Surgery for VS reduces patients’ QOL, and the preservation of hearing, achieved by using a middle fossa surgical approach, does not significantly alter this result.

**Background:** Hearing preservation is often a significant concern to patients trying to decide what treatment to undergo for a vestibular schwannoma (VS). However, does hearing preservation really have a significant impact on the quality of life (QOL) in this patient population?  

**Objective:** To measure QOL after VS surgery via hearing preservation (middle fossa) and translabyrinthine approaches.  

**Design:** Retrospective questionnaire.  

**Participants:** 104 patients who underwent VS surgery over a 6-year period participated. A total of 83 surveys were returned.  

**Methods:** All patients were requested to return both the SF-36 and the Glasgow Benefit Inventory (GBI) after their surgery. The SF-36 is a fairly general survey that includes 36 questions measuring 8 domains. The SF-36 scores were compared with controls from the general population. The GBI is an otolaryngology-specific index that asks patients to compare their current level of functioning to that prior to surgery.  

**Interventions:** The middle cranial fossa approach was used in 24 cases, the translabyrinthine approach was used in 79, and 1 patient had a retrosigmoid approach.  

**Results:** Of 24 patients who had hearing preservation surgery, 6 had no hearing postoperatively; on average, speech discrimination dropped from 91% to 67%. The GBI score for the translabyrinthine group was -7.5 and that for the middle fossa was -4.0. These negative scores indicate that both groups felt that their quality of life decreased since surgery. However, these values were not significantly different from each other. SF-36 scores were compared with age- and sex-matched controls. Overall, VS patients scored worse, although patients scored significantly better than the population in terms of general health and pain, but the authors did not believe these results were clinically significant. Significant reductions in social function after VS removal were observed in the group of patients who had translab surgery, but there was no significant difference in the middle fossa group.  

**Conclusions:** This study found that hearing preservation approaches had no significant impact on QOL after VS surgery.  

**Reviewer’s Comments:** This study is problematic for several reasons. The lack of significant differences between scores may have been due to the small sample sizes and because scores are never really examined by amount of remaining hearing. Also, the SF-36 is probably not the appropriate mechanism to assess quality of life in hearing preservation since it is a very general survey that has no communication-related questions. Finally, the patients should have been surveyed before and after surgery. These patients were not surveyed before surgery, so historical controls had to be used. This is problematic as many vestibular schwannoma patients experience hearing and balance problems prior to surgery. (Reviewer-Benjamin T. Crane, MD).  

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Keywords: Hearing Loss, Vestibular Schwannoma, Acoustic Neuroma, Quality of Life  

Print Tag: Refer to original journal article
Cavitating otosclerosis can be a cause of hearing loss as well as intraoperative complications.

**Background:** Otosclerosis is a disease that classically presents as conductive hearing loss in patients who have an otherwise normal examination of the ear. In the otosclerosis literature there are also other less typical presentations that are discussed such as cochlear otosclerosis, which has a significant sensorineural hearing loss component, and presentations that include vestibular symptoms. However, the mechanism by which these symptoms occur is often unclear.

**Objective:** To describe cases of cavitating otosclerosis that correlate the clinical presentation with the histology.

**Design:** Retrospective case series.

**Methods:** 11 temporal bone specimens with histologic changes consistent with otosclerosis with caviation were included. Two cases are reviewed in detail. Temporal bones were decalcified and sectioned, and the patient records associated with these bones were screened for clinical and surgical history.

**Results:** 2 clinical cases are presented. The first case was a 41-year-old male who initially presented with a conductive hearing loss. He had multiple stapes surgeries that failed to improve his conductive hearing loss and was eventually given the diagnosis of "inner ear conductive hearing loss." Postmortem histologic examination of this patient's temporal bone revealed a large otospongiotic lesion involving the basal turn of the cochlea and extending to the internal auditory canal leaving only periosteum between these structures. The second case was a 47-year-old man with progressive bilateral hearing loss. He had 2 unsuccessful stapes surgeries, and noted further decline in his hearing associated with coughing. A CT scan revealed extensive multifocal hypoattenuations adjacent to the cochlea. The patient was a candidate for cochlear implantation, and during this surgery a cerebrospinal fluid (CSF) leak was encountered that was sealed with a soft tissue plug. A subsequent CT scan revealed the tip of the electrode exited the basal turn into the otic capsule, and the patient was not able to hear with the implant. He subsequently underwent a second cochlear implant on the contralateral side where another CSF gusher was encountered, but the implantation was able to proceed to a successful electrode insertion.

**Conclusions:** Cavitating otosclerosis can be a cause of hearing loss as well as intraoperative complications.

**Reviewer's Comments:** These cases demonstrate a third-window phenomenon that was caused by caviatory otosclerotic lesions. In both cases these lesions were continuous with the CSF, which was the cause of the "third window." The second case is especially interesting for those of us who perform cochlear implantation, as in these patients the foci were the cause of an intraoperative CSF leak and in one ear a misplaced electrode. These cavitating lesions are visible on CT and they are something we should be aware of when evaluating patients for cochlear implantation, especially patients who have a history of otosclerosis. (Reviewer-Benjamin T. Crane, MD).
Startling Follow-Up Failure Rate for VS Patients

Acoustic Tumor Observation and Failure to Follow-Up.

Hillman TA, Chen DA, et al:

Otolaryngol Head Neck Surg 2010; 142 (March): 400-404

Over a 5-year period, 43% of patients with VS who opted for observation failed to make it to at least half of their follow-up appointments.

**Background:** The 3 classes of vestibular schwannoma (VS) management options are surgery, radiation, and observation. For small tumors that are not growing, often no treatment is required. However, it can be very difficult to predict which a tumor will start to grow so it is important that these patients be followed and get MRIs periodically.

**Objective:** To describe the rate of failure to follow-up in patients with VS.

**Design:** Case series and chart review and telephone follow-up.

**Participants:** 122 patients undergoing observation for benign VS between 1995 and 2007.

**Methods:** Follow-up was at 6 months, and then every year for a 5-year period. Failure to follow-up was defined as missing at least 50% of appointments over a 5-year period. At each follow-up, tumors were measured with the dimensions as parallel and perpendicular to the petrous ridge. Audiograms were also performed at each visit.

**Interventions:** Phone calls to determine reason for failure of follow-up.

**Results:** The mean age at the time of diagnosis was 69 years, with a slight female predominance in the series. The average tumor size at presentation was 8.8 mm transverse diameter and 6.9 mm in the anterior-posterior dimension. The most common presenting symptom was hearing loss (76%) followed by tinnitus (42%) and dizziness (30%). Observation was chosen in this group of patients based on a variety of medical factors including advanced age (61%), medical comorbidities (22%), and small tumor size (16%). Patients moved to a treatment arm if significant grow occurred. When the criteria of missing at least half of the recommended follow-up appointments over 5 years were used, 53% did not have adequate follow-up. Attempts to contact these patients revealed that 9% had made follow-up arrangements with other physicians. The most common reason for resuming follow-up elsewhere was to find a physician closer to their home. An additional patient died of an unrelated cause and another got treatment elsewhere, which left a total of 43% who failed to get adequate follow-up. Only 38% of those who failed to follow-up could be contacted; of those, none failed to understand their physician’s instructions, but a few patients failed to understand their disease process.

**Conclusions:** Over a 5-year period, about 43% of VS patients fail to get adequate follow up.

**Reviewer's Comments:** There are other studies that failed follow-up at lower rates. The difference may be due to the definition of failed follow-up, the frequency of expected follow-up, and patient demographic factors. This study points out poor patient understanding for their disease as one reason for poor follow-up, but further education only brought a small fraction of these patients back. (Reviewer-Benjamin T. Crane, MD).

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Keywords: Acoustic Neuroma, Vestibular Schwannoma, Hearing Loss, MRI

Print Tag: Refer to original journal article
Both hydrocortisone and pimecrolimus offer a significant benefit in control of ear itching, but pimecrolimus has some drawbacks.

**Background:** Itching of the external auditory canal is a commonly encountered but rarely studied problem. Current treatments are varied and include mineral oil, topical steroids, and immunosuppressives. There have been few studies that compare therapies or attempt to measure symptom severity.

**Objective:** To compare the efficacy of pimecrolimus with hydrocortisone in treating ear itching.

**Design:** Prospective randomized controlled trial.

**Participants:** 43 patients with recurrent external auditory canal itching who had failed prior treatment.

**Methods:** The authors created an index they called the Modified Itch Severity Scale to measure severity of itching based on the previously published Itch Severity Scale. The scale addressed 5 parameters: daytime incidence, itch type, severity, effect on sleep, and general psychological state. The scores on these parameters were summed to yield a score of 0 to 15. Patients were divided into 2 groups and randomized to topical hydrocortisone or pimecrolimus. Patients were followed for 3 months.

**Results:** 3 patients dropped out of the study leaving 20 patients in each group. In the pimecrolimus group, itching scores decreased by 52% at 3 weeks, and by 78% by the third month. The hydrocortisone group had a 34% decrease by the third week and a 64% decrease by the third month. Both treatments demonstrated a statistically significant benefit; however, there was not a significant difference between the 2 groups (P >0.05).

**Conclusions:** This study proposes the first instrument for assessing external auditory canal itching. The study also demonstrates that pimecrolimus offers a significant benefit to patients suffering from ear canal itching, although there was no significant difference from steroids.

**Reviewer’s Comments:** The study is interesting in that it does show a benefit of both hydrocortisone and pimecrolimus. However, the study lacks a placebo arm, and I would suspect there is a significant placebo effect in treatment of this condition. Although the study found no significant difference between the 2 treatment arms, the authors do mention that treatment with pimecrolimus may avoid some of the long-term effects of topical steroids. However, they do not mention that pimecrolimus costs significantly more than steroids and there is currently a controversy over pimecrolimus potentially putting patients at increased risk for future skin cancer. Based on these results, I would be reluctant to prescribe pimecrolimus for ear canal itching, unless it was a patient who was significantly bothered by this, and had already failed to get a benefit from steroids. (Reviewer-Benjamin T. Crane, MD).

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**Keywords:** Itching, Immunosuppression, Otology

**Print Tag:** Refer to original journal article
Does EMSS Lead to Hearing Loss?

Analysis of Hearing Preservation After Endolymphatic Mastoid Sac Surgery for Meniere's Disease.

Sun GH, Leung R, et al:

Laryngoscope 2010; 120 (March): 591-597

Although performing EMSS to treat the vertigo of Meniere's disease does not appear to be associated with an increased risk of deteriorating auditory function after treatment, surgery also does not confer an increased likelihood of stabilizing or improving hearing.

**Background:** Meniere's disease (MD) is characterized by a combination of symptoms that classically include buzzing tinnitus, fluctuating low frequency unilateral hearing loss, aural fullness, and episodic vertigo. A popular surgical treatment has been endolymphatic mastoid sac surgery (EMSS).

**Objective:** To analyze hearing results after EMSS and medical therapy alone.

**Design:** Retrospective review.

**Participants:** 29 patients with definite MD were treated with EMSS and 29 patients were treated medically alone.

**Methods:** Patients given an MD diagnosis between 1997 and 2006 were reviewed. Exclusion criteria included bilateral disease, prior ear surgery, conductive hearing loss, or transtympanic gentamicin treatment. Hearing was measured objectively using pure tone averages of 500, 1000, 2000, and 4000 Hertz as well as word recognition scores.

**Interventions:** Medical therapy included low sodium diet and diuretic, and vestibular suppressants. Half the patients went on to EMSS.

**Results:** The medical and EMSS groups were similar in terms of age, gender, and affected ear. The mean pretreatment pure tone average was statistically different in these 2 groups, as the medical management group tended to have better hearing at 34 dB as compared with 49 dB in the EMSS group. Average word recognition score was a little over 80% in both groups and did not change significantly during the study period. The average change in hearing was similar in the 2 groups. Hearing on average got 1 dB worse in the medically treated group and 4 dB better in the endolymphatic shunt group, but this was not a significant difference. Six patients had worse hearing after endolymphatic shunt surgery, and 3 patients developed worse hearing with medical therapy.

**Conclusions:** EMSS did not cause hearing loss in this study.

**Reviewer's Comments:** There have been other studies on hearing after EMSS, including a large series by Huang et al in 1991, which included 861 shunt surgeries with 12-year follow-up. This study also concluded that hearing tends to remain stable after EMSS. There have been a few reports of hearing improvement with EMSS, including some of the cases presented here. Although this study finds no significant change in hearing with endolymphatic shunt surgery, it also has a small sample size with only 29 patients undergoing the procedure. Others have reported a small risk of profound hearing loss with EMSS, which is probably around 1%, so a larger group of patients would be helpful in stratifying this risk. I would have liked to know what the success rate of controlling vertigo was in these patients, and if this was correlated with the hearing results. (Reviewer-Benjamin T. Crane, MD).

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Keywords: Meniere’s Disease, Vertigo, Hearing Loss

Print Tag: Refer to original journal article
Objective: To review pertinent literature related to potential side effects of proton pump inhibitor (PPI) therapy.

Design: Literature review.

Methods: A PubMed search was completed with key words PPI and adverse outcomes. Identified articles were compiled, reviewed, and discussed.

Results: The majority of studies identified were epidemiological; therefore, a direct causative link between PPIs and adverse events was not possible in most cases. A number of adverse events were associated with long-term PPI use including reduced calcium absorption, *Clostridium difficile*-associated diarrhea, community-acquired pneumonia, cardiac events if combined with clopidogrel, and atrophic gastritis.

Conclusions: Doctors prescribing PPI therapy for laryngopharyngeal reflux (LPR) should consider obtaining DEXA bone mineral density scans, vitamin B$_{12}$ levels, and iron levels in at-risk patients. Additionally, the authors recommend caution in the use of omeprazole in patients undergoing active treatment for acute coronary syndrome. Finally, in patients at risk for gastric carcinoma, testing for *Helicobacter pylori* or serum gastrin level may be appropriate.

Reviewer's Comments: In 1988, Koufman et al estimated that 10% of individuals presenting to an otolaryngologist have complaints associated with reflux. These complaints may include dysphonia, dysphagia, globus, sore throat, post-nasal drip, chronic cough, and other upper airway symptoms. As PPIs have been established as the primary effective treatment for LPR, they are commonly utilized for management of these complaints. Although some potential side effects are well-known, previous to this report, there has been little attention given in the otolaryngology literature regarding potential adverse reactions to these medications. This report gives a concise, yet thorough review of potential adverse effects that the otolaryngologist should be aware of. Greater awareness of the role in gastroesophageal reflux disease (GERD) and LPR in otolaryngologic manifestations has led to an increased reliance on PPI therapy in the otolaryngology office. A 6-month minimum treatment period has been recommended for patients with LPR by the American Academy of Otolaryngology – Head and Neck Surgery. With such recommendations comes responsibility to consider potential acute or long-term side effects. The most common short-term side effects include nausea and/or vomiting, diarrhea, dizziness, and headache. Long-term effects may be of much greater concern given the potential to increase risk of bone fracture, pulmonary complications, cardiac events, or carcinoma. A number of articles (approximately 30) were reviewed by the authors and discussed in this series. As the authors acknowledge, most of the reports were epidemiological and therefore causation was not established. As a result, definitive change in care patterns may not be called for, but certainly awareness of potential issues should be taken into consideration clinically. Additionally, further research is warranted to better characterize these relationships for more accurate and concise risk analysis. (Reviewer-Heather Starmer, MA, CCC-SLP).
RF ablation of the palate and tongue base may achieve long-term success for OSA in selected individuals.

**Objective:** To examine the short-term and long-term results of obstructive sleep apnea (OSA) patients treated with radiofrequency (RF) ablation of the palate and tongue base.

**Design/Methods:** This was a retrospective study of 72 OSA patients enrolled over a 10-month period who had failed conservative treatments and were found to have oropharyngeal and hypopharyngeal obstruction on Muller's maneuver. The patients were treated with multiple sessions of RF ablation to the palate and tongue base at a tertiary referral center.

**Results:** The mean age was 35.8 years and the mean body mass index (BMI) was 28.8. Follow-up ranged from 12 to 16 months and averaged 14.2 months. Patients underwent an average of 3.5 treatment sessions for the palate and 4.8 sessions for the tongue. Mean baseline apnea-hypopnea index (AHI) was 35.6, which decreased to 12.5 in the short-term and 16.8 in the long-term. Forty patients (55.6%) had long-term success. There was a statistically significant reduction in the measured distance between the posterior nasal spine and the soft palate from 45.4 mm to 43.1 mm ($P < 0.05$). There was also a significant increase in posterior airway space from 6.2 mm to 8.7 mm ($P < 0.01$). BMI $\geq$29 and AHI $\geq$30 were independently associated with nonresponders. Ulceration and dysphagia were the most common complications (8.2%), but no serious complications were reported.

**Conclusions:** RF ablation of the palate and tongue base may achieve long-term relief of OSA symptoms in selected individuals. Multiple treatment sessions are required, but no serious complications were reported in this study.

**Reviewer's Comments:** The myriad of surgical treatment options available for OSA suggests that there is no one ideal treatment for all patients. As with any surgical treatment for OSA, the success of RF ablation hinges on selecting the appropriate patient population. The ideal OSA patient for RF ablation is someone with a relatively low BMI and mild-to-moderate OSA without nasal obstruction. The long-term success rate for RF ablation reported in this study appears comparable with other surgical treatments for OSA, but the advantage here is its minimally invasive nature. (Reviewer-Tang Ho, MD).

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Keywords: Obstructive Sleep Apnea, Radiofrequency Ablation, Results

Print Tag: Refer to original journal article
Soft tissue flaps alone can be used effectively for the reconstruction of composite posterolateral oromandibular defects, particularly in defects with an extensive soft tissue component.

**Background:** Composite oromandibular defects involving bone and surrounding soft tissue continue to present as a reconstructive challenge. While osteocutaneous free flap such as fibula allows bony reconstruction, it often does not provide sufficient soft tissue bulk and mobility for reconstruction of large soft tissue defect.

**Objective:** To evaluate the clinical outcome of reconstructing complex posterolateral oromandibular defects with soft tissue flaps alone.

**Design/Methods:** This was a retrospective review of 76 patients with extensive posterolateral oromandibular defects reconstructed with soft tissue flaps alone between 1992 and 2006. Data were obtained from a prospectively maintained patient database that included 330 patients who underwent reconstruction following mandibulectomy. The extent of soft tissue resection was defined as zones involving external cheek skin, lips, intraoral lining, tongue, retromolar trigone, palate, pharynx, and esophagus.

**Results:** Mean patient age was 59 years and mean follow-up was 5.5 years. A total of 28 patients died during the follow-up period. In 62% of cases, the defect involved ≥2 soft tissue zones. Rectus abdominis free flap was the most commonly used flap (n=68). Other flaps used included anterolateral thigh, gracilis, and latissimus dorsi. The ipsilateral facial artery was used as the recipient artery in 41% of cases followed by the ipsilateral superior thyroid artery in 35% of cases. Overall flap survival was 96.0% with 6.6% partial flap loss. Infection was the most common complication (18%) followed by orocutaneous fistulas (6.6%). Upon discharge, 54% of patients were transitioned to an oral diet and 60% had intelligible speech. Overall esthetic outcome was found to be good in 49%, fair in 21%, and poor in 30%.

**Conclusions:** Soft tissue flaps alone can be used effectively for the reconstruction of composite posterolateral oromandibular defects, particularly in defects with an extensive soft tissue component.

**Reviewer's Comments:** While reconstructing like with like has been the commonsensical approach to reconstructive surgery, the authors in this article advocate the use of soft tissue flaps alone in reconstructing composite posterolateral oromandibular defects, particularly when there is a complicated soft tissue component. While other options such as double free flaps with both fibular free flap and a soft tissue flap may provide superior long-term functional outcome because of the potential for dental implant in the future, increased operative time and potential morbidity need to be considered. The authors of this article demonstrate that in appropriate candidates, the use of soft tissue flaps alone can achieve a very satisfactory functional outcome. (Reviewer-Tang Ho, MD).

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Keywords: Free Flap, Composite Resection, Mandibular Defect

Print Tag: Refer to original journal article
In this study, those who scored >30% on the CNC test still had significant improvements in hearing after CI.

**Background:** Current Medicare guidelines for cochlear implantation (CI) require performance of <40% correct on hearing in noise testing (HINT) relative to the best aided condition. Thus, although the HINT was developed with hearing in noise in mind, it is currently usually applied without background noise. The HINT test in quiet is not well suited for assessing CI benefit because of ceiling effects. For some clinical trials, the consonant-nucleus-consonant (CNC) test ≤30% has been used as an entry criterion, and this is thought to represent a group of patients similar to HINT <50%.

**Objective:** To determine that those with preoperative CNC >30% get significant benefit from cochlear implantation.

**Design:** Retrospective review.

**Participants:** 22 CI patients of mean age 64 years, with a mean duration of deafness of 14.8 years.

**Methods:** All patients had comprehensive audiologic evaluations before and after implantation. Preoperative testing was in the best aided condition and postop testing was with electrical stimulation only. Patients had a mean of 17.9 months of experience prior to their postop testing. It should be noted that 5 subjects in this series exceeded 60% correct on HINT testing, and thus the CI in these subjects was placed as an "off-label" use.

**Interventions:** CIs from all 3 major manufacturers were used.

**Results:** The mean preoperative CNC score was 41%, which increased to 67% postoperatively with electric-only stimulation. This postoperative CNC score for electrical stimulation only was considerably and statistically significantly better than reported in previous studies when patients had a preoperative CNC score <30%. For bimodal stimulation, the CNC scores rose to 82%. Every patient experienced an improvement in CNC score after CI, although there was no significant correlation between pre- and postoperative CNC score.

**Conclusions:** Patients with CNC scores >30% still get significant benefit from CI.

**Reviewer's Comments:** This article confirms my perception that many of the patients who currently have hearing too good for CI would actually get significant benefit from implantation over continued hearing aid use. Although within this study there was no correlation between preoperative and postoperative performance, this study does demonstrate better postoperative performance than in prior studies where patients tended to have CNC scores <30% prior to implantation. Prior studies with looser entry criteria have also demonstrated that those with better performance prior to implantation tend to have better performance afterward. (Reviewer-Benjamin T. Crane, MD).

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Long-Term Ear Protection May Benefit Kayakers With Exostosis

Moore RD, Schuman TA, et al:

Laryngoscope 2010; 120 (March): 582-590

This study reports an incidence of exostoses higher in kayakers than reported in any other prior group except breath hold divers.

**Background:** The association between exostoses and cold water exposure is well known. To avoid exostosis formation many of us have recommended ear plugs to our patients; however, the value of ear plug use has never been shown.

**Objective:** To describe the incidence of exostosis formation in kayakers.

**Design:** Cross-sectional study.

**Participants:** 748 individuals were screened for this survey, but 18% were excluded. The most common reason for exclusion was a 3-year history of ocean surf exposure (11%), although 2% had a history of surgery for exostoses. Thus 611 patients were included.

**Methods:** White-water kayakers aged ≥7 years were recruited at 9 events held in 5 states between February 2008 and September 2008. Subjects were excluded if they had >3-year history of ocean surf exposure, prior exostosis surgery, cerumen impaction, or were unable to examine their ear canals for technical reasons. Subjects were examined using video-otoscopy so their exam could be interpreted by a single investigator later. Subjects also completed a survey that included age, number of years kayaking, average yearly exposure, region, and use of ear protection. Exostosis was graded based on amount of external auditory canal obstruction.

**Results:** The severity and frequency of exostoses were both significantly \( P < 0.001 \) correlated with the number of years kayaking. Those who kayaked more in the winter had a greater rate of severe exostoses but the difference was not significant. Those who kayaked in the Pacific Northwest had the highest overall prevalence with 92% having exostoses, and 20% of these being severe. Surprisingly, those who used ear protection had increased exostoses. However, half of those who used ear plugs used them for a third or less of their kayaking career. When ear plugs were considered as a fraction of the total years kayaked, they were associated with a significant decrease in exostoses \( P < 0.001 \), and those with smaller exostoses tended to have used ear plugs a greater proportion of their career.

**Conclusions:** Kayakers have a high rate of exostoses, but ear protection may have a benefit.

**Reviewer’s Comments:** This study reports an incidence of exostoses higher in kayakers than reported in any other prior group except breath hold divers. This study is also remarkable in that it is the first study of unoperated exostosis patients that demonstrated a significant effect of ear plug use. However interestingly, if ear plug use was not adjusted for time, patients who wore ear plugs actually had a higher risk of exostoses. This may have occurred if patients tended to start wearing ear plugs only after they began to become symptomatic. (Reviewer-Benjamin T. Crane, MD).

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Keywords: Hearing Loss, Exostoses, Osteoma

Print Tag: Refer to original journal article
Split-thickness skin graft can be safely harvested from the forearm free flap skin paddle for donor site reconstruction with minimal morbidity.

Objective: To assess the clinical utility of harvesting split-thickness skin graft (STSG) for free flap donor site coverage directly from the free flap skin paddle instead of the thigh, hence eliminating the morbidity associated with thigh STSG harvest.

Design/Methods: This was a retrospective review of a prospectively collected database of forearm free flaps performed at a tertiary care academic medical center over a 13-month period. The STSG was harvested first from the designed skin paddle with an electric Zimmer dermatome set at 0.014 inches thickness with a 2-inch guard.

Results: 66 patients were included in the study with a mean age of 62.6 years. Fifty-four of the flaps were used for mucosal coverage and 12 were used for external skin coverage. The overall free flap success rate was 95%. STSG harvest did not compromise the flap skin paddle vascularity. The mean forearm donor site area was 36.5 cm². STSG harvest was successful in 64 patients (97%). STSG harvest failed in 2 patients who were octogenarians with frail forearm skin. The forearm donor site was closed with a purse-string suture to reduce the defect area. Defect areas >50 cm² required meshing of the STSG for complete donor site coverage. The most common complication was tendon exposure, which was seen in 20% of patients.

Conclusions: Harvesting STSG from the free flap skin paddle provides a viable alternative for reconstruction of the forearm free flap donor site without compromising skin paddle vascularity.

Reviewer's Comments: Although usually not an area of utmost concern during free flap surgery, the morbidity associated with the thigh STSG donor site is not insignificant for the free flap patient. Harvesting STSG directly from the forearm flap skin paddle as illustrated by this study offers an ingenious way of reducing the morbidity associated with free flap reconstruction surgery. As noted by the authors, in elderly patients with frail skin this may not be feasible and it is wise to proceed with STSG harvest from the thigh in the usual fashion. In addition, the issue of stricture formation with the de-epithelialized surface in pharyngeal reconstruction needs further evaluation. (Reviewer-Tang Ho, MD).

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Keywords: Forearm Free Flap, Split-Thickness Skin Graft

Print Tag: Refer to original journal article
Autogenous Cartilage Grafts in Dorsal Nasal Augmentation of Traumatic Saddle Nose Deformity: A Long-Term Follow-Up.

Mao J, Carron M, et al:

Laryngoscope 2009; 119 (November): 2111-2117

Objective: To determine the functional and cosmetic outcome of autogenous cartilage grafts used in the correction of post-traumatic saddle nose deformity.

Design/Methods: This was a retrospective review of 20 patients who underwent dorsal augmentation for correction of saddle nose deformity with autogenous septal or auricular cartilage grafts over a 15-year period. All deformities were the result of traumatic injuries. All cases were performed by the senior author within a tertiary academic referral center. A modified Nasal Obstructive Symptoms Evaluation (NOSE) survey was conducted over the telephone to evaluate both functional and cosmetic outcomes.

Results: The average patient age was 42 years and the mean follow-up time was 6.8 years. The septal cartilage was placed through an endonasal approach and the auricular cartilage was secured through an open approach. A total of 12 septal cartilage/bone grafts and 8 auricular cartilage grafts were used for dorsal augmentation. The NOSE survey results demonstrated statistically significant improvement in nasal obstruction and breathing symptoms ($P < 0.05$). There was also a statistically significant subjective improvement in dorsal contour and deviation ($P < 0.05$). Facial swelling was the most common postoperative complaint, but resolved by 14 days. No long-term complications were noted.

Conclusions: Autogenous septal and auricular cartilage grafts are useful in treating the functional and cosmetic complications arising from a traumatic saddle nose deformity. The grafts appear to offer long-term structural stability and patient satisfaction.

Reviewer's Comments: The use of autogenous septal and auricular cartilage is considered by many to be the gold standard material in structural grafting for rhinoplasties. Despite the added time and additional donor site, multiple studies have attested to the long-term stability of autogenous cartilage material and also subjective patient satisfaction with the use of autogenous cartilage grafts. This study does suffer from potential recall and selection bias given its retrospective nature. Nevertheless, it offers further support to the utility of autogenous cartilage grafts in rhinoplasty. (Reviewer-Tang Ho, MD).

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Keywords: Saddle Nose Deformity, Rhinoplasty, Autogenous Cartilage Grafts

Print Tag: Refer to original journal article
Sleep Endoscopy Is Relatively Reliable

Interrater Reliability of Drug-Induced Sleep Endoscopy.

Kezirian EJ, White DP, et al:

Arch Otolaryngol Head Neck Surg 2010; 136 (April): 393-397

The agreement between 2 reviewers doing drug-induced sleep endoscopy was substantial for palate versus hypopharynx, but only moderate for the contributions of individual structures.

Background: Sleep endoscopy is known to be safe and valid and has been shown to have significant reliability.

Objective: To evaluate the agreement between raters for the results of drug-induced sleep endoscopy.

Design: Prospective study with 2 reviewers--1 blinded and 1 unblinded.

Participants: 108 adults with obstructive sleep apnea who were not able to successfully use continuous positive airway pressure (CPAP).

Methods: An assessment of the overall level of obstruction (palate vs hypopharynx), severity of obstruction (mild, moderate, severe), and the specific structures involved in obstruction (tonsil, lateral pharyngeal walls, tongue, epiglottis) was carried out and scored by a blinded and an unblinded evaluator.

Interventions: Drug-induced sleep was induced with propofol and the evaluation was recorded for later independent evaluation.

Results: Mean apnea-hypopnea index was severe at 39.6 events/hour. The reliability of identifying the obstruction at the hypopharynx and palate was substantial (κ, 0.79 and 0.76, respectively). The identification of obstruction at individual structures was lesser (κ=0.42 to 0.71). The identification of the severity of disease was also lower at 0.60 at the palate and 0.44 at the hypopharynx. Overall, 75% to 79% of patients had obstruction at both levels.

Conclusions: There is moderate to significant agreement between evaluators of drug-induced sleep endoscopy with greatest agreement on the overall level of obstruction (palate vs hypopharynx).

Reviewer's Comments: This is a reasonable evaluation of the agreement between experienced reviewers of sleep endoscopy. While it would have been ideal to have 2 blinded reviewers instead of 1 blinded and 1 unblinded, the agreement between the 2 reviewers was substantial for overall level of obstruction. However, surgical therapy is more easily directed by identification of the individual sites of obstruction and level of agreement for these items was lower. A study with more evaluators and with some linkage to site-specific surgical outcomes is needed to really validate the use of sleep endoscopy. In the meantime, sleep endoscopy is a promising technique to accurately determine the site of obstruction and direct surgical therapy. In addition, this evaluation supported the idea that 75% to 80% of patients with obstructive sleep apnea have multilevel obstruction. (Reviewer-Stacey L. Ishman, MD).

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Keywords: Sleep, OSA, Endoscopy

Print Tag: Refer to original journal article
Over the counter cough and cold medications have minimal benefit and are associated with considerable risks.

**Background:** Over-the-counter (OTC) cold and cough medications are frequently given to children. The most common active ingredient in these medications is dextromethorphan. Other common components include pseudoephedrine and acetaminophen.

**Objective:** To educate caregivers on the proper use of OTC cold and cough medication.

**Design:** Review of literature and expert opinion.

**Methods:** The authors reviewed the recent literature and changes in Food and Drug Administration (FDA) guidelines for use of OTC antitussive, expectorant, nasal decongestant, and antihistamine use.

**Results:** All 6 randomized controlled trials of cough and cold medication for children under age 12 years performed since 1985 have shown no benefit beyond that of a placebo. Furthermore, the recommended dosages of these medications are not based on scientific data, and parents frequently give inappropriate doses. Thus, these medications are the source of about 75,000 calls to poison control centers each year, and have been associated with 123 childhood deaths. Most of these deaths were in children under age 2 years, and due to inappropriate dosages. The number of children given OTC medication is more than twice that of children given prescription medications. The FDA issued an advisory in 2008 that these products should not be used in children under the age of 2 years. The FDA is currently reviewing recommendations for patients between ages 2 and 11 years. Nasal saline is safe in children, including those aged <2 years and has been shown to be safe and provide relief of upper respiratory infection symptoms.

**Conclusions:** OTC cough and cold products that are currently in common use offer limited benefit and are associated with considerable risk. Physicians should recommend nasal saline for parents wishing to treat their child’s cough and cold symptoms with nonprescription medication.

**Reviewer’s Comments:** Pediatric patients are frequently given several OTC medications prior to seeking treatment from an otolaryngologist. These medications are aggressively advertised to the public, and many parents likely overestimate their efficacy and safety. As physicians, we need to counsel parents on the risks of these medications and their lack of proven efficacy, especially when given to young children. (Reviewer-Benjamin T. Crane, MD).

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Keywords: Cough, Over The Counter Medication, Pediatrics

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BAHA for Single-Sided Deafness—Who Is Best Suited for This?


Schroeder SA, Ravn T, Bonding P:

Otol Neurotol 2010; 31 (April): 404-408

Less than 20% of those who have had translabyrinthine surgery for acoustic neuroma opt for BAHA surgery, but those who do tend to be satisfied with the outcome.

**Background:** Acoustic neuromas (AN) are a commonly encountered cause of single-sided deafness (SSD). These patients will often lose hearing due to the tumor itself, or in some cases as a result of the surgery to remove the tumor. Bone-anchored hearing aid (BAHA) implantation is one possible treatment for this condition.

**Objective:** To determine the treatment compliance of BAHA in SSD and the effect of this therapy on subjective disability.

**Design:** Retrospective review with survey.

**Participants:** 59 patients who had translabyrinthine approach surgery for AN were offered BAHA. A total of 23 patients who had been implanted with a BAHA for SSD were surveyed and 21 responded.

**Methods:** Patients with SSD after AN surgery were offered a trial with a BAHA device on a headband, and 67% were interested in the trial. Overall, 44% actually tried the BAHA and 24% were agreeable to BAHA surgery. After BAHA, a second cohort of patients was sent a questionnaire to evaluate their hearing handicap with and without BAHA on a visual analog scale (VAS). They were also asked to compare the effect of BAHA to a contralateral routing of sound (CROS) device, and asked if they would recommend it to a friend.

**Results:** Of the translabyrinthine AN patients, only 18.6% underwent BAHA implantation. After 6 months, 95% of those implanted continued to use the device, with the average usage being 10 hours daily. A total of 65% felt they got significant benefit from the BAHA. Hearing handicap was significantly decreased from 7.4 without BAHA to 2.3 with. The most significant benefit of the BAHA was felt to be for conversation, where only a minority thought it was helpful for sound localization. Just over half the patients felt the BAHA gave a natural sound.

**Conclusions:** Less than a fifth of patients with SSD after AN surgery had a BAHA implanted. However, those who were implanted found significant benefit from the device.

**Reviewer’s Comments:** Single-sided deafness has historically been a difficult problem to rehabilitate. Although the BAHA does not restore normal hearing, it is the best option for many of these patients. This study adds to the growing literature that shows BAHA is of benefit in SSD patients. It would be interesting to know why some patients opt for the BAHA device and others do not. Although perceived hearing handicap and benefit of the BAHA on the head band play a role, there are likely other factors at play including cosmesis, cost, and perceived risks of surgery. It would have been interesting to know what role these other factors played. (Reviewer-Benjamin T. Crane, MD).

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Keywords: Hearing Loss, Single-Sided Deafness, Acoustic Neuroma

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Propranolol leads to a regression of infantile hemangiomas with minimal side effects.

**Background:** Hemangioma is a benign vascular abnormality that is very common, affecting up to 10% of infants. Although they will usually resolve spontaneously, they can be problematic when they are large or in conspicuous sites. Historically, treatment options have included corticosteroids, chemotherapy agents, laser, and surgery. Only relatively recently (2008) has propranolol been identified as a treatment option.

**Objective:** To systematically analyze the efficacy and side effects of propanolol for treatment of infantile hemangiomas.

**Design:** Retrospective review.

**Participants:** 41 patients (27 female) with infantile hemangiomas.

**Methods:** Patients at a single institution with problematic hemangiomas treated with propranolol between September 2008 and June 2009 were reviewed. Patients had a baseline electrocardiogram. Lesions were documented with photographs, and growth/resolution was rated using a 4-point scale. Parents were given questionnaires to assess their impressions of the therapy.

**Interventions:** Patients were given an oral dose of 2 mg/kg per day divided into 3 daily doses. Therapy was continued until the child was 12 months of age.

**Results:** Analysis of photographs indicated that hemangiomas decreased in size toward resolution during therapy. Four patients had a complete resolution. A third of parents subjectively noticed improvement in the appearance of the hemangioma within 1 week, and almost 80% noticed an improvement within 1 month. Over 90% of the parents were pleased with the response to therapy. Side effects included somnolence (15%), gastric reflux (5%), and rash (2%), and were managed with dosage adjustments.

**Conclusions:** Propranolol is an effective treatment of infantile hemangiomas with minimal side effects.

**Reviewer’s Comments:** Hemangiomas are by far the most common tumor of infancy. Although these rarely cause functional impairment and usually resolve, they remain a serious concern of parents when they occur. Prior to the recent discovery of propranolol to effectively treat these lesions, many of the treatment options, including surgery and chemotherapy agents, carried with them a significant risk; thus, only the most problematic lesions were usually treated. Although this study does provide strong evidence of efficacy, it does not include a control group. I can imagine a time in the near future when parents may push to use propranolol to treat hemangiomas of minimal functional significance. Since propranolol has minimal risk, it may be an option for treatment of such hemangiomas. (Reviewer-Benjamin T. Crane, MD).

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Keywords: Hemangiomas, Propranolol

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Internet-based facial attractiveness rating is an inexpensive, reproducible, and viable alternative to traditional focus groups.

**Background:** Much of the practice of cosmetic surgery is based on what society considers beauty. However, what is considered most attractive can be controversial and varies between cultures and with time.

**Objective:** To describe a novel Internet-based facial attractiveness rating method and see how it compares with more traditional techniques.

**Design:** Basic research study.

**Participants:** Anonymous Internet users served as raters.

**Methods:** Facial morphing software was used to merge portraits into natural-appearing synthetics portraits. A genetic algorithm evolved facial attractiveness through several generations of recombination. Portraits represented females between the ages of 18 and 25 years. Focus groups rated portraits using an attractiveness scale of 1 to 10. Focus groups consisted of beauticians, otolaryngologists, and undergraduates. These same portraits were posted on the website "hotornot.com" where they could be rated on a scale from 1 to 10.

**Results:** Each face had an average of 857 raters after 3 weeks. There was a strong linear and positive correlation (R=0.90) between the Internet and focus group attractiveness scores. The absolute scores were not similar as the Internet method tended to rate less attractive portraits with a higher score than the focus groups. Internet-based ratings tended to be reproducible when the same portrait was reposted later.

**Conclusions:** Internet-based facial attractiveness rating is an inexpensive, reproducible, and viable alternative to traditional focus groups.

**Reviewer's Comments:** One problem I have had with the facial plastics literature is that it is often difficult to quantify the results of surgery. Before and after pictures are frequently given, but it is not possible to reproduce larger numbers of results, and the best results are usually shown rather than typical results. This paper provides a cheap and apparently reliable method of quantifying attractiveness. For instance, it would be possible for a surgeon to post a series of before and after pictures online and rate subjects to see if a significant improvement in cosmesis had occurred. Such metrics could be used to objectively compare the results of competing procedures or practitioners. Such a system would of course still be subject to biases based on factors such as wearing make-up or differences in hair styles. (Reviewer-Benjamin T. Crane, MD).

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Keywords: Cosmesis, Plastic Surgery, Internet

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Etiology Remains Unclear in Majority of SSNHL Cases

Systematic Review of the Evidence for the Etiology of Adult Sudden Sensorineural Hearing Loss.

Chau JK, Lin JR, et al:

Laryngoscope 2010; 120 (May): 1011-1021

Approximately 71% of SSNHL cases remain idiopathic, which means we still have much to learn about its etiology.

**Background:** Sudden sensorineural hearing loss (SSNHL) is usually defined as a loss of at least 30 dB over 3 consecutive frequencies over a period of ≤3 days. The hearing loss is usually unilateral, and the incidence of this disorder may be as common as 1 in 5,000 people per year. The etiology of SSNHL remains unclear in most patients, although >100 potential etiologies have been proposed. 

**Objective:** To review the literature for various etiologies of SSNHL.

**Design:** Retrospective review.

**Participants:** 144 titles were reviewed, and 23 articles were included.

**Methods:** Several databases were reviewed for articles on SSNHL. Studies analyzed included randomized controlled trials, prospective cohort studies, and consecutive case series.

**Results:** The largest group of SSNHL cases (71%) was classified as idiopathic. The next most common causes were infectious (12.8%), otologic disease (4.7%), trauma (4.2%), vascular (2.8%), and neoplasm (2.3%). Significantly higher rates of influenza B and herpes simplex 1 virus were found in SSNHL cases relative to controls. Although several other viral etiologies have been proposed, but seroconversion rates were not statistically significantly increased relative to controls. Data demonstrating a higher rate of vascular impairment in SSNHL were not convincing. Seven of the articles conducted tests to document potential autoimmune disease, and 3 articles reported significant elevations in SSNHL patients. Rare causes implicated for SSNHL included otosclerosis, vestibular schwannomas, and Ménière’s disease.

**Conclusions:** The etiology of SSNHL remained unclear in 71% of the cases reported in this meta-analysis.

**Reviewer's Comments:** In this series, the most common cause of SSNHL was idiopathic. In the minority of patients in whom a cause was implicated, infection was the most common, and these cases were almost always viral. Despite this, antiviral medications have never been shown to be beneficial in SSNHL, so it is unclear how identifying a viral cause should affect management. We should, and most of us do, treat the patients for almost all the etiologies identified with steroids. Neoplasm, although a rare cause of SSNHL, is one cause that requires significantly different management and this is the reason an MRI should be obtained. There still remains much to be learned about the etiology of SSNHL. (Reviewer-Benjamin T. Crane, MD).

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**Keywords:** Hearing Loss, SSNHL, Autoimmune Hearing Loss, Vestibular Schwannoma

**Print Tag:** Refer to original journal article
New Tx to Improve Eustachian Tube Function Has Minimal Risks


Yañez C:

Otolaryngol Head Neck Surg 2010; 142 (May): 688-693

This novel procedure improves Eustachian tube function, hearing, and tympanometry.

**Background:** Eustachian tube (ET) dysfunction is one of the most common disorders that otolaryngologists treat. There are several medical therapies targeted at this problem in addition to tympanostomy tubes. Although a few surgical therapies have been proposed that address the ET directly, none of these have gained significant traction.

**Objective:** To describe and evaluate a laser-assisted cross-hatching technique to improve ET patency.

**Design:** Prospective surgical trial.

**Participants:** 25 consecutive patients (mean age, 48 years) with ET dysfunction causing significant obstructive symptoms were included; all had failed at least 3 courses of nasal steroids. Twenty-one of these patients had a history of multiple prior tympanostomy tube placements. Patients were followed a mean of 15 months.

**Methods:** Preoperative evaluation included examining the ET orifice on the nasal pharynx, audiometry, and tympanogram. Symptoms were also assessed via a visual analog scale. The author describes the technique of laser Eustachian tuboplasty (LETP), which is an endoscopic procedure done under general anesthesia. A KTP laser was used to ablate excess tissue around the ET. Subsequently, a cross-hatching technique was used to reshape the cartilage.

**Interventions:** 15 patients underwent unilateral LETP, and 10 underwent bilateral LETP.

**Results:** Hearing improved an average of 10 dB ($P = 0.01$) after the procedure. The tympanogram improved in 96% of patients, and none of the patients required subsequent tympanostomy tubes. Autophony improved in 92%, and 92% of the procedures were considered successful. No complications were reported.

**Conclusions:** The LETP has minimal risks and relieved the symptoms in most patients in this series.

**Reviewer's Comments:** The author reports that $>$90% of the patients in this series had a significant benefit with surgery. Like most studies of surgical therapy, this study did not include a control group. However, the improvement in hearing and tympanometry suggests that the benefit is more than just placebo. It is also possible that tissue regrowth could be an issue after this type of surgery, so it is not clear that this is a longer term solution than tympanostomy tubes. There were no significant complications in this series, but that does not mean the surgery is without risk. The carotid artery is in close proximity to the ET, so it is possible it could be injured. It is also possible that if the ablation was extended too close to the ET lumen, scaring and stenosis could result. The true test of this procedure will only come with time as others report their results and we have more long-term follow-up. (Reviewer-Benjamin T. Crane, MD).

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Keywords: Middle Ear Effusions, Eustachian Tube, Nasopharynx

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We May Have a Surgical Method of Treating Pulsatile Tinnitus

A Novel Surgical Technique for Management of Tinnitus Due to High Dehiscent Jugular Bulb.

El-Begermy MA, Rabie AN:


Surgical reconstruction of the middle ear floor may offer valuable treatment for patients with incapacitating tinnitus due to dehiscent middle ear floor. However, the risk of sigmoid sinus thrombosis should be considered.

Background: Pulsatile tinnitus can have many causes. One potential cause is a high, dehiscent jugular bulb, although in many patients the high jugular bulb does not cause symptoms.

Objective: To describe a technique for management of a high-riding dehiscent jugular bulb in a patient with vascular tinnitus.

Design: Case series and review.

Participants: 7 patients with high-riding jugular bulbs and severe pulsatile tinnitus that could be temporarily relieved with pressure to the ipsilateral jugular vein were included. Five patients had normal hearing, and 6 were female.

Methods: Diagnosis was confirmed by CT scan of the temporal bone. Five patients were explored under local anesthesia and 2 under general anesthesia. The exploration was performed through a transcanal or endaural approach. Tragal cartilage, perichondrium, and bone dust were used to reconstruct the floor of the middle ear. Patients who had surgery under local anesthesia had the repair adjusted until their tinnitus resolved.

Interventions: Middle ear floor reconstruction.

Results: Tinnitus was eliminated by surgery in 4 patients and decreased in 1 patient. Two patients were not improved with surgery. Hearing was improved in 1 patient who underwent a simultaneous stapes operation; in the other patients, there was no change in hearing after surgery. One patient was subsequently found to have increased intracranial pressure after surgery sigmoid sinus stenosis and was treated with acetazolamide.

Conclusions: Surgical reconstruction of the middle ear floor may be an effective treatment of pulsatile tinnitus.

Reviewer's Comments: The authors present a technique that was effective in controlling tinnitus symptoms in approximately 70% of patients who had surgery. One potential difficulty with this approach is patient selection. Most patients with a high jugular bulb do not have pulsatile tinnitus, and most patients with pulsatile tinnitus do not have a high-riding jugular bulb. As patients in this series demonstrated, other potential causes of tinnitus that may coexist with a high dehiscent jugular bulb include conductive hearing loss, venous stenosis, and increased intracranial pressure. There were patients in this series who had all of these other potential causes, and I would not consider this type of surgery until these other potential causes were either addressed or excluded. It would have also been helpful if these patients had had their tinnitus graded with one of the standard indexes before and after surgery. (Reviewer-Benjamin T. Crane, MD).

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Keywords: Tinnitus, Hearing Loss, Jugular Bulb

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