

Ear Fullness: When it's not just Wax or Fluid

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Otolaryngology - Head and Neck Surgery



Disclosures

- ◆ None



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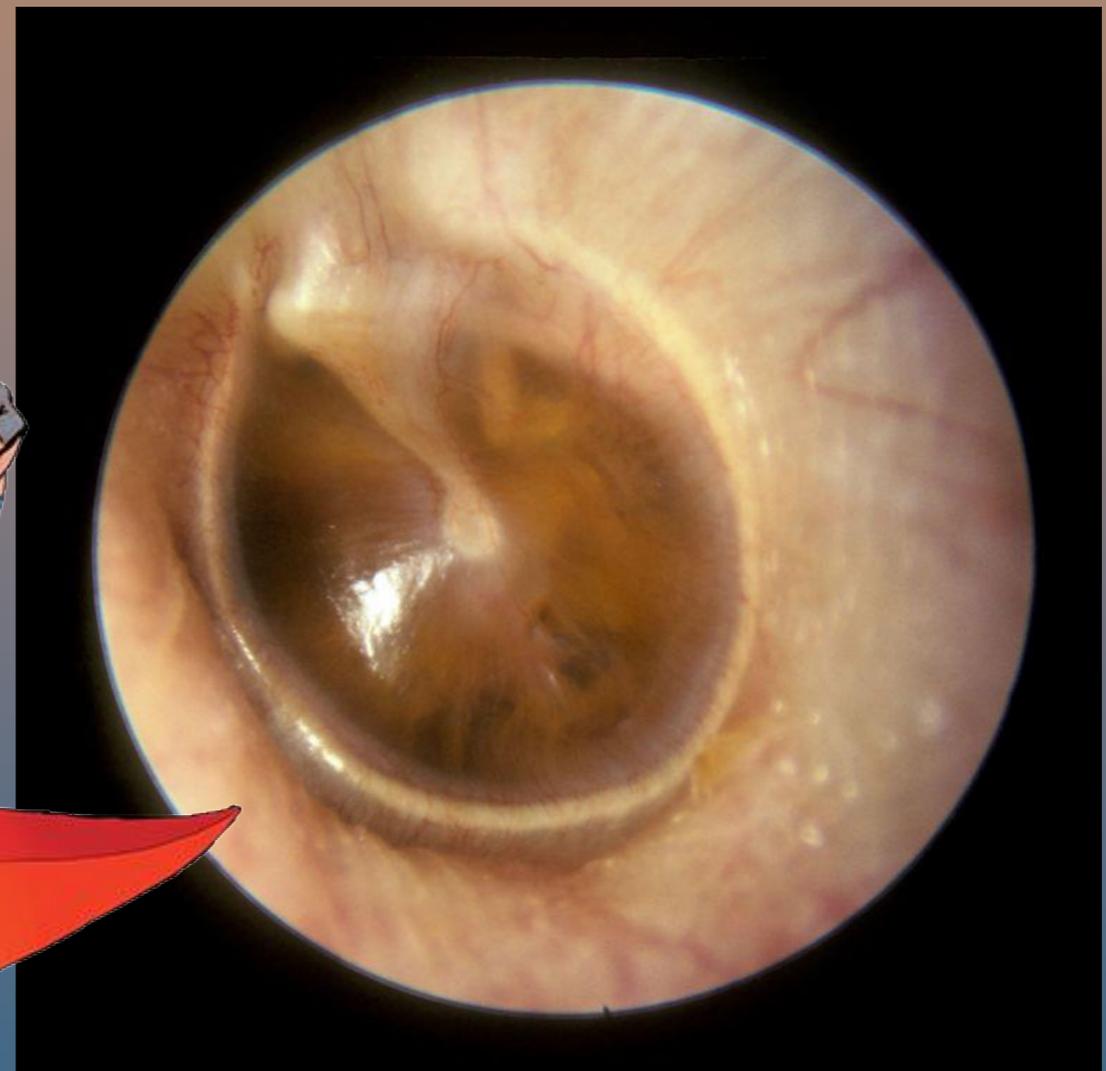
What is Ear Fullness?

- “my ear feels clogged or plugged”
- “i feel like I am under water”
- “i feel like I have to pop my ear”
- “i have a cotton or stuffy sensation in my ear”
- “my ear is under pressure”

Let's try these...



Ear Fullness=Cured!



Ear Fullness = ??



History

- Ear fullness: describe, duration, intermittent or constant, exacerbating & relieving factors
- Ask: What started this? URI? trauma? dental work?
- assoc EAR sx: hearing loss, tinnitus, otalgia, otorrhea, pruritis, vertigo, autophony, hyperacusis
- assoc ENT sx: nasal congestion, facial pressure, rhinorrhea, PND, epistaxis, snoring, sore throat, neck mass
- assoc OTHER sx: headache, fever, malaise, URI

Ear Fullness

- Park et al (2012)
 - Retrospective 432 pts CC: aural fullness (1.44% outpt)
 - Causes: 28.9% ETD (PET, ETO), 13.4% OME, 13.4% undiagnosed, 7.2% COM, 3.2% NPC
 - 65% normal TMs; TM is not significantly correlated to ear fullness ($p=0.188$)
 - 82% normal hearing (avg PTA 13.6dB)
 - SRT, SDS, DPOAE, ABR, ECOG were not significantly associated with ear fullness
 - No association with DM, HTN, AR, hepatitis, thyroid, cancer, migraines, depression, CRF ($p > 0.05$)

Park et al. Yonsei Med J 2012;53(5):985-991

Physical

- ◆ Binocular microscopy
- ◆ Valsalva | Toynbee maneuver
- ◆ Complete ENT exam
- ◆ FFL
- ◆ CN exam



Tests

- Pure tone and Speech audiometry
- Immittance testing
- ECOG?
- Imaging



External Ear Pathology causing Ear Fullness

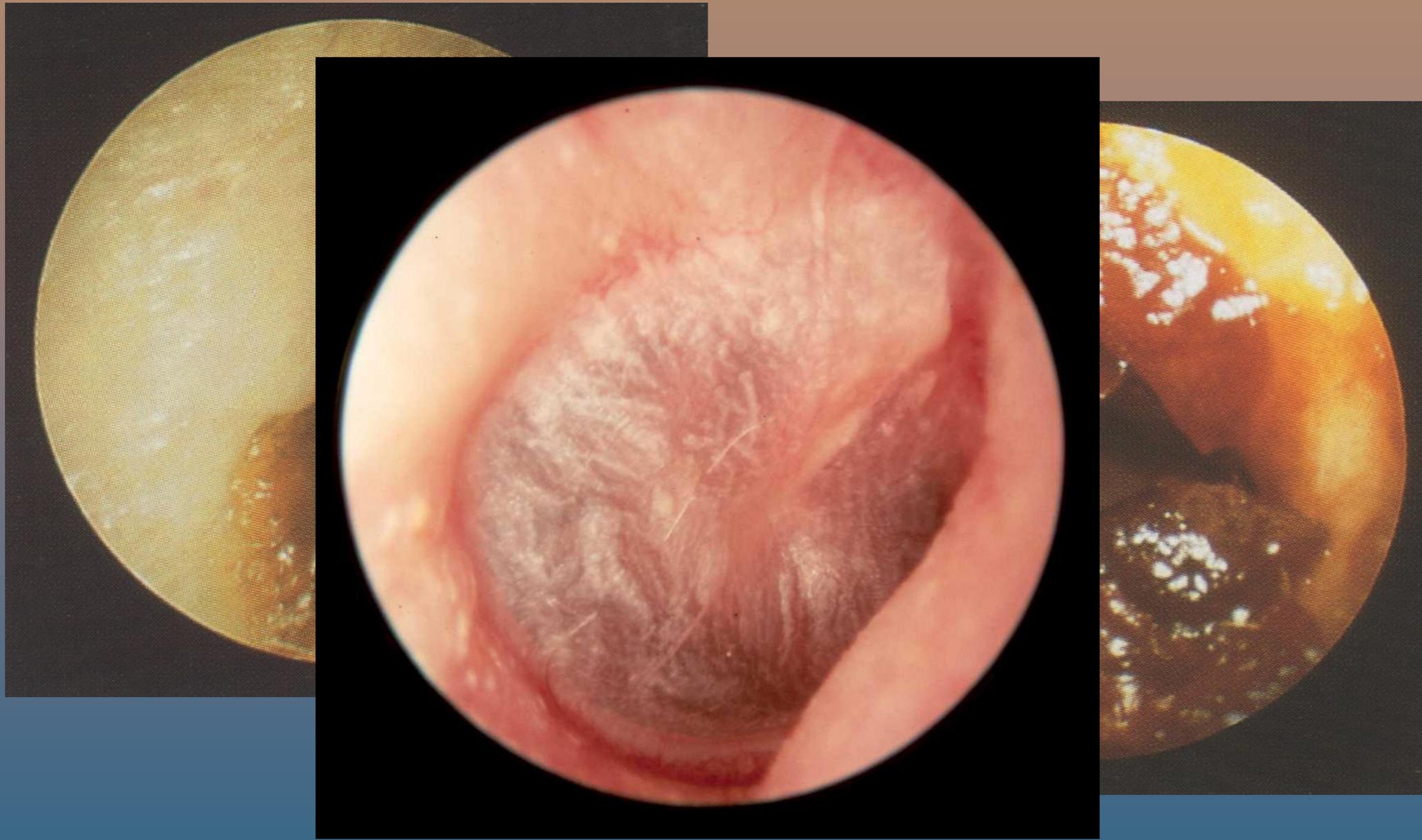


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Cerumen Impaction

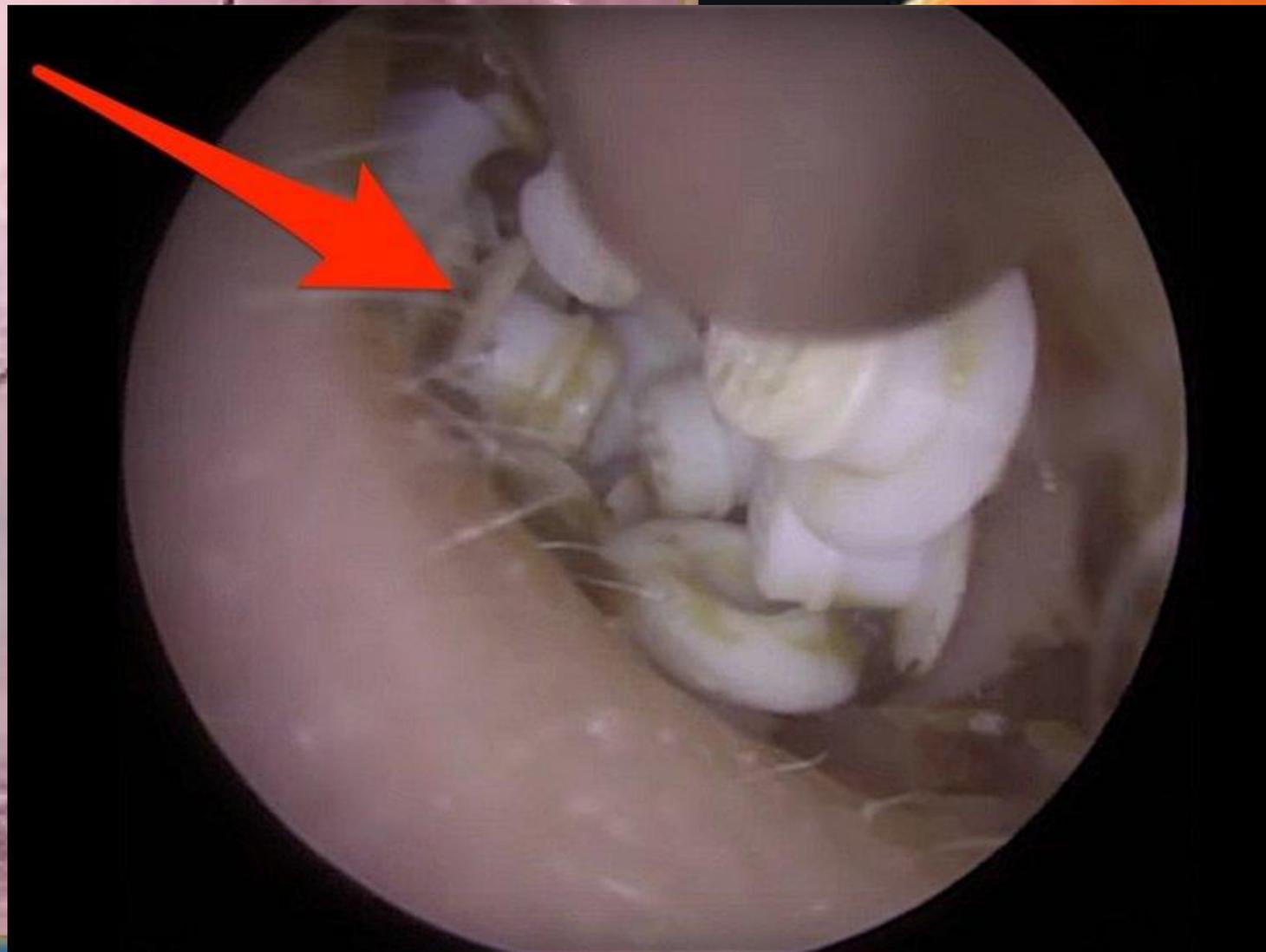
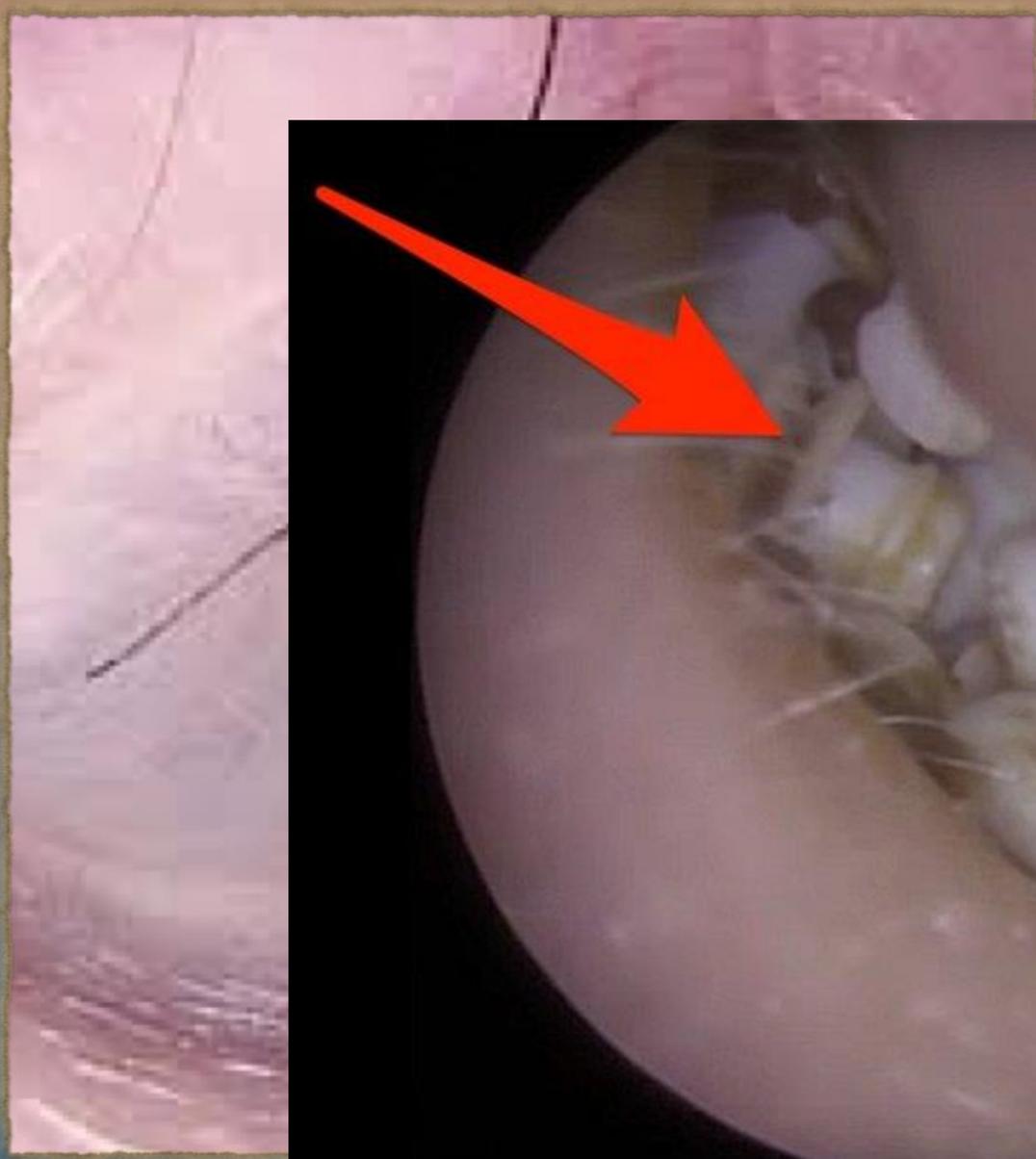


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Foreign Body



drpaulose.com

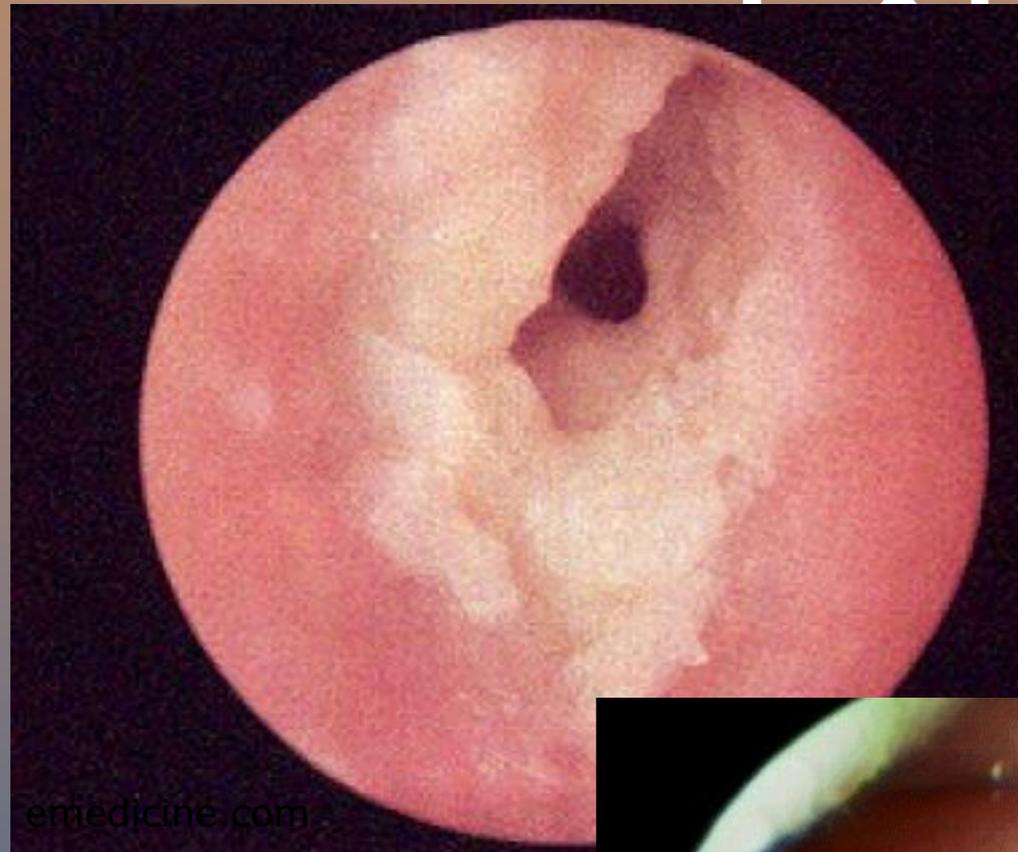


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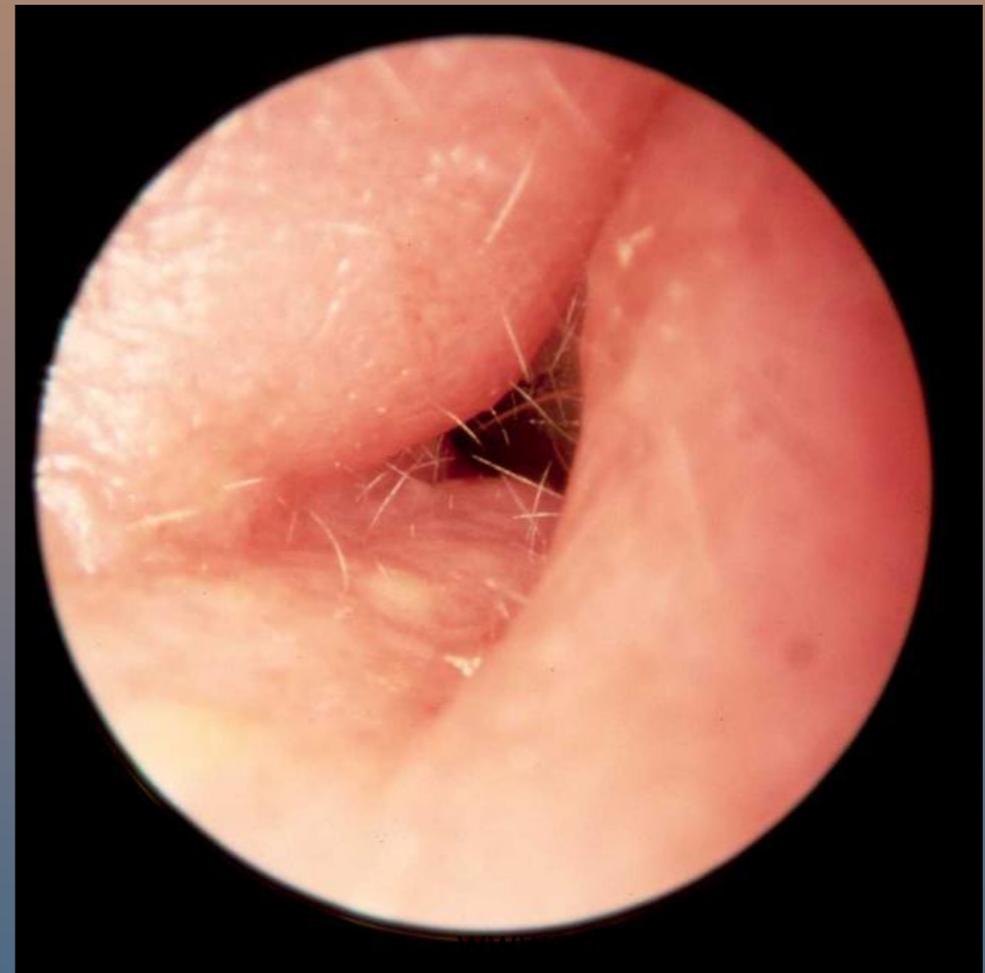
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Infectious Otitis Externa



Eczenmatoid Otitis Externa



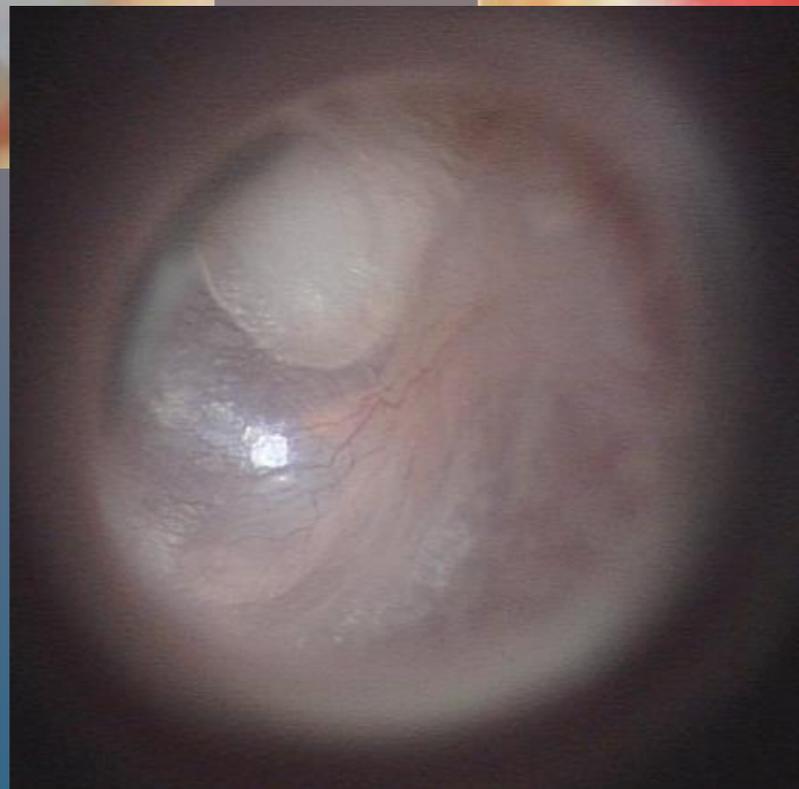
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Middle Ear Pathology causing Ear Fullness

Middle Ear Mass



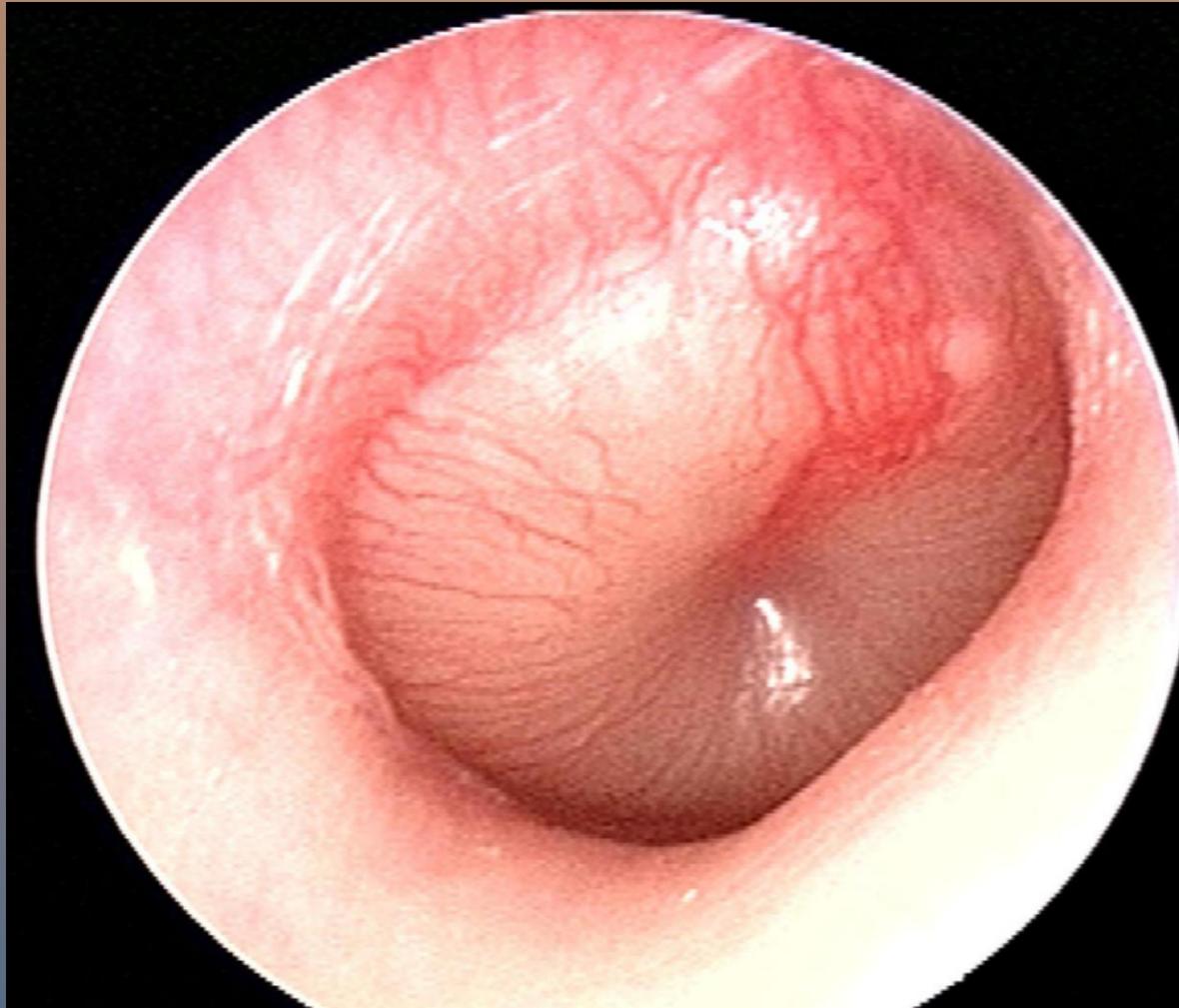
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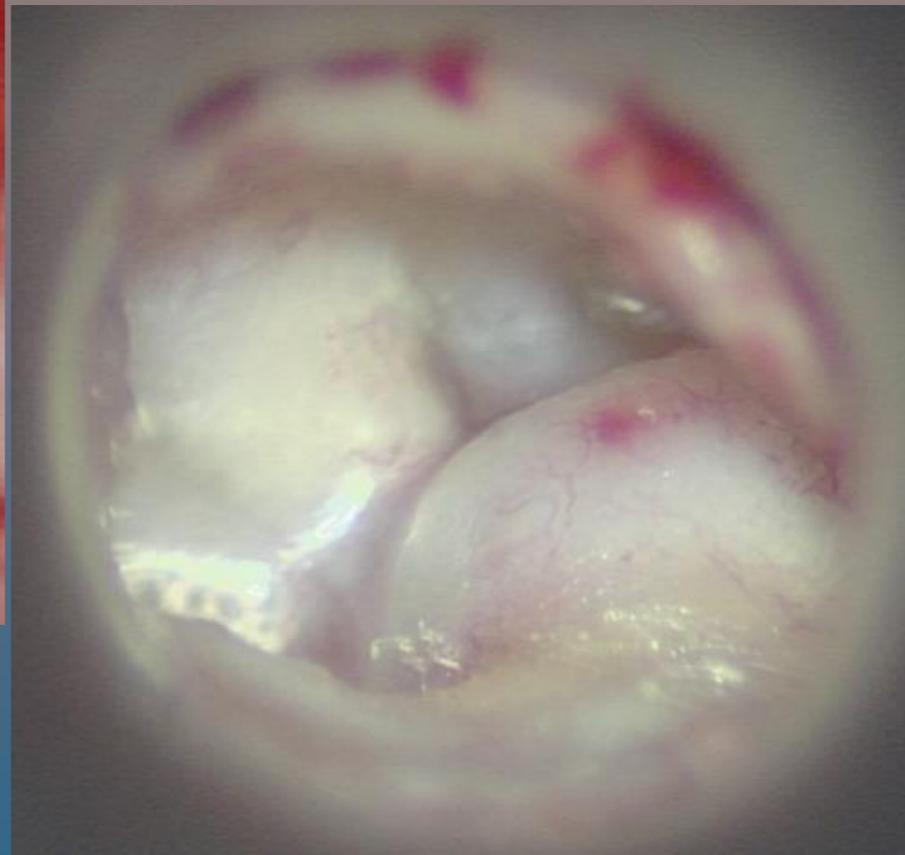
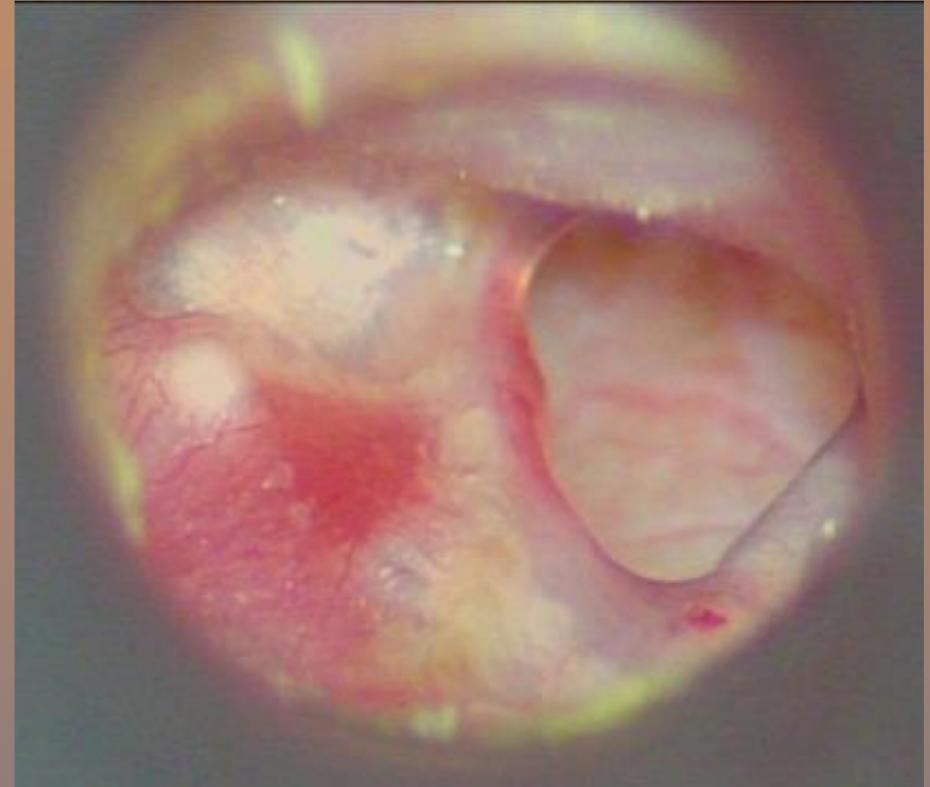
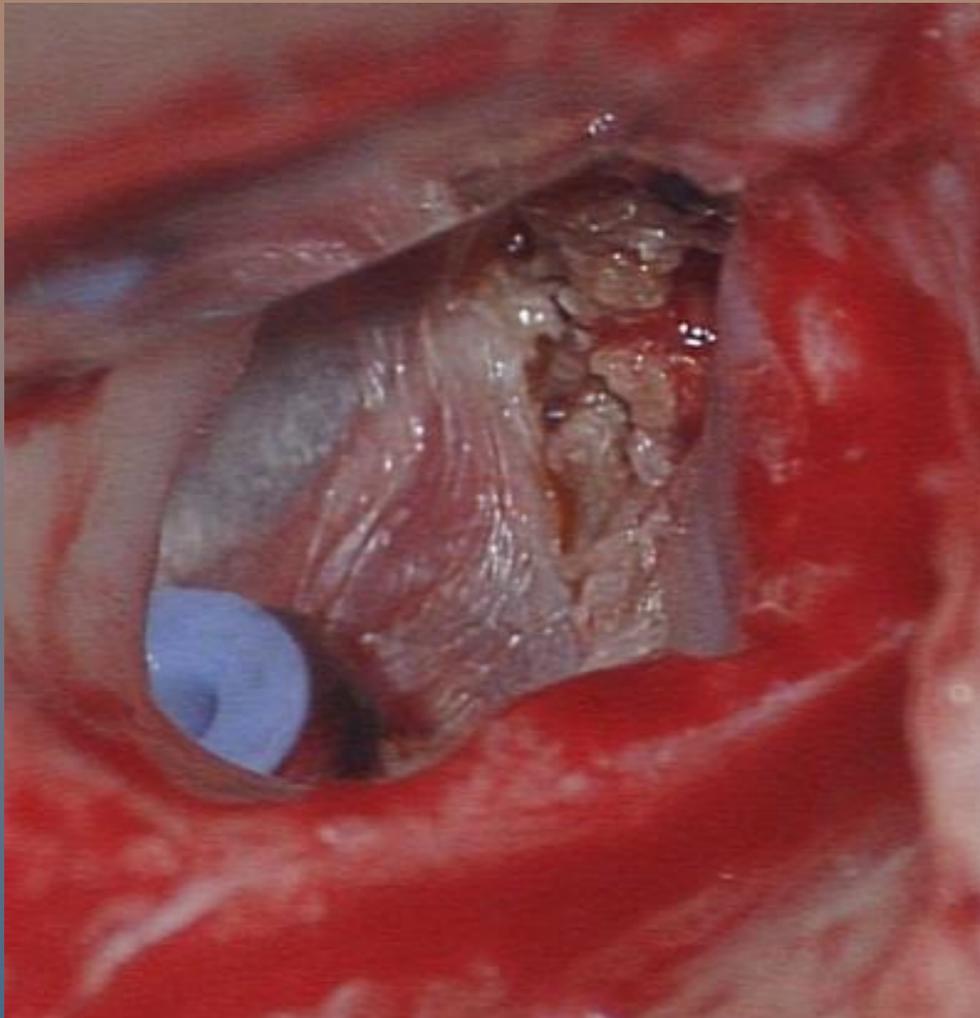
AOM | OME



ETD → Adhesive OM



Cholesteatoma



Patulous ET

- Symptoms: voice and breath autophony, aural fullness, echoing, pulsatile tinnitus, crackling
- Symptoms worsen with time, exercise, prolonged speaking or singing, swallowing or yawning, caffeine, antihistamines, decongestants, diuretics
- Symptoms improve by placing head in dependent position, forceful sniffing, ipsilateral IJV compression
- unilateral = bilateral

Patulous ET

- RFs: wt loss, XRT, nmd, pregnancy, HRT, CP repair, adenoidectomy cxn
- Medical Rx: estradiol nasal drops (0.83mg/mL, 1.33mg/mL), topical ascorbic acid drops, anticholinergic
- Surgical Rx: Eustachian tuboplasty (injection of filler or cartilage augmentation)



HBO

TABLE II.
Major Complications of Hyperbaric Oxygen Therapy.

Barotrauma

Ear or sinus trauma
Tympanic membrane rupture

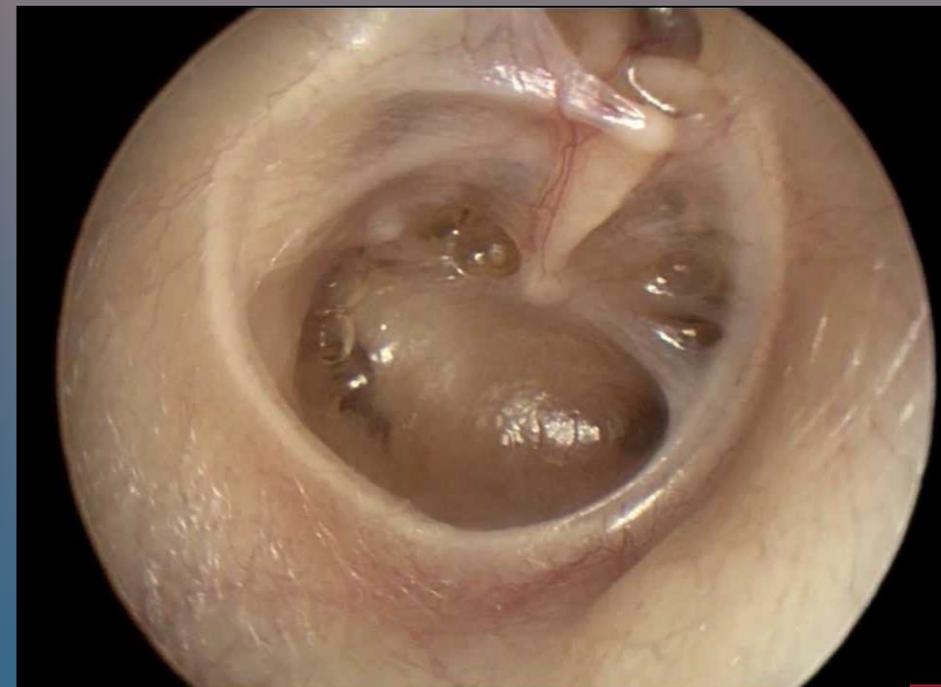
Pneumothorax
Air embolism

Oxygen toxicity

Central nervous system (seizures)
Pulmonary (arrest, ARDS)

Other

Fire
Reversible myopia
Claustrophobia



HBO

- pts with h/o ETD are at higher risk for developing SOM or severe otalgia requiring PET
- pts who develop ETD after 1st HBO show greater risk of middle ear complications
- Rx prevention: autoinsufflation, decongestants (topical & systemic), slower compression rates over longer duration, prophylactic PET insertion



NPC

- Rare tumor arising from NP epithelium
- Carcinomas: 99% adults, 35-50% kids
- Hx: nasal 78%, ear 73%, neck mass 63%, headaches 61%
- PE: painless neck mass 80%, bilateral jugulodigastric LNs, CN palsy 25%, FFL
- Tests: EBV titres, IgA, IgG, CT neck, MRI brain, PET, bone scan, CrCl / GFR
- Rx: chemoradiation

Inner Ear Pathology causing Ear Fullness



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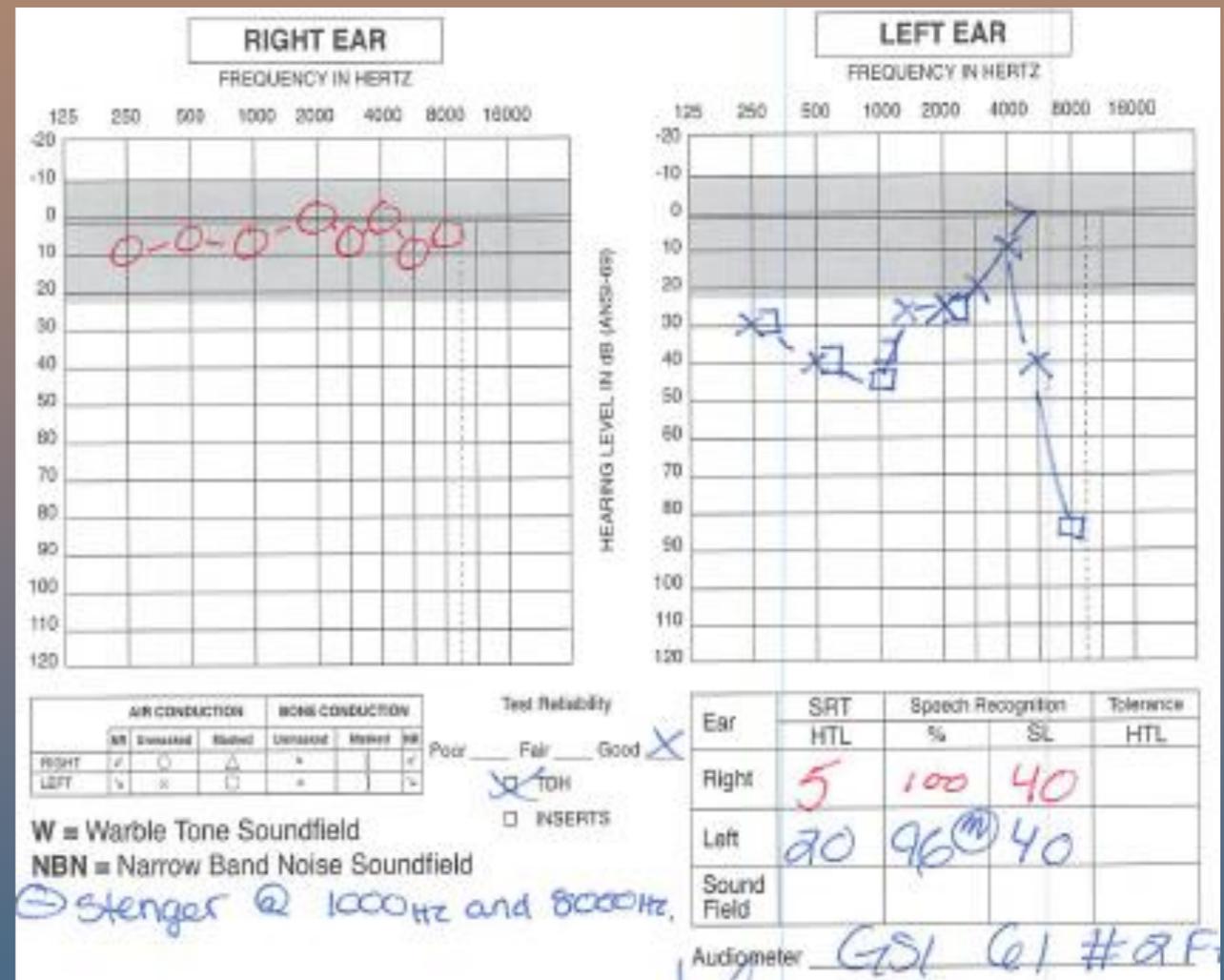
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SSNHL

- rapid onset of subjective hearing loss over 72hrs
- SNHL >30dB affecting 3 consecutive frequencies
- idiopathic when no identifiable cause
- theories: viral, vascular, autoimmune



SSNHL

- 63% of ALFSNHL and 40% of SSNHL present with fullness as CC
- Sakata & Kato (2006): 227 pts with ALFSNHL or SSNHL
 - 84% fullness, 78% tinnitus, 30% dizziness
 - delay in presentation $5.1 \pm 3.6d$ (1-14d)
 - time period to steady audio $32.2 \pm 18.2d$ (7-85d)
- no correlation b/n aural fullness and
 - audio configuration
 - hearing threshold @ first audio
- positive correlation b/n aural fullness and
 - worse hearing threshold at low frequencies @ steady audio

duration since onset

Sakata & Kato. Acta Oto-Laryn 2006;126:828-833

SSNHL

- ◆ AAOHNS CPG 2012
 - ◆ differentiate from CHL
 - ◆ assess for bilateral, recurrent, focal neuro signs
 - ◆ do not do CT head or labs
 - ◆ confirm with audiogram
 - ◆ order MRI IAC
 - ◆ educate patients
 - ◆ may offer corticosteroids (oral, intratympanic)
 - ◆ may offer HBO w/in 3 months
 - ◆ do not Rx antivirals, thrombolytics, vasodilators, antioxidants
 - ◆ offer ITS as salvage if failure of initial Rx
 - ◆ f/u audio within 6 months
 - ◆ counsel re: hearing options for incomplete recovery

Meniere's

- CHE 1995: recurrent vertigo, fluctuating SNHL, tinnitus or aural fullness
- ELH is presumed pathophysiological mx: dysfunction of inner ear fluid homeostasis leads to distention of ELD
- 61-74% of MD present with fullness as CC
- Meniere's Disease Index (MDI) Claes et al. *Otol Neurotol* 2011;32:887-892
 - AC @ 125Hz, AC @ 8kHz, trans tympanic ECOG SP amplitude @ 4kHz
 - good correlation with definite MD (94%) and non-MD (98%)
 - MDI 0 = average non-MD; MDI 10 = average definite MD
- ECOG is not pathognomonic for MD/ELH
- Rx: Diet, Diuretics, Beta-histine, Steroids (oral / intratympanic), Surgery (ELSD, VNS, labyrinthectomy)

SCDS

- Minor: vestibular & auditory symptoms elicited by dehiscent SSC (3rd window)
- Symptoms: sound- or pressure-induced dizziness, gaze-evoked tinnitus, hyperacusis, aural fullness, hearing loss, chronic dysequilibrium

SCDS

- Diagnosis: HRCT showing SSCD, audio with LF CHL, VEMPs (\downarrow threshold <65 dB on cVEMP, \uparrow amplitude on oVEMP), positive fistula test
- Rx: RW patching, SSC plugging, resurfacing



Other Pathologies causing Ear Fullness



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TMJD

- ◆ Structural & functional alterations of stomatognathic system
- ◆ Symptoms: Pain in TMJ & masticatory muscles, TMJ noise (crepitus & clicking), headache, functional difficulties (restricted mouth opening, trismus)
- ◆ Otologic Symptoms due to alteration of middle ear biomechanics: otalgia, fullness, tinnitus, hearing loss, dizziness

TMJD

- normal ear exam, audiogram, tympanogram
- palpate TMJs and masticatory muscles
- Rx: soft diet, no gum chewing, warm compresses, NSAIDS, mouth guard, see DDS
- Xray / CT: narrowed / widened joint space, extrusion of articular disk of mandibular joint, roughing of joint surface, cortical bone loss and adhesion
- Treatments: PT (heat, acupuncture, massage), intra-articular injection of glucocorticoid or sodium hyaluronate, orthodontics, occlusal equilibration, TMJ surgery
- PT was most effective (61% success) esp in Group I (muscular dysfunction) with resolution of aural fullness (85% success)

Non-Ear Pathologies

- ◆ Migraines
- ◆ Bell's Palsy
- ◆ Acoustic Neuroma
- ◆ Fibromyalgia
- ◆ Pregnancy



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External Ear & Aural Fullness

- ◆ cerumen impaction
- ◆ foreign body
- ◆ otitis externa

Middle Ear & Aural Fullness

- ◆ ETD
- ◆ AOM / SOM / OME
- ◆ Cholesteatoma
- ◆ Middle ear mass
- ◆ Patulous ET
- ◆ HBO
- ◆ NPC



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Inner Ear & Aural Fullness

- ◆ SSNHL
- ◆ Labyrinthitis
- ◆ Meniere's
- ◆ SCDS



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Conclusion

- ◆ Systematic approach to Ear Fullness
- ◆ History & Physical, Audio → Ddx
- ◆ Treatment directed by Diagnosis



Thank You

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