Septic Arthritis of the TMJ as a Result of Acute Otitis Media in an Otherwise Healthy Child

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Abstract

Septic Arthritis of the Temporomandibular Joint (SATMJ) is a rare but potentially debilitating complication of Acute Otitis Media (AOM). To our knowledge, this is only the fifth reported case of SATMJ as a result of AOM in an otherwise healthy child. This is a case of a 12-year-old male who presented with URI symptoms and 3 weeks of left ear pain, preauricular edema, trismus, and jaw pain. He had been unsuccessfully treated with antibiotics as an outpatient and was ultimately admitted for further care. CT revealed a subperiosteal abscess extending along the zygomatic arch. Multidisciplinary treatment included a T tube placed by the Otolaryngology department and concurrent I&I with arthrocentesis of the left TMJ by Oral Maxillofacial Surgery. Unfortunately, there was no speciation from the cultures. Antibiotics included IV Ceftriaxone and Vancomycin, PO Flagyl, and Ciprofloxacin drops. He was discharged on post-op day 6 with a PICC line to continue these antibiotics along with PO Augmentin for a total of 2 weeks. The patient was asymptomatic at the last follow-up exam. It is important to recognize the presenting symptoms of this rare complication in order to treat appropriately and diminish the risk of long-term disability such as TMJ ankylosis.

Introduction

Acute otitis media (AOM) is one of the most common childhood infections. It has been reported that two thirds of all children have had an episode of AOM by 3 years of age.1 While mastoiditis is the most common and well described complication of AOM, there are many rare sequelae including otogenic meningitis, facial paralysis, cranial nerve and cranial compartment syndromes, and rare cases of sinus, petrous apicalis, labyrinthisis, and venous sinus thrombosis. These complications are rare in developed countries given early treatment of AOM with appropriate antibiotics.

Septic Arthritis of the Temporomandibular Joint (SATMJ) is another rare but potentially debilitating complication of AOM. The prevalence of SATMJ from any source has been reported as 1 out of every 10,000 people, or .01%.2 Symptoms include pain, erythema, preauricular edema, and trismus. Without appropriate treatment, this disease process can progress to permanent loss of function through fibrosis and joint ankylosis.3,4

We present here a case of SATMJ from AOM and a successful treatment course. To our knowledge, this is only the fifth reported case of SATMJ as a result of AOM without acute mastoiditis in an otherwise healthy child.3,4 Given the potential implications and unique treatment required, this case elucidates the need for early recognition of this uncommon sequela of AOM and an interdisciplinary approach.

Case Description

This is a case of a 12-year-old male who presented with 10 days of URI symptoms and 1 week of left ear pain, preauricular edema, trismus, and jaw pain. He had been unsuccessfully treated with antibiotics for four days as an outpatient and was ultimately admitted after MRI revealed opacification of the middle ear and mastoid complex as well as a large left TMJ effusion concerning for septic arthritis. He was without postauricular erythema, edema, coalescence of the mastoid cavity on imaging, or other signs of acute mastoiditis. CT with contrast revealed a subperiosteal abscess extending along the zygomatic arch (Figure 1, Figure 2). Examination revealed supplicative AOM and a T tube was placed by ENT. The Oral and Maxillofacial Surgery (OMFS) department concurrently performed I&I and arthrocentesis of the left TMJ. The gram stain from the purulent fluid expressed during myringotomy revealed gram positive cocci, as did the direct culture of the TMJ effusion. Unfortunately, there was no speciation from the cultures. The patient was managed postoperatively with IV Ceftriaxone and Vancomycin, PO Flagyl, and Ciprofloxacin drops. He was discharged on post-op day (POD) 6 with a PICC line to allow for continuation of these antibiotics along with PO Augmentin for a total of 2 weeks of treatment. Postoperative course was uneventful, and the patient was without trismus, swelling, inflammation, or hearing impairment at the last follow-up exam on POD 10.

Discussion

Septic arthritis of the TMJ remains a rare and poorly described complication of AOM. To our knowledge, there have been six reported cases of pediatric otogenic SATMJ when patients with acute mastoiditis,3,4,5,6 Only four of these fourteen children presented with AOM without clinical diagnosis of acute mastoiditis.3,4 Distant hematogenous spread and direct extension from contiguous infection or trauma have both been described as etiologies for septic arthritis.3,7 Direct extension appears to be the likely pathway in otogenic SATMJ given the proximity of the middle ear to the TMJ. It has been theorized that direct spread from the middle ear may be more common at a younger age as the bony wall of the glenoid fossa is thinner at earlier stages of development.8,12

When SATMJ is not diagnosed early or treated inadequately, the long-term sequelae can be debilitating. In children, these include growth inhibition of the joint, fibrosis, and TMJ ankylosis.3,4 Presenting symptoms of SATMJ can include pain, preauricular edema, erythema, and trismus. Burgess et. al described 9 patients with otogenic SATMJ, only 2 of whom presented with isolated AOM.3,4 As described in this case series, preauricular edema appears to be the most common sign in cases of otogenic SATMJ, present in 5 of 9 of their patients and 4 of the 5 other described cases for a total of 56% of 14 patients. Trismus was only present in 4 of the 14 patients (29%). Our case presents a patient with both of these symptoms, bringing the current prevalence of preauricular edema and trismus to 71% and 36%, respectively. As trismus appears to be a less common presenting symptom than might be expected, this may be a factor in the frequent failure to make an early diagnosis of SATMJ.

Conclusion

While there may be limited signs and symptoms pointing towards a complicated AOM, any provider should have an increased degree of suspicion in a patient with unresolved symptoms despite antibiotics. This is especially concerning when the patient presents with or develops any of the previously described symptoms of SATMJ. In our patient this included preauricular edema and trismus. It is important to recognize this rare complication in order to allow for appropriate intervention and diminishment of the risk of long term disability such as TMJ ankylosis. Recognition of the need for an interdisciplinary approach to treatment is important for both Oral Surgeons and Otolaryngologists so that both components of the infection can be addressed adequately.

References