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**ID: IP210****Cartilage versus the rest in Type I Tympanoplasty – who wins?**Presenting Author: **Hsern Ern Tan**Hsern Ern Tan<sup>1</sup>, Peter Santa Maria<sup>2</sup><sup>1</sup>*Sir Charles Gairdner Hospital, 2. Ear Science Institute of Australia, <sup>2</sup>Sir Charles Gairdner Hospital*

*Learning Objectives:* To determine the efficacy of different graft materials in Type I tympanoplasty through systematic review.

*Introduction:* In Type I Tympanoplasty, the most commonly used graft materials are temporalis fascia, cartilage and fat, which are all readily accessible at the surgical site. Over the years many other natural and synthetic materials have been trialled, but there are few published studies on outcomes. There has been a renewed interest in cartilage grafting due to its rigidity and resistance to retraction.

*Aims:* To determine the efficacy of different graft materials in Type I tympanoplasty through systematic review.

*Methods:* Using a search of the MEDLINE and PubMed databases from 1970 to 2014, all RCTs and retrospective studies reporting the outcomes of Type I tympanoplasty in primary chronic tympanic membrane perforations were identified. The studies were then analysed in a single variable analysis to compare the success rate of tympanic perforation closure between four major graft materials (cartilage, fascia, fat and other).

*Results:* 214 studies were identified from a total of 4704 abstracts. Cartilage had the greatest success rate of the four groups with 90.80%, across 33 studies (1746 patients) compared to fascia with a success rate of 88.00%, across 121 studies (14806 patients) and significant *p* value of 0.048. Fat had a success rate of 86.52% (across 22 studies and 1507 patients) and the last category of 'other' had a success rate of 85.39% (across 36 studies, 4217 patients) but the difference was not significant.

*Conclusions:* Cartilage has a superior graft closure rate compared to fascia in Type I tympanoplasty. Though this is consistent with the findings in recent literature, cartilage is also often used as a graft material for smaller sized perforations, which innately have higher healing rates, and this may account for the increased closure rate with cartilage compared to other graft materials.

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**ID: IP211****Does perforation size matter in myringoplasty?**Presenting Author: **Hsern Ern Tan**Hsern Ern Tan<sup>1</sup>, Peter Santa Maria<sup>2</sup><sup>1</sup>*Sir Charles Gairdner Hospital, 2. Ear Science Institute of Australia, <sup>2</sup>Sir Charles Gairdner Hospital*

*Learning Objectives:* The impact of perforation size on tympanic membrane closure in myringoplasty has been well reported in literature. We attempt to summarise the literature findings in a single variable analysis.

*Introduction:* Graft failure in larger perforations are thought to occur due to increased technical difficulty, reduced visibility, reduced graft overlap with the residual tympanic membrane (TM) and a poor vascular bed for graft uptake. However, smaller perforation sizes fail for similar reasons and literature is not conclusive on the significance of perforation size in myringoplasty success.

*Aims:* The impact of perforation size on tympanic membrane closure in myringoplasty has been well reported in literature. We attempt to summarise the literature findings in a single variable analysis.

*Methods:* A literature search of all myringoplasty studies from 1966 to 2014 was conducted using PubMed. Retrospective and prospective papers reporting the impact of perforation size and perforation location on graft closure were extracted. A single variable analysis was then performed.

*Results:* Perforation size greater than 50% surface area of TM had significantly worse graft closure compared to perforation size less than 50%. Data for perforation size >50% came from 58 studies (3374 patients) showing a graft closure rate of 79.44%, compared data for perforation size ≤50% perforation size from 74 studies (5859 patients) showing a closure rate of 85.56% and a *p* value of 0.019. Perforation location (central, anterior or posterior) was not significant though anterior perforations had the least success.

*Conclusions:* This single variable analysis indicates that in Type I tympanoplasty, perforations greater than 50% have a lower success rate, while the location of the perforation had no significant effect on success rate.

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**ID: IP212****Combined Endoscopic and Microscopic Approach to cholesteatoma Surgery**Presenting Author: **Jabin Thaj**Jabin Thaj<sup>1</sup>, Praneta Kullo<sup>2</sup>, Chitta Chowdhury<sup>2</sup>, Gaurav Kumar<sup>2</sup><sup>1</sup>*Queens hospital, <sup>2</sup>TBC*

*Learning Objectives:* i Multidisciplinary pre-operative planning. ii Modern day Otologist should be proficient in both microscopic and otoendoscopic technique.

**Introduction:** The aim of cholesteatoma surgery is to eradicate the disease process with minimal morbidity and preservation of hearing. The use of the oto-endoscope as a surgical tool is becoming increasingly popular for safe cholesteatoma surgery. We believe that the combined use of the oto-endoscope and microscope helps in achieving the above goals and reduce the need for second look procedures or revision surgery.

**Methods:** We did a retrospective review of 43 cases of mastoidectomy performed between January 2011 and January 2016 in our otology unit in East London.

**Results:** We reviewed cases of combined approach tympano-mastoidectomy, atticotomy, revision mastoid surgery and cholesteatoma eradication from antrum in anteriorly lying sigmoid sinus. Our study group involved both adults and paediatric population. After the full microscopic work all cases were assessed using oto-endoscope for any residual diseased epithelium particularly on the on the lateral wall of epitympanum, anterior attic and sinus tympani. Residual disease was dealt with micro-instruments and/or KTP LASER. In 21 cases, residual diseased epithelial remnant was still present.

**Conclusion:** A combined oto-endoscopic and microscopic approach in the management of cholesteatoma cases helps to achieve a good outcome without any additional morbidity. This has reduced the need for revision surgery and second look procedures.

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## ID: IP213

### Training in revision mastoid Surgery: Challenges, Pitfalls and Tips

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**Learning Objectives:** i Meticulous pre-operative planning and discussion with multidisciplinary team. ii Availability of appropriate instruments and experienced theater staff. iii Proficiency in lateral skull base anatomy and surgery

**Introduction:** Surgical management of recurrent complex cholesteatomas can be highly challenging. Our busy otology service in northeast London caters to a unique mixed racial demographic group where there is a high preponderance of such cases. In this study we would like to share the challenges we faced and our subsequent learning journey.

**Methods:** We undertook a retrospective review of 156 cases of revision mastoid surgeries done between January 2009 and December 2015 in our otology unit in East London.

**Results:** Following a review of our cases, we found that the pathologies that made surgical management challenging included dehiscent sigmoid sinus, tegmen erosion, eroded bony facial canal and lateral semicircular canal. We hereby

present our pre-operative management planning, operative techniques and post-operative outcome of these complex ear cases. We also share our experience of the individualised care of these complex patients using a multidisciplinary team approach.

**Conclusions:** Revision mastoid surgery is challenging. A multidisciplinary team consisting of the ENT surgeon, radiologist, neurosurgeon and senior anaesthetist is helpful for pre-operative planning of complex ear cases. Moreover, intra-operative use of oto-endoscope, KTP LASER, facial nerve monitor and post-operative availability of high dependency unit are important aspects to consider for safe and appropriate management of revision mastoid surgery.

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## ID: IP214

### Depth of the Sinus Tympani is Unrelated to Mastoid Pneumatization: A Cartesian Coordinate Study

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**Learning Objectives:** To learn from a study of minimally and maximally pneumatized temporal bones, the depth of the sinus tympani relative to the adjacent facial nerve and to the round window.

**Background:** Cholesteatoma involving the sinus tympani is notoriously difficult to assess and control. Otolologists would be happy for every sinus tympani to be shallow. Correlates of sinus tympani depth are unknown, although some suggest that increased depth correlates with large mastoid pneumatization.

**Objective:** To describe the depth of the sinus tympani, relative to both the adjacent facial nerve and distance from the round window, and how depth correlates with mastoid size.

**Methods:** Ten clinically ear-normal crania underwent computed tomography in a custom non-metallic positioning device that referenced the Frankfort horizontal plane. The crania, from a series of 41, were the five with the largest mastoids, and the five with the smallest mastoids, as assessed by plain lateral radiograph. Each landmark (midst of round window [RW], apex of sinus tympani [ST] and midst of facial nerve [FN] is that slice) was twice independently identified in xyz Cartesian space. The midst of the facial nerve was chosen even though not surgically accurate, so as to better consistently landmark the facial nerve for this study.

**Results:** The mean direct distance from RW to ST ranged from 3.4 to 7.7 mm, median 6.1 mm for right ears; 4.1–8.0, 5.0 left. For FN to ST, the range was 1.6–4.0 mm, median 3.2 right; 1.8–3.2, median 2.5 left. Neither bilateral symmetry nor relationship with mastoid size was found.