

Orbital Cellulitis in a Neonate: A Case Report

Radia Laanait^{1*}, Widad Lahmini^{1,2}, Mounir Bourrous^{1,2}

¹Pediatric Emergency Department, University Hospital Mohammed VI, Marrakesh, Morocco

²Faculty of Medicine and Pharmacy, Cadi Ayad University, Marrakech, Morocco

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*Corresponding author: Radia Laanait

Pediatric Emergency Department, University Hospital Mohammed VI, Marrakesh, Morocco

Abstract

Case Report

Orbital cellulitis is a serious, yet uncommon infection in neonates. It can result in significant sight and life-threatening complications. Most commonly, it occurs secondarily as the result of a spread of infection from the sinuses or most likely from bacteremia. We hereby report a case of orbital cellulitis secondary to *Staphylococcus aureus* bacteremia. In a 15-day-old neonate.

Keywords: Newborn, Orbital Cellulitis, Bacteremia, *Staphylococcus Aureus*.

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1. BACKGROUND

Orbital cellulitis in neonates is a potentially lethal condition that can result in significant complications including blindness, cavernous sinus thrombosis, meningitis, subdural emphysema and brain abscess [1]. Orbital cellulitis is usually a complication of infection in the paranasal sinuses (60-80%) and is infrequently the result of an infection of dental origin (2-5%) [2]. We hereby report the case of a newborn baby hospitalized at 15 days of age for a unilateral orbital cellulitis inaugurating of *Staphylococcus aureus* bacteremia.

2. CASE REPORT

We report the case of a neonate admitted at 14 days of life for the management of bilateral orbital cellulitis. The baby was born at full term after a vaginal delivery with a good adaptation to the extra-uterine life and a birth weight of 4 kg 400. No risk factors for of maternal-fetal infection were found. There was no maternal fever pre-, per- or postpartum. The patient was brought with a history of 7 days of progressive bilateral periorbital swelling, and purulent discharge, preceded two days before by fever (**Figure 1**). The neonate was treated for conjunctivitis for 7 days before consulting the pediatric emergency department. On admission, vital signs including pulse, temperature, and respiratory rate were within normal limits. Ocular examination revealed red and warm bilateral palpebral edema, palpebral opening revealed purulent discharge, there was no proptosis, conjunctival hyperemia or oculomotor deficit. Anterior segment examination was normal, pupillary

reaction and fundus examination were also normal. Systemic examination revealed no abnormalities. The oral cavity examination was normal. There was no hepatosplenomegaly.



Figure 1: Bilateral preseptal orbital cellulitis

Hematological investigations showed the following results: Hemoglobin- 14.5 g/dL, total leucocyte count- 17,000/mm³, neutrophils- 8750/mm³, lymphocytes- 4500/mm³, platelet count- 483,000/mm³, C-reactive protein (CRP)- 15 mg/L. Microbiological

investigation of conjunctival swabs revealed no organism. The blood culture was positive for *Staphylococcus Aureus*. CT scan showed a dense soft tissue lesion of size 5 mm × 3 mm in the extraconal space of the left orbit and pre-septal region. The sinuses were normal. The findings were suggestive of the Chandler stage 1 orbital cellulitis (**Figure 2**). The diagnosis of *Staph aureus* bacteremia in the context of a neonatal

infection, complicated by bilateral orbital cellulitis, was retained.

The neonate was admitted and received intravenous injections of gentamycin 3 mg/kg/day for 48 hours, ceftriaxone of 50 mg/kg/day within 10 days. The clinical evolution was rapidly favorable after 72 hours with a clear reduction of the palpebral edema. The patient was discharged on day 10 with total recovery.



Figure 2: CT scan showing Chandler stage 1 orbital cellulitis

3. DISCUSSION

Orbital infections in children are relatively rare. Two types of cellulitis are to be differentiated: preseptal cellulitis in front of the orbital septum and retroseptal cellulitis or "true" orbital infection behind the septum orbital. The management and prognosis are very different depending on the type of cellulite [3]. Orbital computed tomography is the imaging examination of choice, it allows to visualize the infectious focus of origin and classify the different types orbital cellulitis.

Neonatal orbital cellulitis is rarely described in the literature, apart from a few a few clinical cases. Most reported cases are secondary to ethmoiditis [4], or of dental origin [8, 9]. Neonatal orbital cellulitis inaugurating bacteremia in the bacteremia as part of a maternal-fetal infection are exceptional. A case of preseptal cellulitis due to streptococcus B was described by Martel *et al.*, [5]. Indeed, the group B streptococcus is the most frequently reported germ reported in facial cellulitis of newborns and infants under 3 months of age [6]. It is also described cases in which the germ was staphylococcus aureus [6]. A case report of neonatal cellulitis due to *Klebsiella pneumoniae* was described by Kojmane *et al.*, [7].

Healthy, term newborns are generally colonized with *S. aureus* on their skin and mucosal surfaces shortly after birth, yet incidence of infection is low and usually secondary to a history of prematurity, use of invasive devices, or when the balance of normal flora is altered by antimicrobial therapy. Neonates and infants tend to have limited antigen exposure and immature adaptive immune systems and thus rely heavily on maternal immunoglobulins and innate immune response [8]. Phagocytosis by polymorphonuclear leukocytes, a main host defense against *S. aureus*, is not mature at birth.

The therapeutic management is based on broad-spectrum parenteral antibiotic therapy, sometimes associated with surgical drainage in case of collected cellulitis.

4. CONCLUSION

Clinicians should be aware that young infants, even without any predisposing condition, are susceptible to orbital cellulitis caused by community-associated methicillin-resistant *S. aureus*. Prompt initiation of the appropriate empirical therapy, according to the local epidemiology, should successfully address the infection, preventing ocular and systemic complications.

Conflicts of Interest: The authors declare no conflicts of interest.

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