

Examination of Ear

(Part 1)

Dr. Amro Yousef
ENT specialist

Physical examination

1. Pinna and surrounding area
2. External auditory canal (EAC)
3. Tympanic membrane
4. Middle ear
5. Mastoid
6. Eustachian tube
7. Facial nerve

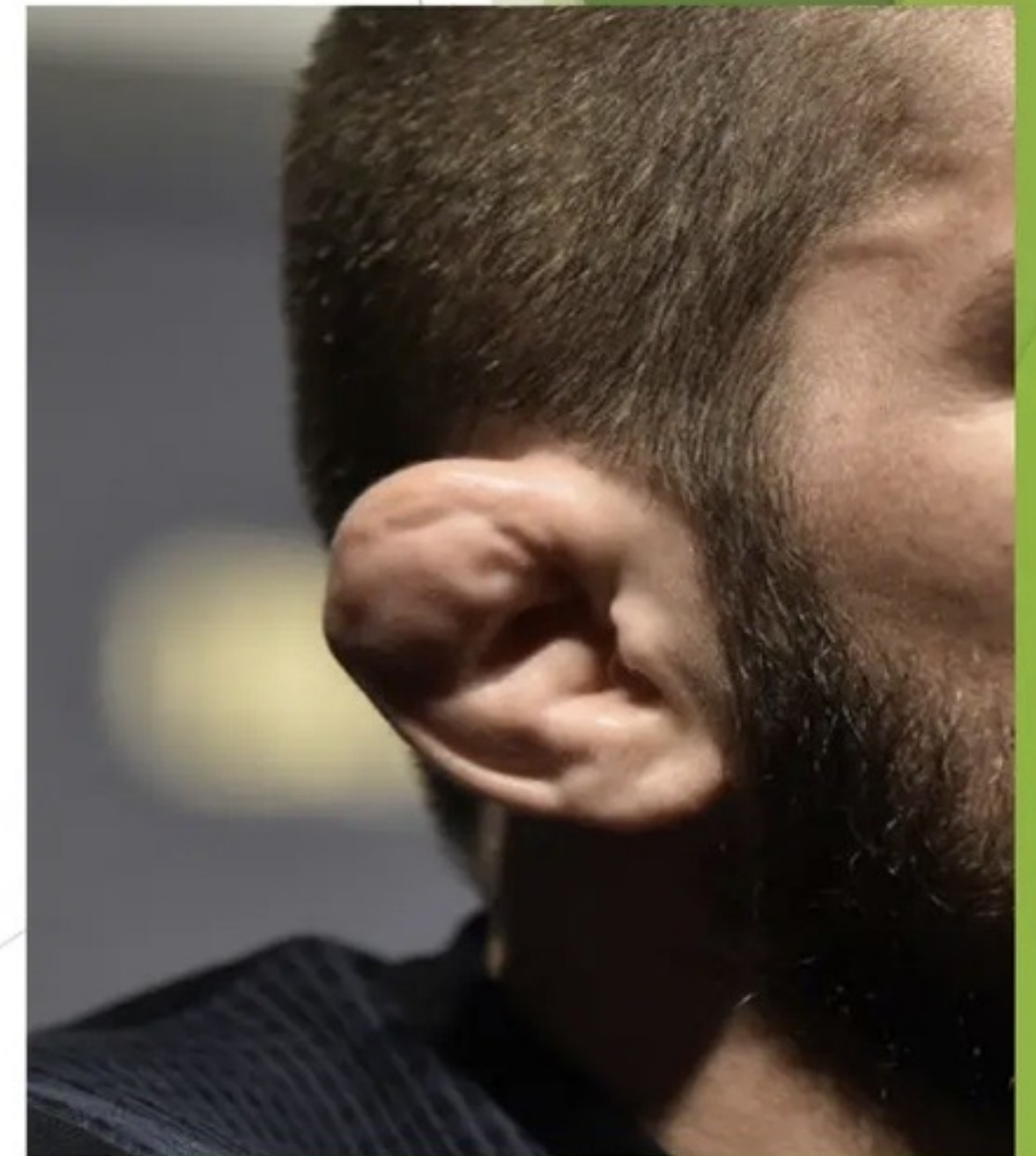
Function examination

- ▶ Auditory function
 - ▶ Tuning fork tests
 - ▶ Rinnte test
 - ▶ Weber test
 - ▶ ABC
 - ▶ Audiometry:
 - ▶ Pure tone
 - ▶ Impedance
- ▶ Vestibular function
 - ▶ Nystagmus
 - ▶ Fistula test
 - ▶ Positional tests

(1) Pinna and surrounding area

► Pinna

- Size ☾ Microtia/macrotia
- Shape ☾ cauliflower ear (boxer ear)
- Position ☾ bat ear



Classification of Microtia

Marx Based on clinical appearance	Grade 1	Grade 2	Grade 3	Grade 4
	Smaller pinna, but all features of a normal pinna are recognizable	Some features of a normal pinna are recognizable	Rudiment of soft tissue and Cartilage ('peanut')	Absent pinna and ear canal



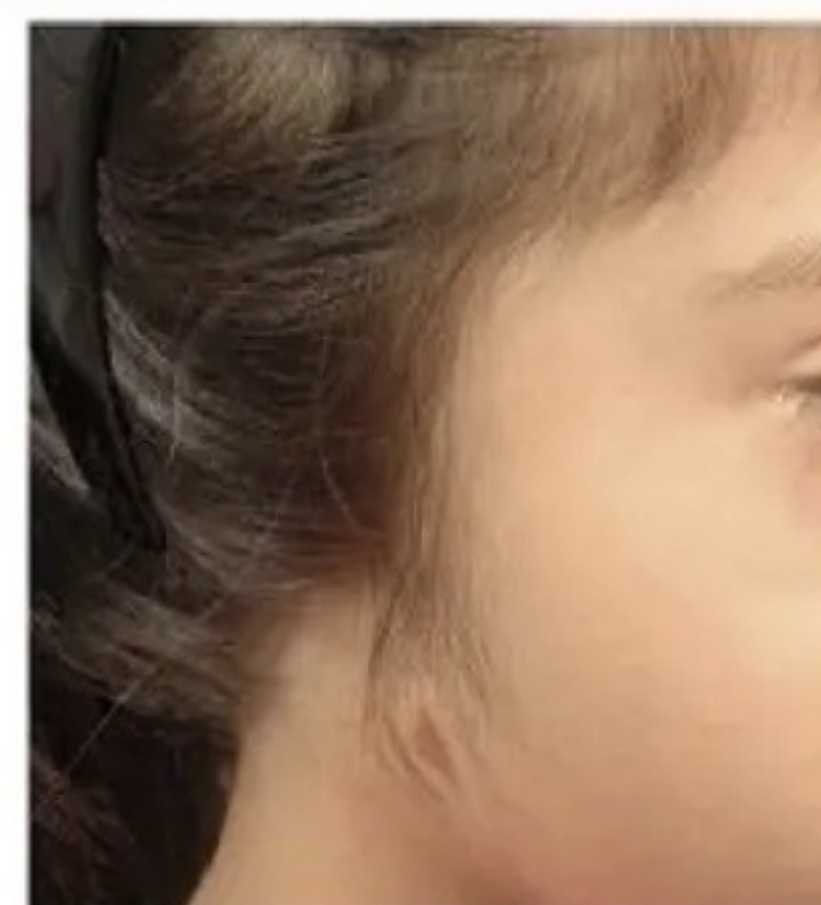
Grade 1



Grade 2



Grade 3



Grade 4

Swellings in pinna

- ▶ Perichondritis
- ▶ Hematoma
- ▶ Keloid
- ▶ Neoplasm



Pre-auricular area

- ▶ Preauricular sinus / infected (signs of inflammation)
- ▶ Preauricular appendages
- ▶ Lymphadenopathy/lymphadenitis
- ▶ Scar (endastral incision)
- ▶ Zygomatic abscess



Postauricular area

- ▶ Signs of inflammation ☾ mastoiditis, lymphadenitis
- ▶ Swelling ☾ postauricular abscess, lymphadenopathy
- ▶ Scar (postaural incision)
- ▶ Postauricular (mastoid) fistula

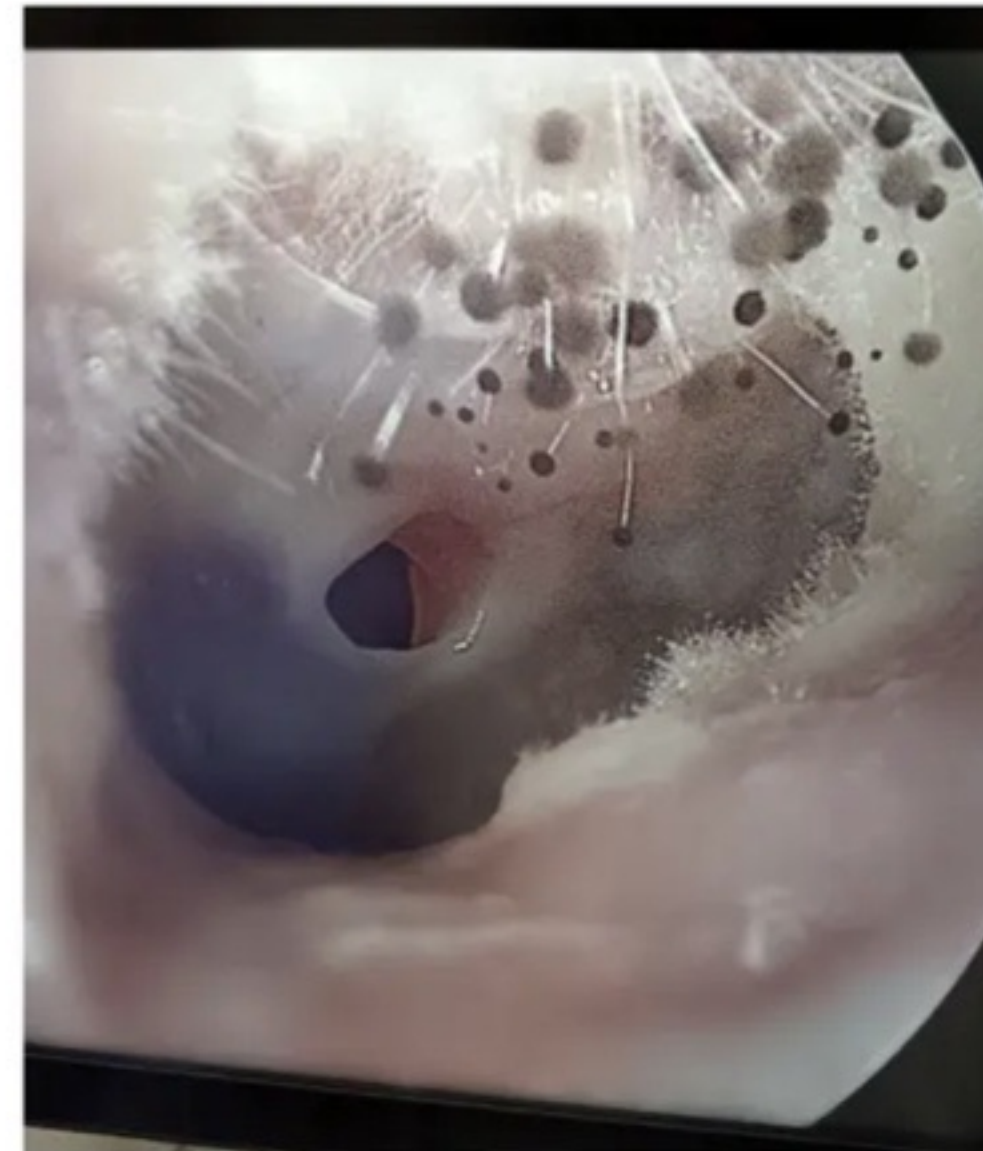


(2) External auditory canal

1. Size of meatus: Atresia/narrow/wide
2. Contents of EAC
3. Swelling

EAC

- ▶ Contents of lumen:
 - ▶ Wax
 - ▶ Debris
 - ▶ Discharge
 - ▶ Granulations
 - ▶ Polyp
 - ▶ Foreign body (FB)



EAC

- ▶ Swelling:
 - ▶ Furuncle
 - ▶ Sagging of posterosuperior area (coalescent mastoiditis)
 - ▶ Exostosis
 - ▶ Neoplasm (benign or malignant)



Right EAC osteoma

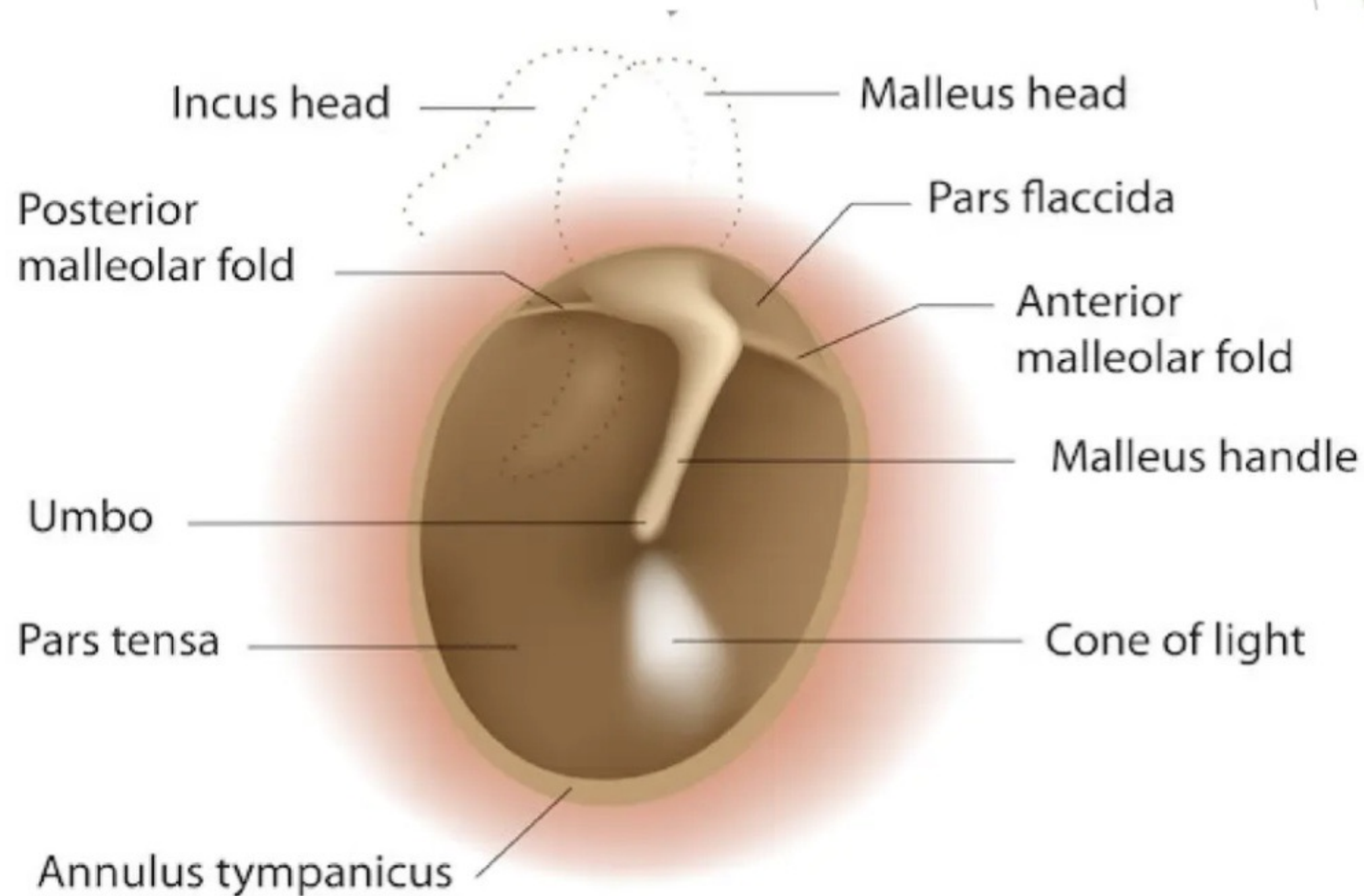


Right EAC. Multiple exostosis of
One exostosis is anterior and two are
posterior.

Examination of Tympanic membrane

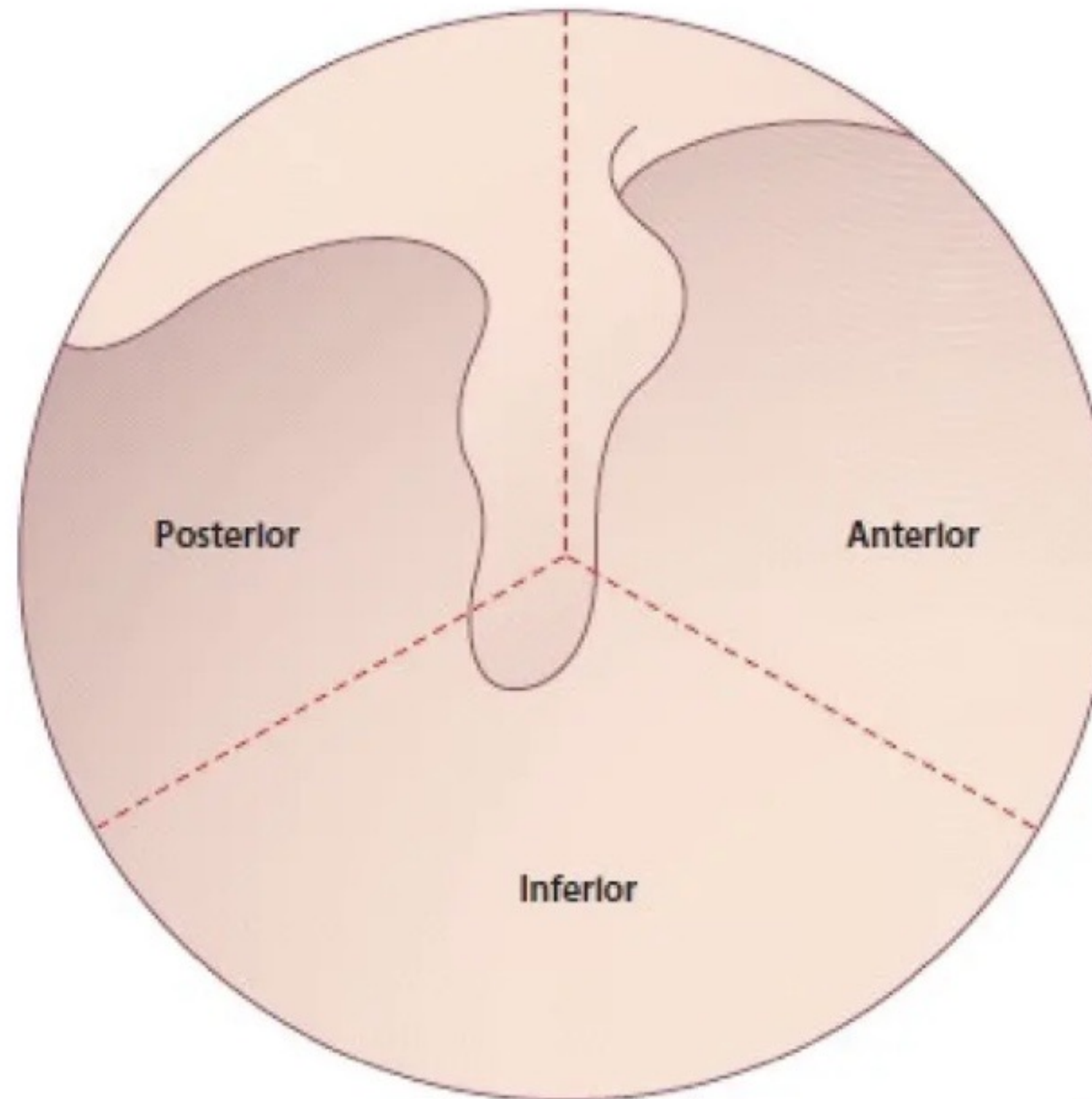
► Normal TM

- Obliquely set
- Semitransparent
- Pearly white in color
- Two parts:
 - Pars tensa
 - Pars flaccida



Site of pathology

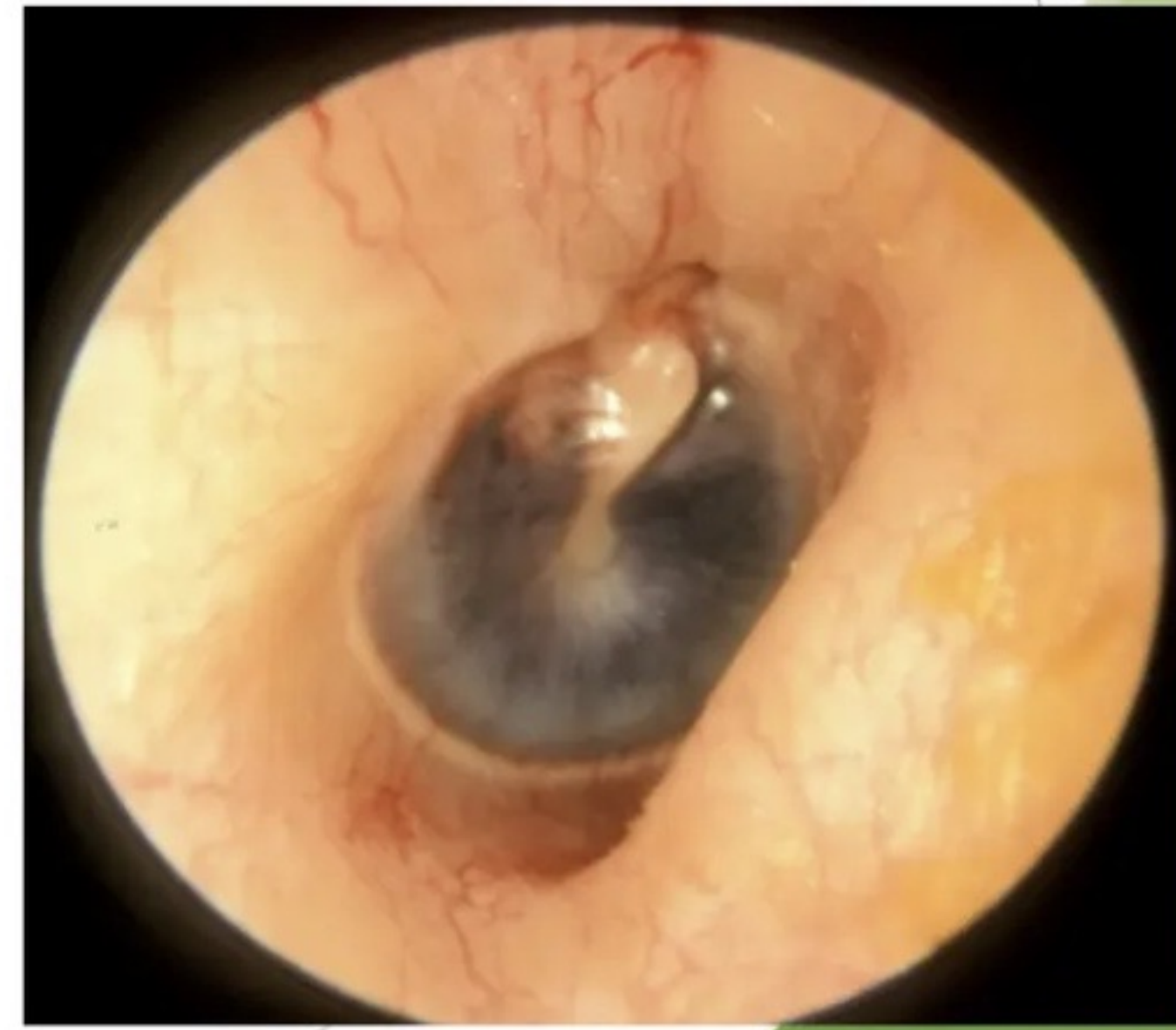
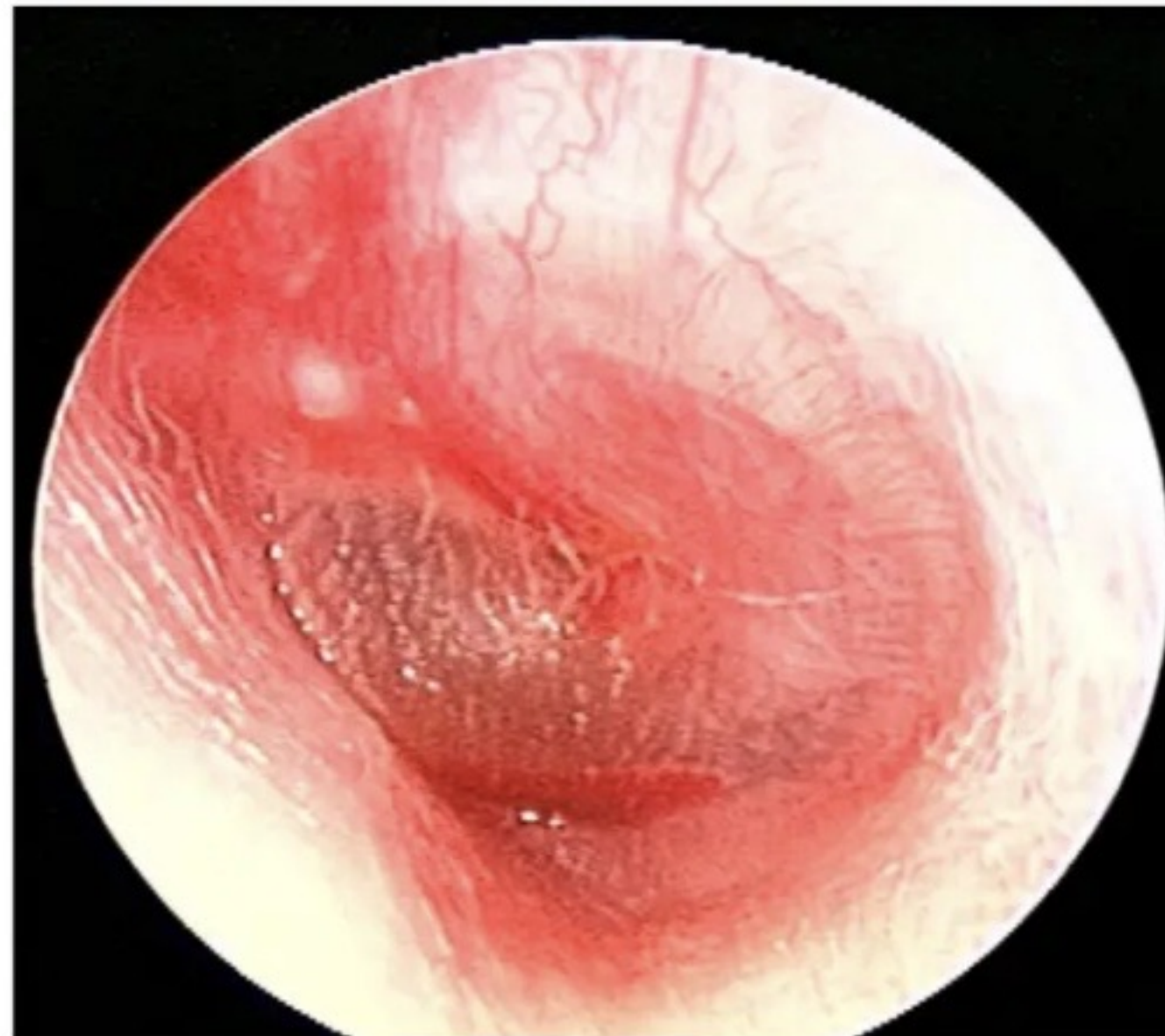
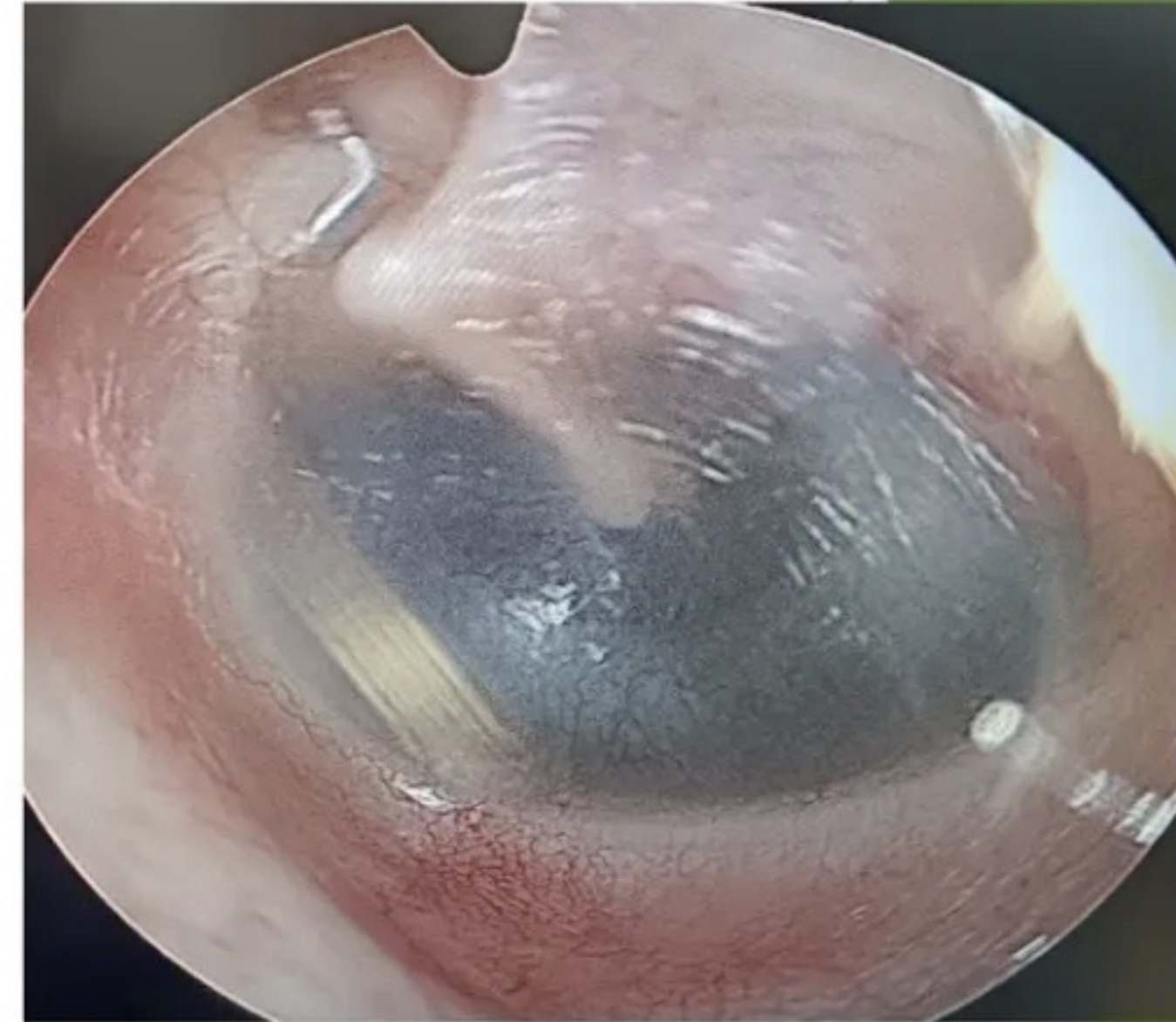
- Anatomically the pars tensa can be divided into four quadrants but pathology, such as perforations, myringosclerosis, tends to be **anterior**, **posterior** or **inferior**. Hence, division into thirds rather than quarters is preferred.



TM examination

► Color

- Chalky plaque (tympanosclerosis)
- Red and congested (acute otitis media)
- Bluish (secretory otitis media or hemotympanum)



TM examination

- ▶ **Thickness and transparency:**

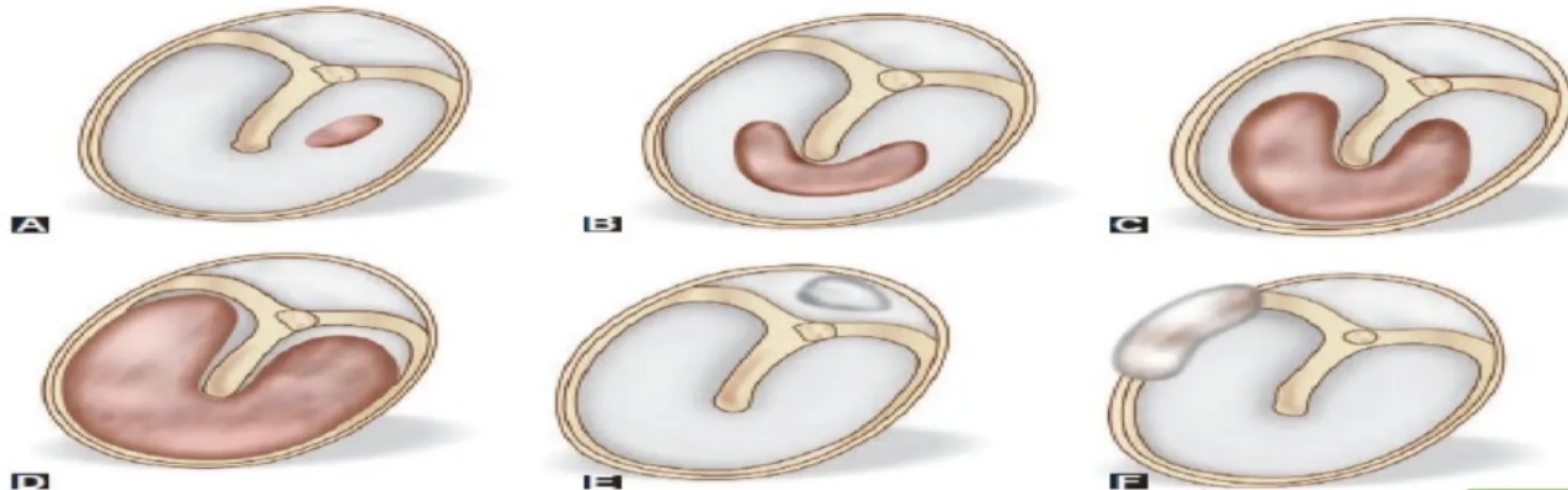
- ▶ Opaque/thick
- ▶ Semitransparent
- ▶ Transparent/very thin



TM examination

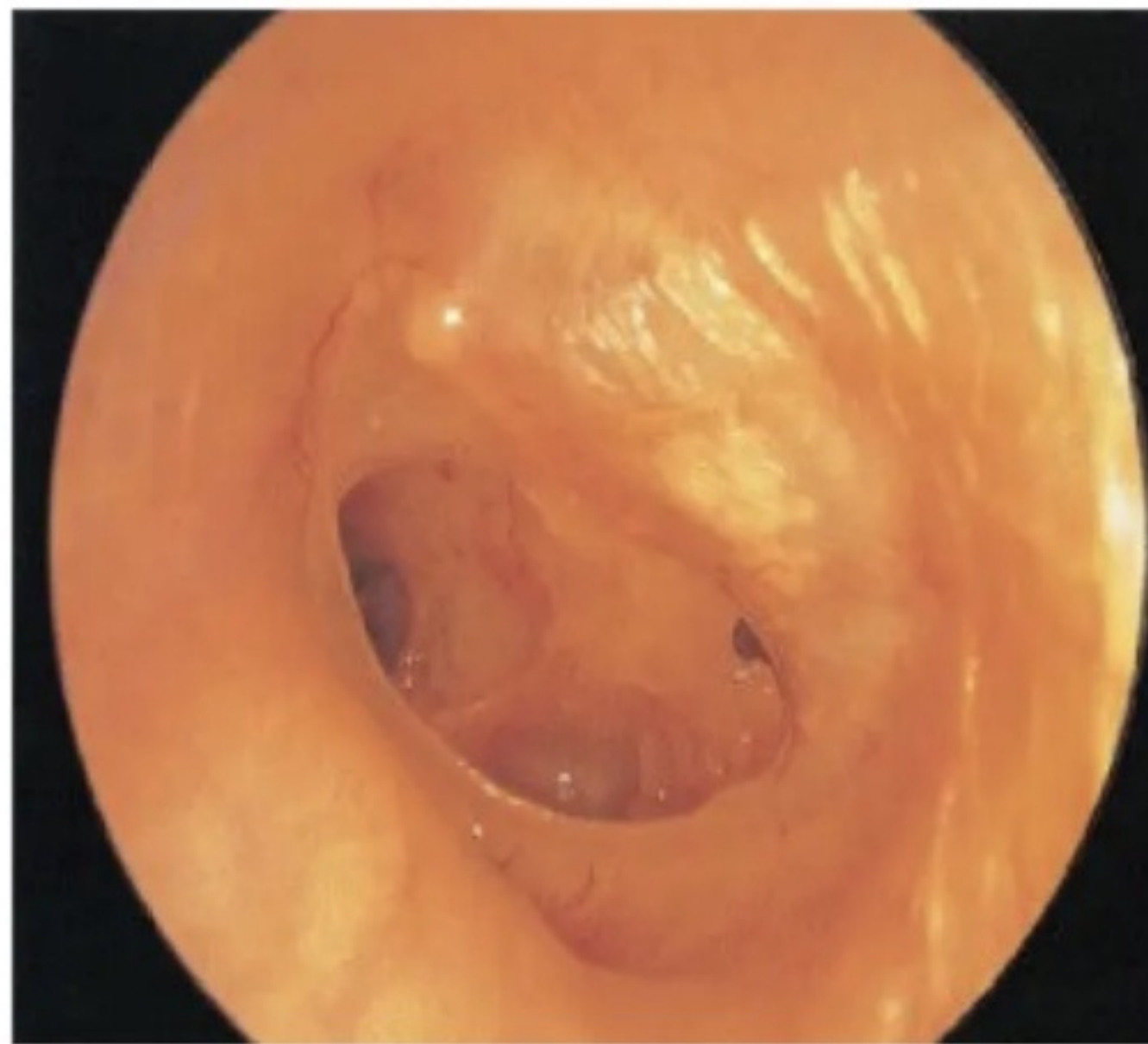
► Perforation

- Size (small, medium, large, subtotal in pars tensa)
- Shape (oval, round or kidney)
- Single or multiple (tuberculosis)
- Site
 - Central ☺ in pars tensa (Safe chronic suppurative otitis media)
 - Marginal (at the periphery involving the annulus) or attic (in pars flaccida)

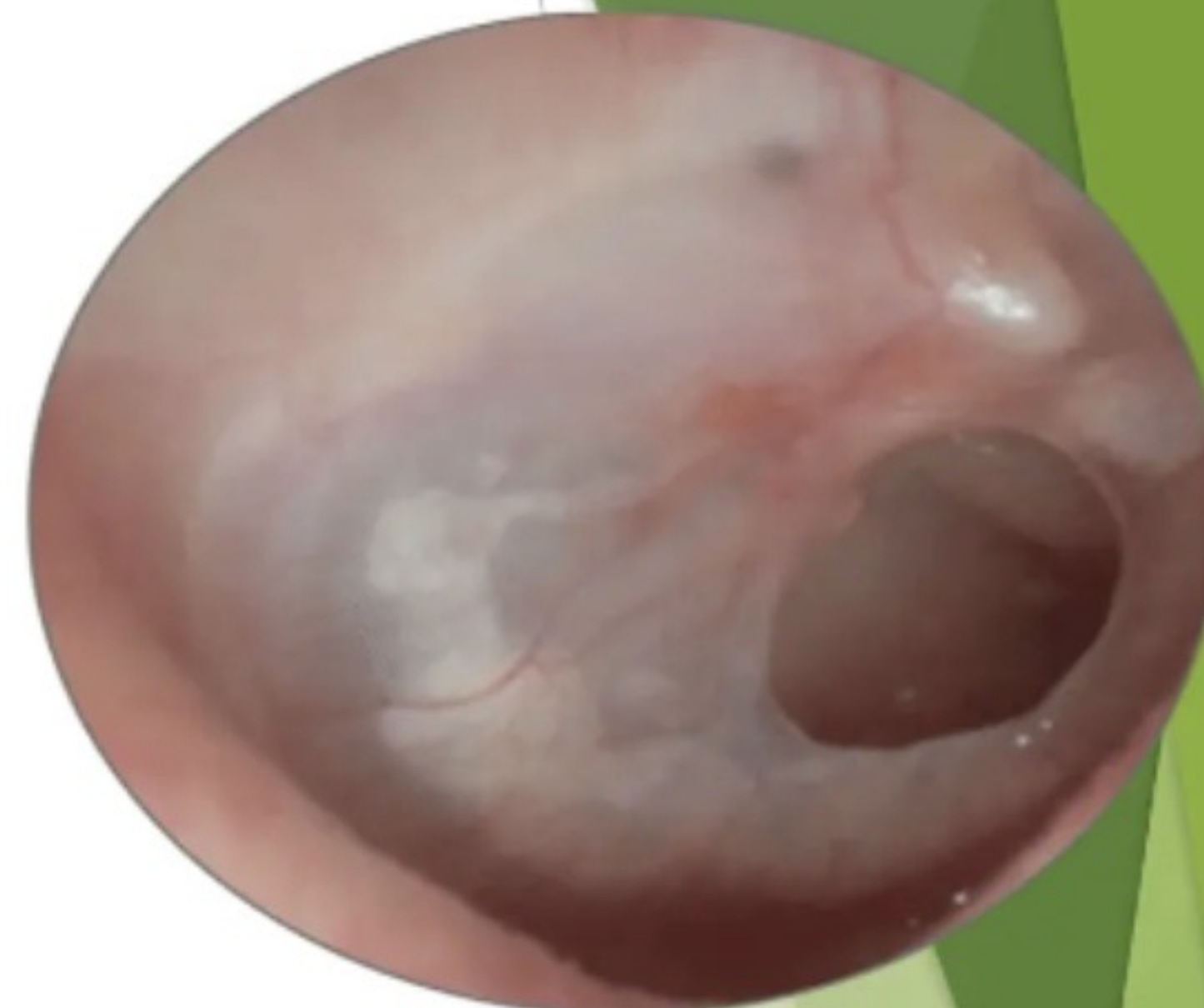




Right ear. Central large inferior anterior perforation with myringosclerosis plaque



Left ear. Central large anteroinferior perforation, ME mucosa normal.



Right ear. Central medium-sized anterior perforation with inferior myringosclerosis plaque

TM examination

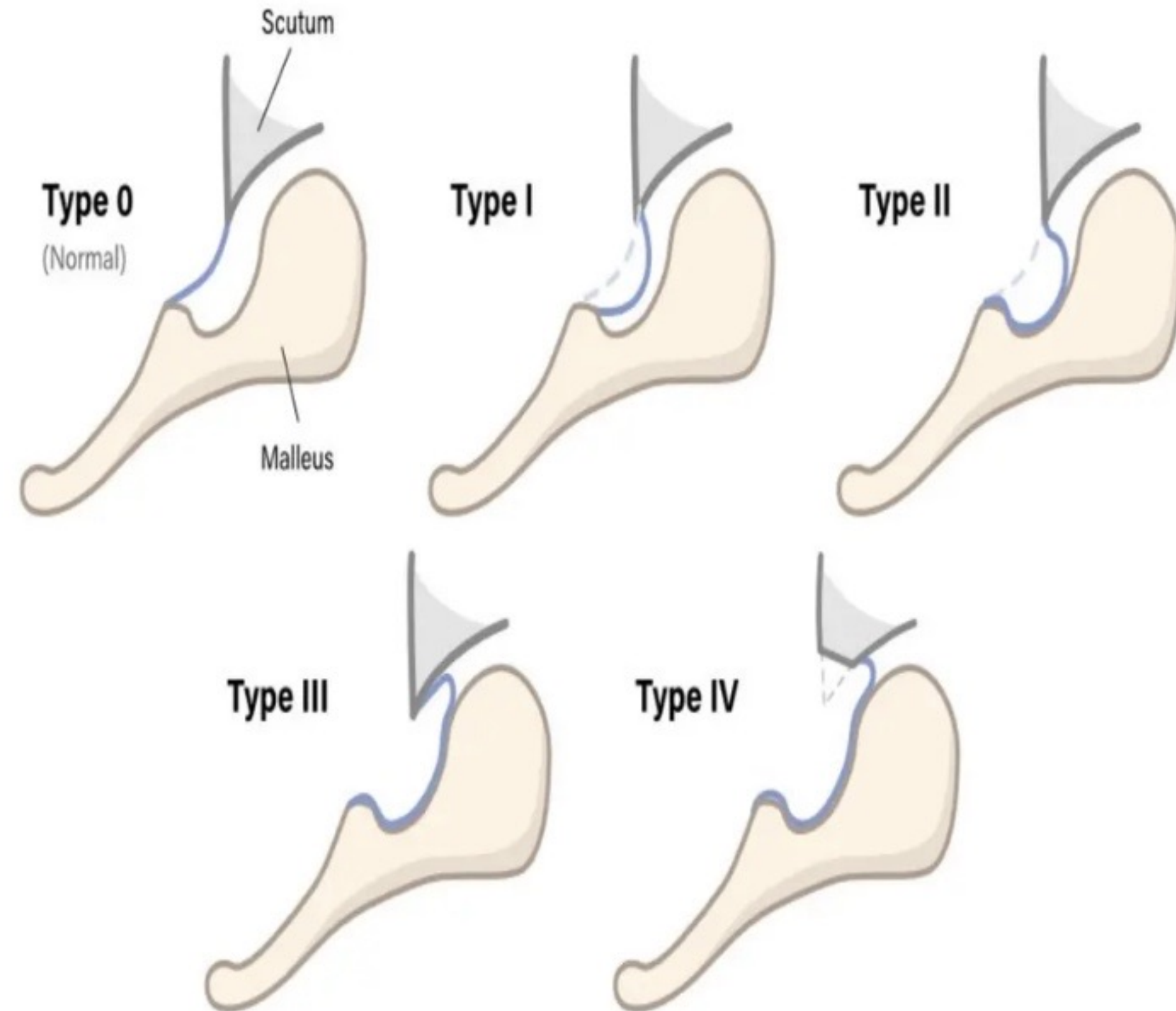
- ▶ **Retraction:**

- ▶ Generalized retraction or localized Retraction (retraction pockets)
- ▶ Fixed to ossicles or promontory



Tos's classification

- ▶ Pars flaccida retractions classified into four stages :
 - ▶ In stage 1, the pars flaccida is dimpled and more retracted than normal but **not adherent** to the malleus
 - ▶ In stage 2, the retraction is **adherent to the neck of the malleus** and the full extent of the retraction can be seen
 - ▶ In stage 3, part of the retraction is out of view and there may be partial erosion of the bony attic wall
 - ▶ In stage 4, there is definite erosion of the attic wall with the full extent of the retraction being uncertain because it is out of view
- ▶ Tos's classification is relatively simple to apply, the only difficulty being making a distinction between stages 3 and 4. Hence, these are often grouped together as stage 3/4.

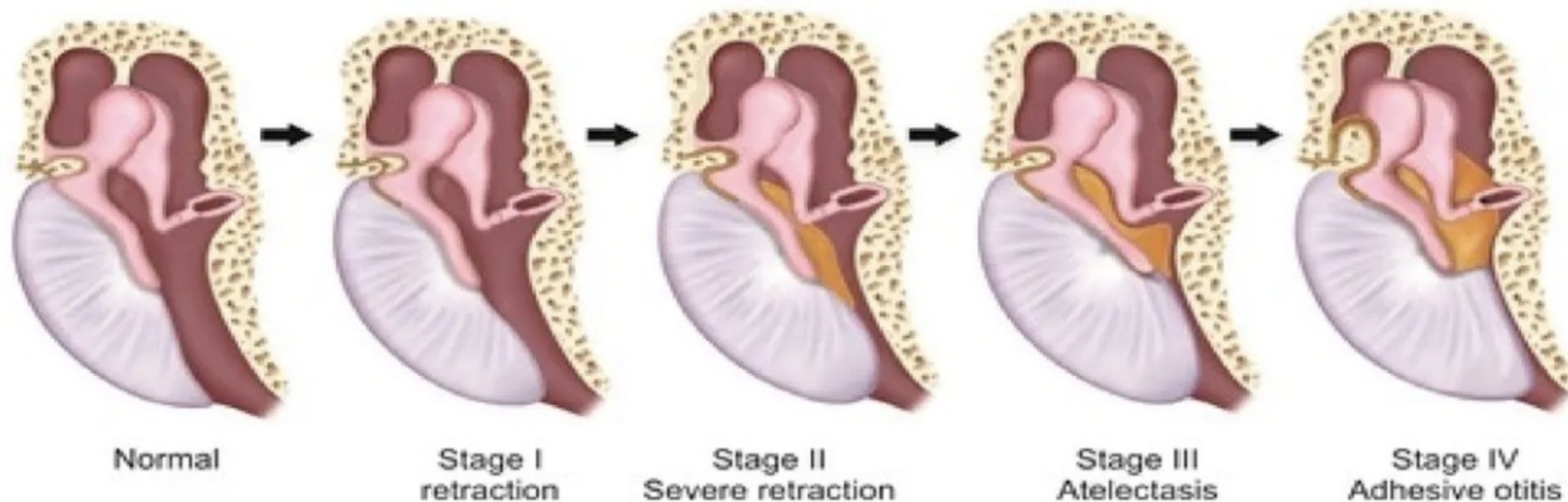


Sade classification

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17

Sadé and Berco and Tos and Poulsen described four stages of TM retraction:

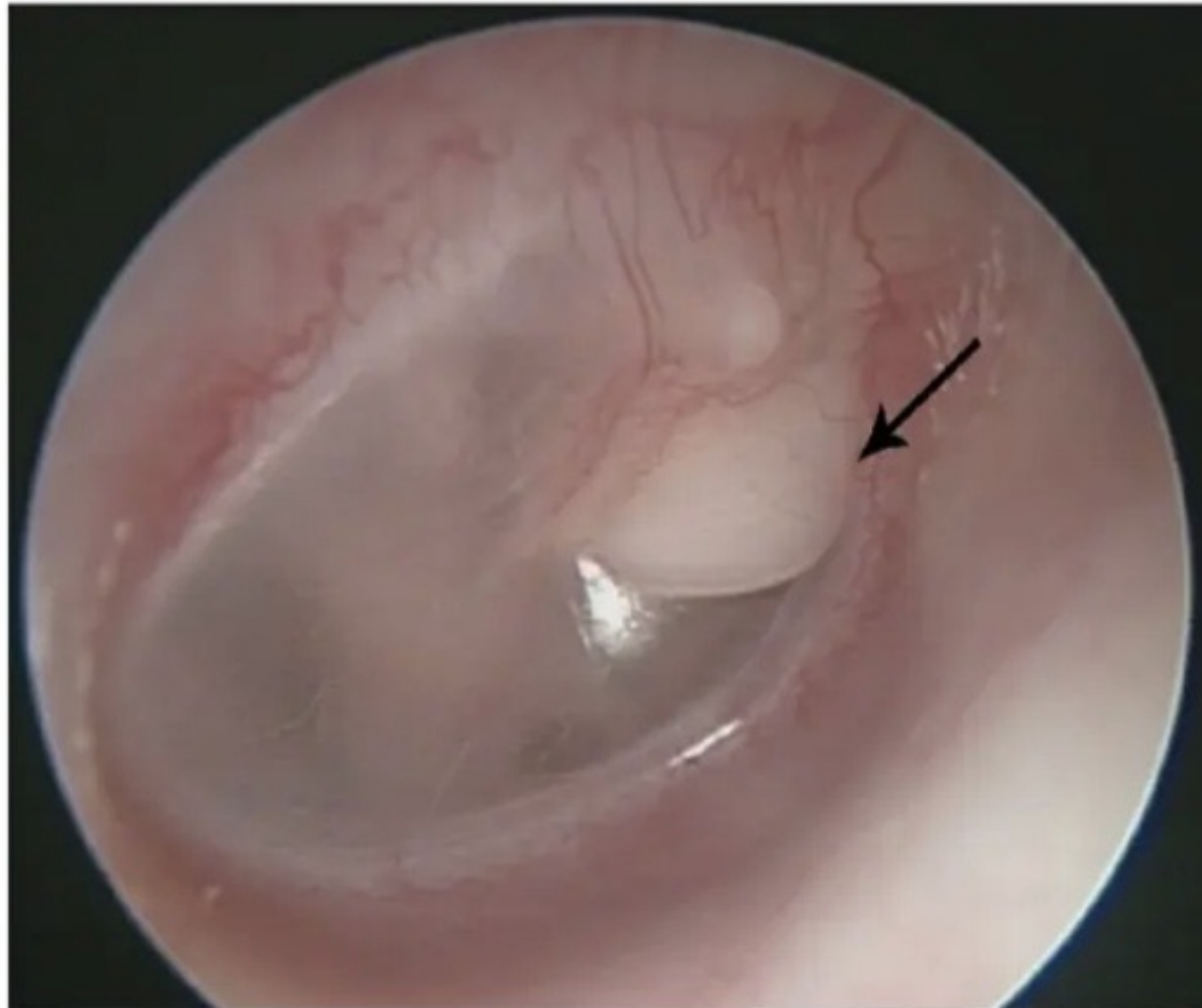
- Stage I, slight retraction of tympanic membrane over annulus
- Stage II, severe retraction ☹ TM touches the long process of the incus
- Stage III, middle ear atelectasis ☹ TM touches the promontory
- Stage IV, adhesive otitis media ☹ TM adherent to the promontory



TM examination

► **Bulging:**

- Acute otitis media
- Hemotympanum
- Neoplasm



TM examination

- ▶ **Vesicles or bullae:**
 - ▶ Herpes zoster
 - ▶ Myringitis bullosa
- ▶ **Mobility (siegelization):**
 - ▶ Mobile (normal)
 - ▶ Restricted (presence of fluid),
 - ▶ Fixed (adhesions in the middle ear)
 - ▶ Hypermobility (an atrophic segment of tympanic membrane)

