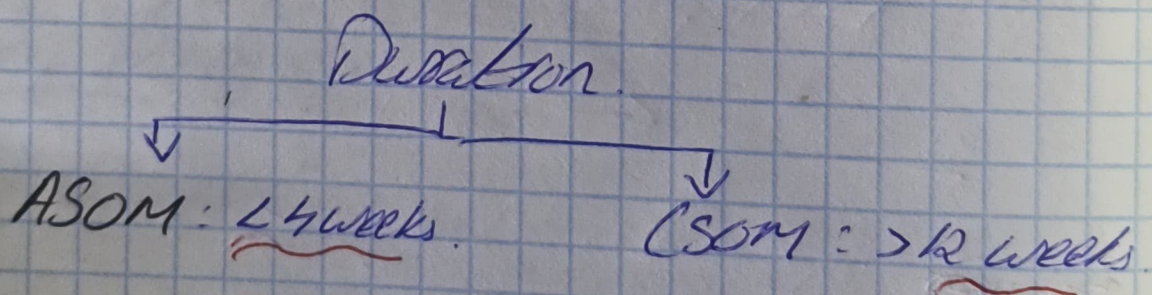


Middle Ear Disorders

Pathophysiology:

Pathology in nose/pharynx $\rightarrow$ ET dysfunction $\rightarrow$ -ve pressure in middle ear $\rightarrow$ exudate formation.



Acute Suppurative Otitis Media (ASOM)

Routes: MLC (ET), EAC, Hematogenous.

- More common in children and infants.

Predisposing factors:

- risk: recurrent attack of common cold URTI.
- Exanthematous fevers like measles, diphtheria
- nasal allergy, tumors of nasopharynx
- cleft palate.

Bacteriology: Strept. pneumoniae, Moraxella, E. coli

Stages of ~~acute~~ ASOM

The patient shows Recovery.

1. Stage of Tubal occlusion: Pathology in nose/palate → Tube occlusion → -ve pressure in M.E → mild T.M retraction → mild pain + Hearing loss.

2. Stage of pre-suppurative → Continued ET blockade + ascend of infection in middle ear → -ve pressure inside

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M.E. → small amount of exudate
formation → hyperaemia of walls
of M.E + exudate in middle ear →
gross retraction of TM (cartwheel
appearance) → moderate to severe
pain + hearing loss

3. Stage of Suppuration - E.T blockage →
serous exudate → infective suppurative
(contains WBC / pus cells) → Bulging
TM with pus pouring / TM rupture
and release pus → Pulsatile
otitorrhea → Lighthouse sign →

Excruciating ear pain + High-grade
fever + severe hearing loss

4. Stage of Resolution: TM perforation
(antemembranous stage) → release pus from
M.E → All symptoms

Stages of Complication

Stage: 1 - oedema of ET $\rightarrow$ -ve pressure and TM retraction. Tubal occlusion

Symptoms - mild deafness, earache

Signs - retracted T.M.

Stage: 2 - pre suppuration :

Pathology - Invasion of organism and mild inflammatory exudate.

Symptoms - Fever, severe earache, deafness.

Signs - Cartwheel TM

Stage: 3 - Suppuration :

Pathology - Frank pus

Symptoms - High grade fever, Excruciating, earache, deafness

Sign - Bulging TM

Stage: 4 - Resolution.

Pathology - TM rupture + Release of pus

Symptoms - ↓ Everything

Signs - small perforation in anterio-inferior pars tensa.

Treatment:

- Antibacterial therapy - Amoxicillin / Ampicillin.
- Analgesics and antipyretics
- Nasal / oral decongestants.
- Myringotomy (> 12 weeks) postero-inferior quadrant

Chronic suppurative otitis media (CSOM)

- Long standing infection.
- Permanent perforation.

Type of CSOM

Mucosal / tubotympanic
(pars tensa perforation)

Active
mucoid
discharge

Inactive
No mucoid
discharge.

Squamous / atticointral
(retraction / perforation
of pars flaccida)

Active
Squaept
Keratin debris.

Inactive
No squaept
or keratin debris.

1. Subotympanic

- Cause - Tubal cause, Asom, allergy.
- Age - Children.
- Perforation - Center.
- M.E area - Antero-inferior.
- Discharge - odourless and muroid.
- Hearing loss - moderate.
- On examination:

→ Perforation - purs tense in antero-inferior quadrant, central perforation.

• Diagnosis: Identify the cause in nose
nasopharynx → examination
under microscope + Audiogram +
CT temporal + Mastoid X-ray

- Treatment: → Eardrops - Neomycin +
Polymyxi + Gentamycin.
→ Acetol toilet
→ Systemic antibiotics.

→ Reconstructive surgery.

2. Attiocarditis

- Cause - 2° to Cholesteatoma.
- Age - adults.
- Location - attic.
- ME area - Post. superior.
- Discharge - Scarby, foul and purulent.
- Bone destruction - annular, tympanic bone, ossicle.
- Polyp - red, fleshy.
- On examination:
perforation → Pass Speculum in sup. quadrant, Attic perforation.
- Diagnosis - CT temporal bone, audiogram, examination under microscope.
- Treatment - Ear surgery, myringoplasty, Eustachian, ear drops.

Tuberculous otitis media

- Infection of middle ear by *M. tuberculosis*.
- painless slow smelling ear discharge.
- Multiple TM perforation.

Complications of ASOM and CSOM

	<u>Acute otitis media</u>	<u>Chronic otitis media</u>
<u>Intracranial Complic.</u>	Meningitis	Intracerebral abscess
<u>Extracranial Complic.</u>	Mastoiditis	Postauricular abscess.

1) Extracranial Complic.

a) Acute Mastoiditis

- Extension of ASOM into mastoid antrum and mastoid air cells.
- Organisms - *Staph. pneumoniae*, *Staph. aureus*, *H. influenzae*, *Pseudomonas*.

• Route - Begins from eustachian tube → ascends to mastoid antrum → mastoid air cells.

Symptoms - prior episode of AOM
- Fever, pain behind ear.
- Ear discharge (purulent)

Signs - • Tenderness in mastoid region.
• Perforation of pinna.
• Pulsatile otorrhea / High house sign.
• Deepening of retro auricular sulcus
• Protruded out appearance of mastoid.
• Positive resonance sign
• CHL

DX : CT scan. - Thickening of mastoid air cells., erosion of tegmen mastoideum, audiometry.

Tx : Mastoidectomy (post auricular incision)

1) Post auricular abscess

- m.c. sternocleidomastoid. - Bezold's abscess.
- Luc's abscess - mental abscess.

2) Intra-aural Complication

a) Meningitis

- route: Breach in bone $\rightarrow$ middle ear to temporal bone via petrous apex $\rightarrow$ inflammation of meninges.

• Organism - Strept. pneumoniae.

• Symptoms - 7 grade fever, Headache, Vomiting.

• Signs: ① Brodzinski Sign
neck flexion $\rightarrow$ flexion of hip and knee.

② Kernig's sign

Thighs flexed onto abdomen
~~is flexed~~ there is pain while
trying to extend.

• DIX - L.P

• TTB - 1 dose of antibiotic.

2) Baumann Abscess

• MC intracranial compli of CSOM

• MC site - Temporal lobe.

• C/F - ↑ intracranial tension - Headache, vomiting, drowsiness.

• Ataxia, aphasia

• DX - MRI, ring sign

• TTB - IV antibiotics,
Abscess drainage

Otosclerosis

• Excessive bony deposition around the foot plate of stapes.

• Pathogenesis:

Primitive Osteogenic
cells rest in stapes
foot plate

→ Trigger → Osteoclastic
activity

→ Remodeling of existing bone and new bone formation.

Types:

→ Stapedial Type. - MLC type
- CHL (M.C) - Fistula arte
fenestrum.

→ Cochlear Type. - least common.
- Excessive deposition of bone
in round window.
- SN hearing loss

→ Histological - Temporal bone dissection.

• Aetiology - Hereditary (Autosomal dominant)

Sites of stapedial otosclerosis

• Stapedial muscle. (pyramidal ensespe
→ neck of stapes)

• Sites - Ant. locus, post. locus, circumferential,
biscuit type, obliterative

• Symptoms:

Stapedial

- B/L - CHL
- Mixed HL - less common.
- Rare tinnitus.
- Paracusis Willisii

Cochlear

- S.N Hearing loss
- Common tinnitus.
- Common vertigo.

• Signs:

- T.M normal
- T.M mobility reduced.

• T/x:

- Hearing aid.
- Sodium Fluoride.
- Stapedectomy

