Open Access Maced J Med Sci **electronic publication ahead of print,**
published on March 28, 2019 as https://doi.org/10.3889/oamjms.2019.229

ID Design Press, Skopje, Republic of Macedonia
Open Access Macedonian Journal of Medical Sciences.
https://doi.org/10.3889/oamjms.2019.229
eISSN: 1857-9655
Case Report

Cerebral Venous Sinus Thrombosis with an Intracranial Haemorrhage: A Case Report

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Citation: Al Zahrani AM, Al Sheikh R. Cerebral Venous Sinus Thrombosis with an Intracranial Haemorrhage: A Case Report. Open Access Maced J Med Sci. https://doi.org/10.3889/oamjms.2019.229

Keywords: Cerebral Venous Sinus Thrombosis

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Received: 31-Jan-2019; **Revised:** 21-Mar-2019; **Accepted:** 22-Mar-2019; **Online first:** 28-Mar-2019

Funding: This research did not receive any financial support

Competing Interests: The authors have declared that no competing interests exist

Abstract

BACKGROUND: Cerebral venous sinus thrombosis (CVST) is a rare, life-threatening disorder. It has an annual incidence of approximately two to four per million people per year. Nearly 70–80% of all cases of CVST are located in the superior sagittal sinus (SSS). CVST presents a diagnostic challenge due to different presentations.

CASE PRESENTATION: We describe the case of a young pregnant female who presented to the emergency room with an acute headache attributed to multifactorial causes.

CONCLUSION: This report highlights the importance of including CVST in the differential diagnosis when treating a pregnant female with headaches. Although the symptoms of CVST are varied, the most common occlusion is in the SSS. In such cases, the patient may present with signs and symptoms that include headaches, intracranial hypertension and papilloedemas.

Introduction

Cerebral venous sinus thrombosis (CVST) is a rare, life-threatening disorder. It has an annual incidence of approximately two to four per million people per year [1]. Nearly 70-80% of all cases of CVST are located in the superior sagittal sinus (SSS) [2].

CVST tends to be multifactorial in aetiology, with estimates that up to 65% of patients with CVST have more than one risk factor [3], [4]. According to the literature, CVST shows a 3:1 ratio of females to males [4]. The increased prevalence among females may be due to the use of oral contraceptives, pregnancy and postpartum [4]. Pre-disposing risk factors are found in 80% of cases of (CVST) [5].

Case Report

A 24-year-old primigravida female at 6 weeks of gestational age was admitted to the intensive care unit with the onset of a generalised tonic-clonic seizure. In addition to the seizure, the patient had slurred speech, with rolling of the eyes and salivation. The seizure lasted for more than 5 min, and the patient then lost consciousness for more than 30 min.

The patient had a known history of migraines, chronic sinusitis and coeliac disease for the last 3 years. The patient had been attending a family medicine clinic. She had developed a headache in the last 5 days. The headache was unilateral in the right temporal region and extended to the supraorbital and orbital areas. It was throbbing in nature, continuous, with photophobia and phonophobia. The severity of the headache increased in response to bending, and it was associated with nausea, vomiting and dizziness. The patient reported no pain in the neck or mid-region of her back and no fever, chest pain, palpitations, cough, shortness of breath or rhinorrhoea. She had mild lower abdominal pain, with vaginal bleeding. There was no dysuria, urinary frequency or urgency. The patient had a history of loss of appetite of long duration but showed no change in weight. She had been in a road traffic accident 1 year earlier and had fractured her jaw and had lower vertebral prolapse. In terms of the patient's family history, her mother had allergic rhinitis, sinusitis, migraines and myeloproliferative neoplasms. Her sister also had migraines.

On examination, the patient was conscious, oriented and haemodynamically stable, with a positive Kernig sign and negative Brudzinski sign, with normal neurological findings. She had tenderness of the right frontal sinus and nasal septum deviation to the left side, with discharge.

The laboratory findings were unremarkable. A computed tomography (CT) venogram showed superior sagittal sinus (SSS) thrombosis, with a right frontal lobe haemorrhage insult, Figure 1.

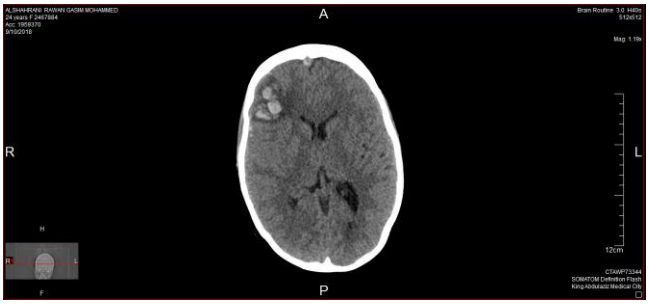

Figure 1: A CT venogram showed SSS thrombosis, with a right frontal lobe haemorrhagic insult and mild surrounding vasogenic oedema, in addition to a mass effect over the adjacent sulci and right lateral ventricle

The patient was stabilised and received an anticoagulant. She subsequently made a good recovery and was discharged. The patient was prescribed low-molecular-weight heparin (LMWH) and levetiracetam. Two months later, levetiracetam was discontinued, and the patient completed her pregnancy. The LMWH treatment was continued

Discussion

CVST is an under-diagnosed condition. Patients with CVST may present with various signs and symptoms, which lead to delays in the diagnosis. The median delay from the time of presentation to diagnosis is 7 d [6]. Our patient had a history of migraine headaches, with frequent visits to her family doctor. Before presentation to the emergency department, she had developed a headache, which had lasted for 5 d. This may have explained the delay in the diagnosis of CVST. The early stages of CVST may be characterised by cortical vein thrombosis, without sinus thrombosis. The latter may develop only later due to the progression of the thrombotic process.

Although the clinical syndrome of CVST is not well defined, it is thought to be characterised by the rapid onset of focal deficits and/or seizures [7]. The most common symptom of CVST is a headache. It is estimated that up to 80–90% of CVST patients first present with either focal-, diffuse- or migraine-type headaches [8], [9]. The findings in the present case were by the literature.

The varied presentation of CVST makes it a diagnostic challenge. Focal deficits, such as hemiparesis and hemisensory disturbances, together with seizures, an impaired level of consciousness and papilloedemas, occur in one-third to three-quarters of cases [9]. Most patients present with symptoms that have evolved over days or weeks [7], [10]. Investigations should focus on establishing the diagnosis and searching for underlying causes. CT venography and contrast-enhanced magnetic resonance venography are highly sensitive. A CT scan can be used to exclude other conditions, such as intracerebral haemorrhages or abscesses [11]. Invasive cerebral angiography may be performed if the results of contrast-enhanced magnetic resonance venography are inconclusive. The initial management of CVST should include stabilisation and anticoagulation, even in the presence of an existing haemorrhagic venous infarct, as anticoagulation is the mainstay of treatment [12]. More than 80% of CVST patients recover with this treatment modality [13]. Our patient showed a marked clinical and radiological improvement following the administration of an anticoagulant.

The prognosis of CVST is generally good. However, the prognosis may be poor in elderly patients and patients with sepsis, malignancies and deep cortical venous thrombosis, as well as in the presence of a coma [5]. More than 80% of patients, as in the present case, have a good neurological outcome. On the other hand, a delay in diagnosis can result in death.

In conclusion, CVST is a relatively rare condition, which is challenging to diagnose. This report highlights the importance of including CVST in

the differential diagnosis when treating a pregnant female with headaches. Although the symptoms of CVST are varied, the most common occlusion is in the SSS. In such cases, the patient may present with signs and symptoms that include headaches, intracranial hypertension and papilloedemas. The use of imaging can help aid the diagnosis, with magnetic resonance or CT venography being important in detecting the occlusion. The mainstay of treatment for CVST is anticoagulants, with LMWH prescribed for a minimum of 6 months. A pregnant patient may require LMWH during pregnancy until the time of delivery.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying image.

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