

## DISCLOSURE

**NONE**

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## WHERE I AM FROM



Fortaleza, 3 million

## OBJECTIVES

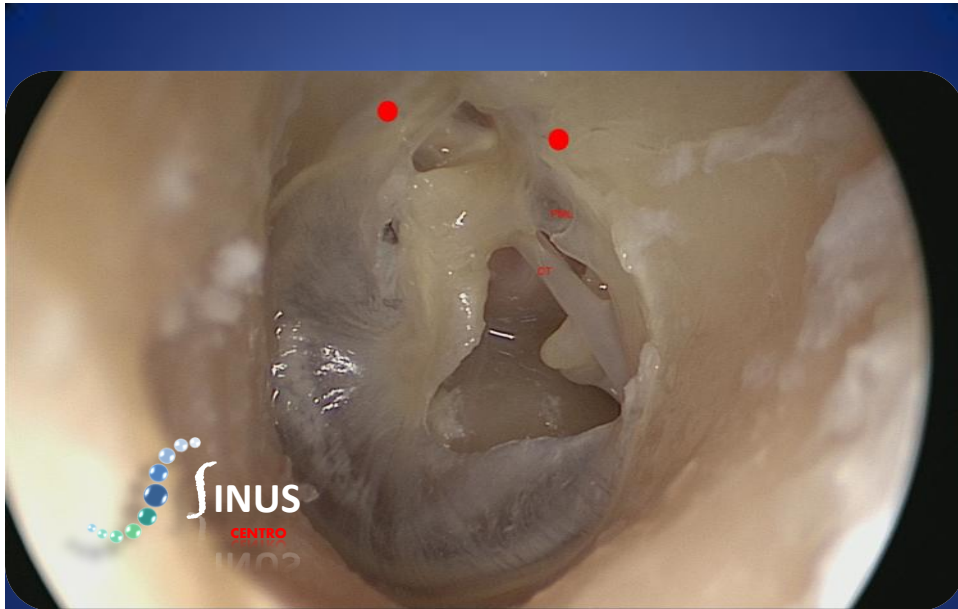
- Develop an understanding of the endoscopic anatomy of the middle and inner ear through transcanal access.
- Develop the necessary hand-eye coordination and hands skills to perform endoscopic ear surgery.
- Perform in the lab the specific steps involved in tympanoplasty.
- Perform in the lab the exploration of all the cholesteatoma bearing areas of the middle ear.
- Understand the anatomy of the cholesteatoma bearing areas of the middle ear



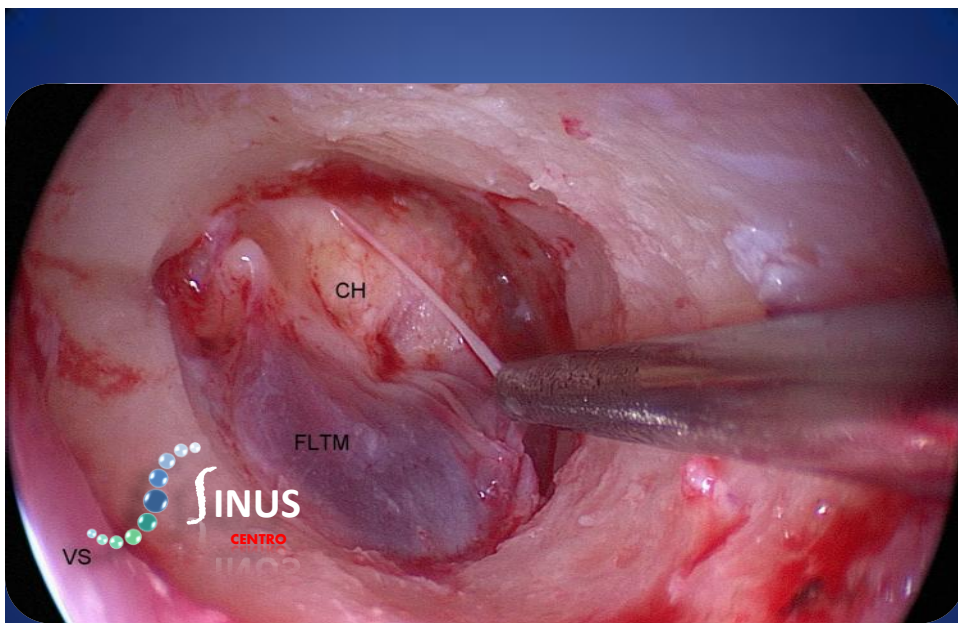
Right Ear: Endoscopic view of the TM in a right ear with cholesteatoma visible behind the TM. Note the blood vessels arising from the ear canal and supplying the TM.



Left Ear: The view through the endoscope of an anatomic specimen with a small perforation. Note the size and location of the significant anterior overhang.

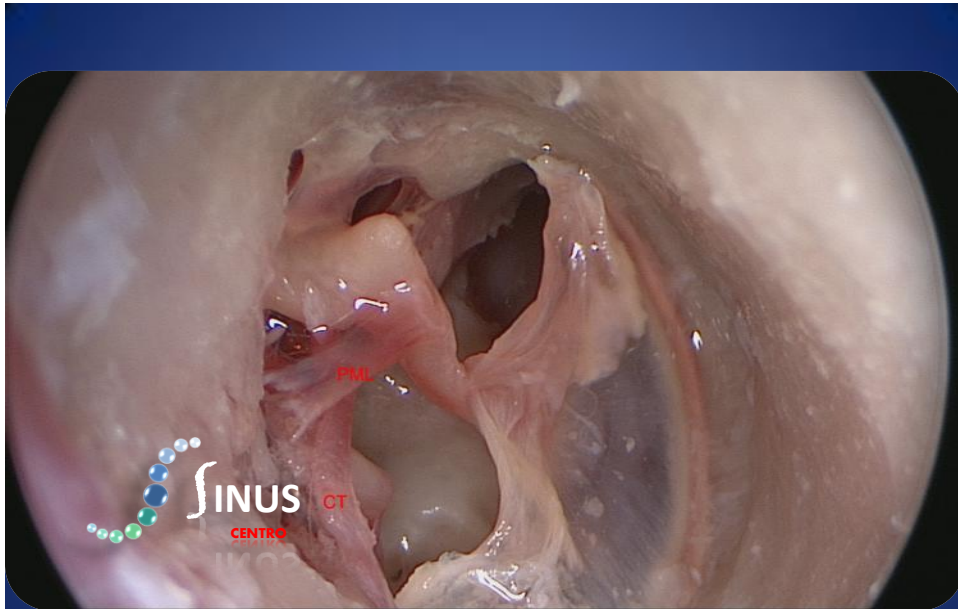


Left Ear: The skin of the canal has been removed along with the epithelial layer of the TM. The ear canal has been enlarged. Note the limits of the fibrous annulus: red circles; CT: Corda Tympani; PML: Posterior Malleolar Ligament.



Right Ear: The canal wall is curetted to obtain a full view of the tympanic ring in one view using the 0 degree endoscope. VS: Vascular strip; FLTM: Fibrous layer of tympanic membrane; CH: Cholesteatoma.

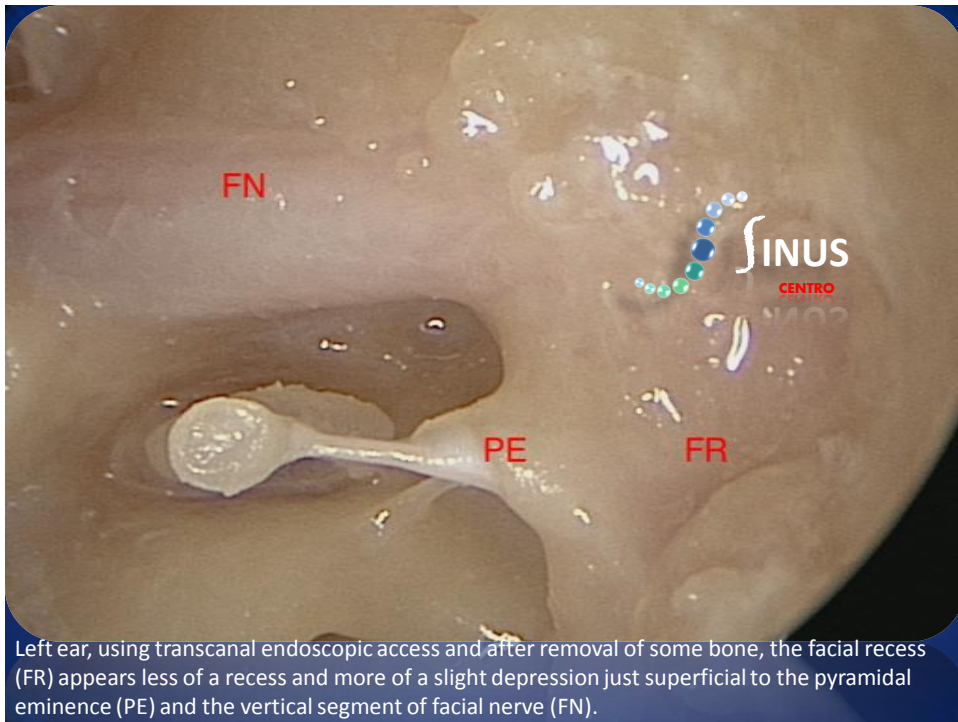




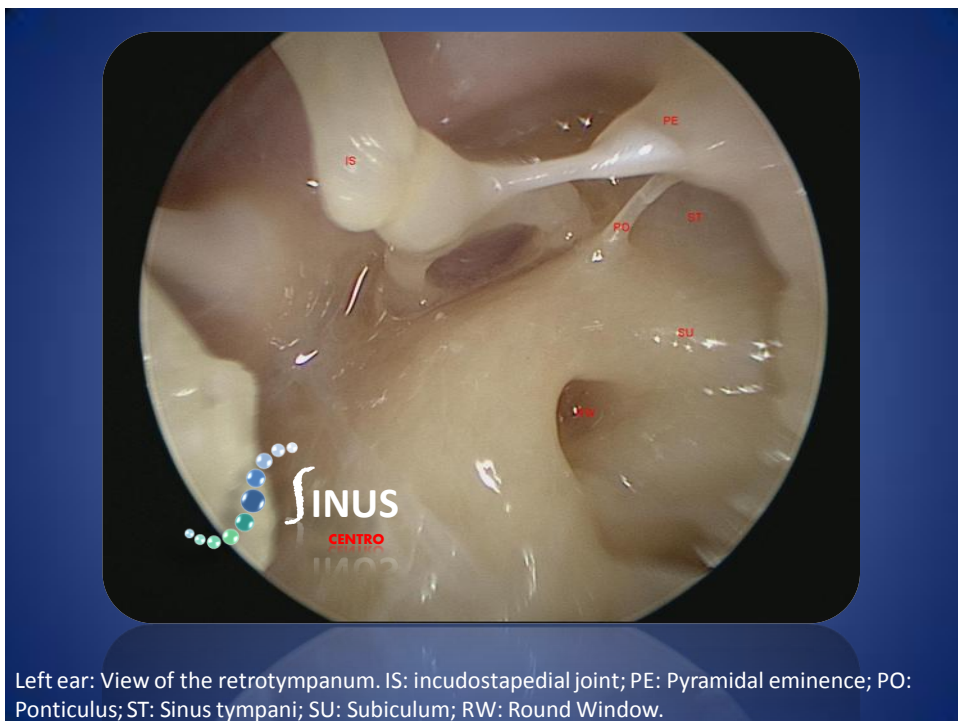
Right Ear: Fibrous layer of the TM is pulled down off the handle of Malleus revealing the Posterior Malleolar Ligament (PML) and the Corda Tympani (CT)



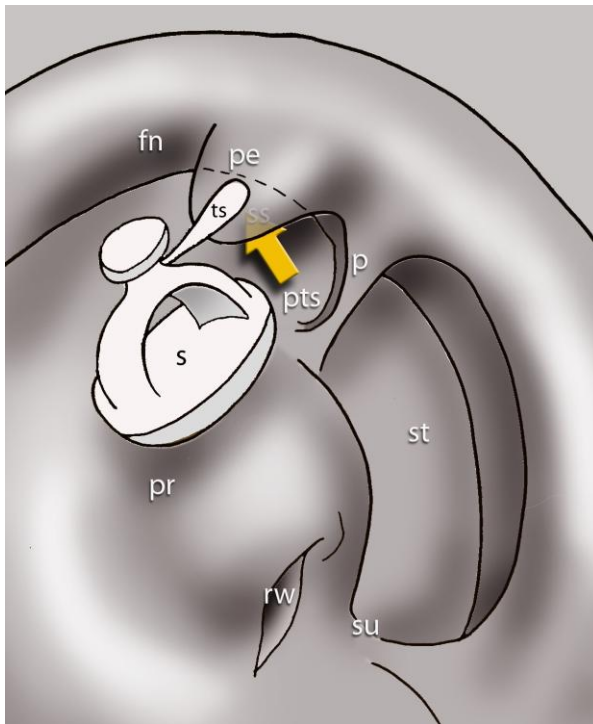
Left ear: The fibrous layer of the TM along with the fibrous annulus is removed and separated from the handle of malleus. TT: The tendon of the tensor tympani.



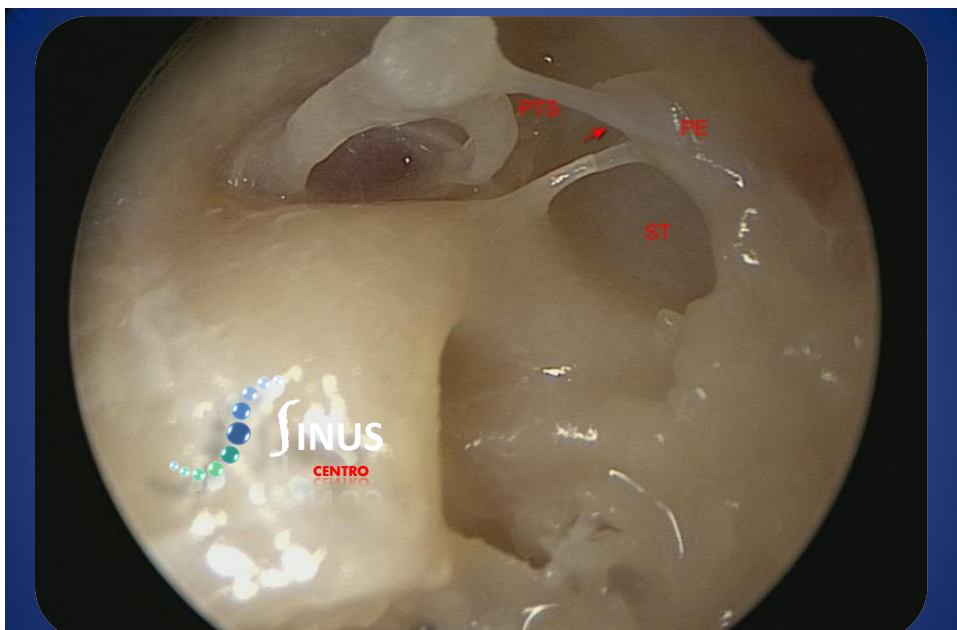
Left ear, using transcanal endoscopic access and after removal of some bone, the facial recess (FR) appears less of a recess and more of a slight depression just superficial to the pyramidal eminence (PE) and the vertical segment of facial nerve (FN).



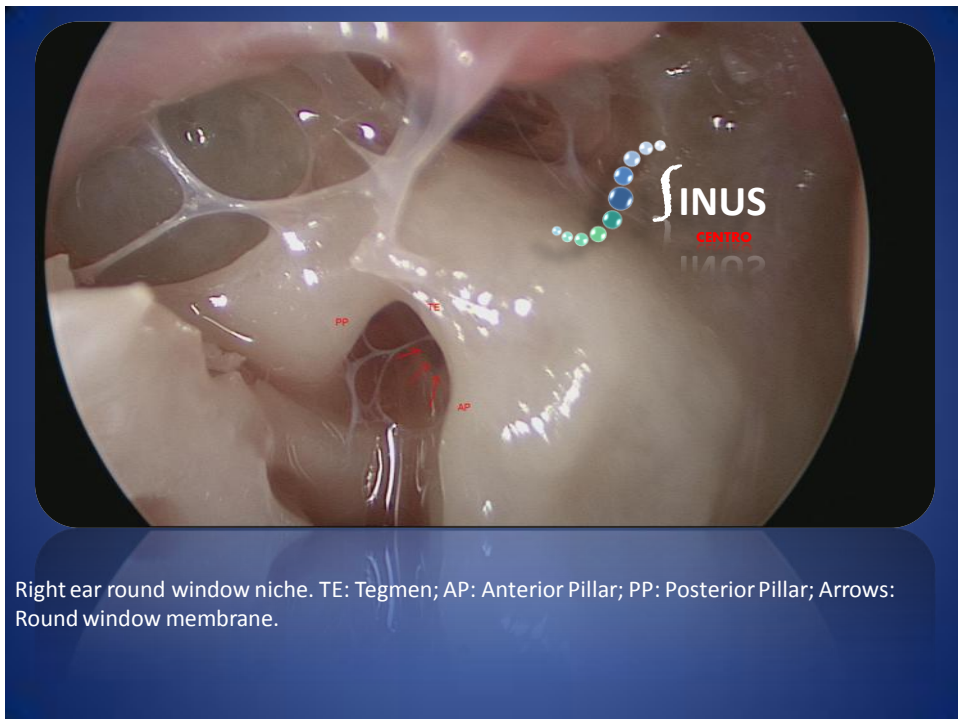
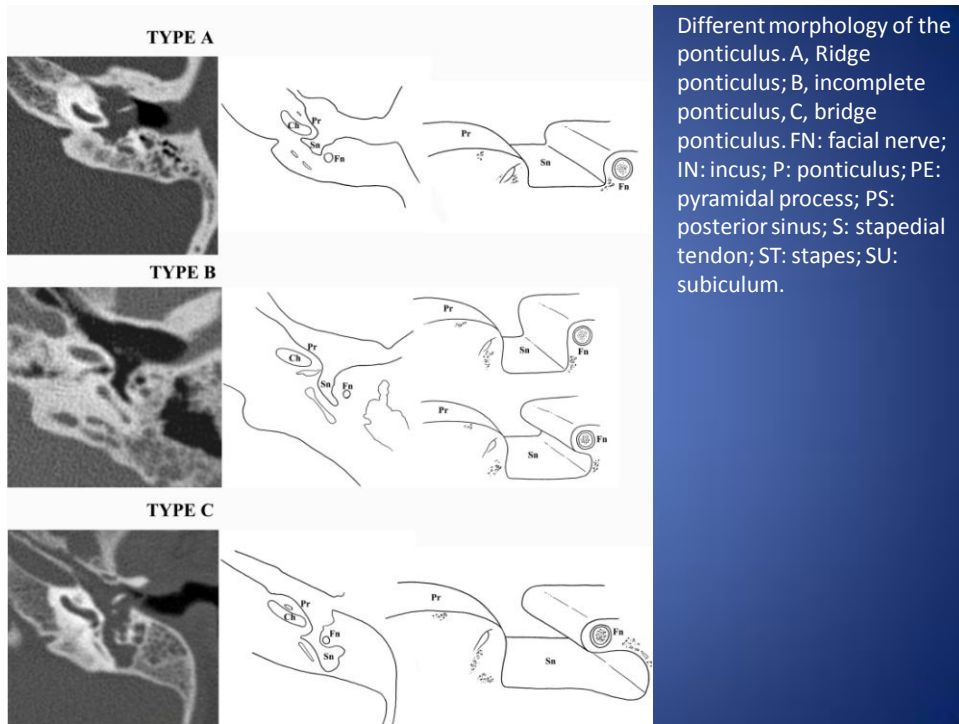
Left ear: View of the retrotympanium. IS: incudostapedial joint; PE: Pyramidal eminence; PO: Ponticulus; ST: Sinus tympani; SU: Subiculum; RW: Round Window.



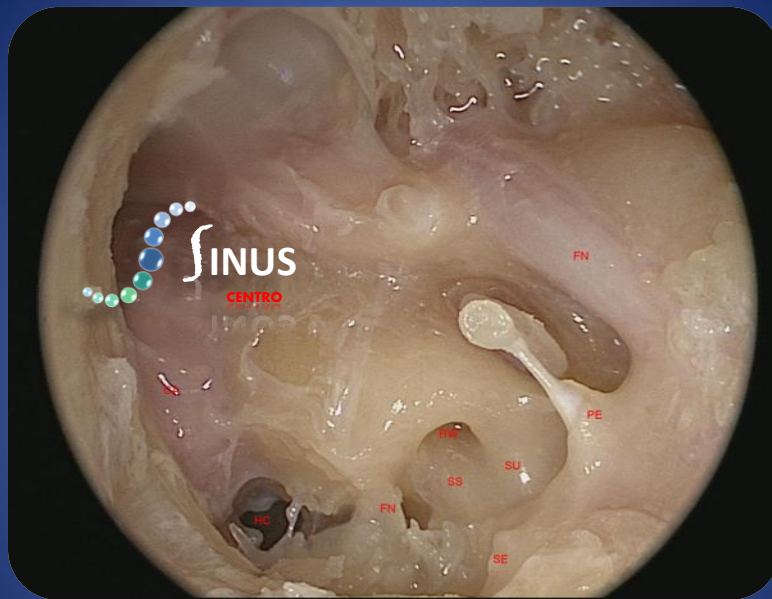
Left ear: Arrow: Sub pyramidal space. S: Stapes; FN: Facial nerve; ST: Sinus tympani; RW: Round window; PE: Pyramidal eminence; PTS: posterior tympanic sinus.



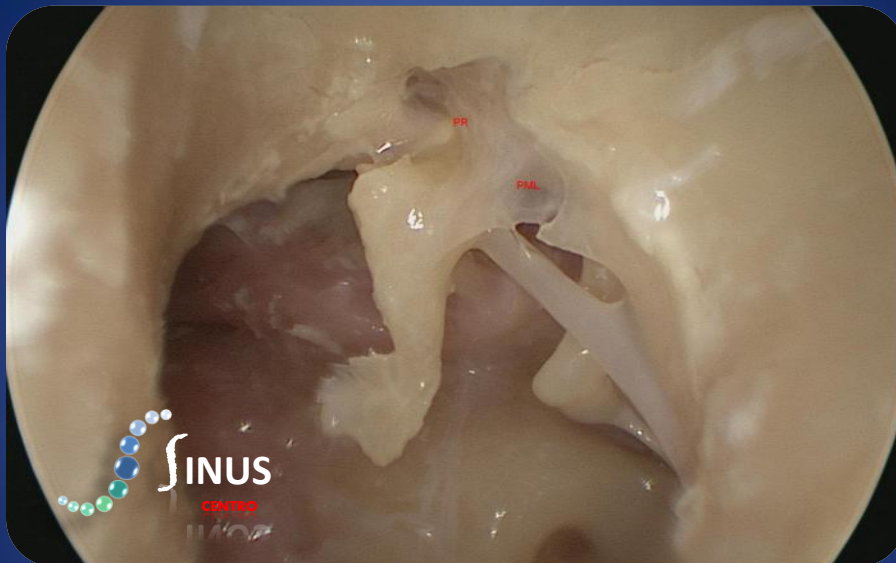
Left ear: Note the entry points of the sub pyramidal space in this specimen is type A, connecting to both the sinus tympani and the posterior tympanic sinus. Arrow: Sub pyramidal space; ST: sinus tympani; PE: Pyramidal eminence; PTS: Posterior tympanic sinus



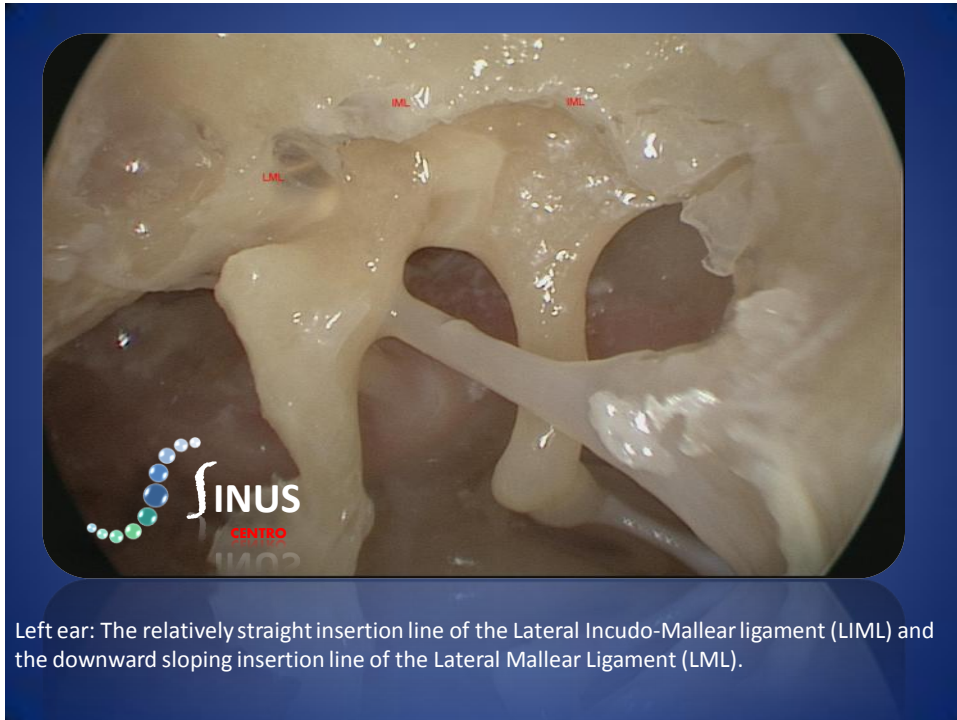




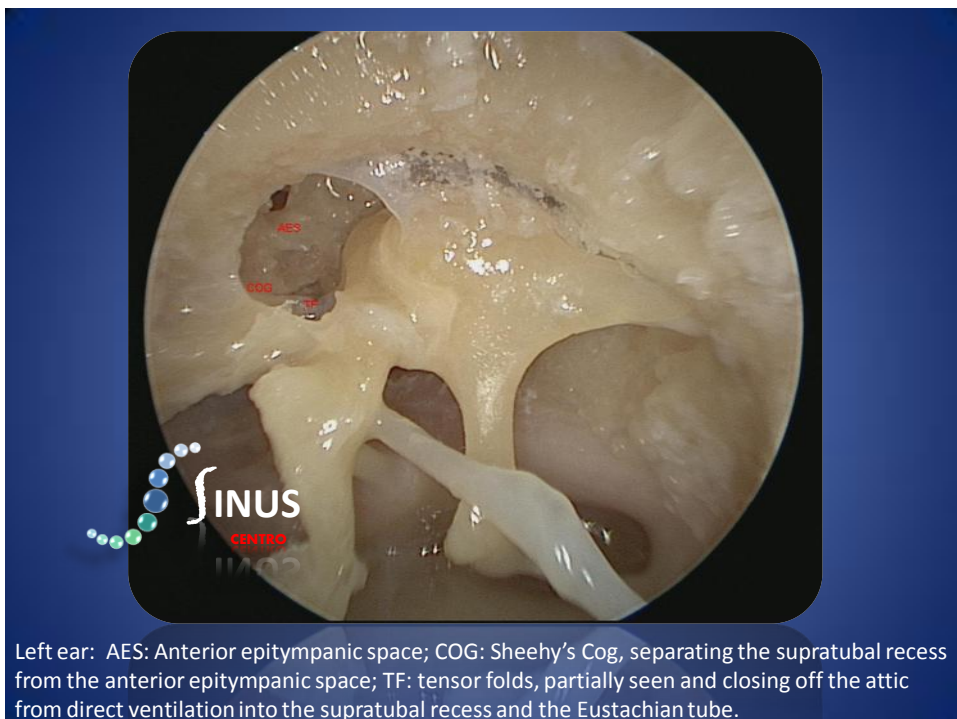
Left ear: Overview picture of the tympanic cavity with special attention to the retrotympanium.  
 FN: Facial nerve; SU: Subiculum; SS: Sinus subtympanicus; SE: Styloid eminence; RW: Round window; FN: Finiculus; CA: Crotid artery; HC: Hypotympanic air cell.



Left ear: PR: Prussak Space; PML: Posterior malleolar ligament



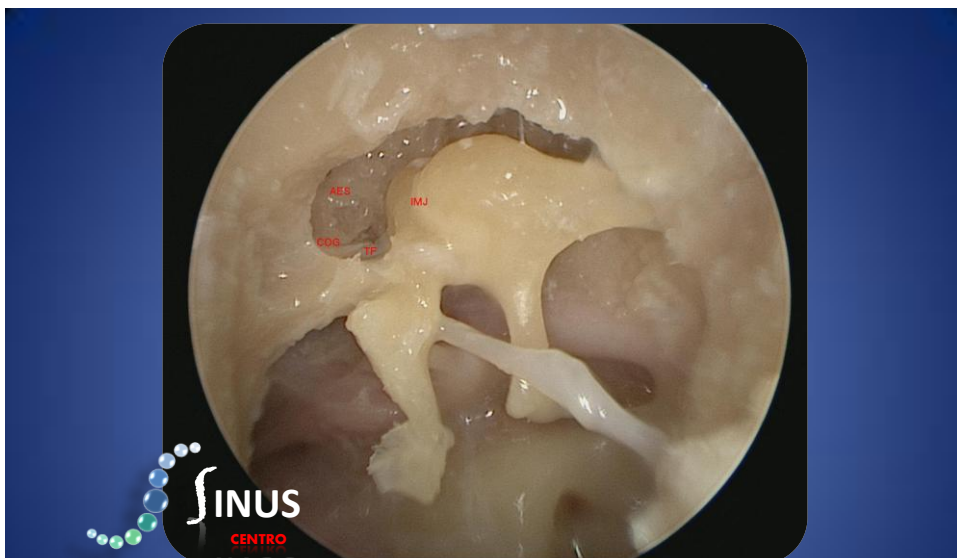
Left ear: The relatively straight insertion line of the Lateral Incudo-Malleal ligament (LIML) and the downward sloping insertion line of the Lateral Malleal Ligament (LML).



Left ear: AES: Anterior epitympanic space; COG: Sheehy's Cog, separating the supratubal recess from the anterior epitympanic space; TF: tensor folds, partially seen and closing off the attic from direct ventilation into the supratubal recess and the Eustachian tube.



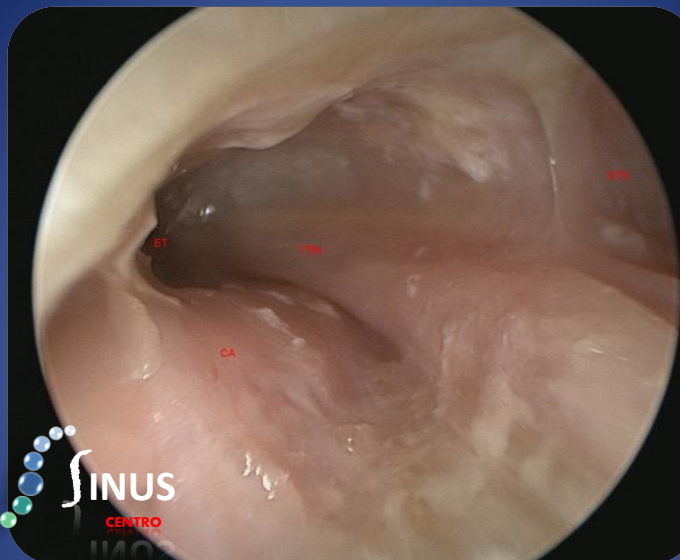
Left ear close up examination of the anterior epitympanic space. AES: Anterior epitympanic space; COG: Sheehy's Cog, separating the supratubal recess from the anterior epitympanic space; TF: tensor folds, partially see and closing off the attic from direct ventilation into the supratubal recess and the Eustachian tube.



Left ear: the ossicles are fully exposed within the attic and the incuo-malleal articulation line is visible. IM: Incudo malleal joint; AES: Anterior epitympanic space; COG: Sheehy's Cog, separating the supratubal recess from the anterior epitympanic space; TF: tensor folds, partially see and closing off the attic from direct ventilation into the supratubal recess and the Eustachian tube.

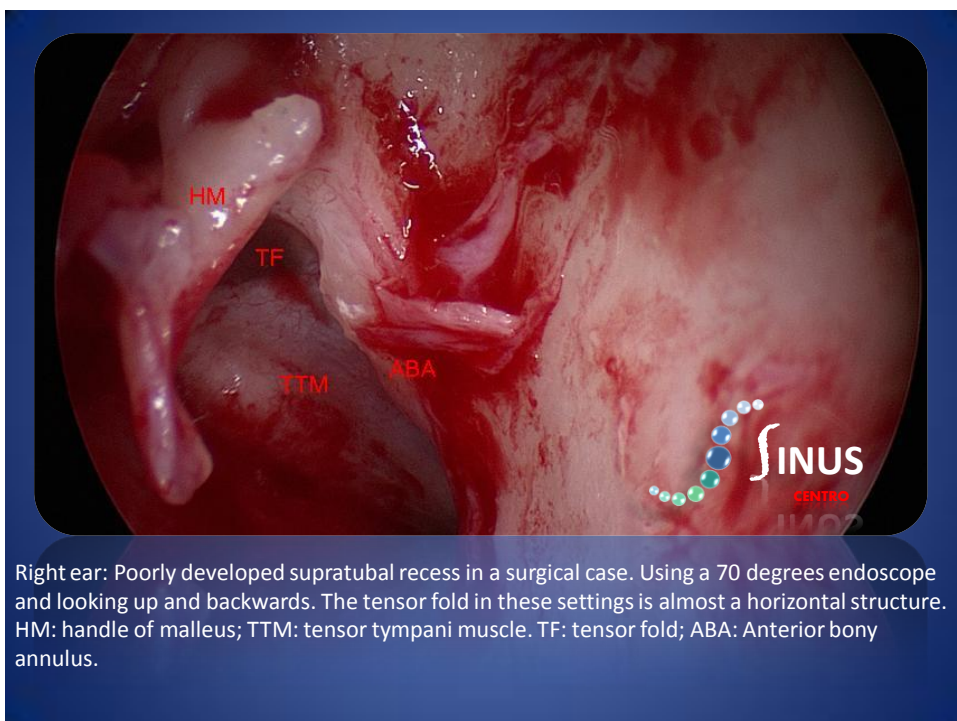
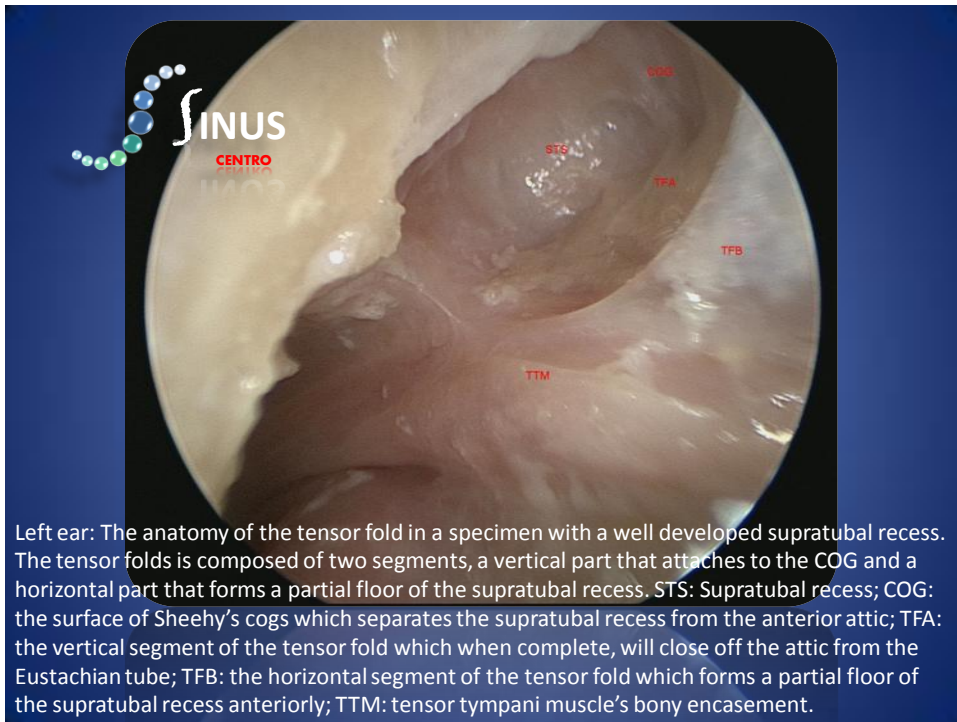


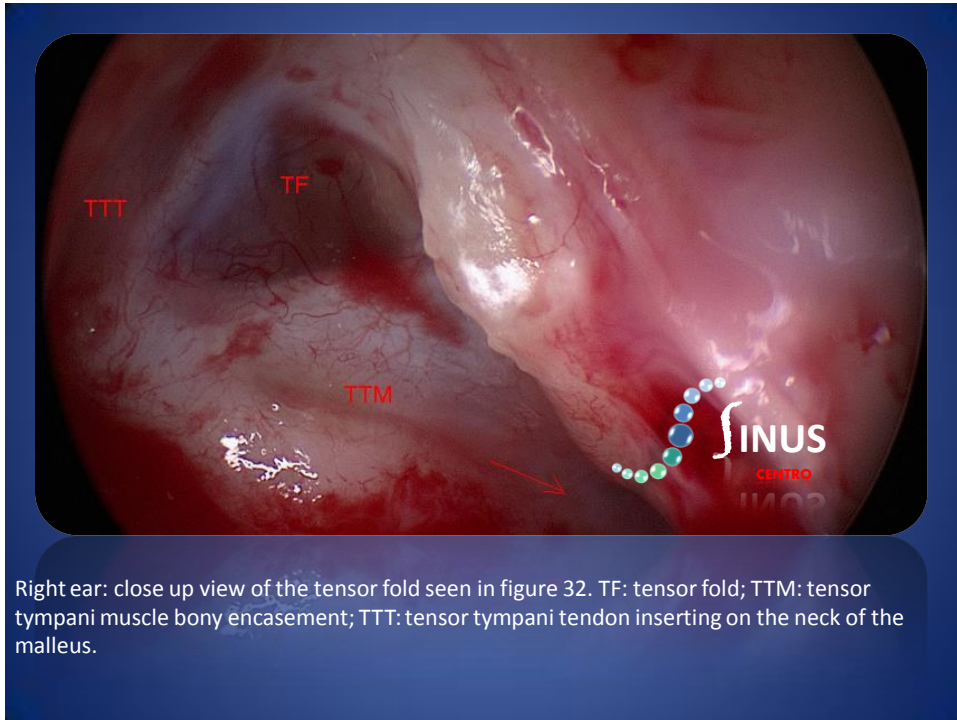
Left ear: HM: handle of malleus; STS: Supratubal recess; COG: the anterior surface of Sheehy's cogs which separates the attic from the supratubal recess; TFA: the vertical segment of the tensor fold which when complete, will close off the attic from the Eustachian tube; TFB: the horizontal segment of the tensor fold which forms a partial floor of the supratubal recess anteriorly; TTM: tensor tympani muscle's bony encasement; BA: Bony annulus; CA Carotid artery.



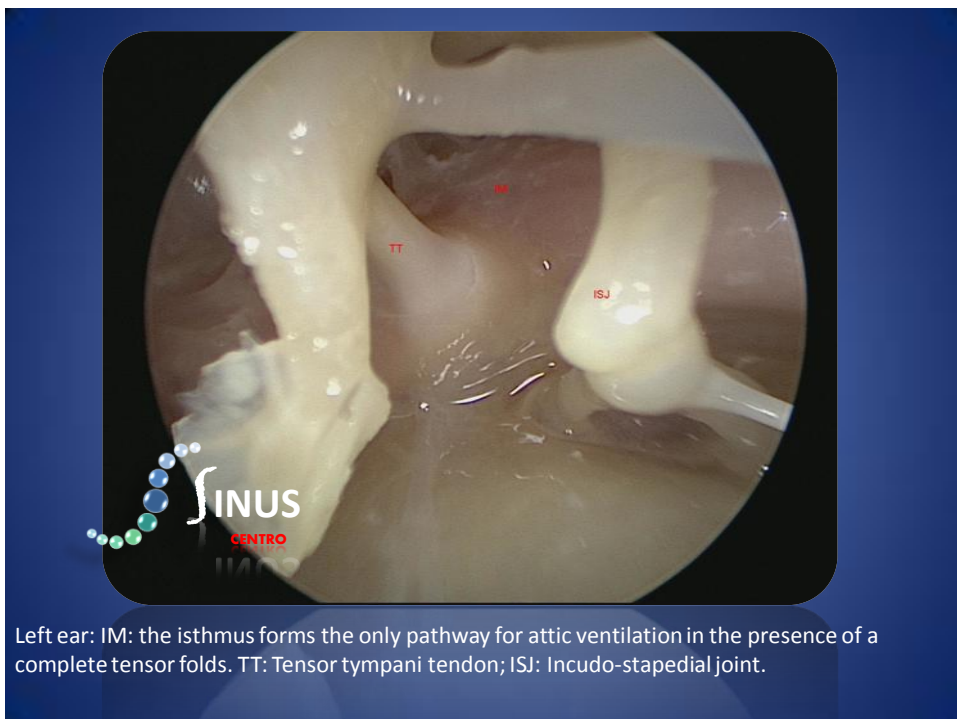
Left ear: Looking down the Eustachian tube. ET: Eustachian tube; TTM: tensor tympani muscle's bony encasement; BA: Bony annulus; CA Carotid artery.







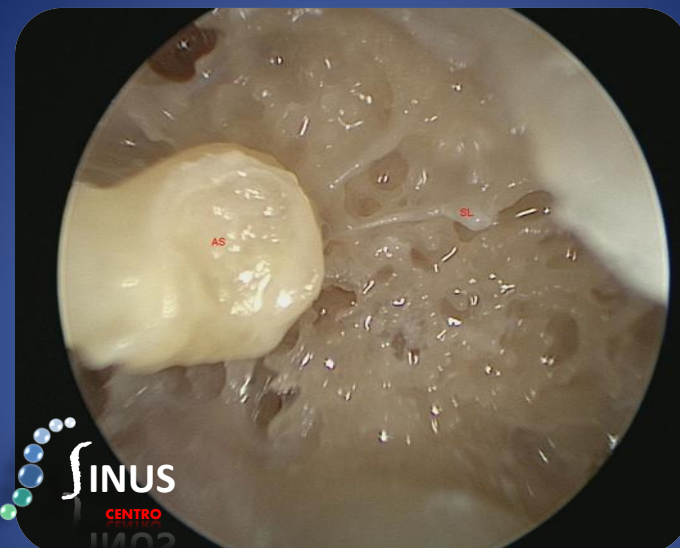
Right ear: close up view of the tensor fold seen in figure 32. TF: tensor fold; TTM: tensor tympani muscle bony encasement; TTT: tensor tympani tendon inserting on the neck of the malleus.



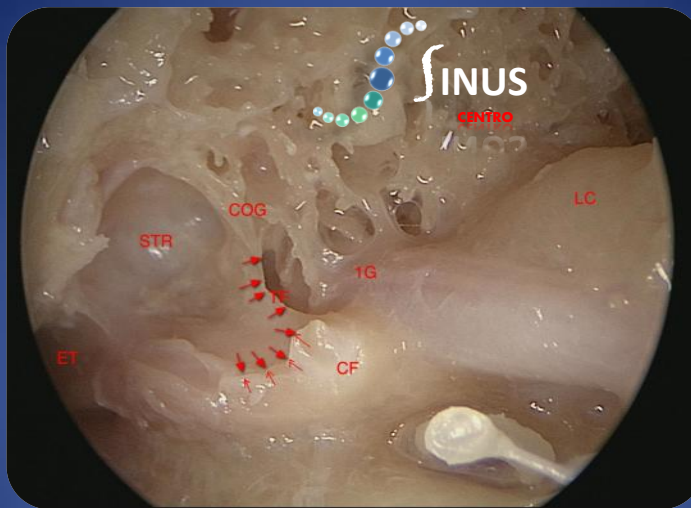
Left ear: IM: the isthmus forms the only pathway for attic ventilation in the presence of a complete tensor folds. TT: Tensor tympani tendon; ISJ: Incudo-stapedial joint.



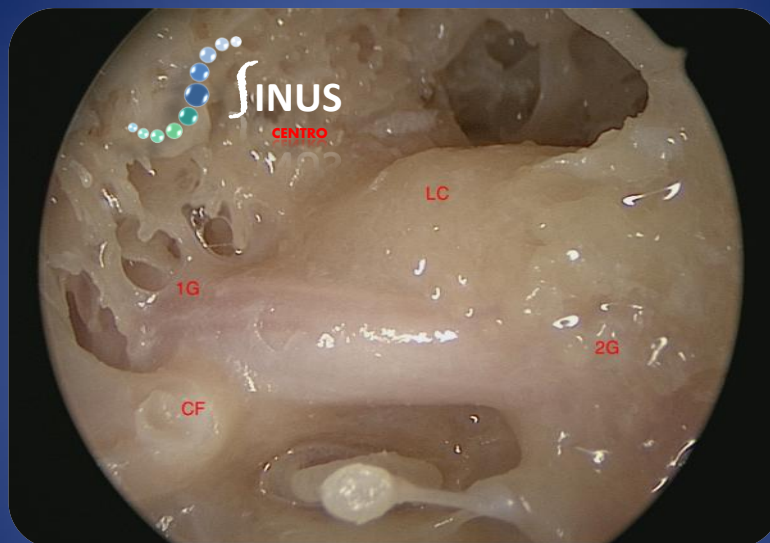
Left ear; the incus has been removed. AS: articular surface of the head of malleus; FN: horizontal segment of the facial nerve; SC: Lateral semicircular canal; AA: Additus antrum; CD: Corda Tympani; TT: Tensor tympani tendon.



Left ear attic after removal of the incus. AS: Articular surface of the head of malleus. SL: remnant of the superior ligament of the incus attaching to the tegmen.



Left Ear: The tensor tendon is transected and the handle of the malleus is removed, so was the anterior spine, anterior malleolar ligament and the corda tympani. COG: Sheehy's COG; Single arrows: insertion point of the partially removed vertical segment of the tensor fold; Double arrows: insertion point of the completely removed horizontal segment of the tensor fold; STR: Supratubal recess; ET: Eustachian tube; CF: Cochleariform process; 1G: First genu of the facial nerve and neighboring geniculate ganglion; LC: Lateral semicircular canal.



Left ear: The horizontal segment of the facial nerve and it relationship to the lateral semicircular canal. 1G: First genu; 2G: second genu; LC Lateral canal; CF: Cochleariform process.