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Learning Objectives: TBC

The reconstruction of the ossicular chain has the goal to connect the vibrating tympanic membrane with the inner ear via the stapes. Two aspects have to be considered: Firstly the Hi-Fi sound transport. For this purpose, the prosthesis has to be anchored tightly to the vibrating structures in order to avoid a loose contact. Any soft tissue in the gap between the prosthesis and the vibrating structures will reduce the energy transmission due to its damping effect. Secondly, the prosthesis has to be stabilized against a displacement by static forces, like atmospheric pressure variations, scar tissue traction, tympanic membrane retraction etc. Simple water-adhesion is not solid enough for the stabilization of the prosthesis against these forces. Therefore, new designs for a more stable attachment are necessary. They must not only guarantee a stable positioning, but, especially in cases of cholesteatoma surgery with its high risk of recidives, an easy removing must be possible, to reduce the risk of a stapes' luxation.

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Big Cholesteatoma: How I do it (2) (V737)

ID: 737.1

Large Cholesteatoma

Presenting Author: **Levent Olgun**

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Izmirbozyaka Teaching Hospital

Learning Objectives:

Introduction: Large cholesteatomas are generally congenital origin and by the years reach considerable sizes. Most of the cases may be indolent for years and first detected only after development of complications.

Method: Between 2010–2016 34 large cholesteatomas were operated on at Izmir Bozyaka Teaching and Research Hospital ENT Clinic. Eighteen of them sought attention because of intratemporal complications, intracranial complications led to surgery in 4 other cases. In this presentation short clips of operative videos of some of these cases would be shown and important points would be stressed.

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Big Cholesteatoma: How I do it (2) (V737)

ID: 737.2

Intra-op warning signs to look for in implant surgery

Presenting Author: **Mohan Kameswaran**

Mohan Kameswaran
Madras ENT Research Foundation (P) LTD

Learning Objectives: The otologist very often has to deal with extensive cholesteatoma in the Indian population. This video presentation will focus on extensive cholesteatoma and its management.

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Mastoid Obliteration (R741)

ID: 741.1

Why consider obliterating the mastoid in cholesteatoma surgery anyway? Lessons learnt from changing treatment strategy, preliminary results and future perspectives

Presenting Author: **Robert Jan Pauw**

Robert Jan Pauw, Mick Metselaar, Anne van Linge, Laura Veder, Bas Pullens, Marc van der Schroeff
Erasmus MC

Learning Objectives: To demonstrate the advantages of mastoid obliteration in cholesteatoma surgery. To emphasize the importance of structured follow-up after cholesteatoma surgery in order to assess both medical and patient reported outcome measures.

Mastoid obliteration in cholesteatoma surgery can decrease the cholesteatoma recurrence rate.

In the Erasmus Medical Center we have implemented canal wall up tympanoplasty with bony obliteration of the mastoid as the treatment strategy of choice for primary or recurrent cholesteatoma. Preliminary results of this treatment strategy will be shown and compared to our previous results with cholesteatoma recurrence and residual rate as primary outcome measures.

Currently, all patients are included in a prospective database that includes not only medical outcome measures like cholesteatoma recurrence and residual rate, complication rate and hearing results, but also patient reported outcome measures using general and disease specific questionnaires. An overview of the current standardized follow-up regimen and the outline of the database will be given. A concept version of an interactive cholesteatoma dashboard that allows real time insights in different outcome measures will be demonstrated.

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Mastoid Obliteration (R741)

ID: 741.2

Mastoid obliteration 6 years follow up results. European trend, local peculiarities

Presenting Author: **Sergey Kosyakov**

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Learning Objectives:

Introduction: To prevent residual and recurrent cholesteatoma, we performed canal wall down technique with the obliteration of paratympanic spaces for patients with acquired cholesteatoma.

Material and Methods: 229 ears were operated (223 patients: 81 females and 142 males). In 158 cases an operation was performed for the first time and 71 cases were revision and re-operation after surgery by other surgeons. All patients underwent sanation surgery with the obliteration of paratympanic spaces followed by the restoration of the posterior wall of the external auditory meatus and simultaneous tympanoplasty (closed-type surgery). Close tympanic cavity with chondro-perichondrial flap with simultaneous ossiculoplasty. Obliterate paratympanic spaces with bone pate, or bioglass, or allocartilage and cover it with chondroperichondrial flap. The patients were examined one year after the treatment with the use of the MRI technology using the non-EPI DWI regime to monitor the residual and recurrence cholesteatoma.

Results: From 2009 to 2015, we operated 229 ears. The results were evaluated according to otomicroscopy, MRI sequences, such as the non-EPI DWI and recorded for survey. From 2009 to 2011 the residue of cholesteatoma was diagnosed in 3 cases (3,7%), from 2009 to 2012–7 cases (5.9%), from 2009 to 2013–9 cases (6%), from 2009 to 2014–11 cases (5,8%) and from 2009 to 2015–11 cases (4,8%). No residual cholesteatoma were detected in the obliterated mastoid cavity.

Conclusion: Long-term follow up indicated that the canal wall down technique with bony obliteration is a safe method with which to treat primary cases and to reconstruct unstable cavities. The MRI technology in the non-EPI DWI regime was successful in differentiating soft tissues and enabling the detection of residual or recurrent cholesteatoma after a canal wall down bony obliteration technique procedure.

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Mastoid Obliteration (R741)

ID: 741.3

The Bony Obliteration Tympanoplasty Technique in cholesteatoma Management

Presenting Author: **Erwin Offeciers**

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Learning Objectives: 1. To share the long term results of our bony obliteration tympanoplasty technique in primary and revision cholesteatoma cases (BOT), and in the reconstruction of unstable CWD cavities (CR-BOT). 2. To illustrate the advantages of an intact bony canal wall over CWD procedures. 3. To discuss the prerequisites for long term safety when using the BOT. 4. To advocate the use of the non-EP DW MRI sequence for the follow-up of cholesteatoma cases.

Introduction: Since the last 15 years we have used the Canal Wall Up Bony Obliteration Technique (CWU-BOT) in 87% of our cholesteatoma cases. The BOT preserves the bony CW and closes the tympano-attical barrier and posterior tympanotomy with sculpted cortical bone. After removal of all diseased soft tissue and bone, the antro-attico-mastoid space is completely obliterated with healthy bone pâté. The middle ear is reconstructed using a tympano-ossicular allograft, including the malleus handle, which acts as the anchor point for columellar reconstruction to the stapes with a remodelled allograft incus or malleus.

Methods: We report on the long term outcome of 2 series of consecutive cases operated on by a single surgeon (EO). The first series comprises 34 paediatric cholesteatoma cases, followed up for at least 5 years without drop-outs. Control for residual disease was done by non-EP DW MRI (100%) at 1 and 5 years post-op. Control for recurrent disease was done by yearly micro-otoscopic evaluation. We compare the outcome with a similar series, previously operated by the same surgeon, using identical dissection and reconstruction techniques, however without bony obliteration. As such, we evaluate the contribution of the BOT factor to long term safety (prevention of recurrence).

The second series comprised 50 unstable CWD cavities surgically restored by means of the BOT, and followed up for a mean of more than 8 years. Control for residual disease was done by a combination of staging (the early cases) and non-EP DW MRI (76%). Control for recurrent disease was done by yearly micro-otoscopic evaluation.

Results: We report on recurrence rate, residual rate and anatomical/hygienic outcome.

In the paediatric series the 5 year recurrence rate was 5.8% (2 cases). The residual rate was 2.9% (1 case). At 5 years post-op all patients reported 0% otorrhea. The ears were waterproof in 100%. The operation rate (re-operation risk) to achieve this final result was 1.47. This re-operation rate included the revisions for the 2 residual cholesteatoma cases and for the single recurrence case, as well as secondary closure of 3 reperforations and some secondary Meatoplasty cases. The comparison with the non-BOT series showed a vast improvement of the recurrence rate, from 19.4% to 2.9%, as well as an improvement of the residual rate (from 24.3% to 5.8%).

In the cavity BOT-reconstruction series the recurrence rate was 2% (1 case). The residual rate was 2% (1 case). The long term final post-op outcome showed a dry and self-cleaning ear in 94% of the cases.

In both series there was no bone conduction loss and no facial paresis or palsy.

Conclusion: The CWU-BOT combines the advantages and avoids the disadvantages of both the CWU and CWD