

Mean thresholds for 0.5, 1, 2, 3 and 4 KHz frequencies before and after implantation are obtained for r VSB Coupler group and no-coupler VSB group. For SNHL air conduction is analysed whereas bone conduction is considered for conductive and mixed hearing loss.

Besides, functional gain and discrimination of disyllabic words at 65 dB in quiet is analyzed.

Results: Surgeon subjective perception is that Couplers simplify the surgical process, allow a more stable coupling and minimize the risks of post-surgical FMT movement as well. Focusing on SNHL patients, the mean hearing thresholds for the air conduction before and after the surgery were respectively 59.25 dB and 29.75 dB for the no-Coupler VSB group, opposite to 63 dB and 24.75 dB for the VSB-Coupler group; and the mean functional gain was 30.25 dB for the no-Coupler VSB group, opposite to 38.25 dB for the VSB-Coupler group. In the disyllabic words test, difference was 78% for the no-Coupler VSB group and 82% for the VSB-Coupler group. For conductive-mixed hearing loss patients, mean hearing thresholds for the air conduction before and after the surgery were 84.75 dB and 85 dB respectively for the no-Coupler VSB group, opposite to 85 dB and 30.75 dB for the VSB-Coupler group; and mean functional gain was 47.5 dB for the no-Coupler VSB group, opposite to 53 dB for the VSB-Coupler group

Conclusions: Surgical procedure is simpler for coupler VSB for both indications (SNHL and conductive and mixed hearing loss). A greater tendency to improve auditory outcomes is described for VSB Coupler group vs no-Coupler VSB group.

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Aberrant internal carotid artery in the middle ear: a cause of aural fullness

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Learning Objectives: Otolologists should be aware of vascular malformations of the temporal bone. Aberrant ICA in the middle ear is a very rare finding and its damage during surgical procedures can lead to severe complications. When there is a suspicion of a middle ear vascular anomaly, CT scan of the temporal bone is the standard. It should be performed before any middle ear surgery, to avoid complications related to misdiagnosis. Endoscopic examination improves diagnosis of middle ear pathology.

Introduction: Aberrant internal carotid artery (ICA) in the middle ear is a rare vascular anomaly of the temporal bone and its diagnosis can be difficult because the symptoms and signs are often nonspecific.

Accidental injury during myringotomy or other middle ear surgeries, can lead to severe complications.

Methods: We report a case of a 47-year-old woman who complained of fullness in the right ear for 6 months, without hearing loss or tinnitus. She had no previous otological pathology.

Endoscopic otoscopy revealed a slight white-rosy mass behind the inferior half of the tympanic membrane.

A CT scan of the temporal bone confirmed aberrant ICA passing through the middle ear. A magnetic resonance angiography was also performed.

The patient was informed about the diagnosis and the possible complications of middle ear interventions, and regular follow-up was arranged.

Results: Color changes on otoscopic examination may suggest the presence of a vascular anomaly, as sometimes seen in aberrant ICA, due to its intratympanic course.

These features were seen in the CT scan: the ICA ran more laterally, there was an enhanced mass in the hypotympanum and a deficient bony plate along the tympanic portion of the ICA, bulging into the tympanic cavity.

The magnetic resonance angiography showed a lateralized right ICA with a reduced diameter.

Conclusions: Aberrant ICA in the middle ear should be identified before middle ear surgery, because misdiagnosis could lead to surgical complications: hemorrhage, stroke or death may occur if the vessel is damaged.

Clinical diagnosis is difficult because the symptoms and signs are nonspecific or absent and in some cases it can be discovered during middle ear surgery. However, symptoms such as pulsatile tinnitus or conductive hearing loss may be present.

Most authors recommend a conservative approach. If an asymptomatic aberrant ICA in the middle ear is diagnosed any physician involved in the patient's care should be informed.

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The impact of postoperative antrum pneumatization on hearing outcome after canal wall-down tympanoplasty with soft-wall reconstruction for cholesteatoma

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Learning Objectives: It might be enough to concentrated on making the pneumatized cavity in the tympanic cavity alone. Further studies with a larger sample size will be needed to confirm it.

Introduction: It is not completely clear whether the pneumatized antrum is critical for good hearing in patients operated on for acquired cholesteatoma with canal wall-down type III (-c or -i) tympanoplasty with soft-wall reconstruction (CWDT-SWR). We thus investigated the correlation of pneumatization of the antrum with hearing outcome.

Methods: Eligible patients were: (1) CWDT-SWR was performed for the past four years; (2) ossiculoplasty was performed by the present author; (3) > 1 year follow-up. Patients who had a past history of an otologic operation in

another institution were excluded. Twenty-two patients (age, 37 ± 13 yr) fit within the above condition. CT-scan was performed every year after surgery, and antrum pneumatization was evaluated. Pre- and post-operative pure-tone averages (PTA) and average air-bone gaps (ABG) were analyzed. PTA was calculated as the mean of 0.5, 1, 2, and 4 kHz thresholds. ABG was determined from air conduction (AC) and bone conduction (BC) thresholds that were measured at the same time. Average ABG (AABG) was calculated as the mean of 1, 2, and 4 kHz thresholds. Variables were shown in mean \pm SD. Hearing results were compared using Mann Whitney test.

Results: Twelve patients had the pneumatized antrum (P-Group) and 10 did not (non-P-Group). Following results were shown in P-Group and non-P-Group, respectively: (1) pre-operative PTA was 37 ± 8 and 40 ± 24 dB; (2) pre-operative AABG was 20 ± 8 and 18 ± 12 dB; (3) the change in PTA was 7 ± 12 and -1 ± 14 dB; (4) the change in AABG was 4 ± 13 and -2 ± 14 dB. The variables were not statistically different between two groups.

Conclusion: With this sample size, pneumatization of the antrum do not have an impact on hearing outcome statistically in patients operated with CWDT-STR.

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Analysis of the characteristics of hearing loss of PLF cases

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Learning Objectives: Background & Method: Perilymphatic fistula (PLF) is defined as an abnormal communication between the perilymph and middle ear, where there are leaky sites. The clinical manifestation of PLF is widely variable, and there was no physiological or biochemical diagnostic test for PLF that has the proper specificity and sensitivity. Therefore, it is very difficult to make a definite diagnosis of PLF. By the proteomic analysis, we have identified an isoform of Cochlin, CTP (Cochlin tomo-protein). CTP is a perilymph specific protein, which is not expressed in blood, CSF or saliva. We could establish a highly reliable ELISA-kit and again we could confirm this specific expression of CTP. With this background, in 2013, Japanese PLF diagnostic criteria was proposed. In this criteria, a definite diagnosis can be made with one of these basic rules, (1) a fistula is identified between the middle ear and the inner ear by microscope or endoscope, (2) Cochlin tomo-protein (CTP) is detected from the middle ear lavage (MEL). MEL was collected as follows: (1) after myringotomy or during PLF repair surgery, the middle ear was rinsed with 0.3 ml saline, (2) MEL was recovered and blood cells and cell debris were removed, (3) the supernatant was taken and stored frozen. If there is 2 μ l of perilymph in the MEL, the

test is positive. So far, we already have tested about 3000 samples including MEL, perilymph, serum, CSF etc. Between April 2014 and March 2015, 281 PLF suspected cases who had antecedent traumatic events were tested by the standardized CTP detection test protocol. In 281 cases, 61 (22%) were positive with CTP. The characteristics of hearing loss was vary, sudden hearing loss (26 cases), recurrent (8 cases), sudden and progressive (7 cases), progressive (7 cases) and fluctuate (5 cases). Our results indicates PLF is a real clinical entity and should be considered as pathological bases of sensorineural hearing loss.

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Result and Conclusion: In 281 cases, 61 (22%) were positive with CTP. The characteristics of hearing loss vary, sudden hearing loss (26 cases), recurrent (8 cases), sudden and progressive (7 cases), progressive (7 cases) and fluctuate (5 cases). Our results indicates PLF is a real clinical entity and should be considered as pathological bases of sensorineural hearing loss.

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Tympanoplasty With Canal Wall Reconstruction Using Sliced Auricular Cartilage For Old Radicalized Cavities

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