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Learning Objectives

- To better understand the clinical evolution and diagnosis of Malignant Otitis Externa due to *Enterococcus Faecalis*.
- To identify indicators that could lead to an earlier diagnosis of Malignant Otitis Externa.
- To provide an overview of the current treatment plans of Malignant Otitis Externa due to *Enterococcus Faecalis*.

Introduction

Malignant otitis externa (MOE) is a potentially life-threatening infection of the external auditory canal (EAC), mastoid and often skull base. Typically found in patients with diabetes mellitus (DM), this infection is most commonly caused by *Pseudomonas aeruginosa*. We discuss a rare case of malignant otitis externa solely due to *Enterococcus faecalis*.

Patient Presentation

A 68-year-old female with no history of DM presented to her primary care physician (PCP) complaining of left ear pain. Over the course of 2 months, she completed several courses of topical and oral antibiotics including azithromycin, amoxicillin/clavulanate, ciprofloxacin/dexamethasone drops, and oral ciprofloxacin, with unremitting symptoms. Upon otolaryngology (ENT) referral, CT showed malignant otitis externa with chronic left mastoiditis, unable to rule out septic arthritis of the left temporomandibular joint (TMJ).

Culture was attempted for guidance of eventual IV antibiotic therapy. However, the specimen was never received by the lab. So, the patient was admitted to the hospital for expedition of care and started on Cefepime. Magnetic resonance imaging (MRI) showed left otomastoiditis, circumferential thickening and enhancement around the left TMJ. Hemoglobin A1c was 13.1. Cultures of her EAC only grew *Enterococcus faecalis*. Antibiotics were transitioned to Zosyn to complete a total 6-week course. She was also started on oral and injectable antihyperglycemic medications.

Figures

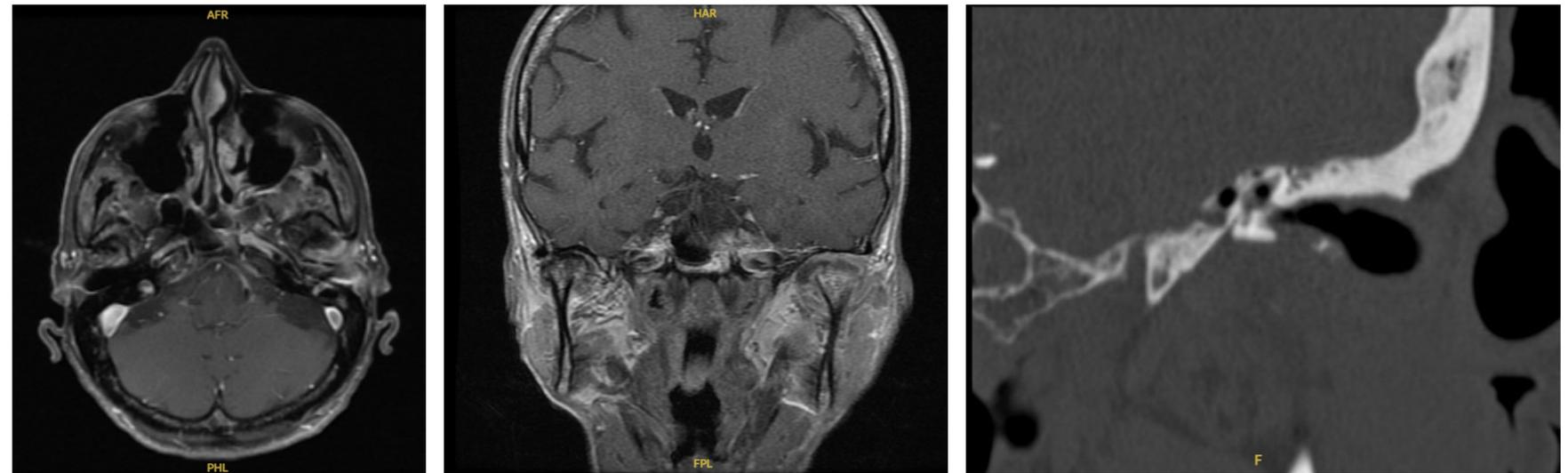


Figure 1: MRI brain with IAC showing left otomastoiditis with involvement of the left TMJ.

Discussion

MOE is strongly associated with concomitant DM. As evidenced by our patient, those diagnosed with MOE should be screened for DM if not already diagnosed. Patients diagnosed with MOE should maintain close follow-up to ensure resolution of the infection. In patients with persistent infection, prompt referral to ENT for biopsy/culture is crucial in order to ensure adequate antibiotic coverage. In our patient, her infection persisted for months because she was trialed on several oral and topical antibiotic regimens that were originally appropriate for routine otitis externa and then later MOE, despite her infection being caused by an organism not covered by those antibiotics.

Several studies have shown increasing variety in the microbiological etiologies of MOE aside from *Pseudomonas*. (1) (2) (4) For this reason, antibiotic coverage for *Pseudomonas*, although usually broad enough to treat other possible/common causative organisms such as *S. aureus*, may not be as adequate as previously thought. Culture may be indicated in patients diagnosed with MOE sooner to ensure adequate antibiotic coverage and to prevent extension of the infection into the TMJ (septic arthritis) or mastoid process (mastoiditis), both of which occurred in our patient.

Take Home Points

- MOE has a higher prevalence among diabetics and should be considered if specific symptoms present in this population.
- In patients with persistent MOE despite initial treatment efforts, biopsy with culture should be obtained to rule out more virulent organisms requiring more advanced antibiotic therapies.

Selected References

- 1) Ali, T., Meade, K., Anari, S., ElBadawey, M. R., & Zammit-Maempel, I. (2010). Malignant otitis externa: Case series. *The Journal of Laryngology & Otology*, 124(8), 846–851. <https://doi.org/10.1017/s0022215110000691>
- 2) Bhandary, S., Karki, P., & Sinha, B. K. (2002, March). *Malignant otitis externa: a review*. Europe PMC. Retrieved October 17, 2022, from <https://europepmc.org/article/med/12737420>
- 3) Carfrae, M. J., & Kesser, B. W. (2008, April 22). *Malignant otitis externa*. *Otolaryngologic Clinics of North America*. Retrieved October 17, 2022, from <https://www.sciencedirect.com/science/article/abs/pii/S0030666508000054>
- 4) Hobson, C. E., Moy, J. D., Byers, K. E., Raz, Y., Hirsch, B. E., & McCall, A. A. (2014). Malignant otitis externa. *Otolaryngology–Head and Neck Surgery*, 151(1), 112–116. <https://doi.org/10.1177/0194599814528301>