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Orbital Cellulitis Complicated by Abscesses in a Child: A Case Report

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Objective: To describe a case of cellulitis complicated with orbital abscess.
Results: A 13-year-old patient was admitted with painful palpebral edema and a fever of 39°. The diagnosis of preseptal cellulitis was made on CT scan. The patient was started on antibiotic therapy, but the course worsened with the development of an orbital abscess and a pansinusitis. Management involved surgical drainage and adapted antibiotic therapy. This multidisciplinary management led to regression of the abscess.

Keywords: Abscess; cellulitis; antibiotherapy; chirurgical.

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1. INTRODUCTION

Orbital cellulitis can be defined as an inflammatory swelling of the orbital and periorbital tissues of infectious origin [1]. It is a rare and urgent pathology, predominantly affecting young subjects under the age of 15, but potentially serious because of the complications it can cause, putting the patient's functional and vital prognosis at risk [2]. The starting point of infection is mainly in the ENT (ear-nose-throat) sphere, but it can also be ophthalmologic, dental or cutaneous. There are two types of cellulitis according to their location in relation to the orbital septum: preseptal and retroseptal cellulitis [3]. The diagnosis is clinical and confirmed by imaging. The orbital abscess is a critical stage in the evolution of cellulitis, and requires medical and surgical management, as the visual and vital prognoses are concerned. We describe the case of an adolescent with an orbital abscess identified in our department.

2. CLINICAL CASE

This is a 13-year-old patient with no previous pathological history admitted for management of palpebral oedema. He had no history of recent or past ear, nose and throat (ENT) infections, insect bites or recent facial surgery.

The symptomatology dated back to two days before admission, with the sudden onset of red, painful palpebral oedema (unilateral) over the left eye, which prompted the consultation. This was accompanied by a fever of 38.5°C.

The examination on admission revealed a patient in good general condition, well oriented in time and space, with a Glasgow score of 15. Temperature was 39.5°C, with no evidence of headache, chills or vomiting.

The ophthalmological examination revealed preserved visual acuity of 10/10 in both eyes

Right Eye: Normal ophthalmological examination

Left Eye: diffuse palpebral edema, red and painful to palpation. The conjunctiva was healthy and normocoloured, there were no signs of inflammation of the lacrimal apparatus and ocular mobility was preserved. Anterior and posterior segment examinations were normal.

There were no pretracheal, maxillary or mandibular adenopathy. At the ENT examination, there was sinusitis signs

A laboratory work-up was ordered, which revealed:

White blood cells: 9,600, predominantly neutrophils: 82.9

Platelets: 114,000 **Hemoglobin:** 11.9

Sedimentation rate: 25 mm at 1st hour C-reactive protein: 76

Urea: 0.32 Creatinine: 8 **Natremia:** 133 **Kalemia:** 4.2

An orbital-cerebral CT scan revealed pre-septal cellulitis graded Chandler I.

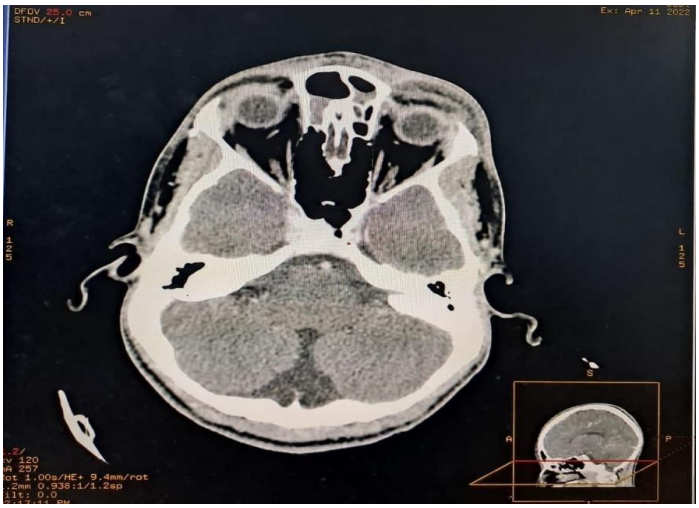

Fig. 1. Orbito-cerebral CT scan

Chandler I pre-septal cellulitis: inflammation, edema, thickening and infiltration of the upper and lower palpebral soft tissues, with respect for intralesional fat. Absence of soft tissue and subperiosteal collections.

Initial treatment was bi-antibiotherapy with clavulanic acid-amoxicillin (Augmentin)+ metro nidazole (Flagyl), paracetamol (Perfalgan) and sinus lavage.

The evolution was marked 48 hours later by a worsening of the symptomatology (a fever of 40°C, the onset of chills and exacerbation of ocular pain and palpebral edema with an inability to open the eyelids); this prompted a new CT scan, which revealed: Preseptal cellulitis complicated by multiple abscesses associated with fronto-ethmoido-maxillary sinusitis.

The treatment consisted in draining the abscess, collecting the pus and sending it for bacteriological examination, and changing the antibiotic regimen to a triple combination of 3rd-generation cephalosporins (Ceftriaxone) +Gentamycin + metronidazole (Flagyl)

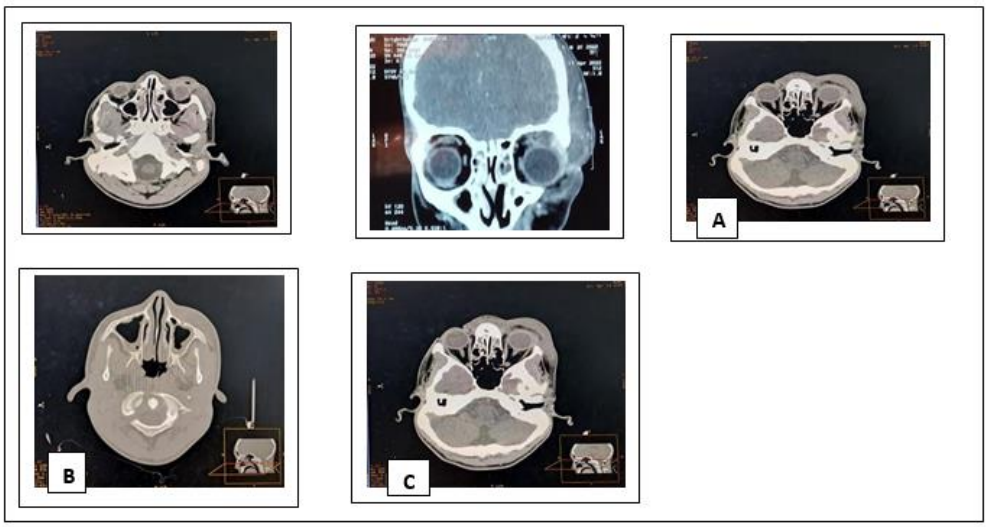

Fig. 2. Orbito-cerebral CT scan showing abscessed orbital cellulitis. Thickening and infiltration of the upper and lower palpebral soft tissues. Hypodense collections with peripheral air bubbles. Optic nerve without abnormalities

Sinus filling (a-ethmoid; b-maxillary; c-frontal)

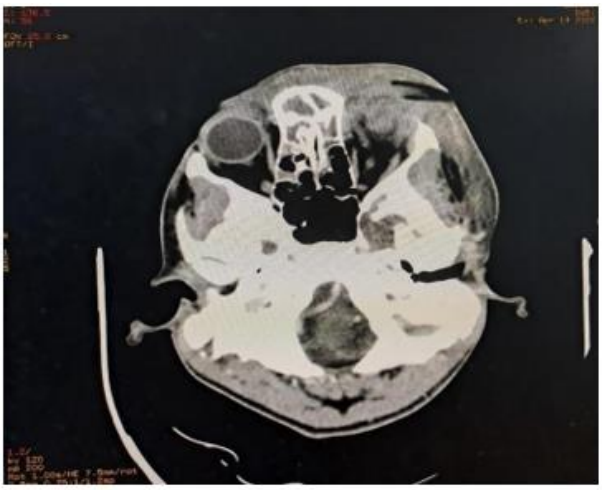

Fig. 3. Follow-up CT scan of drainage showing regression of abscess with left exophthalmos stage I+ pansinusitis. Infiltration of the upper and lower palpebral soft tissues. Disappearance of the collection and visualization of the drain, which appears hypodense

The bacteriological examination favored infection with: Staphylococcus negative coagulase Streptococcus alfa hemolitic + Corynebacterium sp

Treatment was then adapted with the introduction of vancomycin.

The course was subsequently favorable, with signs regressing until complete recovery.

3. DISCUSSION

The orbital abscesses are a serious complication of cellulitis, requiring urgent and multidisciplinary management involving radiologists, ophthalmologists, maxillo-facial surgeons, ENT surgeons and often neurosurgeons [4]. According to the literature, it is a rare pathology with a peak occurrence in children between 06-15 years of age, with a male predominance [5-6]. The most frequently isolated germs are streptococcus pneumoniae, staphylococcus aureus and hemophilus influenza. Their main portal of entry is the sinus, in over 80% of cases. In children, the inner wall of the orbit is very thin, and infection will lead to reduced venous drainage and subsequent palpebral edema. These factors, combined with the complexity of the periorbital venous network, favor the spread of neighboring infection in children [7-9]. These data are consistent with our case, which involved a 13-year-old adolescent with a sinus portal of entry and bacteriological isolation of staphylococcus, streptococcus and corynebacterium sp. The diagnosis, which was often clinical, was aided by imaging (orbital-cerebral CT scan with and without product injection of contrast) which enables cellulitis to be classified into five stages according to Chandler. The abscess corresponds to stage IV of this classification, which includes deep pain, collection, exophthalmos with significant chemosis, reduced visual acuity, often ophthalmoplegia and papilledema. Our patient presented with pain, chemosis and exophthalmos. Visual acuity and fundus were normal.

This is a surgical emergency requiring medico-surgical treatment with antibiotic therapy and drainage of the abscess. If left untreated, the condition will worsen, with complications such as cavernous sinus thrombosis, blindness, brain abscess, meningitis, septic shock and death. Antibiotic therapy is administered parenterally, combining cephalosporins or amoxicillin-clavulanic acid with aminoglycosides or vancomycin. If anaerobic germs are suspected, a combination with metronidazole is recommended [3-10-11]. This treatment is then adapted according to the results of the antibiogram. Drainage depends on a number of factors: abscess size, location, visual impairment, cerebral complications, sinuses involved and response to treatment. Prognosis depends on the rapidity of management, and the initial severity of involvement [9,12-13]. In our case, the patient recovered full visual function with no sequels.

Fig. 4. Different stages from abscess to regression under treatment

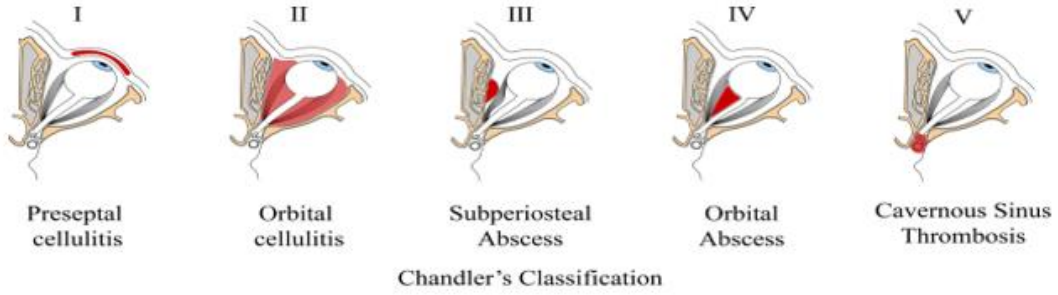

Fig. 5. Chandler classification of orbital cellulitis

4. CONCLUSION

Orbital abscesses represent an ophthalmological emergency, threatening the patient's functional and vital prognosis, but no longer pose a diagnostic problem. Early and appropriate medical and surgical management is essential to avoid complications.

CONSENT

As per international standards, parental written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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