



Cerebral venous sinus thrombosis after regional anesthesia in a patient with severe preeclampsia - a diagnostic challenge

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ABSTRACT

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Venous sinus thrombosis is a rare entity, usually associated with coagulation disorders, inflammatory diseases, trauma, infection, pregnancy and the postpartum period. The most common symptom is headache and without treatment this condition can be fatal. In our case a patient with preeclampsia was initially treated for post-dural puncture headache after spinal anesthesia for cesarean section. After the headache worsened a cerebral venous sinus thrombosis (CVST) was diagnosed. There are several causes of postpartum headache and venous sinus thrombosis is not among the most frequent. Diagnosis can be challenging especially if neuraxial anesthesia was used or in cases of preeclampsia, two of the leading causes of headache in the postpartum period. This report emphasizes the importance of a careful differential diagnosis of headache in the postpartum during the treatment of persistent post-dural puncture headache.

Key words: Postpartum headache; Post-dural puncture headache; Neuraxial anesthesia; Differential diagnosis; Cerebral venous sinus thrombosis.

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INTRODUCTION

Headache is one of the most common symptoms in the peripartum period. Up to 39% of puerperal patients complain of headache.¹ In an era in which neuraxial techniques are increasingly used, post-dural puncture headache (PDPH) is often referred to as the most likely cause of headache.

We present a case of cerebral venous sinus thrombosis (CVST) in puerpera and compare it with other potential causes of headache with an aim to highlight the importance of a careful differential diagnosis of headache in the peripartum period.

CASE REPORT

A 22-years-old woman, previously healthy, gravida 3 para 0, was hospitalized for severe preeclampsia.

Since 33 weeks of pregnancy she was presenting with headache and high blood pressure without, however, fulfilling criteria for diagnosis of preeclampsia. She was being treated with nifedipine. At the time of admission, at 36 weeks of pregnancy, she presented persistent frontal headache, scotomas and epigastric pain, with blood pressure of 178/98 mmHg. Laboratory investigations showed levels of aspartate aminotransferase of 172 IU / L and alanine aminotransferase of 141 IU / L, lactate dehydrogenase of 542 U / L, hemoglobin of 14 g / dL, platelets count of 270000 and proteinuria of 300. The patient was subjected to c-section under spinal anesthesia at L3-4 space, with a 27G needle. The technique was difficult to perform requiring multiple punctures. Twenty-four hours after surgery she started complaining of frontal-occipital headache that exacerbated on adopting the upright posture and relieved by lying down. Blood

pressure improved with antihypertensive therapy, and laboratory parameters were within normal limits. Anesthesiologist was called and she was treated for PDPH with analgesics, caffeine citrate and hydration, with symptomatic improvement in the following days. On fifth day after c-section severity of the headache worsened, with hemicranial location, and it no longer relieved by lying down. After evaluation by neurologist, he underwent magnetic resonance imaging (MRI) with venography that revealed a picture which was compatible with thrombosis of the left lateral sinus. She was started with anticoagulant therapy with low molecular weight heparin (LMWH) at therapeutic dose. For pain relief, and prior to the start of anticoagulant therapy, we performed an epidural blood patch with complete relief of pain complaints. On the twelfth day of postpartum period she was asymptomatic and control MRI showed resolution of the thrombus. The patient was then discharged.

DISCUSSION

CVST is a rare condition, accounting for only 0.5% of cerebrovascular accidents.² The incidence can be as high as 3-4 cases per million people and 75% of the cases occur in women (factors include pregnancy, postpartum period, and usage of oral contraceptives). The most frequently identified causes are coagulation disorders, genetic or acquired, inflammatory diseases, trauma, infection, pregnancy and the postpartum period. This entity complicates 12 cases per 100,000 deliveries. The clinical picture of CVST is very variable, which makes it difficult to identify, with an average delay to diagnosis up to 7 days after the onset of symptoms. Although it may have a very variable clinical presentation, in up to 89% of cases headache is the only symptom and this may present postural characteristics and, for this reason, be assumed as PDPH in a postpartum period, and linked to neuraxial anesthesia. However, in the postpartum period, PDPH represents only 16% of cases of headache.¹ Tension headache (47%) is the leading cause, followed by headache associated with preeclampsia or eclampsia (24%). In addition to these causes, other factors may favor the occurrence of headache in the peripartum period: sleep deprivation, dehydration, changes in oral intake and fluctuation in serum estrogen concentration.³

As mentioned above, headache caused by thrombosis may exhibit the same postural characteristics of PDPH. It is, therefore, of utmost importance to carry out a good history, a careful physical examination and the existence of a high degree of suspicion to correctly diagnose the most frequent causes as well as the rarer causes of headache.

In addition to headache, the clinical picture of CVST may present seizures, focal neurological signs and altered consciousness, which makes its differential diagnosis difficult. Since its recognition is difficult because its clinical presentation is nonspecific, the use of neuroimaging, especially MRI, should be undertaken as early as possible, because it is the method that most sensibly allows correct diagnosis.

A relationship between dura mater puncture, PDPH and CVST has been hypothesized. Traumatic lesion of the dura mater may be a risk factor for thrombosis since the loss of cerebrospinal fluid (CSF) induces cranial hypotension, cerebral vasodilation and venous stasis.⁴ In a retrospective study, puncture of dura mater was a risk factor in 8% of thrombosis.⁵ Furthermore, in postural headache and for symptomatic relief, the patient tends to lay down and rest, another risk factor for thrombosis. Together with the thrombotic risk inherent to the peripartum period,⁶ these factors may have contributed to the occurrence of CVST in our case.

CONCLUSION

In conclusion, there are several causes of postpartum headache and venous sinus thrombosis is not among the most frequent. Diagnosis can be challenging especially if neuraxial anesthesia had been used or in cases of preeclampsia, two of the leading causes of headache in the postpartum period. This case report emphasizes the importance of a careful differential diagnosis of headache in the postpartum period during the treatment of persistent post-dural puncture headache and the usefulness of early use of advanced radiodiagnostic techniques, e.g. CT scan or MRI.

Conflicts of interest: none

Authors' contribution:

AF, GA: multidisciplinary evaluation of the clinical situation; bibliographic research; wrote the manuscript.

RI, JR, AR: bibliographic research

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