The parents were interested in other options than epidural blood patch because of the risk of complications and the discomfort for the child in the previous attempts of lumbar puncture. A sphenopalatine ganglion block was suggested and was accepted by both the child and parent. The block was performed bedside without sedation with the patient lying supine in a sniffing position. Two cotton-tipped applicators soaked in a mixture of lidocaine 4%, 0.5 ml and ropivacaine 0.5%, 0.5 ml[8] were inserted parallel to the floor of each nasal cavity until resistance was met at the posterior wall of the nasopharynx where the sphenopalatine ganglion is located. An additional dose each of lidocaine 4%, 0.5 ml and ropivacaine 0.5%, 0.5 ml was injected through the hollow shafts of the applicators. The applicators were left in place for 10 min, and the patient reported minimal discomfort. The patient had immediate relief of symptoms and went home the same day. Symptoms returned ~20 h after the block, and the procedure was repeated. Supplemental treatment with clonidine was started that day and continued for 3 days. The recommended bed rest was not followed. The patient remained symptom free and was able to resume activities and go to school the next day. He presented no further symptoms and was symptom free at follow-up both 1 and 2 weeks later.

Sphenopalatine ganglion block is a simple procedure that can be done bedside. It requires few resources and can be performed without anaesthesia. There are no reports of severe side-effects in adults.[8] We propose that sphenopalatine ganglion blocks are a relevant and minimally invasive procedure that can alleviate symptoms of post-dural puncture headache in children, and in some cases epidural blood patch can be avoided. There is an ongoing study on sphenopalatine ganglion block for migraine in children (NCT03984045) that is not yet published. Further studies are needed to determine the full potential of sphenopalatine ganglion block as treatment for post-dural puncture headache in children.

Declarations of interest

The authors declare that they have no conflicts of interest.

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Sphenopalatine ganglion block: do not give up on it just yet!

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Keywords: epidural blood patch; local anaesthetics; post-dural puncture headache; pterygopalatine fossa; sphenopalatine ganglion block

Editor—Post-dural puncture headache (PDPH) continues to be an adverse outcome associated with neuraxial anaesthesia and analgesia. Although the epidural blood patch is the gold-standard treatment for PDPH, patients are sometimes reluctant to undergo this therapeutic option because the procedure to treat the problem is the same procedure that caused the problem. Recently, the sphenopalatine ganglion block for treatment of PDPH has been reported to treat PDPH successfully, but only via case reports.[1,2] We commend Jespersen and colleagues[3,4] on the only RCT evaluating the sphenopalatine ganglion block for the treatment of PDPH. However, their study showed no statistically significant

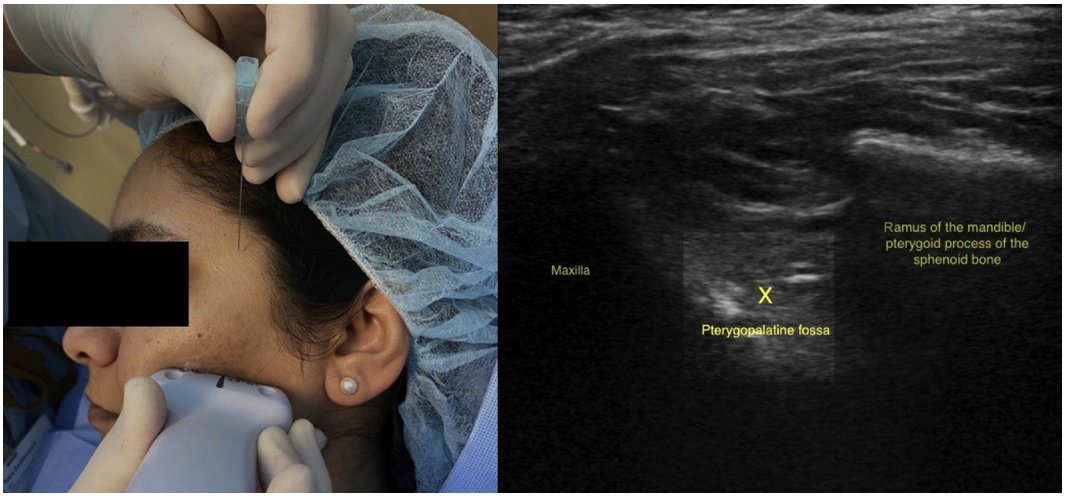

Fig 1. Spinal needle placement and corresponding ultrasound image to perform the sphenopalatine ganglion block.

benefit of using local anaesthetic compared with placebo for the transnasal approach to this procedure. This is an unfortunate finding because the proposed mechanism of action for blocking the sphenopalatine ganglion to address the pain associated with PDPH is plausible.

The cerebrovascular changes that occur during PDPH are key to understanding the treatment mechanism of blocking the sphenopalatine ganglion. The sphenopalatine ganglion is an essential component of the facial parasympathetic network.[3,4] By blocking the sphenopalatine ganglion, the parasympathetic system in this particular domain results in cerebral vasoconstriction and attenuates the pain associated with nociceptive stimulation from cerebral vasodilation. Given that mechanism, why did Jespersen and colleagues[3] fail to show statistically significant efficacy of local anaesthetic blocking of the sphenopalatine ganglion? Jespersen and colleagues[3,4] suggest that their observed effects may be secondary to mechanical stimulation of the sphenopalatine ganglion by the cotton tip applicator, rather than local anaesthetic pharmacodynamic effects. We believe their transnasal approach limited efficacy because of reliance on appropriate local anaesthetic delivery and trans-mucosal absorption.

At our institution, we approach blocking the sphenopalatine ganglion with a percutaneous, needle-based route. In this manner, we are able to deliver local anaesthetic directly into the pterygopalatine fossa, bypassing reliance on mucosal absorption, thereby more effectively blocking the sphenopalatine ganglion. This procedure is performed with real-time ultrasound guidance, using a 25G spinal needle for delivery of local anaesthetic.

The landmarks for this procedure include the zygomatic arch as the base structure for the ultrasound. The ultrasound probe is placed just inferior to the zygomatic arch, obtaining an image of the maxilla anteriorly and the ramus of the mandible and pterygoid process of the sphenoid bone posteriorly (Fig. 1). The needle is inserted just behind the posterior orbital rim and above the zygomatic arch, directing it approximately 10° anterior and 45° caudad. The needle is advanced ~5 cm into the pterygopalatine fossa where the local anaesthetic is to be delivered. This method is safe because of the anatomy of this particular region of the face; it is not possible to place the needle in an unsafe location without first passing through bone. For a demonstration of this technique, refer to Supplementary video.

Blockade of the contents of the pterygopalatine fossa is not a new idea. Techniques, such as this, have been applied since the 1980s, primarily in dentistry and maxillofacial surgery, and predominantly for orthognathic surgery. Intra-oral approaches were developed first, followed by extra-oral approaches.[5,6] Extra-oral techniques were found to be both technically easier to execute and to have a better safety profile[7]; thus, they were adopted by the anaesthesia community, first in young children for cleft palate repair.[8] The potential list of indications for blockade of the contents of the pterygopalatine fossa continues to grow,[9] particularly for indications for which its utility makes anatomic sense.

We believe the sphenopalatine ganglion block is a plausible potential alternative treatment for PDPH. Using the supra-zygomatic, percutaneous needle-based approach, the sphenopalatine ganglion may be more effectively blocked compared with the transnasal route. In the COVID-19 era, we now have ample evidence of how uncomfortable it is to have a transnasal swab inserted into the posterior nasopharynx. As such, the perceived discomfort associated with needle placement should not be a barrier when a small-gauge needle is used to perform the sphenopalatine ganglion block procedure; the approach to blocking the sphenopalatine ganglion has potential for further study.

Declarations of interest

The authors declare that they have no conflicts of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.bja.2021.02.020.

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Recurrent anaphylaxis to a gelatin-based colloid plasma substitute and to cetuximab following sensitisation to galactose-alpha-1,3-galactose

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Editor—Galactose-alpha-1-3-galactose (α-Gal) is a ubiquitous epitope, part of many mammalian glycoproteins and glycolipids found in food and in some animal-derived drugs (e.g. gelatin-based colloids) or in α-Gal glycosylated chimeric monoclonal antibodies, such as cetuximab, used for treatment of metastatic colorectal cancer or head and neck squamous cell carcinoma.[1] Pre-existing immunoglobulin E (IgE) directed against the α-Gal epitope has been linked to severe immediate hypersensitivity reactions to cetuximab,[1,2] and severe allergic reactions to red meat (α-Gal syndrome)[3] and to gelatin, including gelatin-based colloid plasma substitute.[4] We report a case of a patient who developed three severe reactions to gelatin-based colloid plasma substitute and cetuximab (with the patient's consent). A 43-yr-old man, with no history of allergy, underwent pharyngolaryngectomy in July 2014 for laryngeal squamous cell carcinoma. The anaesthesia protocol included i.v. remifentanil, propofol, ketamine, succinylcholine, lidocaine, cefotaxime, hydrocortisone, atracurium, phenylephrine, norepinephrine, cefuroxime, and trimethoprim–sulphamethoxazol. Gelatin-based colloid plasma substitute (Gelofusine®, Braun Melsungen AG) was infused to correct hypovolaemia, followed 10 min later by major arterial hypotension (57/27 mm Hg), tachycardia, circulatory shock, and oxygen desaturation with cyanosis. He