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Earwax has many healthful qualities, including: lubrication, anti-bacterial and bug-repelling properties.

The ear has a mechanism by which it cleans itself.

Cotton swabs damage the skin of the ear canal, compact wax, and are the leading cause of otitis externa in adults.
OTITIS MEDIA
OTITIS MEDIA: DEFINITION

- **Acute Otitis Media (AOM):** A middle ear infection usually preceded by a viral upper respiratory infection.
- **Recurrent Otitis Media (ROM):** three or more acute infections in six months, or four or more in one year.
- **Otitis Media with Effusion (OME):** Previously called Serous Otitis Media, persistent middle ear fluid with or without preceding infection.
SYMPTOMS OF AOM

- Pain
- Fever  (Caveat: the younger the patient, the more likely there is to be fever.)
- Decreased hearing
- URI symptoms
- Irritability in young children
- Draining ear is pathognomonic
DIAGNOSIS OF AOM

- Bulging, red, eardrum
- Splayed light reflex
- Decreased eardrum mobility
- Abnormal tympanometry (type B, “pancake”)
- A normal-appearing eardrum which is simply red is unlikely to represent infection.
- Ear-tugging is highly unreliable, and may represent referred pain from teething, sore throat, boredom, etc.
INFECTIONOUS ETIOLOGIES

- S. pneumoniae
- H. influenza
- Moraxella Catarrhalis
- S. pyogenes
- S. aureus
- Pseudomonas
- Gram (-) enterobes
- Anaerobes
- Viruses
- Bacteria = 70%
S. pneumoniae

H. influenza

Moraxella Catarrhalis
AOM: 2009 DATA

- Strep pneumoniae
- Hemophilus influenza
- Staph aureus
- 17% Mixed Flora/77% Monoculture
- 11% Fungal (candida and aspergillus)
- 5% No Growth
- *MRSA - 1%, but growing

ASSOCIATED FACTORS

- Smoking environment
- Daycare attendance
- Allergy
- Mucociliary dysfunction
- Craniofacial abnormalities
- Native American race
- Immune deficiency
- Reflux?
- Supine bottles
TREATMENT OF AOM

- Watchful waiting is encouraged: consider having parent hold a prescription for three days, (for children over the age of 2).
- Antihistamines and decongestants are not helpful. No recommendation for steroids.
- Antibiotic of choice is still amoxicillin. For Rx failure, go to amox/clavulanate or 3rd generation cephalosporin.
Complications of AOM

- TM Perforation
- Mastoiditis
- Meningitis
- Brain abscess
- Sinus Thrombosis
- Sensorineural hearing loss
- Labyrinthitis
BULLOUS MYRINGITIS

- Similar symptoms to other AOM, but more likely to produce drainage
- Drainage often does not relieve pain
- These are mycoplasma infections and are treated with oral antibiotics. Antibiotic of choice: mycins.
Can be difficult to determine frequency of infections
Antibiotic prophylaxis is now discouraged
May need tympanostomy tubes
Recurrent infections under the age of two have high association with Strep pneumoniae
OTITIS MEDIA WITH EFFUSION
Serous Otitis Media
OTITIS MEDIA WITH EFFUSION

- Common after URI
- Common after AOM
- Usual cause of hearing loss after airplane flight
- Indicates Eustachian Tube Dysfunction (ETD)
- An amber effusion is a give-away

- Usually painless
- May affect balance
- Associated with hearing loss
- 90% will clear in 90 days
- Antibiotics are not indicated
IN AN ADULT, UNILATERAL OME IS A NASOPHARYNGEAL TUMOR UNTIL PROVENOTHERWISE.
Antibiotics not helpful
Auto-inflation (Valsalva) is very helpful
Don’t bother with antihistamines, decongestants or nasal steroids unless obvious history of nasal inflammation or uncontrolled allergic rhinitis.
Stop smoking
Only proven treatment: time
The best treatment for an AOM in a child is:

1. Watchful waiting
2. Amoxicillin
3. A nasal steroid spray
The best treatment for AOM in an adult is:

1) Watchful waiting

2) Amoxicillin/clavulanic acid (Augmentin)

3) Nasal steroid spray
THE BEST TREATMENT FOR ACUTE OME:

1. Watchful waiting

2. Watchful waiting and auto-inflation

3. Watchful waiting, auto-inflation and nasal steroid spray
CHRONIC OTITIS MEDIA
CHRONIC OTITIS MEDIA (COM)

- Often, but not always, hearing loss is present
- Intermittent drainage
- Usually painless
- Think about cholesteatoma

Other than cerumen, any drainage from an ear is abnormal.
Bacteriology: usually gram positive, more anaerobes, pseudomonas more and more frequent

- Some antibx resistance in 40%
- Rarely viral
- MRSA nearly 8%

Respond well to topical antibiotic

- Ears may need to be cleaned
- Surgery considered when medication fails

COMPICATIONS OF COM

- Hearing loss
- TM perforation
- Mastoiditis
- Brain infection
- Balance disturbances
- Cholesteatoma
CHOLESTEATOMA: EPIDERMAL INCLUSION CYST OF MIDDLE EAR
Mastoid bone

Mastoid air cells

Cholesteatoma

Ossicles

Middle ear
PEARL:

- A reading of “mastoiditis” or “fluid in the mastoid” on a head/brain MRI is very common and almost always reflects changes made by old disease.
OTITIS EXTERNA
Most common pathogen is *p. aeruginosa* (20-60%) but staph and strep species are still common.

- Symptoms: pain, drainage, swelling, decreased hearing
- The pain is often very severe.
- Very rare under the age of 2.
Consider placing a wick if the canal is very swollen.

If the patient complains of itching or burning, consider fungal origin, (and then use clotrimazole sol.).

Systemic antibiotics are usually not indicated.

Use an ear drop that covers pseudomonas (Cipro, Tobradex, Ofloxacin).

If very mild, Vo-Sol works nicely.

Important: if the ear canal is swollen, use a drop that has a steroid.
Not common

Vast majority of COE patients could resolve their episodes simply by stopping Q-tip use and keeping water out of their ears

For people with ear dermatitis, consider topical steroid.

Many of these are fungal, or have a fungal component.
WHEN IS IT CELLULITIS?

- Fever
- Erythema and swelling extending out to the pinna/periauricular area
- Seepage and exudate rather than frank drainage
- Pain may be very severe
Necrotizing Otitis Externa

- Used to be called “Malignant Otitis Externa”
- Will not occur in someone who is not immunologically compromised
- Pseudomonas is the causative organism
- Implies cartilaginous and/or bony involvement of temporal bone
- Suspect if granulation is present in ear canal
- Medical emergency
CAVEAT: MAKE SURE IT’S NOT RAMSAY-HUNT!
RAMSAY-HUNT SYNDROME

- AKA Herpes Zoster Oticus
- Hallmark is blister-like lesions in the ear canal, sometimes extending to the face
- Facial paralysis sometimes present
- Frequently associated with hearing loss
- Pain can be excruciating
THE BEST TREATMENT FOR AOE

1. Topical steroid
2. Antibiotic drops
   3. Antifungal drops
4. An ear drop with both an antibiotic and a steroid
5. Burn every cotton swab in the country
THE BEST TREATMENT FOR COE:

1. Oral antibiotic therapy
2. Topical antibiotic therapy
3. Topical steroid therapy
4. Burn every cotton swab in the country.
THE BEST TREATMENT FOR COM

1. Long-term antibiotic therapy
2. Oral antibiotics and ear drops
3. Tympanostomy tubes
4. Isn’t this why they have otolaryngologists?
Fungal Otitis Externa

- More common than you think
- Tip-off is itching or burning and copious debris
- Usually history of water exposure
- Always candida or aspergillus species
- Clears with topical clotrimazole solution, acetic acid (Vo-Sol), or gentian violet.
- Oral anti-fungals not helpful.
“It could be one of those things that crawl into your ear and lay eggs, and the eggs hatch and burrow into your—nope. It looks fine.”
A FEW ZEBRAS: **GLOMUS TUMOR**

The rest of the eardrum is normal

Pulsating red mass behind the eardrum

**Glomus Tympanicum, Left Ear**
Cholesteatoma  Myringosclerosis
CURRENT CLASSIFICATIONS OF RHINOSinusitis

- Acute infectious rhinosinusitis
- Recurrent acute rhinosinusitis
- Chronic rhinosinusitis (CRS)
- Allergic fungal sinusitis (AFS)
- Perennial/Seasonal Allergic Rhinitis
- Non-allergic Rhinitis (Vasomotor rhinitis; Non-allergic Rhinitis with Eosinophilia Syndrome-NARES)
WHY DOES A RUNNY NOSE STOP RUNNING WHEN YOU FALL ASLEEP?

THE NOSE FAIRY SNEAKS IN AT NIGHT AND PINCHES YOUR NOSTRILS SHUT.

THIS IS EXACTLY WHY I DON'T LIKE KNOWLEDGE.
Defined as inflammation of the lining of the nose and sinuses from a variety of causes.
Healthy adults produce approximately a quart to a liter of mucous in the sinuses every day.

One side of the nose is always more swollen than the other. Everybody does this on a different schedule and this is known as “cycling.”

One cigarette paralyzes normal ciliary action in the nose and sinuses for up to 8 hours.

Sinuses are not fully developed until the age of 15-17.
Acute Rhinosinusitis (ARS)

- Usually follows a cold
- Same bacteriology as acute ear infection
- Symptoms: nasal congestion, purulence, facial/frontal pain, foul-tasting post-nasal drainage, cough.
- Treatment: decongest the nose and use oral antibiotics, same as AOM. Topical nasal steroids NOT indicated.
ATCHOO!

Uh oh.

I'm leaking brain lubricant.
PERSISTENT ACUTE SINUSITIS

Defined by persistence of acute symptoms for 4-12 weeks.

Get an x-ray!

Consider short burst of steroid: usually more helpful than changing antibiotics.
Recurrence Acute Sinusitis

- Pain is a poor indicator for location of infection
- Wonder about underlying cause(s): Allergy? Smoking? Inhalant irritants? Uncontrolled diabetes? In kids, cystic fibrosis?
- Less common than your patients think it is.
- Get a film!
TYLENOL SINUS SEVERE CONGESTION

Pain Reliever Nasal Decongestant Expectorant

New! NON DROWSY

Sinus Headache
Sinus Pain
Sinus Pressure
Nasal & Sinus Congestion
Expectorant

With Cool Burst Caplets 12 Count

NDC 50580-443-12
Think of this as an inflammatory, rather than infective, disease.

Bacteriology changes: gram negative rods, staph, and anaerobes become more prominent.

Persistent symptoms present over 12 weeks.

The role of biofilms still not well understood.
TREATING CRS

- Prolonged course of antibiotics: 4-6 weeks
- Topical antibiotic and/or steroid may help
- Decongesting the nose is probably more important than anti-microbials: consider oral and/or topical steroids
- Only if patient has uncontrolled allergies, add antihistamines
The single most effective thing a patient with chronic rhinosinusitis can do to help themselves is stop smoking.

The second most helpful thing that they can do is daily nasal saline douching. (AYR, SinusRinse, etc.)

Saline recipe: ¼ t. salt, ¼ t. baking soda in one cup of water.
When medications fail, surgery is considered, and may include:

- septoplasty
- antrostomies
- Turbinate resection or ablation
- Balloon dilation of frontal sinuses gaining popularity

Maxillary and ethmoid surgery most common
ALLERGIC FUNGAL SINUSITIS
ALLERGIC FUNGAL SINUSITIS (AFS)

- Rare, but growing more prevalent
- IgE mediated hypersensitivity to fungal antigens
- Usually very aggressive
- Almost always unilateral
- Treatment is surgical.
- Diagnosis is suspected on CT, but made at time of surgery
The Best Treatment for ARS

1. Antibiotics

2. Antibiotics and decongestants

3. Antibiotics and nasal steroid sprays

4. Antibiotics and antihistamines

5. Decongestants and saline
THE BEST TREATMENT FOR CRS

1. Nasal steroid sprays and saline washes
2. Antibiotics and decongestants
3. Decongestants and antihistamines
4. Oral steroids
5. Surgery
6. Allergy testing
7. Treatment geared toward the individual
NASAL AND SINUS POLYPS
Polyps are benign pedunculated growths that arise from the lining of the sinuses and nose. They rarely occur singly. Patients complain primarily of difficulty breathing through the nose, but will often complain of poor sense of smell and foreign body sensation. Often associated with allergic rhinitis.
The mainstay of treatment is nasal steroid spray for life.

Surgery is common, but is not a cure.

Patients need to be counseled that cancer is not an issue.

If patient is not unhappy with symptoms, no indication for surgery.
A “mucous retention cyst” or “polyp” noted as a finding on an x-ray is an incidental finding of little clinical significance.
Be aware of Samter’s triad: asthma, nasal polyps and aspirin allergy
PHARYNGITIS

Sorting out sore throats.
Majority of sore throats are viral: adenovirus, coxsackie virus, parainfluenza, enteroviruses, EBV, HSV, RSV (70%)

Group A B-hemolytic strep most common cause of acute bacterial tonsillitis. (30% age 15 and younger, 5-10% over age 15)

What’s the difference in presentation between viral and bacterial infections? None!

Suspect mononucleosis in young patient with sheet-like gray exudates who is more sick than you’d expect. Do a lymph exam and get a test for mono.

Rapid assays miss between 10-30%
PERITONSILLAR ABSCESS
- The patient’s pain will be much worse on one side.
- They will be reluctant to talk and will likely have a “hot potato voice.”
- Not usually febrile
  - They may not have exudates or a positive culture
  - Will not occur under age 3.
Final page of the Medical Boards

BONUS QUESTION:
(50 points)
What's the name of that thing that hangs down in the back of our throats?
Asymmetrical Tonsil
TREATMENT OF PERITONSILLAR ABSCESS

- If early, clindamycin 300 mg qid can prevent full-blown event
- Steroids can be very helpful to reduce pain and swelling.
- May need IV fluids/pain control
- Definitive treatment is I&D
- Tonsillectomy after resolution is recommended
TONSILLITHS
Tonsilith
EPIGLOTTITIS - CAUSES

- Now fairly rare due to childhood immunization
- All cases should be considered potentially life-threatening
- In atypical patient, consider obstructive tumor as origin.
H. flu
Group A streptococcus
pneumococcus
staphylococci
Symptoms: abrupt onset of high fever, difficulty swallowing, sore throat, drooling. In children, sitting in the tripod position. Toxic appearance. Stridor is a late symptom indicating near complete airway obstruction. Look for “thumb sign” on x-ray.
Price’s Maxim: “You can pick your friends, and you’ll have more if you don’t pick your nose.”
Epistaxis: Definition

- Anterior - most often from septum, amenable to pinching the nose.
- Posterior - from site posterior to the nasal vestibule.
Causes:
- Dry air
- Elderly patient
- Trauma
- Infection
- Uncontrolled hypertension*
- Anti-coagulants
- Smoking
- Tumor
TREATMENT OF EPISTAXIS

Acute treatment: pressure, pressure, pressure!

Topical vasoconstrictors (Afrin)
Packing
Control blood pressure/anxiety
Leave the ice in the freezer with the peas.
TREATMENT OF EPISTAXIS

If bleeding persists, or if the nose is nicely packed and the bleeding persists, proceed with a posterior pack. This is an excellent time to refer!

Caveat: A patient with recurrent bleeding needs endoscopy to rule out tumor.
Moisturize! (hand lotion or Nasal saline gel)
Humidifiers can help
Stop aspirin
Stop smoking
Avoid digital trauma to the nose
Consider stopping nasal steroid sprays
Impaired conduction of sound wave from the outside world through the ear canal, tympanic membrane and ossicular chain.
CAUSES OF CONDUCTIVE HEARING LOSS

- Most common cause, by far: cerumen impaction
- Middle ear effusion
- Otitis
- TM perforation
- Cholesteatoma
- Ossicular abnormality.
AND HERE'S OUR LATEST EXHIBIT FROM H. ROSS PEROT.
SENSORINEURAL HEARING LOSS (SNHL)

- Age (presbycusis)
- Noise damage
- Trauma
- Congenital/genetic
- Infection
- Tumor
- Auto-immune
- *Sudden idiopathic neural hearing loss (SIHL)
All types of hearing loss can be associated with tinnitus
Few are associated with vertigo
PEARL: Any hearing loss, especially high-frequency loss, can be associated with a feeling of fullness or pressure in the ear.
“Well, well...seems we've found what's been causing that ringing sensation in your ear, Mr. Foley.”
“The ringing in your ears—I think I can help.”
TREATMENT OF HEARING LOSS

- Conductive loss: remove the wax, then refer to ENT for consideration of surgery. (Tubes, TM repair, ossicular prosthesis.)
- Neural loss: Hearing aids, protect ears from additional noise damage, cochlear implant
- BAHA (bone-anchored hearing aid) for unilateral hearing loss
- If normal exam and rapid onset of hearing loss, refer urgently (Board question alert: Sudden Idiopathic Sensorineural Hearing Loss) **Treat With Steroids**
Rapid onset of dramatic hearing loss in one ear
- Unilateral tinnitus
- Any hearing loss associated with vertigo
- Pulsatile tinnitus
- Hearing loss associated with pain
A 50 year old woman in good health reports waking up 2 days ago with loud “roaring” and no hearing in one ear. Her ear exam is normal. Your action:

1. Wash out her ear

2. Reassure her that she has eustachian tube dysfunction and give her a nasal steroid

3. Give her oral steroids and refer.
VERTIGO

Definition: An hallucination of motion
PEARL

- When taking the history of a dizzy patient, ask them to describe their symptoms without using the word “dizzy.”
Well, it's not your inner ear.
THE DIAGNOSIS IS IN THE HISTORY

Onset
Triggers
Association with nausea/vomiting/hearing loss
What makes it better?
Duration - this is the most important question!
Severity
COMMON TYPES OF DIZZINESS BASED ON EPISODE DURATION

- Seconds to minutes: BPPV - repetitive
- Minutes: TIA - unlikely to repeat often
- Hours: Meniere’s Disease
- Days: Vestibular neuritis
- Variable: Migraine
Onset usually first thing in the morning.
Usually associated with nausea and vomiting
No associated hearing loss
The dizziness is **POSITIONAL**
Slow, uneven, recovery over weeks/mos.
Better with meclizine, diazepam, scopalamine, Epley maneuver (aka Canalith Repositioning Procedure)
15% recurrent
Inaccurate to call “inner ear infection” or “labyrinthitis”

Constant vertigo usually accompanied by nausea/vomiting

Vertigo is worse with movement but doesn’t go away when person affected is still

Occasionally associated with hearing loss.

Better with diazepam, anti-emetics
Classic symptom triad:
Episodic vertigo attacks associated with nausea/vomiting
Fluctuating, low-frequency hearing loss, often with tinnitus
Pressure or fullness in the affected ear

Migraine?
Meniere’s

- Attacks last from minutes to hours
- Those who are affected are often tired after an attack
- Attacks sometimes provoked by sodium loading
- Diagnosis made after several attacks and documentation of unilateral low-frequency neural hearing loss.
TREATMENT OF MENIERE’S

- Diuretics
- low-sodium diet
- Oral or injected steroids if unresponsive to oral rx
- Surgery for selected few: helpful for vertigo, less so for hearing
The disease “burns out” over 20-25 years, at which time the hearing loss stabilizes but does not recover.

Approx. 5-15% of patients will develop bilateral disease.
Other otologic causes of dizziness

- Perilymph fistula
- Superior Canal Dehiscence Syndrome
- Autoimmune vestibular disease
- Ototoxicity
- Labyrinthitis
- Barotrauma
- Otosclerosis
- Mal de mer/Mal de Debarquement Syndrome
NON-OTOLOGIC CAUSES OF DIZZINESS

- Myriad!
  Trauma, drugs, multiple sclerosis, epilepsy, stroke, tumor, cervical injury, circulatory problems, metabolic issues, hyperventilation syndromes, neuropathy, anxiety/depression, migraine, etc., etc.

Consider generalized dysequilibrium, especially in the elderly.
A 25 yo woman has been experiencing recurrent episodes of spinning dizziness & n/v with hearing loss in one ear, each attack lasting 2 hrs.

- She is most likely experiencing:

  1. BPPV
  2. Vestibular neuritis
  3. Meniere’s Syndrome
  4. TIAs
A 70 yo man hasn’t been able to get out of bed for 2 days. He has spinning dizziness and n/v which are constant and increase with movement.

- He most likely has:
  - 1. BPPV
  - 2. Vestibular neuronitis
  - 3. Meniere’s Syndrome
  - 4. TIAs
An 80 yo man feels unsteady all the time, especially when he stands up or walks quickly. If he moves quickly, he feels like he might pass out.

- He most likely has:
  - 1. BPPV
  - 2. Vestibular neuritis
  - 3. Meniere’s Syndrome
  - 4. A non-otologic issue
A 60 yo woman feels well when still, but when she rolls over in bed or lifts her head, the room spins and she feels sick for 2 minutes.

- She most likely has:
  1. BPPV
  2. Vestibular neuronitis
  3. Meniere’s Syndrome
  4. TIAs
BELL’S PALSY
Bell’s Palsy

- Unilateral facial paralysis
- Onset usually rapid
- Very rarely recurrent
- Patients usually present with concern over stroke
Bell’s Palsy

- Manifestation of Herpes Zoster or Simplex
- Symptoms include facial weakness, +/- pain, +/- hyperacusis
- Treatment: Prednisone, antiviral therapy (Acyclovir 200 mg. five times a day x 7 days)
- Emphasize protecting the eye
- If slow onset or no recovery, consider tumor
LEUKOPLAKIA

- Latin for “white patch”
LEUKOPLAKIA

- Occurs almost exclusively in smokers/drinkers
- Potential for malignant transformation
  Only “treatment” is to stop use of cigarettes and alcohol.
SIALOADENITIS
Sialolithiasis

- Stones arise in the duct(s) of the four main salivary glands.
- Risk factors: smoking, dehydration, drying medications, Sjogren’s
- Treatment: hydration, massage, antibiotics if infection present, dilation, surgery (In Europe, lithotripsy)
For all episodes of parotitis, only 20% likely to arise from obstruction secondary to stones.
A Few H/N Cancer Caveats

1) A patient with persistent hoarseness needs to have a laryngeal exam.
2) Unilateral throat pain is not infection.
3) Skin cancers are common on the ears, tip of nose, and lips
4) Melanomas can occur anywhere
5) Persistent throat pain should prompt a referral
6) Take a minute to have your patient remove their dentures.
HAPPY TRAILS!