Pacific Medical Center, and University of California at San Francisco, 94114, USA. gkind@yahoo.com. *Clinics in Plastic Surgery* (2002) April, Vol. 29 (2), pp. 233–48.

Microvascular ear replantation is a rare event, having been reported only 25 times since the first case in 1980. It requires a lengthy operative time and hospital stay, results in multiple blood transfusions, and has a significant failure rate. Nevertheless, a successful ear replantation is a dramatic demonstration of the power of microsurgery to restore a lost part. When successful, it obviates the need for other complex reconstructive efforts and provides an unsurpassed aesthetic result. This article reviews the history of microsurgical and nonmicrosurgical ear replantation and presents recommendations for treatment.

Otoplasty for prominent ears. Furnas, D. W. dfunasmd@aol.com. *Clinics in Plastic Surgery*. (2002) April, Vol. 29 (2), pp. 273–88.

Protruding ears may be a source of psychological distress in either sex and at any age. A truly gratifying psychological response to a well performed otoplasty is the rule. If the neonate with protruding ears, mildly constricted ears, Stahl's ear, or cryptotia is seen by a plastic surgeon during the baby's first days of life, the timing is auspicious. If the process of shaping the ear with molding splints and Steri-Strips is promptly initiated, correction of the problem without surgery is a realistic expectation. The urgency and the effectiveness of early nonsurgical treatment of such ears is not yet widely appreciated by those responsible for primary medical care of neonates. The plastic surgeon is in a position to increase awareness of the availability and effectiveness of this technique.

Intracranial complications of sinusitis: a 15-year review of 39 cases.

Younis, R. T., Lazar, R. H., Anand, V. K. Division of Otolaryngology, Department of Surgery, University of Mississippi Medical Center, Jackson, USA. ryounis@med.miami.edu. *Ear, Nose and Throat Journal* (2002) September, Vol. 81 (9), pp. 636–8. Despite improvements in antibiotic therapies and surgical techniques, sinusitis still carries a risk of serious and potentially fatal complications. We examined the charts of 82 patients who had been admitted to the University of Mississippi Medical Center between January 1, 1985 and December 31, 1999, for treatment of complications of sinusitis. Of these 82 patients, 43 had orbital complications and 39 had intracranial complications. In this article, we describe our findings in those patients who had intracranial complications (our findings in patients with orbital complications will be reported in a future article). The most common intracranial complication was meningitis; others were epidural abscess, subdural abscess, intracerebral abscess, Pott's puffy tumour, and superior sagittal sinus thrombosis. Most patients with meningitis were treated with drug therapy only; patients with abscesses were generally treated with intravenous antibiotics and drainage of the affected sinus and the abscess. Advancements in antibiotic therapy, endoscopic surgery, imaging studies, and computer-assisted surgery have helped improve outcomes. Management of these patients should be undertaken immediately and is best achieved via a multidisciplinary approach, involving the otolaryngologist, neurosurgeon, radiologist, anesthesiologist, infection disease specialist, pediatrician, internist and others.

Unusual MRI appearance of an intracranial cholesteatoma extension: the 'billiard pocket sign'. Quaranta, N., Chang, P., Moffat, D. A. Department of Otolaryngological and Skull Base Surgery, Addenbrooke's Hospital, Cambridge, U.K. *Ear, Nose and Throat Journal* (2002) September, Vol. 81 (9), pp. 645–7.

We describe a unique case of an intracranial extension of acquired cholesteatoma. Previous reports have described cholesteatoma extension through the middle fossa plate and into the middle cranial fossa, but to our knowledge ours is the first report of a case in which the sac herniated into the temporal lobe and overlying dura from a site far lateral to the otic capsule. The findings on magnetic resonance imaging were most unusual, and we call the

radiologic characteristics of the mass in this case the "billiard pocket sign". We also discuss the possible mechanisms that produced such an image.

Bilateral vocal process papillomas: report of a case. Sidle, D. M., Haines, G. K. IIIrd, Altman K. W. Department of Otolaryngology-Head and Neck Surgery, Northwestern University Medical School, 303 E. Chicago Ave., Searle 12-561, Chicago, IL 60611, USA. *Ear, Nose and Throat Journal* (2002) November, Vol. 81 (11), pp. 790–1.

We describe a case of bilateral vocal process lesions in a 65-year-old man. His history was strongly suggestive of vocal process granulomas: previous gastroesophageal reflux, intubation, smoking, and oral squamous cell carcinoma. Medical management with a proton-pump inhibitor, reflux precautions, voice therapy, and adequate hydration yielded no results. Subsequent surgical intervention revealed that he had squamous papillomas. We also provide a brief review of vocal process granulomas and squamous papillomas.

Free-radical damage: a possible mechanism of laryngeal aging. Diamond, J., Skaggs, J., Manaligod, J. M. Department of Otolaryngology-Head and Neck Surgery, University of Iowa Hospital and Clinics, 200 Hawkins Drive, Iowa City, IA 52242, USA. *Ear, Nose and Throat Journal* (2002) August, Vol. 81 (8), pp. 531–3.

We conducted a study of lipid peroxidation as a marker of age-related free-radical damage in the human larynx – the first study of its kind. A colorimetric assay for malondialdehyde (MDA) and 4-hydroxy-2-nonenal (4-HNE) was performed on extracts taken from thyroarytenoid muscle harvested from fresh cadaveric laryngeal specimens. Levels of MDA and 4-HNE were measured by spectrophotometry. Correlation studies were performed by linear regression analysis. We found that MDA levels in human thyroarytenoid muscle appeared to increase with age while 4-HNE levels showed a slight decrease with age. Our findings are consistent with those of previous studies of other organ systems and indicate that there is a need for further study of free-radical damage and the effects of aging on the human larynx and on voice production.

Cocaine-induced oronasal fistulas with external nasal erosion but without palate involvement. Vilela, R. J., Langford, C., McCullagh, L., Kass, E. S. National Institute of Deafness and Other Communication Disorders, National Institutes of Health, Bldg. 10, Room 5C400, 10 Center Drive, MSC 1750, Bethesda, MD 20892-1750, USA. *Ear, Nose and Throat Journal* (2002) August, Vol. 81 (8), pp. 562–3.

The effects of chronic cocaine abuse have been widely described in the literature. Common complications include nasal septal perforation, saddle-nose deformity, and palatal perforation. Erosion of the external structures of the face has not been as extensively described, nor have oronasal fistulas that involve structures other than the hard or soft palate. In this article, we present the first reported case of cocaine-induced external nasal erosion that included multiple oronasal fistulas in the anterior gingival sulcus but did not involve the hard or soft palate. We stress the importance of a thorough history in such patients and consideration of all possible diagnoses, including drug abuse.

Treatment of acoustic neuroma: stereotactic radiosurgery vs microsurgery. Karpinos, M., Teh-Bin, S., Zeck, O., Carpenter, L. S., Phan, C., Mai, W. Y., Lu, H. H., Chiu, J. K., Butler, E. B., Gormley, W. B., Woo, S. Y. Department of Radiology/Section of Radiation Oncology, Baylor College of Medicine, Houston, TX 77030, USA. *International Journal of Radiation Oncology, Biology, Physics* (2002) December 1, Vol. 54 (5), pp. 1410–21.

PURPOSE: Two major treatment options are available for patients with acoustic neuroma, microsurgery and radiosurgery. Our objective was to compare these two treatment modalities with respect to tumour growth complications, functional outcome, and patient satisfaction. **METHODS AND MATERIALS:** To compare radiosurgery with microsurgery, we analysed 96 patients with unilateral acoustic neuromas treated with Leksell Gamma Knife or microsurgery at Memorial Hermann Hospital, Houston, Texas, between 1993 and 2000. Radiosurgery technique involved multiple isocenter (1-30 single fraction fixed-frame magnetic resonance imaging) image-based treatment with a mean dose prescription of 14.5 Gy. Microsurgery included translabyrinthine, suboccipital,

and middle fossa approaches with intraoperative neurophysiologic monitoring. Preoperative patient characteristics were similar except for tumour size and age. Patients undergoing microsurgery were younger with larger tumours compared to the radiosurgical group. The tumours were divided into small 2.0 cm, medium 2.0–3.9 cm, or large >4.0 cm. Median follow-up of the radiosurgical group was longer than the microsurgical group, 48 months (three to 84 months) vs. 24 months (three to 72 months). **RESULTS:** There was no statistical significance in tumour growth control between the two groups, 100 per cent in the microsurgery group vs. 91 per cent in the radiosurgery group ($p>0.05$). Radiosurgery was more effective than microsurgery in measurable hearing preservation, 57.5 per cent vs. 14.4 per cent ($p=0.01$). There was no difference in serviceable hearing preservation between the two groups. Microsurgery was associated with a greater rate of facial and trigeminal neuropathy in the immediate postoperative period and at long-term follow-up. The rate of development of facial neuropathy was significantly higher in the microsurgical group than in the radiosurgical group (35 per cent vs. 0 per cent, $p=0.01$ in the immediate postsurgical period and 35.3 per cent vs. 6.1 per cent, $p=0.008$, at long-term follow-up). Similarly, the rate of trigeminal neuropathy was significantly higher in the microsurgical group than in the radiosurgical group (17 per cent vs. 0 per cent in the immediate postoperative period, $p=0.001$, and 22 per cent vs. 12.2 per cent, $p=0.009$, at long-term follow-up). There was no significant difference in exacerbation of preoperative period, $p=0.001$, and 22 per cent vs. 12.2 per cent, $p=0.009$, at long-term follow-up). There was no significant difference in exacerbation of preoperative tinnitus, imbalance, dysarthria, dysphagia, and headache. Patients treated with microsurgery had a longer hospital stay (two to 16 d vs. one to two days, $p=0.01$) and more perioperative, complications (47.8 per cent vs. 4.6 per cent, $p=0.01$) than did patients treated with radiosurgery. There was no correlation between the microsurgical approach used and postoperative symptoms. There was no difference in the postoperative functioning level, employment, and overall patient satisfaction. There was no correlation between the radiation dose, tumour size, number of isocenters used, and postoperative symptoms in the radiosurgical group. **CONCLUSION:** Radiosurgical treatment for acoustic neuroma is an alternative to microsurgery. It is associated with a lower rate of immediate and long-term development of facial and trigeminal neuropathy, postoperative complications, and hospital stay. Radiosurgery yields better measurable hearing preservation than microsurgery and equivalent serviceable hearing preservation rate and tumour growth control.

Impact of the model C and Automatic Positioning System on gamma knife radiosurgery: an evaluation in vestibular schwannomas. Regis, J., Hayashi, M., Porcheron, D., Delsanti, C., Muracciole, X., Peragut, J. C. Department of Stereotactic and Functional Neurosurgery, Timone University Hospital, Marseille, France. jregis@ap-hm.fr. *Journal of Neurosurgery* (2002) December, Vol. 97 (5 Suppl), pp. 588–91.

OBJECT: The technical advances associated with the model C gamma knife include a robotized system enabling automatic positioning of the stereotactic coordinates. The purpose of this study was to analyse the clinical impact of this technical modification. **METHODS:** The authors studied a sample of patients with vestibular schwannoma (VS). This sample included three groups treated using gamma knife radiosurgery. Group I comprised 21 patients with VS treated just before the installation of the Automatic Positioning System (APS). Group II included patients in Group I with new dose plans created using the APS (in other words, simulated dose plans). Group III consisted of a control group of 20 patients matched the tumour grade with the previous group and treated recently with the APS. Treatment times were calculated after connecting the time for each shot according to the age of the sources after reloading. The treatment times, including total time, irradiation time, and duration of the neurosurgical procedure, were analysed. In addition, dose planning including number of isocenters, number of different collimators, malfunctions, and the conformity and selectivity indices were recorded. The trend was to reduce the mean number of collimator runs from 7.9 to 1.2 and to increase the mean number of shots from 7.9 to 15.6, mostly by using the 4 mm collimator exclusively. The APS-related conformity and selectivity were improved from 95 to 97 per cent and from 78 to 84 per cent, respectively. The total treatment time was reduced by 53 per cent,

and time required to interact with the patient in the room was considerably reduced (75 per cent), giving the neurosurgeon greater freedom to perform other tasks during the treatment period. The reduction of the time spent by the neurosurgeon at work in the room was 84 per cent. The total radiation time was increased by 54 per cent. **CONCLUSIONS:** The preliminary results of this study indicate that the robotization of the gamma knife is likely a major advance in radiosurgery.

Endoscopic image-guided transthyroid pituitary surgery. Thomas, R. F., Monacci, W. T., Mair, E. A. Otolaryngology–Head and Neck Surgery, Service and the Neurosurgery Service, Walter Reed Army Medical Center, Washington, DC, USA. *Otolaryngology–Head and Neck Surgery* (2002) November, Vol. 127 (5), pp. 409–16.

OBJECTIVE: We describe a new endoscopic transthyroid approach for pituitary surgery and to compare it with other surgical techniques. **STUDY DESIGN AND SETTING:** Eleven patients undergoing pituitary surgery from September 2000 through January 2002 underwent an image-guided endoscopic transthyroid procedure to remove pituitary tumours. Ease of approach, resection, exposure of the surgical field, and operative complications were documented. **RESULTS:** Endoscopic ethmoidectomy permits enhanced exposure and simplified tumour resection. The use of one nostril to stabilize the endoscope and the other to pass instruments affords a bimanual procedure that avoids the difficulty of small nares and keeping the scope fixed while exchanging instruments. Operative morbidity was low with no significant complications in this pilot study. **CONCLUSIONS:** This approach opens a generous operative exposure while safely allowing room to endoscopically maneuver and affords direct access should revision surgery be needed. **SIGNIFICANCE:** This procedure uses a technique familiar to otolaryngologists and may be used for pituitary and other skull base tumours.

Voice and treatment outcome from phonosurgical management of early glottic cancer. Zeitels, S. M., Hillman, R. E., Franco, R. A., Bunting, G. W. Department of Otolaryngology and Laryngology, Harvard Medical School, Boston, Massachusetts, USA. *The Annals of Otolaryngology, Rhinology and Laryngology* (2002) December, Vol. 110, pp. 3–20.

Phonosurgical management of early glottic cancer has evolved considerably, but objective vocal outcome data are sparse. A prospective clinical trial was done on 32 patients with unilateral cancer (T1a in 28 and T2a in four) who underwent ultranarrow-margin resection; 15 had resection superficial to the vocal ligament, and 17 deep to it. The subepithelial infusion technique facilitated selection of these patients for the appropriate procedure. All are cancer-free without radiotherapy or open surgery. Involvement of the anterior commissure (22/32) or the vocal process (15/32) of the arytenoid cartilage did not influence local control. Nine of 17 patients had resection of paraglottic musculature, and all underwent medialization reconstruction by lipoinjection and/or Gore-Tex laryngoplasty. Eight of the 17 had resections deep to the vocal ligament, but without vocalis muscle, and one of the eight underwent medialization. Posttreatment vocal function measures were obtained for all patients. A clear majority of the patients displayed normal values for average fundamental frequency (72 per cent) during connected speech, and normal noise-to-harmonics ratio (75 per cent) and average glottal airflow (91 per cent) measures during sustained vowels. Smaller majorities of patients displayed normal values for average sound pressure level (SPL; 59 per cent) during connected speech and for maximum ranges for fundamental frequency (56 per cent) and SPL (59 per cent). Fewer than half of the patients displayed normal values for sustained vowel measures of jitter (45 per cent), shimmer (22 per cent) and maximum phonation time (34 per cent). Almost all patients had elevated subglottal pressures and reduced values for the ratio of SPL to subglottal pressure (vocal efficiency). There were significant improvements in a majority of patients for most vocal function measures after medialization reconstruction. Normal or near-normal conversation-level voices were achieved in most cases, regardless of the disease depth, by utilization of a spectrum of resection and reconstruction options. These favourable results are based on establishing aerodynamic glottal competency and preserving the layered microstructure of noncancerous glottal tissue.