

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)

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#### 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)

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

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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)

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

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