

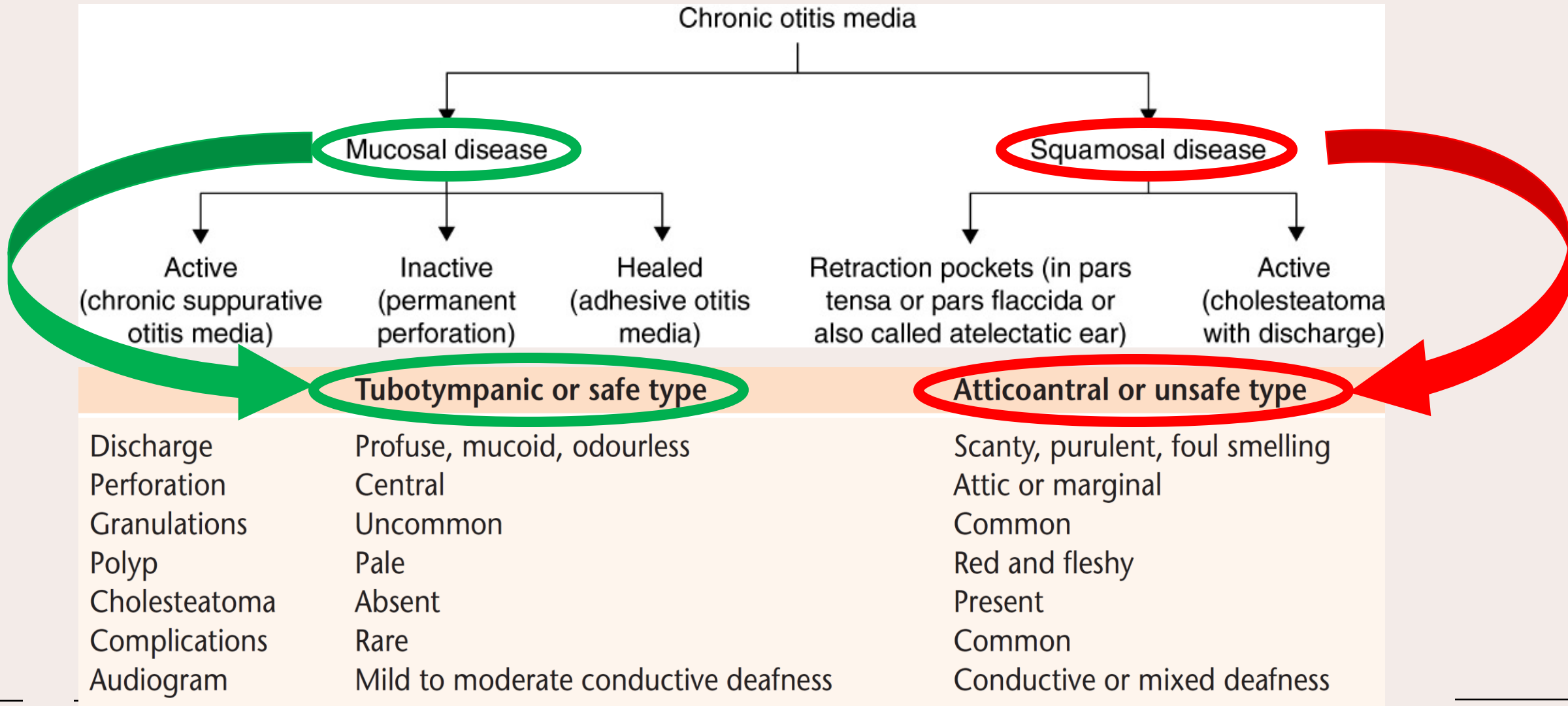
Chronic Otitis Media

Dr. Mohammad Tawalbeh

Definition

- **Chronic otitis media (COM)** is a long standing infection of part or whole of the middle ear cleft characterized by ear discharge and a permanent perforation.
 - A perforation becomes permanent when its edges are covered by squamous epithelium and it does not heal spontaneously.
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Classification



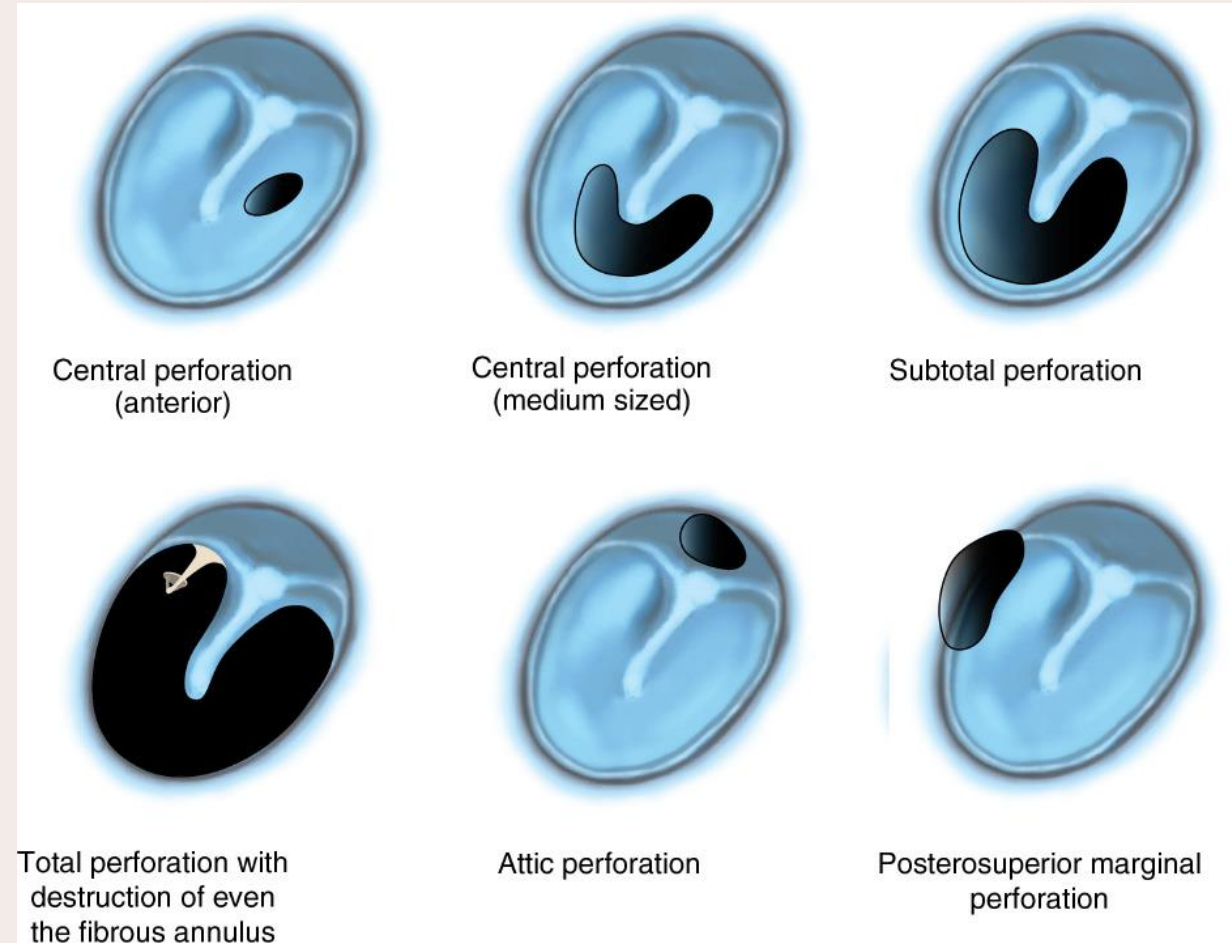
Tubotympanic Disease

Tubotympanic Disease (Mucosal Disease)

- The main subtypes of CSOM without cholesteatoma:
 - **Tympanic membrane perforation**
 - **Pars tensa retraction**
 - Causative organisms:
 - *Pseudomonas aeruginosa*, *Proteus*, *Escherichia coli* and *Staphylococcus aureus*, while anaerobes include *Bacteroides fragilis* and anaerobic *Streptococci*.
 - Etiology:
 - **Sequala of acute otitis media** usually following exanthematous fever and leaving behind a large central perforation.
 - **Ascending infections via the eustachian tube** from sinuses, adenoid and tonsils
 - Persistent mucoid otorrhea is sometimes the **result of allergy to ingestants** such as milk, eggs, fish, etc.
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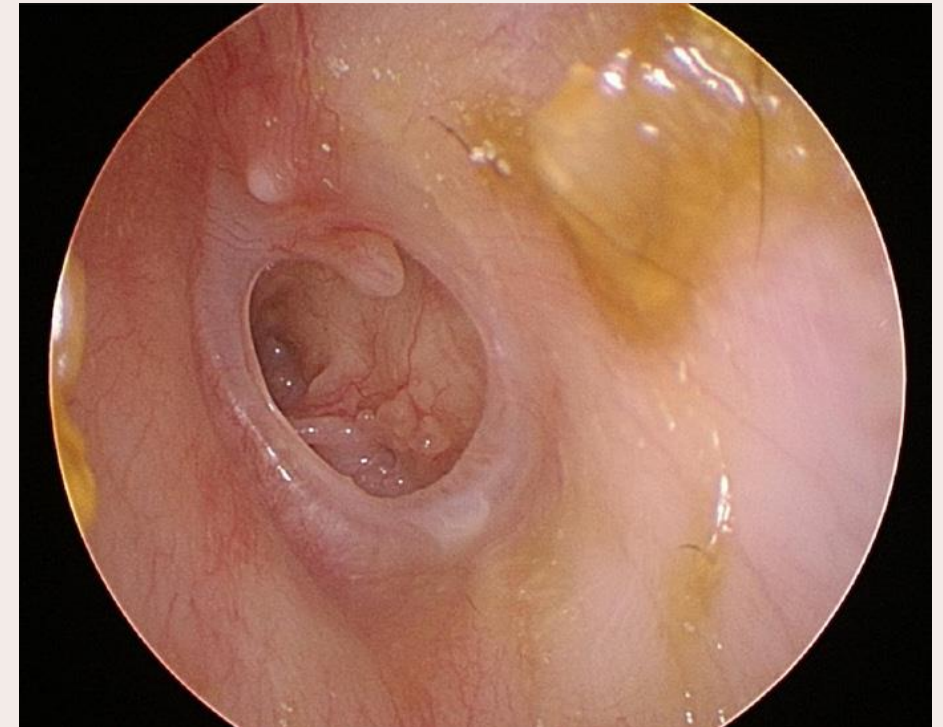
Tympanic Membrane Perforation

- Tubotympanic disease AKA CSOM without cholesteatoma is also known as mucosal disease since there is no invasion of squamous epithelium.
- It can be:
 - **Active** when there is a perforation of pars tensa with **inflammation of mucosa and mucopurulent discharge**
 - Inactive when there is a permanent perforation of pars tensa but no middle ear mucosa inflammation or discharge.



Clinical Assessment

- History:
 - Ear Discharge
 - Hearing Loss
- Physical examination using Otoscope/Microscope:
 - Perforation
 - Middle ear mucosa may be red, edematous, swollen and a polyp may be seen
- Tuning Fork Tests + Audiogram
- Culture + Sensitivity of Ear Discharge
- Temporal Bone CT



Medical Management

- Aural Toilet
- Ear Drops
- Systemic Antibiotics
- Precautions: keep ears dry + avoid nose blowing
- Treatment of Contributory Causes:
 - Tonsillitis
 - Adenoids
 - Sinusitis
 - Nasal allergy



Surgical Management

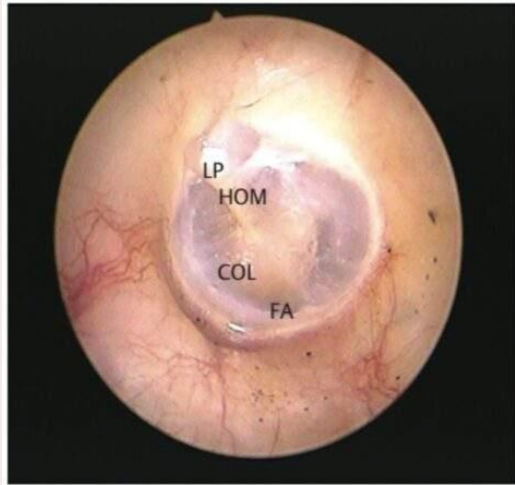
- Aural polyp excision
- Myringoplasty with or without ossicular reconstruction



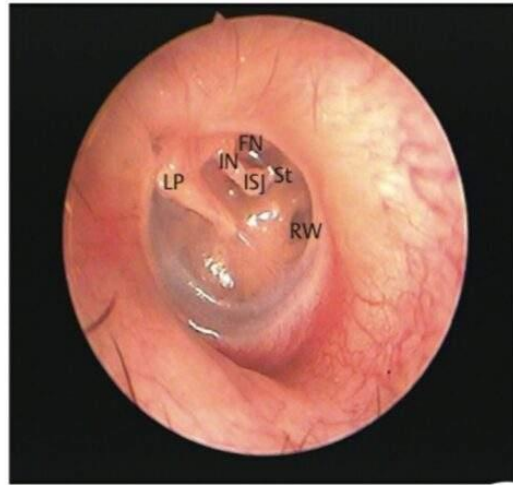
Pars tensa Retraction

- The retraction of the pars tensa is related to chronic negative pressure in the middle ear cleft and thus to eustachian tube dysfunction.
 - Management options:
 - The spectrum of management options range from observation and serial audiometry to reinforcement cartilage tympanoplasty.
 - Intermediate procedures include placement of a ventilating tube, excision of the affected segment, excision and repair with fascia or perichondrium.
 - A role for cortical mastoidectomy aimed at improving middle ear ventilation has also been proposed.
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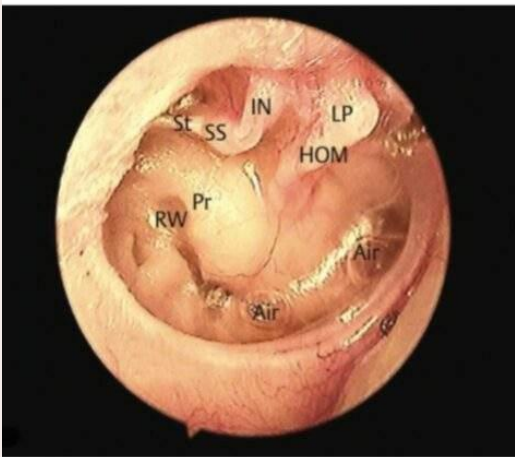
Pars tensa Retraction



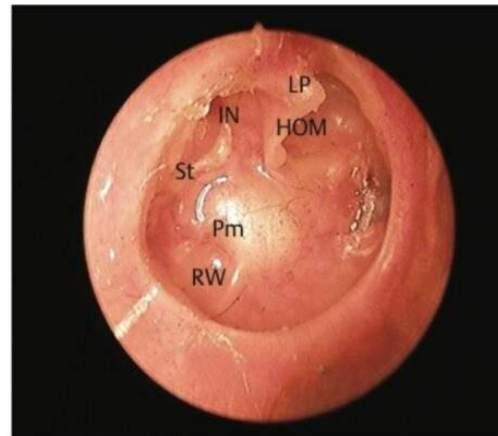
Grade 1 Pars Tensa retraction



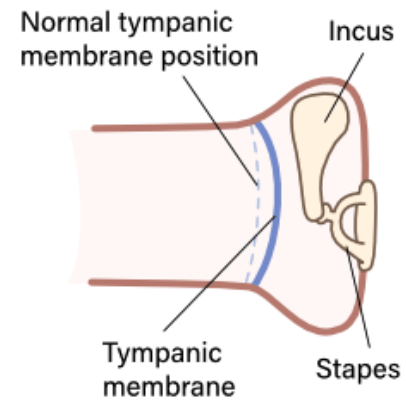
Grade 2 Pars Tensa retraction



Grade 3 Pars Tensa retraction

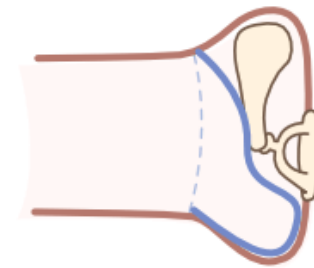


Grade 4 Pars Tensa Retraction



Grade I

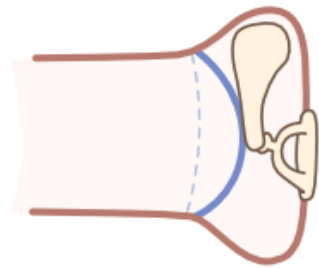
Slight retraction of the pars tensa



Grade III/IV

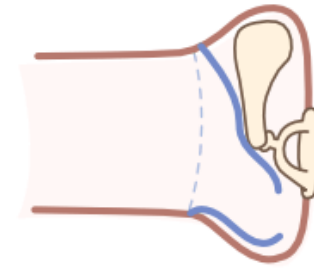
Retraction onto the promontory

III: Not adherent
IV: Adherent



Grade II

Retraction onto the incus



Grade V

Perforation

Atticoantral Disease

Atticoantral Disease

- Atticoantral disease AKA CSOM with cholesteatoma is referred to as squamosal disease or unsafe type.
 - “Inactive” → **retraction pockets in pars tensa** (usually the posterosuperior region) or **pars flaccida**. There is **no discharge** but there is a possibility of squamous debris in retraction pockets to become infected and start discharging. Some retraction pockets are shallow and self-cleansing.
 - “Active” squamosal disease of middle ear → presence of cholesteatoma of posterosuperior part of middle ear cleft (attic, antrum, posterior tympanum and mastoid), pars tensa or in the pars flaccida. It erodes bone, forms granulation tissue and has purulent offensive discharge.
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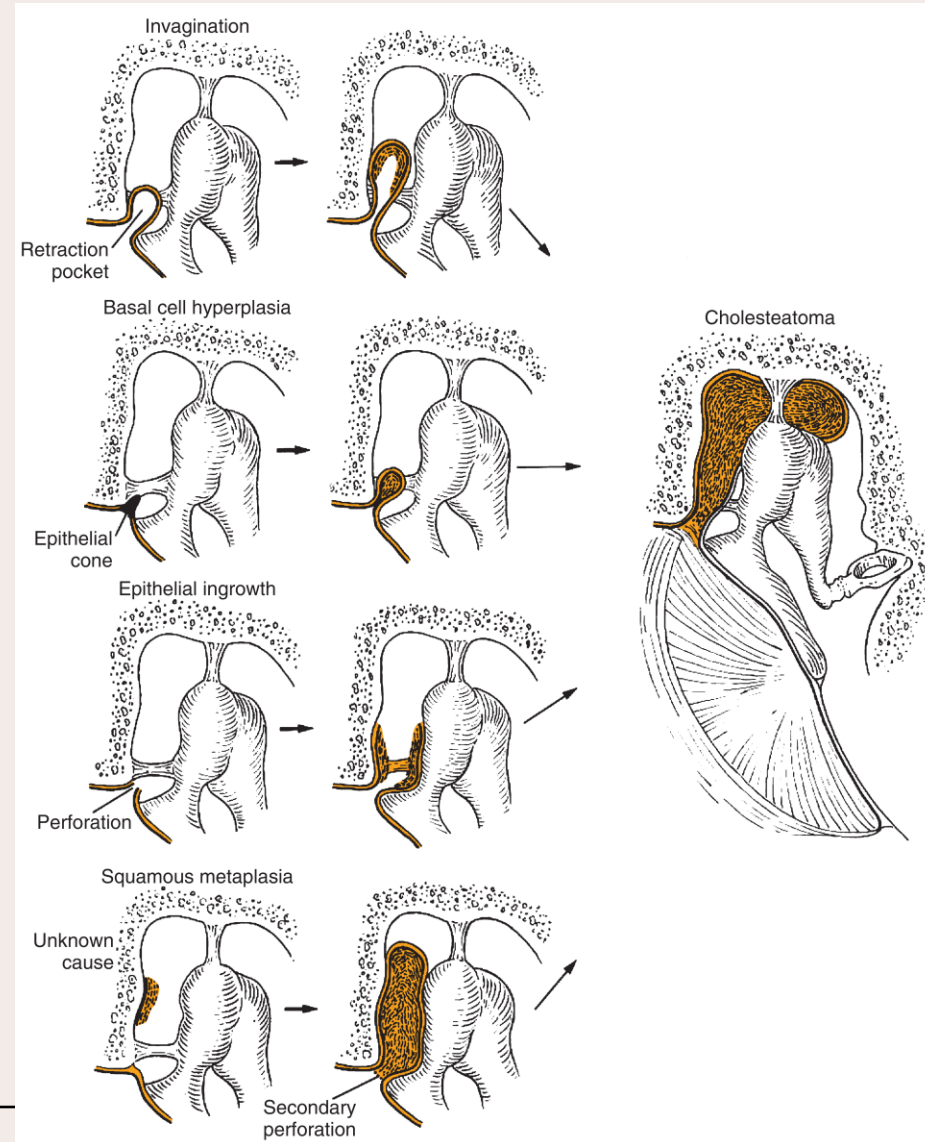
Common Pathogens

- Pseudomonas aeruginosa (48-98%)
 - Staph. Aureus (15-30%)
 - Klebsiella (15-30%)
 - Proteus (10-15%)
 - Polymicrobial (5-10%)
 - Anearobes (20-50%)
 - Fungi
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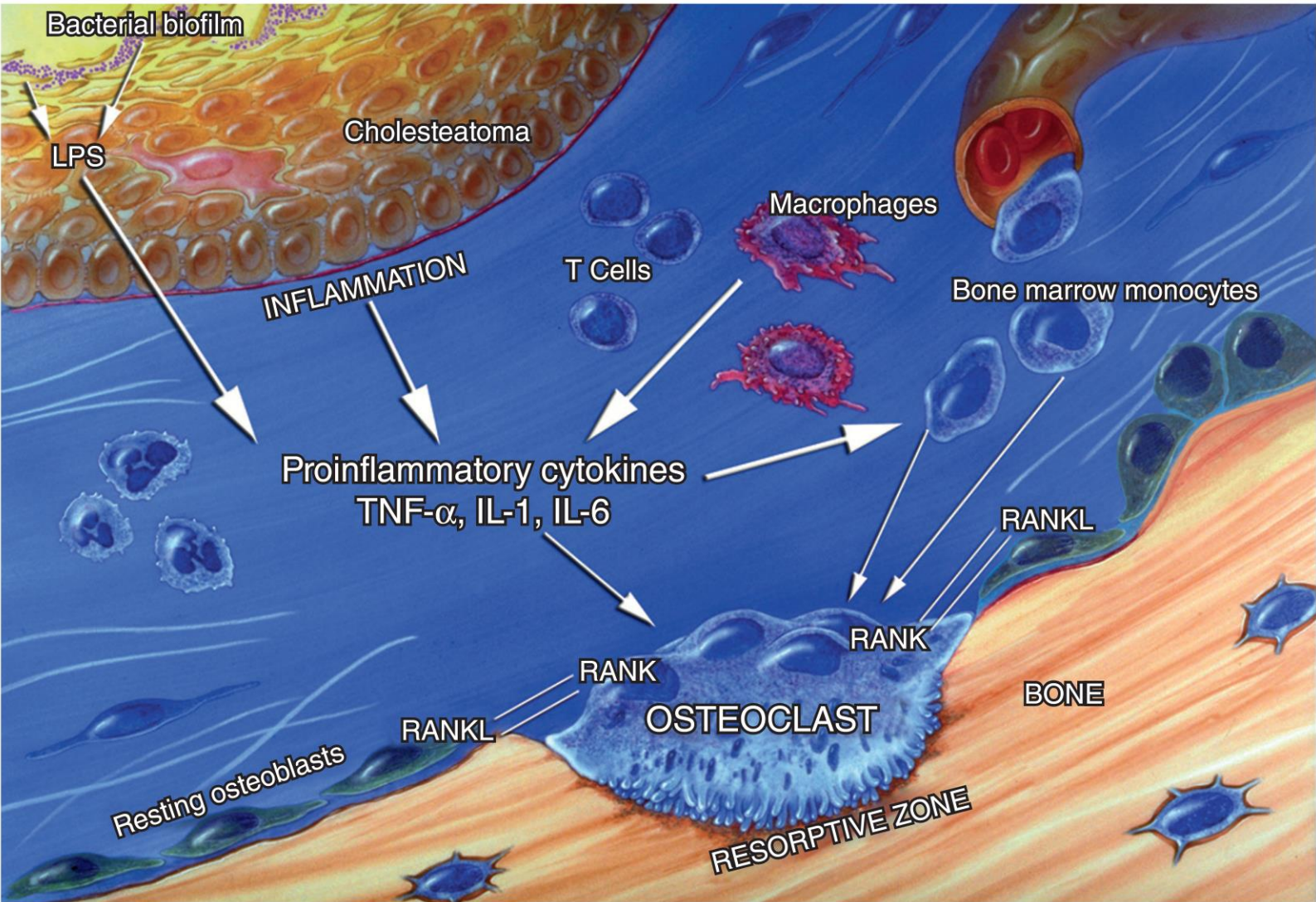
Atticoantral Diseases

- Cholesteatoma
 - Osteitis and Granulation Tissue
 - Ossicular Necrosis
 - Cholesterol Granuloma
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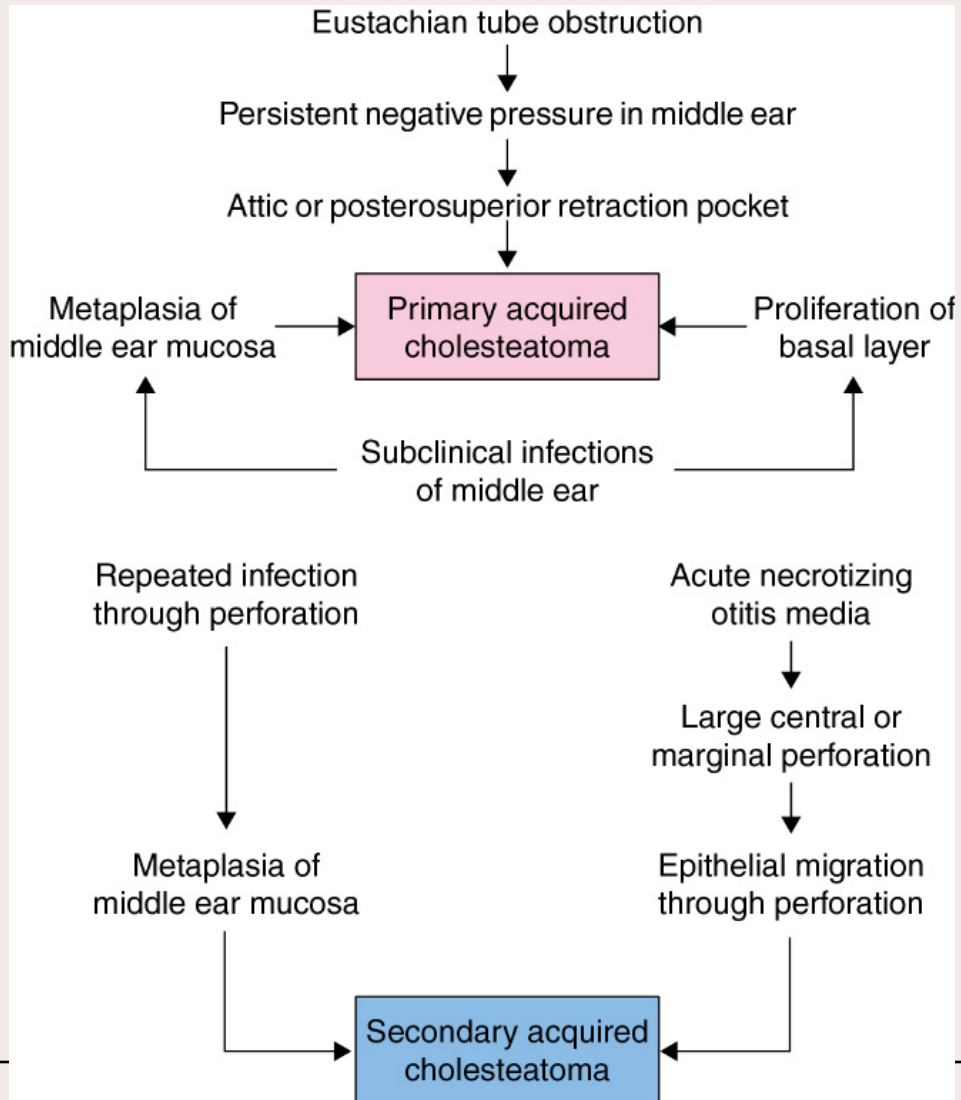
Theories of Cholesteatoma Formation



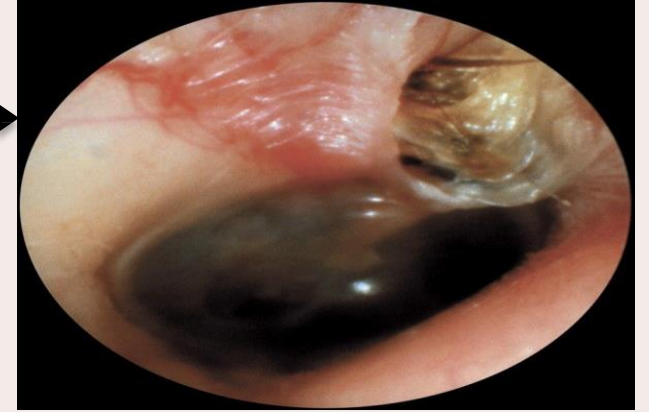
Pathophysiology of Cholesteatomas



Classification



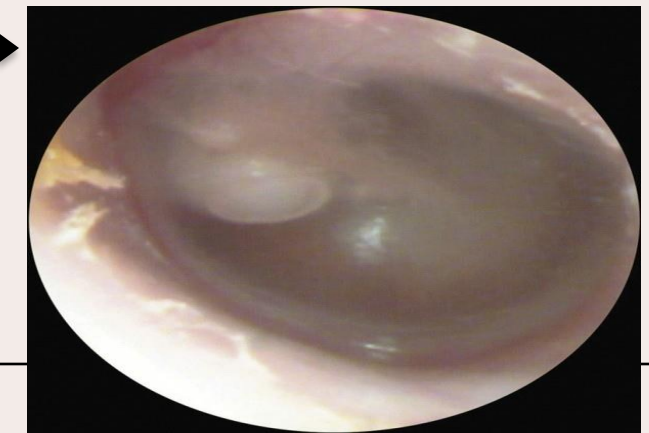
- A typical attic retraction cholesteatoma (**primary acquired cholesteatoma**).



- Keratinizing epithelium has migrated through a perforation into the middle ear (**secondary acquired cholesteatoma**)

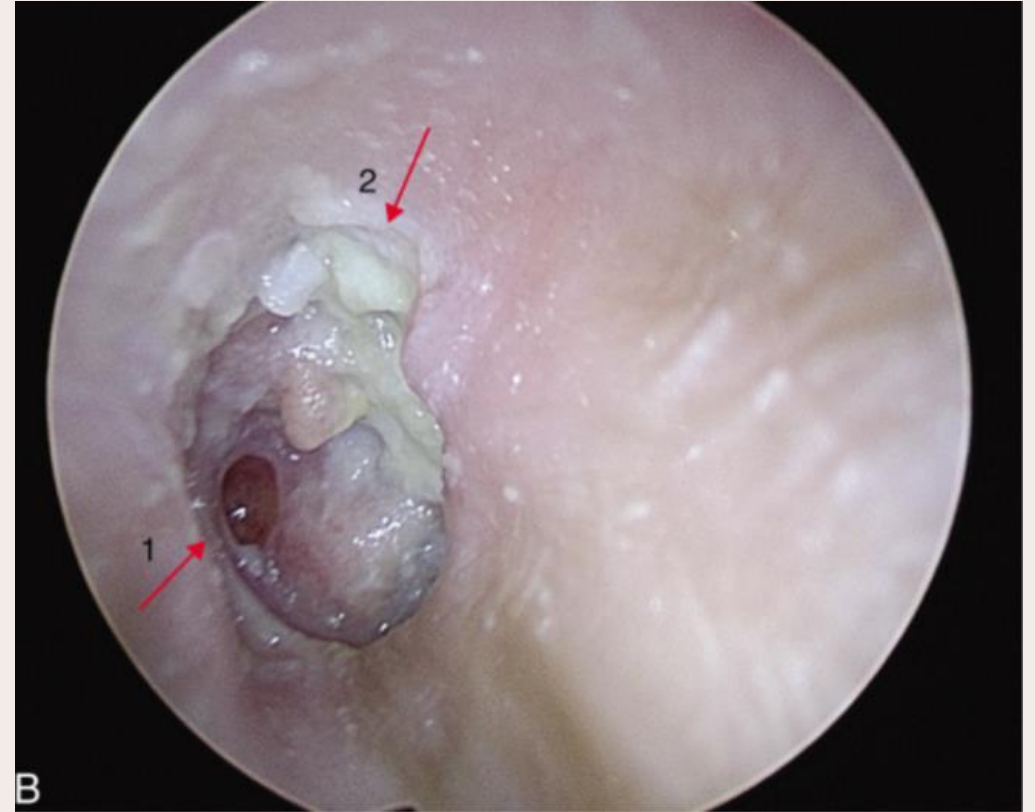


- Behind or within an intact tympanic membrane (**congenital cholesteatoma**)

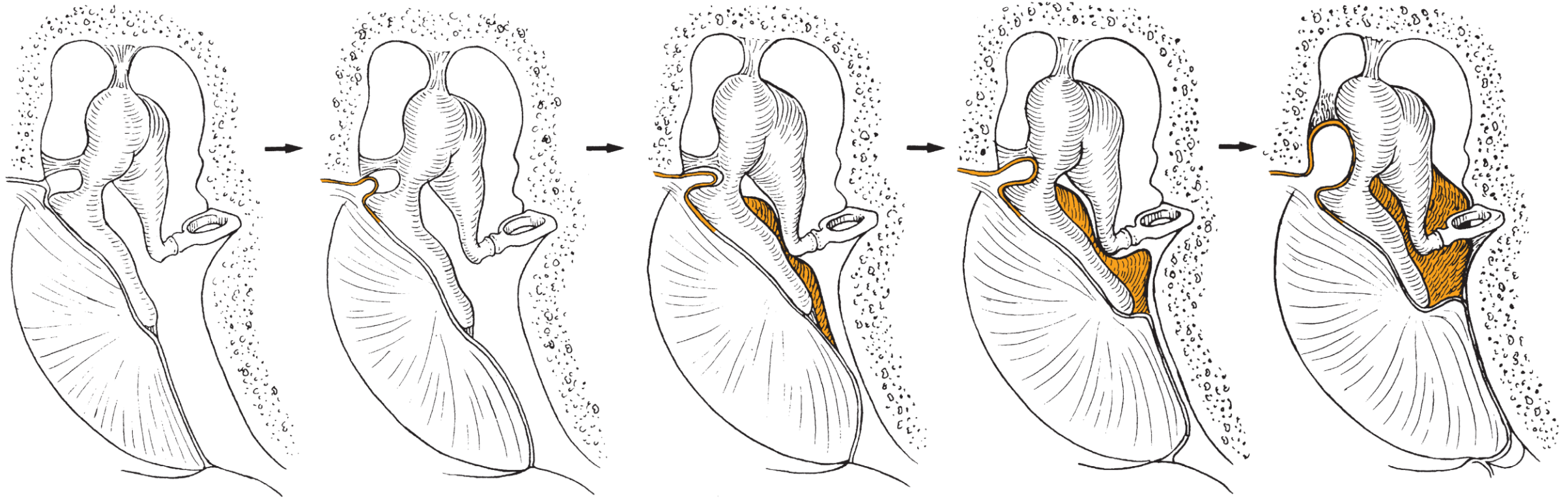


Clinical Assessment

- History
 - Ear Discharge
 - Hearing Loss
 - Bleeding
- Examination using Otoscope/Microscope
 - Retraction pocket
 - Cholesteatoma
- Tuning Fork Tests + Audiogram
- Culture + Sensitivity of Ear Discharge
- Temporal Bone CT



Retraction Pocket & Middle Ear Atelectasis



Normal

Stage I
Retraction

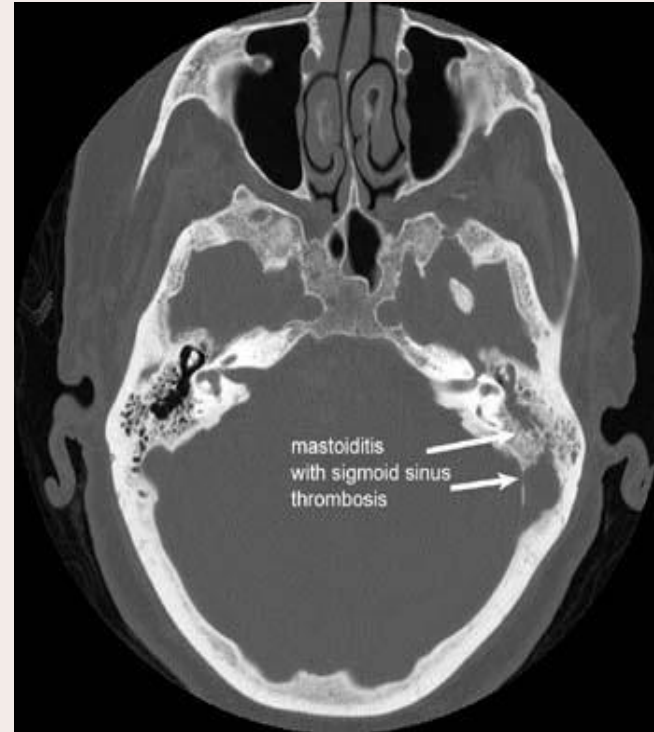
Stage II
Severe retraction

Stage III
Atelectasis

Stage IV
Adhesive otitis

Complications

- **Intratemporal** complications:
 - Petrositis (Gradenigo syndrome)
 - Facial paralysis
 - Labyrinthitis
- **Intracranial** complications:
 - Lateral sinus thrombosis
 - Meningitis
 - Intracranial abscess



Features Indicating Complications

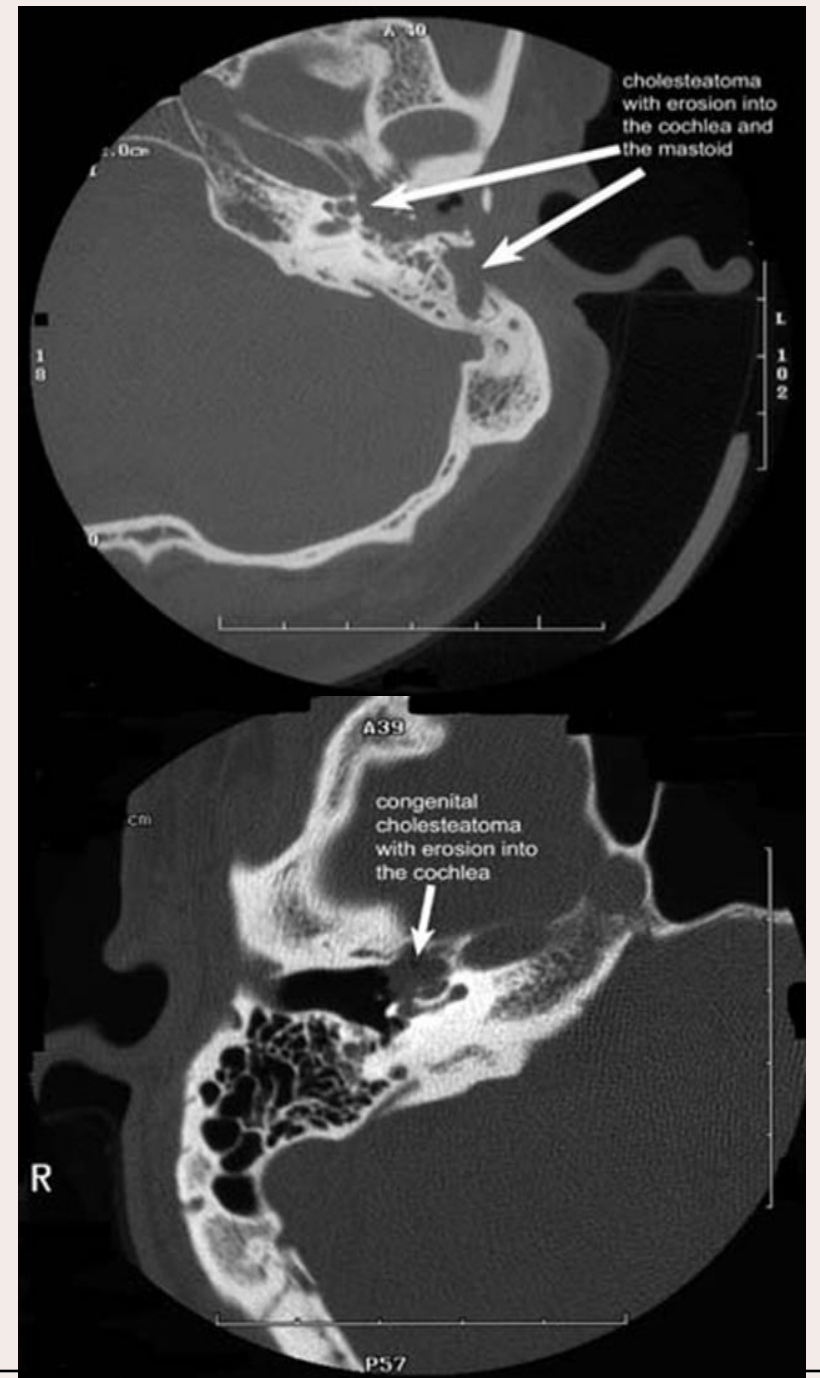
- **Pain** → extradural, perisinus, or brain abscess
 - **Vertigo** → erosion of lateral semicircular canal (fistula) → labyrinthitis, meningitis
 - **Persistent Headache** → intracranial complication
 - **Facial weakness** → erosion of facial canal
 - **Child refusing to take feeds and easily going to sleep** → extradural abscess
 - **Fever, nausea, vomiting** → intracranial infection
 - **Irritability and neck rigidity** → meningitis
 - **Diplopia** → petrous apex infection (Petrositis/Gradenigo syndrome)
 - **Ataxia** → labyrinthitis or cerebellar abscess
 - **Abscess round the ear** → mastoiditis
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Imaging

- Indications:
 - Unresponsive to treatment.
 - Cholesteatoma
 - Suspected complications
 - Prior to surgery
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CT

- + Excellent review of the bony anatomy
- + Provides some information on the likely extent of the disease and the degree of pneumatization.
- + Demonstrate if the lateral semicircular canal has a fistula (the most common bony labyrinthine defect encountered).
- not diagnostic for the presence of cholesteatoma

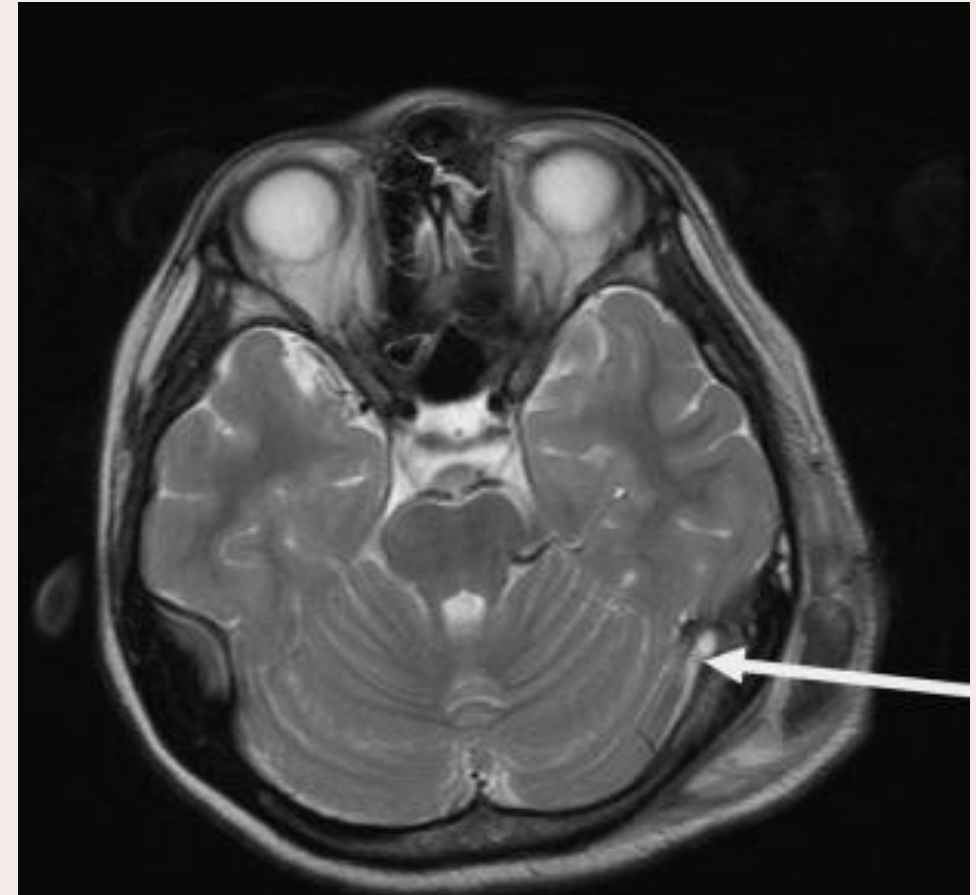


MRI

+ Intratemporal or intracranial complications:

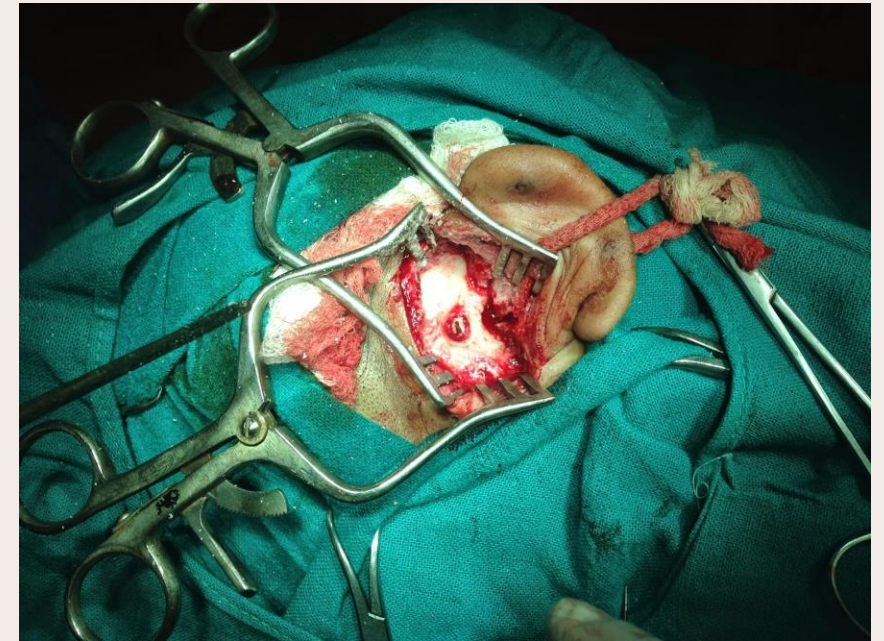
- Dural inflammation
- Sigmoid sinus thrombosis
- Labyrinthitis
- Abscesses

+ Detection of recurrence or residual cholesteatoma



Management

- Radical mastoidectomy
- Modified radical mastoidectomy
- Cortical mastoidectomy:



Canal wall up procedure

Canal wall down procedure

Meatus	Normal appearance	Widely open meatus communicating with mastoid
Dependence	Does not require routine cleaning	Dependence on doctor for cleaning mastoid cavity once or twice a year
Recurrence or residual disease	High rate of recurrent or residual cholesteatoma	Low rate of recurrence or residual disease and thus a safe procedure
Second look surgery	Requires second look surgery after 6 months or so to rule out cholesteatoma	Not required
Patients limitations	No limitation. Patient allowed swimming	Swimming can lead to infection of mastoid cavity and it is thus curtailed
Auditory rehabilitation	Easy to wear a hearing aid if needed	Problems in fitting a hearing aid due to large meatus and mastoid cavity which sometimes gets infected

Thank you