Mistaken I-dental-ty: Odontogenic Otitis

Navdeep Tumber MD, La Donna Porter MD

St. Joseph's Medical Center Family Medicine Residency

Introduction

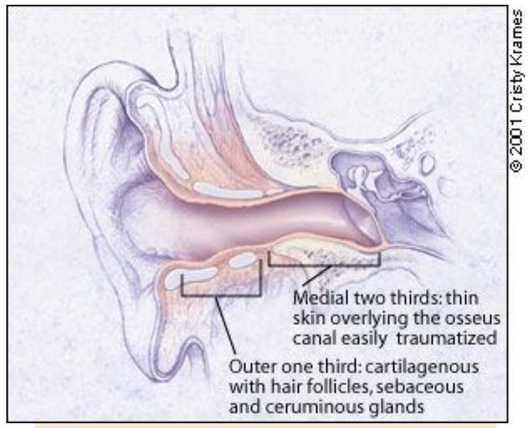
Otitis externa is an inflammatory process of the external auditory canal. It is typically a localized process that can be easily controlled with topical agents.The acute form is caused primarily by bacterial infection, with Pseudomonas aeruginosa and Staphylococcus aureus the most common pathogens. If otitis externa is not optimally treated, the potentially life-threatening infection can spread to the surrounding tissues. Necrotizing or malignant otitis externa is a life-threatening extension of external otitis into the mastoid or temporal bone. Oral antibiotics are rarely needed, but should be used when otitis externa is persistent, when associated otitis media may be present or when local or systemic spread has occurred.

While there are several documented cases of sinus disease resulting in otitis as well as dental disease leading to sinusitis, odontogenic sources of otitis media are extremely rare.

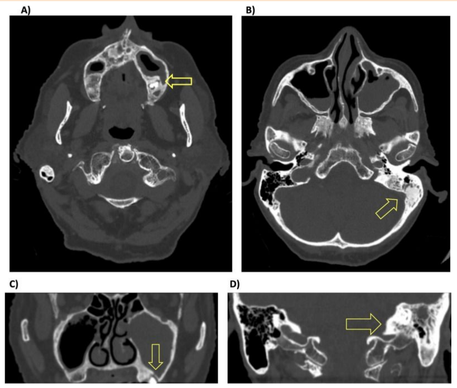
Case

A 34 year old female presented to CMC Residency Clinic with 2-week history of right ear pain with bloody discharge. Otoscopic exam was highly suggestive of right otitis externa and left suppurative otitis media without ruptured tympanic membrane. Her pain was exacerbated with pinna movement. She additionally endorsed frontal and ethmoid sinus tenderness, concerning for acute sinusitis. She was given IM ceftriaxone, and prescribed otic neomycin-polymyxin-hydrocortisone drops, dexamethasone, Augmentin.

The patient returned for follow up 3 days later with worsening symptoms. She was failing what was thought to be the appropriate outpatient antibiotic treatment. Antibiotic coverage



Anatomy of the external auditory canal.



CT image of communication between periapical abscess and maxillary sinus, with ipsilateral maxillary sinusitis and mastoiditis.

Otitis externa on otoscopic examination. Note canal erythema and edema.

was expanded with oral ciprofloxacin, 3-day taper of prednisone. Due to the severity of the infection and new-onset pre-auricular and mastoid tenderness, she was then sent to SJMC ED to undergo CT imaging to evaluate for malignant otitis externa. The CT was negative for bony involvement, but was highly suggestive of severe dental disease. Her antibiotic therapy was expanded with oral metronidazole and otic ciprofloxacin drops.

She was sent to dentistry where she underwent a tooth extraction. The following day, she noted that her symptoms were improving, including ear and sinus pain. One week later, all antibiotic courses were completed, and symptoms had resolved.

Discussion

Most patients with otitis externa and otitis media will experience considerable improvement in symptoms after one day of treatment. If there is no improvement within 48 to 72 hours, the patient should be reevaluated for treatment adherence, misdiagnosis, sensitivity to ear drops, or continued canal patency. Due to this patient's worsening symptoms and mastoid tenderness, she underwent CT to evaluate for malignant otitis externa. As a result of this imaging, the odontogenic source of her infection was finally elucidated. With the course of treatment redirected to dental extraction, her symptoms finally resolved.

Conclusion

This case demonstrates the importance of considering extra-otologic causes in similar non-resolving cases when the disease course is abnormal or the exact etiology is unclear.

References

Sander R. Otitis externa: a practical guide to treatment and prevention. Am Fam Physician. 2001;63(5):927-942.

Schaefer P, Baugh RF. Acute otitis externa: an update. Am Fam Physician. 2012;86(11):1055-1061.

Schartz DA, Polacco MA, Holmgren EP, McCool RR. A Rare Case of Odontogenic Chronic Suppurative Otitis Media. Cureus. 2019;11(3):e4284. Published 2019 Mar 20. doi:10.7759/cureus.4284