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Bilateral septic cavernous sinus thrombosis: a case report

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Introduction

Cavernous sinus thrombosis (CST) is a rare, life-threatening condition. Headache is the most common presenting symptom, occurring in 50-90%. Early recognition can reduce morbidity and mortality

Case presentation

Patient male, 18-year-old, was admitted with a 10-day history of Thunderclap headache, associated with vomiting, binocular diplopia, and subsequently left eyelid ptosis and fever with chills. The patient had been using amoxicillin-clavulanate for the treatment of sinusitis. On admission, he was afebrile, with improvement of the headache. Neurological examination revealed that he was alert and oriented, with isolated left-sided III, IV, and VI cranial nerve palsies, without associated motor or sensory deficits. Brain MRI showed enlargement and heterogeneity of the cavernous sinuses bilaterally, with irregular peripheral enhancement and areas of diffusion restriction, suggestive of bilateral CST. Laboratory tests revealed elevated C-reactive protein and leukocytosis, and cerebrospinal fluid analysis showed mild lymphocytic pleocytosis, with no microbial isolation.

Discussion

Given the clinical and radiological findings suggestive of CST of probable infectious etiology, antibiotic therapy with ceftriaxone at central nervous system dosing was initiated, without full anticoagulation, along with neurological monitoring and supportive care. The patient showed favorable clinical evolution, characterized by progressive improvement of cranial nerve deficits, as well as inflammatory markers and neuroimaging findings. Cavernous sinus thrombosis is a rare but potentially fatal condition, characterized by thrombus formation in intracranial venous structures, often associated with infectious processes of the face, orbit, or paranasal sinuses, as well as prothrombotic states. In the present case, there is a severe and atypical clinical presentation, marked by bilateral involvement, suggesting greater severity and association with a worse prognosis. The involvement of cranial nerves III, IV, and VI reflects impairment of the neurovascular structures that traverse the cavernous sinus.

Conclusion

From a diagnostic perspective, early identification can be challenging, especially in the initial stages, and the differential diagnosis includes other causes of painful ophthalmoplegia, such as Tolosa–Hunt syndrome and orbital infectious processes. MRI is the most sensitive imaging modality for diagnostic confirmation. Therapeutic management is mainly based on the early initiation of broad-spectrum antibiotic therapy, considering infectious etiology as the most frequent, and may be associated with anticoagulation in selected cases, although this approach remains debated in the literature. Clinical evolution may be unfavorable, with a high risk of permanent neurological complications and mortality. In this context, the present report reinforces the importance of early recognition, rapid diagnostic investigation, and immediate institution of appropriate therapy in order to reduce morbidity and mortality.

Keywords:
Cavernous sinus thrombosis
Septic thrombosis
Cranial nerve palsy
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