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PRESEPTAL ORBITAL CELLULITIS IN THE NEONATE: ABOUT TWO MOROCCAN CASES

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ABSTRACT

Orbital cellulitis is an infection including the soft tissues posterior to the orbital septum, including the fat and muscle within the bony orbit.This entity is rare in neonatology. The organisms implicated in the causation of neonatal orbital cellulitis include staphylococcus aureus commonly and sometimes streptococcus and very rarely aspergillus. The management of orbital cellulitis remains difficult specially in neonatology. Rapid diagnosis and therapy are important in avoiding complications and optimizing outcomes.We report two cases of a 31 and 21 day old babies who presented a similar signs with sudden onset of fever, red and swollen right eye. Computer tomography scan, revealed bilateral preseptal ocular cellulitis. The treatment was included a high dose of intravenous third generation cephalosporins combined with oxacillin and gentamycin. The outcome was favorable.

Key words: Cellulitis, Orbital, Neonate, Rare, Treatment.

INTRODUCTION

Orbital cellulitis is extremely uncommon in neonates. 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 [1,2].

Peri-orbital infections are classified as preseptal cellulitis and orbital cellulitis. Preseptal cellulitis involves the soft tissues of the eyelids in front of the septum and orbital cellulitis involves the soft tissues of the orbit behind the orbital septum [3,4]. Orbital cellulitis occurs in the following situations:

Spread of infection from adjacent structures : paranasal sinuses, lacrimal sac, stye, dental infections and facial infections, Direct inoculation of the orbit from penetrating ocular trauma or ocular surgery, Haematoge nous seeding from bacteraemia.

We report 2 cases of Moroccan newborns hospitalized in our center for swollen eye and fever. The diagnosis of preseptal ocular cellulitis was made. We have not identified anatomical predisposing factors. The outcome was favorable under medical treatment.

CLINICAL PRESENTATIONS

Case 1

A 31-day-old girl presented rapidly increasing swelling and redness in the right eyelids persistent fever

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along with since 2 days. She was delivered normally at full term without any significant antenatal or postnatal complications. She was exclusively breastfed. On admission the neonate showed signs of irritability, temperature was 40°, heart rate 140 beats/min. On physical examination, the baby was lethargic and was not sucking well. Ocular examination revealed conjunctival hyperemia, decreased ocular motility and proptosis.

On checkup, white blood cell count was increased to 27,300 cells/mm ^{3} with neutrophil predominance of 69%. Blood, cerebrospinal fluid (CSF) and urine cultures were sterile. CSF examination was within normal limits. Chain reaction protein and procalcitonin were negative.

Computer tomography scan of the orbit was suggestive of bilateral preseptal ocular cellulitis. Brain and paranasal sinuses revealed no pathology [Figure 1]. The treatment was included a high dose of intravenous third generation cephalosporins (100mg/kg) combined with oxacillin (50 mg/kg) and gentamycin (3 mg/kg). The outcome was favorable and there was sorrowful demise of the mass completely after 15 days.

Case 2

Our patient was a male infant aged 21 days born as the first child at 34 weeks' gestational age with a weight of 1800 g. He was born by emergency cesarean delivery performed for fetal bradycardia. Her mother was a 35-year-old, maternal serologies (toxoplasmosis, rubella, syphilis, hepatitis B) were negative. The only medication taken during pregnancy was an iron treatment; The boy was exclusively breastfed and showed adequate growth. Fever and swelling in the right eye was noticed by the parents on the 18th day, but no further action was taken. On the 21th day after birth poor feeding and lethargy were noticed. The infant was hospitalized in our NICU.

Physical examination on admission showed marked fever (39°), swelled right eye, conjunctival hyperemia and proptosis, but was otherwise normal. Specifically, there were no signs of encephalopathy.

Initial laboratory results revealed: hemoglobin concentration 10.9 mmol/L; hematocrit 47%; Blood, cerebrospinal fluid (CSF) and urine cultures were sterile. Markers for infection were not increased.

CT scan of the orbit showed a bilateral preseptal ocular cellulitis [Figure 2]. The treatment was included ceftriaxone (100mg/kg) combined with oxacillin (50 mg/kg) and gentamycin (3 mg/kg). The outcome and follow-up was satisfactory.

Fig 1. Bilateral preseptal ocular cellulitis (patient1)

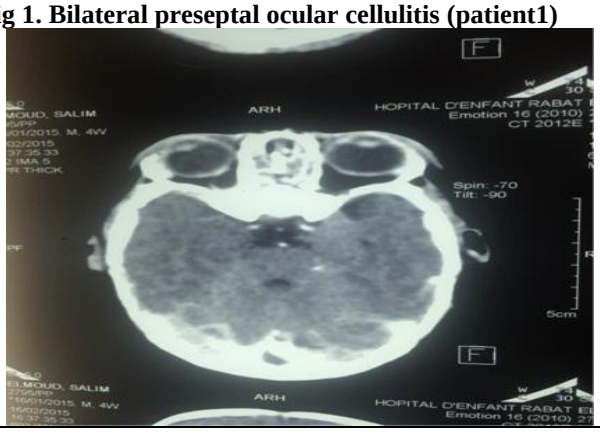
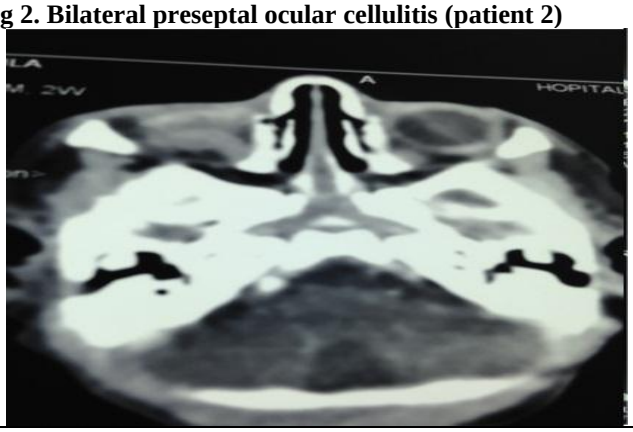


Fig 2. Bilateral preseptal ocular cellulitis (patient 2)



DISCUSSION

There was absence of any of the predisposing risk factors for contiguous or hematogenous spread of infection in our patients and also no maternal risk factor [5-7]. The patients could also have acquired the infection through a contaminated nipple during the breastfeeding. The infection in these neonates may have most likely occurred subsequent to a contaminated nipple. The infection could have then tracked subperiosteally and entered the soft tissue, causing orbital cellulitis with abscess formation.

Dolter *et al.*, reported a case of orbital cellulites in a one-month-old secondary to ethmoidal sinusitis. Harris reported a case of orbital cellulitis in a one-week-old secondary to septic thrombophlebitis from an intravenous line in a scalp vein. Tanuja A *et al.*, reported the same in a nine-day-old neonate with septic arthritis of the left ankle joint and ethmoidal sinusitis [8-10].

Symptoms and signs of orbital cellulitis include swelling and redness of the eyelid and surrounding soft tissues, conjunctival hyperemia and chemosis, decreased ocular motility, pain with eye movements, decreased visual acuity, and proptosis caused by orbital swelling [1,5].

Pathogens vary by etiology and age. Strepto coccus pneumoniae, Staphylococcus aureus and S. pyogenes predominate when infection arises from local trauma. Haemophilus influenzae type b, once a common cause, is now less common because of widespread vaccination. Fungi are possible specially in preterms [6].The preferred methods of diagnosis of orbital cellulitis

are CT scan of the orbits and swabs taken directly from the orbital abscess or conjunctiva for direct smear and culture. Blood culture can be used if there is a case of generalized bacteraemia [9]. Complications, especially the intracranial ones, tend to be more fatal in neonates. Prompt diagnosis and early intervention are required to ensure a favorable outcome [8].

Empirical intravenous antibiotic treatment for orbital cellulitis is usually chosen to cover a broad spectrum of bacteria including Staphylococcus species, Streptococcus species and anaerobes. In our patients, a combination of intravenous ceftriaxone, oxacillin and intravenous gentamicin was successful in managing the patients [7]. However, the patient showed significant improvement with medical management alone within 24 hours of initiating antibiotic treatment.

CONCLUSION

Neonatal orbital cellulitis is rarely encountered but when it does occur, it can be quite dangerous. Complications, especially the intracranial ones, tend to be more fatal in neonates. Prompt diagnosis and early intervention are required to ensure a favorable outcome. Our case reports suggests that prompt managment strategy against orbital cellulitis in neonates can avoid complications specially in our context. This study was approved by the Ethics and Research Committee of faculty of medicine and pharmacy, Mohamed V University, Rabat, Morocco

COMPETING OF INTEREST

The authors declare that there are no conflicts of interest and shall disclose any potential conflicts of interest in the future.

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CONFLICT OF INTEREST:

The authors declare that they have no conflict of interest.

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