Is spinal anaesthesia a good plan post dural puncture with a large bore needle? A case report of a failed spinal.

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Background:

Accidental dural puncture (ADP) during epidural insertion is a known complication. The incidence of ADP can be up to 0.73% [1]. The common practice in our institution after an ADP during epidural insertion is to insert an intrathecal (IT) catheter. We present a case of a labouring patient who had a dislodged IT catheter following ADP, and subsequently had a failed spinal anaesthesia for lower segment caesarean section (LSCS), despite good free flowing cerebrospinal fluid (CSF), requiring conversion to general anaesthesia (GA). It is not uncommon for patients to present for emergency LSCS following an ADP, hence it is important to be prepared for a situation like this.

Case Report:

A 32-year-old, ASA1, primigravida had labour induced at 39 weeks gestation for a low amniotic fluid index. An ADP was made while sitting her labour epidural with an 18G Tuohy needle. An intrathecal catheter was threaded through the Tuohy needle and 1ml 0.1% ropivacaine with 7.5mcg fentanyl induction dose gave a good block of up to T7 and Bromage score of 1. An infusion of 0.5ml/hr of 0.1% ropivacaine was given with a block height maintained at T10.

14 hours later, it was discovered that the IT catheter had dislodged when the patient experienced breakthrough pain. Coincidentally, she had to undergo LSCS for failure to progress in labour, thus the decision not to re-site the epidural for labour analgesia.

A single shot spinal was administered at level L3/4 with the patient in sitting position. It was a single attempt, clear change in resistance as the 27g pencil point needle pierced the dura, with clear free flowing CSF seen. Good aspiration of CSF was seen at the beginning, middle and end of injecting of medication. 2.3ml of 0.5% heavy bupivacaine, 15mcg of fentanyl and 100mcg of morphine (total volume of 2.7ml) was given.

Subsequently, the patient was only unable to move her hips. There was also a loss of sensation to cold till T4, but she could feel sharp sensation when the incision site was tested with forceps 10 minutes later. The spinal was deemed inadequate for surgery and she was placed under general anesthesia for the surgery.

Intraoperatively, she was given 10mg of morphine for analgesia and it was otherwise uneventful. In the post-anaesthesia recovery unit, the patient had no motor weakness and no sensory level. She was given a patient controlled analgesia with morphine for post-operative analgesia.

Discussion

The exact mechanism for the failure of spinal anaesthesia in our patient is not known, however, we can postulate some possible reasons.

Firstly, is a misleading tactile feel of the change in resistance when piercing the dura, known to be not always reliable in obstetric patients. The positive aspiration from the spinal needle may have been the ropivacaine infused into distended tissue planes or epidural space.

Another possibility is leakage of local anaesthetic out of the previous dural puncture site. The close proximity to the previous dural puncture, high pressure of injectate and sitting position may have caused the injectate to be pushed out of the hole made by the ADP, compromising the quality and duration of the block.

Lastly, the CSF volume could be larger due to intrathecal infusion of ropivacaine, hence our patient received a more diluted spinal dose explaining the poorer quality of block.

We propose a few methods that could have been used to avoid such an outcome. First, attempting spinal at a different level from the ADP may decrease the leak of spinal dose. Performing combined spinal epidural or placing another IT catheter would provide us the ability to give further incremental doses of local anaesthetic either via the epidural or IT catheter if the initial dose was insufficient. If the patient is not obese, is well fasted and does not have a difficult airway, GA as a first choice is a possible option.

References

1. S.Singh, S.Y.Chaudry, A.L. Phelps and M.C.Vallejo (2009). A 5-year audit of accidental dural punctures, postdural puncture headaches, and failed regional anaesthetics at a tertiary-care medical center. *TheScientificWorldJOURNAL* 9, 715-722. Doi 10.1100/tsw. 2009.94