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Case Report

A case of post dural puncture headache following labour epidural analgesia, managed by sphenopalatine ganglion block

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ABSTRACT

Postpartum headache is a common complaint faced by most obstetricians, with over 39% of women having headache in the first postpartum week. With the increasing use of labour epidural analgesia, the incidence of postdural puncture headache (PDPH) due to inadvertent dural puncture is 0.5-1%. Most treatment modalities relieve the symptoms of PDPH by minimizing compensatory cerebral vasodilatation, or by sealing the dural puncture site. Treatment options include, conservative, pharmacological, and the gold standard, epidural blood patch (EBP). EBP is invasive and may result in rare however, severe complications. Sphenopalatine ganglion block (SPGB) has been proposed as a non-invasive intervention for PDPH, which has minimal adverse effects, which can be performed bedside. Here we are reporting a case of PDPH, following labour epidural analgesia which was effectively managed by a sphenopalatine block.

Keywords: Postpartum headache, Epidural analgesia, PDPH, Sphenopalatine block

INTRODUCTION

According to the international classification of headache disorders criteria for the diagnosis of PDPH, headache develops within 5 days after dural puncture and disappears spontaneously within 1 week.

PDPH occurs after intentional dural puncture with a spinal needle or unintentional dural puncture with an epidural needle.

In parturients, the collective risk of unintentional dural puncture with an epidural needle is 1.5%, and of these, 52.1% will experience PDPH. After spinal injection, the prevalence of headache ranges from 1.5% to 11.2%, depending on the size and type of the needle. Interestingly, up to 38% of PDPH can arise after an apparently uneventful procedure.¹

The cause of PDPH is believed to be secondary to intracranial hypotension caused by CSF leak through the puncture site. Pain arises because of either traction on intracranial structures or from compensatory cerebral vasodilatation.

In this paper we present, a case of PDPH following labour epidural analgesia which was effectively managed by a sphenopalatine block.

CASE REPORT

A-31-year-old, G2P1L1, at 38 weeks, previous LSCS, last childbirth 8 years back, with BMI of 22, was admitted for trial of VBAC. She was induced with Foley's and labour accelerated with oxytocin infusion. Pain relief was provided by an uncomplicated and effective epidural blockade. No dural puncture was noted at the time of the

procedure and the patient reported excellent analgesia during delivery.

She progressed spontaneously and delivered vaginally. On post-operative day 3, she began to complain of severe frontal-occipital headache. The headache was noted to be exacerbated with sitting or standing. No history of fever, vomiting, neck stiffness, visual changes, or any other neurologic symptoms were noted. She had no history of sinusitis, migraine, or other headache syndromes.

She previously had an effective spinal anaesthesia during her first elective caesarean in view of breech presentation.

Her pain score on the numeric pain score (NRS), (0-no pain to 10-worst pain imaginable) was 10.

The patient was positioned laying down and well hydrated, she was advised to drink caffeine-containing fluid. She was started on round the clock analgesics with intravenous paracetamol and tramadol. Abdominal compression was applied using a binder.

In view of persistent symptoms, bilateral trans nasal sphenopalatine block (SPBG) using topical intranasal local anaesthetic was administered.

The patient is positioned supine, vitals monitored. Few drops of 2% lidocaine were instilled into both anterior nares. Then a cotton-tipped applicator soaked in 2% lignocaine was inserted through each nostril and the end of the applicator tip was positioned just superior to the middle turbinate and anterior to the pterygopalatine fossa and sphenopalatine ganglion for 5 min with the patient in supine position (Figure 1). Applicators were removed after 5 minutes. After 5 min, the patient was asked to sit up and presence of headache was assessed using numeric pain score (NRS).

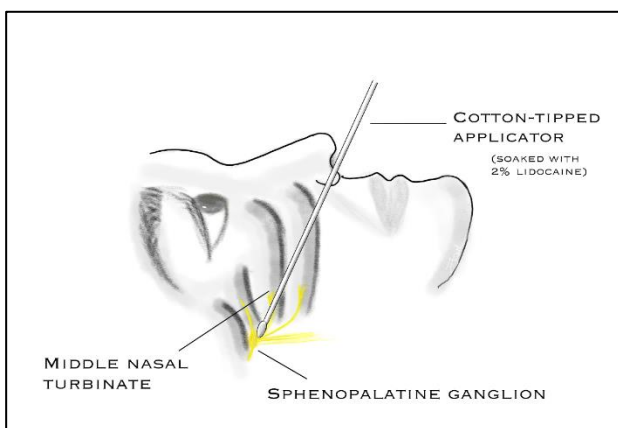


Figure 1: Technique of sphenopalatine block.

Post-procedure, her pain was markedly reduced with a score of 3 according to NRS. The patient was able to ambulate without experiencing much headache. She was continued on intravenous analgesics.

Her pain was checked every 2 hours for the next 12 hours, during which NRS scores of 2 and 1 were continually recorded, indicating mild discomfort, and the patient began to do routine activities freely and comfortably. Finally, the patient was pain-free and was discharged from the hospital.

DISCUSSION

Postpartum headache is described as headache and neck or shoulder pain in the first 6 weeks post-delivery. With the increasing use of labour epidural analgesia, the incidence of PDPH due to inadvertent dural puncture is 0.5-1%.

Obstetric cases are considered at increased risk, because of their sex, young age, and the widespread use of neuraxial blocks. Inadvertent dural puncture during epidural anaesthesia is a more common cause than spinal anaesthesia because of the use of small, pencil-point needles for spinal anaesthesia in this population.¹

The headache generally has a postural element, with the pain aggravated by sitting or standing and alleviated by lying flat, this differentiates it from other intracranial causes of headache such as a subdural haematoma. Symptoms of a postural headache and a history of dural puncture are usually sufficient to make a diagnosis.

Differentials include, non-specific/tension headache, sinusitis, pre-eclampsia/eclampsia, migraine, meningitis, cortical vein thrombosis, and subarachnoid haemorrhage.²

Rapid treatment for PDPH is indicated in the obstetric population because severe symptoms can prevent mother-neonate interactions.

Treatment modalities include, conservative, pharmacological, and EBP. Patients are advised bed rest, to maintain hydration, and take analgesics, such as paracetamol and NSAIDs.¹ Pharmacological treatment includes treatment with caffeine, 5HT-agonists, and adrenocorticotrophic hormone.

Bilateral trans nasal SPGB, using topical intranasal local anaesthetic, is emerging as a promising therapy for the PDPH.

The sphenopalatine ganglion (SPG) is a triangular-shaped parasympathetic ganglion, located superficially in the pterygopalatine fossa, posterior to the middle nasal turbinate, and anterior to the pterygoid canal. It is also referred to as the pterygopalatine ganglion, Meckel's ganglion, or the nasal ganglion. It is about 5 mm in size, has a 1 to 1.5 mm-thick layer of connective tissue and mucous membrane surrounding the ganglion, so the drug enters well by a topical application or by injection.³

According to the Monro-Kellie doctrine or hypothesis, the sum of the volumes of the brain, cerebrospinal fluid (CSF), and blood in the intracranial compartment remains

constant. After a Dural puncture, the lost intracranial volume is restored by compensatory vasodilatation.

SPG is a junction which has sympathetic, parasympathetic, and sensory innervation overlapping in a minute area. Parasympathetic activity contributes to the compensatory vasodilatation. Postganglionic parasympathetic neurons, and the somatic sensory afferents is blocked by an SPG block. This could be the reason behind the fact that the block diffuses the conduction of pain.³ SPGB is easily performed, non-invasive, and low risk.² However, the pain relief after SPGB is often temporary.

EBP is the injection of autologous blood into the epidural space with the intent of sealing off a dural tear and stopping the leakage of cerebrospinal fluid (CSF), thereby restoring intracranial pressure, and reducing cerebral vasodilation.⁴

Though EBP is considered the gold standard for the treatment of PDPH with a success rate of 75%, it is associated with complications such as bleeding, infection, and neurological sequelae.⁶ EBP could itself cause another accidental dural puncture. Some patients may require a second EBP if the first one fails. SPGB may be a safer alternative in the treatment of PDPH.

CONCLUSION

SPGB is emerging as a promising therapy for PDPH, which is non-invasive, minimal adverse effects, cost effective, which can be performed bedside by an obstetrician. However, further study is required before routinely substituting SPGB for EBP for PDPH. EBP remains the gold standard for the treatment of PDPH.

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