

Seizures in the early post-partum period: A diagnostic dilemma

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ABSTRACT

We discuss the differential diagnosis and management of early post-partum seizures and headache following a presumed dural puncture in a 20-year-old female. She initially presented with generalised tonic-clonic seizures preceded by nausea and headache on the fourth post-partum day along with a decreased Glasgow Coma Scale (8/15). Although clinical and laboratory examination including lumbar puncture, computerized tomography and magnetic resonance imaging were normal, a persistent headache was the only symptom. This headache improved dramatically after an epidural blood patch on the eighth post-partum day. The following discussion emphasises that various causes of post-partum seizures and headache should be considered before attributing it to dural puncture alone.

Key words: Dural puncture, post-partum period, seizures

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INTRODUCTION

There are a number of causes of seizures in the post-partum period. There may also be considerable overlap in the presentation of these conditions, making diagnosis and treatment difficult. Interventions appropriate for the diagnosis and treatment of some of the conditions are contraindicated in others, making a carefully considered approach to these cases mandatory. We present a case of post-partum seizures and headache following a presumed dural puncture that highlights many of these issues and discuss the differential diagnosis and optimum management.

CASE REPORT

A 20-year-old Gravida 2, Para 1 (G2, P1) post-partum female presented to us with headache and seizures 4 days after a caesarean section. She was normally healthy and her antenatal course was uncomplicated. She received a lumbar epidural during labour. It was noted to be a difficult procedure, but a dural puncture was not recorded as having occurred. The epidural was extended for an emergency caesarean section due to poor progress of labour, and both the procedure and

the immediate post-operative period were uneventful. On the first post-operative day, she complained of a postural frontal headache, which was treated with bed rest, intravenous fluids and simple analgesics. As the symptoms improved, she was discharged home on day three.

She presented to the Emergency Department the following day with generalised tonic-clonic seizures preceded by nausea and headache. There was no history of visual disturbances, raised temperature, tinnitus or neck rigidity. Paramedics administered diazepam in the ambulance to terminate the seizures. On examination, Glasgow Coma Scale (GCS) was 8/15 with normal peripheral neurological reflexes and equally reacting pupils. She was afebrile with a pulse rate of 114 beats/min, blood pressure of 108/46 mmHg and SPO₂ (oxygen saturation) of 98% on 5 L/min oxygen. Chest and abdominal examination were normal. Obstetricians treated her with magnesium sulphate and obtained a computerized tomography (CT) scan of the head, which did not reveal any abnormality. Routine investigations showed a haemoglobin of 10 g/dL, white cell count (WCC) of 15.9×10⁹/L, platelets of 102×10⁹/L, normal urea, electrolytes, clotting, liver

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function tests, uric acid and no proteinuria. GCS improved over the next few hours to 15/15, and at this point we were asked to assess and advise on her further management.

As eclampsia seemed an unlikely diagnosis, magnesium sulphate was stopped. A lumbar puncture with a 27G spinal needle revealed clear cerebrospinal fluid, raised protein of 715 mg/L (normal range: 120–600 mg/L) and no cells. A loading dose of intravenous phenytoin was administered and close Electrocardiographic (ECG) monitoring was instituted in the labour ward. This was followed by oral phenytoin and analgesics. There were no further episodes of seizures and, after 24 h, her only symptom was a severe postural headache (aggravated by upright position and relieved on lying supine). Neurologists were consulted, who requested a magnetic resonance imaging (MRI) scan and a magnetic resonance (MR) venous angiogram of the head. The scans were normal with no intracranial pathology. A consensus between the anaesthetists, neurologists, obstetricians and radiologists attributed dural puncture as the most likely cause for the headache. An epidural blood patch was discussed as a treatment option on the eighth post-partum day. After patient consent, 20 mL of sterile blood withdrawn from the antecubital fossa prepared with chlorhexidine solution 0.5% was injected into the epidural space aseptically without any complications. There was an almost immediate resolution of headache and the patient was discharged home the next day for further follow-up. The typical clinical features and dramatic improvement following epidural blood patch makes us confident that an unrecognised dural puncture was the cause of headache and seizures.

DISCUSSION

Headache and seizures in the post-partum period can present a diagnostic challenge. Published case reports have described cases of post-partum seizures associated with dural puncture in the absence of any other cause for the seizures.^[1-4] This case confirms the association, but many other conditions need to be excluded before a diagnosis can be made with confidence [Table 1]. The symptoms and signs of dural puncture and its complications and other causes of post-partum seizures include headache, nausea, visual disturbances, decreased level of consciousness, nerve palsies and seizures. The considerable overlap in the presentation of these conditions makes diagnosis

difficult. Low GCS may be due to post-ictal state but could also be a sign of intracranial haemorrhage as a result of eclampsia or complications of dural puncture.^[4-6] Seizures may cause proteinuria, transient increase in blood pressure, pyrexia and a raised WCC, but these signs are also suggestive of eclampsia or central nervous system infection. Hyperreflexia may be a feature of postictal state but may also suggest eclampsia.^[7] Treatments used for post-dural puncture headache (PDPH) could also cause seizures [Table 1].^[8,9] Hence, intracranial complications such as bleeding certainly need to be excluded before performing an epidural blood patch.^[9] It is unfortunate that in patients with dural puncture and seizures, a lumbar puncture is necessary to exclude meningitis or a subarachnoid haemorrhage not visible on CT scan as this obviously could worsen the PDPH.

An accurate diagnosis is important as many of these conditions are life-threatening and require specific treatment. A thorough history, clinical examination, routine blood tests and urinalysis will be required in all cases, but we think that one cannot be certain of the diagnosis until a lumbar puncture, CT scan and possibly a MR venous angiogram have been performed, as we did in this case.

CONCLUSION

We propose that in this case, headache and seizures were caused by dural puncture. Epidural blood patch resulted in immediate relief of symptoms, but it was necessary to exclude other pathology first. We would like to remind the anaesthetic community of the association between dural puncture and seizures and stress that a complete workup is required before attributing seizures to this. This report provides the clinician an insight to approach a patient with post-partum seizures and envisages to consider a broader

Table 1: Causes of post-partum seizures

Obstetric	Eclampsia, cerebral venous sinus thrombosis Idiopathic epilepsy
Regional anaesthesia	Dural puncture Meningoencephalitis, intracranial haemorrhage, cerebral infarction or pneumoencephalus Treatments used for PDPH such as caffeine, sumatriptan, synacthen and epidural blood patch
Other	Metabolic disturbances, trauma, intracranial tumour, drug and alcohol withdrawal

PDPH: Post-dural puncture headache

picture of the clinical situation rather than to just blame the epidural as the cause. Also, a multidisciplinary team management including anaesthetists, neurologists, obstetricians and radiologists is invaluable for safe patient care.

REFERENCES

1. Rice I, Mountfield J, Radhakrishnan D, Nelson Piercy C. Puerperal seizures associated with postdural puncture headache. *Int J Obstet Anesth* 2003;12:126-9.
2. Akerman N, Hall W. A case of late postpartum seizures after epidural analgesia. *Int J Obstet Anesth* 2005;14:163-6.
3. Oliver CD, White SA. Unexplained fitting in three parturients suffering from postdural puncture headache. *Br J Anaesth* 2002;89:782-5.
4. Van den Berg AA, Nguyen L, Von-Maszewski M, Hofer H. Unexplained fitting in patients with post-dural puncture headache. Risk of iatrogenic pneumocephalus with air rationalizes the use of loss of resistance to saline. *Br J Anaesth* 2003;90:810-2.
5. Kayacan N, Arici G, Karsh B, Erman M. Acute subdural haematoma after accidental dural puncture during epidural anaesthesia. *Int J Obstet Anesth* 2004;13:47-9.
6. Berkel Yildirim G, Colakoglu S, Atakan TY, Buyukkirli H. Intracranial subdural haematoma after spinal anaesthesia. *Int J Obstet Anesth* 2005;14:159-62.
7. Anthony LT, Winston W, David Norman CD. Late postpartum eclampsia coincident with postdural puncture headache. *AANA J* 2003;71:371-2.
8. Cohen SM, Laurito CE, Curran MJ. Grand mal seizure in a postpartum patient following intravenous infusion of caffeine sodium benzoate to treat persistent headache. *J Clin Anesth* 1993;4:48-51.
9. Marfurt D, Lyrer P, Ruttimann U, Strebel S, Schneider MC. Recurrent post-partum seizures after epidural blood patch. *Br J Anaesth* 2003;90:247-50.

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