Cervical Myelography: Why, when and how.

Authors

Devang Butani MD, Cynthia Zink RPA-C,

Ajay Malhotra MD, PL Westesson MD, DDS, PhD.

Division of Diagnostic and Interventional Neuroradiology.

UNIVERSITY OF ROCHESTER MEDICAL CENTER.

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Indications for Cervical Myelography.

- Contraindication to MR.
- Equivocal MR finding.
- Dynamic or multipositional evaluation.

Roadblocks to Myelography.

- Contrast allergy-use Prednisone and Benadryl.
- Hold medications that lower the seizure threshold 48 hours prior to procedure.
- Coumadin-hold 5 days. Lovenox-Hold 24 hours prior to procedure.
- Uncooperative patient–education.
- Plavix and ASA are OK.

Informed consent and patient education.

- Most common complication-“post-puncture” headache. Smaller needles reduce incidence. Rest for 72 hours after procedure, slow progression to full activity.
- Risk of contrast allergy.
- Risk of seizure.
- Risk of cord injury; ensure patient cooperation.
- Nausea, vomiting, meningitis, musculoskeletal pain, bleeding, risk of infection, temporary or permanent pain or weakness secondary to nerve damage.

Patient preparation.

- Increased fluids 24 hours prior.
- Light meal 2 hours prior.
- Crackers prior to oral morphine to minimize gastric irritation.
- Hold seizure threshold meds 48 hrs, take usual meds, especially pain meds.
- Arrange light duty for 72 hrs post procedure to minimize headache.

Sedation.

- Versed 6mg PO.
- Morphine Sulfate 10mg PO. May substitute Demerol 50-75mg if severe pain or morphine contraindicated.
- Toradol 30-60mg IM post procedure for headache, prn.

Our Imaging Suite.

Equipment.

1% Buffered lidocaine
Omnipaque 300

25 g Whitacre needle
Two 10 cc syringes

Positioning for needle placement.

- Left lateral decubitus position.
- Shoulders aligned and head on stack of folded pillow cases.
- Under fluoro, superimpose jaws.

Relevant anatomy.

- Access should be attempted only at the posterior 1/3rd of the canal at C1-C2.
- Localize this area using fluoroscopy and anesthetize the overlying area.

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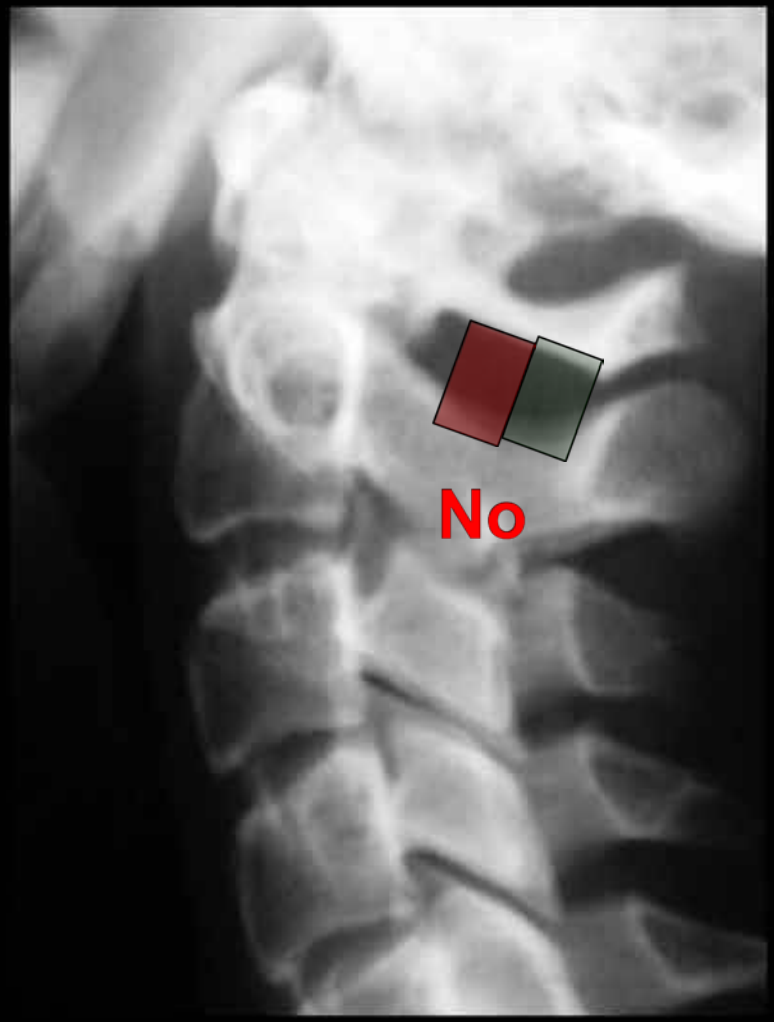

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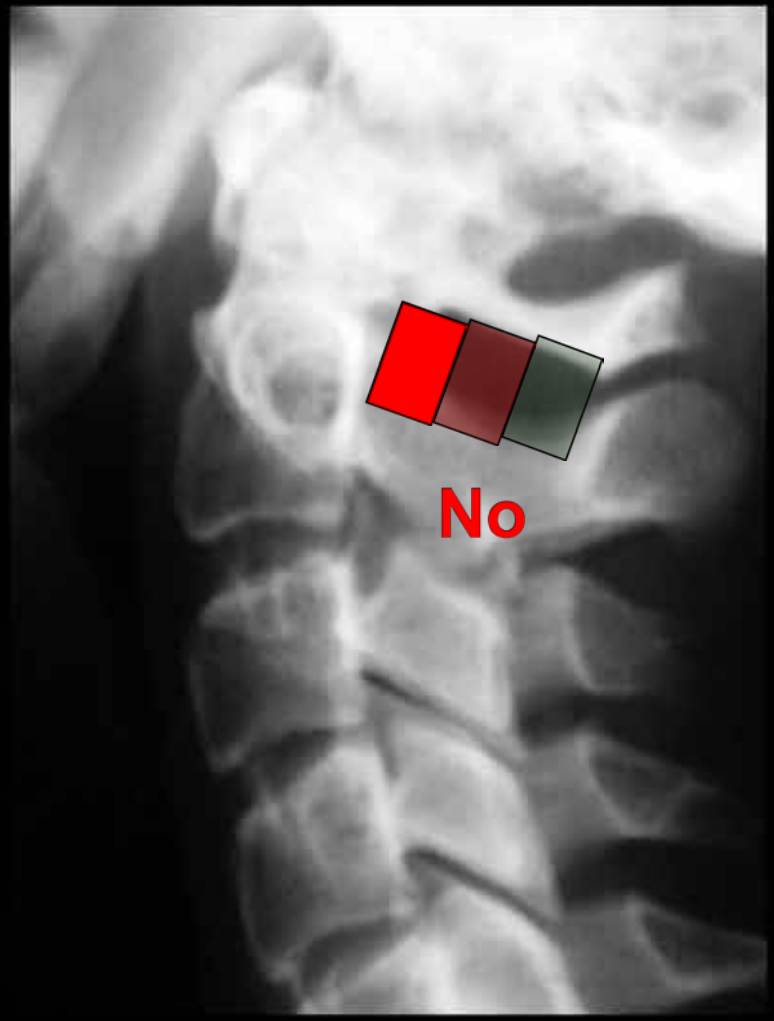

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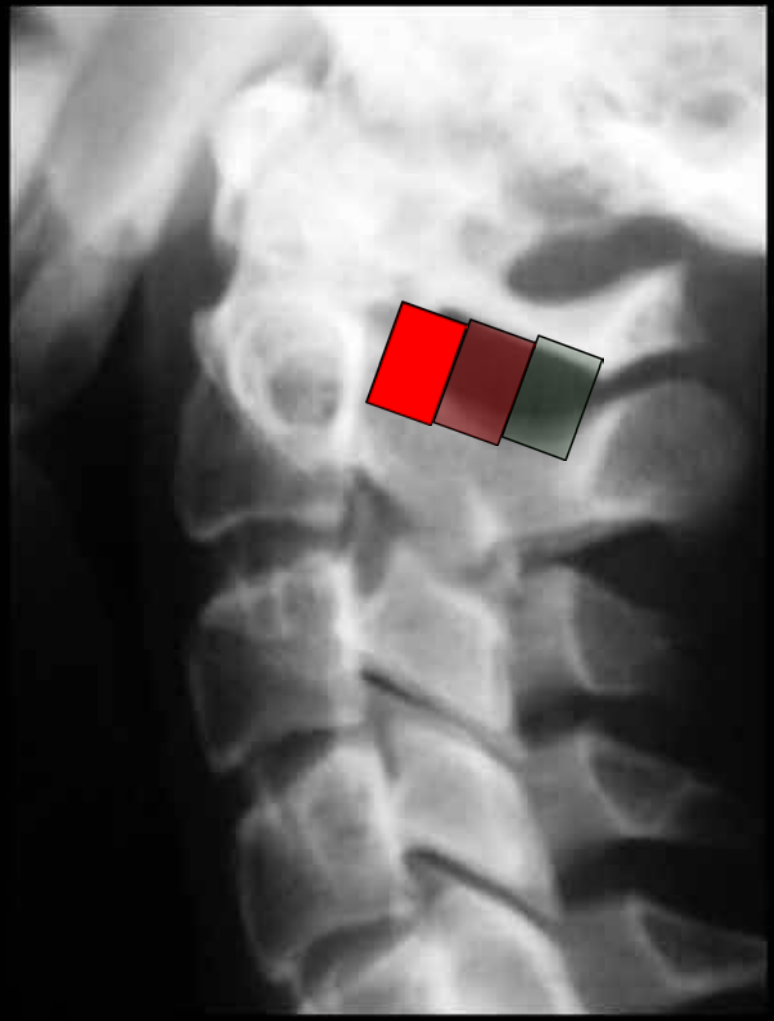
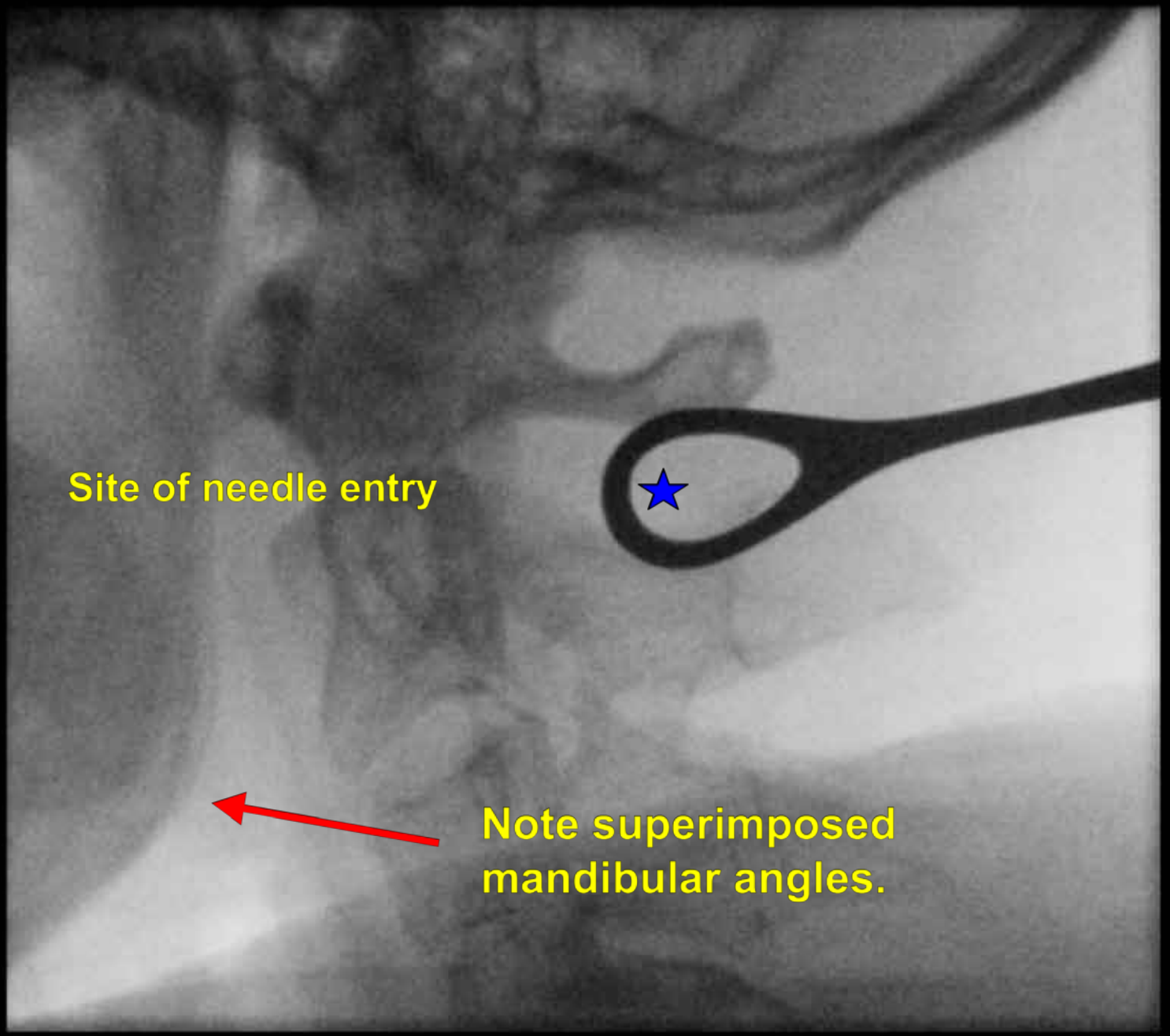
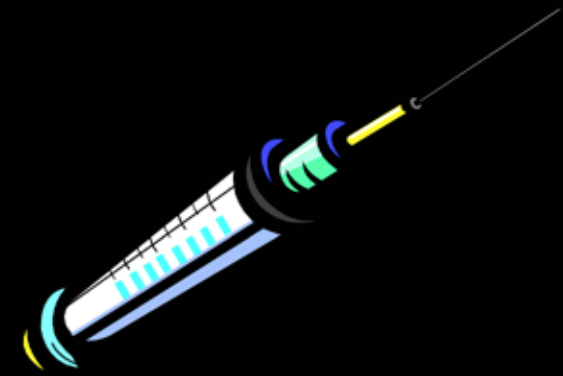


Marking the patient under fluoroscopy.



After site selection.

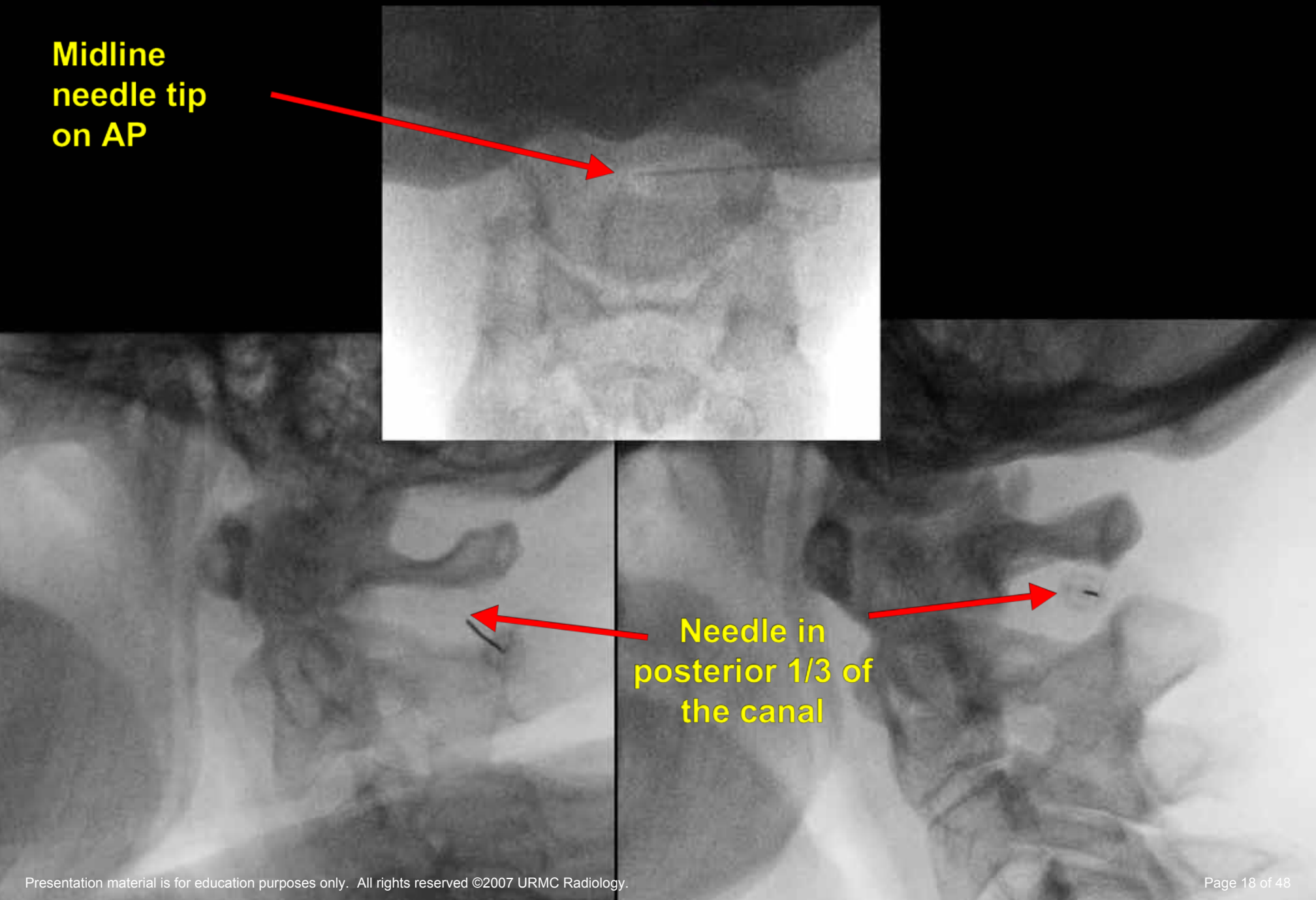
1. Advance needle under fluoroscopy until sub-arachnoid space is accessed (past the dural resistance).



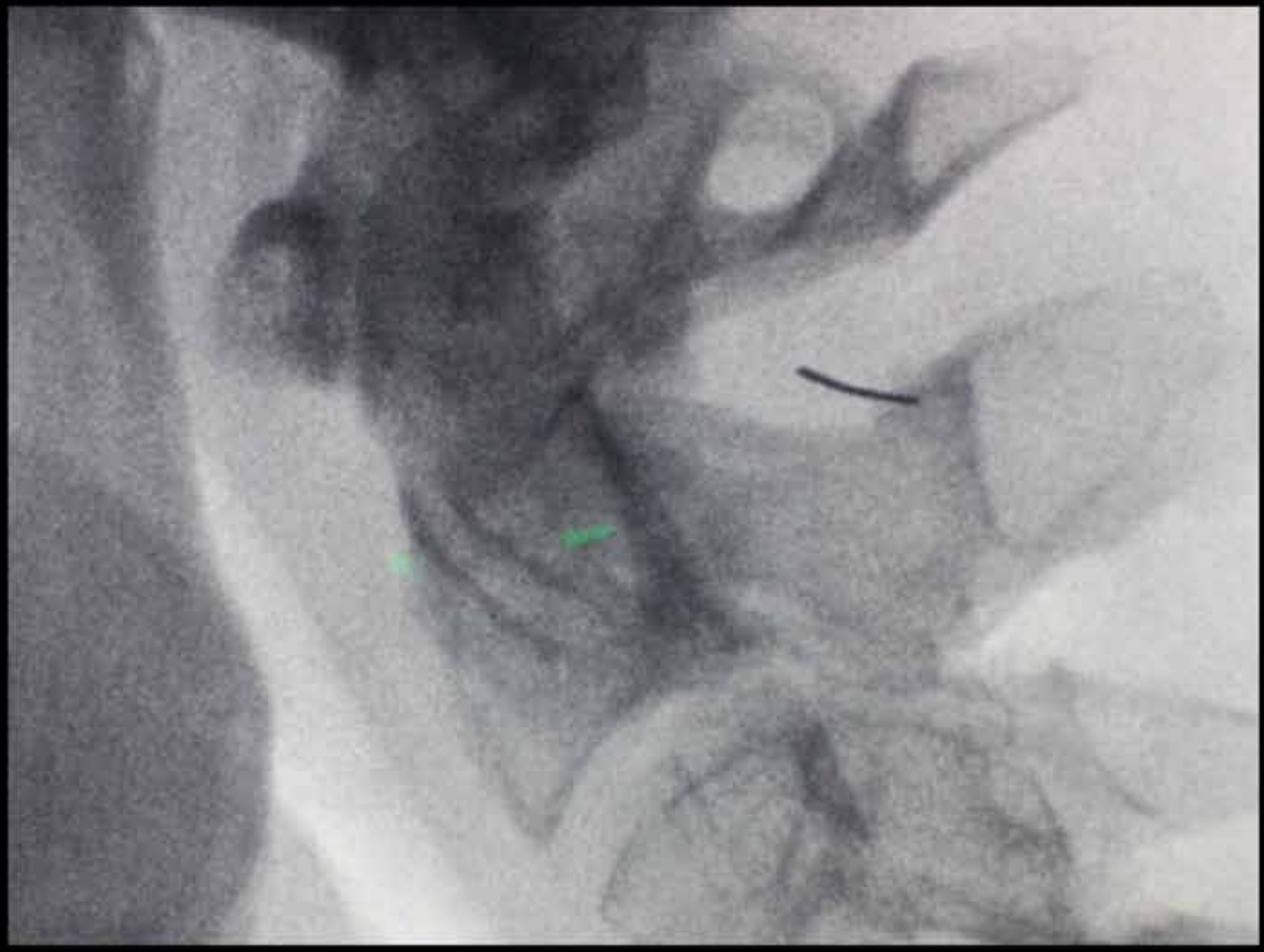
2. Confirm free-flowing CSF.

3. Inject contrast and image.

Correct needle placement.



Incorrect needle positioning.



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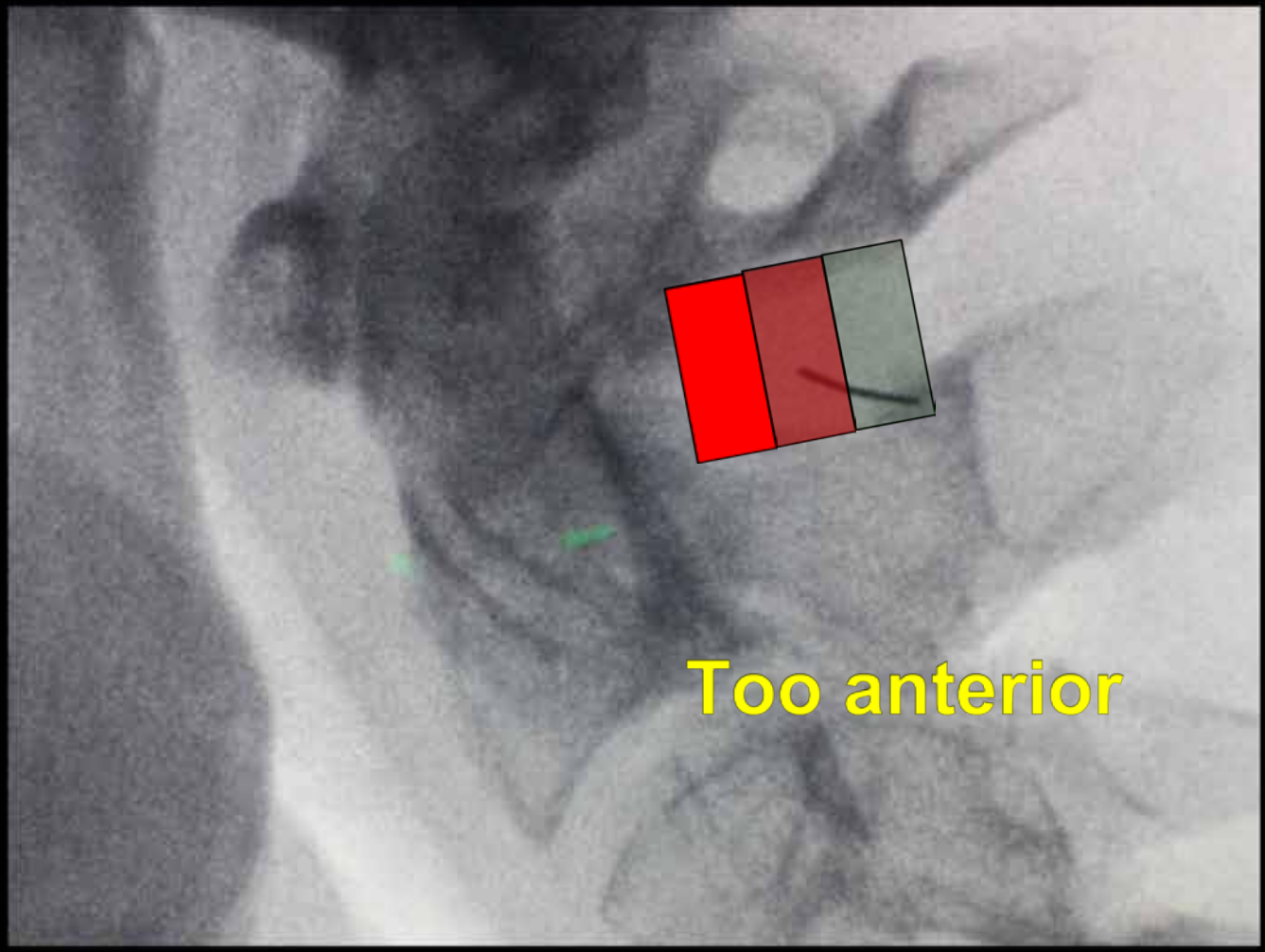

Before contrast injection.

- Visualization of CSF must be free flowing in lateral & prone position.
- Needle should be midline in AP projection.
- **DO NOT INJECT IF:**

***Needle is not midline on AP projection. *CSF is not free flowing.**

Before contrast injection.

Cord contrast injection, not needle placement in the cord, is the mechanism for severe complications.

- Visualization of CSF must be free flowing in lateral & prone position.
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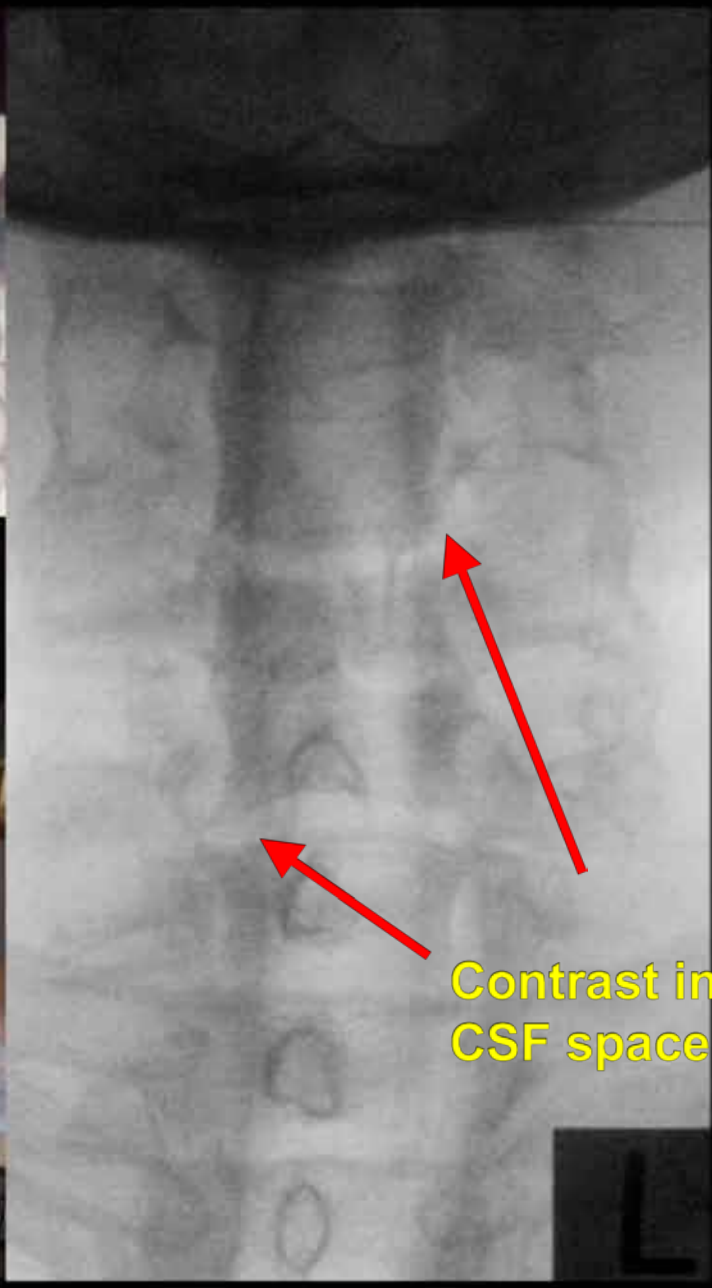
CSF Flow.

Contrast injection.



Imaging protocol.

AP

Left and Right Oblique 45 deg.

Lateral / Swimmers

CT –axial, w/ reformats

AP

Obliques

45 degrees

Lateral View

Lateral View

Post-procedure protocol.

- Rest in recliner chair or bed.
- Avoid heavy lifting, bending or stretching for 72 hours.
- Someone to monitor patient for 24 hours.
- Increase fluids.
- Monitor access site for signs of infection.
- NSAIDS for headache.

Managing complications.

- Most common-neck spasm from positioning; immediate warm compresses and Toradol.
- Increased need for narcotics due to cervical pathology.
- Nausea and vomiting-symptomatic management, IV hydration.

Managing complications. Post-procedure headache.

- More frequent with lumbar puncture and Trendelenberg postion.
- Migraine-medication.
- Inflammatory-NSAIDS,+/- warm compress.

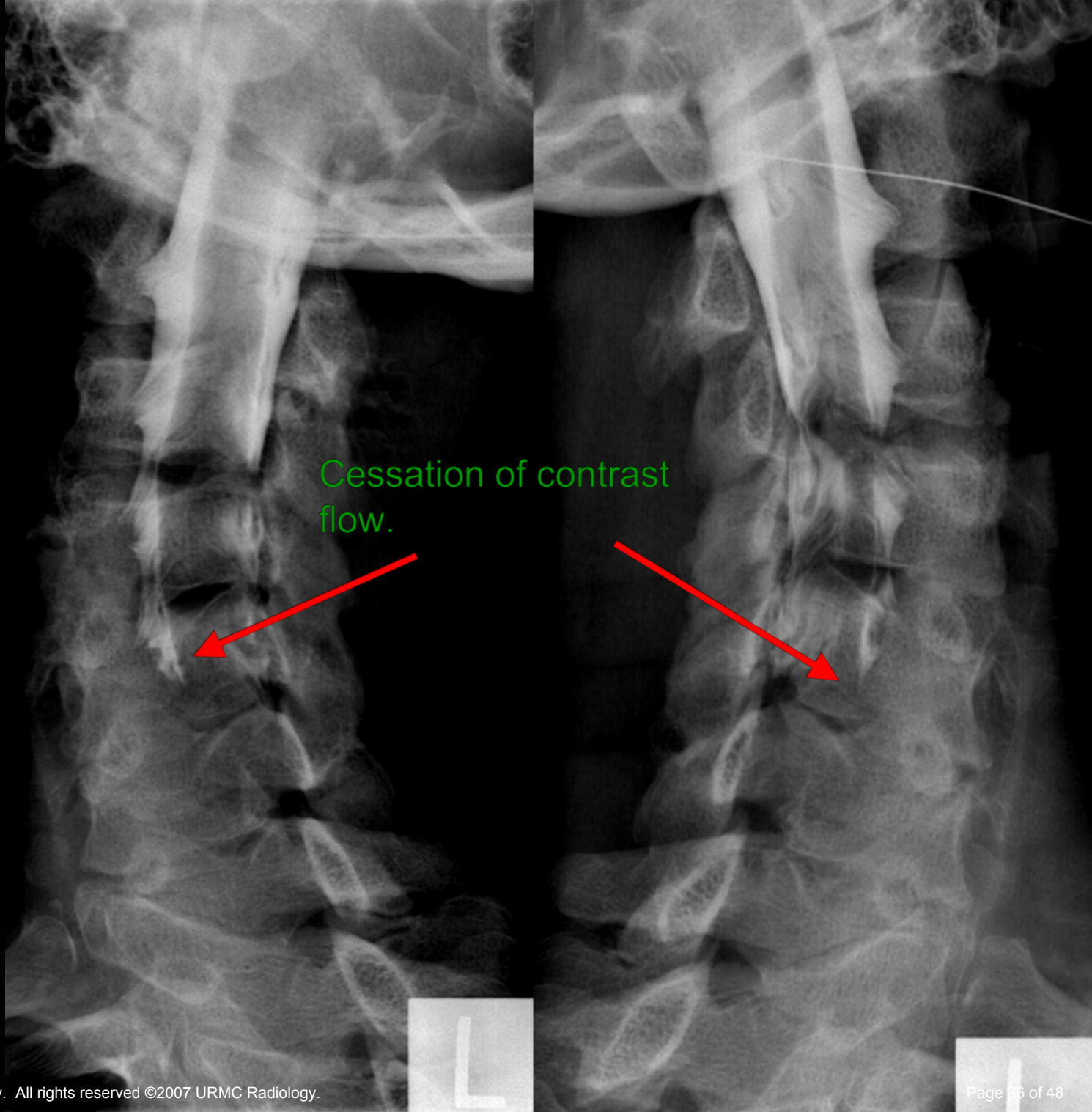
Interesting case.

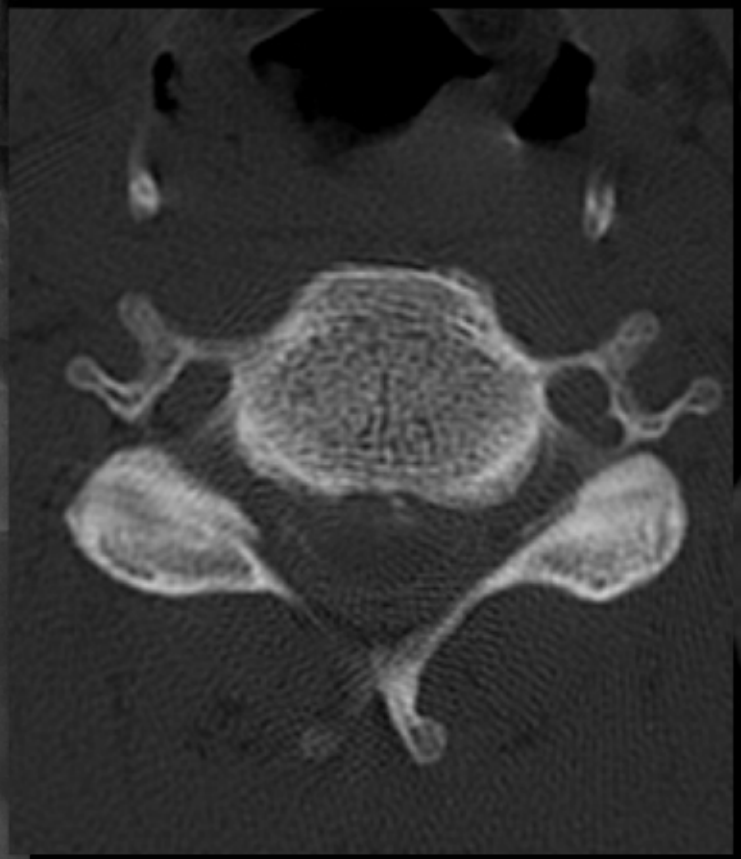
Interesting case.

Myelographic block.

Cessation of contrast flow.

Myelographic block.





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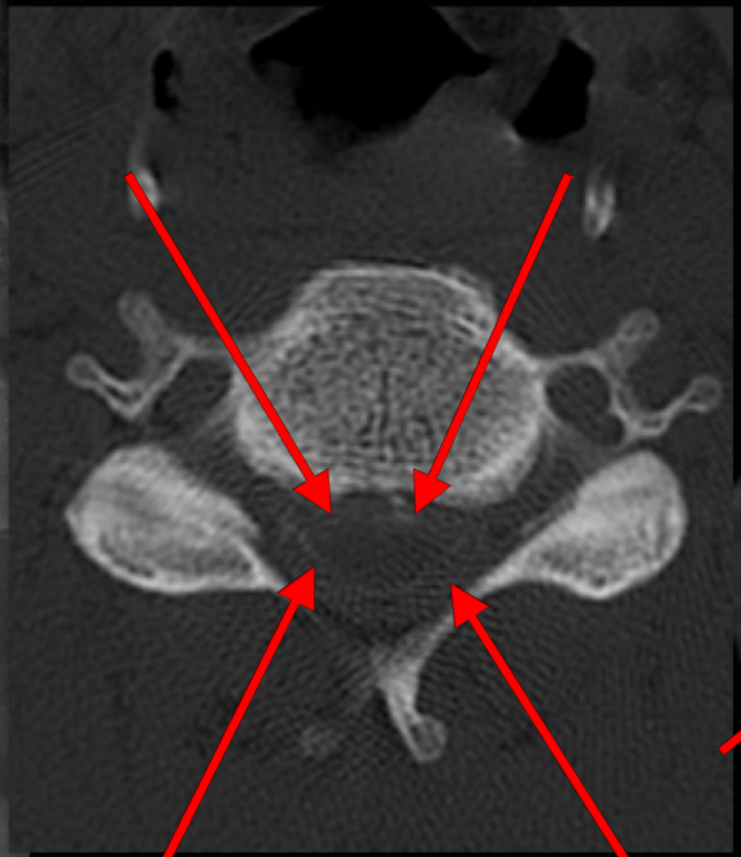

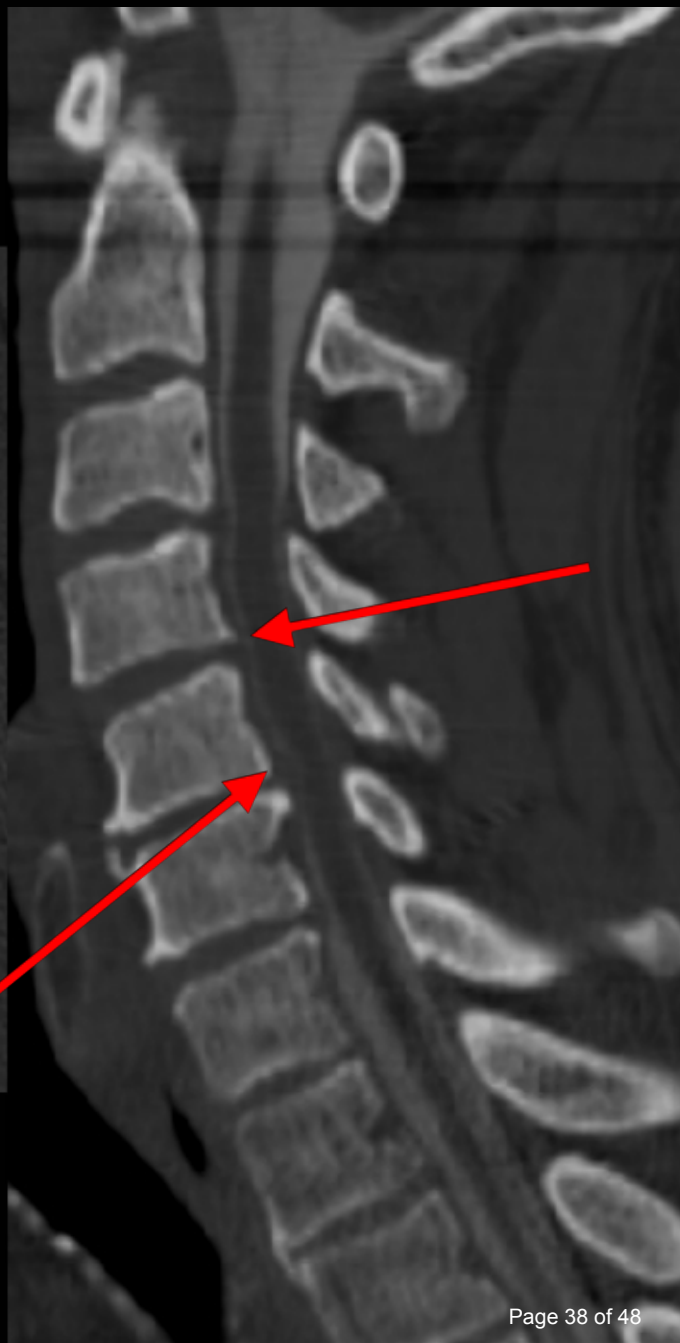

Cessation of contrast flow.

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Truncation of nerve sheath.

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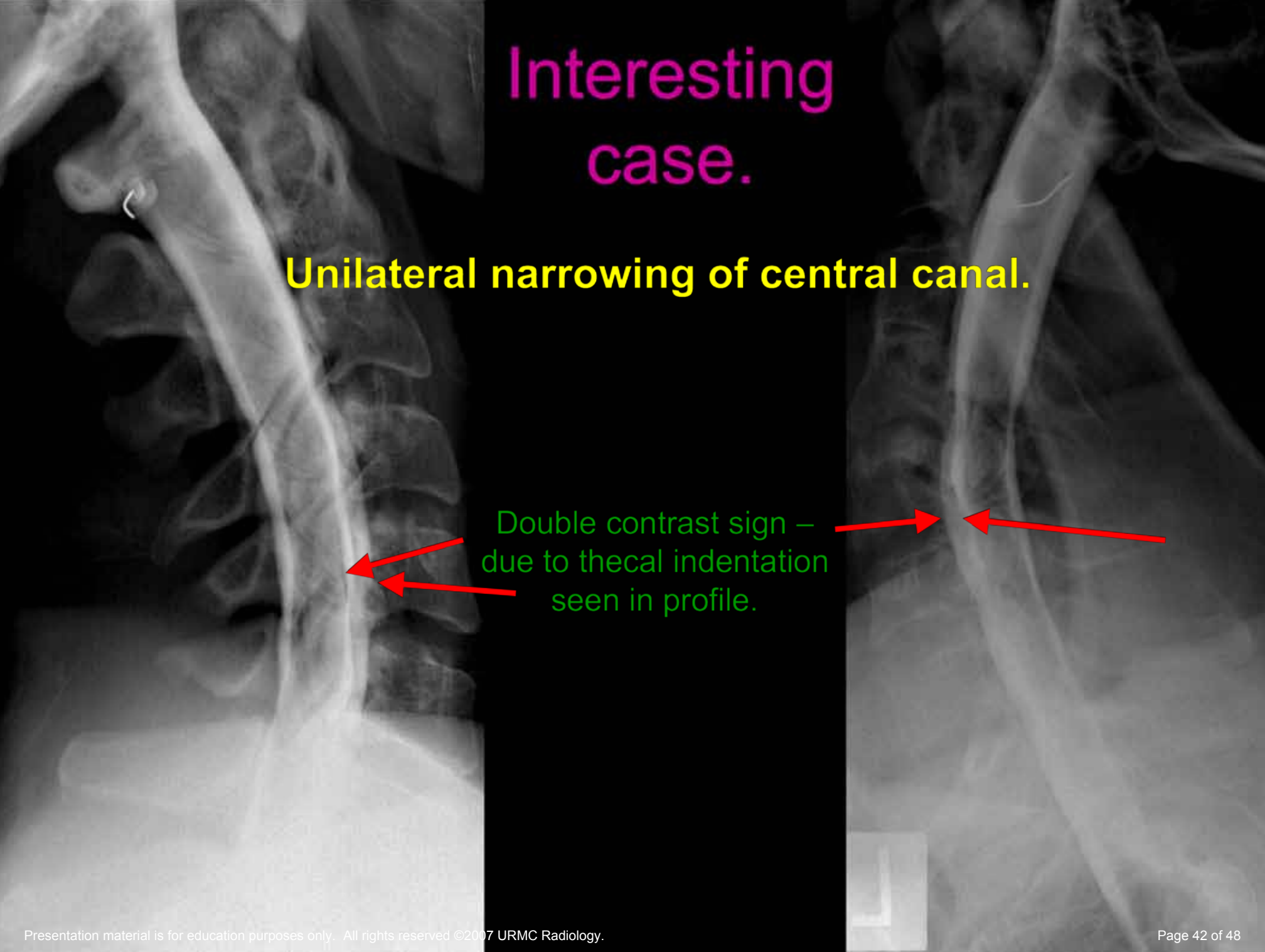
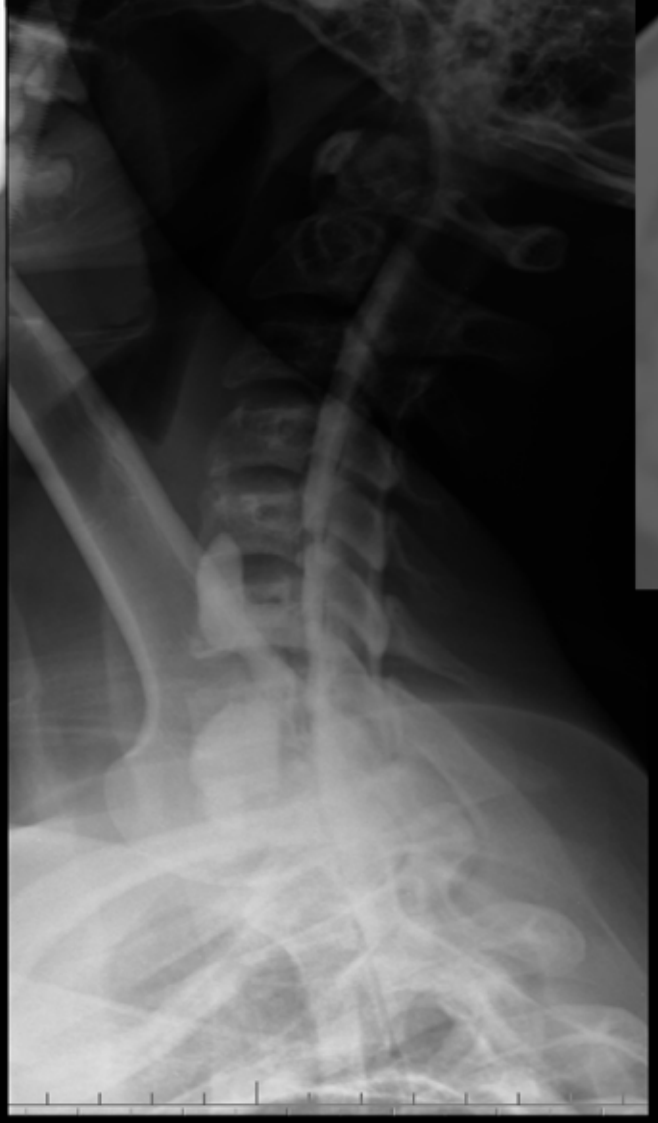
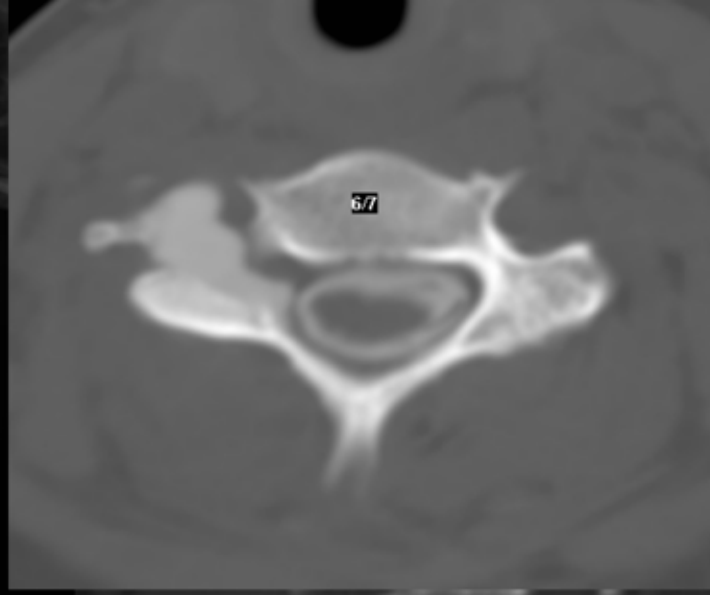
Unilateral narrowing of central canal.







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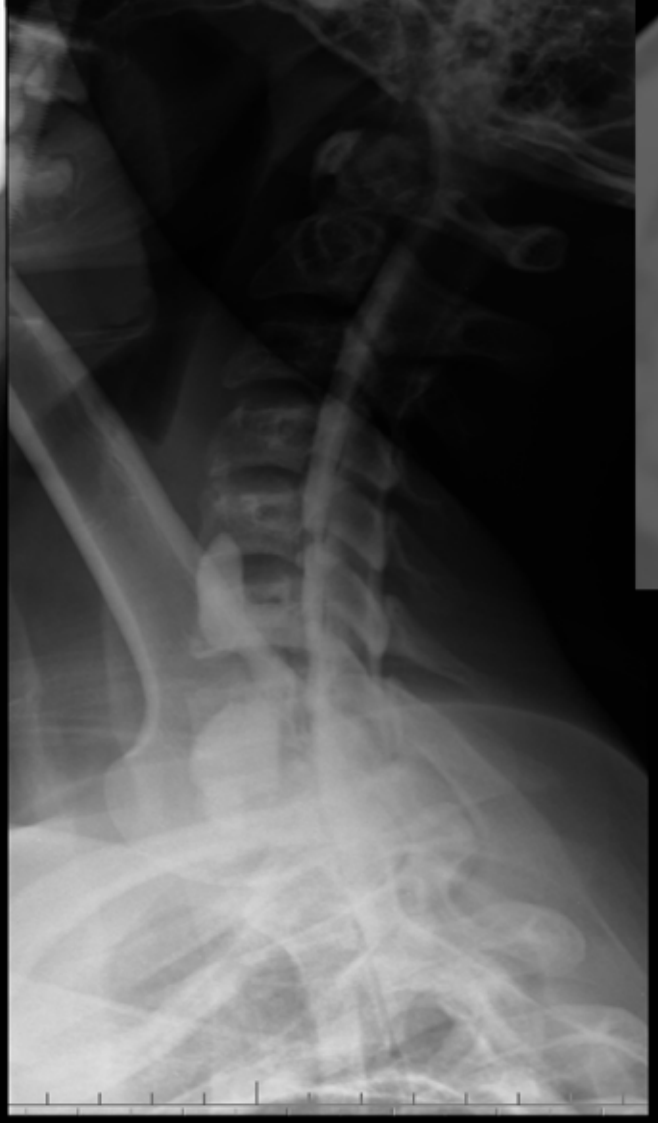

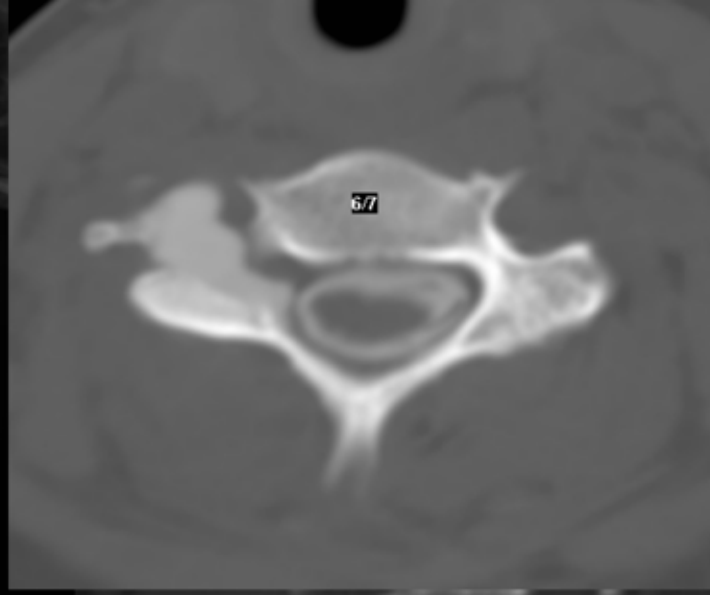

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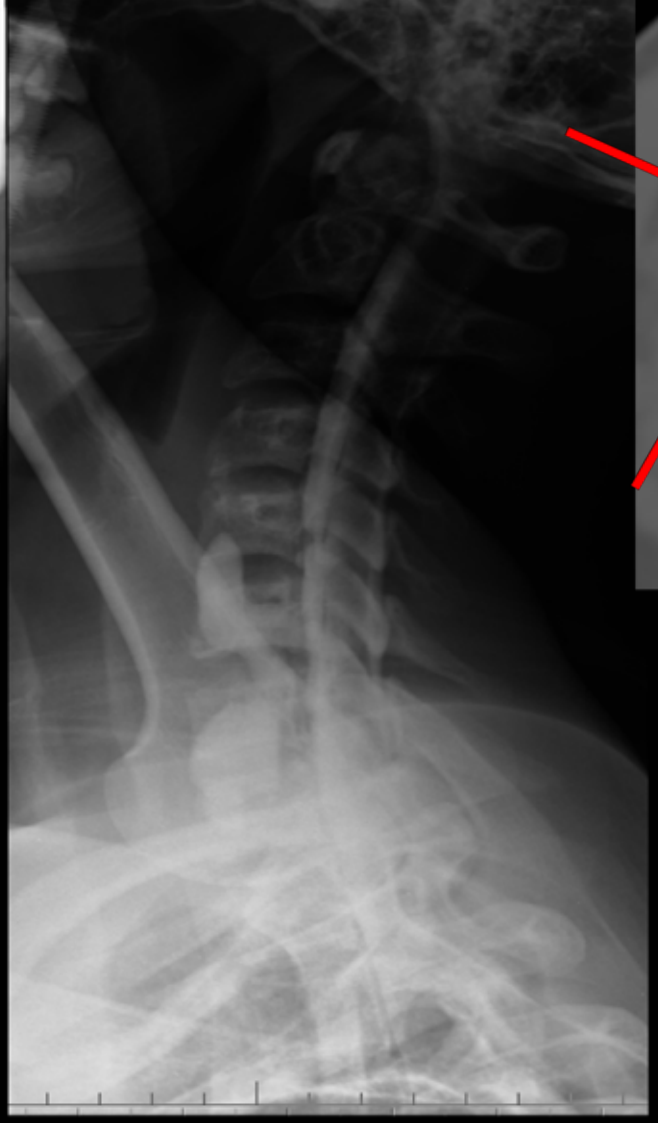
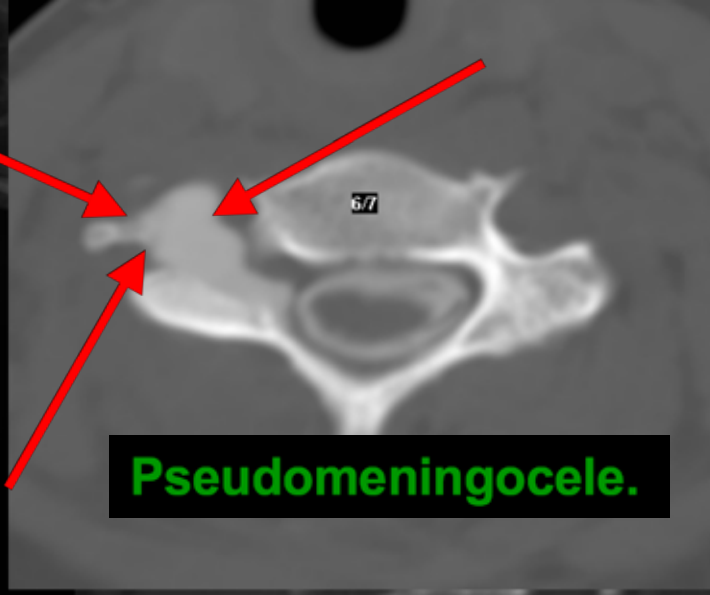
Leakage/pooling of contrast.





Pseudomeningocele.

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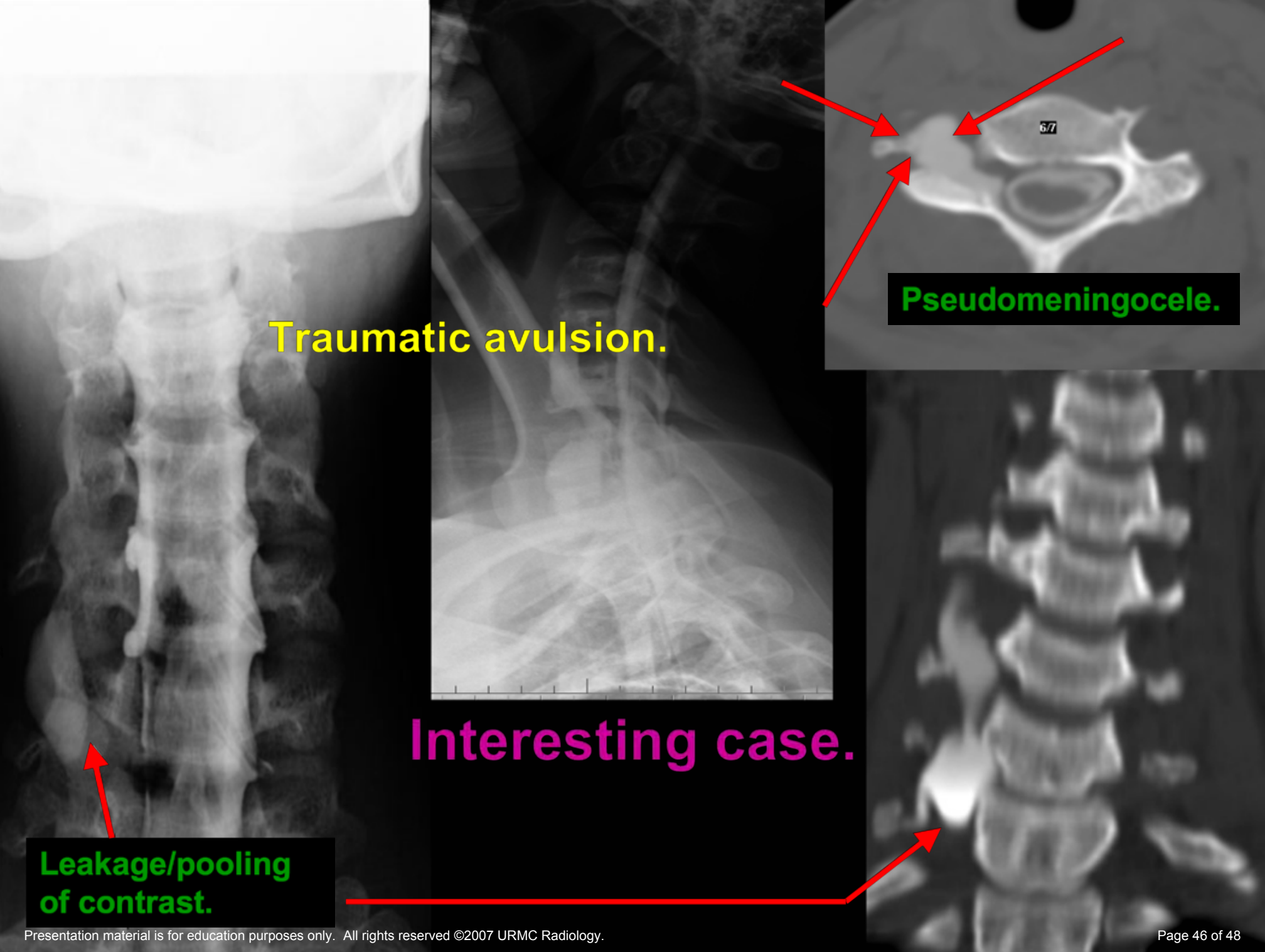

Summary.

- In experienced hands, patients will have a comfortable and safe experience.
- Myelography can be a valuable diagnostic tool.
- Post-procedure symptoms can be easily managed.

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