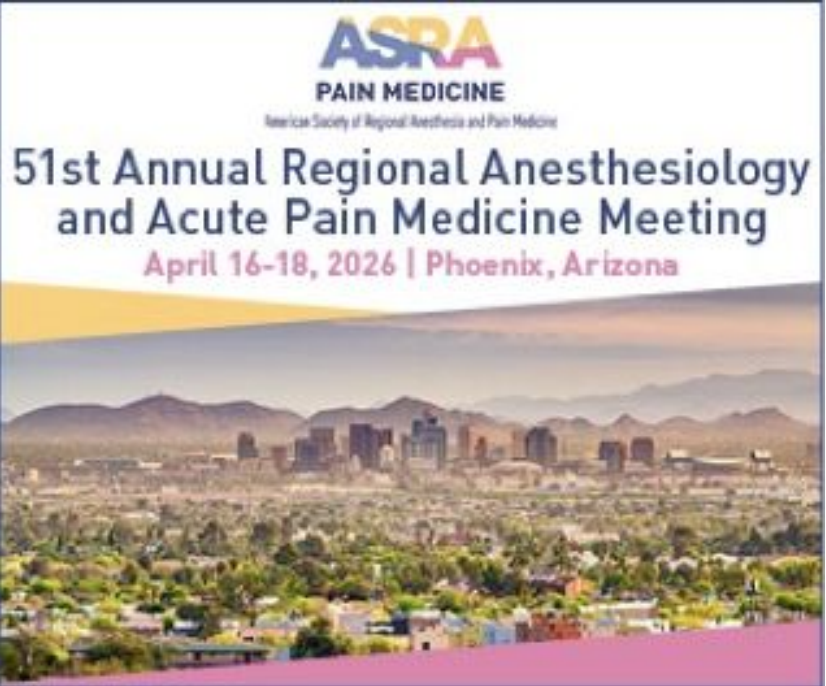


Lumbar Sympathetic Ganglion Block for treatment of refractory Phantom Limb Pain



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Introduction

Lumbar Sympathetic Ganglion Blocks (LSGBs) have been utilized in the management of sympathetically mediated pain conditions, including neuropathic pain syndromes, and complex regional pain syndrome (CRPS). However, their role in the treatment of refractory postamputation pain, particularly phantom limb pain, remains inadequately studied. This case report highlights the therapeutic utility of LSGB in a patient with a right above-knee amputation who developed refractory, demonstrating a potential role for sympathetic blockade in post-surgical pain syndromes.

Materials and Methods

Lumbar sympathetic chain lies anterolateral to the lumbar vertebral bodies, medial to the psoas muscle. Positioned in prone positioning with continuous monitoring (BP, ECG, pulse oximetry). Fluoroscopic imaging used to identify vertebral levels L2-L3. Fluoroscopy is angled (obliquely) to align the transverse process tip with the vertebral body’s front edge (anterior aspect). Needle inserted under real-time X-ray guidance. The needle is advanced along the vertebral body surface (mid-pedicular position). Lateral X-ray confirms depth, ensuring the tip is 3-5mm dorsal (behind)the front of the bone, avoiding the great vessels. Contrast dye is injected to visualize the sympathetic chain.

Case Description

The patient was a 63-year-old male with poorly controlled type 2 diabetes (hemoglobin A1c 11.5%) complicated by critical limb ischemia, requiring a right above-knee amputation. Postoperatively, he developed phantom limb pain refractory to multimodal therapy, including continuous peripheral nerve catheters and pharmacologic management with gabapentin, serotonin-norepinephrine reuptake inhibitors, and tricyclic antidepressants, with pain reaching 9/10 on the numeric rating scale. Given suspected sympathetically maintained pain, a fluoroscopy-guided lumbar sympathetic ganglion block was performed without complications. At two-week follow-up, pain intensity decreased to 2-3/10, and three months was sustained at 1/10, with improved functional capacity and no procedural adverse events. These findings align with prior care reports and small controlled studies showing that lumbar sympathetic blockade can reduce both phantom limb and residual limb pain beyond the expected duration of local anesthetic effect, suggesting modulation of sympathetically deviated mechanisms rather than solely transient nerve inhibition [1]. While high-quality evidence remains limited, existing research supports the safety and potential efficacy of lumbar sympathetic blocks in sympathetically mediated pain states, including phantom limb pain, and underscores the need for larger prospective trials.



Discussion

LSGBs may reduce phantom limb pain by interrupting sympathetically mediated pain signaling pathways and its use in refractory phantom limb pain which is shown in this clinical case. This mechanism can be attributed to the improved regional blood flow and dampening neuroinflammatory signaling pathways. Future studies should include prospective trials comparing LSGBs with nerve catheter infusions to determine optimal timing post amputation and its potential for integration with other neuromodulation strategies.

References

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