

A Fatal Case Of Subdural Hematoma: A Complication Of Epidural Analgesia

F Aziz

Citation

F Aziz. *A Fatal Case Of Subdural Hematoma: A Complication Of Epidural Analgesia*. The Internet Journal of Emergency Medicine. 2009 Volume 6 Number 2.

Abstract

A 26 year old woman received epidural analgesia for an uneventful spontaneous vaginal delivery. Two weeks later, she presented with a headache with initial impression of spinal headache and received pain medication, to which she responded well. One week later, she presented with a similar headache. Due to her persistent symptoms, CSF leak was suspected. She received epidural blood patch that relieved her symptoms. Two weeks after the last discharge, the patient was received in the hospital in the state of altered mental status following a cardiac arrest. As per the family, one day prior, she had a brief loss of consciousness. On the morning of the presentation, she was found unresponsive in the bed. Emergency Medical Services found the patient in cardiac arrest. Cardiopulmonary resuscitation (CPR) resumed her circulation in 30 minutes. Upon arrival in the hospital, Computed Tomography (CT) scan of the head was promptly done that showed bilateral subacute subdural hematomas with mass effect. The patient was declared brain dead the next day. The presence of post dural puncture headache complicated by atypical neurological deterioration following epidural anesthesia should prompt the consideration of [any care provider] the existence of intracranial complications and radiological diagnosis should be obtained.

INTRODUCTION

Neurological complications after central neural blocks are rare events. Unfortunately, if they occur, the consequences may be disastrous. This is especially true in obstetric regional anesthesia where anesthetists often dealing with young, healthy women. As the demand or regional blockade for labor and caesarean section increases, so will the number of neurological complications¹.

Epidural blockade is commonly used to obtain pain relief during labor and anesthesia for caesarean section. Serious maternal complications after epidural analgesia may be due to: 1) misplacement of the catheter or needle: massive subarachnoid injection, toxic intravenous injection with convulsions and/or cardiac arrest, 2) infection: meningitis or epidural abscess, 3) local anesthetic alone: very rare anaphylactic reactions, 4)

Space-occupying lesion: epidural or subdural hematoma, subarachnoid cyst, or 5) direct needle trauma¹⁻⁴. These complications are rare, estimated at 1/4700 in one of the largest series of reported literature, involving more than 500,000 patients³. This case report emphasizes the need for careful ongoing assessment of patients in order to ensure that less common causes of headache are not overlooked.

CASE REPORT

A 26 year old African American female with a normal coagulation profile and no past medical history received epidural analgesia for an uneventful spontaneous vaginal delivery. She was discharged home the next day. Two weeks later, she presented with a headache in the emergency room. Headache was relieved on when supine and exacerbated when erect. It was not associated with any focal neurological deficit. Initial impression was spinal headache. The patient received pain medication, to which she responded well and was discharged home. One week later, she presented with a similar headache. Due to her persistent symptoms, CSF leak was suspected. She received epidural blood patch that relieved her symptoms and she was discharged home the same day. Two weeks after the last discharge, the patient was received in the hospital in the state of anoxic encephalopathy following a cardiac arrest. As per the family, she was getting increasingly somnolent, lethargic, confused and had weakness in lower extremities during the last two weeks. One day prior, she had a brief loss of consciousness but refused to come to the hospital. On the morning of the presentation, she was found unresponsive in the bed. Emergency Medical Services found the patient in asystole. Cardiopulmonary resuscitation (CPR) resumed her

circulation in 30 minutes. Upon arrival in the hospital, Computed Tomography (CT) scan of the head was promptly done that showed bilateral subacute subdural hematomas with mass effect. The patient was declared brain dead the next day.

DISCUSSION

Initially, it was thought that a post dural puncture headache (PDPH) was the most likely diagnosis because of the nature of the headache. For this reason, we advised analgesic therapy in the beginning. Spinal headache typically presents 24-48 h post partum with throbbing fronto-occipital pain which is relieved by lying flat⁵.

This case highlights the difficulty of diagnosing the cause of the headache in the postpartum period. The differential diagnosis of postpartum headache in this case included PDPH, pre-eclamptic headache, subdural or subarachnoid hemorrhage, or migraine headache, meningitis, cerebral tumor and cerebral vein thrombosis^{4,6}.

A subdural hematoma following dural puncture is a very rare with unknown incidence, complication of epidural analgesia, and may be cranial or spinal^{5,6}. Cranial subdural hematomas may be present acutely, sub-acutely or chronically with a variety of complaints including headache, altered level of consciousness or even psychiatric symptoms. Acute subdural hematoma usually causes signs or symptoms within seven days of the bleed⁵. Spinal subdural hematoma may follow dural puncture and has a rather different etiology. In our case, patient presented with headaches and then with altered mental status. The presence of suspected PDPH complicated by neurological deterioration, as in this case, should prompt a search for intracranial pathology. Subarachnoid hemorrhage occurs in one to five cases per 10 000 pregnancies and presents typically with severe occipital headache, nausea, vomiting and depressed consciousness. Intracranial subdural hematoma may occur acutely or over a more chronic period after dural puncture. Computerized tomography is the investigation of choice in the acute situation, often revealing a high density crescent of fresh blood, concave on the deeper surface. As the hematoma ages, it becomes isodense on CT, and MRI is then the more sensitive investigation for detection and optimal delineation⁶. The cause of subdural hematoma following dural puncture is low cerebro-spinal fluid pressure leading to traction and tearing of thin-walled meningeal blood vessels^{1,5}. Thoms et al.⁷ reported a patient with a subdural hematoma in the right fronto-temporal area following epidural blockade. At first,

the headache, which occurred several days after delivery, was misinterpreted as PDPH. Vaughan et al.⁵ described a patient who sustained a dural puncture during epidural catheter insertion and developed a headache and convulsions. Another case was reported of acute intracranial, subdural hematoma following accidental dural puncture during epidural placement. Diemunsch et al.⁸ reported a patient who suffered a headache following dural puncture during epidural labor analgesia. They placed a blood patch, which improved the symptoms immediately. Further developments included a late recurrence of headache and administration of a second epidural blood patch on the 24th day. With aggravation of the headaches and the appearance of transitory focal neurological signs on the 30th day, a CT scan was done which showed bilateral subdural hematoma.

The management of subdural hematoma is either conservative (clinical observation and possible intracranial pressure monitoring) or surgery. Hematomas under 5 mm often resolve spontaneously. The success rate of epidural blood patch to treat spinal headache is commonly quoted to be as high as 90%. However, some studies have shown success rates of only 60-70%^{6,7}. In the light of a possible overestimate of the effectiveness of epidural blood patch, the risks of infection, repeat dural puncture and repeat failure, should be weighed against a conservative approach with further investigation of other possible causes⁶. We did not place an epidural blood patch on this patient's initial presentation, but we appreciate that this management could be disputed.^{9,10}

In conclusion, the management of PDPH following epidural anesthesia has an important role in obstetric anesthesia. While we emphasize the rarity of subdural hematoma as a complication of dural puncture, this case highlights that dural puncture with persisting headache and deterioration of neurological status should alert the anesthesiologist to this possible diagnosis. If these patients are evaluated carefully, severe neurological sequelae can be avoided.

References

1. Loo CC, Dahlgren G, Irestedt L. Neurological complications in obstetric regional anaesthesia. *Int J Obstet Anesth.* 2000; 9:99-124.
2. Morgan GE, Mikhail Jr MS. *Obstetric Anesthesia*, second ed. Stamford: Appleton & Lange. 1996; 705-725.
3. Palot M, Visseaux H, Botmans C, Pire J C. Epidemiology of complications of obstetrical epidural analgesia. *Cah Anesthesiol.* 1994; 42:229-233. French.
4. Pujol S, Torrielli R. Neurological accidents after epidural anesthesia in obstetrics. *Cah Anesthesiol* 1996; 44:341-345. French.
5. Vaughan DJA, Stirrup CA, Robinson PN. Cranial

subdural hematoma associated with dural puncture in labour.

Br J Anaesth. 2000; 84:518-20.

6. Stocks GM, Wooller DJ, Young JM, Fernando R.

Postpartum headache after epidural blood patch:

investigation and diagnosis. Br J Anaesth. 2000; 84:407-10.

7. Thöns M, Neveling D, Hatzmann W. Intracerebral

subdural hematoma after delivery with peridural catheter

anesthesia. Z Geburtshilfe Perinatol. 1993; 197:235-7.

German.

8. Diemunsch P, Balabaud VP, Petiau C, Marescaux C,

Muller A, Valfrey J, Treisser A. Bilateral subdural

hematoma following epidural anesthesia. Can J Anaesth.

1998; 45:328-31. French.

9. Stride PC, Cooper GM. Dural taps revisited. A 20-year

survey from Birmingham Maternity Hospital. Anaesthesia.

1993; 48:247-55.

10. Williams EJ, Beaulieu P, Fawcett WJ, Jenkins JG.

Efficacy of epidural blood patch in the obstetric population.

Int J Obstet Anesth. 1999; 8:105-9.

Author Information

Fahad Aziz, MD

Department Of Internal Medicine, Jersey City Medical Center