

Chronic Ear Disease

Daekeun Joo

Resident Lecture Series

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ETD

- URIs
- Viral-induced damage to ET lining resulting in decreased mucociliary clearance
- Viral invasion of ME mucosa results in inflammation
- Reflux of NP bacteria through ET causing infection of ME
- Allergies causing ME & ET inflammation
- Anatomic abnormalities such as cleft palate or other craniofacial abnormalities

3 Physiologic functions of the ET

1. Ventilation or pressure regulation of the middle ear
2. Protection of the middle ear from NP secretions & sound pressures
3. Clearance or drainage of middle ear secretions in to the NP



Cholesteatoma

- Squamous epithelium trapped w/in skull base, t-bone, middle ear or mastoid
- Bone erosion occurs by 2 mechanisms:
 1. Pressure effects (applied consistently over a long period of time) produce bony remodeling
 2. Enzymatic activity at the margin of the chole enhances osteoclastic activity (increased when chole becomes infected)

Management

- In the early half of the 20th century, cholesteatomas were managed by exteriorization (i.e. mastoid air cells exenterated, posterior EAC removed & ear canal widened) – CWD approach
- In the 1950s & 60s, the House Clinic really clarified the anatomy of the facial recess to access the ME w/o taking the canal wall down

Goals of surgery for cholesteatoma

- To make the ear safe by eliminating all chole & chronic infection
- To make the ear problem-free for all usual activities of daily living including swimming
- Conserve residual hearing
- To improve hearing if possible

Patient with cholesteatoma in an only-hearing ear...what is the management?

- CWD mastoidectomy with complete removal of chole
- CWD mastoidectomy with exteriorization of chole
- CWU mastoidectomy with 2nd look in 6-9 months
- No surgery

3 Types

- Congenital – squamous epithelium trapped w/in t-bone during embryogenesis (usually found in ant. mesotympanum or periET area)
- Primary acquired – arise as a result of TM retraction. Can occur in the epitympanum or posteriorly enveloping the stapes & retracting into the sinus tympani
- Secondary acquired – occur as result of injury to the TM (i.e. AOM, trauma, even PE tubes)

What is the most common cause of continuous otorrhea in a patient that's already had a CWD mastoidectomy?

- Facial recess not drilled out enough
- Remnant sinodural angle cells
- Cholesteatoma left in sinus tympani

What is this?



- Keratoma obturans
- Primary acquired cholesteatoma
- Secondary acquired cholesteatoma
- Primary cholesteatoma

A patient comes in with severe OE, pain and CN VII palsy, what is the best imaging modality for dx?

- CT
- MRI
- Radionucleotide scan

A pt inadvertently has a TM retraction pocket extending into the sinus tympani transected during middle ear exploration. The TM defect was repaired with a graft. Which postop complication is he at greatest risk for?

- Chole in epitympanum lateral to incus
- Chole in mesotympanum medial to incus
- Perilymphatic fistula at oval window
- Damage to the lateral semicircular canal

CSOM

- Chronic serous OM is defined as a MEE w/o perforation that persists > 1-3 months
- Chronic suppurative OM is a perforated TM w/ persistent otorrhea >6-12 wks
- Pseudomonas, S. Aureus, Proteus and K. Pneumoniae are most common

Medical vs. Surgical Management

- Treatment aims include: antibiotic gtt, regular aggressive aural toilet and control of granulation tissue
- Indications for surgery in CSOM include: perf > 6 wks, otorrhea > 6 wks despite gtts, chole, CT e/o chronic or coalescent mastoiditis, CHL

Child with OM & opacified mastoid air cells on CT but no coalescence. Cx not helpful and pt spiking temps despite 3 days of IV Abx...

- Radical mastoidectomy
- Complete mastoidectomy
- Simple mastoidectomy
- Antibiotic drops and steroids

5 Types of T-plasties (Wullestein)

- Type 1 – simple closure of TM w/o OCR
- Type 2 – any kind of OCR involving malleus, incus or both
- Type 3 – placing TM graft over stapes head
- Type 4 – stapes head absent but footplate present, so footplate is exteriorized to mastoid & graft is placed over it
- Type 5 – fenestration operation (not done anymore)

Types of Mastoidectomies

- Cortical mastoidectomy – removal of mastoid cortex & exteriorization of mastoid air cells
- CWU – can be used to eradicate chole through a facial recess approach
- Modified radical – CWD, but the ossicles & TM remnants are preserved for hearing recon
- Radical – ME & mastoid are exteriorized into a single cavity. Ossicles removed except stapes footplate & ET closed off.

When performing a mastoidectomy, drilling too deep during a facial recess approach can result in injury to which structure?

- Posterior semicircular canal
- Lateral semicircular canal
- Chorda tympani
- Mastoid segment of facial nerve

What is the most common complication of revision cholesteatoma surgery

- Labyrinthine fistula
- Facial nerve injury
- TM perforation
- Hearing loss

While in surgery the surgeon notes that the cog has been eroded by chole, what is the most likely other structure affected?

- Lateral semicircular canal
- Vertical segment of FN
- Labyrinthine segment of FN
- Tympanic segment of FN

Which of the following theories on the pathogenesis of acquired chole does not exist?

- Invagination of the tympanic membrane
- Transdifferentiation
- Basal cell hyperplasia
- Epithelial ingrowth through a perforation
- Squamous metaplasia of middle ear epithelium

The diagnosis of petrous apicitis is suspected by....

- Scintigraphy
- Plain X-Ray
- Surgical exploration
- Clinical grounds and CT
- Tympanometry

It has been observed that pts with a h/
o COME have...

- More sclerotic mastoids w/ decreased pneumatization compared w/ healthy pts
- Less sclerotic mastoids with decreased pneumatization compared w/ healthy pts
- More sclerotic mastoids w/ increased pneumatization compared w/ healthy pts
- Less sclerotic mastoids w/ increased pneumatization compared w/ healthy pts
- More sclerotic mastoids w/ absent pneumatization compared w/ healthy pts

Tympanosclerosis is associated with...

- Atherosclerosis of the internal carotid artery
- Necrosis of the tympanic membrane
- Cholesteatoma
- History of otosclerosis
- Recurrent bouts of acute otitis media

The End