

Transnasal Sphenopalantine Ganglion Block For Postdural Puncture Headache in a Thrombocytopenic Patient with T-ALL

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Background/Introduction: Postdural puncture headache (PDPH) is a well-known complication of neuraxial anesthesia and related procedures with variable incidence (<2%-70%) due to needle type, operator experience and technique. Definitive treatment for PDPH is the epidural blood patch (EBP) with a reported 75% efficacy [1]. However, it is an invasive procedure with similar risks as other neuraxial procedures including bleeding, infection, recurrent postdural puncture and pain [1]. Sphenopalantine ganglion (SPG) blocks have become increasingly popular since its first reported use in 1908. Although they have traditionally been employed for the treatment of chronic headaches, trigeminal neuralgia and temporomandibular joint disorders [2], their use has been broadened to treat PDPH in the fields of obstetrics, emergency medicine and anesthesiology [1,3,4]. SPG stimulation causes cerebral vasodilation of dural blood vessels via release of acetylcholine, vasoactive intestinal peptide and nitrous oxide, leading to increased cerebral blood (CBF) [5]. Inhibition of this pathway using a minimally invasive transnasal SPG block decreases dural CBF, ultimately relieving the patient's pain [2].

Methods: IRB approval was waived for the study. Patient informed consent was obtained for submission of a case report. Pain level was assessed using the Verbal Numeric Rating Scale.

Case Report: A 19 year old male with a history of T-cell acute lymphoblastic leukemia (T-ALL) receiving intrathecal chemotherapy who presented to the ED with intractable headaches along with nausea, vomiting and low-grade fever 3 days following an uncomplicated, successful lumbar puncture. The headache was described as a severe, pounding headache, 8/10 without movement, 10/10 with movement. Conservative treatment with diphenhydramine, prochlorperazine, ketorolac and oxycodone yielded no changes in symptoms. There was mild improvement with lying flat, prompting consultation to the Pain Service for evaluation of an EBP for presumed PDPH. EBP was deferred given patient's platelet count of 49. An SPG block was offered for pain relief while being admitted for further work-up. Cotton-tipped applicators with 5% lidocaine ointment were placed in bilateral nares until resistance was achieved at the posterior sinuses with confirmatory post-nasal sensory changes. The patient remained supine for 25 minutes until applicators were removed. Pre-procedure pain scores were noted to be 8/10 with immediate improvement to 3/10. The patient experienced a restful night for 10 hours until his pain returned to 8/10. His hospital course was significant for improvement in thrombocytopenia allowing for repeat LP, negative infectious work-up and gradual improvement of his headache over the next 72 hours.

Discussion: The above case presents a further example of the successful use of SPG block using the transnasal approach as a quick and safe alternative to an epidural blood patch for treatment of PDPH in a patient with thrombocytopenia. The patient received immediate relief of his headache for approximately 10 hours. Although there was concern the patient's headache was due to meningitis, his infectious workup was negative. It is likely repeated SPG would have provided sustained pain relief given the patient's initial response and based off other case reports. Further inquiry is warranted to determine optimal technique and pharmacologic agents to improve SPG block efficacy [1, 5].

References:

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