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Case Report

Peripartum Cerebral Thrombophlebitis: Cases Report

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Abstract: Blood hypercoagulability and circular modifications during postpartum are the main reason for possible thromboembolic disorders such as cerebral thrombophlebitis. CVT must be suspected when the patient have neurological symptoms, and we should rapidly and precociously begin the right treatment based on anticoagulants after ruling out other possible diagnoses using different tests and examinations.

Keywords: Cerebral thrombophlebitis, peripartum, thromboembolic disorders, case report.

INTRODUCTION

Cerebral thrombophlebitis is a rare condition, with less than 1% of total strokes, but it's potentially serious and difficult to diagnose with its various clinical symptoms, dominated by headaches which are found in 80% of cases [1], it is more common in women than in men, particularly during the postpartum with a frequency average of 1/3000 to 1/10000 deliveries [2].

Magnetic Resonance Imaging (MRI) is the gold standard test to make a positive and sometimes an etiological diagnosis, it's extremely useful to monitor the progression of cerebral lesions and predict its prognosis.

Recommendations are that the therapy should be based on three modalities (symptomatic, anti-thrombotic and etiological), it has improved the prognosis of cerebral thrombophlebitis [3]: and guaranteed a neurological recovery in more of 80% of patients and reduced mortality to less than 10% [4].

PATIENT AND OBSERVATION

Case 1:

Patient Information: A 33-year-old woman, primigravida/primipara, right-handed, with no medical history.

Clinical Findings: admitted 21 days after a C-section delivery due to gravid hypertension, for five tonic-clonic generalized seizures.

Diagnostic Assessment: During her admission, the patient had an other convulsive seizure that lasted 4min. In the aftermath, the patient was disoriented in time and in space with a GCS of 12/15, identical and reactive pupils, with no sensory-motor deficit, no fever, capillary blood glucose = 1.5, blood pressure = 16/11, heart rate = 110bpm, respiratory rate = 19cpm, SpO2 = 100%, +3 marks on dipstick for urine protein, with a strictly normal pelvic exam.

Therapeutic Intervention: The patient received a loading dose of magnesium sulfate, and then she was put on a maintenance dose, antiepileptic and bi antihypertensive therapy after performing numerous biological tests including one for thrombophilia, that all came back negative. On account of the symptoms lack of improvement, a brain MRI was performed showing right transverse sinus and an homolateral part of the Torcular thrombophlebitis, associated with left frontal cortical vein thrombosis with an aspect of edema and congestive bleeding around the left frontal infraction. *(Figure 1).*

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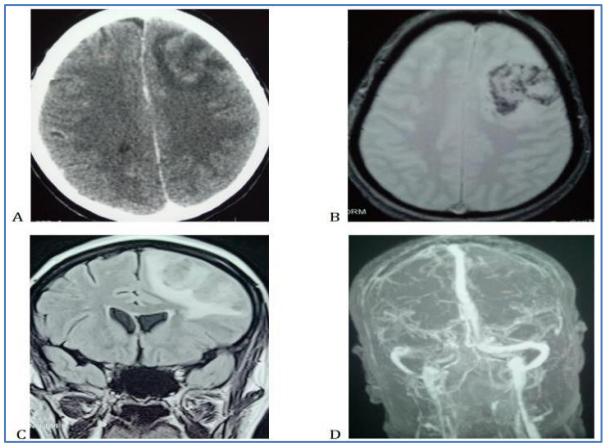

Follow-up and Outcomes: The evolution under heparin therapy was marked by the improvement of the state of consciousness, the patient was discharged out of the intensive care unit and transferred to neurology department.

Case 2:

Patient Information: A 17-year-old woman, primigravida/nulliparous, 25 weeks pregnant, with no particular medical history.

Clinical Findings: admitted for acute onset left hemiplegia within the last 24 hours, with no sensory disturbance, preceded by intracranial hypertension syndrome (HTIC) that started 11 days before. During her admission, the patient was conscious with a GCS of 15/15, symmetrical and reactive pupils, left hemiplegia, afebrile, capillary blood glucose = 1.12, stable hemodynamic and respiratory rates (blood pressure = 13/7, frequency heart rate = 108bpm, respiratory rate = 16cpm, SpO2 = 96%), negative urine dipstick, with a normal pelvic examination.

Diagnostic Assessment: A brain CT scan supplemented with a brain MRI showed extensive cerebral venous thrombosis of the upper longitudinal sinus, micro bleeding in the jugular veins and no obvious sign of hemorrhagic infarction. A complete biological assessment including a thrombophilia test had shown a lower than normal amount of antithrombin III, as well as a mutation in the MTHFR gene.

Follow-up and Outcomes: The evolution under curative anticoagulation was marked by complete recovery of motor function and complete disappearance of HTIC syndrome. The treatment of this patient consisted on heparin therapy during in the third trimester then it was replaced with antivitamin K (AVK) after her childbirth, which took place without any incident.

DISCUSSION

Changes in the maternal body during pregnancy concern all physiological functions. Early, they anticipate the needs of the fetus in order to optimize its growth; they are then responsible of the changes in the pregnant women's biological parameters. The early hemodynamic changes are due to increased flow rate and the heart rate, to allow an optimal blood irrigation of the placenta. That along many metabolic changes, including coagulation factors increasement (except XI and XIII), contributing excessive generation of thrombin and synthesis of fibrinogen [5].

The hypercoagulability and circulatory changes persist during postpartum for several weeks, which explain the possibility of occurrence of thromboembolic diseases [6]. Its incidence is 1/3000 deliveries [7], in the United States, 11.6 cases per 100,000 deliveries present with cerebral thrombophlebitis [8].

Cerebral thrombophlebitis can manifest itself in different ways. Headache is the predominant sign in two thirds of cases, which may be isolated or associated with other signs of intracranial hypertension (nausea, vomiting, diplopia, papillary edema). Convulsions, unconsciousness and neurological deficit and disturbances may also be clinical signs, depending on the topography of the cerebral parenchyma lesions and the thrombosis extension [9].

In the event of unusual or progressive headaches, performing a cerebral MRI is to be privileged, because of its higher sensitivity than the scan. But during the everyday practice, brain scanner being accessible, with or without injection, is the first test used in imaging. However, the latter rarely allows the diagnosis of cerebral venous thrombosis (CVT) and may be normal in 20% of cases. It is especially useful for ruling out other pathologies with a similar clinical symptomatology (tumors, abscess, and encephalitis). Cerebral angio-MRI often makes it possible to visualize both the parenchymal lesions and the thrombus that caused it [10].

The treatment is based on effective anticoagulation [11], in order promote recanalization of the sinuses or veins, to limit the extension of thrombus

and prevent recurrence. Once the diagnosis is confirmed by brain imaging, the treatment should be started without waiting to know the cause or the etiology of the thrombosis. Also, a CVT complicated by a hemorrhagic infarction does not contraindicate anticoagulation, but on the contrary it should be maintained.

In addition to antithrombotic therapy, symptomatic treatment is started immediately: analgesia to help with headaches and possibly an anticonvulsant treatment after the first seizure. For the antiepileptic drugs, the duration depends on the patient's progress; it will be digressed then stopped as soon as he is seizure free.

Low weight heparins molecular (LMWH) do not present any teratogenic risk, on the other side, AVK therapy should be associated with a prophylactic leg restrain , it can be used from the start of the second trimester and maintained until 6 weeks postpartum [12].

CONCLUSION

If treated early and effectively, CVT can have a good prognosis and evolve favorably. Severe forms are rare and may require aggressive therapies.

Also, the risk of thromboembolism in the peripartum highlights the importance of predicting DVT with any neurological sign, and we have to soon rule out others pathologies in order to start appropriate therapy early.

Competing interests

The authors declare that they have no known competing interests or personal relationships that could have appeared to influence the work reported in this paper.

Authors' contributions

Youssef Haouas and Yassine Hafiani: Drafting of manuscript

Ihsane Mousaid ans Smael El Youssoufi: Critical revision

Said Salmi: Final approval

List figures

Figure 1. (A) Injected cerebral CT scan in axial section showing left frontal edema and hemorrhage with a discreet mass effect on the midline. cerebral MRI in T2* sequence (B) FLAIR sequence (C) and venous angiography sequence (D) showing transverse sinus thrombophlebitis associated with left frontal cortical vein thrombosis and an aspect of edema and hemorrhage around the left frontal infarction

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