

patients under a general anaesthetic for translabyrinthine resection of vestibular schwannoma. This was to ascertain whether the ECAPs and eye movements are reproducible, reliable and correlated, and to allow characterisation of the ECAPs. A new implant array and surgical approach to vestibular implantation were developed. Auditory Brainstem Responses were also recorded to try and confirm preservation of hearing post. Patients were selected if they had recordable balance function and hearing in the tumour ear prior to surgery. Six patients were studied.

It was possible to demonstrate that the amplitude growth and nerve recovery functions were very similar to those observed in cochlear ECAPs but that the latency between stimulation and response was longer confirming that these are vestibular responses. Evoked eye movements under general anaesthesia were observed three out of six test cases and from more than one SCC: these eye movements are not affected by the level of anaesthesia. To date it has not been possible to demonstrate hearing preservation.

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### Free Papers (F642)

#### ID: 642.1

#### Long-term effects of Eustachian tube balloon dilatation on patient symptoms and satisfaction

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*Learning Objectives:* Long-term effects of Eustachian tube dilatation

Eustachian tube balloon dilation (BET) has been proven to be safe and effective in short-term but more information on its long-term effects are needed. We studied the long-term effects of BET on Eustachian tube dysfunction with a symptom questionnaire (modified ETDQ-7) in 46 consecutive patients (71 ears) treated in our department from 2011 to 2013. 34 (74 %) patients responded to the survey with a mean follow-up of 3.14 years (range 1.83–4.58 years). 77 % of the responders felt that their overall ear symptoms had improved compared to the preoperative situation, and the remaining symptoms were usually mild. Anyhow, the effect varied depending on the symptom. The most common pre-operative symptoms were feeling that ears were “clogged”, muffled hearing, ear symptoms during a cold, crackling or popping sounds in the ears, and feeling of pressure in the ears. BET clearly alleviated these symptoms as at least 70 % of the affected patients reported improvement after long-term follow-up. On the other hand, ringing in the ears and the ability to release pressure in the ears by swallowing were improved only in about 40 % of the symptomatic patients. Overall patient satisfaction on BET was good and 79 % of the patients would choose to undergo BET again if their ear symptoms returned to the preoperative level. These results show that BET has significant subjective long-term benefits to the patients.

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### Free Papers (F642)

#### ID: 642.2

#### Tests of Eustachian Tube Function: The effects of different patient manoeuvres when testing healthy ears

Presenting Author: **Matthew E. Smith**

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*Learning Objectives:* To better understand the available tests of Eustachian tube function, and how to optimise the techniques for clinical use.

*Introduction:* Obstructive Eustachian tube dysfunction is a common disorder for which there is no validated or well-characterised clinical test. To identify opening of the Eustachian tube, numerous tests have been developed which require a patient to perform a Valsalva, Toynbee or sniff manoeuvre, or to swallow on demand. These measures have not previously been compared, or technically refined in healthy individuals.

*Methods:* We compared six tests of Eustachian tube function in 75 ears from 42 participants, determining the most effective patient manoeuvre for each, and our own normative data.

*Results:* The highest detected opening rates in normal ears were: Patient reported opening 79%; Observed tympanic membrane movement 78%; Tubo-tympano-aerodynamic-graphy (TTAG) 76%; Continuous impedance 88%; Sonotubometry 94%; nine-step test inflation/deflation 93/94%. Valsalva manoeuvres were most effective at opening the Eustachian tube. Toynbee manoeuvres were most effective when the swallow was performed without water. For Valsalva and sniff manoeuvres, there was a significant correlation between the peak nasopharyngeal pressure generated and Eustachian tube opening.

*Conclusions:* A number of clinical tests are able to record Eustachian tube opening. The choice of patient manoeuvre applied within each test has a significant effect on detected Eustachian tube opening rates, and our results facilitate refinement of the evolving testing techniques. Further studies are required to explore the association between the test technique and results in ears with Eustachian tube dysfunction.

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### Free Papers (F642)

#### ID: 642.3

#### Open MET surgery in Children: still an option?

Presenting Author: **Tatiana Matos**  
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Luzerner Kantonsspital

*Learning Objectives:*

**Objective:** To present the result of a 5 year follow up study in a pediatric population ([www.innoforce.ch](http://www.innoforce.ch)) Intervention: Patients presented with acquired cholesteatoma underwent an OMET by two experienced surgeons. Results: 37 children (38 ears) underwent OMET cholesteatoma surgery with a follow-up of at least 5 years. Thirty-two primary surgeries and 6 revision operations of referred patients were included. There was a slight right ear dominance of 55%. Eighteen percent had a pathologic middle ear on the other side as well. Half of all patients had an ossiculoplasty at the time of first surgery, whereas no attempt or a staged reconstruction was planned in the other half of our patients. Overall 4 (10%) patients developed a recurrent and 3 (7%) had a residual cholesteatoma necessitating further surgery. Four patients developed recurrent disease 3 and 7,5 years after the first surgery. All patients had a dry and water-resistant ear at last follow-up.

**Conclusion:** Our results on recurrent/residual cholesteatoma in the pediatric population (17%) are higher than in our adult population (9%). There are a lot of conflicting data in the literature. The comparison appears difficult, since most publications do not present long-term follow-up of 5 years or longer in children. Our results compare favorably with the 10year follow-up of Fisch as we are using the same technique. Our presentation will also balance our results with recent data from bony obliterations techniques and add to the ongoing debate.

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**Free Papers (F642)****ID: 642.4****Middle ear aeration in staged canal wall up tympanoplasty combined with mastoid cortex plasty or bony mastoid obliteration**

Presenting Author: **Masahiro Komori**

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*Learning Objectives:*

**Introduction:** If poor postoperative aeration can be accurately predicted, canal wall down tympanoplasty or obliteration technique is preferable to canal wall up tympanoplasty (CWUT) is described, however, little is known about the dynamics of middle ear aeration. We sought to determine how the aeration levels changed during the first- and second-stage operations (1<sup>st</sup>SOP and 2<sup>nd</sup>SOP), and the most recent CT examinations (recent CT).

**Methods:** Our study was included 50 ears which had a cholesteatoma extending into the antrum or mastoid cavity involving the ossicular chain with varying degrees of scutum defect.

Middle ear aeration was assessed during 1<sup>st</sup>SOP and 2<sup>nd</sup>SOP, and recent CT which was performed at least 5 years subsequent to the 2<sup>nd</sup>SOP. Middle ear aeration was graded using the following scale: 0, no aeration in the middle ear; 1, only the meso-tympanum is aerated; 2, the entire tympanic cavity, including the attic, is aerated; and 3, the tympanic and mastoid cavities are aerated. The staged CWUT with mastoid cortex plasty was selected for 23 ears with grade 3 aeration (well-aerated ears group) during 2<sup>nd</sup>SOP, the staged CWUT with bony mastoid obliteration for 27 ears with grade 0~2 aeration (poorly-aerated ears group).

**Results:** Aeration between 1<sup>st</sup>SOP and 2<sup>nd</sup>SOP was improved in 70% of all. Then, by mastoid cortex plasty, 91% of grade 3 ears during 2<sup>nd</sup>SOP maintained that level up to recent CT. By bony mastoid obliteration, 69% of grade 2 ears and 90% of grade 1 ears maintained their aerations. A deep pocket formation occurred in 0% of grade 3 and 2 ears, 20% of grade 1 ears and 33% of grade 0 ears. There was no significant group difference in aeration level during 1<sup>st</sup>SOP, and the proportion of the two groups during 2<sup>nd</sup>SOP was 48% vs. 47%.

**Conclusions:** Staging is instructive for understanding long-term changes in aeration status. The selection of mastoid cortex plasty or bony mastoid obliteration is suitable and reliable for stabilizing postoperative aeration levels.

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**Free Papers (F642)****ID: 642.5****Chronic otitis media were cleared and tympanic cavity forming 120 cases of clinical experience**

Presenting Author: **Long Gang Gong**

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**Learning Objectives:** Otitis media is the most common otology diseases, with the development of imaging and ear microsurgery, the close type - keep plane wall of mastoid tympanic cavity forming or open - removal of the external auditory canal mastoid lesions cleared a parallel tympanic cavity forming period tympanoplasty, eventually reach function reconstruction, restore hearing. We have between January 2011 and January 2011, 120 cases of surgical observation data integrity is coming back reports as follows.

**1 data and methods****1.1 clinical data**

Group, 120 cases of patients, aged 15 to 71 years old, the average age of 34, 73 cases of male, female 47 cases, 68 cases of simple type chronic otitis media and cholesteatoma otitis media 52 cases.

**1.2 operation method**

The closed type - keep plane wall of mastoid tympanoplasty 102 cases, many options open mastoid area lesion - removed