

CHRONIC LOW BACK PAIN DUE TO EDEMA AROUND THE SUPERIOR CLUNEAL NERVE RESPONDING TO NERVE BLOCK: A CASE REPORT

Alaa Abd-Elseyed, MD¹, Rewais Hanna, MD², and David Rosenblum, MD³

Background: Chronic low back pain is notoriously challenging to diagnose and manage, especially when imaging fails to reveal a cause. Superior cluneal nerve entrapment is an increasingly recognized, but often overlooked, source of pain that can mimic lumbosacral radiculopathy.

Case Report: We describe a 43-year-old woman with longstanding chronic low back pain unresponsive to physical therapy, extracorporeal shockwave therapy, and targeted sacroiliac joint injections. A physical examination revealed focal tenderness along the posterior iliac crest, a positive Tinel sign, and pain over the iliac crest. Lumbar magnetic resonance imaging was unremarkable. She underwent fluoroscopic and ultrasound-guided superior cluneal nerve blocks in separate sessions; each block produced immediate and complete pain resolution.

Conclusion: Superior cluneal nerve entrapment should be considered when a patient has axial low back pain with negative imaging. Ultrasound-guided superior cluneal nerve blocks are a safe and effective alternative to fluoroscopic guidance, offering real-time visualization without radiation exposure.

Key words: Low back pain, superior cluneal nerve block, ultrasound guidance, nerve entrapment

BACKGROUND

Chronic low back pain affects nearly 8% of the global population and remains one of the leading causes of disability (1). While common etiologies such as disc disease, facet arthropathy, and spinal stenosis are the leading causes, some patients present with persistent pain despite normal imaging findings.

Superior Cluneal Nerve Entrapment Syndrome (SCNES) is an underdiagnosed source of such pain. The SCN originates from the dorsal rami of T12–L3, passes through the thoracolumbar fascia, and crosses the iliac crest via a narrow osteofibrous tunnel (2,3). Compression at this site produces localized tenderness with possible radiation into the buttock or posterior thigh, often leading to mistaken diagnoses such as radiculopathy.

Historically, fluoroscopy has been used to guide SCN blocks. Ultrasound guidance offers several advantages, including real-time soft tissue visualization, radiation-free imaging, and feasibility in an office setting (4).

CASE PRESENTATION

A 43-year-old woman developed low back pain in August 2024. She initially described it as a dull ache in the right lumbar and buttock area and exacerbated by standing or walking for extended periods.

In March 2025, during childbirth, hip hyperflexion triggered acute pain radiating down her right posterior thigh. A trigger point injection provided about 80% relief. Four months later, the pain worsened again after riding a rollercoaster and lifting heavy furniture.

From: ¹Department of Anesthesiology, University of Wisconsin, Madison, WI; ²Department of Anesthesiology, University of Chicago, Chicago, IL; ³Department of Anesthesiology, Maimonides Medical Center, Brooklyn, NY

Corresponding Author: Alaa Abd-Elseyed, MD, E-mail: alaaawny@hotmail.com

Disclaimer: There was no external funding in the preparation of this manuscript.

Conflict of interest: Each author certifies that he or she, or a member of his or her immediate family, has no commercial association (i.e., consultancies, stock ownership, equity interest, patent/licensing arrangements, etc.) that might pose a conflict of interest in connection with the submitted manuscript.

Patient consent for publication: Consent obtained directly from patient(s).

This case report adheres to CARE Guidelines and the CARE Checklist has been provided to the journal editor.

Accepted: 2026-03-04, Published: 2026-05-31

Lumbar magnetic resonance imaging showed no nerve root compression or disc pathology. She did not have positive lumbar facet loading. Suspecting sacroiliac joint dysfunction, she underwent sacroiliac injections without benefit. Six weeks of structured physical therapy and 2 courses of extracorporeal shockwave therapy provided only short-lived improvement. A rheumatology evaluation ruled out inflammatory causes.

On examination, palpation over the posterior iliac crest reproduced her pain; Tinel sign was positive at the SCN exit point. A fluoroscopy-guided SCN block produced complete relief for several weeks. The recurrence of symptoms prompted an ultrasound-guided SCN block. With the patient prone, a high-frequency linear probe was positioned parallel to the iliac crest to visualize the thoracolumbar fascia (Fig. 1). Using an in-plane approach, a 25G needle was advanced to the fascial plane over the iliac crest. Then a local anesthetic, bupivacaine 0.25%, 1.5 mL, was injected. She had immediate and complete relief. She returned to full activities of daily living without limitation. Her Visual Analog Scale pain score went from 8 to one and had consistent pain relief at her 6-month follow-up.

DISCUSSION

SCNES may account for 1.6%–14% of cases of chronic low back pain (1), but it is frequently overlooked. The condition often mimics more familiar pathologies such as radiculopathy, sacroiliac joint dysfunction, or piriformis syndrome. Imaging like magnetic resonance imaging and computed tomography cannot directly visualize the SCN, leading to diagnostic delays and sometimes unnecessary interventions, including epidural steroid injections or spine surgery.

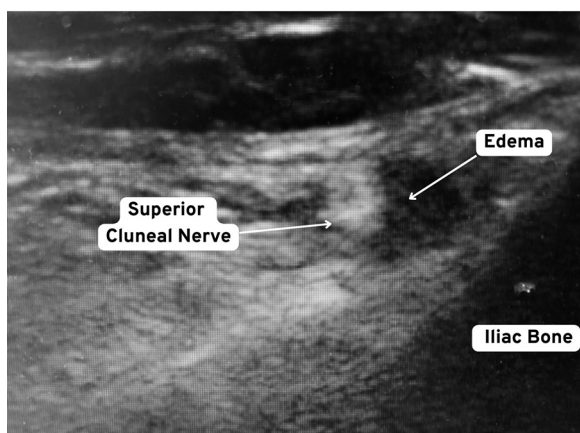


Fig. 1. Ultrasound view showing edema around the superior cluneal nerve.

About 85% of SCNs have at least one branch passing through the osteofibrous tunnel at the iliac crest (3), which predisposes them to compression from repetitive strain, trauma, or surgical scarring. Entrapment causes neuropathic pain localized over the iliac crest, radiating to the gluteal region and posterior thigh, but rarely beyond the knee—an essential distinction from lumbar radiculopathy. Pain reproduction with palpation and a positive Tinel-like sign can raise suspicion of SCN-related pain. Since our patient had no relief with sacroiliac joint injections and did not have lumbar facet arthropathy, it was essential to keep this Tinel sign test and the SCN entrapment in mind as a diagnosis.

A targeted anesthetic injection at the suspected entrapment site confirms the diagnosis. In our patient, fluoroscopy- and ultrasound-guided blocks provided complete relief, supporting our SCN diagnosis.

Fluoroscopy ensures accurate identification of bony landmarks but offers limited soft tissue detail and exposes patients to radiation. Ultrasound provides real-time imaging of bony and soft tissues, facilitates needle placement without radiation, and is well-suited for office-based procedures. Although the SCN is usually too small to be seen directly, targeting the fascial plane between the thoracolumbar fascia and iliac crest periosteum is often effective. The recommended technique includes a high-frequency linear probe (10 MHz–15 MHz), prone positioning, and probe placement parallel to the iliac crest, 5 cm–7 cm from the midline.

For recurrent symptoms, treatment options include repeat blocks, radiofrequency ablation (continuous or pulsed), peripheral nerve stimulation, or surgical decompression, which has a reported success rate of 70–90% in surgical series (5-7). Adjunctive measures, such as lumbopelvic stabilization exercises, activity modification, and neuropathic pain medications may help manage chronic cases.

CONCLUSION

SCNES is a treatable but underdiagnosed cause of chronic low back pain. In patients with unrevealing imaging, careful palpation of the posterior iliac crest, combined with diagnostic nerve blocks, can lead to effective treatment. Ultrasound-guided SCN blocks provide a safe and efficient alternative to fluoroscopy, offering greater portability and reduced radiation exposure.

REFERENCES

1. Maigne JY, Doursounian L. Entrapment neuropathy of the medial superior cluneal nerve: A cause of low and radicular back pain. *Pain Physician* 2022; 25:E503-E521.
2. Isu T, Kim K, Morimoto D, Iwamoto N. Superior and middle cluneal nerve entrapment as a cause of low back pain. *Neurospine* 2018; 15:25-32.
3. Bendtsen TF, Bjørn S, Nielsen TD. Key anatomical and clinical points about the superior cluneal nerves. *Interv Pain Med* 2024; 3:100445.
4. Lu J, Ebraheim NA, Huntoon M, Heck BE, Yeasting RA. Anatomic considerations of the superior cluneal nerve at the posterior iliac crest region. *Clin Orthop Relat Res* 1998; (347):224-228.
5. Abd-Elseyed A, Gyorfi MJ. Peripheral nerve stimulation for the treatment of superior cluneal neuralgia: A cadaver demonstration of a novel technique for lead placement. *J Pain Res* 2024; 17:1235-1241.
6. Visnjevac O, Pastrak M, Ma F, Visnjevac T, Abd-Elseyed A. Radio-frequency ablation of the superior cluneal nerve: A novel minimally invasive approach adopting recent anatomic and neurosurgical data. *Pain Ther* 2022; 11:655-665.
7. Abd-Elseyed A. Wireless peripheral nerve stimulation for treatment of peripheral neuralgias. *Neuromodulation* 2020; 23:827-830.

