Patients who receive hyperbaric oxygen after failing standard treatment for sudden sensorineural hearing loss may have some improvement.

**Background:** Sudden sensorineural hearing loss (SSNHL) is usually defined as a decrease in hearing of at least 30 dB over ≥3 frequencies occurring over a 72-hour period. Although this hearing loss often resolves spontaneously, treatment with steroids as soon as possible after onset of hearing loss offers the best opportunity for recovery. However, even with steroid therapy, there is a fraction of patients who will continue to have a significant and debilitating hearing loss.

**Objective:** To describe the option of hyperbaric oxygen (HBO) therapy as salvage therapy for residual SSNHL after steroid therapy.

**Design:** Retrospective review.

**Participants:** 19 patients who received HBO for unilateral SSNHL that did not improve with steroids. Patients in this series were almost evenly split by gender and the laterality of the ear affected. Mean age was 46 years (range, 29 to 67 years).

**Methods:** Patients who did not have an improvement in pure tone hearing with steroid treatment were referred for HBO therapy. These sessions included delivering oxygen at 2.5 atmospheres for 90 minutes followed by free air for 30 minutes. Patients had a median of 28 sessions (range, 8 to 46). Three patients dropped out prior to 15 sessions because of a perceived lack of benefit. Audiograms were performed before and after therapy.

**Interventions:** HBO therapy after standard therapy.

**Results:** Comparison of pre- and post-HBO pure tone thresholds were compared and revealed an average improvement of 8.6 dB (range from 28.0-dB improvement to 11.0-dB hearing loss). Better recovery was seen in patients aged >50 years and at low frequency. Better improvement was also seen in those who started with worse pure tone hearing thresholds. Up to a 30-day delay in treatment did not affect HBO efficacy. However, in those delayed >30 days, improvement was diminished (P <0.05). The number of sessions had no significant effect on outcome. The authors reported no adverse effects of HBO.

**Conclusions:** Patients who received HBO after failing standard treatment for SSNHL had some improvement.

**Reviewer’s Comments:** The mechanism by which HBO may improve hearing is unclear. We know that some SSNHL patients will recovery spontaneously, and this may have been a factor in at least some of these patients. However, the considerable cost of HBO needs to be considered. If the results presented here were significantly better than a placebo effect, then the results would have been similar with other oxygen therapy such as delivering oxygen via cheaper and more convenient mechanisms (ie, nasal canula or facemask). Overall, given the potential cost of this therapy and the unclear benefit, I would be unlikely to recommend this to my SSNHL patients who failed steroid therapy. (Reviewer-Benjamin T. Crane, MD).

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**Keywords:** Hearing Loss, Ischemia, Steroids

**Print Tag:** Refer to original journal article
A surprisingly large number of patients with panic disorder and agoraphobia also have unilateral caloric weakness.

**Background:** There is a common perception that dizziness and psychiatric disorders such as panic disorder, agoraphobia, and depression may be linked. This paper attempts to objectively quantify this.

**Objective:** To describe the correlation between panic disorder, agoraphobia, and depression with dizziness symptoms as quantified with vestibular testing and the Dizziness Handicap Inventory (DHI) as well as migraine-associated vertigo (MAV).

**Design:** Retrospective review.

**Participants:** 52 patients with panic disorder and agoraphobia, 30 with panic disorder alone, and 20 with depression. These patients were predominately women. All patients also reported persistent dizziness symptoms including lightheadedness and subjective imbalance. The dizziness had to occur at times other than just during panic attacks for patients to be included. These patients were recruited from the authors' clinic during a 2-year period ending December 2008.

**Methods:** MAV diagnosis was made using the Neuhauser criteria. All patients had a full neurotology exam that included the Dix-Hallpike maneuver, caloric stimulation, and examination of extraocular movements. Caloric testing was considered abnormal if directional preponderance was >30% or unilateral weakness was >25%. Central signs included abnormal pursuit, saccades, and nystagmus. Dizziness severity was measured using the DHI.

**Results:** One third of agoraphobia and panic disorder patients had a unilateral weakness (UW) with caloric testing, and 47% had migraine. The prevalence of migraine was significantly (*P* <0.001) lower (18%) in those without UW when compared to those with UW (67%). When panic disorder patients without agoraphobia were tested, only 13% had UW, but this was only marginally significant (*P* =0.05). This group also had a lower prevalence of migraine at 27%. None of the depressive disorder patients had a UW, although 30% met migraine criteria, and 10% met criteria for MAV. The rate of migraine in depressed patients was significantly less than that in the panic disorder groups. DHI scores were similar among all 3 patient groups. The DHI was significantly worse in patients who had unilateral weakness and MAV.

**Conclusions:** The authors report a surprisingly high rate of UW in patients with agoraphobia and panic disorder, which suggests that these patients may have peripheral vestibular pathology as a cause of their dizziness.

**Reviewer's Comments:** I was surprised at the high rate of UW found in this study. Although a significant amount of dizziness in this study may be attributed to MAV, these patients usually have normal caloric function, although they often experience significant nausea and discomfort during testing. Also, although an acute UW such as that caused by labyrinthitis can cause significant vertigo symptoms, patients with longstanding weakness are often well compensated and do not complain of dizziness. (Reviewer-Benjamin T. Crane, MD).

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Keywords: Vertigo, Migraine, Caloric Testing, Psychiatry

Print Tag: Refer to original journal article
Can Patients Perform Their Own Internet-Based Audiograms at Home?

An Internet-Based Hearing Test for Simple Audiometry in Nonclinical Settings: Preliminary Validation and Proof of Principle.

Honeth L, Bexelius C, et al:

Otol Neurotol 2010; 31 (July): 708-714

A Web-based hearing test appears to have an excellent correlation with results of standard audiograms.

**Background:** The Internet has changed the way medicine is practiced. This is now a common source of information and misinformation for patients, a way for physicians to access patient records and radiology images, and it has facilitated communication between patients and physicians. Only recently have efforts been made to facilitate making a diagnosis over the Internet.

**Objective:** To describe a novel method for using the Internet to perform an audiogram.

**Design:** Cross-sectional comparative study.

**Participants:** 72 individuals (52 staff members and 20 patients) with a mean age of 45 years.

**Methods:** A Web-based hearing test written in the Java programming language was developed. The software can be run on most computers but requires headphones. The test is calibrated using a person with normal hearing. A total of 246 patients were approached for possible participation, and only 8% agreed to participate; an additional 52 staff members participated as well. Of patients, 89% were tested on a computer in the hospital, and 8 were tested on their home computer.

**Interventions:** Standard audiogram versus Internet-based hearing test.

**Results:** Normal hearing was found in 72% of participants. Results of the Internet-based test were strongly and significantly correlated with those of a standard audiogram, with a Pearson correlation coefficient of 0.94 (P <0.0001). Of patients, 24% were classified as having hearing loss using the Internet-based method, and 28% met this criterion with standard audiometry. The test/retest variability was excellent, with a Pearson's correlation coefficient of 0.99.

**Reviewer's Comments:** These results demonstrate that the Internet might be used for a screening hearing test. However, there are still several barriers to this being practical. In the opinion of the authors, the weakest link is calibration of the device, which requires a normal hearing person. The authors provide data to show the accuracy of the test itself but give us little information to know how accurate or variable the calibration itself was. This test also presumably assumes that headphones are linear since the calibration is checked only near the threshold by this method. A major obstacle to this being a viable test is actually getting people to use it. Of patients approached, <10% were willing to try it. Of those who participated, most chose to use the computer in the hospital that was already calibrated, and only about 10% were willing to try it at home on their own computer. Finally, the cohort of patients tested in this paper is different from the cohort that would probably use the software. This could be problematic because the incidence of hearing loss in the general population is low, so many of the people identified by this technique may be false positives. (Reviewer-Benjamin T. Crane, MD).

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**Keywords:** Audiometry, Hearing Loss, Screening

**Print Tag:** Refer to original journal article
Intratympanic gentamicin has acceptable rates of vertigo control and hearing preservation in patients with Ménière’s disease, even those with near-normal hearing.

**Background:** Ménière’s disease has been known for almost 150 years, but treatment strategy remains controversial. Classic symptoms include low-frequency hearing loss, tinnitus, aural fullness, and usually, most bothersome, episodic vertigo. Although gentamicin is associated with hearing loss, with a reasonable dosing regimen, the risk to hearing is small.

**Objective:** To describe the outcome of intratympanic (IT) gentamicin for Ménière’s disease with near-normal hearing.

**Design:** Retrospective review.

**Participants:** 256 consecutive patients who underwent gentamicin therapy for Ménière’s between 1996 and 2007. A total of 224 patients had at least 24 months of follow-up. Patients were stratified into 2 groups by hearing status: those with pure tone averages (PTAs) <25 dB and those with >25 dB.

**Methods:** All patients were treated using the Silverstein MicroWick system. Gentamicin was self-administered by patients at a dose of 10 mg/mL as 3 drops 3 times/day after an initial infusion of 0.2 mL of this gentamicin solution. Treatment was stopped when patients no longer had a response to ice water calorics or if gentamicin failed to decrease the vestibular response for 2 consecutive weeks. Questionnaires were used to assess health status and vertigo control.

**Results:** Only 24 patients (11%) had a PTA better than 25 dB. This group averaged 51 years of age and was predominately female. Average PTA and speech discrimination score (SDS) decrease was 8 dB and 3% in this group, with one third of patients having a significant decrease in PTA (>10 dB). Asymmetry in vestibular responses increased during treatment, and 71% of these patients had class A or B vertigo control. There was a larger group of 200 patients who had a PTA worse than 25 dB. In this group, PTA decreased by an average of 11 dB, and 42% had a significant decrease in SDS. Class A or B vertigo control was achieved in 75%. In this group, 16 patients underwent further therapy that included either a vestibular nerve section or labyrinthectomy.

**Conclusions:** Ménière’s patients with near-normal hearing treated with intratympanic gentamicin had rates of hearing loss and vertigo control similar to that in the group of patients with worse hearing.

**Reviewer’s Comments:** The study falls short in a few respects. First, there was no control group, which is a notorious problem in evaluating Ménière’s therapy since a significant fraction of these patients improve without therapy. Second, the group of patients with near-normal hearing was small. Finally, hearing loss is one of the diagnostic criteria for Ménière’s disease, so it is possible that those with more mild hearing loss may have less-severe vertigo symptoms or symptoms due to other causes. (Reviewer-Benjamin T. Crane, MD).

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Keywords: Hearing Loss, Gentamicin, Ménière’s Disease, Vertigo, Dizziness

Print Tag: Refer to original journal article
Objective: To determine the incidence of complications of parotidectomy for benign disease.

Design: Retrospective single institution chart review.

Participants: 492 patients undergoing parotidectomy for benign disease from 1990 to 2002 at a single institution.

Methods: Demographic data were collected from charts, and questionnaires were obtained from patients regarding complications rated from 0 to 10, with 0 being no complaints and 10 being a maximal degree of discomfort, looking at topics such as pain, cosmetic defect, fistula, wound problems, ear numbness, Frey's syndrome, and facial nerve weakness. These appear to have been collected in a retrospective fashion.

Results: Total parotidectomy (TP) was performed in 324 of 492 patients (65%), superficial parotidectomy (SP) in 134 of 492 (28%), and partial parotidectomy (PSP) in 34 of 492 (7%). Pleomorphic adenoma was the most common diagnosis (48%) followed by Warthin's tumor (28%), other tumors (11.6%), and inflammatory conditions (5%). Moderate pain was reported by 34.3% of patients, with only 3.0% reporting severe pain. Salivary fistula was observed in 45 of 492 patients (9.1%), but there was no difference between the 3 groups. The fistulas were more likely to last for longer in SP versus TP (4.6 weeks vs 2.0 weeks). Wound healing received universally low or favorable scores, with a mean score of 0.3. Ear numbness was reported in 278 of 492 patients (58.8%). Frey's syndrome had an incidence of 63.4% (310 of 492); this was highest after TP (69.7%) compared to PSP (32.3%). The overall incidence of facial nerve weakness was 32.7% (159 of 492). In the cases of early weakness, the average House-Brackmann score was 3. The incidence of this was lowest in the PSP group, followed by the SP group, and finally the TP group. The rate of permanent paralysis was 2.3% and was most commonly in the TP group, but this did not reach statistical significance. While many patients complained of the cosmetic deformity (79.3%), the mean level of discomfort with this was only 3.7. Recurrent surgery occurred in 14 of 492 patients (2.8%); the incidence after TP (2.2%) was lower than with SP (4.5%), but this was not significant.

Conclusions: Parotidectomy is a safe procedure, but the incidence of minor complications is relatively high. Partial surgeries do seem to have a lower complication rate, though these should only be undertaken in skilled hands.

Reviewer's Comments: There is inherent recall bias in patients who are asked to retrospectively recount their experience with a surgery that might have taken place 5 years ago. There was also an unusually high number of patients with total parotidectomy. Thus, some of the data in this paper are questionable. But overall, it was interesting to see how patients perceived their surgical outcomes, and to note that most patients felt pretty positively about their results. I still think that the jury is out on partial or extracapsular type surgeries. (Reviewer-Patrick K. Ha, MD).

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Keywords: Benign, Tumor, Parotidectomy, Facial Nerve, Complication

Print Tag: Refer to original journal article
Background: Keloids are often resistant to various treatment modalities and have a high recurrence rate. The earlobe is one of the anatomical body areas prone to keloids and can form after ear piercing, trauma, infection, or other insults to the tissue. Keloids are more common in patients with darker skin between the ages of 10 and 30 years. Treatment modalities include pressure therapy, cryotherapy, intralesional steroids, surgical excision, radiation, topical silicone, and laser.

Objective: To present the authors’ experience with treating earlobe keloids utilizing extralesional excision combined with preoperative and postoperative radiotherapy.

Design/Methods: Patients treated between 1996 and 2005 with the "sandwich" technique were retrospectively reviewed. All patients underwent extralesional excision of the earlobe keloid and external beam radiotherapy delivered in 2 fractions the day before and after surgery. The irradiation field consisted of the lesion site with 1.0 cm normal margins. The total dose was 10.0 to 12.5 Gy in all patients. The minimal follow-up period was 6 months and included a subjective patient satisfaction assessment as well as documentation of keloid recurrence or cure.

Results: 23 patients with 29 earlobe keloids were treated in the study. Average age was 24 years and included 57% males. Keloid lesion size ranged from 0.5 to 2.5 cm with a mean of 1.93 cm. Ear piercing was the predominant inciting event, seen in 65% of patients. Eight patients (35%) had failed previous treatments and were categorized as the high-risk group. The average follow-up period was 3.47 years. The recurrence rate was 25% for the low-risk group and 27% for the high-risk group. Patient satisfaction in those without recurrence was high.

Conclusions: Combining surgical excision with preoperative and postoperative external beam radiotherapy appears to be an effective treatment option for earlobe keloids.

Reviewer's Comments: Keloids are relatively resistant to treatment, with high recurrence rates using a single treatment modality. The best treatment strategy for keloid is prevention. Surgical excision alone in the treatment of earlobe keloids has been cited to have a recurrence rate of nearly 80%. Radiation alone in the treatment of keloids has seen variable success rates. However, excision followed by radiation therapy has been reported to have a recurrence rate as low as 10% to 20%. Hence, further investigations are needed to determine if the addition of preoperative radiotherapy in the "sandwich" technique is warranted compared to combined surgical excision with postoperative radiotherapy alone. (Reviewer-Tang Ho, MD).

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Keywords: Keloids, Radiotherapy, Surgery

Print Tag: Refer to original journal article
Transantral endoscopic repair of orbital blowout fractures is a safe and predictable approach in selected patients.

**Background:** Approaching the orbital floor for repair of blowout fractures has traditionally been done through various lower eyelid incisions. The transantral endoscopic approach for orbital floor fracture repair, first described in the 1950s, offers the potential advantages of better visualization of implant placement and avoiding the complications associated with lower eyelid approaches.

**Objective:** To present long-term follow-up results of the authors’ transantral endoscopic repair of orbital blowout fractures.

**Participants/Methods:** Retrospective analysis of 32 patients over a 10-year period (1998 to 2008). **Methods:** 28 patients required actual reconstruction of the orbital floor and the rest required exploration and repositioning of orbital contents only. In total, 17 were reconstructed with titanium mesh and 11 were repaired with Medpor implants. Surgery was performed within 2 weeks for 25 patients (78.1%). Mean follow-up duration was 27.5 months (range, 4 months to 10 years).

**Results:** There were 21 male and 11 female patients. Half of the patients were injured in motorcycle accidents. Sixteen patients (50%) had associated zygomaticomaxillary complex (ZMC) fractures. Reduction of the ZMC fracture was performed prior to endoscopic evaluation and repair of the orbital floor blowout fracture. Four of 5 patients with associated medial orbital wall fractures underwent medial orbital wall reconstruction at the same time. Twenty-five patients (78.1%) had documented enophthalmos, and diplopia was present in 15 patients (46.9%). All patients had successful repair of the fractures. Two patients had residual enophthalmos of 1 mm postoperatively and 4 patients had residual diplopia after repair.

**Conclusions:** Transantral endoscopic approach for the repair of orbital floor fractures is safe and reliable in selected patients. Long-term follow-up showed stability of surgical results.

**Reviewer's Comments:** As otolaryngologists, we are especially familiar with the use of endoscopes and maxillary sinus anatomy. Hence, the expected learning curve may be shorter for otolaryngologists employing transantral endoscopic approach for orbital floor fracture repair. This approach may be particularly useful in the acute setting where there may be significant eyelid edema present. Although not specifically mentioned in the study, the endoscopic approach may be particularly useful in blowout fractures that extend more posteriorly along the orbital floor, which would require more dissection with the traditional lower eyelid incisional approaches. (Reviewer-Tang Ho, MD).

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Keywords: Orbital Blowout Fractures, Transantral, Endoscopic

Print Tag: Refer to original journal article
Fat injection laryngoplasty seems to be effective in enhancing acoustic and quality of life outcomes in patients with unilateral vocal cord paralysis.

There are many modalities of vocal fold medialization for vocal fold paralysis, and one that is still used worldwide is fat injection. There are 2 problems with fat medialization. One is that another incision is required for harvesting of fat. More importantly, in 2007 McCulloch et al, reported that the failure rate is 30% within 2 years, and fat graft has not been favored by some laryngologists in the United States. However, the long-term benefit of fat graft injection is still unclear.

**Objective:** To report on the authors’ series on fat injection medialization.

**Design:** Longitudinal outcomes evaluation study.

**Methods:** Essentially, this is a case series on 32 patients who have undergone fat injection for unilateral vocal fold paralysis with preoperative and serial postoperative follow-up at Chang Gung Memorial Hospital in Taipei, Taiwan. The follow-up time is 1 year, and the patients were followed with a quality of life survey as well as several acoustic variables.

**Results:** According to this report, the patients improved in terms of voice-related quality of life as well as in several acoustic variables.

**Conclusions:** Fat injection has adequate outcomes for unilateral vocal cord paralysis.

**Reviewer's Comments:** The rationale behind the renaissance of fat injection laryngoplasty is possibly due to its relative ease of use in comparison to framework type I laryngoplasty. Moreover, other forms of medialization require the incorporation of material into the larynx with potential for complications associated with foreign body insertion. Furthermore, the studies from McCulloch et al, that demonstrated the increased failure rate of fat injection laryngoplasty was not a controlled study. Dr Fang and colleagues therefore described their review of their experience with fat injection. Comparing the McColloch study with the current study, the McColloch paper stated that the mean time to failure of fat injection was around 160 days, but in this current paper, the failure rate, as measured by a Taiwanese version of voice outcome survey, was slightly over 10%. Now, this report does not mention the number of revision surgeries over their series, which is probably the best measure of success. This paper does include objective acoustic variables in their population, but acoustic variables have not correlated with functional assessment of one’s own voice. One possibility that explains the differences in result may stem from how the fat injection was performed between the 2 groups. Regardless, most agree that fat resorption is a real problem. The authors themselves suggest that the improvement in jitter and straining is probably due to fat resorption. The final take-home message from this paper is that fat injection may be a sufficient method for voice improvement, but its long-term effect is still unknown. (Reviewer-Young J. Kim, MD).

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**Keywords:** Vocal Cord Paralysis, Treatment, Autologous Fat Injection, Medialization

**Print Tag:** Refer to original journal article
Botox may help with chronic cough, but its long-term efficacy is unclear.

**Background:** Chronic cough is a common symptom that we are faced with. Otolaryngologists see these patients to rule out post-nasal drip or laryngeal reflux disease, and these patients typically undergo another round of empiric treatment under our care, and still they do not get better. Some have added a psychogenic source of this cough and labeled it as "habit cough" or "psychogenic cough." Others have labeled this group as those with "irritable laryngeal syndrome."

**Methods:** The authors screened through >400 patients with chronic cough with irritable laryngeal syndrome and tested their hypothesis by injecting Botox into 4 patients with chronic cough and followed their clinical symptoms.

**Results:** The authors found 4 candidates for Botox injection, and these patients were injected with Botox using electromyography-guided percutaneous injection of Botox. The number of injections varied in this patient population from 4 to 16 rounds of Botox injections. The authors report that these 4 patients remained symptom free after these rounds of injections.

**Conclusions:** Botox may be effective for some patients with chronic cough.

**Reviewer's Comments:** The explanation the authors provide for the success of their treatment regimen is that chronic cough involves a feed-forward loop that coughing induces chronic localized hypersensitization of the afferent limb of the sensory nerves. This review explains why some cough is resolved after only 4 repeat injections of Botox, while another patient required 16 injections. However, if this is true, then some of these patients would have recurrent cough due to environmental irritations such as severe upper respiratory infection or recurrent reflux that can be retreated with Botox. However, what is lacking in this report is the lack of documentation of how long these patients were followed. All these patients were cured of their chronic cough, but this should have been noted in the context of the length of follow-up after the resolution of symptoms. Another key point is that one of the 4 patients that had their chronic cough cured had a worse voice-related quality of life (VRQOL). One of the patients had a VRQOL score decrease from 73 to 48 after the injections. Botox will induce a breathiness that can potentially be as debilitating as the chronic cough itself. Any patients who entertain the idea of Botox for chronic cough should be clearly counseled on this side effect. (Reviewer-Young J. Kim, MD).

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Keywords: Chronic Cough, Habit Cough, Irritable Laryngeal Syndrome, Botox

Print Tag: Refer to original journal article
Background: Although prognosis of well-differentiated thyroid cancer is very good, there are isolated cases of recurrent or metastatic well-differentiated carcinomas that we encounter. Typically, these are localized with radioactive iodine whole-body scans. However, management dilemmas arise when non-iodine avid tumors recur, and there have been reports that PET-CT can be used to localize these lesions either in the neck or in the metastatic sites.

Objective: To determine the clinical utility of PET-CT scan after total thyroidectomy and I-131 treatment.

Design: Retrospective analysis of patients from a single tertiary institution.

Participants/Methods: The authors followed 124 patients with recurrent thyroid carcinoma who had undergone surgery and I-131 ablation. Given the complexity of these cases, the patients had high resolution ultrasound, serum thyroglobulin, histology, and PET-CT scans as part of their workup. Because of this, the authors were able to generate quantitative measurements of sensitivity, specificity, positive predictive value, and negative predictive value of PET-CT scan in this scenario. Moreover, the authors were able to compare PET-CT and US as well as putting PET-CT scan in context with other studies.

Results: In brief, the authors found high sensitivity and specificity with PET-CT scan in recurrent thyroid carcinoma. However, this should be in the context of recurrent tumor that does not take up radioactive I-131. One interesting finding was that there was a positive correlation between PET-CT scan and serum thyroglobulin. In this series, the authors noted that PET-CT study altered the management from 20% to 30% of the time.

Conclusions: PET-CT is usually performed in patients with thyroid cancer having elevated thyroglobulin levels but non–I-131 avid tumors and has high diagnostic accuracy for identifying local, regional, and distant metastases.

Reviewer’s Comments: These practices are currently under effect in many tertiary centers, but this report provides a retrospective justification for these practices. In the end, the authors provide an excellent algorithm for managing recurrent thyroid carcinoma that is non I-131 avid. The criticism of this report, of course, is the retrospective nature of the study. But this study has the highest number of patients to provide slightly more confidence in the quantitative measurements regarding the use of PET-CT scans for recurrent thyroid cancer. One interesting finding is that PET-CT scan achieves the highest specificity when the thyroglobulin is >10. This is a confirmation from a previous study, so this is a good take-home message from this paper. This articles does not have any novel findings that go against the literature on this, but the authors support the use of PET-CT scans for recurrent thyroid carcinoma that is not I-131 avid on nuclear scan tests that cannot be localized with ultrasound. The listener should still be aware that false-positive test is real for PET-CT, and that even reactive lymph nodes can be read as PET-CT positive. The negative predictive value from this study is only 65%. (Reviewer-Young J. Kim, MD).

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Keywords: Well-Differentiated Thyroid Cancer, PET-CT

Print Tag: Refer to original journal article
Topical 5-fluorouracil is more effective than petroleum jelly in treating granular myringitis.

**Background:** Granular myringitis is characterized by replacement of the normal tympanic membrane and external auditory canal wall with granulation tissue. Symptoms include chronic discharge and fullness. The disease usually responds to topical steroids, but frequently recurs after cessation of therapy.

**Objective:** To investigate the efficacy of 5-fluorouracil (5-FU) in treatment of granular myringitis.

**Design:** Randomized controlled double-blinded trial.

**Participants:** 60 patients with granular myringitis with a mean age of 35 years.

**Methods:** During a 3-year period, patients with granular myringitis were identified. Entry criteria included intact tympanic membrane, normal audiogram, and type A tympanogram. Patients were excluded if they had significant external auditory canal stenosis or eustachian tube dysfunction. Patients were randomized to 2 arms: 3 successive topical applications of 5% 5-FU at 2-week intervals (treatment), or petroleum jelly at the same intervals (control). Follow-up was every 2 weeks for 3 months, then every 3 months for 2 years. Patients answered a questionnaire about drainage and the ear was examined at follow-up. A 4-point scale was used to grade the response to treatment.

**Results:** 5 patients were lost to follow-up. The control and treatment arms were similar with respect to gender distribution and severity of disease at diagnosis. At the 3-month follow-up of patients treated, 61% reported no discharge and 54% had no remaining granulation tissue. After 2 years, persistent disease was seen in 11% of patients. At the 3-month follow-up of controls, 7% had no discharge and 7% had no granulation tissue. At 2 years, 74% of control patients continued to have persistent disease. The differences between the control and treatment arms were highly significant (\(P < 0.001\)) at both 3 months and 2 years.

**Conclusions:** Topical 5-FU is more effective than petroleum jelly in treatment of granular myringitis.

**Reviewer's Comments:** The topical 5-FU used in this study led to significant long-term improvement in the majority of patients treated. Given topically, 5-FU has few side effects and I would consider using it for treatment of granular myringitis, especially in cases that are resistant to conventional therapy. Unfortunately, this study did not compare 5-FU with a standard therapy for this condition such as topical steroids, which are often combined with topical antibiotics. In fact, the petroleum jelly applied in the control group may have actually exacerbated the condition by helping to maintain moisture in the ear canal. (Reviewer-Benjamin T. Crane, MD).

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Keywords: Otorrhea, Drainage, 5-FU, 5-Fluorouracil, Myringitis

Print Tag: Refer to original journal article
Although rare, inflammatory pseudotumor has a very unusual and characteristic appearance on CT scan.

**Background:** Inflammatory pseudotumor is a benign but potentially locally aggressive tumor that most commonly occurs in the lung, although 5% of cases occur in the head and neck. It is a rare lesion of the temporal bone with only 14 cases previously reported in the literature.

**Objective:** To describe a case of inflammatory pseudotumor of the temporal bone in a child as well as to review the literature and to describe the characteristic radiologic findings.

**Design:** Case report and literature review. **Case Report:** A 2.5-year-old otherwise healthy male presented with right otalgia, profound unilateral sensorineural hearing loss, and facial weakness. The patient was treated with tympanostomy tube placement and antibiotics. After an initial brief response, the tympanostomy tube became clogged with granulation tissue and the facial palsy returned. Subsequent workup included CT and MRI. Labyrinthectomy with removal of tumor was performed.

**Results:** The CT scan revealed a soft tissue mass in the middle ear that was expanding the otic capsule. The apical turns of the cochlea appeared dilated and dehiscent. Both the posterior and superior semicircular canals were dehiscent. MRI demonstrated contrast-enhancing soft issue in the mastoid, inner ear, and tympanic segment of the facial nerve. A mastoidectomy revealed extensive rubbery tissue. Pathology of this tissue revealed chronic inflammation without evidence of neoplasm. After tumor removal, facial nerve function normalized within 3 weeks, but the patient continued to have pain and drainage. A revision surgery with labyrinthectomy revealed inflamed fibroconnective tissue. After the second surgery, the pain and granulation tissue resolved and have remained absent for the past 18 months.

**Conclusions:** Inflammatory pseudotumor of the ear is a rare tumor, but its appearance on CT scan can be extremely helpful in making the diagnosis.

**Reviewer's Comments:** The prior literature on these tumors indicates that they are predominately a tumor of adults and frequently the presentation includes otalgia and hearing loss. Facial nerve weakness is variably present and usually gradual in onset. Because these tumors are rare, they may be frequently misdiagnosed as more common conditions such as cholesteatoma or malignant otitis externa. The unusual CT scan finding of expansion of the labyrinth and deformation of the vestibule and cochlear is commonly seen in this condition and should alert the practitioner to this rare type of tumor. Response to steroids is typical, but long-term control with steroids alone is uncommon. (Reviewer-Benjamin T. Crane, MD).

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Keywords: Otology, Inner Ear, Radiology, CT, MRI, Plasma Cell Pseudotumor

Print Tag: Refer to original journal article
Adenoidectomy Leads to a Decrease in Pathologic Nasopharyngeal Flora

Alterations in the Nasopharyngeal Bacterial Flora After Adenoidectomy in Children: A Systematic Review.


S aureus and H influenzae are commonly found in the nasopharynx after upper respiratory infection and decrease after adenoidectomy.

Background: Removal of adenoids may change the bacterial makeup of the nasopharynx.
Objective: To do a systematic review on the changes in the bacterial makeup of the nasopharynx before and after adenoid removal.
Participants: Children aged <18 years who underwent adenoidectomy or adenotonsillectomy and who had undergone nasopharyngeal flora evaluation before and after surgery.
Methods: This was a systematic review of 2 electronic databases with 1237 articles. Inclusion criteria included age <18 years, adenoidectomy with or without tonsillectomy with original data, and study of nasopharyngeal flora before and after surgery. Forty-two patients met inclusion criteria, but only 8 were ultimately included. The outcome measure was preoperative and postoperative cultures in children undergoing adenoid removal.
Results: Streptococcus pneumoniae and Staphylococcus aureus were the most common potentially pathologic bacteria and Neisseria species and alpha-hemolytic Streptococcus were the most common nonpathologic bacteria found on nasopharyngeal culture. After surgery, nonpathologic flora were more common in 6 of 7 studies with a decrease in S aureus in 4 of 6 and S pneumoniae and Haemophilus influenzae in 6 of 7.
Conclusions: Generally, the studies of nasopharyngeal flora before and after surgery are of moderate to poor quality. The limited studies found suggest that nonpathologic flora may be more common after adenoid removal.
Reviewer’s Comments: It has long been hypothesized that the utility of adenoid removal in recurrent ear, sinus, and tonsil infections is to decrease colonization of the nasopharynx with potentially pathologic bacteria. Previous studies have shown a decreased likelihood of subsequent tympanostomy tube placement when adenoidectomy is performed along with ear tube placement. This review highlights the dearth of useful evidence to support this theory with only 1 randomized control trial, 2 case-control studies, and 5 prospective observational studies found. While the evidence is limited, these data suggest that adenoid removal decreases the likelihood of pathogenic bacterial flora in the nasopharynx and supports the use of adenoidectomy to decrease the incidence of otitis media and tonsillitis. (Reviewer-Stacey L. Ishman, MD).

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Keywords: Adenoidectomy, Nasopharynx, Bacteria

Print Tag: Refer to original journal article
Patients with and without stoma maturation had similar rates of post-tracheostomy complications in this study.

**Background:** Stoma maturation (suturing the trachea to the skin via a variety of different methods) has been advocated as a method to reduce the risk of accidental early decannulation. In addition, it has been suggested that it may decrease the incidence of peristomal and suprastomal granulation tissue.

**Objective:** To review the early and late complications in children who underwent tracheostomy tube placement with and without stoma maturation.

**Design:** Retrospective comparison of pediatric tracheostomy patients with and without tracheostomy stoma maturation.

**Participants:** 156 children (mean age, 4.9 years) who underwent stoma maturation (n=48) and those who didn't (n=108).

**Methods:** Tracheotomy with or without stoma maturation at the time of surgery was performed by 8 pediatric otolaryngologists. Stoma maturation was based solely on individual surgeon preference, not on patient factors. Main outcome measures were early and late tracheostomy-related complications; correlation between stoma maturation, and complication rate.

**Results:** 19 (11%) had early complications (accidental decannulation, bleeding, pneumonia, tracheitis). Late complications occurred frequently: granulation tissues (49%), tracheitis (49%), accidental decannulation (12%), and mucous plugging (10%). When corrected for age, the method of tracheostomy stoma did not have any effect on the incidence of complications related to tracheostomy placement.

**Conclusions:** The presence or lack of tracheostomy stoma maturation was unrelated to complication rates in children.

**Reviewer's Comments:** Stoma maturation is common in adult tracheostomy tube placement, but is far less common in pediatric tracheostomy tube placement. It has been advocated by some to reduce the likelihood of early accidental decannulation and has been hypothesized to reduce peristomal and suprastomal granulation tissue. However, this retrospective review found no difference in complication rates between those with and without stoma maturation. This is useful as it supports the majority of practitioners who do not mature the stoma in children and use a vertical tracheal incision and sutures between the trachea and the skin. While useful, it does not comment on the use of stay sutures that many people use to avoid early decannulation and thus avoid the need for stoma maturation. (Reviewer-Stacey L. Ishman, MD).

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Keywords: Tracheostomy, Complications, Pediatric, Stoma

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Positional Therapy, CPAP Equivalent in Adults With Positional OSA

Comparison of Positional Therapy to CPAP in Patients With Positional Obstructive Sleep Apnea.
Permut I, Diaz-Abad M, et al:

J Clin Sleep Med 2010; 6 (June 15): 238-243

Positional therapy and continuous positive airway pressure were both able to reduce the apnea-hypopnea index to <5 events/hour for adults with positional obstructive sleep apnea that was mild to moderate in character.

**Background:** Half of adults with mild obstructive sleep apnea (OSA) -- which means they have an apnea-hypopnea index (AHI) of 5 to 15 events/hour -- and 19% of those with moderate OSA (AHI, 15 to 30) have been found to have resolution of sleep apnea events with nonsupine positioning.

**Objective:** To study the changes in the AHI with positional therapy and to compare these to those of continuous positive airway pressure (CPAP).

**Design:** Patients with identified positional OSA were randomly assigned to treatment with CPAP versus positional therapy.

**Participants/Methods:** 38 patients (25 male and 13 female) with a median AHI of 11 (range, 6 to 26) were identified for study. Polysomnography was completed before and after treatment with quantification of AHI, oxygen desaturation, and sleep quality parameters.

**Results:** Positional therapy was equivalent to CPAP at normalizing the AHI to <5 events per hour (92% and 97%, respectively [P =0.16]). The AHI decreased from a median 11 events/hour to 2 with positional therapy and 0 with CPAP. The oxygen saturation nadir increased from 85% to 89% with both techniques (P <0.001) Total sleep time remained stable with positional therapy (338 minutes to 334 minutes) but decreased with CPAP to 319 minutes (P =0.02).

**Conclusions:** Positional and CPAP therapies were equivalent at improving AHI to <5 events/hour in adults with mild to moderate positional OSA.

**Reviewer's Comments:** This study is one of the first to look at the treatment of positional OSA using resolution of sleep apnea as a primary outcome variable instead of the historical definition of a 50% decrease in the AHI. Using this definition, this study supports the use of positional therapy as a primary treatment method for adults with mild to moderate disease. This is especially important for patients with moderate disease because the risk of negative cardiovascular consequences in moderate OSA is increased and thus it is universally recommended that some form of treatment is necessary. In addition, current recommendations suggest that positional therapy should only be used as a secondary or supplemental therapy; however, this study suggests that positional therapy should be considered as a primary method of treatment in positional OSA and/or for those who fail CPAP therapy. (Reviewer-Stacey Ishman, MD).

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Keywords: Obstructive Sleep Apnea, Positional Sleep Apnea, CPAP, Positional Therapy

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The supraclavicular artery island flap is a valuable regional flap option in head and neck reconstruction.

**Background:** The supraclavicular artery island flap can be a valuable regional flap option in head and neck reconstruction. However, its vascular anatomy is still poorly understood.

**Objective:** To investigate the vascular anatomy and perfusion of the supraclavicular artery island flap using fresh cadaver specimens.

**Methods:** The supraclavicular artery is a branch of the transverse cervical artery and less frequently arises from the suprascapular artery. Supraclavicular artery island flaps were harvested from 10 fresh cadavers. The flaps were injected with contrast media and barium-gelatin mixture for static and dynamic CT scanning to analyze their vascular territory (3D) and perfusion flow (4D).

**Results:** The mean length of the flap was 24.2 cm and the mean width was 8.7 cm. The mean diameter of the supraclavicular artery pedicle was 1.33 mm. The pedicle was located on average 3.6 cm above the clavicle and 8.6 cm from the sternoclavicular joint. In 9 of 10 flaps, the entire skin paddle was adequately perfused. The one remaining flap was only perfused 50%, likely secondary to the small caliber of the pedicle (0.7 mm). The subdermal plexus was found to convey contrast flow between adjacent perforators, explaining the mechanism by which interperforator flow occurs and how perfusion is maintained at the distal edge of the flap.

**Conclusions:** This study sheds light on the vascular anatomy of the supraclavicular artery island flap and confirms it as a reliable regional flap reconstruction option.

**Reviewer's Comments:** Microvascular free tissue transfer has expanded the realm of head and neck reconstruction by providing more flap options. However, flaps require specialized training and increased operative time. Regional flaps such as pectoralis major flaps are often bulky and are associated with increased donor-site morbidity. The supraclavicular artery island flap was described as early as the early 1900s. However, its use has been limited secondary to limited understanding of its vascular anatomy, hence question over its reliability. This study, along with other published clinical studies, should bring more awareness to this flap as a valuable addition to the head and neck reconstruction armamentarium. (Reviewer-Tang Ho, MD).

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Keywords: Supraclavicular Flap, Regional Flap, Head & Neck Reconstruction

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Objective: To determine the significance of nasal muscle function in patients with nasal valve compromise by comparing electromyography (EMG) activities with healthy controls.

Design: Cross-sectional study conducted at a tertiary care center.

Participants/Methods: Subjects include 20 patients with dynamic nasal valve collapse, 18 patients with static nasal valve compromise secondary to septum deviation, and 20 healthy controls. Nasal muscle activities were measured by surface EMG and compared among all groups.

Results: No significant difference was noted between patient and control groups in terms of patient demographics. In patients with dynamic nasal valve collapse, activity loss was seen in muscle recruitment patterns and motor unit morphology of the dilator naris anterior muscle in 40% of patients and the transverse nasalis muscle in 53% of patients during both inspiration and expiration. In the static nasal valve collapse group, normal muscle activation was seen in expiration but compromised during the inspiration phase for the dilator naris anterior and the transverse nasalis muscle in 61% of patients. Normal findings were observed in all controls.

Conclusions: Status of the nasal muscles should be considered by clinicians in treating patients with nasal airway obstruction. Determining the factors involved in the pathology of the nasal valve region is necessary in planning the appropriate treatment course.

Reviewer’s Comments: This study essentially demonstrates that the activity loss in nasal muscles in patients with dynamic nasal valve collapse can be detected by EMG. While not a novel finding, the comparison with groups of patients with static nasal valve collapse and normal controls adds to the strength of this study, albeit the sample size is small. Nevertheless, the results are significant in implicating the potential involvement of nasal muscles, particularly the dilator naris anterior and transverse nasalis, in patients with dynamic nasal valve collapse. (Reviewer-Tang Ho, MD).

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Keywords: Nasal Valve Collapse, Nasal Obstruction, Nasal Muscles, Electromyography

Print Tag: Refer to original journal article
What Is the Effect of Septoplasty on Midfacial Growth?

*Septoplasty Retards Midfacial Growth in a Rabbit Model.*

Wong KK, Filatov S, Kibblewhite DJ:

Laryngoscope 2010; 120 (March): 450-453

Septoplasty in young rabbits hinders nasal snout development and suggests retardation of midfacial growth.

**Background:** Septoplasty in the pediatric and adolescent population is controversial secondary to concerns over its potentially negative impact on midfacial growth.

**Objective:** To employ a validated rabbit snout model to determine if septoplasty indeed has an adverse effect on midfacial growth and if the retardation can be reversed with a porous polyethylene implant.

**Methods:** A total of 16 9-week-old white rabbits were divided into 4 groups: positive control with a sham septoplasty with no cartilage manipulation; septoplasty group with conservative submucoperichondrial removal of cartilaginous septum and preservation of the L-strut; septoplasty group with replacement of the resected cartilage with a rigid porous polyethylene graft; and a negative control group. Cephalometric measurements were taken based on radiographs taken at time of implantation and sacrifice at 24 weeks of age.

**Results:** A statistically significant decrease in nasal snout length on both dorsoventral and lateral measurements were noted between experimental and control groups ($P < 0.0001$ and $P < 0.007$, respectively). No significant differences in snout width and height were noted. Also no significant differences in measurements were noted between the 2 control groups.

**Conclusions:** The animal data show evidence of midfacial growth retardation with septoplasty in young rabbits. The retardation was not reversed by the replacement of resected cartilage with a synthetic implant.

**Reviewer's Comments:** This animal study demonstrates some very interesting findings and suggests that septoplasty at a young age in humans may have similar effects. However, the findings of an animal study obviously have limited applications in humans. Furthermore, the number of animals in each group was very small (4 each) and 1 of the animals in the septoplasty experimental group died in the postoperative period. Another point to consider is whether the small amount of decrease in nasal snout length seen on cephalometric measurements, while statistically significant, would result in visible deformity. There is still no definitive answer as to at what minimal age it is safe to operate on the septum. The risks and benefits of the operation must be considered carefully by the clinician and discussed in detail with the family. (Reviewer-Tang Ho, MD).

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Keywords: Septoplasty, Midfacial Growth, Pediatric

Print Tag: Refer to original journal article
How Common Are Medication Errors in Surgical Patients?

*Perioperative Medication Errors in Otolaryngology.*

Rosenwasser R, Winterstein AG, et al:

Laryngoscope 2010; 120 (June): 1214-1219

Several types of medication errors were found in this study, and the rate of errors was about 3% of surgical cases.

**Background:** Medication errors are a common cause of complications and poor outcomes. Although there are now several layers in place to try to prevent these types of errors in most institutions, they continue to occur, and information on these types of errors is scarce.

**Objective:** To identify the causes and types of medication errors in the perioperative setting.

**Design:** Prospective study.

**Participants:** 589 patients who underwent surgery.

**Methods:** During a 2-month period in 2008, all physicians and nurses were encouraged to report any event that might be considered a perioperative medication-related error. These errors could occur in clinic, the operating department, or at the patient's home. The staff was educated on the types of medication errors through a 45-minute presentation. A $10 incentive was provided for reporting errors and practitioners were sent frequent email reminders. A second part of the study involved a full-time observer who sought out medication errors related to otolaryngology cases.

**Results:** 589 surgeries were performed during the study period. A total of 20 medication errors were identified. Errors occurred preoperatively, intraoperatively, and postoperatively. The most common error was wrong dosage, followed by omitted dose, wrong drug, wrong site, and unnecessary medication in order of frequency. Most dosage errors occurred due to lack of experience or training. No errors caused any harm to the patient. The authors believe that improvements in electronic medication ordering might be able to prevent some medication errors.

**Conclusions:** Medication errors are common throughout the otolaryngology perioperative period.

**Reviewer's Comments:** This study demonstrates that there is a high rate of medication errors made in the perioperative period, although none of the errors reported had an adverse effect on the patient. This study has some inherent biases because it largely relies on self-reported errors, thus some errors may not have been reported. Also, the professionals involved knew they were being studied so they might have been more careful than usual in avoiding some types of errors. The study concludes that many of these errors could have been avoided with a better electronic medication ordering system. Although these systems have advantages, this study does not directly show that they decrease the number of medication errors. (Reviewer-Benjamin T. Crane, MD).

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Keywords: Medication Error, Perioperative Management, Patient Safety, Risk Management

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Luc's abscess still occurs occasionally and is associated with minimal morbidity. Mastoidectomy is not always required.

**Background:** Acute otitis media (AOM) is a very common problem in children. This is usually treated with antibiotics, and frequently recurrent AOM is commonly treated with tympanostomy tubes. In the current era of antibiotic treatment, abscess formation is rare. Luc's abscess is a purulent collection deep to the temporalis muscle. This abscess is thought to form from pus in the middle ear, which travels through the subperiosteum below the temporalis muscle.

**Objective:** To describe some recent cases of Luc's abscess and discuss management strategy.

**Design:** Small case series.

**Participants:** 2 pediatric patients both age 5 years.

**Methods:** Cases were described including intervention and clinical outcome. Both patients were treated with antibiotics, tympanostomy, and local drainage. One patient had a computed tomography (CT) scan and one patient had a mastoidectomy.

**Results:** The first patient presented with a 2-day history of unilateral temporal swelling 1 week after being diagnosed with AOM that was treated with oral antibiotics. A CT scan showed opacified mastoid air cells and a fluid collection deep to the temporalis muscle. After the swelling failed to resolve with intravenous antibiotics, the collection was drained and a tympanostomy tube was placed. The second patient presented with fevers and a protruding auricle. Otoscopy demonstrated AOM and myringotomy was performed. The patient was given 3 days of antibiotics without improvement, and then taken to the operating room for abscess drainage, mastoidectomy, and tympanostomy tube placement.

**Conclusions:** Both of these cases demonstrate that Luc's abscess should be treated with antibiotics, tympanostomy tube, and abscess drainage.

**Reviewer's Comments:** This paper presents a complication of otitis media that is now rare, but that we should continue to be aware. Because this condition is now very rarely reported, it is possible that many otolaryngologists are unaware of its existence. Symptoms that should lead us to suspect this problem are lateral displacement of the auricle in a patient with a current or recent history of AOM. Neither of these cases responded to initial antibiotic therapy, so early surgical drainage and tympanostomy tube are probably indicated, although a mastoidectomy does not seem to be required. (Reviewer-Benjamin T. Crane, MD).

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Keywords: Mastoiditis, Subperiosteal Abscess, Pediatrics, Infection

Print Tag: Refer to original journal article