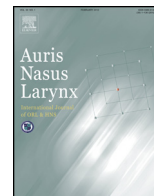




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## Cavernous sinus thrombosis during pregnancy

Fernando López<sup>a,\*</sup>, Elena Santamarta<sup>b</sup>, Patricia Martínez<sup>a</sup>,  
Antonio Sáiz-Ayala<sup>b</sup>, José L. Llorente<sup>a</sup>

<sup>a</sup> Department of Otorhinolaryngology and Instituto Universitario de Oncología del Principado de Asturias, Hospital Universitario Central de Asturias, Oviedo, Asturias, Spain

<sup>b</sup> Department of Radiology, Hospital Universitario Central de Asturias, Oviedo, Asturias, Spain

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### ABSTRACT

Cavernous sinus thrombosis (CST) represents a rare but devastating disease process that may be associated with significant long-term patient morbidity or mortality. Rapid diagnosis and aggressive medical and surgical management are imperative for patients with CST. We present the case of a 24-year-old pregnant woman with intraorbital abscess and CST secondary to *Streptococcus milleri*. Surgical intervention included orbital abscess drainage and dental extraction, medical therapy included intravenous antibiotic, heparin, and methylprednisolone and an elective cesarean section was performed. The latter was the key point to resolution of the disease.

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## 1. Introduction

Cavernous sinus thrombosis (CST) is a rare complication of orbital cellulitis and sinusitis that may be associated with significant long-term patient morbidity or mortality [1]. *Streptococcus milleri* is an anaerobic organism capable of causing significant morbidity. To our knowledge, this is the first case reported of a pregnant woman with orbital abscess and bilateral CST. This paper provides an insight into the current recommendations for the management of CST and the importance of early diagnosis and treatment of this condition.

## 2. Case report

A 24-year-old and 32 weeks pregnant woman presented to our institution in May 2012 with a history of severe right fronto-orbital headache, photophobia and vomiting. She reported no other neurological or otorhinolaryngologic symptoms and was otherwise healthy. The patient had no history of recent

infections, new medications, or other systemic complaints. Physical examination was unremarkable. The blood tests showed no signs of infection. An emergency computed tomography (CT) scan was performed and showed no pathological findings (Fig. 1). The patient was discharged with analgesics.

Two days later she returned with similar complaints. The headache had worsened and associated neck pain and neck stiffness. A complete blood count revealed a white blood cell (WBC) count of 17,200/ $\mu$ L with 92% neutrophils, a erythrocyte sedimentation rate (ESR) of 90 mm/h, C-reactive protein (CRP) of 25 mg/dL and procalcitonin (PCT) of 8 ng/mL (Fig. 2). A lumbar puncture was performed because of suspected meningitis. Cytology, biochemical and microbiological analysis on cerebrospinal fluid were normal. The patient was admitted at the Neurology Department for monitoring, pain management and penicillin-based empirical antibiotic therapy.

During the admission, the patient worsened progressively; the headache got worse and severe right orbital pain, progressive right ophthalmoplegia and right mydriasis were objectified. Finally, the patient developed sign of sepsis, including tachycardia (pulse 95 beats per minute), tachypnea (respiratory rate 22 min<sup>-1</sup>), hyperthermia 39 °C, hypotension

\* Corresponding author at: C/ Marcos Peña Royo, 20 – 4<sup>a</sup>A 33013 Oviedo – Asturias, Spain. Tel.: +34 985 253607.

E-mail address: [flopez\\_1981@yahoo.es](mailto:flopez_1981@yahoo.es) (F. López).

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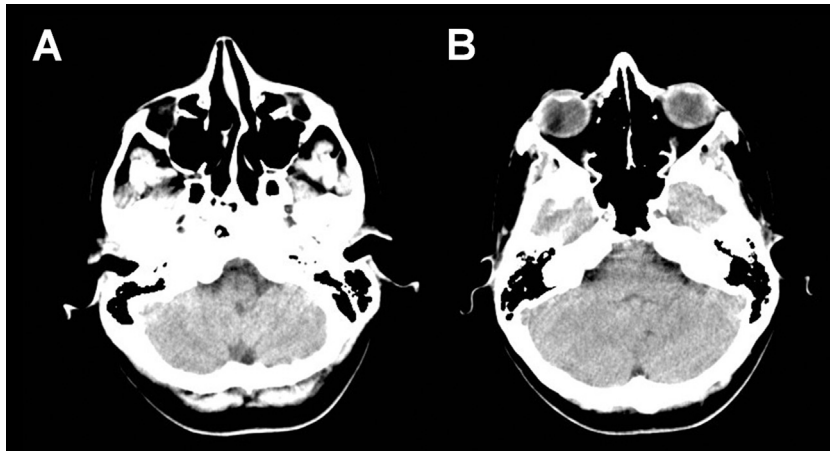


Fig. 1. Axial CT scan imaging shows absence of sinonasal and orbital pathology.

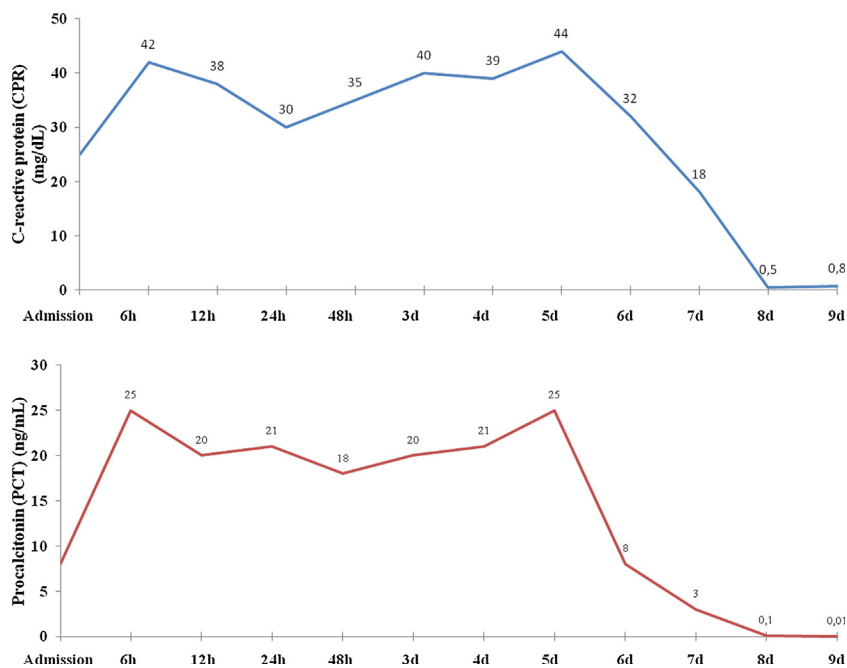


Fig. 2. Time course of serum levels of procalcitonin and C-reactive protein.

(80/62 mmHg) an impaired level of consciousness. A new complete blood count showed increased leukocytosis, CRP, PCT and fibrinogen (Fig. 2).

Because the gravity of the situation, 6 h after the admission, an emergency magnetic resonance imaging (MRI) was carried out and a diagnosis of bilateral CST and right orbital abscess was made (stage V, according to Chandler's Classification System) (Fig. 3) [1]. At no time during the course, signs of fetal distress were found.

Although the patient had reported having no history of infections, her family referred that she had noticed the appearance of the swelling, a few days before, on the right zygomatic region, probably caused by a dental infection, which was confirmed by the patient afterwards. Right maxillary molar extraction was done by the maxillofacial surgeon revealing a periapical abscess. However, there was no evidence suggestive of tooth abscess over right upper alveolar region in the MRI.

Given the findings of the MRI, we performed an emergent orbital decompression using a right lateral canthotomy and cantholysis approach (Fig. 4). Purulent material was obtained and sent for microbiological analysis. According to obstetricians, the patient was admitted to the intensive care unit for monitoring and she was treated by tracheal intubation, broad spectrum antibiotics (meropenem 2 g iv every 8 h), corticoids (dexametasonone 8 mg iv every 8 h) and low-molecular-weight heparin at therapeutic doses (enoxaparin, 100 IU/kg twice daily). It was isolated *S. millieri* - group F sensitive to beta-lactam antibiotics, in the purulent material.

Because the clinical situation (hypertermia, hypotension and hemodynamic instability), and laboratory parameters (WBC, CRP, PCT) did not improve and, due to high risk of severe fetal-maternal complications, 5 days after surgery, an elective cesarean section was performed at 34 weeks, uneventfully.

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