

Subperiosteal Orbital Abscess - Case Report

Alice Silva Casé, MD^{1*}, Ricardo Luz Leitão Guerra, FICO¹, Mariluze Sardinha, PhD²

Roberto Lorens Marback, PhD²

¹Hospital Santo Antônio (Obras Sociais Irmã Dulce), Salvador – Brazil.

²Hospital Universitário Prof. Edgard Santos, Salvador – Brazil.

alice.case@yahoo.com.br

**Corresponding Author: Alice Silva Casé, Hospital Santo Antônio (Obras Sociais Irmã Dulce), Salvador – Brazil.*

Background

Orbital sinus complications have been known for more than 60 years.¹ The infection can occur in any intra-orbital area, however usually affects retro-ocular soft tissues, including the muscle cone.²

Orbital cellulitis and abscess occur due to the extent of infection of neighboring tissues, trauma or less frequently hematogenous.³ Subperiosteal abscess usually occurs due to ethmoidal sinus disease (secondary to sinusitis) because papyraceous lamina is thin and constitutes a fragile barrier for the spread of infections, orbital septum or palpebral fascia, and venous drainage of the paranasal sinuses performed through non-allowing free blood flow between ethmoid, orbital and intra-cranial contents.⁴

The orbital abscess requires timely and effective treatment because of its morbidity.⁵ Complications includes visual loss, endophthalmitis, cavernous sinus thrombosis, intracranial spread (eg.: meningitis, cerebitis, brain abscess) and death.⁵

The aim of this article is to report a case of subperiosteal orbital abscess that required surgical treatment.

CASE REPORT

A 17-year-old female was referred to Professor Edgard Santos University Hospital presenting periorbital edema and decreased ocular movements in the right eye (RE) to evaluate for a possible orbital tumor. She complained of reduced visual acuity and inflammation in RE for the past 15 days and reported allergy to penicillin and had been using eye drops (gatifloxacin and lubricant) and cephalexin orally. Best corrected visual acuity (BCVA) was 20/40 in the RE and 20/20 in the left eye (LE). RE presented intense chemosis, proptosis, inferior dystopia, periorbital phlogose, difficult evaluation of extrinsic ocular movements due to periorbital edema and pain, transparent cornea, wide anterior chamber, and a regular photomotor reflex. No abnormalities were found in the ophthalmologic examination of the LE.

Computed tomography (CT) of orbits and paranasal sinuses revealed a filled right ethmoidal sinus and same density material, located in subperiosteal space of right orbit roof, displacing the globe inferiorly and anteriorly (Figures 1 and 2).

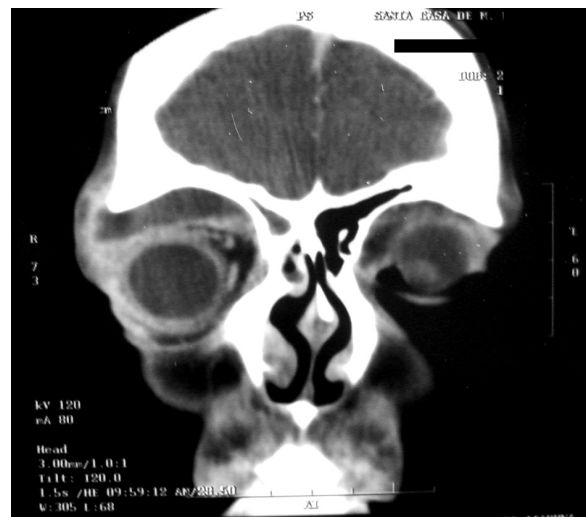


Figure 1. CT scan showing right ethmoidal sinusitis and a superior subperiosteal abscess, displacing the globe inferiorly.

Parenteral antibiotic therapy was initiated (vancomycin and gentamicin) and, one day after initiation, surgical drainage of right subperiosteal abscess was performed followed by

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parenteral antibiotic therapy maintenance for 10 days. There was no bacterial growth in the sample extracted from the abscess secretion.

Eight months after the surgery, the patient returns presenting an excellent outcome, with a discrete elevation in temporal region and a tiny surgical wound scar. BCVA was 20/25.



Figure 2. CT scan showing the anterior displacement of the right eye.

COMMENTS

The subperiosteal abscess of the orbit is an infectious disease that must be quickly diagnosed and treated. Its main causes include rhinosinusitis, trauma and to a lesser extent hematogenic pathway among others.^{2,6} In the presented case, the probable cause was acute rhinosinusitis.

The most common etiologic agent in children is *Haemophilus influenzae*², suffering reduction due to the age of vaccination.³ *Staphylococcus aureus*, *Streptococcus pyogenes*, *Streptococcus pneumoniae* and anaerobes are the most frequent in teenagers and adults, and may vary according to the cause of the infection.² The most affected age range varies from 11 to 20 years.¹ There was no bacterial grown in culture performed with secretion of the abscess drained in the presented case.

The subperiosteal abscess appears around 5 and 23.7% of lymphocytes.¹ Clinically it is characterized by periorbital pain, exophthalmos, intense conjunctival hyperemia associated with chemosis, limitation of ocular movements.^{1,5} Other important data are

leukocytosis and positive blood cultures.^{1,3} The patient had a leukogram of 13,900 with 61.7% of neutrophils and 23% of lymphocytes.

Tomography is the method of choice for diagnosis and localization of the abscess.⁵ The position of the subperiosteal abscess has been considered in determining the need for external drainage.⁵ Some studies have shown that orbital computed tomography is not able to differentiate a subperiosteal abscess from an inflammatory abscess of the medial orbit, which makes ultrasonography very useful in such cases.³

Treatment of subperiosteal abscess is based on intravenous antibiotic therapy.⁷ Surgical treatment is still controversial; some studies have shown that the possibility of optic nerve ischemia due to vascular compression with consequent amaurosis leads to the need for urgent surgical decompression, indicating surgery for decompression in 100% of the cases.¹ On the other hand, studies show that surgical treatment, even in the presence of subperiosteal abscess, should only be performed after worsening of the clinical condition with 48 hours of systemic antibiotic therapy.³ Treatment in the case presented accompanies the tendency to individualize the cases according to the underlying cause and the possibility of complications.² Surgical drainage was performed followed by antibiotic therapy for 14 days.

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