Acute mastoiditis (AM) is a complication of acute otitis media (AOM) involving inflammation and purulent invasion of the mastoid air cells. It usually occurs unilaterally but can occur bilaterally as well. While vaccination and therapeutic use of antibiotics has reduced the incidence of complications of AOM, progression to AM still remains a bilateral clinical entity. There have been recent reports of an increasing incidence of AM and its complications secondary to resistant S. pneumoniae. After the introduction of the 7-valent conjugate pneumococcal vaccine (PCV7) in 2000, a dramatic decrease in invasive pneumococcal disease was observed. However, over time an increase in infection with non-PCV7 strains has been reported. This evolving pattern of disease in children with underlying conditions such as immunodeficiencies or other immunocompromised conditions. Bilateral mastoiditis in infants should prompt the physician to consider comorbidities such as neutropenia or other immunocompromised conditions.

MATERIALS and METHODS

Retrospective chart review of two patients presenting to a tertiary care facility with bilateral mastoiditis and subperiosteal abscess. The records were collected as well as available follow up.

**CASE 1**

A 9 month old male presented to his PCP with bilateral purulent otorrhea following a URI. He was started on antibiotics without improvement and then admitted to our department. Cultures taken on admission grew Streptococcus pneumoniae. Over the next week, he developed left-sided pyrexia and postauricular swelling. He was seen by his pediatrician and admitted to our hospital where CT revealed bilateral ACOM and mastoiditis with associated subperiosteal abscesses. He was transferred to our institution where he underwent bilateral drainage of the subperiosteal abscesses and bilateral myringotomy with and without pressure equalizing tube placement. Streptococcus pneumoniae was cultured from both patients. One patient also grew MSA. Significant comorbidities were identified including neutropenia, history of recent meningitis and prematurity.

Conclusions: Bilateral acute mastoiditis pursues an aggressive course in infants. The disease should prompt investigation for significant co-morbidities including immune deficiencies. In concordance with recent reports, Streptococcus pneumoniae is likely to be the offending organism even in the era of pneumococcal vaccination.

CT Scan on admission of 9 month with bilateral coalescent mastoiditis, cortex breakthrough (arrowhead) and subperiosteal abscesses.

**CASE 2**

A 3 month old ex-27 week female infant presented to our institution with bilateral purulent otorrhea. The antrum starts its development towards the 34th gestational week but only becomes patent at 7 gestational weeks. A 3 month old female infant presented to the UMMC ED after an apparent life-threatening episode at home requiring intubation and admission to the PICU. A diagnosis of pneumococcal meningitis and sepsis was made and treated with a 14 day course of ceftriaxone. The patient recovered and was discharged after 2 weeks. Admittance to the ICU was under treatment with ceftriaxone. Three weeks later the patient presented to the emergency department with left sided otorrhea and subperiosteal abscess.- CT scan revealed bilateral coalescent mastoiditis and right sided subperiosteal abscess. The patient was placed on IV Ceftriaxone and underwent bilateral placement of pressure equalization tubes with return of purulent fluid from both ears as well as incision and drainage of the right subperiosteal abscess and subsequently opening of the mastoid air for drainage. The patient recovered and was discharged on amoxicillin/clavulanate and ofloxacin drops.

Management should be aggressive with early decompression with myringotomy and subperiosteal abscess drainage although recent reports favor needle aspiration as a viable option.

CT Scan of 3 month old recently discharged after pneumococcal meningitis and mastoiditis for bilateral AOM and suspicion of mastoiditis. The scan revealed bilateral coalescent mastoiditis and a right sided subperiosteal abscess (arrowheads) Notice limited development of the left antrum.

CONCLUSIONS

1. Mastoiditis is the most common complication of AOM
2. The incidence of mastoiditis appears to be increasing
3. S. pneumoniae remains the most common offending agent even in the post-pneumococcal era, with an increasing incidence of multi-resistant serotypes.
4. Bilateral mastoiditis in infants should prompt the physician to consider comorbidities such as neutropenia or other immunocompromised conditions.

REFERENCES