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**Free Papers (F712)****ID: 712.4****Ossicular chain reconstruction during primary cholesteatoma surgery or during staged surgery?**Presenting Author: **Mark Heukensfeldt Jansen**

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*VUmc Amsterdam**Learning Objectives:* To learn if different strategies for ossicular chain reconstruction in cholesteatoma surgery have effect on the hearing results.*Background:* Diffusion-weighted MRI imaging lowers the need for second-look surgery to evaluate the presence of residual disease. This strategy will increase the need to perform the best hearing restoration within the primary surgery to avoid a second surgery. It is unknown if single-stage management of cholesteatoma will achieve equal or better hearing results than a staged procedure.*Objective:* To analyze the hearing results in ossicular chain reconstruction (OCR) during primary surgery compared to staged OCR in canal wall up mastoidectomy for cholesteatoma.*Study design:* Retrospective comparative cohort study.*Patients:* All patients with canal wall up mastoidectomy for cholesteatoma from 2003 to 2015 were consecutively selected. Patients who underwent OCR and met the inclusion criteria were divided in two groups: 45 patients with OCR during primary surgery and 46 patients with OCR during staged surgery.*Main outcome measure:* Air-bone gap (ABG) improvement.*Results:* Overall hearing results showed 56% of the patients achieving an ABG primary surgery OCR versus 7.6 dB for the staged OCR. The outcome measures were corrected for the confounders (age, type of OCR, destruction of malleus/incus/stapes). Only destruction of the stapes proved to be of significant influence. After correction for stapes destruction, the found difference in ABG improvement could not be assigned to the performance of primary or staged OCR.*Conclusion:* There is no difference in ABG improvement after OCR during primary surgery compared to OCR during staged surgery.

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**Free Papers (F712)****ID: 712.5****TORP Ossiculoplasty Outcomes With and Without a Stapes Footplate Prosthesis**Presenting Author: **Matthew Cox**Matthew Cox, James Russell, John Dornhoffer  
*University of Arkansas for Medical Sciences**Learning Objectives:* Compare hearing outcomes with and without the use of a footplate prosthesis as a method of optimizing ossicular coupling during TORP ossiculoplasty.*Objective:* The titanium stapes footplate prosthesis (FPP) was designed to ensure a stable connection of a total ossicular replacement prosthesis (TORP) to the stapes footplate and optimize acoustic coupling by centering the footplate on the oval window. Our goal was to assess the impact of the FPP on TORP ossiculoplasty outcomes.*Study Design:* Case series with chart review.*Setting:* Tertiary care center.*Subjects:* Adult patients undergoing TORP ossiculoplasty with (n = 53) or without (n = 108) a stapes FPP.*Methods:* Rate of prosthesis displacement and audiologic outcomes were tabulated for statistical analysis.*Results:* A lower rate of prosthesis displacement and statistically better audiologic outcomes were seen in FPP patients. The pure-tone average air-bone gap (PTA-ABG) was closed to  $\pm 11.7$  dB (standard deviation, SD) and  $12.6$  dB  $\pm 11.0$  dB (SD) in the study and control groups, respectively (p = 0.0012).*Conclusions:* Use of the titanium stapes FPP during TORP ossiculoplasty provides a significant advantage in short-term PTA-ABG closure and a higher rate of successful rehabilitation of conductive hearing loss. Further studies are necessary to assess any long-term advantages a FPP may offer.

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**Free Papers (F712)****ID: 712.6****New Prostheses for Tympanoplasty: Assessment in Cadaveric Temporal Bones**Presenting Author: **Mansour Alshamani**Mansour Alshamani<sup>1</sup>, Jaehoon Sim<sup>2</sup>,  
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**Learning Objectives:** The experimental assessments of the new prostheses (PORP and TORP) in cadaveric temporal measurements provide objective ways to predict their functional outcomes and benefits prior to their clinical application.

The middle-ear in human ear converts and transmits acoustically-induced sound stimuli to the inner ear. The middle-ear structures can be damaged by various middle-ear pathologies. The damaged middle-ear structures are frequently reconstructed by surgical procedures to rearrange or to replace the impaired middle-ear structures with an implantable prosthesis. Especially, the partial ossicular reconstruction prosthesis (PORP) and total ossicular reconstruction prosthesis (TORP) are used to provide direct connection between the tympanic membrane and the stapes. While such tympanoplasty surgeries are common these days, stable positioning of the prosthesis and reliable connection between the prosthesis and the remaining ossicular structure are still difficult to achieve.

In this study, four newly-introduced prostheses for tympanoplasty were assessed in cadaveric temporal bones; two PORPs with a ball joint and a notch for placement under the malleus and two supplemental devices for TORP, Omega Connector and TotalOption Connector. All the prostheses were implanted to the temporal bones in sequence, and time for implantation was measured for each of the prostheses.

With each of the prostheses implanted, motion of the stapes footplate and the volume displacement at the round window membrane were measured using a laser Doppler vibrometer (LDV).

The measured quantities were assessed as the functional outcomes of the surgical reconstruction with the corresponding prosthesis, in comparison with sound transmission in normal ears. Preliminary results indicate that middle-ear reconstructions with the newly-developed prostheses resulted in surgical outcomes comparative to normal middle-ear. Further, they provide relatively easy handling of the prostheses during the surgeries and relatively secure connection between the prostheses and the remaining middle-ear structures and thus relatively small risk of post-operative dislocation compared to current prostheses for tympanoplasty.

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## Difficult Situations in Cholesteatoma Surgery (N713)

**ID: 713.1**

### Current trends in managing complications of chronic otitis media with cholesteatoma

Presenting Author: **Jyoti Dabholkar**

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**Learning Objectives:** 1. Complications secondary to cholesteatoma still remain a formidable challenge in developing countries. A high index of suspicion is necessary to prevent significant morbidity and mortality. 2. CT scan

plays a pivotal role in diagnosis of both intracranial and extracranial complications. 3. While the initial management may differ, canal wall down mastoidectomy remains the most reliable surgical procedure in these patients.

**Introduction:** Complications secondary to cholesteatoma are associated with significant morbidity and mortality. Despite a significant decline in the incidence of these complications in developed countries, they still pose a considerable challenge in developing countries. The present study has been conducted to outline our experience in managing complications of cholesteatoma.

**Materials and Methods:** This study was a retrospective review at KEM Hospital, India of clinical charts of patients with cholesteatoma who had presented with clinical or radiological evidence of complications and had undergone surgical interventions between 2008 and 2013. Patient demographics, clinical course, investigations, management and postoperative outcomes were analyzed.

**Results:** Of the 469 patients that underwent surgery for cholesteatoma, complications were observed in 86 patients (18.33%). Intracranial complications included meningitis 1.06%, brain abscess 3.2%, sigmoid sinus thrombophlebitis 1.9% and subdural empyema 1.06%. Extracranial complications included labyrinthine fistula 4.6%, facial paralysis 2.9%, zygomatic abscess 0.4%, post-auricular abscess 6.39%, neck abscess 1.2% and labyrinthitis 0.2%. HRCT temporal bone and CT Brain with contrast was done to establish the diagnosis of these complications. With combined neurosurgical intervention for intracranial complications and canal wall down (CWD) mastoidectomy as the definitive procedure, complete eradication of cholesteatoma was achieved.

**Conclusions:** Complications secondary to cholesteatoma still remain a formidable challenge in developing countries. A high index of suspicion is necessary to prevent significant morbidity and mortality. CT scan plays a pivotal role in diagnosis of both intracranial and extracranial complications. While the initial management may differ, canal wall down mastoidectomy remains the most reliable surgical procedure in these patients.

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## Difficult Situations in Cholesteatoma Surgery (N713)

**ID: 713.2**

### The Evolution of Bone Anchored Hearing Aids (BAHA) in the Indian Subcontinent

Presenting Author: **Sunil Narayan Dutt**  
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**Learning Objectives:** 1. to understand the prevalence and incidence of partial deafness and the various indications for candidacy for BAHA in India 2. to comprehend issues