

Benefit of Trendelenburg Positioning to Facilitate Cephalic Spread of Caudal Epidural Steroid Injection

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INTRODUCTION

- Epidural Steroid Injections (ESI) can be administered through caudal, interlaminar, and transformational approaches, with all 3 having very similar efficacy of outcomes.
- Caudal approach is preferred in patients with prior lumbar surgeries and has been shown to be effective for lower lumbar pathologies [1,2].
- Trendelenburg positioning may allow for more effective spread of injectate [3] and is more often used in anesthesia procedure.
- Here, we present a case that highlights how Trendelenburg positioning can promote cephalic spread of medication when using the caudal approach to ESI in a patient with upper lumbar pathologies.

CASE PRESENTATION

76 year old male with history of L1-L5 laminectomy and foraminotomy, L4-L5 microdiscectomy, and chronic left foot drop presented with progressively worsening lower back pain for 1 year associated with claudication-like pain down bilateral LE that correlated with a mixed etiology of spinal and foraminal stenosis.

- Notable findings up to L1 on MRI.
- Symptoms were consistent with failed back syndrome. Previously tried conservative management with meds and therapy.
- Prior transforaminal and caudal ESI performed a year ago provided no relief of symptoms.
- Review of notes and prior fluoroscopic images revealed suboptimal spread of contrast in the caudal injection.
- Decision was made to repeat caudal ESI.

FIGURES



Figure 1. Fluoroscopic imaging of prior caudal ESI performed with suboptimal spread

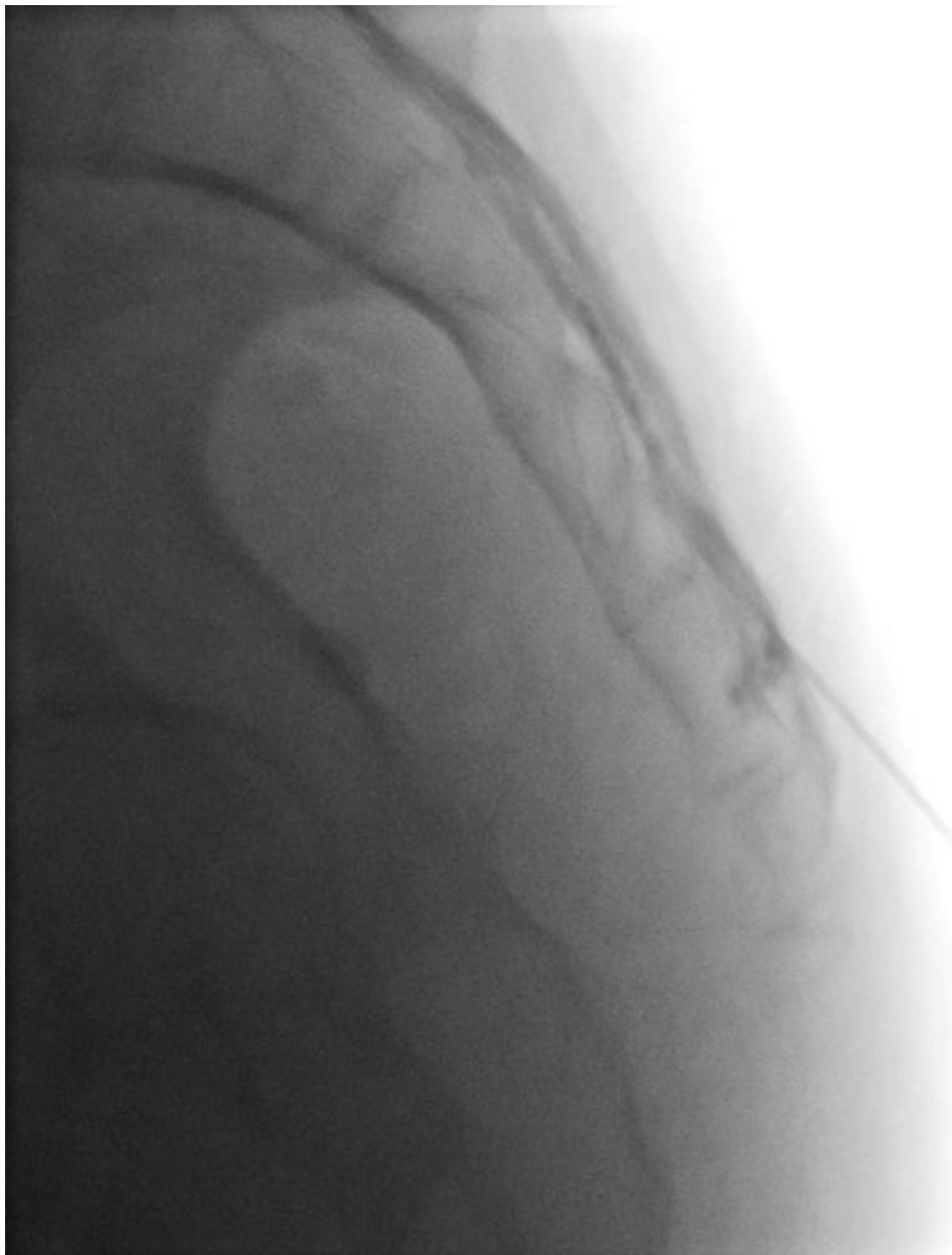


Figure 2. Fluoroscopic imaging of repeat caudal ESI performed using postural techniques of Trendelenburg and reduction of lordosis with improved spread



Figure 3. Wedge-shaped cushion used to reduce lordosis and improve angle of entry for caudal approach

RESULTS

- Repeat caudal ESI was performed using a wedge-shaped pillow under the pelvis to reduce lumbar lordosis and Trendelenburg positioning.
- Repeat fluoroscopic imaging in this procedure demonstrated enhanced spread, and the patient reported improved symptoms and functionality on 1 month follow up.

DISCUSSION

- For this patient who had pathologies up to L1, with a previously failed ESI, symptomatic relief was achieved with a repeat caudal ESI using postural techniques with Trendelenburg positioning and reduction of lumbar lordosis.
- To date, only 1 study has examined the effects of Trendelenburg positioning on the efficacy of ESI.
- A randomized-control study was done on patients undergoing epidural anesthesia for C-sections, which demonstrated the use of Trendelenburg positioning can lead to a significant effect on the spread and faster onset of anesthesia [3].
- A study on caudal ESI has shown a 30-degree head tilt in Trendelenburg positioning resulted in higher level of cephalic drug spread [4].

CONCLUSIONS

- Postural techniques, specifically Trendelenburg positioning, can be an effective tool to improve medication delivery and spread. It can be used to improve the cephalic spread of caudal ESI for enhanced efficacy at higher spinal levels.

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