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 tympanomastoidectomy, 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: ï Meticulous pre-operative planning and discussion with multidisciplinary team. ï Availability of appropriate instruments and experienced theater staff. ï 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

Presenting Author: **N Wendell Todd**

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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 diffiuclt to assess and control. Otologists 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.

Discussion: Using a technique free of proximity bias, the depth of the sinus tympani is variable and unpredictable.

Conclusion: From one ear to another ear, the depth of the sinus tympani varies and is not predicatable.

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ID: IP215

Preparatory operations for safe middle ear implantation

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Learning Objectives:

Introduction: The range of candidates for middle implants, either the Rion middle ear implant (Rion MEI) or the Vibrant Sound Bridge (VSB), has been restricted to patients with conductive or mixed hearing loss in Japan and most of the candidates had received previous middle ear surgeries without favorable functional results. Some of the patients have chronic middle ear pathologies which should be controlled before middle ear implantation.

Patients and methods: The Rion MEIs were implanted between 1994 and 2000 in 6 patients. Five of them had had radical mastoidectomy and one had previous canal-wall up surgery. Four patients with a dry mastoid cavity were implanted in one stage with closure of the external ear canal, whereas one patient having an infected mastoid cavity required a two-stage procedure for implantation. The round window vibroplasty technique was employed for VSB between 2012 and 2013 in 6 patients. Among six patients, two patients having a radical mastoidectomy cavity with a retroauricular opening, one patient with failed atresia surgery and one patient following canal wall up tympanoplasty needed preparatory operations before VSB implantation.

Results: All middle ear devices implanted in a two-stage procedure tolerated well in patients who had had severe middle ear diseases and/or eustachian tube dysfunction at the time of the preparatory operations.

Discussion: More than thirty years' experience with the Rion MEI in Japan had shown that postoperative retraction of the tympanic membrane occurred in a fairly high proportion of the patients with eustachian tube dysfunction, potentially causing mechanical interactions and/or protrusion of the vibrator. In order to avoid such uncomfortable situations, we prefer to prepare for a sufficient middle ear space before implantation with lateralization of the tympanic membrane or canal closure supplemented with a pedicled temporalis muscle flap or with a temporo-parietal fascia flap.

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ID: IP216

Nationwide Survey of middle ear cholesteatoma surgery cases in Japan: Results from the Japan Otological Society Registry using 2015 JOS Staging and Classification System

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Learning Objectives: The committee on Nomenclature of the Japan Otological Society (JOS) was appointed in 2004 to create a cholesteatoma staging system widely applicable in Japan and as simple as possible to use in a clinical practice. After the initial proposal of the principal staging system for attic cholesteatoma in 2008, we proposed 2010 staging system for two main types of acquired cholesteatoma, pars flaccida and pars tensa types. Since then, this system has been widely used in Japan, allowing for more meaningful communication between outcome studies based on surgical methods used for a respective type and stage of cholesteatoma. We have recently added two more types, congenital cholesteatoma and cholesteatoma secondary to a pars tensa perforation, as 2015 JOS cholesteatoma staging and classification system. Briefly, the principal JOS staging system defines four stages: stage I, cholesteatoma confined to the primary site; stage II, involving two or more sites; stage III, with intratemporal complications; stage IV, with intracranial complications. This system is applicable to pars flaccida, pars tensa, congenital cholesteatomas and cholesteatoma secondary to a tensa perforation.

A nationwide survey was conducted by the Committee of JOS in order to promote the use of this system and to capture the prevalence of cholesteatoma types and stages in Japan in 2015. The operative methods employed in each case were also included. Medical information of the patients were anonymized and registered through the JOS website voluntarily between 1 January and 29 February 2016.

As of 2016/02/27, 1480 cases from 59 hospitals have been registered, with stage I 25%, stage II 57%, stage III 14% and stage IV 0.5%. 64% of the cases were assigned to pars flaccida type, 13% to pars tensa type, 12% to congenital cholesteatoma and 5% to cholesteatoma secondary to a tensa perforation. The final registry data and the detailed breakdowns of cholesteatoma classification and staging will be presented.