

Ear Disorders

Disorders of the External Ear

☀ Trauma

- Ⓢ Perichondritis:
 - antibiotics
 - deformed pinna can result depending on severity
- Ⓢ Hearing loss
 - conductive hearing loss due to ossicle damage or TM perforation
 - Temporal lobe damage can affect pt ability to understand spoken words

☀ Impacted Cerumen

- Ⓢ elderly
 - cerumen drier and more dense
 - Ear hair thicker and can trap wax
- Ⓢ S+S: Hearing loss, otalgia, tinnitus, vertigo
- Ⓢ Treatments
 - Irrigate with room/body temperature solution/water
 - Ceruminolytic agent to soften ear wax, Colace liquid often used

☀ Foreign Objects

- Ⓢ Who: kids and mentally disabled
- Ⓢ What: food, insects, beads, corn
- Ⓢ Where: external auditory canal
- Ⓢ Treatments: Irrigate- Contraindicated if the foreign object can swell once irrigated

☀ External Ear Malignancy

- Ⓢ Rare
- Ⓢ sand paper texture
- Ⓢ simple excision or liquid nitrogen as treatment

☀ Acute External Otitis

- Ⓢ Inflammation of epithelium in outer ear
- Ⓢ Common
 - maceration of epithelium
 - prevent
- Ⓢ Pathophysiology
 - Organism gains entry through skin
 - ideal environment
- Ⓢ Causes: bacterial or fungal
 - Pseudomonas aureginosa
- Ⓢ S+S
 - Otolgia - Aggravated by touching, otoscope exam will be painful
 - Drainage
 - Hearing loss- Conductive
- Ⓢ Diagnosis- s/s, reaction to palpation of the ear, may have drainage to culture

- ⊙ Treatments
 - Analgesics, Warm compresses, and topical anesthetics
 - Other
 - ◆ Bacterial
 - ◆ Fungal
 - ◆ Ear wicks
 - ◆ systemic antibiotics
 - ◆ Prevention- Burrows solution, wear ear plugs in water

Disorders of the Middle Ear

☀ Acute Otitis Media

- ⊙ purulent exudate within the middle ear
- ⊙ Risk Factors
 - Children, Smoke exposure, illness, bottle-feeding, Boys, URI's, Winter
- ⊙ Pathophysiology
 - Infection of inner ear with pus formation after organism gains access to middle ear
- ⊙ S+S
 - Unilateral otalgia
 - Systemic: fever, chills, malaise, n/v
 - Drainage if the TM ruptures
 - Hearing loss
 - Dizziness and vertigo
- ⊙ Diagnosis
 - Ooscopic exam will show TM bulging, red, angry looking
 - C+S PRN if TM ruptured
- ⊙ Treatment
 - Heat/cold application
 - Systemic Ab therapy
 - Analgesics: Ibuprofen, acetaminophen
 - Antihistamines
 - Myringotomy and Tympanostomy with recurrence
 - ◆ Myringotomy:
 - ◆ Tympanostomy

☀ Chronic Otitis Media

- ⊙ Results from chronic or poorly treated acute otitis media
- ⊙ Chronic infection of the middle ear, injures the ossicles/TM
- ⊙ S+S
 - Purulent exudate
 - Painless
 - Hearing loss due to damaged ossicles
 - Nausea
 - Dizziness
- ⊙ Complications
 - Cholestatoma
 - ◆ Benign mass of epithelial cells and cholesterol, erodes bones (ossicles)
 - ◆ surgery is needed to remove the mass of cells

- Mastoiditis
 - ◆ mastoid bone involved from middle ear infection spreading
 - ◆ occurrence is less due to more aggressive ear infection tx
 - ◆ S+S
 - Mastoid process: erythema, edema, tender, warm, Fever and H/A
 - ◆ Treatment
 - Abx administration
 - Mastoidectomy
- Ⓢ Diagnosis
 - History
 - Otoscopic exam
 - C+S
 - Audiogram
 - Imaging
- Ⓢ Treatments
 - Antibiotics (ear gtts, PO, or IV)
 - Tympanoplasty-surgical reconstruction of middle ear
- 🌿 **Chronic Otitis Media with Effusion**
 - Ⓢ fluid located in middle ear
 - Ⓢ Pathophysiology
 - Fluid pulled into ear from negative pressure
 - Fluid is a good medium and can predispose patient to infectious process
 - Ⓢ Causes: Obstruction of the Eustachian tube
 - ◆ enlarged adenoids, severe inflammation, URI, sinus infection
 - Barotrauma- from scuba diving, flying
 - Ⓢ S+S
 - hearing loss
 - fullness in the ear
 - Snap, crackle pop from fluid sloshing all around in ear
 - Ⓢ Diagnostics
 - Otoscope- TM dull, may see fluid and/or air bubbles
 - Hearing test- conductive hearing loss is a main s/s, children may have delayed speech or learning deficits due to hearing loss.
 - Ⓢ Resolve on own within weeks to month
- 🌿 **Otosclerosis**
 - Ⓢ Abnormal ossicle bone growth that fixates the stapes, prevents normal vibration and sound transmission
 - Ⓢ Characteristics
 - Inherited- an autosomal dominant disorder, Common cause of conductive hearing loss
 - Ⓢ S+S- hearing loss
 - Ⓢ Diagnosis
 - Schwartz's sign- reddish blush color of the TM
 - Rinne Test-bone conduction would be heard longer than air and would indicate abnormal rinne test.
 - Audiogram

- Tympanometry-evaluates tympanic membrane motility
- Ⓢ Treatments
 - Supplements to stabilize the spongy growths
 - Hearing aid increases sound detected by inner ear and can improve hearing
 - Stapedectomy and Fenestration to re-establish normal sound pathway by removing the fixated stapes and replace it with a prosthesis. Conscious sedation surgery. Hearing will improve slowly as fluid decreases with healing.
- 🌿 **Postop Care with Ear surgery**
 - drainage is expected, but should get better each day not worse.
 - soft foods to chew which will cause less discomfort
 - Earplugs for bathing/swimming
 - Avoid: quick position changes, cough, exposure to illness
 - Prevent ear pressure changes: no flying, open mouth when coughing/sneezing
 - Call DR for: fever, uncontrolled pain, increased hearing deficit, vertigo

Inner Ear Disorders

- 🌿 Tinnitus
 - Ⓢ Ringing in the ears
 - Ⓢ Diagnosis by patient complaint, description
 - Ⓢ Treatments- Avoid stress, alcohol, and fatigue
- 🌿 Meniere's Disease
 - Ⓢ Inner ear disease with: tinnitus, sensorineural hearing loss, aural fullness, and vertigo.
 - Ⓢ Risk factors
 - Ⓢ Pathophysiology
 - Increased endolymphatic fluid causes
 - abnormal pressure and rupture of the endolymphatic sac
 - permanent hearing loss
 - Ⓢ S+S
 - Attack preceded by
 - Vertigo
 - Tinnitus
 - Sensorineural Hearing Loss
 - Ⓢ Diagnosis
 - Audiogram
 - Glycerol test
 - ◆ Consume glycerol solution to dehydrate inner ear
 - Serial audiograms
 - Electronystagmography
 - Neurologic testing
 - Weber test
 - Ⓢ Treatments
 - Acute Nursing care:
 - ◆ Antihistamines, antivertigos (antivert), Benzodiazepines (valium), Anticholinergics (atropine) and Antiemetics (reglan)

- Chronic
 - ◆ Dietary changes:
 - ◆ Medications:
 - Surgical
 - ◆ Endolymphatic Sac Decompression
 - ◆ Vestibular Nerve Sectioning
 - ◆ Labyrinthectomy

- ✿ Hearing Loss
 - Ⓢ Tidbits
 - Ⓢ Types
 - conductive
 - causes: impacted cerumen, stenosis of auditory canal, middle ear disease, otosclerosis (not bone conduction)
 - Sensorineural
 - ◆ Causes: congenital, hereditary, noise trauma, aging, Meniere's disease, ototoxicity. systemic diseases, trauma, diabetes, meningitis
 - Mixed:
 - Functional
 - ◆ Central nervous system
 - ◆ Emotional or psychological.
 - Ⓢ Prevention
 - Noise trauma
 - Immunizations
 - Ototoxic substances
 - Ⓢ Management
 - Sign Language
 - Lip or Speech reading
 - Hearing Aides
 - ◆ Microphone amplifies sound
 - ◆ Use
 - ◆ Audiologist
 - Cochlear Implants
 - ◆ Adaptive device
 - ◆ Most beneficial:
 - ◆ External component
 - microphone
 - sound processor
 - ◆ Internal component
 - Coded sounds sent to inner electrode in cochlea
 - Ⓢ Nursing Care
 - preferred communication