Neuraxial block in a patient with dural ectasia

Sir,

We would like to present an interesting case regarding dural ectasia and regional anaesthesia. Dural ectasia is an enlargement of the dural sac and the spinal canal and sometimes with enlarged nerve sleeves. Dural ectasia can affect the spinal canal in any plane, but the most common sites are the lumbosacral region. Therefore, the most common clinical symptoms are low back pain, headache, weakness and loss of sensation above and below the affected limb, occasional rectal pain and pain in the genital area.[1]

Most of the documented cases of dural ectasia have been in patients with Marfan syndrome.[2] A recent survey of a 10 year follow-up in patients with Marfan syndrome having dural ectasia concluded that it was not associated with a significant increase in dural ectasia size or with the development/progression of spondylolisthesis or spondylolysis.[3] The aim of this article was to highlight the significance of dural ectasia in our anaesthetic practise.

A 33-year-old primi gravida with a gestation of 39 weeks presented for elective caesarean section. She had a background history of a cerebro vascular accident with the left internal carotid artery dissection 3 years back with mild right side hemiparesis and also had aortic root dilatation. Her carotid dissection was believed to be due to a connective tissue disorder. There was no family history of connective tissue disorders. Her height was 177 cm and she weighed 76 kg. This was extensively investigated with genetic testing for Ehlers-Danlos, Marfans and Loeys-Dietz syndrome all which were negative. Magnetic resonance imaging showed dural ectasia in lumbar region with dural sac measuring 0.6 cm at L2, 0.5 cm at L3 and 0.6 cm at L4. The indication for C section in this case was the history of cerebro vascular accident in the past with carotid dissection and aortic root dilatation. In view of this, the consultant obstetrician decided on an elective C section as it was thought that the stress of delivery may further increase the risk of dissection. Subarachnoid block was performed at L3-L4 level using a 25G whitacre needle with good cerebrospinal fluid (CSF) flow. 11.5 mg of hyperbaric bupivacaine, 15 mcg fentanyl and 100 mcg of preservative free morphine were injected. CSF was aspirated at the end of the injection to confirm the

position. The level of the block after 20 min was at T9 level. After discussion with the patient, it was decided to proceed with a second attempt at subarachnoid block at L3-L4. 7.5 mg of hyperbaric bupivacaine with 15 mcg fentanyl were injected after good CSF flow. The level of the block this time was at T4 level after 5 min. At 24 h post-caesarean section patient complained of headache and vertigo in upright position. A diagnosis of post-dural puncture headache was made. An epidural blood patch was performed. The following day on review, she had complete resolution of her symptoms of headache and vertigo. Informed consent was taken from the patient for publication of this article.

There is no literature to state the incidence of dural ectasia in non Marfan patients. It has been documented that dural ectasia might present in other connective tissue disorders like Ehlers-Danlos syndrome. Regional anaesthesia has been used previously with success in patients with dural ectasia, both for analgesia during the labour and caesarean section. Many factors that affect the extent of spread of spinal anaesthesia have been identified. One of the most important factors influencing block height in patients receiving spinal anaesthesia is the lumbosacral CSF volume, contributing to the variability in the spread of spinal block.[4] The erratic spread of spinal anaesthesia in this cases was most likely the result of dural ectasia and the associated increase in CSF volume.

General anaesthesia would have been an option. Given the history of aortic root dilatation and internal carotid dissection in the past, regional anaesthesia would have been a safer option. Any pressor response would have been dangerous, with a risk of aortic dissection. Another option which was discussed was to perform an epidural block. Most of the case reports had opined the failure of epidural in these patients due to patchy analgesia mainly related to epidural fibrosis. There has been one case report of managing cases of documented dural ectasia with continuous spinal anaesthesia.[1]

There has been one case report of a patient developing transient paraplegia due to accidental intrathecal bupivacaine infiltration following pre-emptive analgesia with missed sacral dural ectasia.[5] In this case, the patient had a caudal block before start of the procedure, which contributed to the paraplegia.

This article highlights the dangers, which connective tissue disorders might present with. Though not common, they do have deleterious effects.

To the best of our knowledge, this is the first known case of inadequate spinal anaesthesia in the Republic of Ireland due to dural ectasia. Though dural ectasia is a common finding in Marfans syndrome,[6] our case is significant as she was negative for genetic testing for Marfan syndrome. This case highlights the importance of dural ectasia as one of the aetiologies for inadequate spinal anaesthesia even with good CSF flow.

Deepak Hanumanthaiah, Vinod Sudhir

Department of Anaesthesia, and Intensive Care, University Hospital Galway, Galway, Ireland

Address for correspondence:
Dr. Deepak Hanumanthaiah,
Department of Anaesthesia, University Hospital Galway, Galway, Ireland.
E-mail: drdeepakhrh@yahoo.co.in

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