

INTRODUCTION

- Postdural puncture headache (PDPH) is a well-recognized complication of neuraxial procedures. Epidural blood patch is considered the gold standard therapy when conservative approaches fail. (1)
- The pterygopalatine ganglion (PPG) block has been described as a less invasive alternative therapy for the management of PDPH. (2,3)
- The transnasal approach to the PPG is technically simple, but efficacy appears inconsistent, and it often requires repeated applications to achieve a durable effect. (4)
- A suprazygomatic percutaneous approach delivering local anesthetic directly into the pterygopalatine fossa has been proposed to improve reliability and offer more consistent analgesia than the transnasal approach. (4) However, deeper percutaneous techniques carry additional risks related to the spread of local anesthetic beyond the target region.
- This case highlights the development of transient diplopia and lateral gaze palsy following a suprazygomatic PPG block.

Figure 1. Abducens nerve (CN VI) palsy showing impaired lateral gaze.

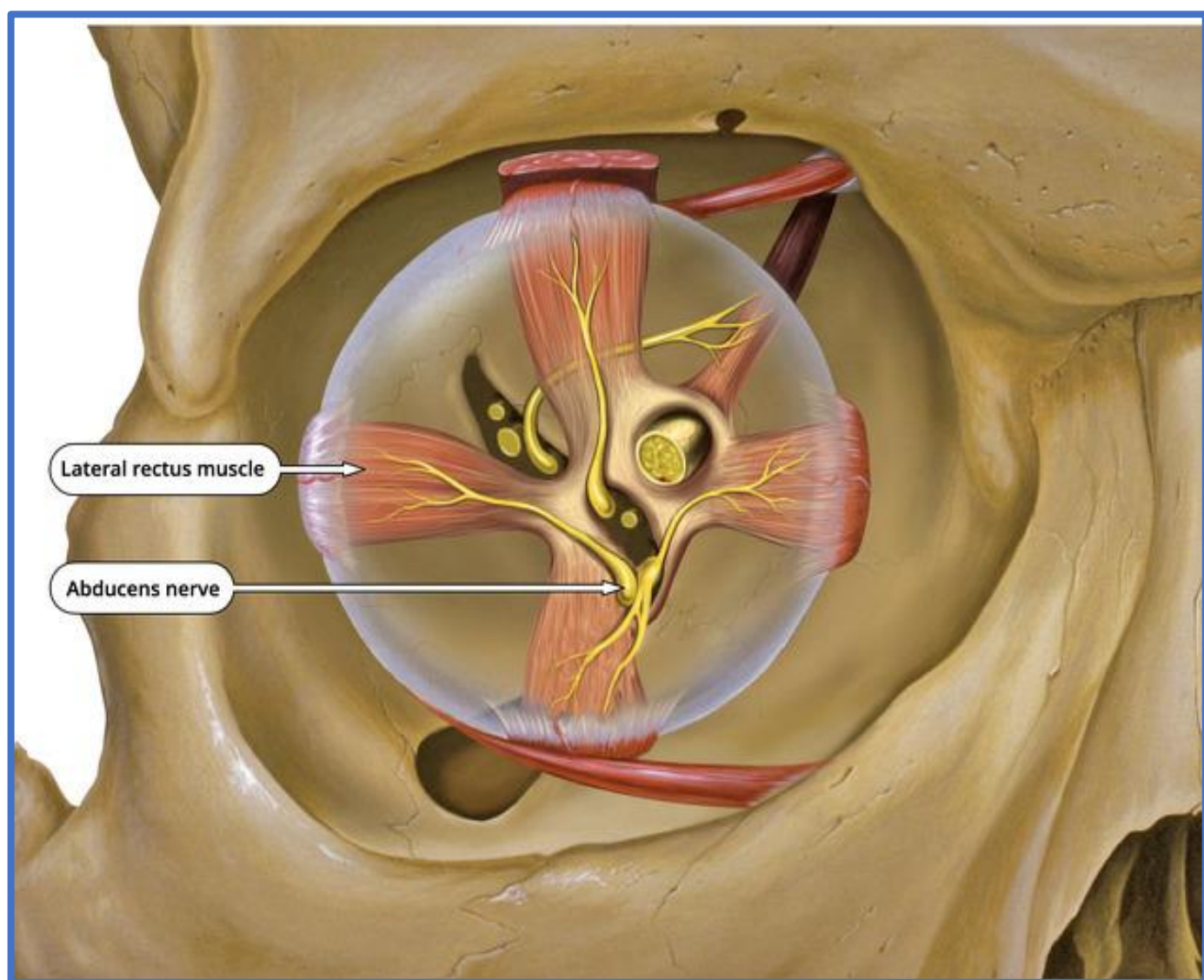
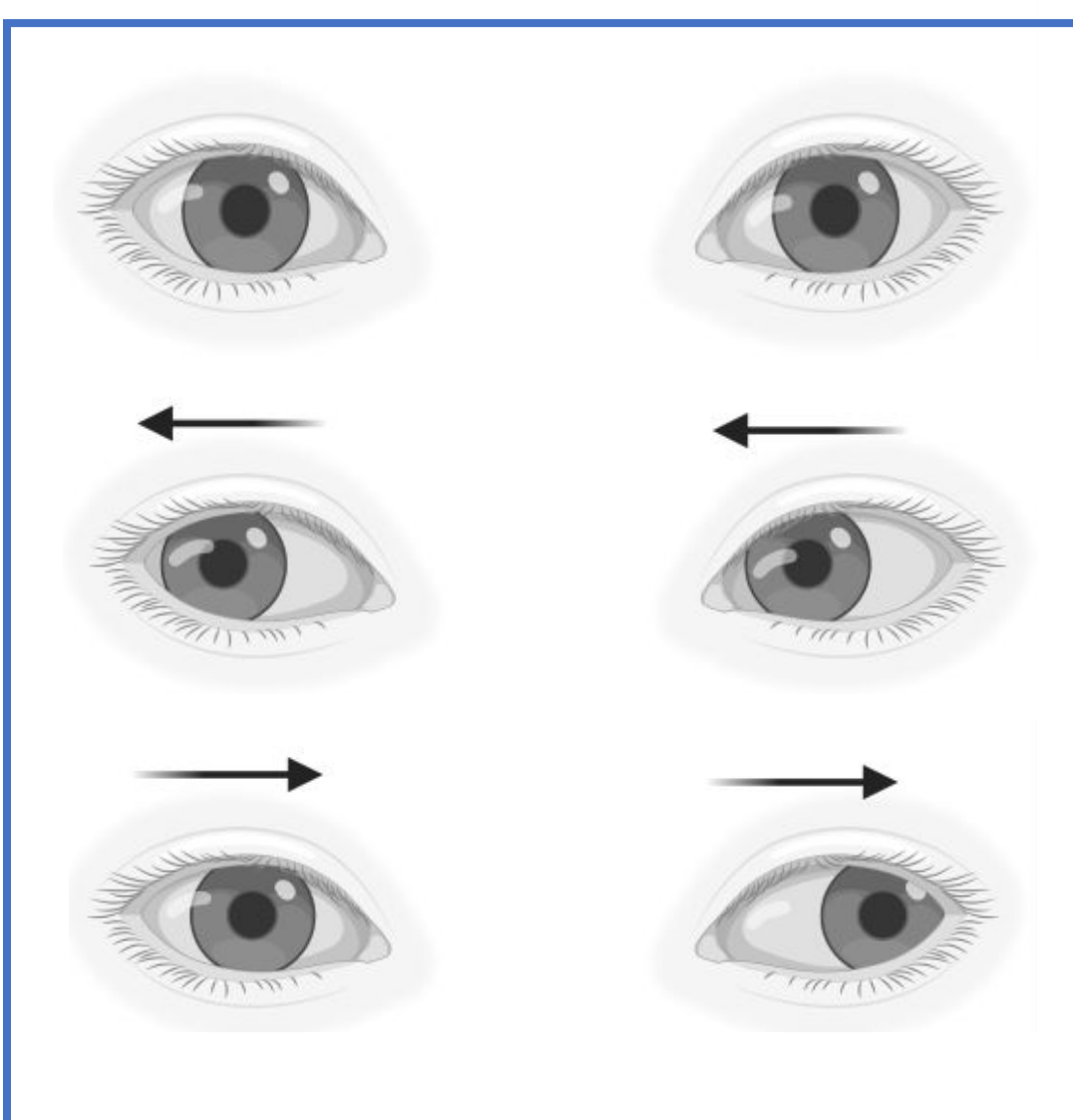


Figure 2. Abducens nerve anatomy illustrating its relationship with the lateral rectus muscle.

CASE PRESENTATION



Figure 3. Anatomical skull depiction of pterygopalatine fossa (yellow bone) and its association to the inferior orbital fissure (green). Both structures lie deep to the zygomatic bone (light orange).



Figure 4. Lateral view of anatomical skull depicting the pterygopalatine fossa (yellow) in relation to the inferior orbital fissure (green). The zygomatic bone has been removed for improved visibility of association between structures.

- A 54-year-old woman with hypertension and hyperlipidemia underwent thoracic endovascular aortic repair for type B aortic dissection. A lumbar spinal drain was placed using a 14-gauge Tuohy needle under ultrasound guidance for spinal cord ischemia prevention.
 - POD3:** Lumbar drain removed. Patient developed severe positional occipital headache and posterior neck pain, worse upright and improved supine, consistent with PDPH. Conservative management (hydration, caffeine, bed rest) provided minimal relief.
 - POD4:** Bilateral greater occipital nerve blocks and pterygopalatine ganglion (PPG) blocks with 0.375% ropivacaine were performed. Occipital blocks produced sensory numbness but limited headache relief.
- A second bilateral PPG block was performed, followed by an epidural blood patch with 20 mL autologous blood, resulting in marked headache improvement. Shortly afterward, the patient developed diplopia with left lateral gaze palsy.
- POD5:** Diplopia improved substantially within 90 minutes and resolved completely without intervention. The patient was discharged the following day without headache or diplopia.
 - Follow-up:** Pain scores were 3/10 at 24 hours, 2/10 at 48 hours, and 0/10 at one week.

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Figure 1 and 5: Created with BioRender.com
Figure 2: Adapted from Radiopaedia.org (Gaillard F, Lynch PJ)

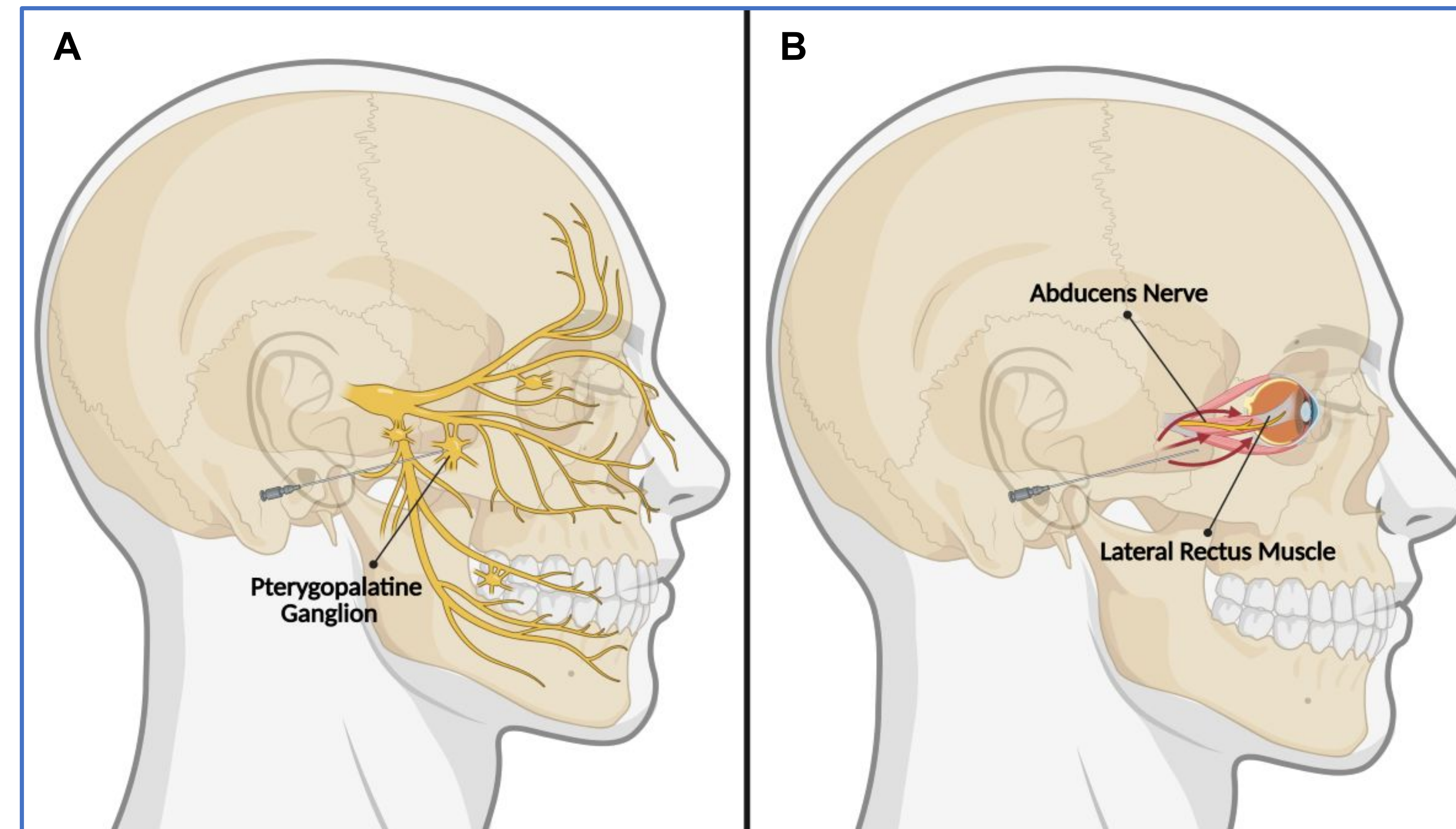


Figure 5. (A) Supragomatic needle trajectory to the pterygopalatine ganglion. (B) Proposed spread of local anesthetic through the inferior orbital fissure (IOF) with involvement of the abducens nerve (CN VI) and lateral rectus muscle.

DISCUSSION & CONCLUSION

- This case supports considering percutaneous PPG block and greater occipital nerve block as alternative management options for PDPH.
- The percutaneous approach to the PPG is a deeper and more anatomically complex technique than topical methods, and clinicians must remain mindful of its potential risks. In this patient, transient diplopia and lateral gaze palsy developed after intervention.
- The most plausible mechanism for this complication is diffusion of local anesthetic through the inferior orbital fissure into the orbit, affecting the abducens nerve. (5)
- This event shows the importance of detailed knowledge of regional anatomy, careful needle placement, and judicious selection of injectate volume and concentration when performing injectable PPG blocks.