

CASE REPORT

Post-dural puncture headache after unrecognised dural puncture

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Key words: post-dural puncture headache, epidural, labour analgesia

SUMMARY

We report a case of post-dural puncture headache (PDPH) following epidural labour analgesia without an obvious dural puncture. A twenty-eight year primigravida, with a past history of migraine, developed a headache characteristic of PDPH eighteen hours postpartum, even though thorough testing of epidural catheter placement at the time of insertion had been uneventful. She was managed conservatively and her symptoms subsided after one week. A diagnosis of PDPH should be considered in patients who have received epidural analgesia, even in the absence of obvious dural puncture, so that the full range of treatments for this incapacitating condition can be offered.

INTRODUCTION

Post-dural puncture headache is an important iatrogenic complication of epidural insertion in obstetric patients and results from accidental puncture of the dura mater. The signs and symptoms of PDPH result from loss of cerebrospinal fluid, traction on the cranial contents, and reflex cerebral vasodilatation.¹ Following dural puncture with a 16 gauge Tuohy needle, up to 70% of subjects report symptoms related to low CSF pressure.² However 12% of patients receiving a labour epidural suffer a headache that is not characteristic of PDPH.³

CASE REPORT

A twenty-eight year primigravida (height 158cm, weight 55kg) reported to the labour room of our hospital with labour pain at 38 weeks gestation. Her past history revealed treatment for simple migraine (Trade name, Dart: acetaminophen 300mg, propyphenazone 150mg, caffeine 50mg as needed) for 12 years, which was stopped prior to conception. She had received paracetamol for migraine during pregnancy. The patient requested an epidural for labour analgesia, which was performed in the sitting position. Using an 18G Tuohy needle (BD Perisafe™), epidural insertion at the L2-L3 interspace was unsuccessful. The epidural space was successfully identified in L3-L4 interspace

using the technique of loss of resistance to saline. A 20G closed-end, multi-orifice epidural catheter was inserted and secured at 8cm length from the skin puncture. An epidural test dose (3ml 2% lidocaine with 5mcg.ml⁻¹ epinephrine) was administered to rule out intravascular or intrathecal placement, following which 10ml 0.125% bupivacaine with 2mcg.ml⁻¹ fentanyl was administered as 5ml increments. Analgesia was then maintained with an epidural infusion of 0.125% bupivacaine with 2mcg.ml⁻¹ fentanyl at a rate of 6ml.hour⁻¹. The patient delivered a healthy 3.2kg male baby vaginally after 5 hours. Following delivery, the epidural analgesic infusion was stopped and the catheter removed.

Eighteen hours postpartum, the patient complained of neck pain and a pulsatile occipital headache that increased on sitting and standing and was partially relieved by lying supine. Examination was unremarkable except for neck stiffness and tenderness at the skin puncture site, with no evidence of local infection. In view of the low suspicion of dural puncture at the time of epidural insertion, the headache was initially felt to be a migraine. However this diagnosis was revised since the patient described such characteristic symptoms of a PDPH. The patient was reassured, oral liquid intake was encouraged and regular paracetamol and a non-steroidal anti-inflammatory drug were prescribed. The patient preferred to lie down in the bed because of the headache. After 48 hours, the patient's symptoms were only partially relieved and she was offered an epidural blood patch, which she refused. Conservative management was continued and she was discharged home on seventh day after complete relief of her symptoms.

DISCUSSION

Although dural puncture was not clinically evident at the time of epidural insertion, the features of this patient's headache were typical of PDPH, particularly the increase in severity of the headache on standing. The differential diagnosis includes tension and migraine headache, pre-eclampsia, caffeine withdrawal headache

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and cerebral pathologies. Patients with a history of migraine are more prone to develop both postpartum headache and PDPH.³

The incidence of postpartum headache following epidural labour analgesia without clinically evident dural puncture is 12%.³ Indeed up to 39% of parturients who have not received neuraxial block report symptoms of a headache following delivery.⁴ Aspiration of CSF is diagnostic of intrathecal catheter placement, however failure to aspirate does not rule it out. The incidence of accidental dural puncture with a Tuohy needle, unrecognized by CSF visualization, but subsequently diagnosed by onset of PDPH, is 1.8%.⁵ As many as 26% of accidental dural punctures are unrecognized at the time of the procedure and first present as PDPH in the early puerperium.² A lignocaine test dose is very reliable in identification of unintentional subarachnoid injection, but two to six minutes is needed to recognize signs of subarachnoid injection. One explanation for this is the widespread use of dilute bupivacaine in place of lidocaine as the epidural test dose, with a view to avoiding the dense motor block associated with lidocaine.

An alternative explanation for PDPH following unrecognized dural puncture is that the epidural catheter tip may puncture the dura while being threaded into the epidural space. If, as in this case, an epidural catheter with a closed tip and three lateral eyes is used, it is conceivable that the test dose could stay within the epidural space with the closed catheter tip plugging the hole in the dura. When the catheter is removed (or it migrates), the dural hole becomes 'unplugged' and results in PDPH.

PDPH may also be caused by the tip of the needle scratching through the dura, which provides another possible aetiology in this patient, particularly since epidural insertion required attempts at two levels.⁶

CONCLUSION

This report demonstrates that dural puncture cannot be totally excluded at the time of epidural insertion and the diagnosis may be made retrospectively at the time of onset of PDPH. Diagnosis of PDPH is important so that the effective treatment for this condition can be offered to the patient. We recommend explaining to the patient about the possibility of PDPH even in the absence of obvious dural puncture.

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