New diagnostic method in otology (N645)

ID: 645.3

High Frequency Ultrasound and Optical Coherence Imaging in the Ear: The Future of Otologic Imaging?

Presenting Author: Manohar Bance

Manohar Bance1, Rob Adamson1, Jeremy Brown1, Tom Landry1, Dan MacDougall1, Josh Farrell2
1Dalhousie University, 2Dalhousie University

Learning Objectives: 1. To review limitations in current imaging 2. To review the principles of high frequency ultrasound 3. To review the principles of optical coherence imaging 4. To illustrate uses of these technologies in otology.

Current imaging tools for the ear are limited in their resolution, and also have significant downsides, such as radiation, or interaction with metallic objects.

We have been developing new technologies based on very high frequency ultrasound (>40Mhz), and optical coherence tomography (OCT). These technologies have been developed in-house in our labs. We will present the present capacity of these devices, including in-vitro temporal bone measurements of anatomy, simulated pathology, and vibration measurements, as well as tracking cochlear implants during insertion. We also have in-vivo measurements using the OCT device. We will present possible uses, both in the middle ear, and in the cochlea and inner ear.

do:10.1017/S0022215116002073

Hearing reconstruction in chronic ears (R646)

ID: 646.1

Using cements for ossiculoplasty

Presenting Author: Levent Sennaroglu

Levent Sennaroglu
Hacettepe University School of Medicine

Learning Objectives: Since 2004 we have been using glass ionomer cement during ossiculoplasty. In the beginning we were using cement only for incus defects between incus and stapes but later on cements are used in many other situations as well. Recently we compared ossiculoplasty results in different situations: 1-incus to stapes 2-malleus to stapes 3-incudoplasty + stapedotomy 4-malleus to incus. In this presentation short video clips of each situation will be provided together with audiological outcome.

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In this presentation short video clips of each situation will be provided together with audiological outcome.

do:10.1017/S0022215116002061

Hearing reconstruction in chronic ears (R646)

ID: 646.2

Ten cases of cholesteatoma with labyrinthine destruction, skull base involvement and intracranial extension: management and long-term follow-up

Presenting Author: Douglas Backous

Christina Cobb, Douglas Backous
Swedish Neuroscience Institute

Learning Objectives:

Objectives: We analyze the clinical presentation, imaging findings, and surgical treatment of 10 patients with acquired cholesteatoma with labyrinthine destruction, skull base erosion, or intracranial extension.

Study Design: A retrospective case series at a tertiary referral center.

Methods: From 1997 to 2015, 6 males and 4 females, age 12 to 73 (mean, 42.3), years were treated for acquired cholesteatoma with skull base or labyrinthine invasion. Two patients had no prior surgery while 8 had an average of two prior procedures. All 10 complained of hearing loss, 3 had otorrhea, 3 had acute facial palsy, 3 had otalgia and 2 presented with progressive imbalance. Follow-up ranged from 8 to 216 (mean, 76.6) months. Audiometric, CT and MRI findings are compared to intraoperative outcomes.

Results: At surgical exploration, 2 patients had cholesteatoma with destruction of the cochlea, 4 had skull base invasion and 4 had intracranial involvement. Five patients required temporal bone obliteration, 2 had radical cavities with exteriorization of the petrous apex, and 3 required modified radical cavities. One patient with VII palsy recovered to HB grade III. One patient with labyrinthine destruction maintained residual hearing post op. No patients had additional complications from their definitive surgical procedures.

Conclusions: Acquired cholesteatoma with labyrinthine destruction, skull base extension, and intracranial involvement can have surprisingly subtle presentations. Balancing disease exteriorization with preserving labyrinthine function requires prudent radiological workup and surgical planning. Disease eradication is often not possible. Long-term clinical follow-up with periodic imaging and aggressive debridement is often necessary for disease control.

do:10.1017/S0022215116002085