

Paradoxical eustachian tube dysfunction

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Editorial

Patients often arrive to the ENT clinic thinking that their sense of ear plugging is always due to a malfunctioning Eustachian Tube (ET) that is either plugged with fluid or an ear canal full of wax. They often state that their hearing improves when they 'Pop' or Valsalva their ears. This improved hearing is short lived with a return to baseline hearing after several minutes.

In reality this presentation is a clue to the individual having high frequency hearing loss. So, what is happening? 1) The fact that they can force air into ET and 'Pop' their ears as well as a return to baseline informs that the ET is patent and functioning normally. 2) The Examination of the ear canal is clear with an intact Tympanic Membrane. 3) Importantly, the patient reports increased boost or clarity in hearing the higher frequencies after the 'Popping' of ears or Valsalva. This is short lived and ultimately always returns to a baseline.

The Tympanic membrane behaves like a Satellite Dish collecting acoustic energy and driving this energy toward the ossicles. In our discussion here the Tympanic ear drum can also be analogized to a musical drum. This musical drum has a frequency and harmonic based upon how taught the striking surface is – the tighter the striking surface a relatively higher frequency is produced.

As an individual Valsalva's and 'Pops' their ears they experience hearing a boost in clarity and loudness primarily in the higher frequencies. As the air escapes out the patent Eustachian Tube, the tympanic relaxes to its neutral state returning this perception of improved hearing back to a baseline perceived lower functioning level.

This cycle is what I call Paradoxical Eustachian Tube Dysfunction. This phenomenon most clearly occurs in individuals with high frequency hearing loss. This presenting sequence is a trigger to

perform a complete Otolaryngological Physical exam, Comprehensive Audiogram and History.

Other conditions including Patulous ET presenting with aural fullness or autophony, ET obstruction with middle ear fluid or air pocket obstruction need to be clinically distinguished from Paradoxical ET Dysfunction.¹⁻³

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None.

Conflicts of interest

The authors declare that there are no conflicts of interest.

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