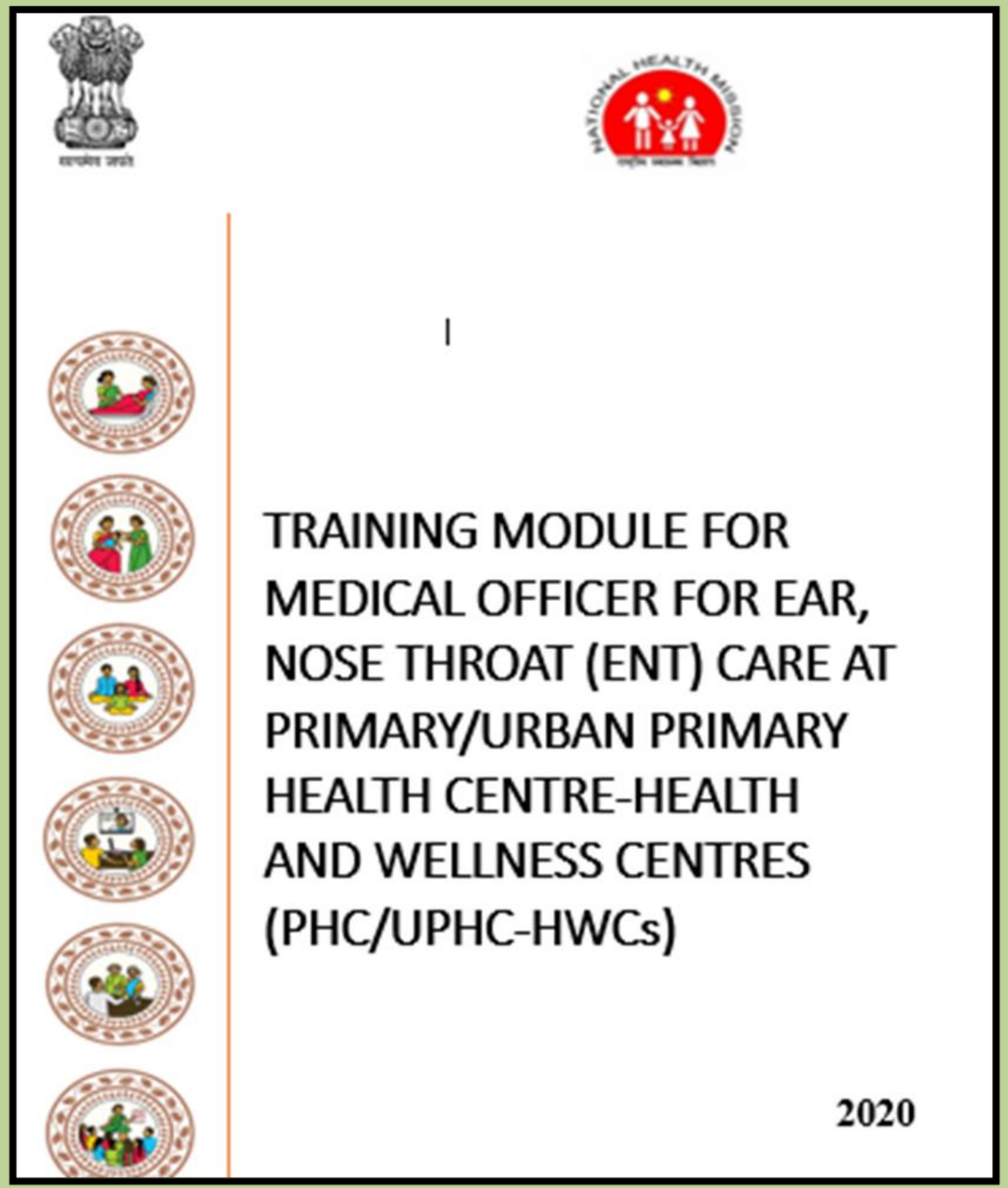
Management of Common Ear Disorders For MO







TRAINING MODULE FOR
MEDICAL OFFICER FOR EAR,
NOSE THROAT (ENT) CARE AT
PRIMARY/URBAN PRIMARY
HEALTH CENTRE-HEALTH
AND WELLNESS CENTRES
(PHC/UPHC-HWCs)
2020

OBJECTIVE

- Clinical approach to patients
- How to arrive at a diagnosis?
- How to manage a patient (primary management), especially in a low resource setting
- DOs and DONTs
- When to refer and protocols to be followed at the time of referral
- Continuum of care – regular follow-ups

ANATOMY OF HUMAN EAR

EXTERNAL EAR

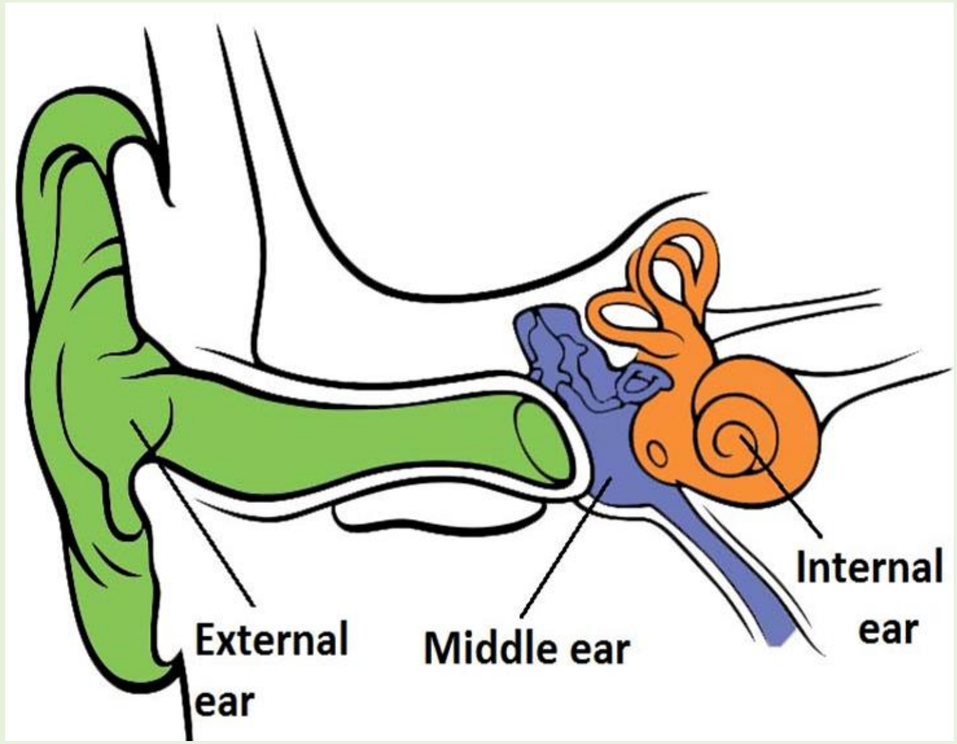
Pinna
EAC- 2.5 cm (1/3rd cartilaginous, inner 2/3rd Bony)
TM

MIDDLE EAR

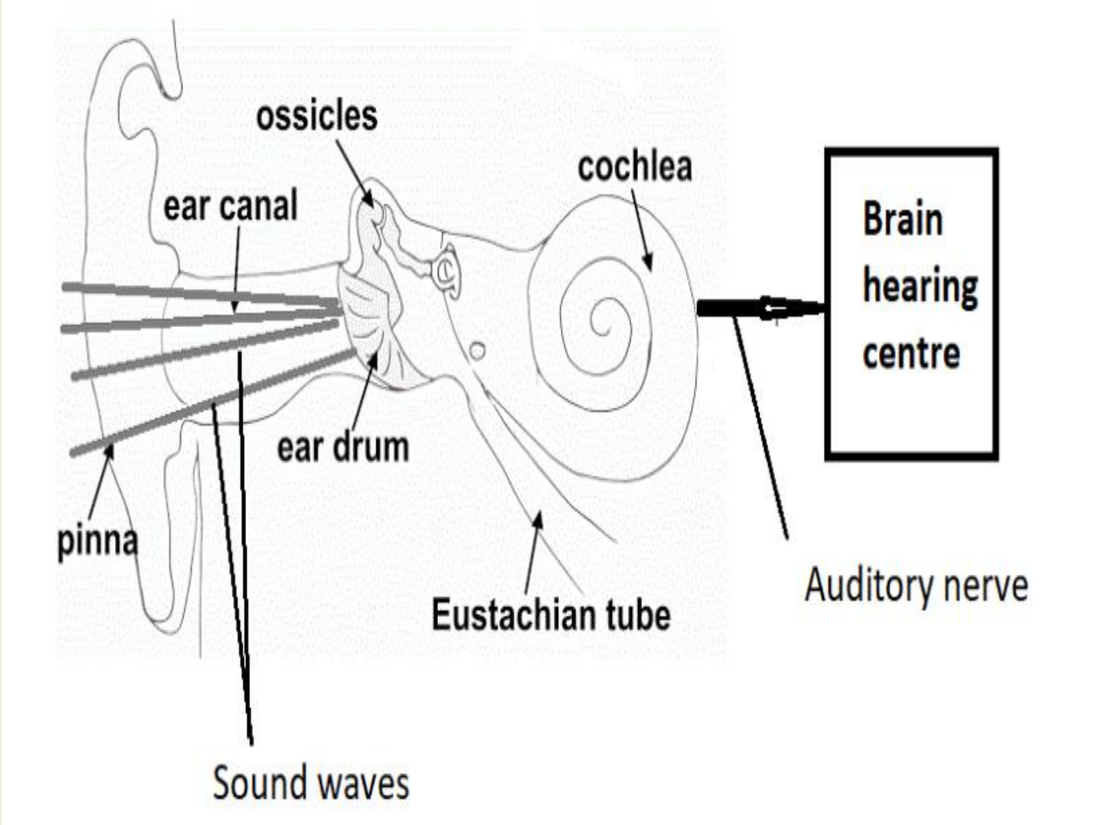
- Tympanic cavity & Mastoid air cells.
- It contains 3 bones, 2 muscles and 1 Eustachian tube.

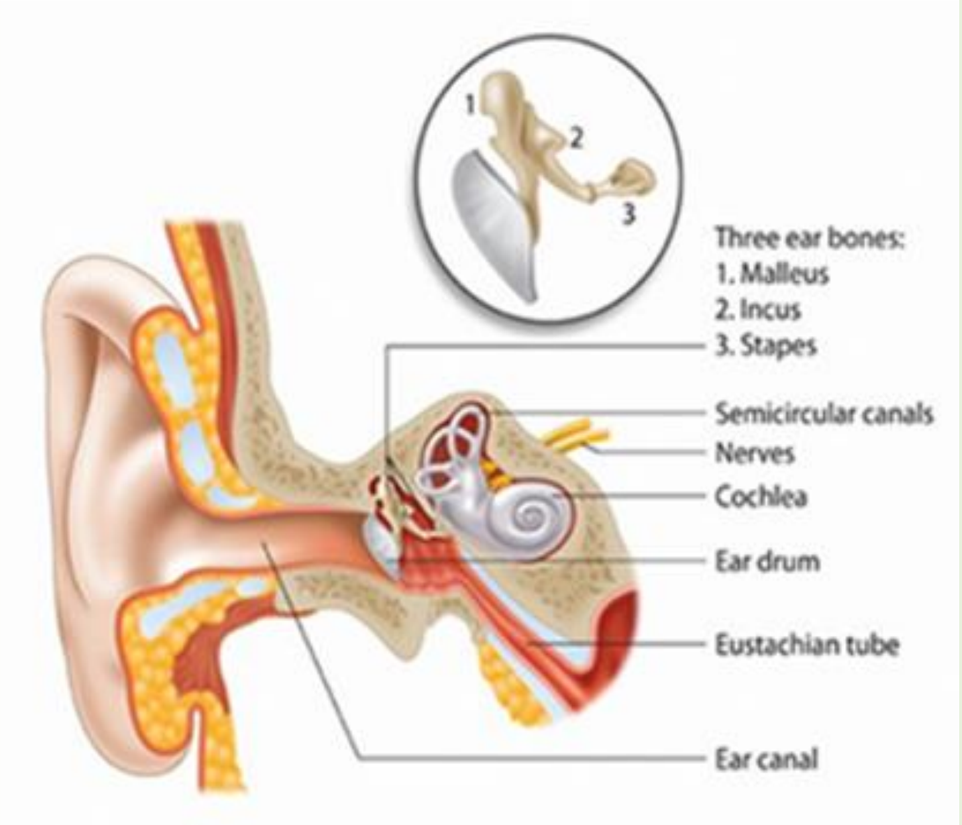
INNER EAR

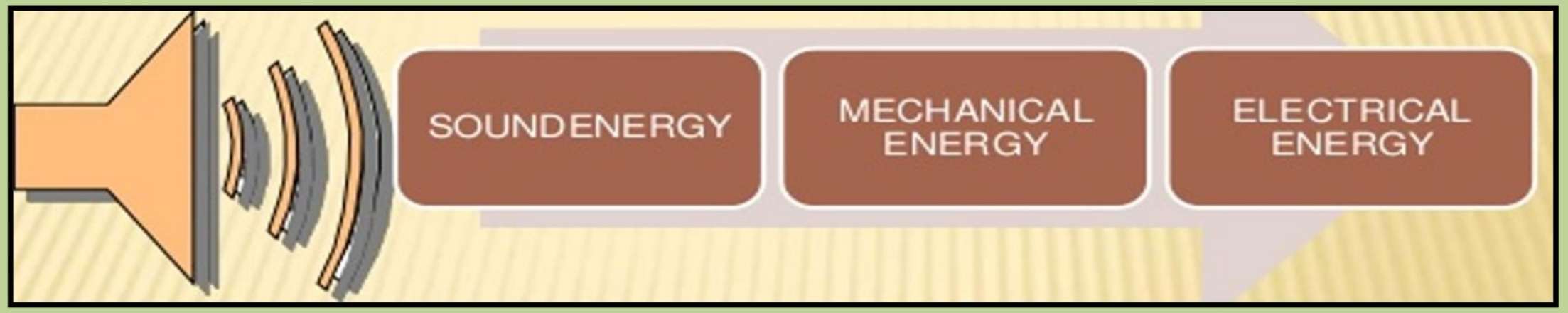
- Semi-circular canals
- Vestibule
- Cochlea

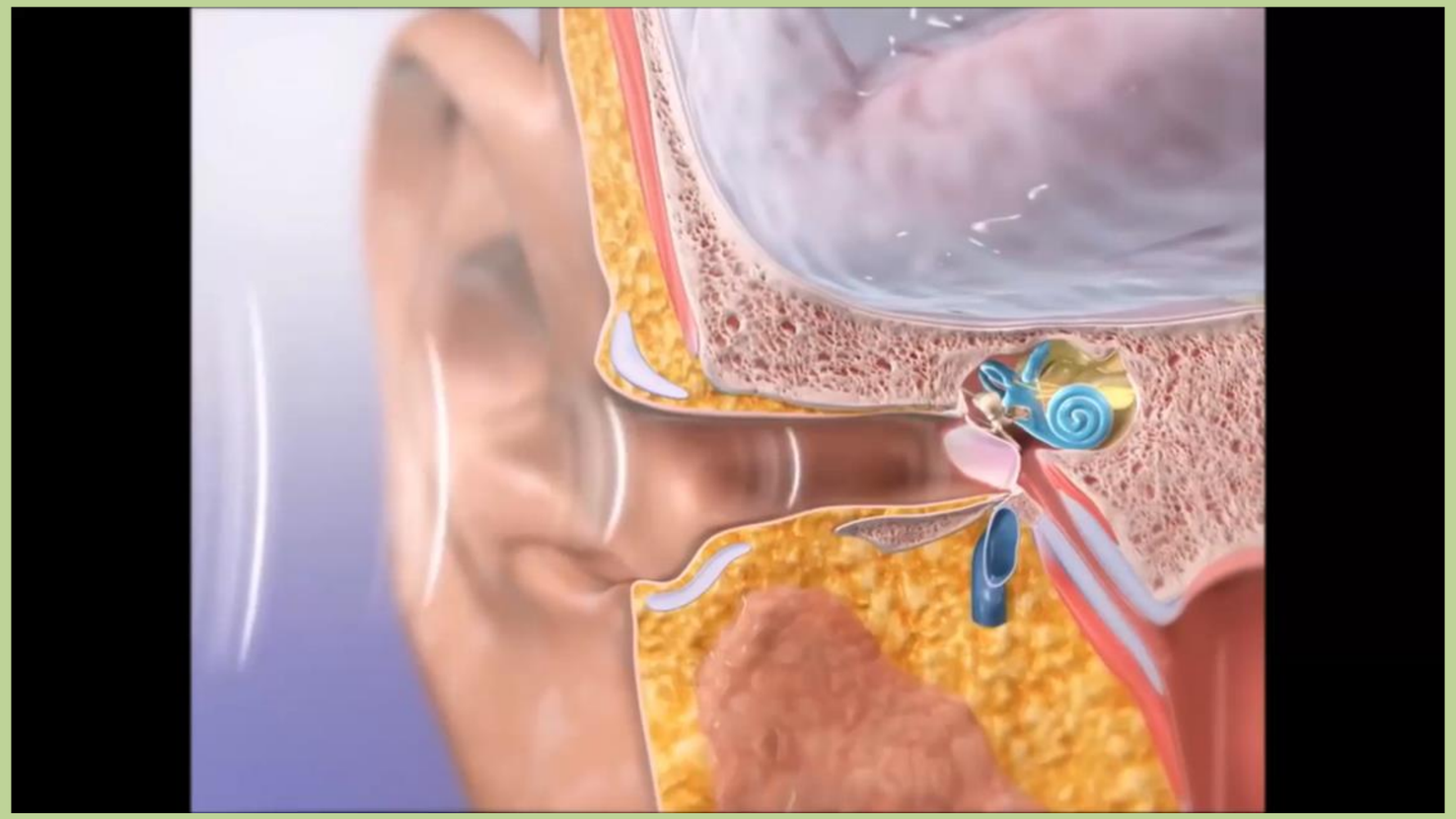


PHYSIOLOGY OF HEARING






SOUND ENERGY
MECHANICAL ENERGY
ELECTRICAL ENERGY

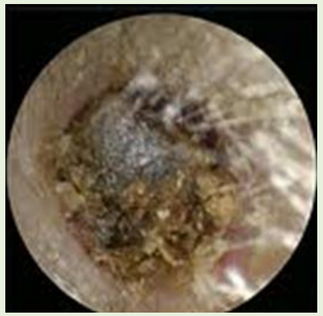


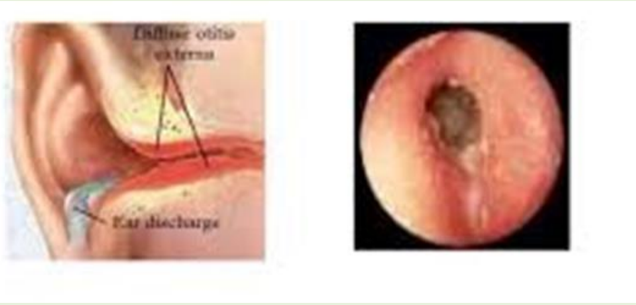
DISEASES OF THE EXTERNAL EAR

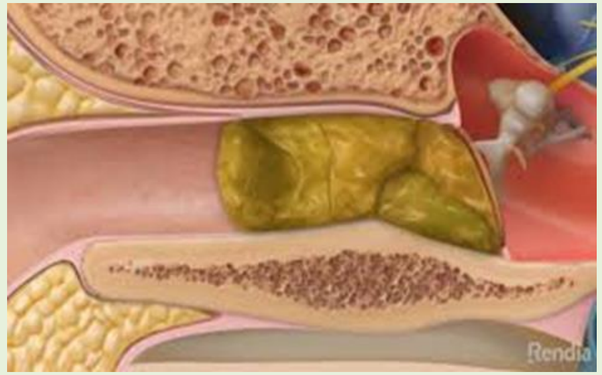
1. Impacted Ear Wax : Cerumen- desquamated keratin mixed with lipid and peptide secretions from sebaceous and ceruminous glands, respectively. It is bacteriostatic.

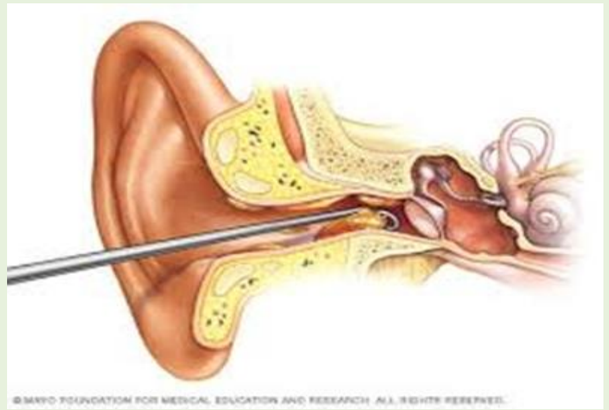
Presentation: Blocked ear

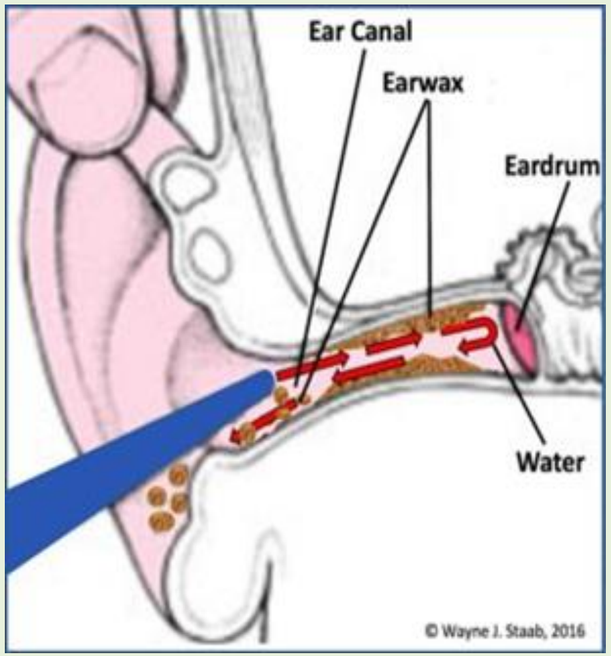
- Decreased hearing
- Earache
- Tinnitus
- Giddiness
- Reflex cough (due to stimulation of the Vagus nerve)











DISEASES OF THE EXTERNAL EAR

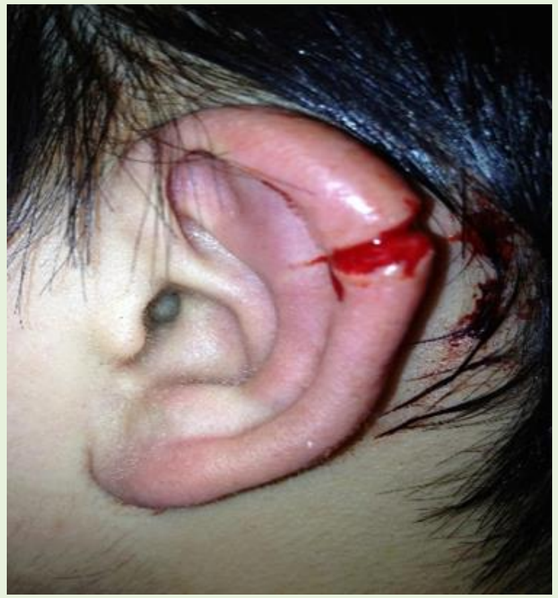
Management:

· Drops containing paradichlorobenzene 2%, for hard wax.

· Syringing

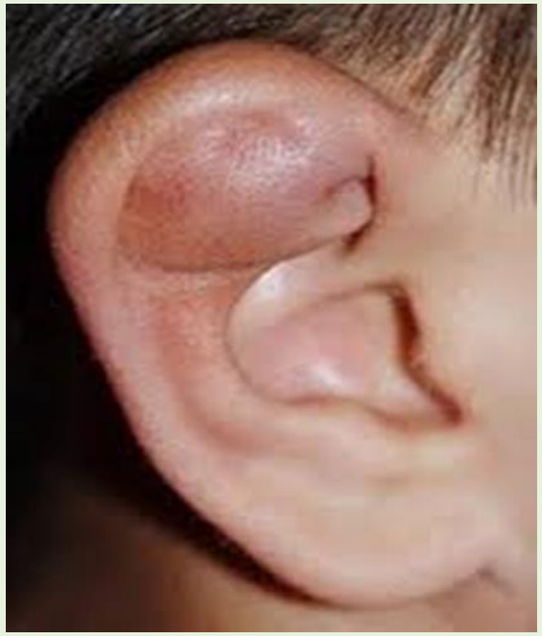
· Instrumental manipulation: using Jobson- Horne probe/ cerumen hook.

2. TRAUMA TO PINNA



Pinna laceration

•Trauma with sharp object: laceration of skin/cartilage.
•Management:
•Wash wound thoroughly
•Necrotic tissue debrided
•Repair/ skin flap
•Tetanus booster
•Broad spectrum antibiotic



Pinna hematoma:

- Boxer's ear or wrestler ear
- Sub perichondrial collection of blood b/w perichondrium & cartilage.
- Shearing action on pinna.

Management:

- Drainage: Aspiration or incision
- Broad-spectrum antibiotics

3. DISEASES OF EXTERNAL AUDITORY CANAL

EAC Injury:

EAC Infection: (Otitis Externa) Bacterial, Fungal or Viral.

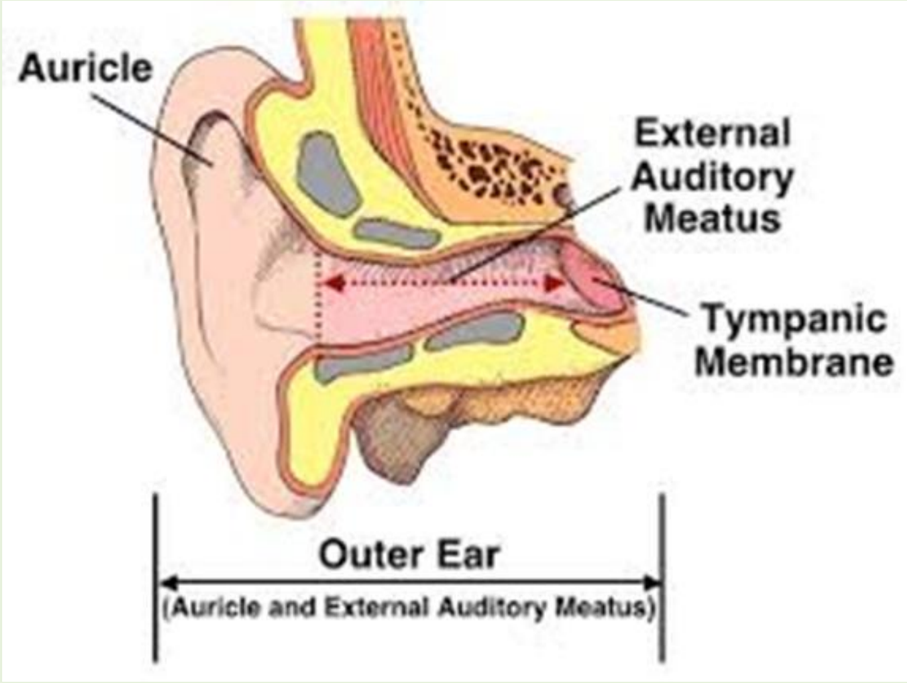
Fungal Otitis Externa/ Otomycosis

Bacterial Otitis Externa/ Furunculosis

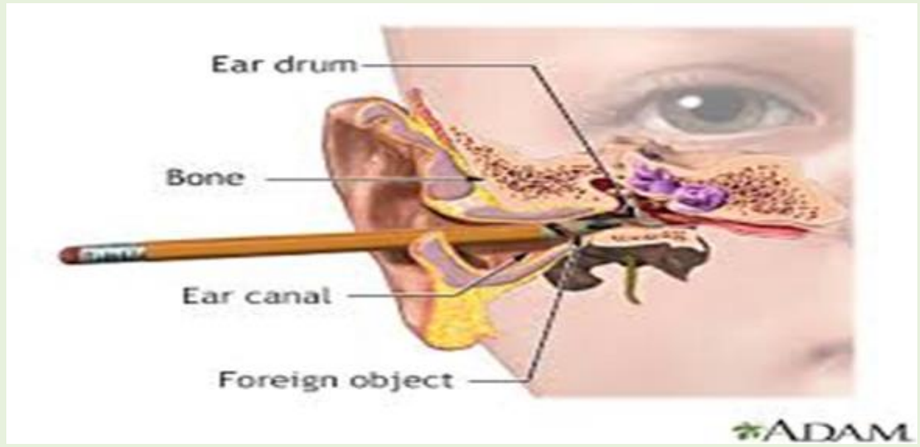
Diffuse Otitis Externa/ Swimmer's Ear

Malignant Otitis Externa/ Necrotizing Otitis Externa

Viral Otitis Externa Herpes Zoster Oticus



EAC INJURY



Insertion of an object into the ear canal/ chemical burn by batteries	• Bleeding and otalgia.
Management:	• Any foreign object- removed. • Hearing aid or any other batteries should be removed • EAC kept dry- for healing. • Aural toilet and topical antibiotic/steroid drops in P/o infection

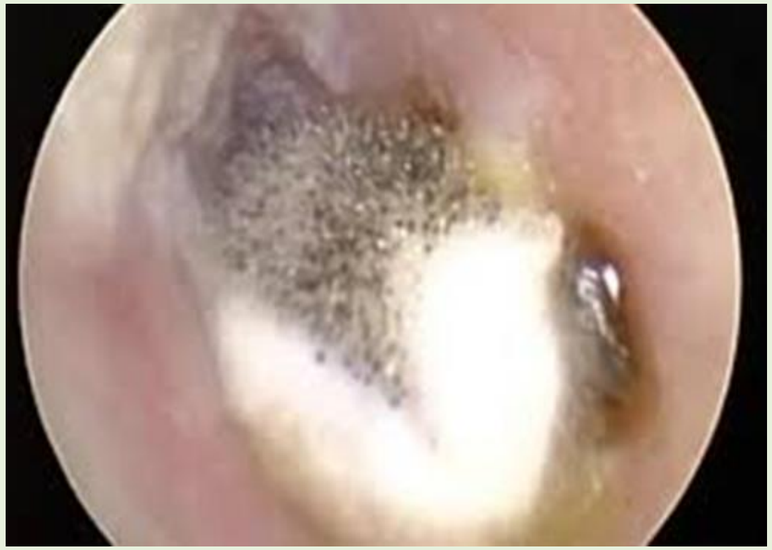
EXTERNAL AUDITORY CANAL INFECTION FUNGAL OTITIS EXTERNA/ OTOMYCOSIS

Fungal

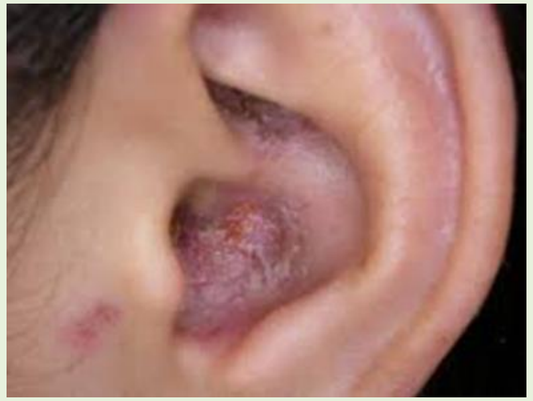
- Most Common type.

- Most common organism: Aspergillus Niger followed by Candida.

- Management: Ear toileting and topical antifungal for at least 3 weeks.



BACTERIAL OTITIS EXTERNA/ FURUNCULOSIS



Most Common organism is Staphylococcus aureus

Severe pain – increases with jaw movement

On pressing the tragus, patient complain pain-Tragal Sign.

Management: Antibacterial antibiotic- Amoxicillin plus Clavulanic acid

- 10% Ichthammol-glycerine pack in EAC to reduce oedema.

For pain management -Tab Diclofenac (adult), Syp. Ibugesic (children).

Diffuse Otitis Externa/ Swimmer's Ear

Singapore ear/ tropical ear/ telephonist's ear

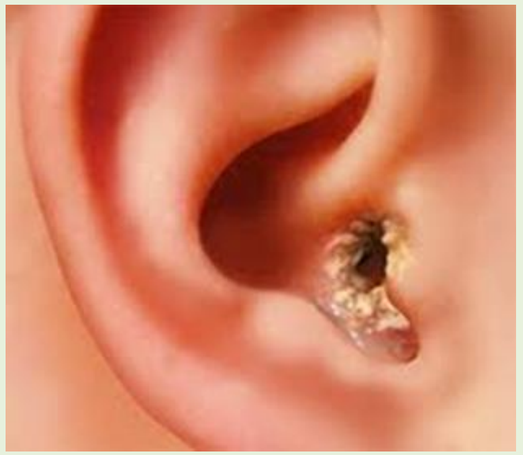
Seen in hot and humid climate

Excessive sweating/swimming changes acidic environment to alkaline pathogens growth.

<u>Organism</u> - Pseudomonas aeruginosa followed by Staphylococcus aureus

<u>Management</u>: Antibiotics, Ear toileting, Medicated ear pack & keeping ear dry

A gauze wick soaked in antibiotic is inserted in the ear canal and kept moist by instilling drops. Wick is changed daily for 2–3 days



Malignant Otitis Externa/ Necrotizing Otitis Externa

Not a malignant condition

Extension of infection into the mastoid and temporal bones.

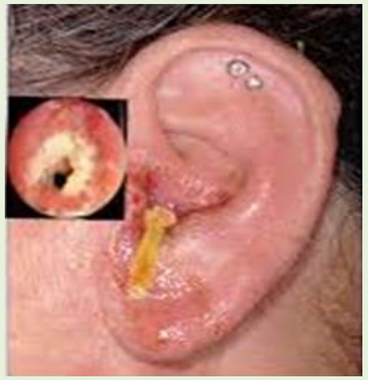
Common in immunocompromised patients (DM), often caused by Gram negative bacilli such as Pseudomonas aeruginosa.

Severe deep otalgia and may develop cranial nerve palsies. (MC VII cranial nerve)

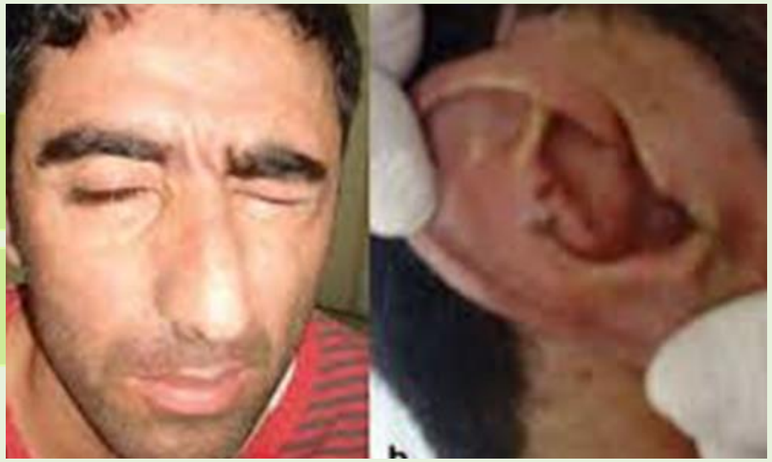
Diagnosis: HRCT/MRI Scan.Tc^{99} Scan for early diagnosis. Not available at the PHC, patient should be referred to a higher centre

Management: Done only at tertiary care centres

- Provide symptomatic treatment like painkillers and antibiotics like ciprofloxacin.
- Patients also need nutrition, blood sugar control (if diabetic) and analgesia. Debridement of necrotic material can be done.



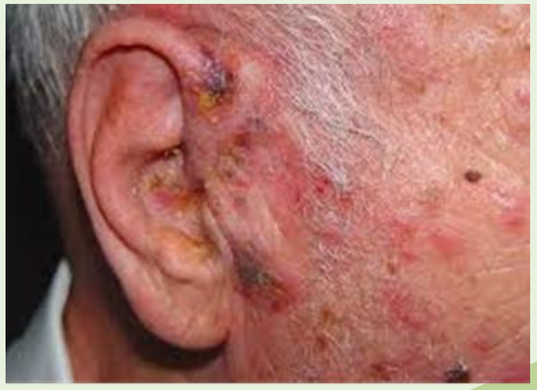
Viral Otitis Externa / Herpes Zoster Oticus



Infection by Herpes zoster virus.

characterized by vesicle formation over

- TM,
- EAC skin,
- pinna and even skin surrounding the pinna along the dermatome of the involved nerve.

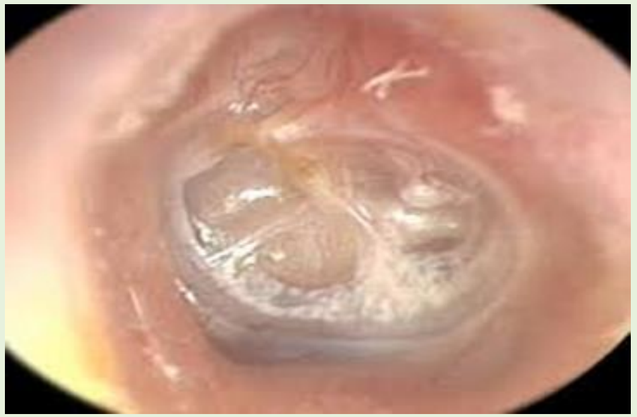


Herpes zoster of the ear with facial palsy is known as **Ramsay Hunt syndrome**

Management: Steroid and antiviral drugs.

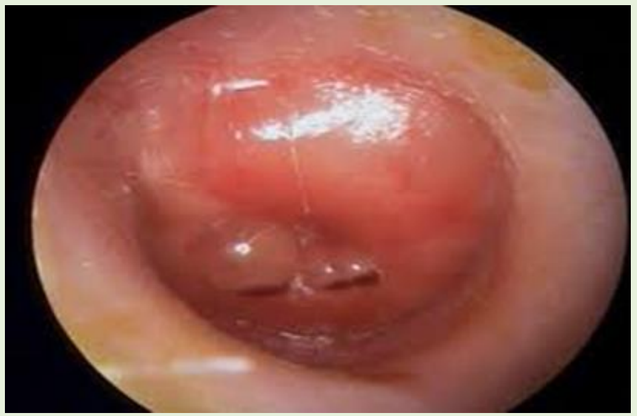
DISEASE OF TYMPANIC MEMBRANE (TM)

Normal TM: Shiny and pearly grey in color. Bright cone of light in the anteroinferior quadrant



Retracted TM:

- Dull and lusterless
- Cone of light is absent
- Handle of malleus appears small
- Seen as a result of negative intra-tympanic pressure when the Eustachian tube is blocked.

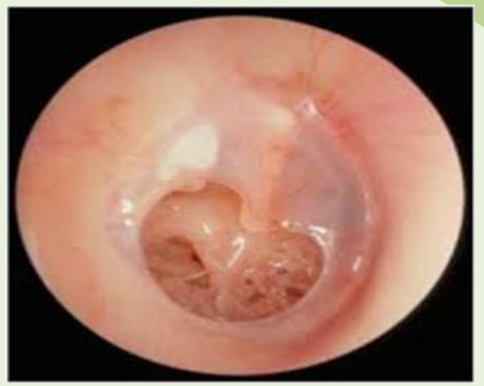


Myringitis bullosa:

- Painful condition
- Formation of hemorrhage blebs
- Caused by virus or Mycoplasma pneumoniae.

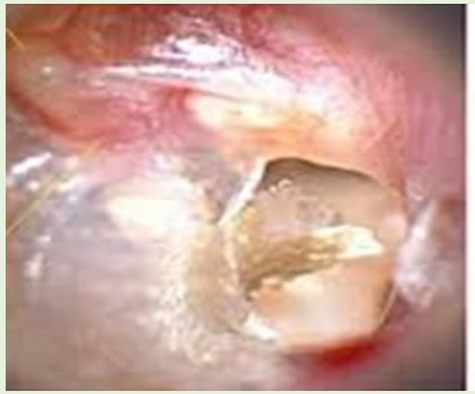
Traumatic Rupture

• Due to hairpin, matchstick, or unskilled removal of foreign body
• Other causes include a sudden change in the air pressure, e.g. slap, sudden blast near the ear, forceful Valsalva, Pressure by fluid e.g. diving, water sport or forceful stringing, and Fracture of the temporal bone



Perforation of TM:

• Management depends on the location of perforation which might be central, attic or marginal. May be associated with long-standing infections like CSOM. Immediate referral to higher center should be done in such cases.



Consultation with an ENT specialists is advisable for diseases involving the tympanic membrane as it has a wide spectrum of underlying causes.

DISEASES OF THE MIDDLE EAR

Acute Suppurative Otitis Media (ASOM): Acute inflammation of the middle ear cleft ([Eustachian tubes, middle ear and mastoid air cells)

Route: Eustachian tube

Organism: Streptococcus pneumoniae, Haemophilus influenza

Stages of presentation

- 1. Stage of tubal occlusion
- 2. Stage of hyperemia
- 3. Stage of suppuration
- 4. Stage of resolution

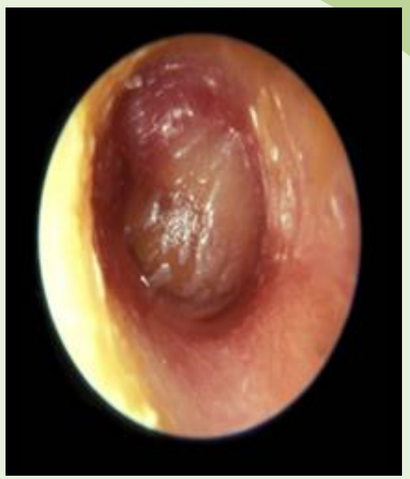
Signs and symptoms: Ear Pain

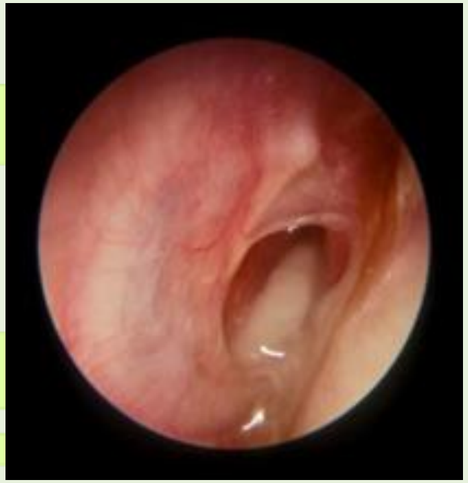
- Discharge from ears,
- TM- congestion, perforation and pulsatile discharge,
- Reduced hearing.

Management

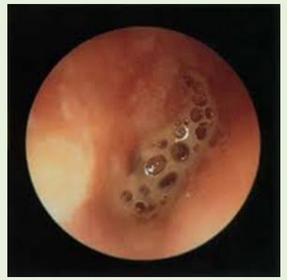
Conservative: Steam inhalation, antipyretics, aural toileting, Xylometazoline nasal drops

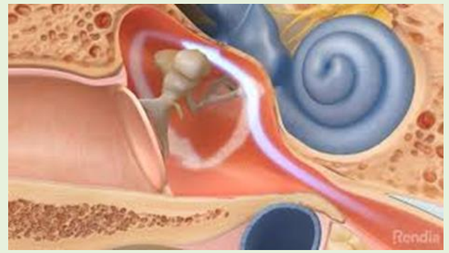
Antibiotics: Amoxyclavulinic acid





ACUTE OTITIS MEDIA (AOM)- STAGES



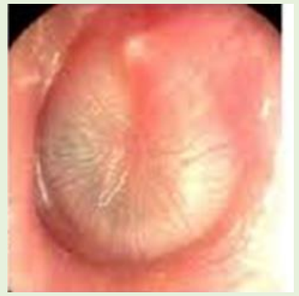


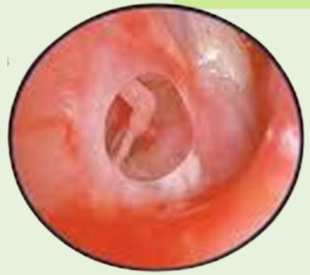
Tubal occlusion/ Hyperemic

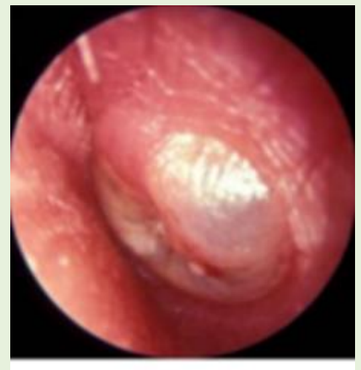
Presuppuration/ Exudative

Suppuration

Resolution/ Complications







CHRONIC SUPPURATIVE OTITIS MEDIA (CSOM)

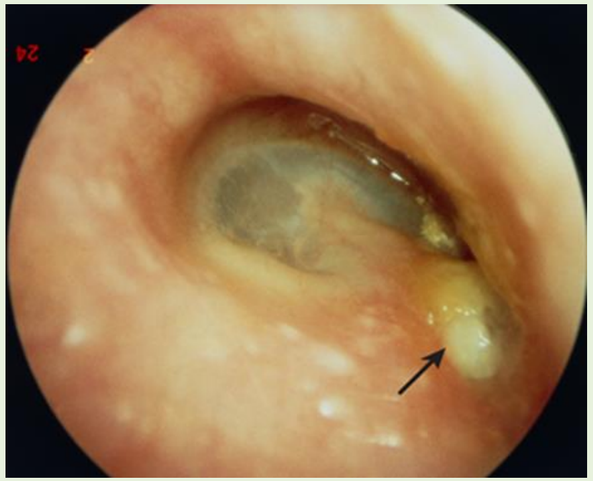
Chronic inflammation of the mucoperiosteal lining of the middle ear cleft.

Types: a. Safe / tubotympanic

b. Unsafe / atticoantral

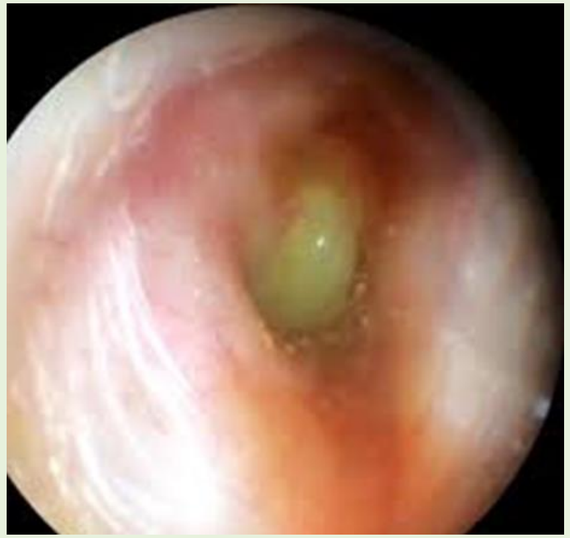
Symptoms & Signs: Ear discharge, HL, TM Perforation, tinnitus

Complications: 1) Extra-cranial 2) Intra-cranial



Investigations:

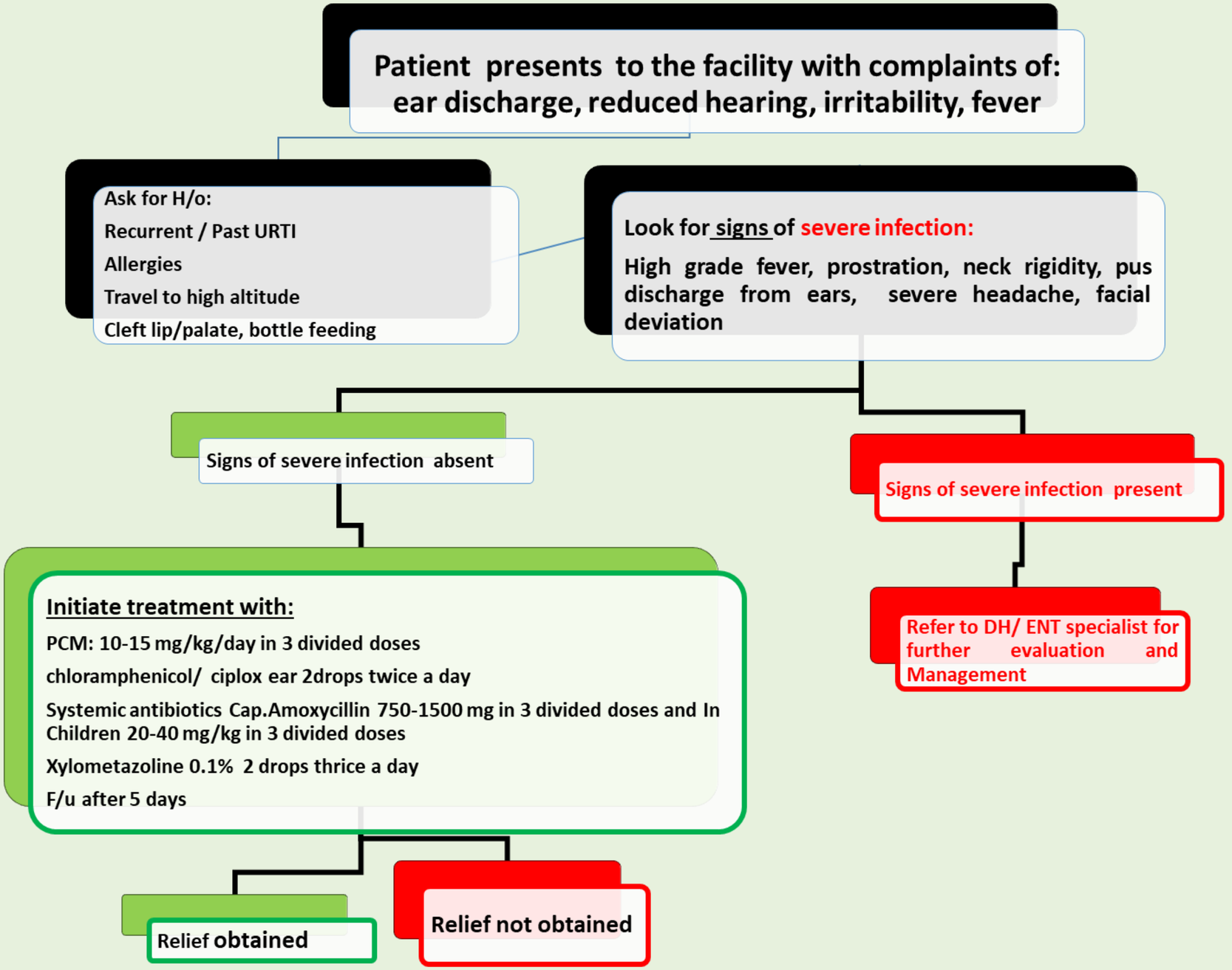
1) Oto microscopy / Oto endoscopy
2) Aural swab
3) Biochemical & other Lab investigations
4) Pure tone Audiometry
5) X-ray / CT-scan / MRI of the mastoids.



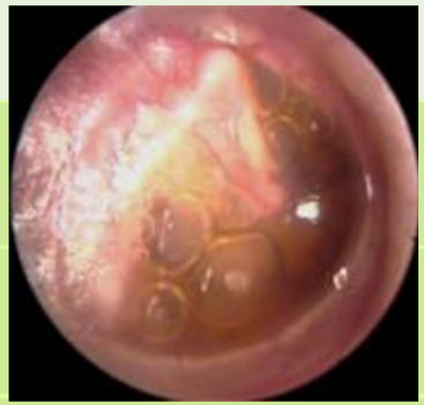
Treatment:

1) Ear toileting
2) Topical antibiotics
3) Systemic Antibiotics

REFERRAL PATHWAY FOR CSOM



SEROUS OTITIS MEDIA

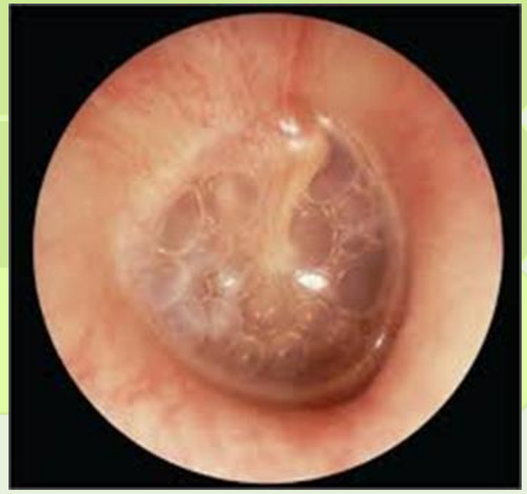


P/O Non-purulent fluid in middle ear cleft

Causes: Eustachian tube dysfunction, unresolved acute otitis media

Symptoms & Signs: 1) Reduced hearing 2) Tinnitus 3) Lusterless retracted TM 4)Air bubbles behind the TM

Investigation: Pure tone and impedance Audiogram



Treatment: Xylometazoline -1% for adults and 0.5% for children

Antibiotics: Amoxi-clav 625mg adults, children 20-40 mg/kg BD 7 days.

Surgical treatment: Myringotomy with or without grommet insertion

FACIAL NERVE PALSY

Bell's Palsy

- Most common cause- idiopathic
- Risk factors: immunosuppressed.
- Complete recovery- 70-80 % cases
- Presentation: Acute onset, unilateral, rapidly progressing lower motor neuron facial palsy.

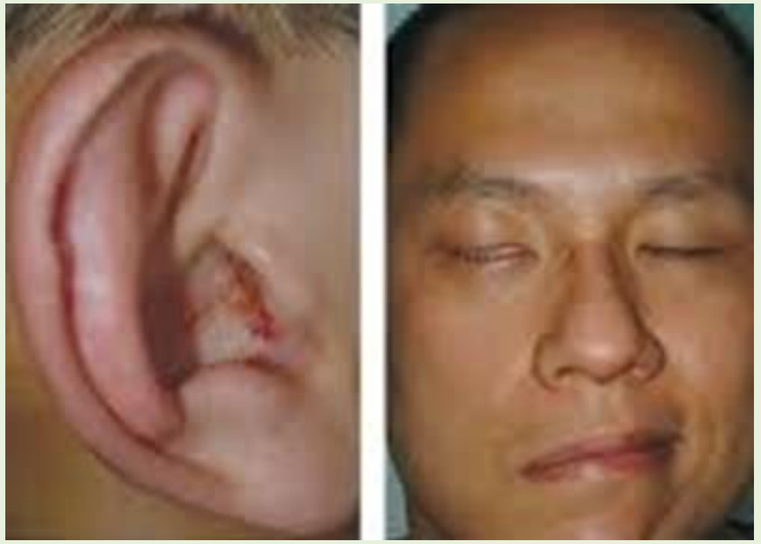
Management:

- Oral steroid (1 mg/kg prednisolone)- gradual tapering over 21 day period
- Antiviral like acyclovir within 72 hours
- Vitamin B supplements
- Physiotherapy (facial massage and exercise)

FACIAL NERVE PALSY

Ramsay Hunt Syndrome

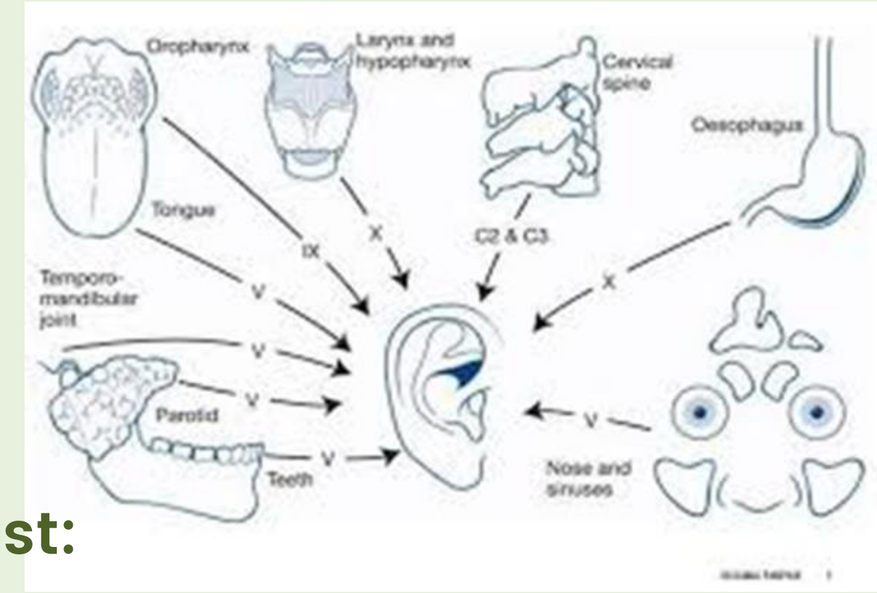
- Reactivation of latent Varicella Zoster Virus (HZV) in the geniculate ganglion
- Pain, vesicles over the ear canal
- Extension to VIII nerve- hearing loss and vertigo
- Other cranial nerves might get involved
- Prognosis- poorer
- Consult ENT Specialist before initiation of treatment.



EAR ACHE (OTALGIA)

Causes:

- Primary otalgia: cause within the ear itself
- Secondary otalgia: Pain referred from another place having same sensory innervation. (Referred Otalgia)



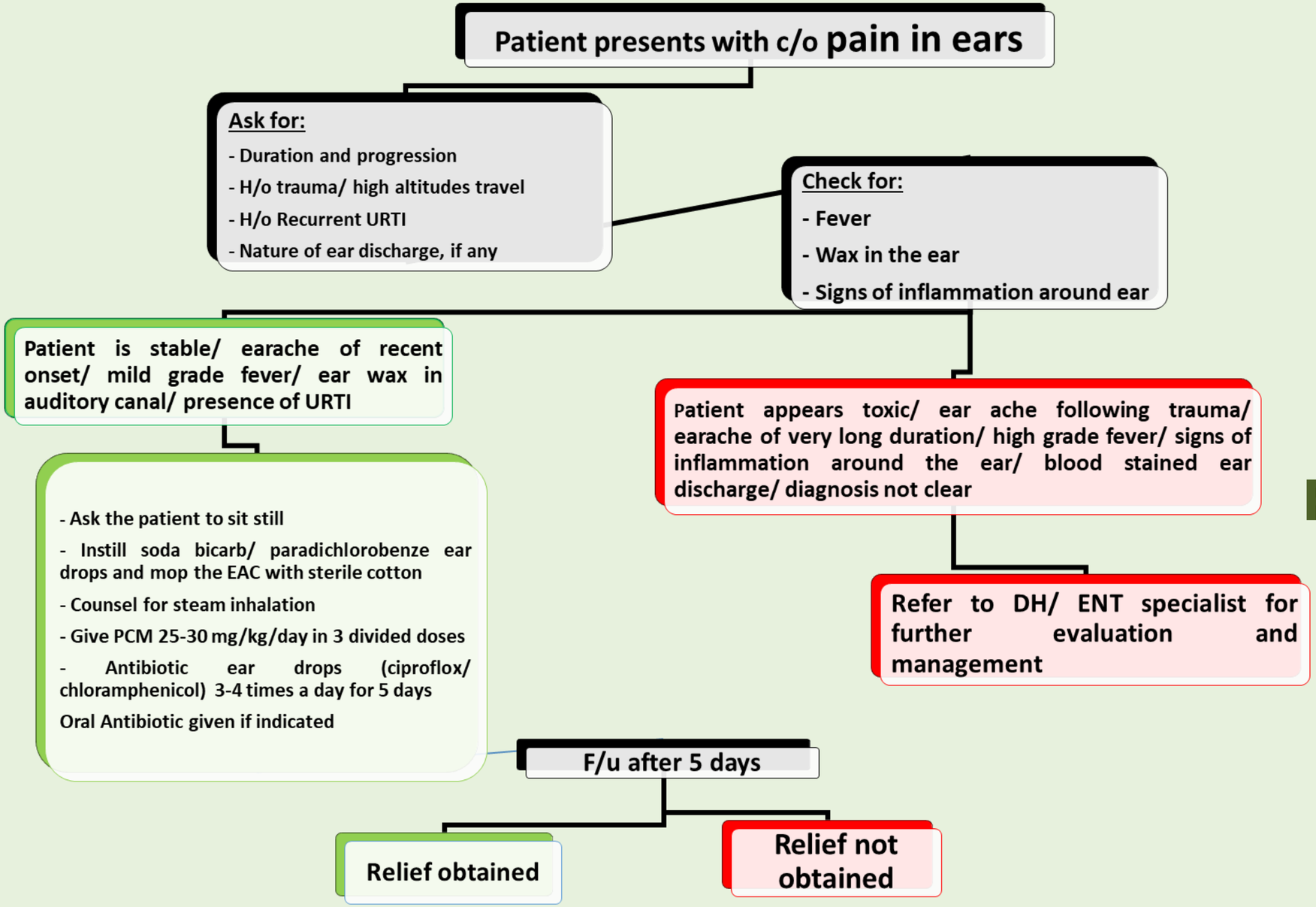
Treatment:

- Find the cause and treat accordingly.
- Analgesic:

Indications for referral to ENT specialist:

- Pain not responding to analgesic
- Any visible injury, bleeding, signs of trauma, any visible mass in EAC

REFERRAL PATHWAY FOR EAR PAIN



VERTIGO

Feeling of movement, either of self or objects around in the environment

Causes:

- **Otological**:1) Meniere's disease, 2)BPPV 3) Labyrinthitis
- **Neurological**: 1) Transient ischemic attacks (TIA) 2) Intra-cranial tumours 3) Seizures
- **Systemic**: 1) Hypotension, 2) Hypothyroidism 3) Diabetes Mellitus 4) Polycythemia

Symptoms & Signs:

- 1)Light headedness 2) Feeling of rotation or spinning 3) Dizziness

Investigation: 1) Detailed Examination along with vitals 2) Romberg's test 3) Dix hall pike

Treatment:

- **1)** Reassurance.
- 2) Avoiding the posture that triggers symptoms.
- 3) **Prochlorperazine** 5mg BD / **Cinnarizine** 25 mg OR **Betahistine** 16 mg BD for 5 days.

Indications for referral: 1) Sudden falling 2) H/O Epilepsy 3) H/O Inner ear diseases

REFFERAL PATHWAY IN VERTIGO

Patient presents with dizziness

Ask about:

- Detailed description of dizziness
- Any drug, alcohol intake
- H/o trauma to head

if YES

Refer to DH/ ENT specialist for further evaluation and treatment

Feeling that himself or his surroundings are moving. along with tinnitus/ hearing loss

Disturbed balance predominantly on walking. relieved on sitting

Feeling of loosing consciousness or 'blacking out'

or H/o dizziness after trauma

Probable case of Vertigo

Refer to DH/ ENT specialist for further evaluation and Management

- Counsel the patient about reduced intake of caffine/ alcohol
- Avoid performing hazardous taks
- initate Rx with Cinnarizine 15 mg/ Anti-histaminics for 5 days

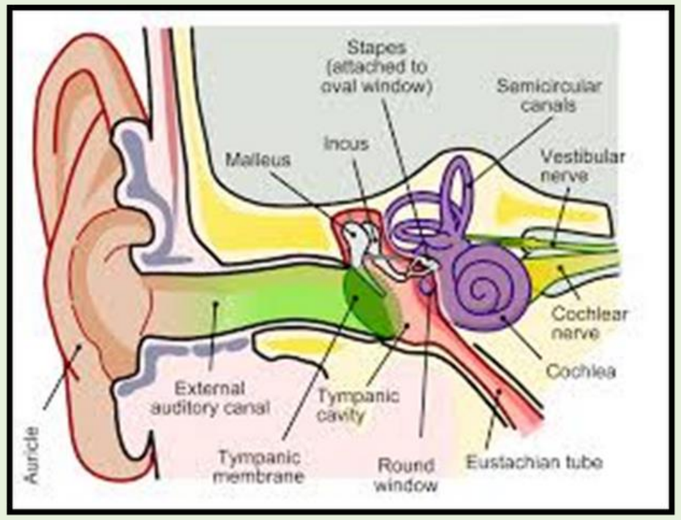
Relief Obtained

Relief not obtained

HEARING LOSS

Types:

- Conductive hearing loss (CHL) – middle ear problem
- Sensorineural hearing loss (SNHL) – ear nerve problem
- Mixed type



WHO Classification:

S No.	Degree of impairment	Ability to understand speech	% of disability
1.	Not significant	No significant difficulty with faint speech	
2.	Mild	Difficulty with faint speech	<40 %
3.	Moderate	Frequent difficulty with faint speech	40-50%
4.	Moderately severe	Frequent difficulty even with loud sounds	
5.	Severe	Can understand only shouted or amplified speech	51-70%
6.	Profound	Usually cannot understand even amplified speech	71-100%

Things to check before referring:

Any obstruction in the ear canal – foreign body, wax, etc

Any ear discharge or recent history of injury to the ear.

Whether speech is affected also or not

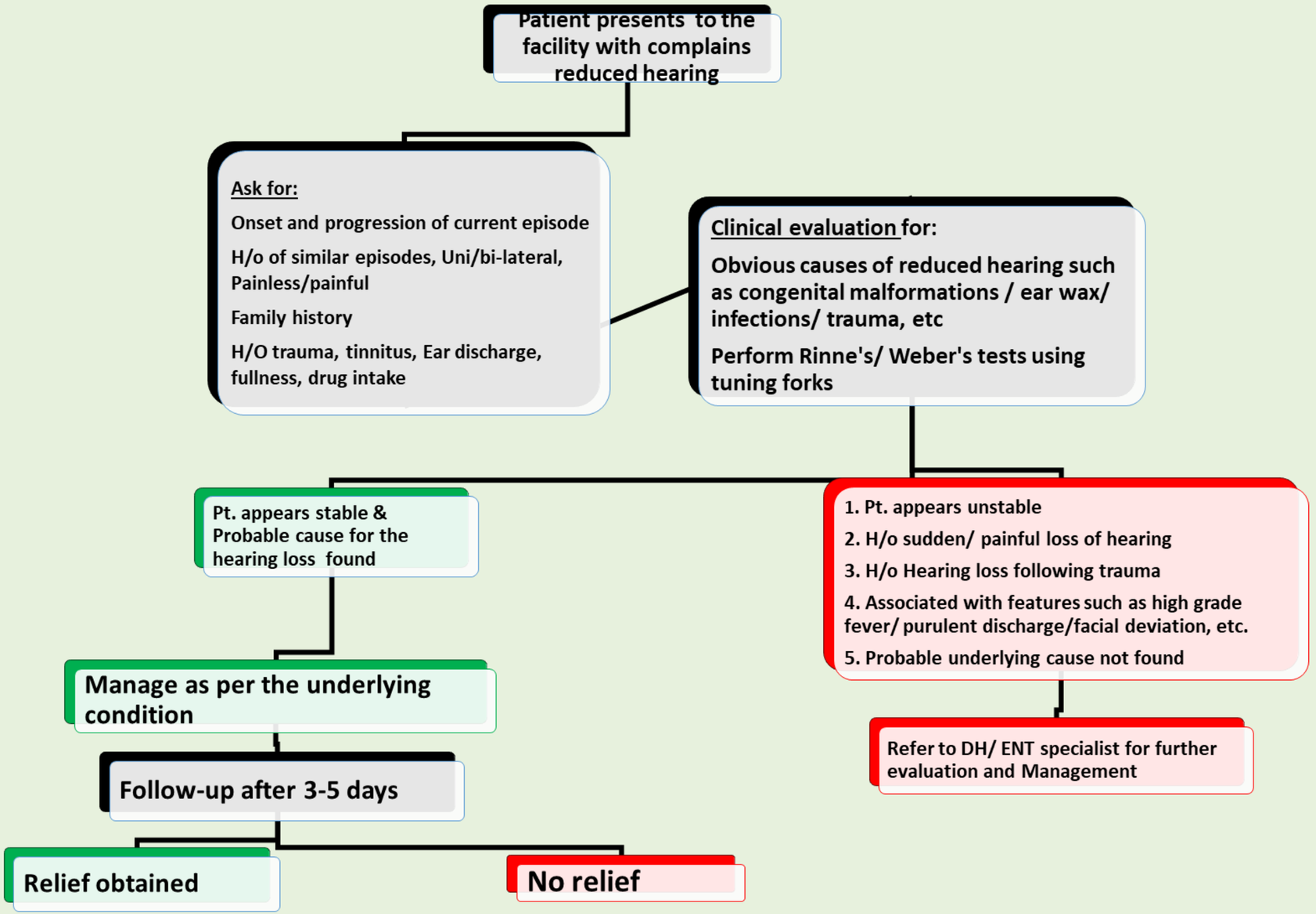
Hearing loss for low frequency sounds/ high frequency sounds

Any history of taking certain drugs recently –

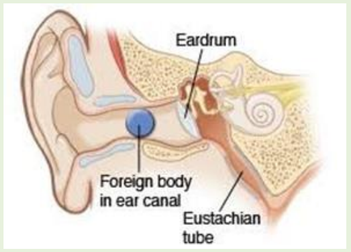
- streptomycin, gentamicin, tobramycin, salicylate, antimalarials.

Exposure to very loud sounds – explosion, gun fire

REFFERAL PATHWAY IN CASE OF HEARING LOSS



FOREIGN BODY IN EAR



Commonly seen in pediatric age group. 40% of the cases would be within the age group of 2-8 years.

Classification of Foreign Body:

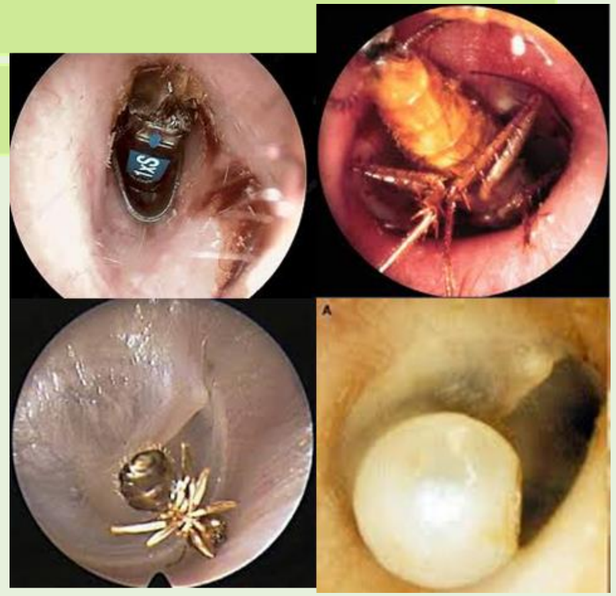
- a. **Living**: Insect, Flies, Maggot b. **Non - living**: pearl, stone
- a. **Hygroscopic** (can expand in moisture): e.g. vegetable, beans and seeds b. N**on-hygroscopic**: e.g. beads, stones, pebbles, rubber, metallic FB.

Symptoms & Sign: 1) History of Foreign Body entering the ear 2) Ear Pain 3) Tinnitus 4) Hearing loss.

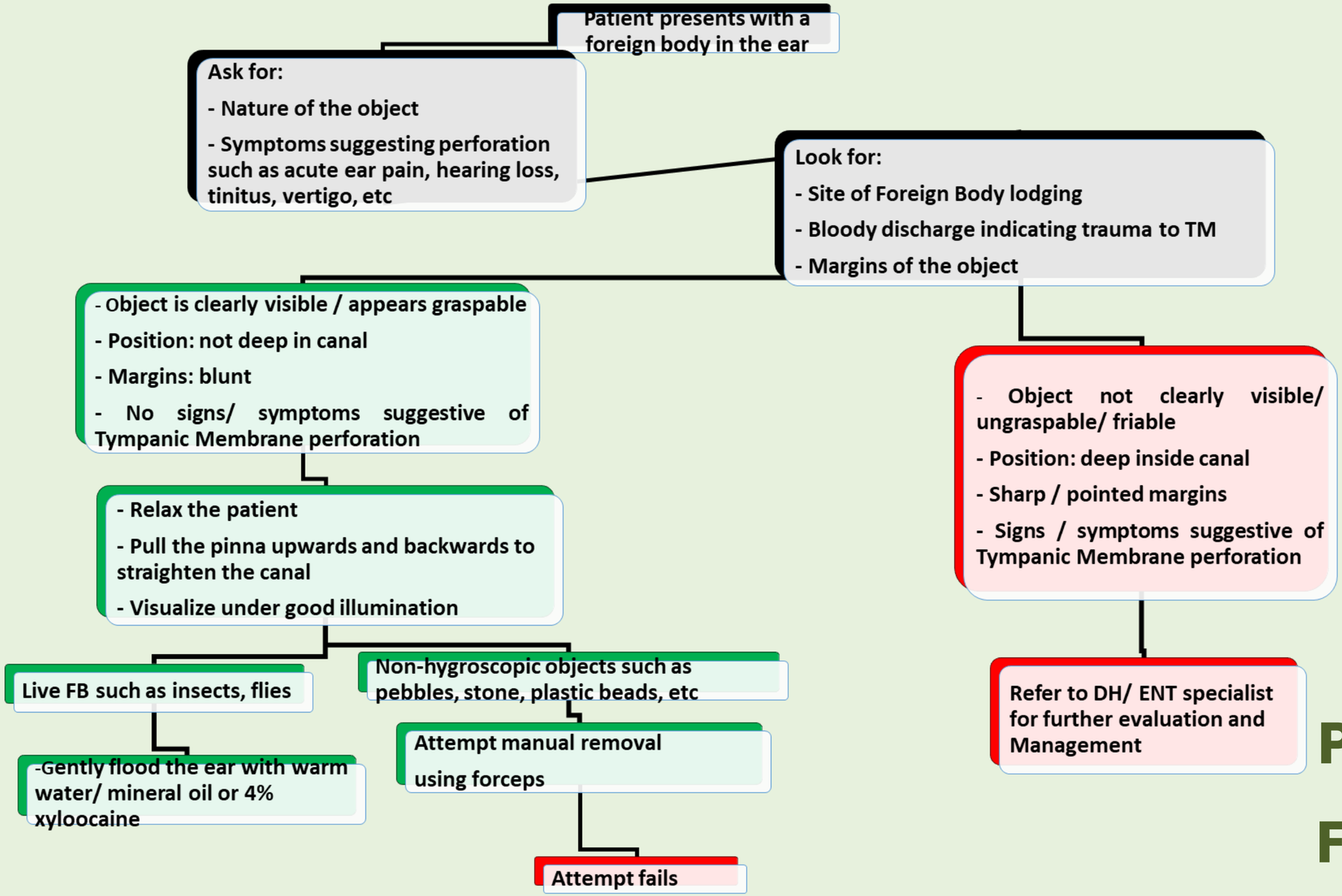
Management: **Removal of the foreign body**

Indications for referral:

- **Small child who cannot stay in one position to attempt removal**
- **Sharp objects**
- **Objects appear deep in ear canal**
- **Object appears to be tightly impacted**
- **Any kind of discharge from the ear**
- **Previous removal attempt was unsuccessful**



REFERRAL PATHWAY FOR FOREIGN BODY EAR



PUTTING IN THE DROPS

Position the head so that the ear faces upward.
If the bottle has a dropper, draw some liquid into the dropper.
For adults, gently pull the upper ear up and back.
Gently pull the earlobe up and down to allow the drops to run into ear.
Wipe away any extra liquid with a tissue or clean cloth.

Thank You