Subperiosteal abscess with epidural extension due to acute rhinosinusitis in a ten-year-old child

Abscesso subperiostal com extensão epidural devido à rinossinusite aguda em criança de dez anos

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ABSTRACT

Acute rhinosinusitis is one of the most prevalent diseases of the upper airways. Anatomical factors present in children and young people allow for the onset of orbital complications. Although rare, intracranial complications of sinusitis account for a high degree of lethality, and should be treated by a multidisciplinary team.

Keywords: Sinusitis/diagnosis; Epidural abscess/therapy; Abscess/diagnosis; Orbital cellulitis/complications; Orbit/surgery; Case reports

Resumo

A rinossinusite aguda é uma das afecções mais prevalentes das vias aéreas superiores. Fatores anatômicos presentes em crianças e jovens propiciam o aparecimento de complicações orbitárias. Embora mais raras, as complicações intracranianas das rinossinusites perdem um grau alto de letalidade, são mais comuns em pacientes acima de sete anos, e devem ser tratadas por uma equipe multidisciplinar.

Descritores: Sinusite/diagnóstico; Abscesso epidural/terapia; Abscesso/diagnóstico; Celulite orbitária/complicações; Órbita/cirurgia; Relatos de casos

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The authors declare no conflicts of interests.

Received for publication 10/01/2015 - Accepted for publication 01/03/2015

INTRODUCTION

Rhinosinusitis (RS) is characterized by the inflammation of the mucosa of the nose and paranasal sinuses, being one of the most prevalent diseases of upper airways and associated to several factors such as infections, allergies, mucosal disorders among others\(^\text{(1,2)}\).

Orbital complications are the most common ones in acute RS mainly due to anatomical factors\(^\text{(1-3)}\), and is more common among children and youngsters\(^\text{(1,2)}\). The urgency in the diagnosis and treatment is justified by the irreversible visual deficits, besides bone and neurological involvement with potential for significant morbidity and mortality\(^\text{(1,4)}\).

This report aims to present clinical profile, imaging and therapy of a case of subperiosteal abscess (ASP) with epidural extension in patient with acute rhinosinusitis, as well as the importance of the multidisciplinary approach.

CASE REPORT

Patient aged 10 years old was admitted in an emergency unit in the city of Salvador - BA by the Department of Pediatrics complaining of edema in the left eye for 5 days in use of eyedrops (association of dexamethasone and ciprofloxacin hydrochloride). Pediatric examination showed the patient was afebrile with edema, redness and heat in upper left eyelid. The suspected diagnosis was orbital cellulitis, hospitalization was requested and the therapy started with the use of systemic antibiotic (oxacillin, ceftriaxone and metronidazole), corticosteroid (hydrocortisone) and analgesy (dipyrone). After two days without improvement, an ophthalmologist assessment was requested.

The patient’s ophthalmological examination showed visual acuity in the right eye of 0.4 without correction, and impaired left eye due to important edema of the left upper eyelid associated to redness and local heat, being painful on palpation. The patient was also with accentuated chemosis preventing assessment of ocular motility and anterior segment of the left eye (Figure 1). Mapping of the retina of the right eye had no changes. The suspicion was SPA, and a CT scan of the skull and face was requested.

Figure 2: Image suggestive of SPA with epidural extension and completion of frontal, ethmoid and maxillary sinuses.

The CT scan showed an image suggestive of SPA with epidural extension and completion of frontal, ethmoid and maxillary sinuses (Figure 2).

Figure 3: Treatment of the condition.

DISCUSSION

Among all RS complications, the orbital ones are the most prevalent primarily due to anatomical factors affecting more the population of male youngsters. It is believed that this age group is the most affected by recurrent episodes of upper airway infection (UAI) and the presence of diploic bone with higher levels of vascularization in the sinuses\(^\text{(4)}\).

The case presented here shows involvement of a female 10-year-old patient.

Among the causes that explain the orbital complications in cases of RS is the anatomical component, such as the close relationship between orbital contents and ethmoidal labyrinth, the occurrence of congenital dehiscence on the orbital floor and...
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Subperiosteal abscesses with epidural extension due to chronic rhinosinusitis are described in the literature. The authors report a case of a ten-year-old child with a subperiosteal abscess of the orbit associated with an epidural extension due to acute rhinosinusitis.

The authors describe the clinical findings, imaging, and management of the case. They also discuss the differential diagnosis and the importance of early recognition and aggressive treatment of this complication.

In conclusion, RS can cause severe complications, most often in the orbits due to the close relation between them and the paranasal sinuses. The orbital and intracranial simultaneous involvement is extremely rare, and due to the increased mortality rate in these cases a multidisciplinary approach should be as early and organized as possible.

**REFERENCES**