Navigating the Stenotic Foramen:

Infraneural Approach with Kambin’s Triangle as a Salvage Technique After Failed Supraneural Access in TFESI

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Case report

A 76-year-old male with history of prior L2-L5 decompressive laminectomy, lumbar spondylosis, multilevel disc degeneration and neuroforaminal stenosis, and moderate facet arthrosis presented with worsening chronic low back pain after failure of conservative management with medications and physical therapy.

Procedure

He underwent bilateral L3-L4 and L4-L5 transforaminal epidural steroid injections.

Technical challenge

This case presented technical challenges as the patient had advanced degenerative disease and the supraneural approach to the neural foramen was obstructed by prominent osteophytes, limiting safe needle trajectory and access to the epidural space.

Repeated osseous contact and severe foraminal narrowing made conventional safe-triangle positioning difficult under fluoroscopic guidance.

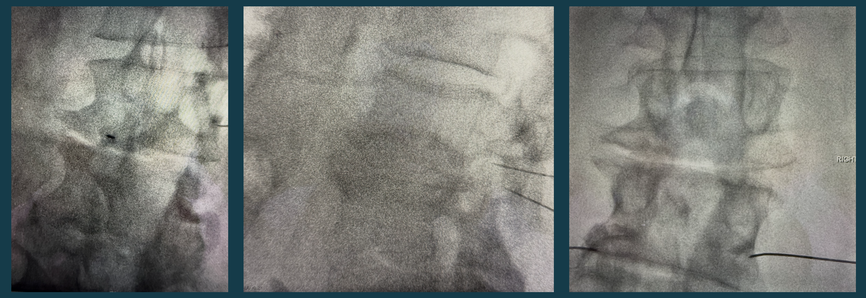
Salvage approach

As a result, an infraneural approach was utilized to access the epidural space while avoiding the obstructing osteophytic anatomy and minimizing additional needle manipulation.

CLINICAL TAKEAWAY

When osteophytes obstruct supraneural access, an infraneural trajectory may provide an alternative route to the epidural space

Procedural adaptability can overcome access barriers in complex degenerative anatomy.



A B C

Fluoroscopic images showing supraneural and infraneural needle positioning during lumbar transforaminal epidural steroid injection.

Discussion

In certain cases, standard supraneural transforaminal epidural steroid injection (TFESI) access may be technically limited by severe foraminal narrowing, hypertrophic facet arthropathy, or osteophyte formation obstructing the conventional safe-triangle trajectory.

In this case, an infraneural approach was successfully utilized as a salvage technique after osteophytic obstruction prevented adequate supraneural needle advancement.

By targeting the inferior aspect of the neural foramen near the superior endplate of the caudal vertebral body, the infraneural approach allowed safe epidural access while avoiding repeated osseous contact and excessive needle manipulation.

The infraneural technique has been described as an alternative TFESI approach that may reduce proximity to the radiculomedullary arterial supply while also providing improved access in anatomically distorted foramina.[1]

In patients with degenerative spondylosis and foraminal osteophytes, this approach may offer a practical technical advantage when conventional supraneural access is not feasible.[1]

Recognition of alternative fluoroscopic trajectories is important in complex spine anatomy, particularly in older patients with advanced degenerative disease where standard approaches may be limited.

Reference

1. Park JW, Nam HS, Cho SK, Jung HJ, Lee BJ, Park Y. Kambin’s triangle approach of lumbar transforaminal epidural injection with spinal stenosis. Ann Rehabil Med. 2011;35(6):833-843. doi:10.5535/arm.2011.35.6.833.