Acute Otitis Media (AOM)

↳ Acute purulent bacterial infection
M.E. Cleft

Causes:
URTI → ET → OM (→ movement!) SSHN *
Viral → Bacterial:
- Strep. pneumoniae
- H. Influenzae
- Moraxella catarrhalis
- S. Aureus

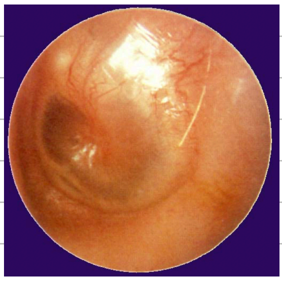
} most common URTI & LRTI

Incidence: Children: ET Abnormalities
Adults: NB to Ask why?!

History: Otalgia (ear pain) ⇒ Intense!!
(Discharge & Relief) → After Rupture
(Hearing Loss)

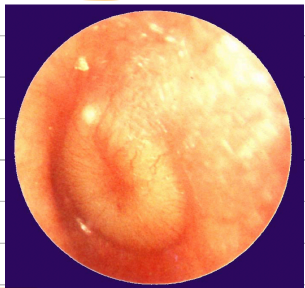
Clinical Examination & Phases of AOM:

1) TM Inflammation

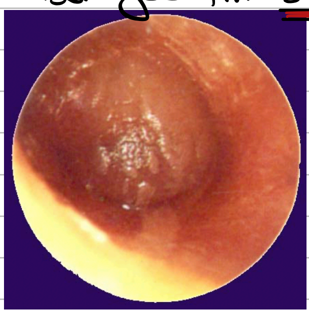


– pus behind TM = bulging

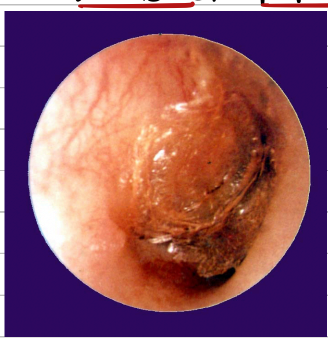
2) Exudate



3) TM Rupture & Discharge
↳ Blood Stained Discharge
↳ Bulges till bursts → Relief of pain when burst (Hearing loss)



4) Healing (Resolution)
↳ % burst + Heal
↳ % burst ≠ heal → COM



→ **Management**: [High Doses d/t Resistance] NB
↳ Bacterial = Antibiotic (oral)
↳ Amoxycillin – Aminopenicillin
↳ Co-Amoxyclavulanate (Augmentin) – "Co-Amoxiclav" β-Lactamase
↳ 2nd Gen Cephalosporins (Gram+)
↳ cefuroxime

↳ Analgesics
↳ Panado (paracetamol) – Also Antipyretic
↳ NSAID'S (careful of C/I)

↳ ? Myringotomy → Surgical procedure of TM
↳ relieve pressure = incision made in TM
↳ Debatable (controversial)

Chronic Otitis Media (COM/CSOM)

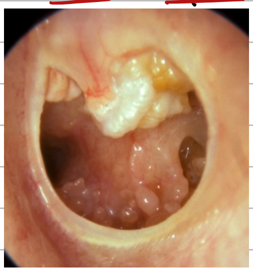
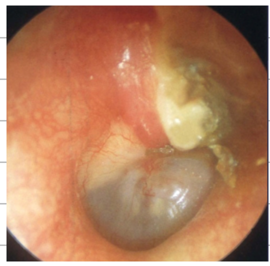
↳ Always Discharge *
↳ Defect in TM -> Burst ≠ heal (or something)
↳ Association with persistent Otorrhoea
↳ can also be intermittent

3 Types:
- With Cholesteatoma
- No Cholesteatoma (Just hole in TM)
- TB
  ↳ in every Discipline if chronic inflammation present = Always DDx TB

May be Active / inactive (otorrhoea)
Hole + Discharge | ↳ Hole + No Discharge

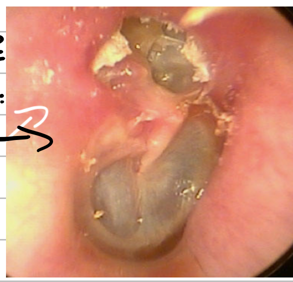
COM with Cholesteatoma:
↳ Skin in External Ear / ME — acts like a tumour
Desquamates into ME (builds up)
↳ via TM defect

History: Persistent otorrhoea
: Non-Responsive to COM txt
↳ once infection in = Hard to get out

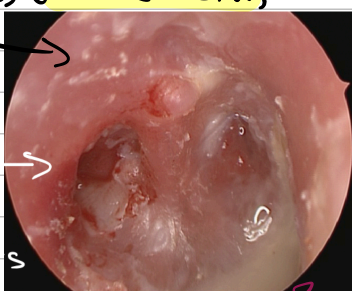



Chole Examination:
↳ Skin/Debris where it does not belong! — Deep to TM

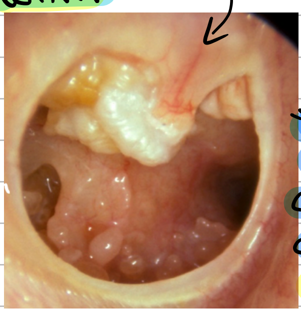
Site of TM Defect:
"Attic" -> pars flaccida — NB



post.-Sup. Marginal:
- Behind sucked-in piece of TM
↳ Squamous Debris (build-up) within (keratin)

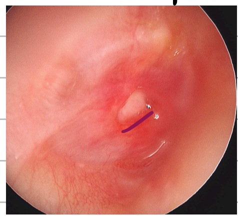
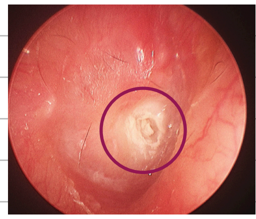
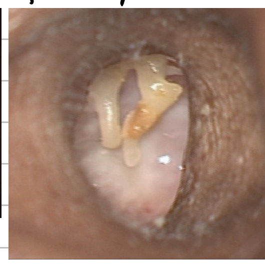


(central)
- Big perforation
- pars tensa defect
- within

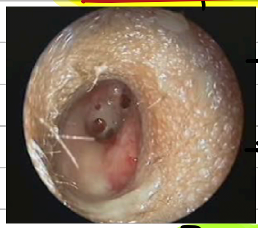


seems to be NB?
Sentinel polyp — "granulation tissue"
Bad smell — "mousey"
Complications are of chronic nature
Cholesteatoma txt — *Surgery Always
NB removal of skin!! - Exteriorisation
- Eradication — NB

COM d.t TB
→ not common but must be aware of it.] NB
↳ Initially ≈ ordinary OM — clue = white lifeless portion
↳ non-responsive to normal txt (TB) → Association with HIV?
↳ 50% of TB COM cases have pulmonary TB also

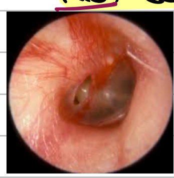
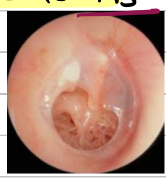
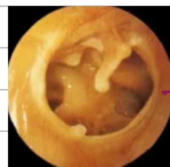
- NB White tissue Necrosis!
- Multiple perforations!! NB NB
- Osteitis -> Bone Destruction = "Naked ossicles"
- CN VII palsy (facial)
  ↳ (NB) {Super NB}
↳ In SA, a person with runny ear & facial Nerve palsy has TB until proven otherwise
NB:



-> Image Representing multiple perforations in COM d.t TB
-> notice how white & Avascular the area is!

- Be aware of non-response to normal txt
↳ Management of COM d.t TB (TB COM/CSOM)
↳ Dx difficult -> Finding AFB's
-> Biopsies
GeneXpert (PCR) -> culture slow
Rx = same as pulmonary TB → go look at TB drugs

COM without Cholesteatoma + NO TB: (most common)
↳ Perforation of TM (AOM + ≠ heal)
↳ Mucosa + No Skin in ME (ME still has mucosa) — RE.
↳ Not due to TB

-> can be active / inactive (Discharge)
Active : Infection
Inactive : No infection

- Problems -> otorrhoea
-> Hearing loss

Getting Active COM -> Inactive:
- Aural toilet — have more from (-) in COM!!
- topical Antibiotics (not oral)
- Patient Instructions to keep it

Management *
- Get ear Dry — ENT surgeon
- consider tympanoplasty
- consider hearing assistance

Inactive
=> Aural toilet
↳ combined with
Antibacterial Rx

- Syringing — body temp H_2O; position patient; pull EAC
- Dry Mopping — Orange stick + fine cotton wool; Straighten EAC; Advance & twist gently

NB Exclude TB & Cholesteatoma

Antibacterial Rx in COM:
Bacteriology: Mixed bag of org.
- pseudomonas aeruginosa
- S. aureus
- proteus
- klebsiella pneumonia etc.

all resistant to Augmentin
∴ use local
Local = more effective
no need for Systemic

Which Local Antibacterial Rx?

→ Quinolone + Steroid ear drops
↳ Gold ↳ Stop DNA Replication ↳ ↓ inflammation
↳ Aminoglycosides have good Fx but theoretically are ototoxic

DOH = co-trimoxazole + 1% Acetic Acid
⇒ completely useless Bnux!!

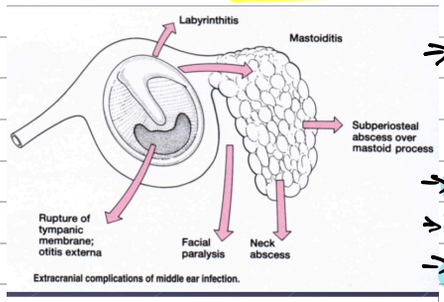
↳ Dr. Use (Boric Acid) Powder *
(Anti-Septic powder)
↳ Study proved it worked very well + such a low cost!

Complications of AOM & COM:

- CN III paresis — most common in TB; facial Nerve
  NB Because!

2 Main complications:

↳ Mastoiditis (mastoid air cells) — Leads to
(OM → Air cells)

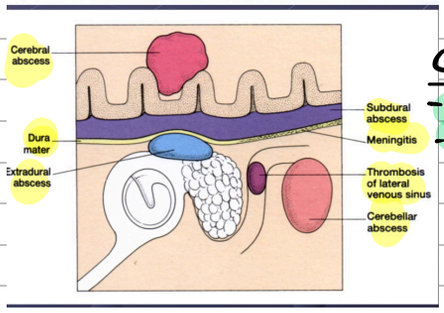


Extracranial complications of middle ear infection.

→ Intracranial Sepsis
- Meningitis
- Abscess
NB
→ Labyrinthitis — Inner ear infection
→ Lateral sinus thrombosis *
→ Petrositis (P temp bone) *

→ NB complication

CAN Jump due to close proximity



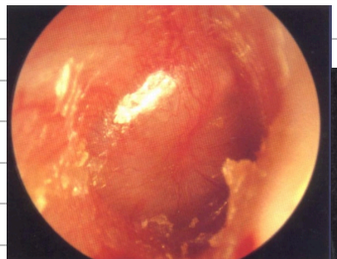
Causes:
- AOM
- COM (CSOM)
  ↳ cholesteatoma?

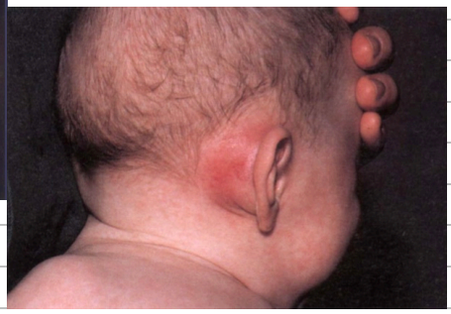
Mastoiditis = Pus collection in mastoid air cell system
{ ↳ very close to brain = DANGEROUS!! }

Clinical Picture of Mastoiditis:

- AOM / COM but also:
  - Patient more sick
  - Signs of inflammation over Mastoid Antrum
  - Pinna displaced NB.

⇒ "Masked" Mastoiditis → S/S suppressed if patient on AB already





Since Mastoid behind ear = pushes TM Anteriorly!!

Mastoiditis Rx:
↳ IVI AB { → Vancomycin, ceftriaxone.
& Mastoidectomy
↳ Draining of pus from Mastoid cells

↳ Quinolone
↳ ciproflox
↳ Levoflox etc.

COM → infected = Boric A. powder
↳ ∅ cholesteatoma & ∅ TB

Otitis Media with Effusion (OME/MEE)

↳ other names = "Glue Ear"
= Middle Ear effusion
= Secretory / Serous otitis media

Give impression of infective but it isn't

⇒ Sterile fluid in ME (behind intact TM) *

⇒ Causes:
↳ inadequate ventilation of ET
? Adenoids

⇒ ME usually Air!
ET inadequate = (-) pressure in ME
↳ RE secretes fluid into (-) pressure area!

Incidence = Children +++ (ET problems)

S&S: None
↳ Hearing loss but can still hear.
↳ If child pulls on his/her ears = NB due to OME

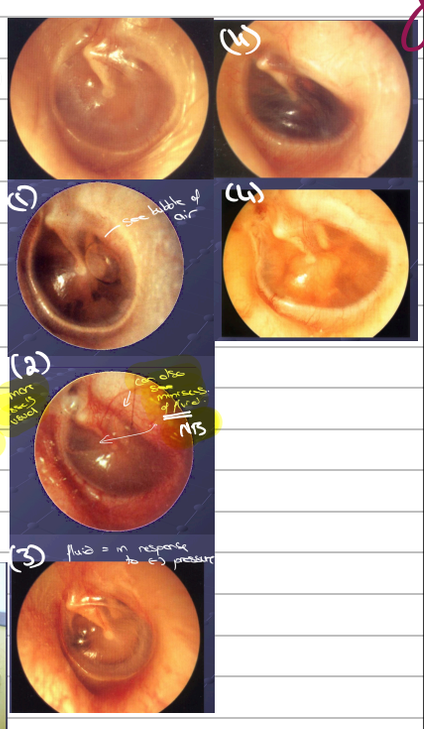
* NB S&S

pulls on ears lots = sign for OME

NB = NB

Signs: (not obvious!)

? fluid visible (1)
? Inflammation of TM (2)
? Retracted TM (3)
? Discoloured TM (4)



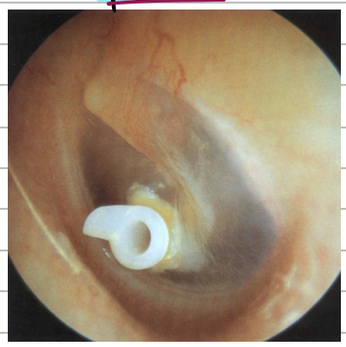
Pneumatic otoscopy
↳ Blows air onto TM
if TM move like supposed to = Air in ME
if not move = fluid in ME

Special Investigations: -> Tympanometry

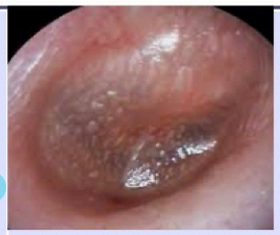
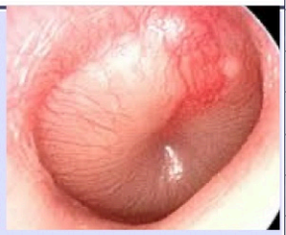
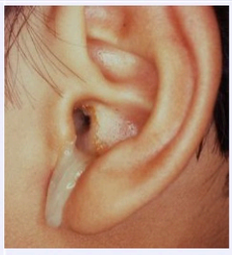
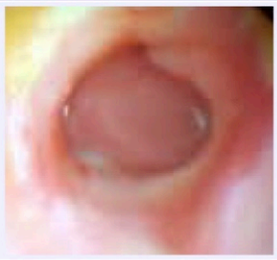
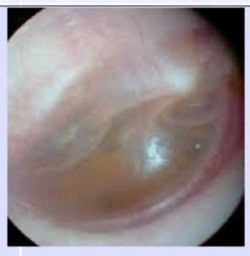
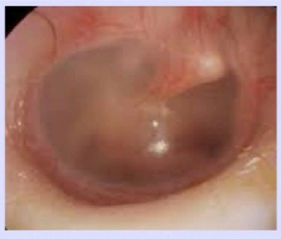
↳ Management?
↳ NB Give time for spontaneous Recovery

=> Medically no real management
→ invasive!

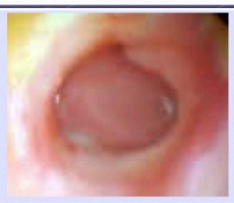
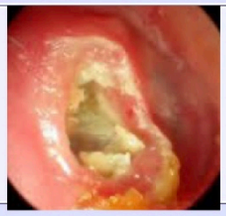
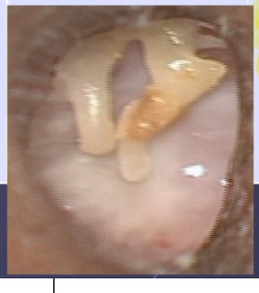
=> "Grommets" → In child = wait 3 months for spontaneous recovery before any procedure done!



Summary: The 3 Otitis Media's

OM type All are different	Presenting symptom	Examination & Classification	
Acute Otitis Media (AOM)	Otalgia middle ear pain	Inflamed TM ↳ No discharge until TM Ruptured (blood stained discharge)	 
Chronic Otitis Media (COM/CSOM)	Otorrhoea ↳ effusion from ear	TM defect +/- pus ~ Without chole ~ With chole ~ TB	 
Otitis Media with Effusion (OME/MEE)	Mild-mod hearing loss – conductive	Intact TM No perf/discharge Sterile effusion behind intact TM	 

Summary: The 3 COMs

COM type	Clinical Characteristics		Rx:
Without chole ("Mucosal")	Otorrhoea +/- Perforation No squ epith in ME No TB		Active: Get dry (toilet, local Rx) Keep dry ?Tympanoplasty ?Hearing aid
Cholesteatoma ("Squamous")	Otorrhoea persistent TM defect Squ epith in ME		Surgical
TB Otitis Media	Otorrhoea resistant ?Pulmonary TB Tissue necrosis Exposed bone /Osteitis VII palsy		Recognise Investigate Rx for TB

- Which pathogens are common in the upper respiratory tract including the middle ear (1)
- Which otitis media presents with pain (2)
- Which otitis media presents with otorrhoea (3)
- Which otitis media does not present! (4)
- 5 serious complications of Acute /Chronic OM (5)
- Why the diagnosis of mastoiditis can be compared with Shaka's war tactic (6)
- The surface landmark of the mastoid antrum (7)
- 5 symptoms and signs of cholesteatoma (8)
- How to complete the sentence: "In SA, a child with a runny ear and a facial palsy has ….. Until proven otherwise" (9)

1) H. Influenza
S. Aureus
S. pneumoniae
Moraxella catarrhalis

2) AOM = pain

3) COM (Active)

4) OM with Effusion (OME)

5) Mastoiditis
- Meningitis
- Intracranial Abscess
- Petrositis (temporal bone)
- Subdural Abscess
- Intracerebral Abscess
- Lateral Sinus thrombosis

CN VII palsy (facial Nerve)

6) Look down ear - Red
- Mastoid Antrum Red
- Inflammation = push TM Down = could be mastoiditis

7) Posterior Superior of Ear canal

8) COM (Cholesteatoma)
- Purulent otorrhoea
- keratin Debris (Deep to lat of TM)
- Pars flaccida defect = Granulated Cholesteatoma
- Perforated TM
- Posterior. Sup. Marginal Pars flaccida defect
- Sentinel polyp posterior superior
  - chronic → process
  - inactive

9) TB