

Eustachian tube patulous vs obstruction (R611)

ID: 611.1

Interactions between the middle ear and the eustachian tube in causing symptoms of patulous ET

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Learning Objectives: 1. Understand the relationship between PET symptoms and the transfer function of the middle ear 2. Review methods to test ET function 3. Review interventions that might be used at the middle ear level to treat symptoms of PET.

The eustachian tube can cause a variety of distortions in hearing, and the middle ear. At one end, failure of opening can result in negative middle ear pressure, which initially affects the low-frequencies, and may cause symptoms suggestive of fullness in the ear. At the other end, a ET that is open all the time can cause autophony, and also a sensation of fullness. In between are syndromes where the ET transmits sound more than normal, and if the ear is able to respond to these, then they might cause symptoms of autophony. Particularly, this is so with ears that have “floppy segments” in the TM. There is a complex interaction between which comes first, the autophony, which then causes various behavioural changes such as sniffing, to attenuate the response of the middle ear, and which then cause the eardrum to loose rigidity, or whether the eardrum loss of rigidity comes first, perhaps from childhood infections, which then causes autophony and behavioural responses such as sniffing.

We will review our experience with testing for abnormal transmission of sound through the ET, and our experiences with manipulation of the TM to reduce the symptoms of PET, as well as other middle ear interventions.

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Patulous Eustachian tube (PET) and the failure of the Eustachian tube to open (FETTO): diagnosis and management

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Learning Objectives: Round Table (PET vs FETTO)

Introduction: The importance of PET in otology has long been underestimated. We have achieved some contributions on PET as follows.

Methods and Results:

1. We have developed a new technique to diagnose PET using the sitting CT (Kikuchi T, et al. Otol Neurotol, 2007; 28:199–203; Kikuchi T, et al. ORL J Otorhinolaryngol Relat Spec. 2009; 71:312-6.).
2. Development of a specially designed silicon plug (Kobayashi Plug) for intractable cases (Sato T, et al. Acta Otolaryngol 2005; 125:1158-63). It is introduced from the myringotomy site, and was effective for about 80% of the 250 ears in which other treatments were unsuccessful (Kikuchi T, et al. in preparation)
3. High incidence in middle ear cholesteatomas: Patulous condition of the Eustachian tube is identifiable in about 30% of middle ear cholesteatomas (Magnuson:1978, Kobayashi:1996, Ohta:2009) and the incidence is higher than 50% if tested after optional myringostomy. The interview on sniffing habit is very important but not enough to pick up all the cases with patulous condition of the ET. In addition to thorough questionnaires, sniff test with optional myringostomy is useful for preoperative diagnosis of PET or Eustachian tube closing failure (Asawapittayanont P, et al. submitted).
4. ‘Masked Patulous Eustachian Tube’: We have proposed the concept of ‘masked patulous Eustachian tube’ (Masked PET) (Kobayashi T et al: Tohoku J Exp Med. 2009; 218:317-24) frequently found in middle ear diseases causing conductive hearing loss, such as cholesteatomas, otosclerosis, and perforations of the tympanic membrane, etc. In this condition, symptoms of PET are concealed due to the hearing loss and appears after improvement of hearing by surgery (Hasegawa J, et al.: Acta Otolaryngol. 2006; 126:577-80; Kawase T, et al: Otol Neurotol. 2006; 27:600-3; Hori Y, et al:Otol Neurotol. 2006; 27:596-9).

Discussion: I will discuss the topics of this session, differentiation between PET and FETTO, based on the above mentioned personal experience.

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Obstructed vs Patulous Eustachian Tube. How to Avoid Treating the Wrong One and Making it Worse

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