Introduction

Otitis media (OM) is a common otologic condition in pediatric and adult populations and is a leading cause of health care visits, antibiotic prescriptions, and surgery. (1,5)

Clinical Course

History: 38-year-old African-American male who presented to the ED complaining of headache that began approximately 2 weeks prior to admission. On arrival patient was obtunded and poorly responsive. For significant other, patient was also complaining of left-sided ear pain, radiating towards his left neck, stabbing, progressive, no alleviating factors. Patient decided to go to the ED on 4/21. CT scan at the time showed a questionable left mastoidal soft tissue mass at the masto-cranial region, with possible surrounding edema. On 4/22, patient was admitted to hospital for further evaluation. On exam, patient showed no response to verbal stimulus for 2 days, or to pain. His last known normal day was 4/20. He was on aspirin 300 mg every 12 hours for 7 days and diclofenac. 4 days prior to admission, patient was complaining of worsening headache with blurry vision, chills, fever, nausea and non-projective vomiting. On day of admission, had 3 witnessed seizures. CT scan at the time showed complete opacification of the left mastoid air cells and middle ear cavity.


Patients Progress: As patient was poorly responsive and unable to protect airway, patient was intubated and placed on mechanical ventilation. (2) In the ICU, patient was empirically on Ceftriaxone, vancomycin, ciprofloxacin, and dexamethasone for high suspicion of meningitis. Infectious Disease, Otolaryngology, Neurology and Neurosurgery consulted. With MRI showing cerebellar abscess, patient started on Flagyl. Taken to the OR two days later for left myringotomy with tympanostomy tube placement and culturing. On admission with left lateral cerebellum adjacent to the mastoids suspicious for abscess with left cervical lymphadenopathy. Patient was also complaining of left sided ear pain, radiating towards his left neck, stabbing, progressive, no alleviating factors. Patient presented to the hospital 38 days prior to admission with comolcating headache, blurry vision, and fever. This was also a known case of chronic otitis media in the past with colonies of Actinomyces. Cultures showed granulation tissue and acute and chronic inflammation with colonies of actinomyces organisms. With culture results, patient continued with ceftriaxone 2 g of twice daily and oral Flagyl, anticipating a minimum of 6 weeks of treatment. With eventual transition to oral leflunomide for a couple of months. Repeat imaging 9 days later on CT scan showed Persistent findings of otomastooiditis. Ill-defined peripherally enhancing collection along the left petrosal mastoid region to the maxillary sinuses for abscess measuring up to at least 2.0 x 1.9 cm

Summary

On admission with altered mental status and 3 seizures

Labs and imaging

Empirically on antibiotics

2 weeks prior: Headache and right treated with Ceftriaxone

4 days prior to admission: blurry vision, theory, non projective vomiting

2 days prior: left otomastoiditis

Ceftin

Ceftazidine

Cefepime

Ceftriaxone

Vancomycin

Trovafloxacin

Dexamethasone

Discussion

Brain abscesses are considered the second most common intracranial complication of otitis media after meningitis. With the common methodology for the cerebellar abscess. (2,3,4) Most common intracranial locations. (1,2)

Although anaerobes have been identified in many cases since 1981, it has been reported that causative bacteria cannot be demonstrated in approximately 20% of anaerobic abscesses. (3)

Actinomyces are gram positive, anaerobic bacteria involved in the middle ear and mastoid is rare and might be caused by direct spread via the eustachian tube from the nasopharynx. (1,4) it should be considered as one of the differential diagnosis for chronic suppurative otitis media patients with no improvement on medical treatment. The key to managing CNS actinomycosis is surgical debridement of the abscess followed by treatment with highly bioavailable antibiotics with good CNS penetration. (5)

There are many important factors to be considered in pathogenesis of actinomycosis infections, such as trauma due to dental extraction, manipulation or canals. (7)

Conclusion

This case was unique due to the relatively low number of brain abscesses that arise from Actinomyces infection. Strict anaerobic organisms are exceedingly rare for a presentation, especially in a 38-year-old immunocompetent patient. It is important to keep this infection in mind since there is no response to the usual treatment for meningitis. (6,9) In this case, the patient was no response to keep anaerobic infection in mind when starting antimicrobial therapy. The patient was also complaining of otitis media with venous sinus thrombosis, and even in cured cases, 30% to 50% have have left sequelae, such as seizures, persistent psychiatric deficits, and behavioral changes. (6,10)

References

5. Callender A, Carter J, Barshak E, Reiss-Hall D, et al. Etiology of brain abscess: a couple of months. Repeat imaging 9 days later on CT scan showed Persistent findings of otomastooiditis. Ill-defined peripherally enhancing collection along the left petrosal mastoid region to the maxillary sinuses for abscess measuring up to at least 2.0 x 1.9 cm
6. Big Trouble in Little Brain: A Case of Cerebellar Abscess

Avila, C MD. Hussein, R MD. Criollo, J MD. Puckett, A MD. Crombet, G MD. Weiss, H MD.
Manatee Memorial Hospital, Bradenton, FL

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