Eikenella Corrodens Orbital Cellulitis on a 2 year old boy: A Case Report

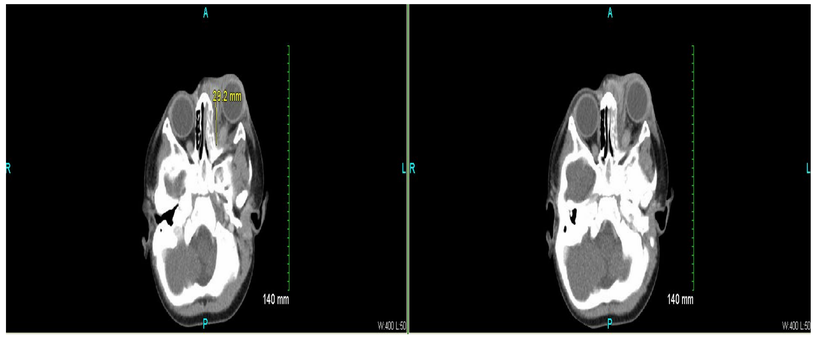
Juan F. Bedoya, MD[1], Ricardo Zegarra-Linares, MD[1], Meena Dhir, MPH, MS3[2]
Memorial Health University medical Center, Pediatric Residency[1], Mercer University School of Medicine[2]

Background

- Orbital cellulitis is a serious infection involving muscle and fat tissues located within the orbit. Clinical symptoms include pain with eye movements, proptosis and eye swelling. It can be originated from sinus infections, trauma, orbital foreign bodies or dental infections. Orbital cellulitis is mostly caused by *Staphylococcus aureus, Streptococcus spp and anaerobic bacteria. Eikenella corrodens* is an uncommon pathogen involved in orbital cellulitis among the pediatric population, with only few cases reported in the U.S. in older children. These case describes an uncommon case of orbital cellulitis due to *Eikenella corrodens* in a young pediatric patient

Imaging

Figures 1 and 2 Inflammation and fluid collection of the left orbit measuring 1 x 0.5 x 2.3 cm in the inferomedial left extraconal space.



Figures 3 and 4 CT imaging showing worsening and growth of the abscess this time measuring 1.3 x 3.5 x 0.8 cm

Case Details

- A 2-year-old boy previously healthy patient presents to the emergency department with history of a recent febrile seizure and swelling of his left eye that has been going on for a day.
- Clinical evaluation in the emergency department confirmed left eye discharge and edema of the eyelids with significant erythema.
- CT scans were obtained in the emergency department and confirmed the diagnosis of orbital cellulitis with abscess formation (Figures 1 and 2)
- The patient was started on broad-spectrum antibiotic coverage with vancomycin, and ceftazidime. Later on when the first preliminary results gave the result of gram negative rods, coverage for possible anaerobes was added with metronidazole.
- Within an overnight period, the patient had significant worsening of the abscess (Figures 3 & 4), requiring another visit to the OR for further drainage of the abscess.
- Cultures obtained from the surgical drainage, grew *Eikenella corrodens* within a lapse of 24 hours from the time it was collected.
- The MICs for this organism had to be sent out to a facility, due to the in house labs not running MICs on such organism.
- Once the patient had significant clinical improvement, the antibiotics were switched to ampicillin-sulbactam based on literature of the few previous cases and the treatments used. Majority of this treatment was done while in the hospital.
- Once the majority of the treatment was completed via IV antibiotics, the patient was discharged and the remaining of the treatment was given with amoxicillin/clavulanate potassium for 2 more weeks to be completed at home.
- The results of the MICs came back, and showed that the organism was pan-susceptible, including amoxicillin, therefore we believe that the treatment was successful.

Discussion

Eikenella corrodens, a gram-negative rod, is rare cause of orbital cellulitis in toddlers and young children. The only select few cases reported have occurred in previously healthy patients 8 years and older. One case occurred in an 8-year-old boy, and another occurred in a 11-year-old girl who were both found to have orbital cellulitis following an upper respiratory tract infection with sinusitis and subperiosteal abscesses in both patients. Cultures from the 8-year-old boy indicated *E. Corrodens* and *S.* viridians, whereas *E. Corrodens* was isolated from the 11-year-old girl . Specifically, one case occurred in a previously health 15-year-old girl and her abscess culture grew *e.* corrodens that was susceptible to penicillin, cefuroxime, and cefotaxime. She was subsequently treated with IV cefotaxime for 14 days and discharged with oral cefuroxime with a total treatment period of 21 days . Additionally, a previously healthy 9-year-old female also was found to have abscess culture revealing *E.* corrodens that was susceptible to ampicillin, cefotaxime, clindamycin, and meropenem. Her original treatment with IV ampicillin-sulbactam was continued for 10 days and upon discharge she was transitioned to amoxicillin/clavulanate potassium with a total treatment of 21 days. These cases demonstrate not to dismiss unusual pathogens for a patient's presenting symptoms. It is imperative to begin broad-spectrum coverage prior to narrowing down antibiotic coverage as the source of infection may not include typical organisms seen with orbital cellulitis. It is important to utilize antibiotic susceptibility tests to properly target and treat the causative agent. Specifically, *E. Corrodens* is typically sensitive to penicillin, second- and third generation cephalosporins and carbapenem. However, it tends to be resistance to clindamycin, macrolides, metronidazole, and aminoglycosides. In conclusion, bacteria typically causing orbital cellulitis include *Staphylococcus aureus* and *Streptococci* species, but if symptoms are not improving and there are reoccurring abscesses, Eikenella corrodens should be considered as a potential source of infection.

References

1. Danishyar A, Sergent SR. Orbital Cellulitis. In: *StatPearls*. Treasure Island (FL): StatPearls Publishing; August 8, 2023
2. Erci, Ece MD; Avcu, Gulhadiye MD; Ozer, Emine Cigdem MD; Bal, Zumrut Sahbudak MD; Ozkinay, Ferda MD; Kurugol, Zafer MD; Gode, Sercan MD; Aydemir, Sabire Sohret MD. A Rare Cause of Orbital Cellulitis: Eikenella corrodens. The Pediatric Infectious Disease Journal 42(7):p e257, July 2023. | DOI: 10.1097/INF.0000000000003909
3. Schwartz H, Baskin MA, Ilkiw A, LeBeau L. An unusual organism causing orbital cellulitis. *Br J Ophthalmol.* 1979;63(10):710-712. doi:10.1136/bjo.63.10.710
4. Hemady R, Zimmerman A, Katzen BW, Karesh JW. Orbital cellulitis caused by Eikenella Corrodens. *American Journal of Ophthalmology.* 1992;114(5):584-588. doi:10.1016/s0002-9394(14)74487-3
5. GRIMMETT MR. Orbital cellulitis caused by Eikenella Corrodens. *American Journal of Ophthalmology.* 1993;115(3):398-399. doi:10.1016/s0002-9394(14)73600-1

This research was supported (in whole or in part) by HCA Healthcare and/or an HCA Healthcare affiliated entity. The views expressed in this publication represent those of the author(s) and do not necessarily represent the official views of HCA Healthcare or any of its affiliated entities.