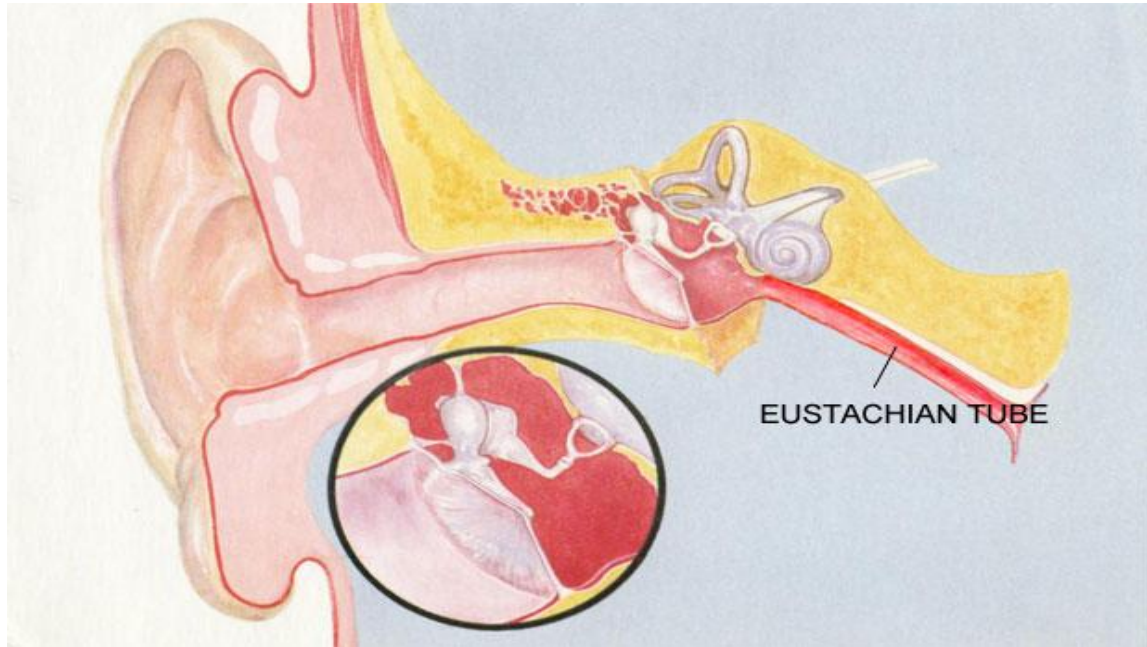


Eustachian Tube Function Tests



Anatomy of ET:

The length of the ET in infants is about 18mm.

In the adult is about 38mm and goes downward, forward medially from the middle ear.

It consists of 2 portions:

- 1- The lateral third (12mm) is bony portion arising from tympanic cavity
- 2- The medial two thirds (24mm) which is a fibrocartilaginous portion entering the nasopharynx

The physiologic functions of ET:

- 1- Ventilation and pressure regulation of the ME
- 2- Protection of the ME from nasopharyngeal secretions and sound pressure
- 3- Clearance or discharge of ME secretions into the nasopharynx.

Eustachian Tube Function Tests:

- Several ET function tests are used. Each of them involves determining:

- (1) Whether the pressure within the middle ear can be changed by a given activity.
- (2) If swallowing will successfully ventilate the middle ear so the pressure can return to its original value.

Valsalva Test:

To perform the valsalva maneuver:

"The patient is instructed to take a deep breath and close his/her mouth and nose (by pinching their nostrils). Then blow hard so that the cheeks puff up and air forced into her ears, creating a sensation of fullness"

Steps of the test:

1-Do a pretest tympanogram, which provides a baseline value for peak pressure.

2- Then patient is instructed to perform the valsalva maneuver. The patient is told not to swallow, and a second tympanogram is then obtained.

>>> It is expected that the peak pressure will increase in the positive (+ve) direction compared to the baseline value >>> indicating that the maneuver successfully increased the middle ear pressure.

3-Then the patient is asked to swallow several times. This is may be done with while drinking water "wet" or without "dry".

>>> Theses swallows are expected to open the ET, so that the ME is ventilated and its pressure can return to normal (to the pretest baseline value). A third tympanogram is then obtained to determine whether the peak pressure returned to the baseline value as result of the swallowing

Toynbee Test

The Toynbee maneuver

"The patient is instructed to swallow (dry) while holding his nose closed. The Toynbee maneuver is typically expected to make the middle ear pressure more negative, but actually causes either a positive or negative shift in the ME pressure.

Steps of the test:

Follows the same procedures used for the valsalva test, except that the Toynbee maneuver is used.

- ④ If one complains of -ve pressure in ME>>> use the valsalva maneuver (blowing) because it increases ME pressure

- * used in diving

- ④ If one c/o +ve pressure in ME >>> use the Toynbee maneuver (swallowing) because it decrease ME pressure.

- ④ Example;

1-Air pressure decreases at high elevation (Ascending)>>> air pressure in outer ear decreases>> ME pressure will be positive>>> **Toynbee maneuver (swallowing).**

2- Air pressure increases as elevation decreases (Descending)>>> pressure in ear canal will be more than ME>>> ME pressure will be negative>>> **valsalva maneuver.**

Caution:

The valsalva maneuver **should NOT** be used when one has suffer fever or infection of the nasal passages because it may spread the infections to the middle ear cavity itself.