



Department of Radiology
UNIVERSITY OF WISCONSIN
SCHOOL OF MEDICINE AND PUBLIC HEALTH

Musculoskeletal Imaging and Intervention Section Procedures
Intra-articular Lumbar Facet Joint Corticosteroid Injection

INDICATIONS

- Clinical diagnosis/'facet syndrome' – localized tenderness, pain with hyper-extension
- Diagnostic injection

RISKS

- Bleeding
- Infection
- Pain
- Transient Paralysis

MODALITY

- Fluoroscopy

PRE-PROCEDURAL WORKUP

- AP & lateral views of the spine (cross-sectional imaging preferred)
- Informed consent

MATERIALS

- Alcohol, betadine, sterile drape
- 10 mL syringes for skin anesthetic and steroid/anesthetic mixture
- 5 mL syringe for Omnipaque 300 (5 mL)
- 1% lidocaine (for skin numbing); buffered with 8.4% sodium bicarbonate
- 1 mL triamcinolone acetonide (Kenalog 40 mg/mL)
- Ropivacaine HCL 0.5% (Naropin 5 mg/mL)
- 30G 0.5", 22G 1.5" & 3.5" (or 5" vs. 6") needles

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TECHNIQUE

1. Position the patient prone with a pillow beneath the abdomen to straighten the spine.
2. Toggle an AP view to profile the intervertebral disc at the appropriate level.
3. Standard approach:
 - a. Using pre-procedural cross-sectional imaging, determine the best angle of entry to the cranio-caudal midpoint of the facet joint. As the tube is rolled ipsilaterally from your AP view, the posterior portion of the joint will be the first to be visualized. The target is the mid-upper half of the joint. The needle tip should be aimed towards the medial aspect of the joint space (Fig. 1 & 5).
 - b. The tube can be obliqued 5-10° back towards midline to ease access to the medial border of the joint if considerable degenerative changes are present (Fig. 3). The medial border represents the inferior articular process, which usually demonstrates less bony overgrowth compared to the superior articular process (Fig. 2).
4. Alternative 'inferior recess' approach:
 - a. This approach can be used in the setting of significant degenerative change affecting the facet joint, which usually more so affects the superior articular process.
 - b. Oblique the tube ipsilaterally until the Scottie Dog view is reached. Aim for the most inferomedial aspect of the facet joint (foot of Scottie Dog).
5. The lateral view is useful to visualize needle tip depth (Fig. 4 & 9).
 - a. In the standard approach, the needle tip should be posterior to the joint silhouette.
 - b. The needle tip will be more ventral and closer to the level of the joint silhouette as you target a more cranial aspect of the joint towards the superior recess.
6. Cephalad tilt may be useful for the trajectory view when targeting at the L5-S1 level, as the iliac crest may superimpose over the joint.
7. A peri-facet injection can be performed if it is not possible to achieve an intra-articular injection.
8. With either approach, you should feel the needle 'fall' into joint when in proper positioning. Inject a drop of Omnipaque 300 to confirm intra-articular placement. Save the image. A 1 mL medallion syringe could be useful for this initial injection. Proper flow will fill the joint space or distend the inferior articular process (Fig. 6-8 & 10-11).
9. After confirmation, inject 1-2 mL of the steroid/anesthetic mixture (1 ml Kenalog & 1 mL ropivacaine).

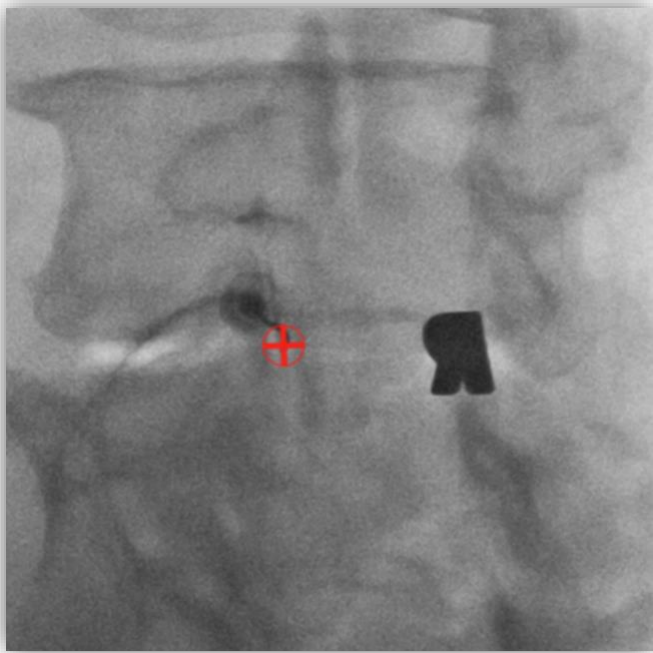


Fig 1. Fluoroscopic trajectory view with the needle in position at the right L4-5 facet joint.

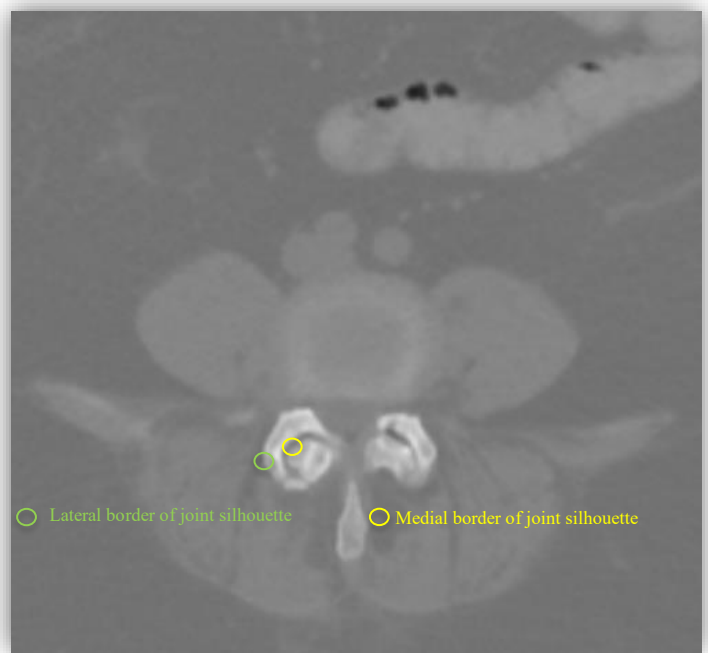


Fig 2. Axial CT image of the L4-L5 facet joints with significant degenerative change. The lateral border of the joint corresponds to the superior articular process. If the needle is directed towards the lateral border, the needle is less likely enter the joint space.

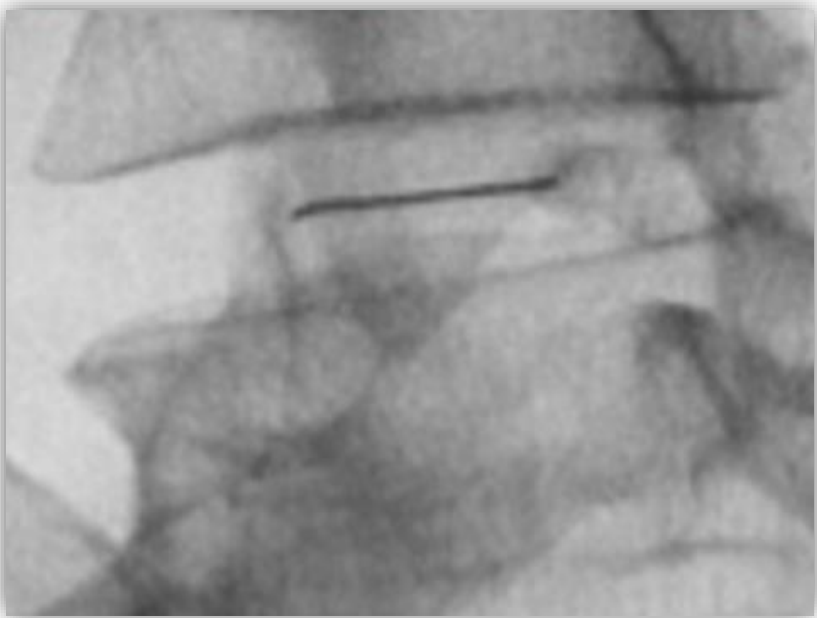


Fig 3. Oblique fluoroscopic view with ideal needle position within the facet joint. Note the medial-to-lateral needle orientation that results from using a less oblique trajectory.



Fig 4. Lateral fluoroscopic view with ideal needle position within the L4-5 facet joint.

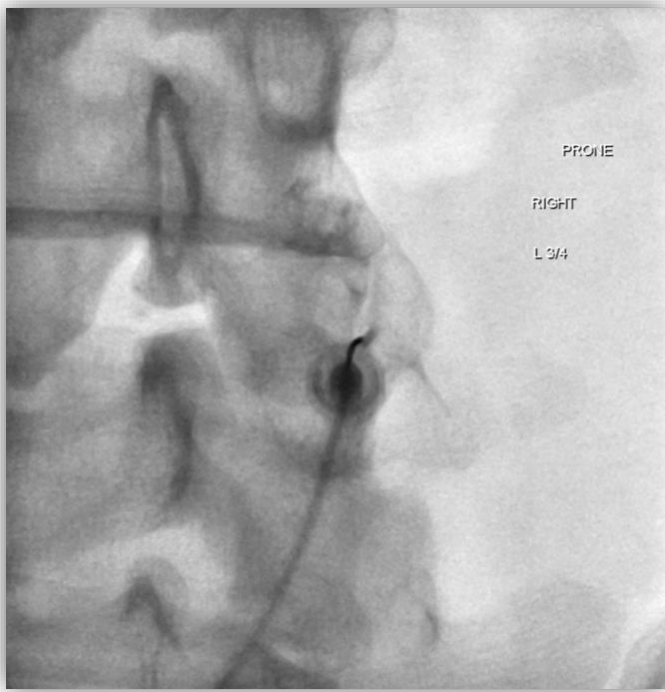


Fig 5. AP view demonstrating ideal needle tip position within the right L3-4 facet joint space.

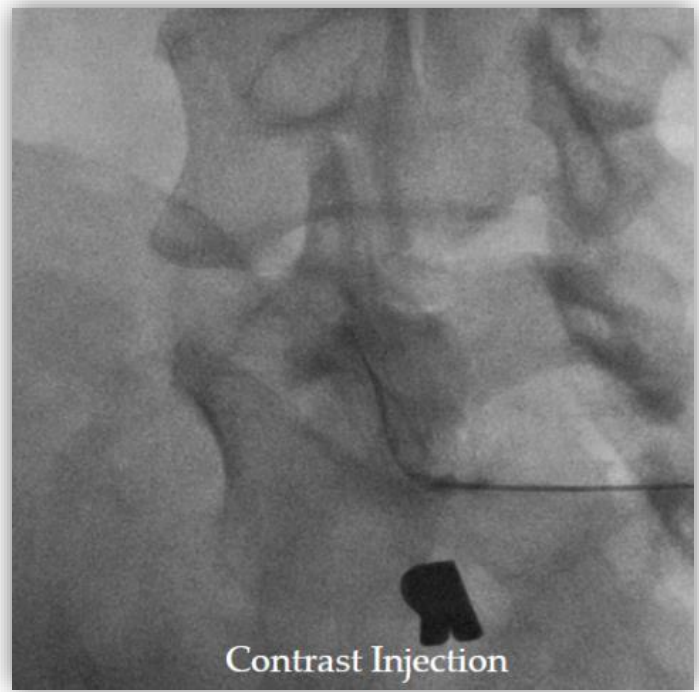


Fig 6. Oblique view of a right L4-5 inferior recess facet joint injection with contrast. The hub is retracted out of the field of view.

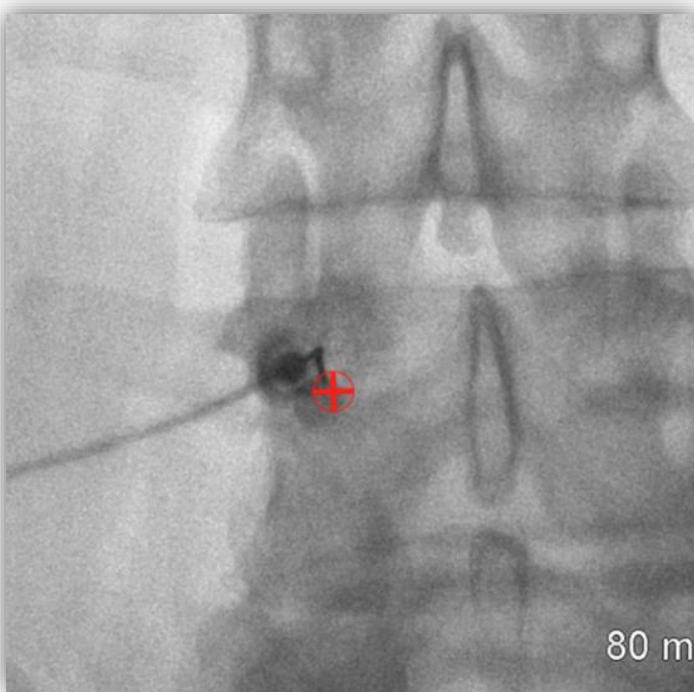


Fig 7. AP view of a left L4-5 facet injection with access via the inferior recess, prior to contrast injection.

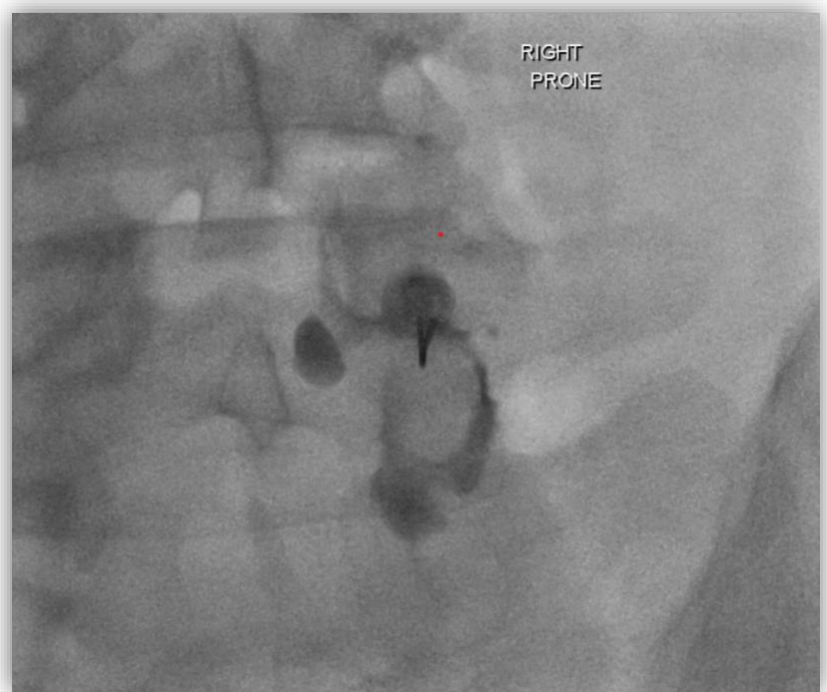


Fig 8. AP view of a right L4-5 facet injection with intra-articular contrast.

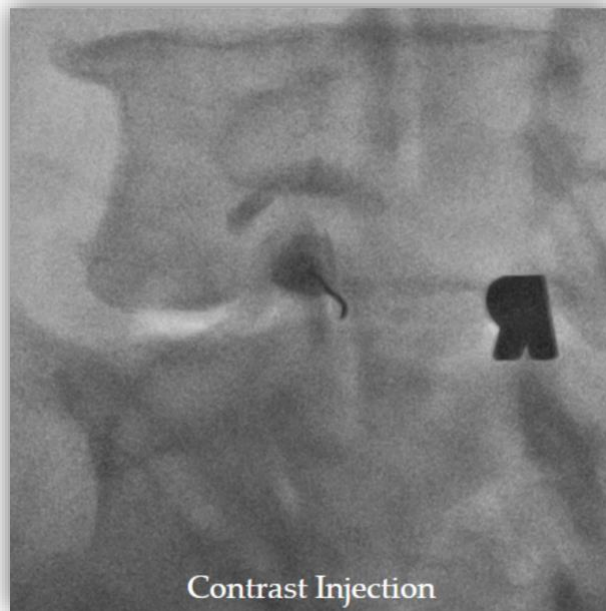
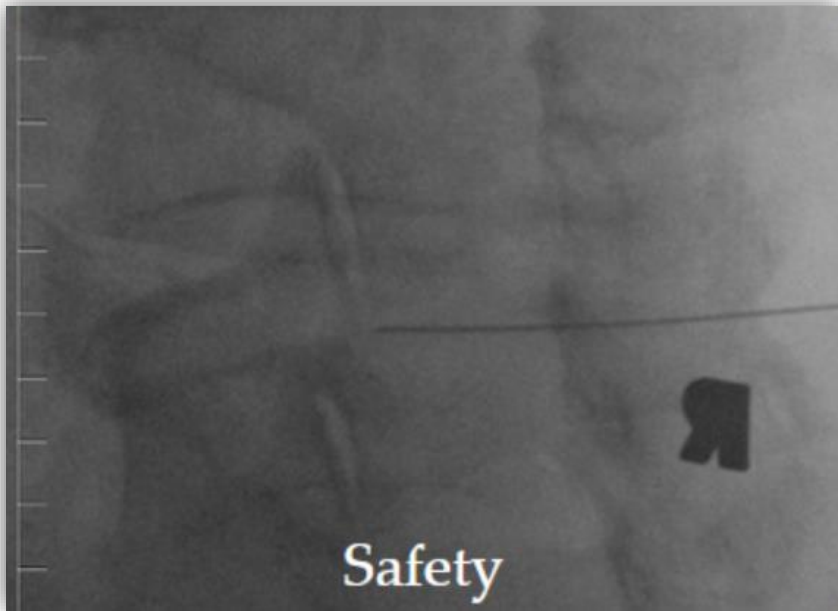


Fig 9. Lateral safety view of a right L4-5 facet injection via the inferior recess technique.

Fig 10. Trajectory view of a right L4-5 facet injection with contrast outlining the superior recess.



Fig 11. Lateral view of an L4-5 facet injection demonstrating intra-articular contrast.

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