Bilateral Stellate Ganglion Block for Treatment of PTSD: A Case Report

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Introduction

PTSD is characterized by dysregulation of the amygdala-hippocampal-prefrontal cortical network with increased sympathetic activity and elevated central norepinephrine levels, contributing to hyperarousal, anxiety, and sleep disturbance. The stellate ganglion provides sympathetic neuronal connections that influence autonomic tone and may serve as a therapeutic target to reduce central norepinephrine activity, thereby improving hyperarousal and chronic pain symptoms associated with PTSD.

Case Report

A 30-year-old female with a past medical history of postural orthostatic tachycardia syndrome (POTS), generalized anxiety disorder (GAD), and complex PTSD secondary to childhood trauma presented to the pain clinic with diffuse neuropathic pain involving the cervical, thoracic, and lumbar regions with radiation into both lower extremities. She also reported severe anxiety and frequent sleep disturbances. The patient had previously been managed by psychiatry with sertraline and alprazolam without significant symptomatic improvement. She was referred to interventional pain management for a C6 stellate ganglion block (SGB). The patient first underwent a left-sided stellate ganglion block and reported approximately 50% improvement in neuropathic pain, anxiety, and PTSD-related symptoms. Two months later, she returned for a right-sided stellate ganglion block, after which she reported approximately 90% overall symptom improvement.

Materials and Methods

For both procedures, the cervical anatomy was evaluated using a 12-MHz linear ultrasound transducer to identify the carotid artery, internal jugular vein, longus colli muscle, anterior tubercle of C6, and thyroid gland while determining a safe needle trajectory. Following sterile preparation with chlorhexidine and placement of a sterile ultrasound probe cover, a 25-gauge, 2.5-inch needle was advanced under combined ultrasound and fluoroscopic guidance into the fascial plane between the carotid artery, longus colli muscle, and the anterior tubercle of C6. After negative aspiration, 2 mL of Omnipaque 300 contrast was injected under fluoroscopy to confirm appropriate spread without intravascular uptake. Subsequently, 7 mL of 2% lidocaine was administered at the target site. Institutional Review Board (IRB) oversight is not required for this case report following review by SLUHN IRB. All patient-specific identifiers have been removed to ensure complete anonymity.

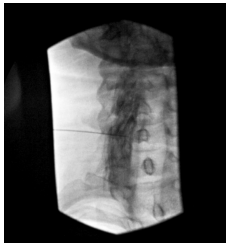


Figure 1: Fluoroscopic imaging of omnipaque contrast confirming placement of left sided stellate ganglion block in March, 2026

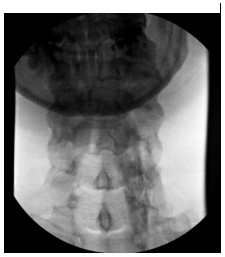


Figure 2: Fluoroscopic imaging of omnipaque contrast confirming placement of right sided stellate ganglion block in May, 2026

Results

The stellate ganglion blocks were performed two months apart. Following the initial left-sided block, the patient reported approximately 50% improvement in diffuse neuropathic back pain with decreased radiation into both lower extremities. Following the subsequent right-sided block, she experienced approximately 90% overall improvement in pain symptoms, accompanied by marked reductions in PTSD-related anxiety and nighttime awakenings. Patient continued to report sustained symptomatic improvement without procedural complications or adverse events several weeks after procedure.

Conclusions

Bilateral stellate ganglion block may represent valuable adjunctive treatment for patients with PTSD symptoms. In this patient, sequential bilateral stellate ganglion block was associated with greater symptomatic improvement than unilateral block. Further prospective studies are needed to determine whether bilateral treatment offers additional benefit over unilateral blockade. This procedure may be safely performed utilizing both fluoroscopy and ultrasound guidance to confirm placement with prior studies having reported symptom improvement lasting several months in PTSD patients.

References

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