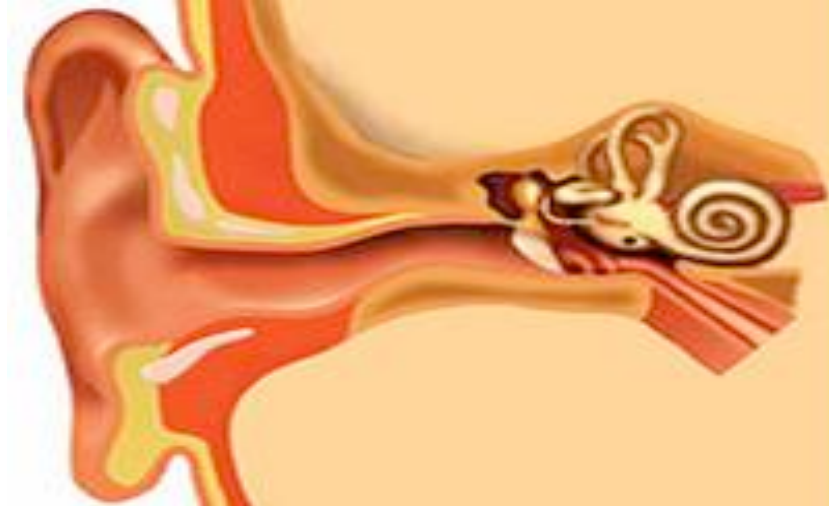


## Ear II

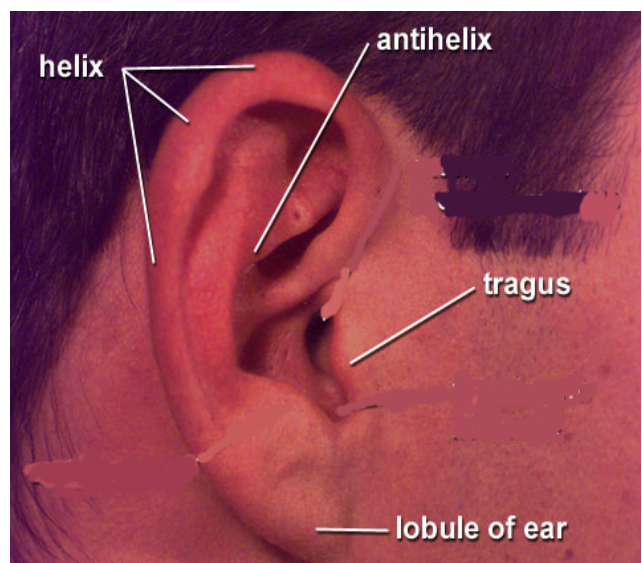
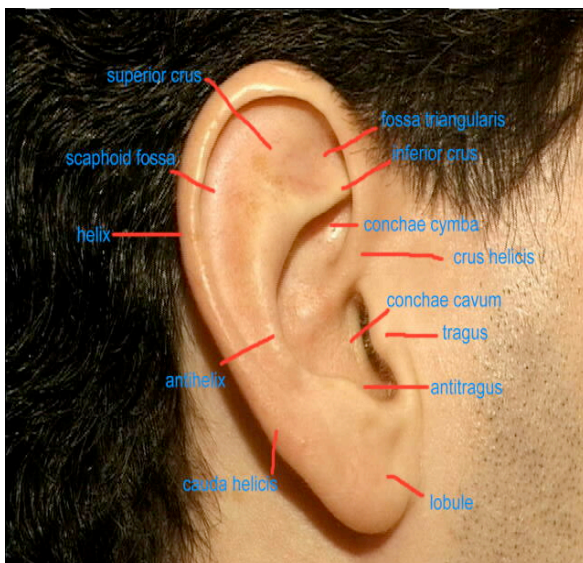
### Sources:

Lecture Notes, Slides and 427 Team.

## EXTERNAL EAR



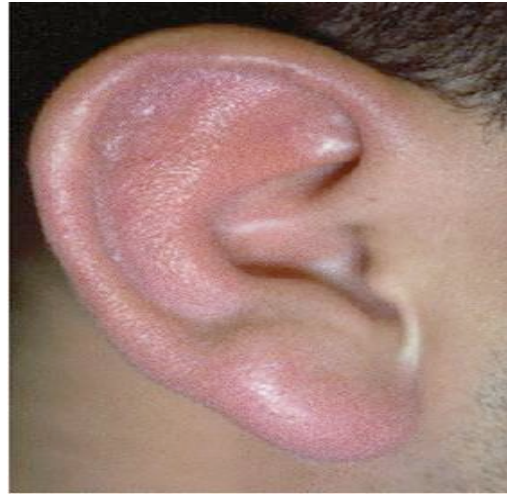
## THE AURICLE



## Diseases of External Ear



**Perichondritis**



**Erysipelas**

### A- CONGENITAL MALFORMATION

#### 1. Complete or partial absence of the auricle (microtia small auricle):

- Microtia: in this case, the external canal & middle ear will be affected because of the common embryological origin, but the degree of the effect is according to the severity of microtia.
- Usually, the inner ear is normal in such case.
- If microtia is unilateral & the outer ear is functioning normally, no need for surgical treatment of microtic ear.
- If microtia is bilateral, ( **Indication For Surgery** ) you have to manage such patient because children speech learning is depending on the hearing.



## 2. Pre-auricular Sinus:

- Small opening around the ear & usually in the anterior part.
- Problems:
  - I. Cosmetic.
  - II. Infection of the sinus: once the sinus is infected - the infection will be repeated.

### Treatment:

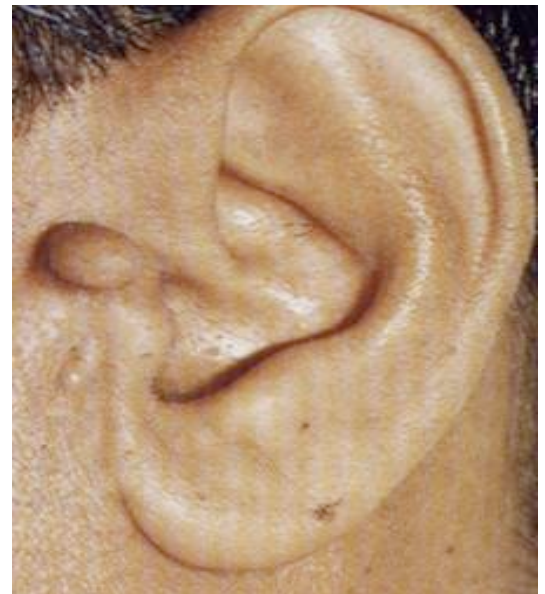
Once you Diagnose it, start Antibiotic Then Surgery  
Excision of the sinus.



## 3. Accessory auricle:

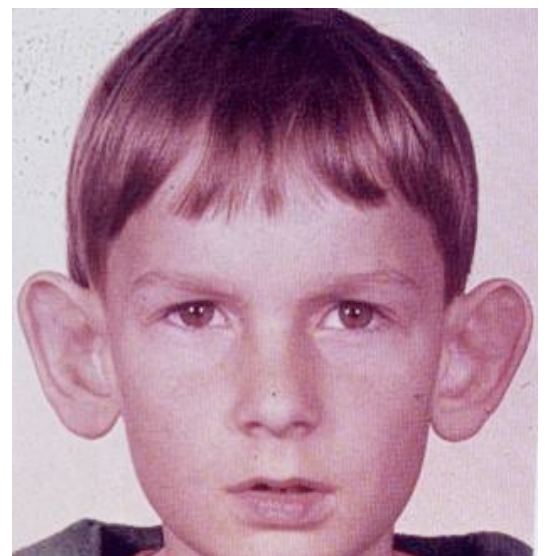
- Periauricular Appendage that contains Cartilaginous core.
- Source: Small Ectopic remnant of the sixth Embryological Hillocks.

**Treatment:** surgical excision.



## 4. Protruding (bat) ear:

- Undevelopment of anti helix
- Either detected by: Family, Pediatric Physician or plastic Surgeon.
- When the Angle between the head and auricle is greater than ( 35 - 40 ) degrees -- Normal angle
- Autosomal Dominant
- Patients don't have anti helix
- Normal hearing.
- Only cosmetic problem.
- Treatment: surgically, preferred at preschool age (4-5 years). ( Why ? ) because it might effect the school Relationship, Embarrassment, etc.

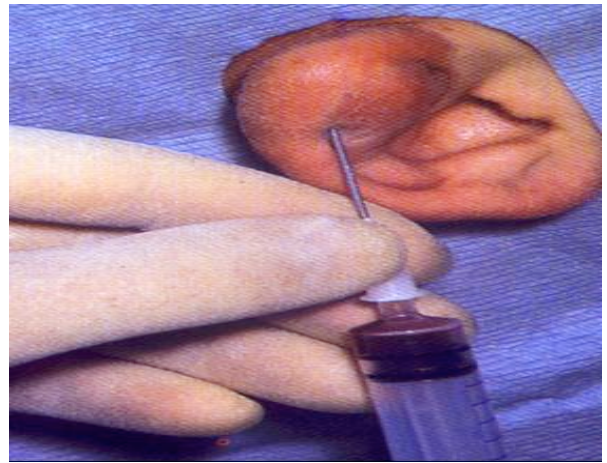
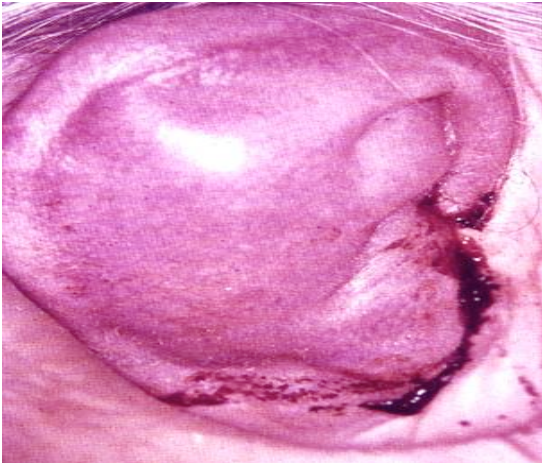




## B- TRAUMA TO THE AURICLE

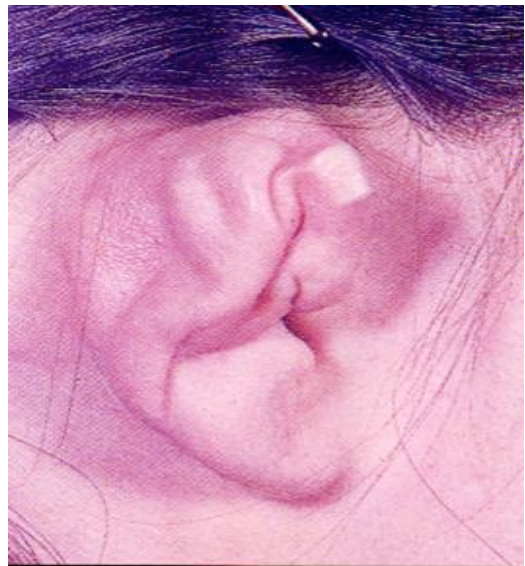
### i. Laceration:

- Treatment: as any laceration.
- Because the auricle is very vascular. Therefore, when the patient comes to you with completely lacerated auricle, you must re-stabilize the auricle at its site.



### 2. Hematoma auris (Boxer's ear):

- Due to blunt trauma                      extravasation of the blood between perichondrium and cartilage - infection                      Cauliflower ear.
- Treatment: aspiration of hematoma & antibiotics (don't wait), Aspirate the do drainage ! or the hematoma will be organized and it will lead to a complication Cauliflower ear
- The rate of relapse is very high.



- **Cauliflower ear**

## C-PERICHONDritis OF PINNA

### Etiology:

- Usually, it is secondary to trauma (hematoma, surgical trauma, burns, frostbite & Furunculosis) or otitis externa. Often, due to pseudomonas.
- Check for other systematic diseases ( DM, HTN etc )

### Clinical picture:

- The auricle becomes very painful, red, hot, tender & swollen. In addition to Fever.
- Later on deformity occurs.

### Complication:

- Infection may spread to the cartilage of the auricle --> perichondritis will lead to necrosis of the cartilage --> deformity (cauliflower ear).

### Treatment:

- Incision, drainage & removal of necrotic cartilage + antibiotics (e.g. Gentamicin; can cross the BBB ) for 48 Hours then Surgery.



## **D- OTITIS EXTERNA**

### **Definition:**

- An acute or chronic infection of the whole or a part of the skin of the external ear canal.
- Histology: covered by two types of skin

1- At the Cartilaginous part: Thick skin, hair follicle, Sebaceous glands

2- At the Bony Part: Thin Skin with No Hair follicles or Sebaceous Glands !

### **- Risk Factors:**

- Associated with Swimming ( swimmer's Ear )
- Mechanical Cleaning, Aggressive Scratching.

### **Classification according to the cause:**

#### **A- Infective:**

- Bacterial ( most Common )
- Viral
- Fungal

#### **B- Reactive:**

- Seborreic ( excessive secretion of Sebaceous Glands )
- Eczematous

### **Causative Organisms:**

#### **1. bacterial:**

- Staph. aureus --> furunculosis.
- Pseudomonas.

#### **2. fungal:**

- Aspergillus niger.
- Candida albican.

#### **3. Viral:**

- Herpes Zoster.

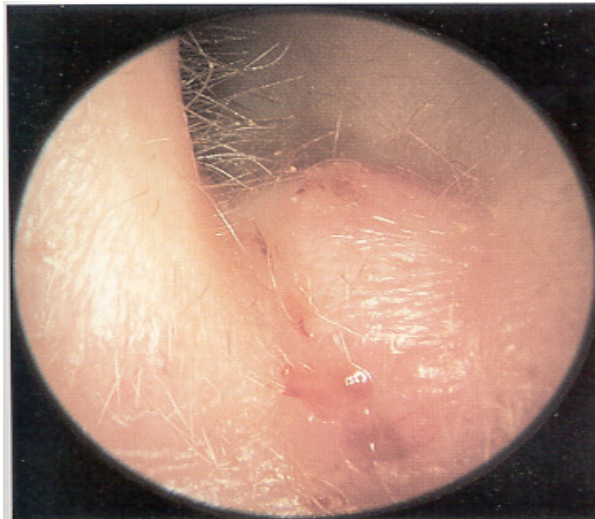
## CLINICAL FEATURES OF OTITIS EXTERNA

- **Itching** ( Main Feature )
- **Pain:** Sever pain, especially in Furunculosis. It is aggravated by jaw movement and touching of the external ear. ( Pulling the pinna is very Painful )
- **Tenderness and swelling**
- **Otorrhea:** little scanty, watery or purulent discharge.
- **Deafness:** very rare in OE because the external canal should be obstructed completely to causing deafness.
- If The patient is in chronic condition he will have a narrowing of the canal.
- In Audiogram: Patient will have Conductive Hearing loss - If a complete obstruction Occurred )
- **Changes in the lumen and skin of EAM**

### Clinical Types of OE:

#### A. Localized OE (furunculosis):

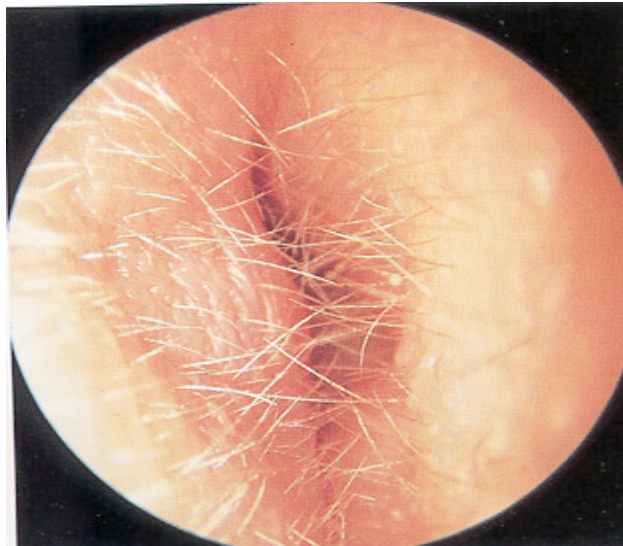
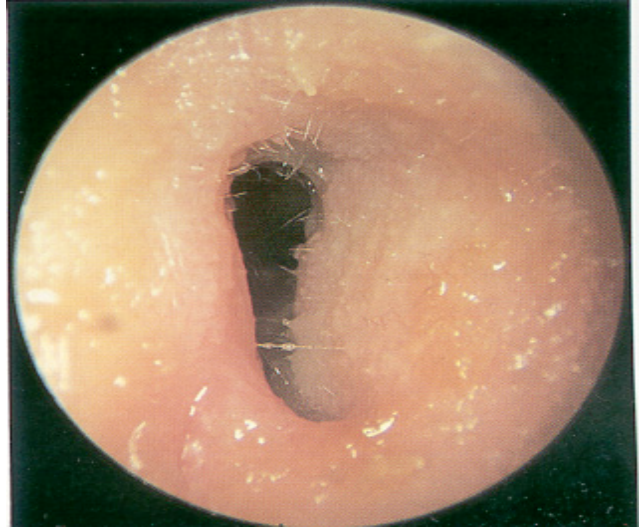
- Inflammation if the Hair Follicle which can cause O.E
- severe pain, redness; swelling, tenderness of the outer third of the external canal. It is due to staph. Aureus infection.





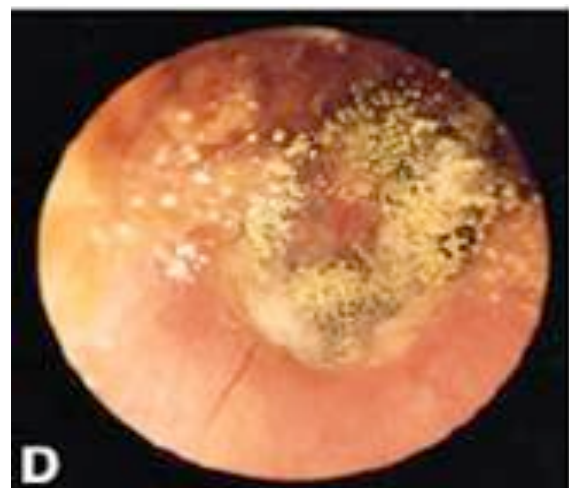
**B. Diffuse infection of OE:**

- the whole skin is red, swollen, slight discharge (watery). It is due pseudomonas or staph. Aureus.

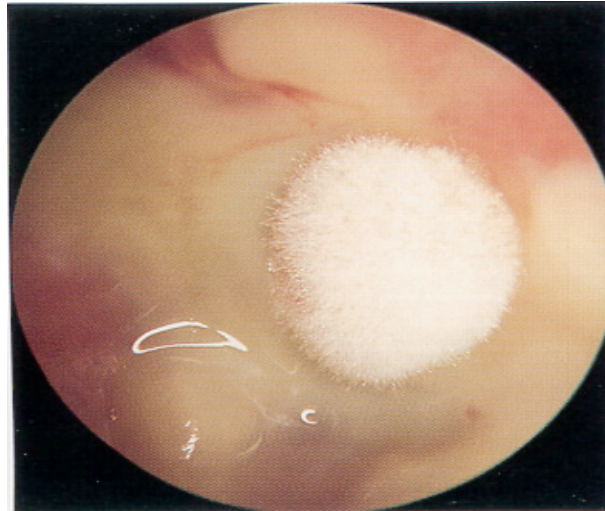


**C. Otomycosis:**

- fungal infection.
- If white *C. albican*, if black asp. *Niger*. ( Usually mixed infection )
- Otomycosis may be associated with bacterial infection.

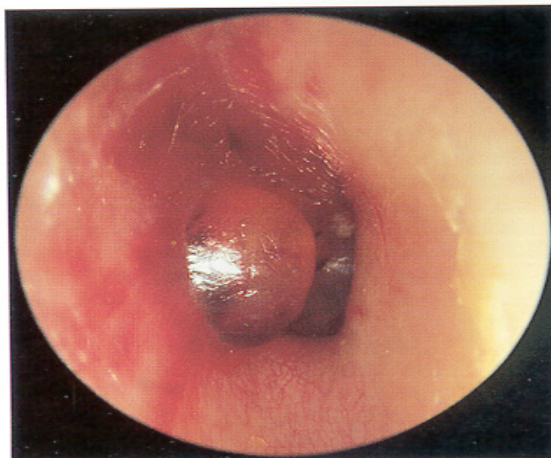
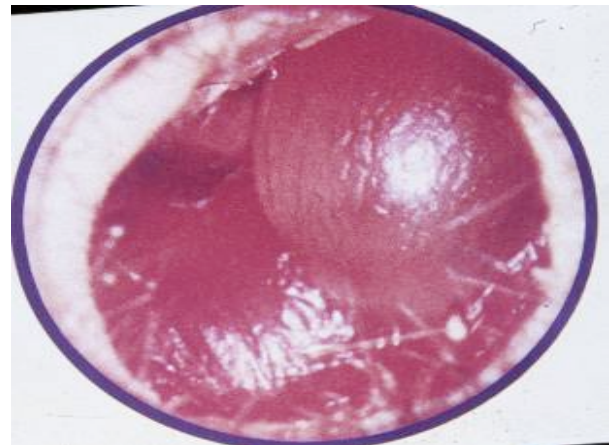
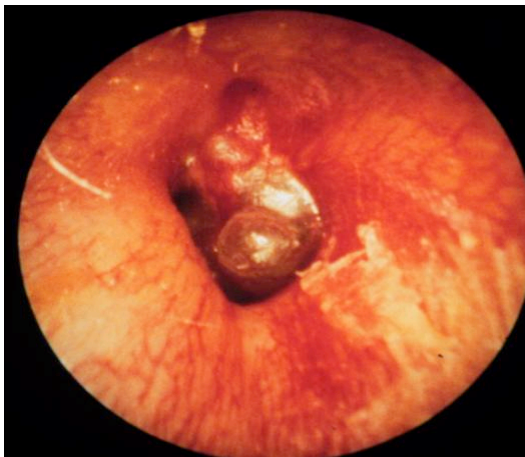






**D. Bullous Myringitis:**

- Infection to Epithelial outer part of the tympanic layer
- It is viral infection (unknown virus).
- Very painful.
- ER case
- Treatment: Antibiotics that cross the BBB ( due to Intracranial Complications).



**E. Herpetic OE:**

- Not seen commonly here in Saudi Arabia.
- It is due to Herpes zoster.
- It is called Ramsay Hunt Syndrome.
- It is due to infection of the geniculate ganglion & other cranial nerve ganglia.
- supra-added Viral or Fungal Infection might be mixed also.



**F. Eczematous & seborrheic OE:**



### **G. Necrotizing (malignant) OE: ( Skull base Osteomyelitis )**

- Acute Pseudomonas Infection of Skin of External canal which spread to adjacent bone
- Osteomyelitis of the temporal bone.
- Malignant term doesn't mean cancerous. But due to aggressive course of this disease, it is called malignant
- Acute in course.
- Organism: pseudomonas.
- Affect the skin of external canal then spread to the cartilage and adjacent bones.

#### **- Epidemiology/ clinical Features:**

1. Uncontrolled DM.
2. Elderly patient.
3. Persistent severe otalgia.
4. Granulation tissue at the junction of the cartilage and the bone.

#### **Complications:**

- Cranial nerve involvement: facial nerve paralysis.
- Death, systemic Infection
- Can be diagnosed by X-Ray & MRI.

#### **Treatment**

- Initially, admit the patient and give him/her IV antibiotics & after discharge, give him/her oral antibiotics.
- Antibiotics: antipseudomonas IV or orally for long period. ( Orally better )
- Local treatment & debridement --> remove granulation tissue.
- Control DM.
- The role of surgery is controversial.

### **Management of OE:**

#### **1. Swab for culture & sensitivity.**

#### **2. Ear toilet:**

- very important to clean the ear from the discharge. The best mean for that is suction of discharge under microscope, if it is not available, you can use cotton wool.

#### **3. Keep the ear dry.**

#### **4. Local medication:**

- depends on the appearance of inflammation & symptoms of the patient.

#### **5. Systemic medications:**

- In very selective cases like diabetic patient & patient with very high rate of recurrence.



Local Medications



## **6. Surgery:**

- May be required in chronic cases.
- If The CT scan show that there is Destruction of the bone + sever case -> Go for surgery and may require many Mini- Invasive Surgeries.

**( The Doctor Did not mention The Next Two Points, But they are in the Objectives )**

## **E- WAX: ( Cerumen Impaction )**

### **Definition:**

- Accumulation of the secretion of sebaceous and ceruminous glands situated in the outer cartilaginous part of external canal.
- Normally, the glands secrete a little amount of wax and migrate by movement of jaw.

### **Symptoms:**

1. Deafness which is Sudden. ( Conductive Hearing Loss )
2. Earache.
3. Pain
4. Tinnitus

**MOST COMMON CAUSE OF CONDUCTIVE HEARING LOSS FOR THEOS AGED 15-50 IS: Cerumen Impaction**

### **Treatment**

- Removal of the accumulated wax by suction.

## **F- KERATOSIS OBTURANS:**

- Rare.
- Accumulation of desquamated epithelium in bony part of the external canal.
- Unknown cause.
- White **in** color.
- Symptoms: sudden deafness & Pain.
- May be associated with sinusitis, bronchitis or primary ciliary dyskinesia.
- **Treatment:** Periodic removal.

## **TINNITUS**

### **Definition:**

- an auditory perception in the absence of an acoustic stimuli, likely related to loss of input to neurons in central auditory pathways and resulting in abnormal Firing.

### **History:**

- Subjective Vs. objective ( Next Figure )
- Continuous Vs. Pulsatile ( vascular in origin )
- Unilateral Vs. Bilateral

**Associated symptoms:** Hearing loss, vertigo, aural fullness, otalgia, otorrhea.

### **Investigation:**

Audiology

### **Treatment:**

- If there is a cause treat it.
- With no treatable cause: 50% will improve, 25% worsen, 25% remain the same

Done !