

Ear Disorders

Disorders of the External Ear

✱ **Trauma**

- ⊙ Perichondritis: Trauma to the ear can cause subcutaneous tissue injury and a hematoma
 - 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 meaning of sound

✱ **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 restricted/disabled persons
- ⊙ 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

✱ **External Otitis**

- ⊙ Inflammation of epithelium in outer ear
- ⊙ Pathophysiology
 - Organism gains entry through small breakdown of skin
 - ideal environment
- ⊙ Causes: bacterial or fungal
 - Pseudomonas aeruginosa most common cause
- ⊙ S+S
 - Otitis - Aggravated by touching, otoscope exam will be painful
 - Drainage, Muffled hearing
- ⊙ Diagnosis- s/s, reaction to palpation of the ear, may have drainage to culture
- ⊙ Treatments
 - Analgesics, Warm compresses, analgesics and topical anesthetics
 - Antibiotics, Steroid drops
 - Prevention

Disorders of the Middle Ear

*** Chronic Otitis Media**

- ⊙ Results from chronic or poorly treated acute otitis media which is a middle ear infection
- ⊙ Chronic infection of the middle ear, injures the ossicles/TM
- ⊙ S+S
 - Drainage possible
 - 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
 - ◆ S+S
 - Mastoid process: erythema, edema, tender, warm, Fever and H/A
 - ◆ Treatment
 - Abx administration
 - Mastoidectomy
- ⊙ Diagnosis Chronic Otitis Media
 - Otoscopic exam
 - C+S
 - Audiogram
 - Imaging
- ⊙ Treatments
 - Antibiotics (ear gtts, PO, or IV)
 - Tympanoplasty-surgical reconstruction of middle ear, possible mastoidectomy

*** Otitis Media with Effusion**

- ⊙ Inflammation of the middle ear with collection of fluid in the middle ear space
 - Fluid pulled into ear from negative pressure if eustachian tube is blocked
 - Fluid is a good medium and can predispose patient to infectious process
- ⊙ Causes: Obstruction of the Eustachian tube
 - ◆ URI, sinus infection, barotrauma, otitis media
- ⊙ S+S
 - hearing loss
 - fullness in the ear
 - Ear popping
- ⊙ Diagnostics
 - Otoscope- TM dull, may see fluid and/or air bubbles
- ⊙ Resolve on own within weeks to month

*** Otosclerosis**

- ⊙ Abnormal spongy bone growth develops preventing movement of the footplate of the stapes in the oval window.

- This reduces transmission of vibrations to the inner ear fluids and results in conductive hearing loss
- ⊙ 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.
- ⊙ Treatments
 - Supplements to stabilize the spongy growths can be tried
 - Hearing aid increases sound detected by inner ear and can improve hearing
 - Stapedectomy to re-establish normal sound pathway by removing the fixated stapes and replace it with a prosthesis.
- ✱ **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
 - Keep ear(s) clean and dry
 - 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

- ✱ **Meniere's Disease**
 - ⊙ Accumulation of endolymph fluid in the membranous labyrinth
 - ⊙ Can affect both ears, usually only one, women more likely affected
 - ⊙ Cause unknown
 - ⊙ S/S: Excess fluid and increased pressure lead to hearing and balance problems, vertigo, tinnitus, and ear pressure/fullness
 - Nausea, vomiting, diaphoresis
 - ⊙ Diagnosis
 - Audiogram
 - Glycerol test
 - ◆ Consume glycerol solution to dehydrate inner ear
 - Serial audiograms after, if improvement in hearing= likely Meniere's
 - ⊙ Treatments
 - Acute Nursing care: Steroids, antihistamines, bedrest, antiemetics, antivertigo
 - Chronic Management: diuretics, steroids, low Na diet, stress reductions
 - Surgical
 - ◆ Endolymphatic Sac Decompression
 - ◆ Vestibular Nerve Sectioning
 - ◆ Labyrinthectomy
- ✱ **Acoustic Neuroma**
 - ⊙ Unilateral benign tumor where CN VIII enters auditory canal
 - ⊙ S/S- unilateral progressive sensorineural hearing loss, tinnitus, vertigo
 - ⊙ DX- CT, MRI
 - ⊙ Treatment- tumor removal

* Hearing Loss

⊙ Types

- conductive
 - ◆ Causes: impacted cerumen, middle ear disease, otosclerosis
- Sensorineural
 - ◆ Causes: congenital, hereditary, noise trauma, aging, Meniere's disease,
- Mixed- Combination of both conductive and sensorineural
- Functional- psychological problems? Brain problem?

⊙ Manifestations of hearing loss

- Straining to hear, cupping hand, irritability during conversation, asking to speak louder

⊙ Management

- Sign Language
- Lip or Speech reading
- Hearing Aides
 - ◆ Microphone amplifies sound
 - ◆ Usage
- Cochlear Implants
 - ◆ Most beneficial: to the patient who has already acquired speech/language
 - ◆ External component
 - microphone
 - sound processor
 - ◆ Internal component
 - Coded sounds sent to inner electrode in cochlea

⊙ Nursing Care for Hearing Impaired

- Ask for method of preferred communication
- Alert all staff to be sensitive to needs
- Lip reading etiquette
- Use assistive devices PRN