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Learning Objectives: A review of diseases hypothesised to be due to disorder of the Eustachian tube and a critical review of disease classification. Discussion of future research on tuboplasty, including disease categorisation and outcome measures.

This is for the round table on "Balloon Tuboplasty"

For any treatment it is important that we define and segregate the disease(s) being treated, and evaluate effectiveness in terms of benefit to patient symptoms. Eustachian tuboplasty is a relatively new treatment for disorders of the middle ear, but to date most of the published literature has failed to segregate disease being treated, nor report on relevant outcomes.

I present a synopsis of diseases hypothesised to be due to an underlying dysfunction of the Eustachian tube. I argue that in most of the published literature such diseases are conflated (for example disorders classified under disorders of the Eustachian tube include glue ear, tympanic membrane retraction, and symptoms of aural fullness) but should be segregated. I suggest a nosology with disorders classified under "mucosal otitis media", "squamous middle ear disease", and "Eustachian Tube Dysfunction", with the latter classification based upon a recent consensus statement. There is an inter-relation between such disease categories. However there is little evidence that a disorder of the Eustachian tube is the primary or initiating pathology underlying all of these diseases.

Whether the Eustachian tube is or is not a pathological mechanism for these diseases may be debated, but is largely irrelevant to the evaluation of treatment. Outcomes need to be reported with segregation of disease categories (as much as possible), and using patient reported outcome measures. Such measures may include hearing disability, otorrhoea, otalgia, aural fullness, and disease-specific or general quality of life.

This is a critical consideration in future trials of Eustachian tuboplasty if we are to better understand and define the role of this novel treatment.

doi:10.1017/S0022215116002899

Balloon Tuboplasty (R731)

ID: 731.3

Balloon Dilation of the Cartilaginous Eustachian Tube

Presenting Author: **Dennis Poe**

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Most of the pathology that is responsible for Eustachian tube dilatory dysfunction has been observed within the cartilaginous portion and is most commonly due to inflammatory disease, which can be readily diagnosed with transnasal endoscopy. A careful assessment of the dynamics of the ET by endoscopy can be very effective in determining the etiology, location and severity of dilatory dysfunction within the functional valve in the cartilaginous portion. Disorders of dilation may be observed and classified. Inflammatory disease can be graded on a recently validated mucosal inflammation score instrument. The etiology of the inflammation can be investigated and treated, with the most common causes being infectious or reflux in younger children and over age 6, allergic disease, reflux, rhinosinusitis, adenoid hypertrophy and other commonly known causes of nasopharyngeal inflammation.

Treatment of the underlying medical conditions can result in improvement of ET function and resolution of middle ear disease. When the medical causes have been optimally treated, but ET dilatory dysfunction persists, possibly due to irreversibly injured mucosa, biofilms or other pathology, tympanostomy tubes are usually recommended. When tubes fail to resolve the problem, treatment of the underlying pathology with surgery can be offered. Surgery is tailored to the sites of inflammatory or obstructive pathology and may involve turbinate reduction, sinus surgery, adenoidectomy, or balloon dilation of the ET. All of these procedures are designed to remove irreversibly injured tissue and provide a fresh start, assuming the underlying medical conditions are adequately controlled. Failure to control the medical problems can lead to recurrence of inflammatory disease.

doi:10.1017/S0022215116002905

Balloon Tuboplasty (R731)

ID: 731.4

Measuring Eustachian tube dysfunction

Presenting Author: **James Tysome**

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Learning Objectives: Understand the methods available to measure Eustachian tube dysfunction.

Background: Eustachian tube (ET) dysfunction is a common but poorly understood cause of patient symptoms and an important factor in the development of middle ear pathology. Despite this, there are no specific tests of ET function in widespread clinical use. A renewed interest in treatments for ET dysfunction has led to a demand for methods of imeasuring ET function non-invasively.

Objective: To identify currently available tests and imaging modalities to assess ET function and, where possible, report on their accuracy.

Methods: Narrative systematic review. Tests and imaging methods in included studies were required to measure a physiological function of the ET, or play a role in the diagnosis of poor ET function.

Results: While many tests of ET function have been developed, with some in routine clinical use, all have significant limitations. Published accuracy data are limited and of variable quality due to the range of comparative tests and the spectrum of otological disorders associated with ET dysfunction. CT and MRI are best suited to identifying features associated with obstructive or patulous ET dysfunction