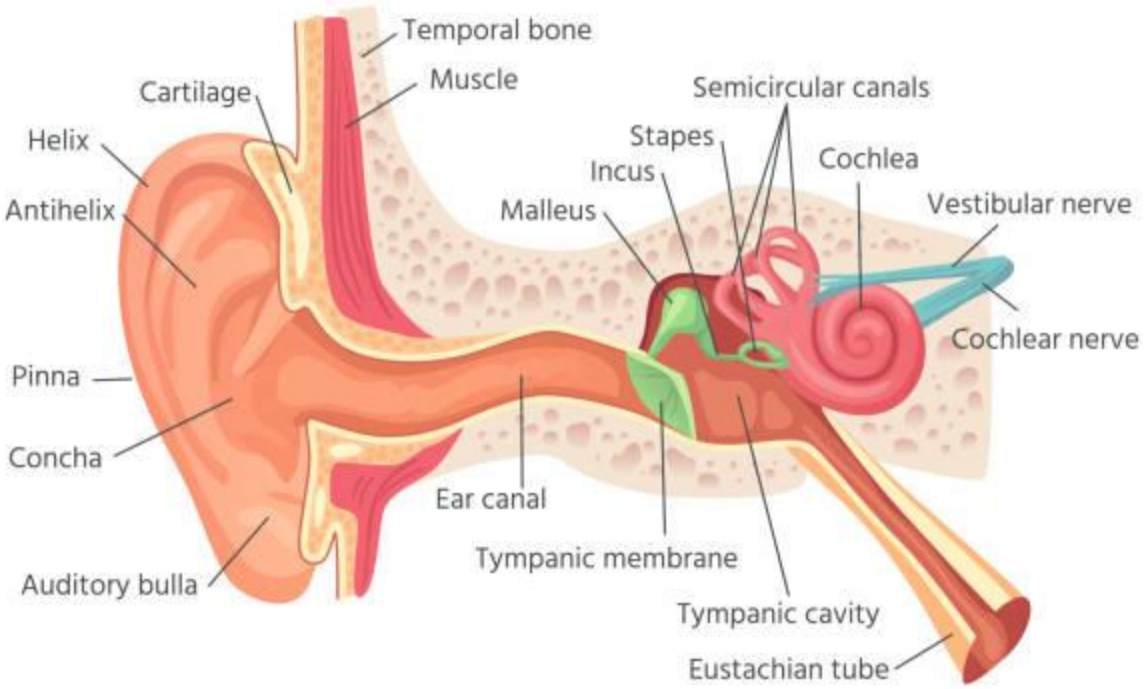
Diseases of Ear Nose And Throat

Dr Amer Hishmeh

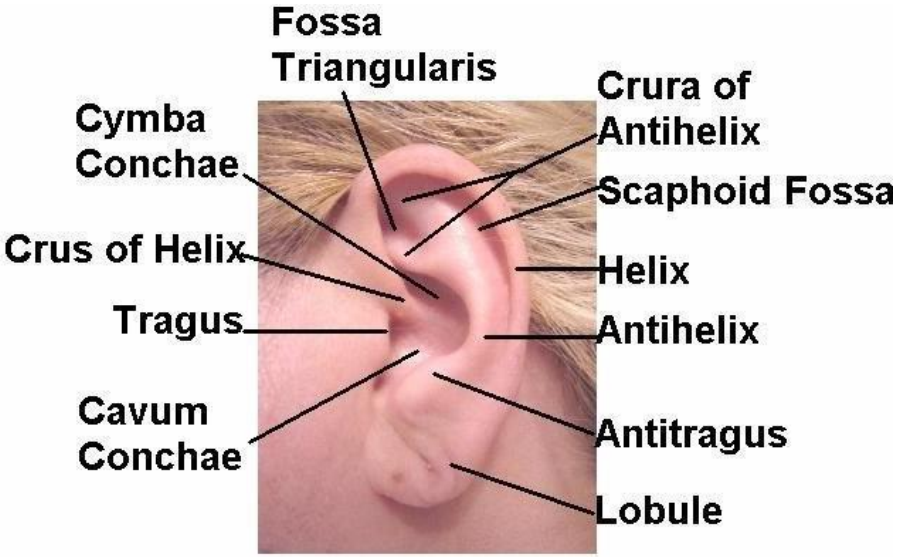
Ear anatomy

- Ear is divided into 3 parts:
- 1. External ear
- 2. Middle ear
- 3. Inner ear



1. External ear

Auricle (Pinna) : It is composed of cartilaginous part (upper 3/4) & fibro fatty part (lobule)



Anatomy of the Pinna

External auditory canal

S shaped tube extending from the auricle to the tympanic membrane (25 mm). It is pulled backward upward when examining adults and backward downward when examining children.

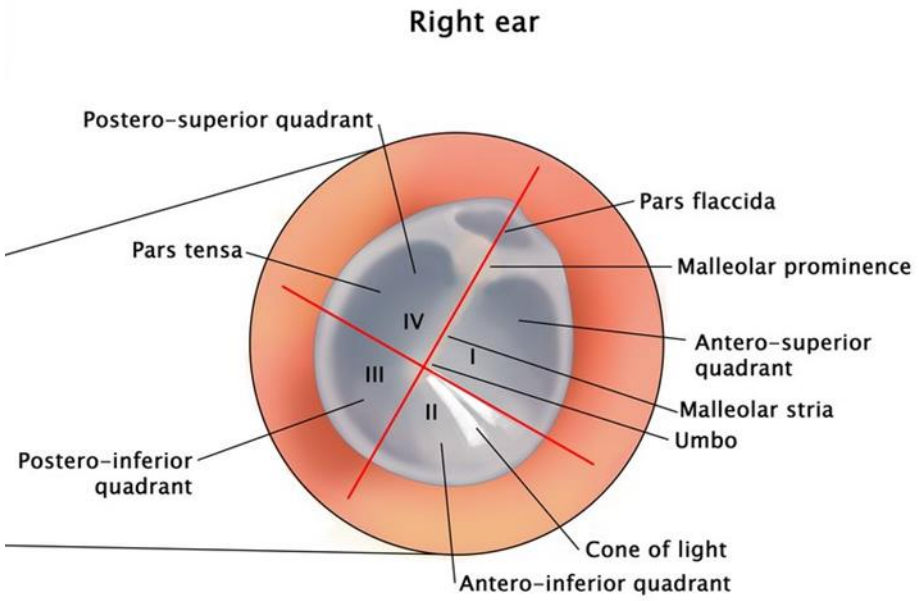
It has two parts:

Cartilaginous part (outer one third)

Bony part (inner two third).

Lateral (outer)surface of the tympanic membrane:

It is the outer layer of the tympanic membrane which is composed of skin of keratinized squamous epithelium.

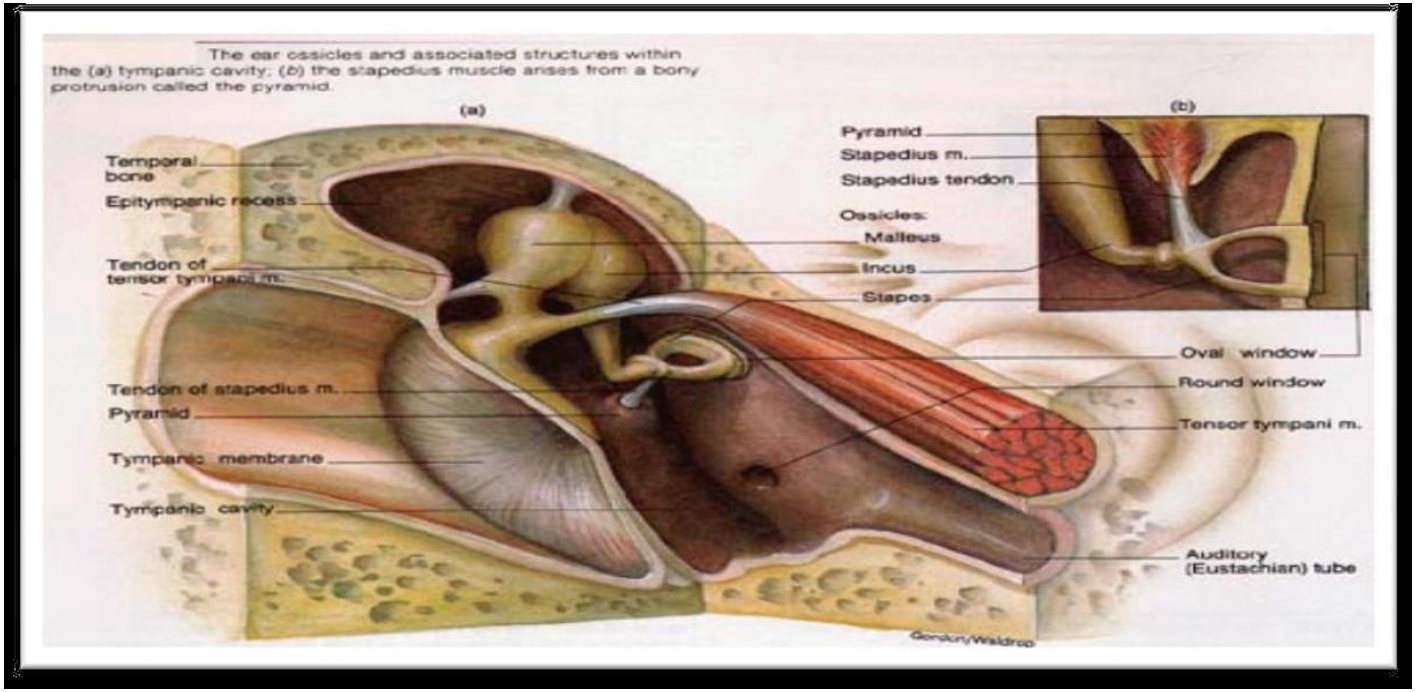


Tympanic membrane (TM):

- It is 1 cm in diameter
- It is formed of 3 layers:

1. Outer layer (Lateral layer): skin of keratinized squamous epithelium.
2. Middle layer (B/w the Lateral & Medial): fibrous layer.
3. Inner layer (Medial layer): respiratory mucosa (Pseudostratified squamous ciliated mucosa).

2. Middle ear:



Composed of middle ear cleft which contains:

a. Tympanic cavity itself including:

1. *ossicles* (Malleous, Incus, Stapes),
2. *two muscles*(stapedius muscle ", tensor tympani muscle “
3. *two nerves* (horizontal and *chorda tympani* branches of facial n)

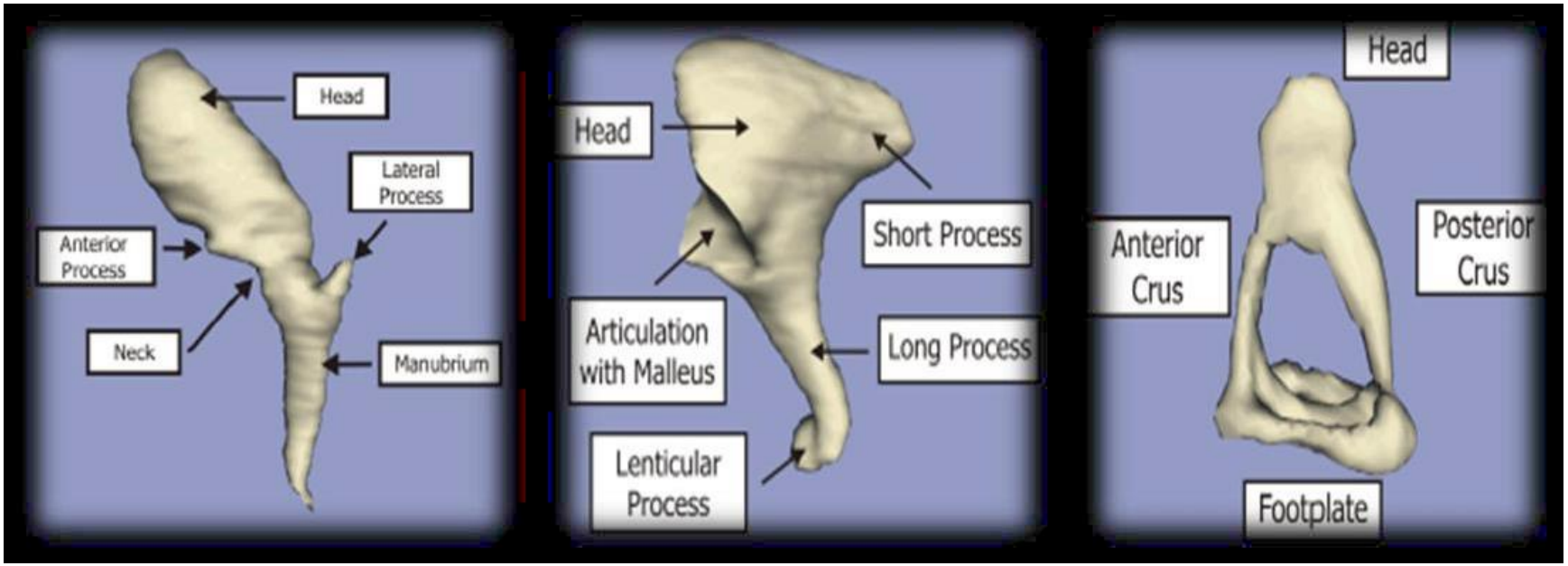
b. Eustachian tube (auditory tube).

c. Mastoid air cells (Air containing cavity in petrous bone of temporal bone).

d. Aditus ad antrum (mastoid antrum) : canal between middle ear and mastoid air cells.

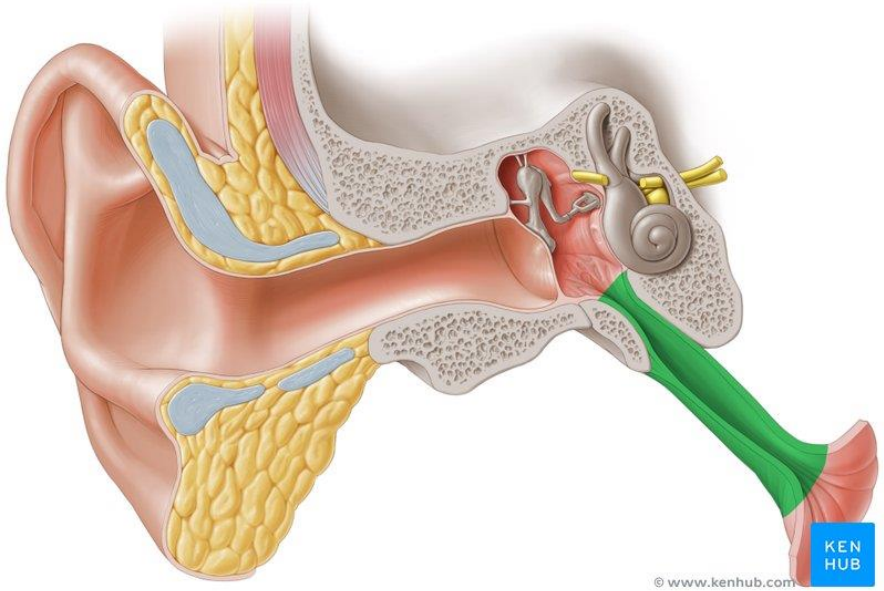
Ossicles:

Malleous Incus Stapes



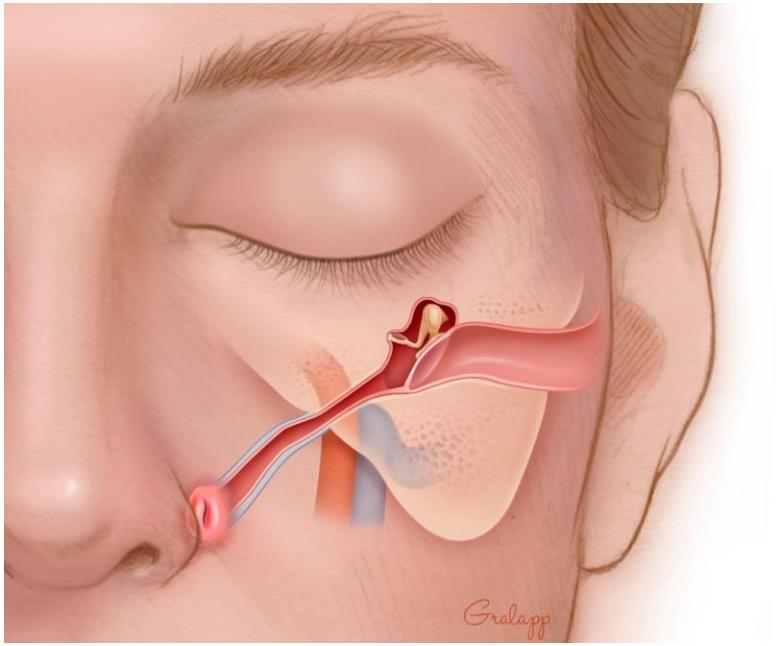
Eustachian Tube (Auditory tube):

- Connects middle ear and nasopharynx.
- It has two parts: Proximal 1/3 is bony & distal 2/3 is cartilaginous



Function of Eustachian Tube:

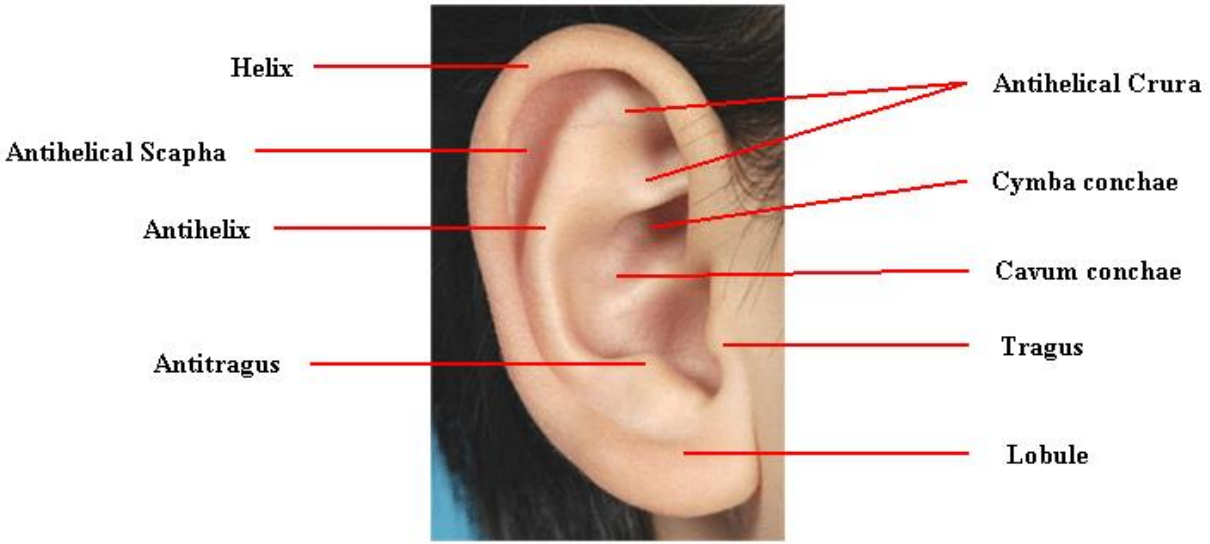
- Protection from nasopharyngeal secretions
- Clearance of middle ear secretions
- Ventilation (pressure regulation) of middle ear



Ear Examination

❾ Inspect the auricles for:

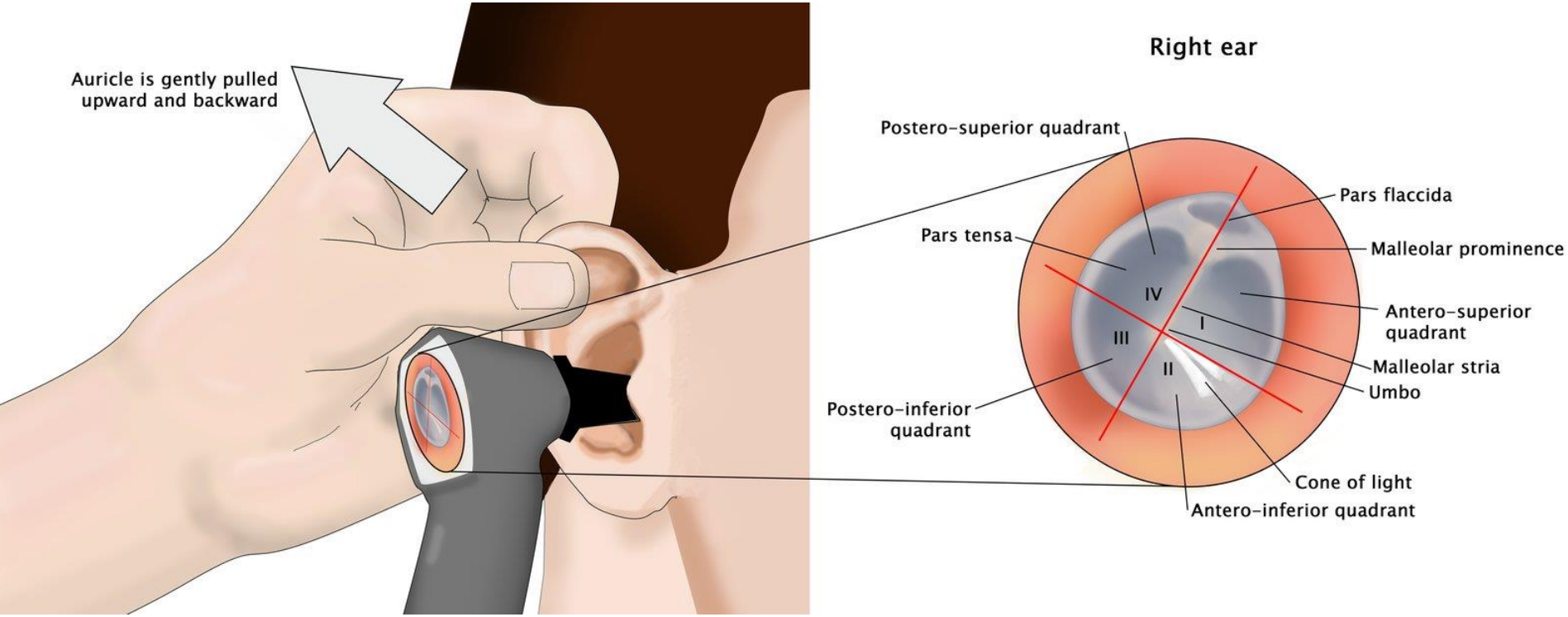
Shape
Redness
Swelling
Ulceration
Tumors
Fistula
Retroauricular skin.
Preauricular fistua.



Palpate the auricles for:

Tenderness

Pre or Post auricular swelling or tenderness



Inspect the external canal:

Pull the auricle upward backward in adult or backward

downward in infants and young children to see the external canal, which is S shaped, by this

movement you find out whether there is tenderness or not.

Tenderness means otitis extena .

Using the **Otoscope**,

inspect the tympanic membrane (Remember the normal land marks!!), &

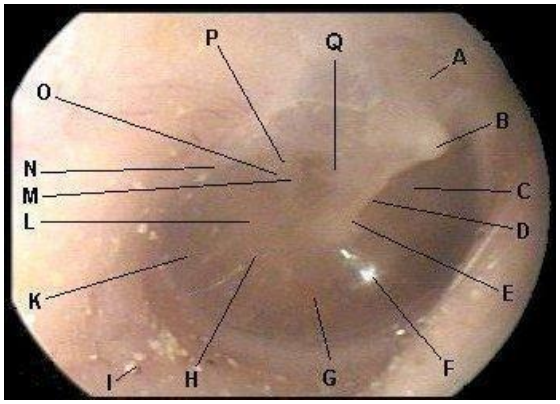
examin for the mobility of the tympanic membrane.

- Red congested ➐ Acute otitis media (OM). OM causes also a reduction in the mobility of the tympanic membrane.

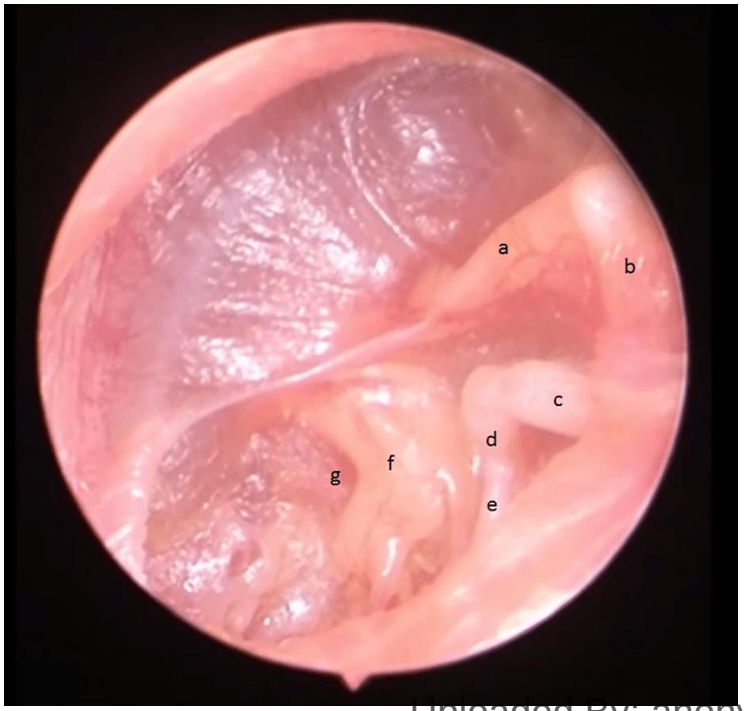
- Atrophic retracted with prominent handle of malleus in long standing negative pressure ➐ Secretory or adhesive OM.

- Thick with calcification white in color ➐ Myringosclerosis (due to recurrent OM or multiple ear surgeries).

- Perforated: Central / Marginal



A: par flaccid, B: short process of malleus, C: pars tensa, D: manubrium of malleus, E: Umbo, F:light reflex.



Ear discharge:

o Brown mass → Wax (& can be gold or even black, all are normal).

o Moist keratin debri → otitis externa

o Moist dirty mass → Fungus : Candida albicans, Aspergillus flavus, Aspergillus niger (most common one)

o Mucoid or mucoperulent discharge → Chronic or acute otitis media.

o Scanty offensive perulent discharges → Cholesteatoma

o Clear fluid → CSF .. How to confirm that it is CSF ?

1. Halo sign : Non specific

2. Glucose level : Non specific

3. Beta2 transferrin : Found only in CSF so it is the most accurate & specific one.

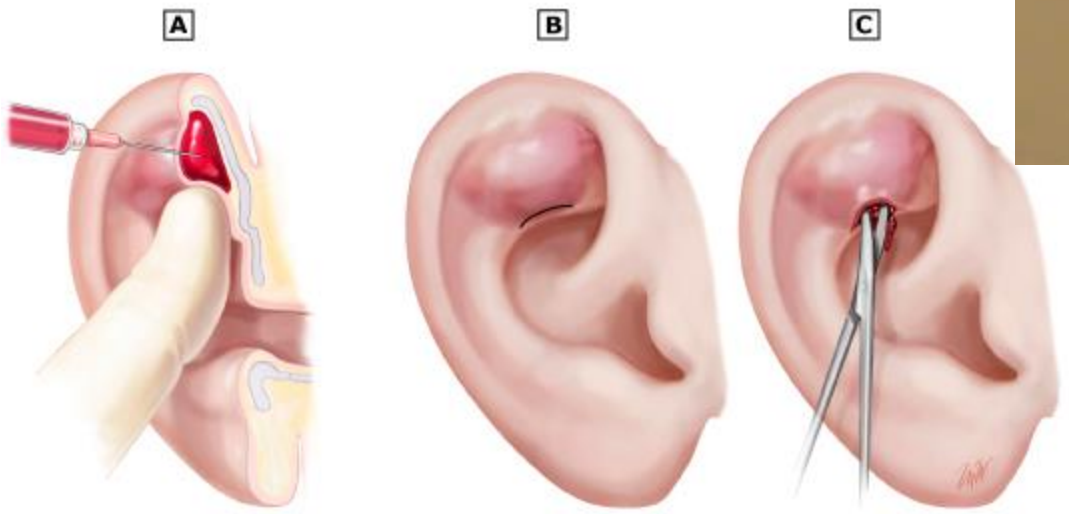
o Bleeding → trauma, tumor.

Diseases of the external ear

❖ Diseases of the auricle

- 1. Otohematoma or aurohematoma:
- It is caused by trauma or frost bite.
- It collects between the perichondrium and the cartilage.
- It is dangerous because cartilage receives its blood supply by perfusion from perichondrium so it results in malnutrition to the cartilage, necrosis and ear deformity (cornflower ear).
- It is an emergency, needs incision and drainage then pressure to prevent the formation of hematoma again.
- It occurs more commonly in psychotic patients.

Auricular Hematoma



Perichondritis:

- It is inflammation of the perichondrium.
- It can be local perichondritis or systemic perichondritis.
- Systemic perichondritis, such as autoimmune perichondritis (so do RF & ANCA), which may involve laryngeal cartilage, nasal cartilage or auricule.
- The most common cause is combined, gram negative bacteria
- An emergency, because of the risk of necrosis and cornflower ear.
- It is an indication for admission and give antibiotics for gram negative & gram positive bacteria.

Perichondritis

Furuncle

- It is abscess in the hair follicles or sebaceous glands.
- The most common cause is *Staphylococcus aureus*.
- Patients may present with swelling in the retroauricular area .
- It is treated by incision & drainage and antibiotics

Furancle

Acute otitis externa

- ❖ There are 8 types:

1. **Acute diffuse otitis externa (swimmer disease):**

- There is a history of water invasion or trauma.
- Mostly caused by gram neg. bacteria*: Pseudomonas*,
- Patients present with severe pain, difficulty in opening the mouth, severe tenderness on examination, severely stenosed external auditory canal due to edema.
- There is keratin containing discharge (whitish moist debri).
- Treatment: Clearance, put a wick, give topical antibiotics (such as quinolones)& corticosteroids for edema. If not responding to topical treatment, give systemic antibiotic covering gram negative

Fungal otitis externa (otomycosis):

- *Aspergillus* species are the commonest cause
- Patients present with hearing loss, earache, tinnitus, severe pain and tenderness.
- There is dirty moisty foul smelling material, white in *Candida*, yellow in *Aspergillus flavus* & black in *Aspergillus niger*. Sometimes we may see the hyphae of the fungus in the external auditory canal.
- Treatment: Clearance, dryness, protection from water exposure & topical antifungal such as nystatine or ketoconazole (This is for the mentioned noninvasive infections).
- If invasive fungus, such as in the immunocompromised patients, give systemic antifungal, amphotricine B.

Herpetic otitis externa (herpes oticus)

- It is caused by herpes virus.
- Presents as a part of ramsay hunt syndrome, which is a triad of:
- 1.Vesicles on the tympanic membrane or in the external auditory canal.
- 2.Sensori neural hearing loss.
- 3.Otalgia.

Seborrhoic otitis externa:

- It is infection in the sebaceous glands.
- Patients present with pain and ear fullness.
- Treatment: Clearance, topical antibiotics & corticosteroids

Eczematous otitis externa:

- Treatment: Topical corticosteroids and antibiotics

Granular myringitis:

- It usually occurs after trauma to the lateral layer of the tympanic membrane or after the insertion of ventilation tubes that results in the formation of a granuloma.
- Treatment: Cauterization of the granuloma with silver nitrate or topical corticosteroids and antibiotics.

Myringitis bellousa hemorrhagica

- There is usually a history of URTI, measles or chickenpox.
- Patients present with severe pain, bulla of blood on the tympanic membrane.
- It is thought to be caused by viral infection or *Mycoplasma*.
- Treatment: Macrolides (erythromycin) for 7-14 days

Necrotizing otitis externa (Malignant otits externa)

- It is a severe form of acute diffuse otitis externa.
- It affects immunocompromised patients, mostly diabetic patients or patients with nephritic syndrome taking steroids, patients taking chemotherapy & AIDS.
- It is usually caused by Gram negative bacteria: *Pseudomonas*, *E. coli* or *Proteus.*
- It may lead to osteomyelitis of bone or intracranial complications.

Necrotizing otitis externa (Malignant otits externa)

Diseases of the middle ear

❖ **Otitis media**

Definition: Inflammation of the *middle ear cleft ((**not** middle ear cavity))*.

Classification

1. Acute: less than 3 weeks (or one month roughly)

a. Nonsuppurative → There is No pus

b. Suppurative → There is pus & indicates tympanic membrane perforation.

2. Subacute: 3 weeks3months (or up to 90 days)

a. Nonsuppurative

b. Suppurative

3. Chronic: More than 3 months (or more than 90 days).

a.Nonsuppurative

(AKA: Secretory OM / Serous OM/ Exudative OM/ OM with effusion (OME) / Blue ear)

** In adults, unilateral secretory OM is nasopharengeal carcinoma until proven otherwise.

b. Suppurative:

Type 1 (Safe type): Tubotympanic type, there is central perforation & is ***not*** associated with cholesteatoma.

Type 2 (Unsafe type): atticoantral type, there is marginal or peripheral perforation & is associated with cholesteatoma.