

General

Cervical Epidural Steroid Injection for Cervical Radicular Pain in a Patient with Fractured Cervical Hardware

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Cervical radicular pain following anterior cervical discectomy and fusion (ACDF) is a challenging condition, particularly in the presence of hardware complications. This case report discusses the successful use of a cervical interlaminar steroid injection to alleviate radicular pain in a patient who presented with a fractured screw following C6/7 ACDF. The patient's symptoms, treatment plan, and outcome are reviewed, highlighting the success of an interlaminar steroid injection in managing radicular pain until the patient could receive corrective surgery.

INTRODUCTION

Anterior cervical discectomy and fusion (ACDF) is a common surgical procedure for treating cervical spondylosis, herniated discs, and cervical radiculopathy. While generally successful, ACDF can be associated with postoperative complications, including persistent or recurrent radicular pain. Hardware failure, such as fractured plates or screws, is a rare but significant complication that can exacerbate pain and complicate the management strategy.^{1,2} Cervical interlaminar steroid injections (CESI) are an established treatment for radicular pain, providing anti-inflammatory effects directly to the affected nerve roots.³ This case report presents the use of a CESI in a patient with radicular pain and fractured cervical hardware following C6/7 ACDF.

CASE PRESENTATION

A middle-aged female with a history of chronic neck pain and left-sided cervical radiculopathy underwent C6/7 ACDF approximately one year prior to presentation. The surgery initially alleviated her symptoms, but over time she developed recurrent neck and arm pain, described as sharp, shooting, and radiating down the left arm to the thumb and index finger. The pain worsened with neck movement and was accompanied by numbness and tingling in the same area. On examination, the patient exhibited limited cervical range of motion, particularly in extension and lateral rotation to her left. There was tenderness over the posterior neck muscles, but no signs of myelopathy. A positive Spurling's sign was noted.

A cervical spine X-ray revealed a fractured screw at the C6/7 level, which was further confirmed by a CT scan showing a hardware fracture without significant spinal cord compression. Due to social issues, the patient was unable to undergo corrective surgery immediately. She had not found

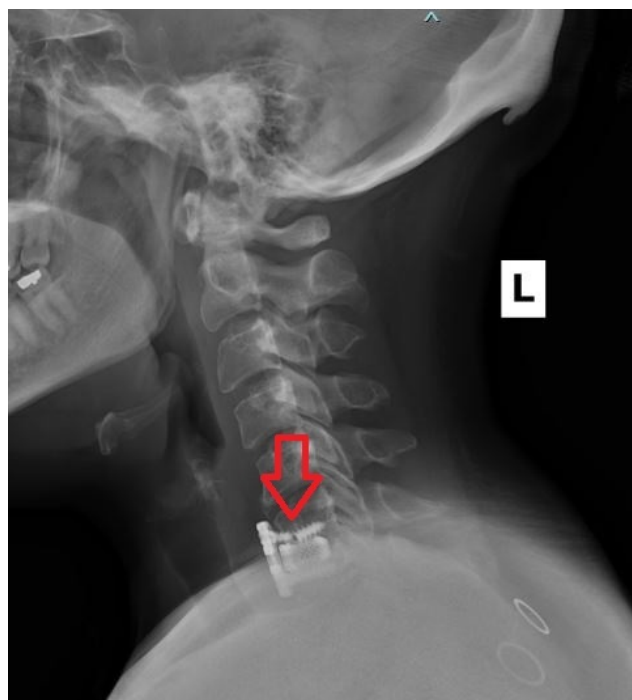


Figure 1. Lateral cervical spine X-rays showing fractured hardware

relief with acetaminophen, NSAIDs, or gabapentinoids and was using hydrocodone sparingly for severe pain episodes. Given failure of conservative therapy, the patient opted to proceed with a CESI to help temporize her pain complaints until corrective surgery could be performed.

Due to the persistence of radicular symptoms, the decision was made to proceed with a cervical interlaminar steroid injection. The injection aimed to reduce inflammation around the affected nerve roots, providing symptomatic relief. The patient was positioned prone on the

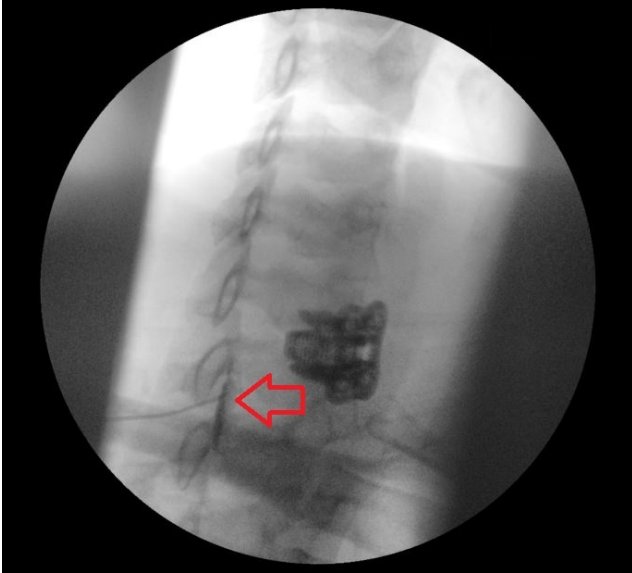


Figure 2. Contralateral oblique view demonstrating epidural access at C7/T1.

fluoroscopy table. After sterile preparation, the skin over the C7/T1 interlaminar space was anesthetized with 1% lidocaine. A 20-gauge Tuohy needle was advanced under fluoroscopic guidance to the epidural space. Contrast was injected to confirm proper needle placement within the epidural space. Next, a mixture of 1 mL of 0.25% bupivacaine 1 mL of preservative free normal saline and 2 mL of triamcinolone acetonide (40 mg/mL) was then injected slowly. The needle was withdrawn, and the patient was monitored for any immediate adverse effects.

The patient reported a significant reduction in pain within 48 hours of the injection. At a two-week follow-up, the patient continued to reported improvement in pain by 80% and increased function, with less dependence on oral analgesics. The patient plans to proceed with corrective surgery at a later date.

DISCUSSION

CESIs offer significant benefits for managing radicular pain, particularly in patients with cervical radiculopathy caused

by nerve root inflammation or compression. This minimally invasive procedure involves the delivery of corticosteroids directly into the epidural space, which surrounds the spinal cord and nerve roots. The primary benefit of CESIs lies in their ability to reduce inflammation around the nerve roots being irritated to provide relief. Another advantage of CESIs is their rapid onset of pain relief. Many patients experience significant symptom improvement within a few days following the injection. This quick response can be particularly beneficial for individuals who are unable to tolerate the severe pain or those who are seeking relief while considering or awaiting more definitive treatments, such as surgery. The procedure can be repeated if necessary, providing ongoing pain management. CESIs are also associated with a favorable safety profile when performed by skilled interventionalists. The risk of complications, such as dural puncture, infection, or nerve damage, is relatively low, especially when fluoroscopy is used to ensure accurate needle placement.⁴⁻⁷

This case highlights the utility of cervical interlaminar steroid injections in managing radicular pain, particularly in patients with complicating factors such as fractured cervical hardware post-ACDF. The patient had social issues making it impractical for her to have revision surgery at this time and was not getting adequate relief with oral analgesics. She was able to obtain significant pain relief with a CESI which improved her functionality and quality of life until she was able to proceed with corrective surgery.

CONCLUSION

This case report illustrates the successful use of a cervical interlaminar steroid injection in managing radicular pain in a patient with fractured cervical hardware following C6/7 ACDF. The injection provided significant symptomatic relief, allowing the patient to avoid immediate surgical intervention. Cervical interlaminar steroid injections may be considered as a part of the multimodal management strategy for radicular pain in patients with postoperative complications such as hardware fracture who are unable to proceed with corrective surgery immediately.

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