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Middle ear implants in chronic ears (R774)**ID: 774.3****Coupling strategies of active middle ear implants**Presenting Author: **Stefan Dazert**Stefan Dazert¹, Jan Peter Thomas², Stefan Volkenstein²¹Ruhr-University of Bochum, St. Elisabeth-Hospital, ²Ruhr-university of Bochum, Department of Otorhinolaryngology, Head & Neck Surgery*Learning Objectives:* Active middle ear implants.

The indication range for implantable hearing devices such as active middle ear implants (AMEI) dramatically changed over the last years. While AMEI were primarily implanted to rehabilitate sensory neural hearing loss, new coupling strategies opened the way to also treat conductive and mixed hearing loss. Today, AMEI are also indicated in cases such as chronic otitis media and/or ear malformations etc.

Using current coupling systems, AMEIs may be adapted to ears with an intact ossicular chain and in cases with partially or complete missing ossicles. According to the remaining middle ear structures, the mechanical transducers of AMEIs may be adapted to different ossicles (incus, stapes) or to structures such as the oval or the round window. We will discuss advantages and disadvantages of different implants such as systems with one or two point fixation. Also, the various surgical techniques to place and adapt the transducers to middle ear structures will be addressed. Finally, we will present the post-operative outcome and want to discuss our experiences with the audience who might have had patients with similar conditions or different pitfalls.

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Middle ear implants in chronic ears (R774)**ID: 774.4****Management of mastoid cavities with Vibrant Soundbridge**Presenting Author: **Javier Gavilan**Javier Gavilan, Luis Lassaletta
*La Paz University Hospital**Learning Objectives:* To document the usefulness of VSB placed in the round window in adults with open cavities.

Introduction: The Vibrant Soundbridge (VSB) middle ear implant is a treatment option for patients with a variety of middle ear conditions such as open cavities. The VORP 503 and new couplers have been introduced to expand the possibilities of treatment.

Methods: 12 patients with mixed hearing loss, all with previous middle ear surgery underwent RW vibroplasty.

Intraoperative electrocochleography was completed during surgery to ensure the FMT coupling to the RW. Subjective benefit was evaluated using the Nijmegen Cochlear Implant Questionnaire (NCIQ), Glasgow Benefit Inventory (GBI) and Hearing Implant Sound Quality Index (HISQUI₂₉) tests.

Results: RW vibroplasty: mean follow-up was 42mo. Mean functional gain was 34 dB and speech discrimination score at 65 dB (SDS) improved from 14 to 83%. All NCIQ domains improved following surgery. All patients had a positive overall GBI score. The mean quality of sound was defined as “very good”.

Conclusion: The VSB represents a safe and reliable solution of hearing restoration in adults with open cavities suffering from mixed/conductive deafness.

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Middle ear implants in chronic ears (R774)**ID: 774.5****How to avoid complications in middle ear implantable hearing aids**Presenting Author: **Levent Olgun**

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Learning Objectives: Implantable hearing aids recently began to widely use for conductive or mixed hearing losses. Abnormalities or altered anatomy due to chronic otitis media may be a risk factor for complications. In this presentation important points in avoiding complications would be stressed.

Introduction: Implantable hearing aids have been developed to use in sensorineural hearing loss cases. However usage of this active middle ear implants in conductive and/or mixed hearing loss recently popularised. Majority of these cases are either chronic otitis media cases who do not get satisfactory hearing after tympanomastoidectomy or congenital outer and/or middle ear abnormality cases. Altered anatomy due to previous surgeries or abnormalities may be a risk factor for complications in middle ear implant surgeries.

Method: Twenty nine cases implanted with an electromagnetic implant (Vibrant MED-EL or Otologics Carina) at Izmir Bozyaka Teaching and Research Hospital were retrospectively evaluated. Complications, adverse events and revision or reimplantation surgeries were noted.

Results: Four out of 29 cases required a revision surgery. Two cases gradually lost the hearing and we had to use a cochlear implant 2 and 6 years after first surgery. Possible factors leading to complications were evaluated.

Conclusions: Usage of middle ear implants for chronic otitis media or outer and/or middle ear abnormalities necessitates some modifications in surgical technique.

Learning Objectives: Middle ear implants can be successfully used for rehabilitation conductive/or mixed hearing