31F with H/O IVDA, with pain & weakness in shoulders & legs

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T2 Sagittal

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Gd-T1 Fat Sat Sagittal

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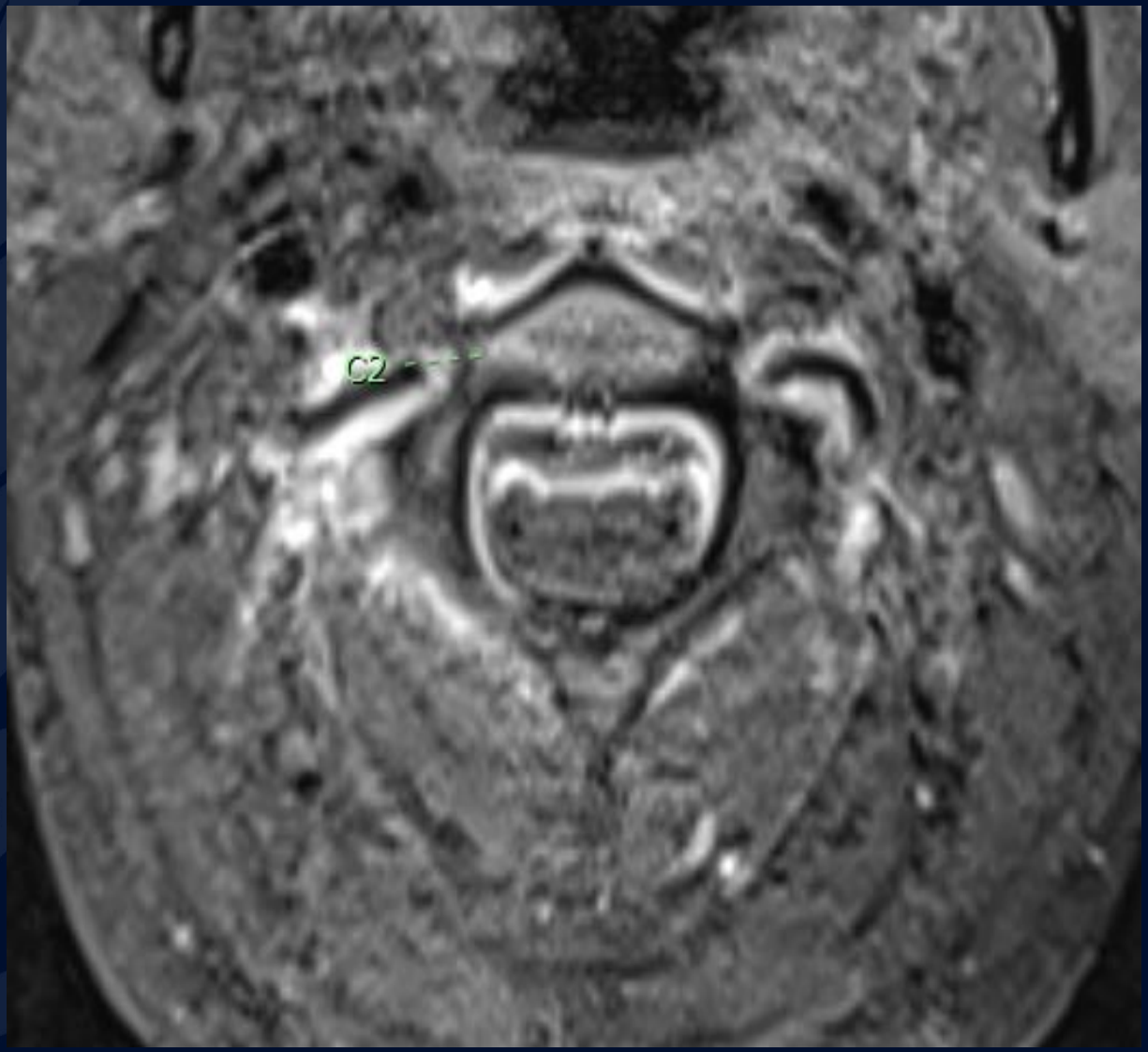

Gd-T1 Fat Sat Axial

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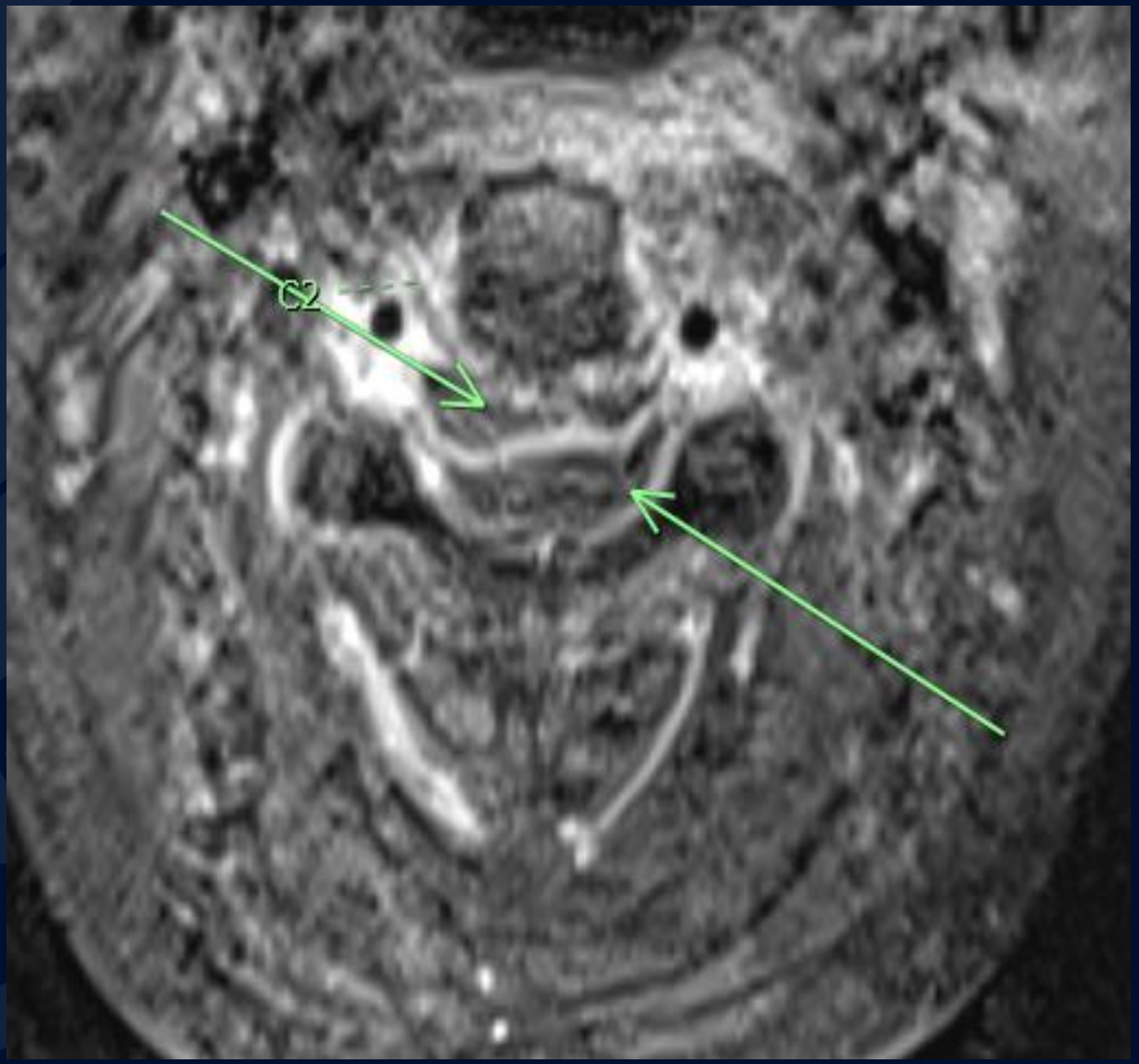

Gd-T1 Fat Sat Axial

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T2 Sagittal

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T1-Gd Fat Sat Sagittal

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Simultaneous epidural abscesses of the cervical spine & lumbar spine

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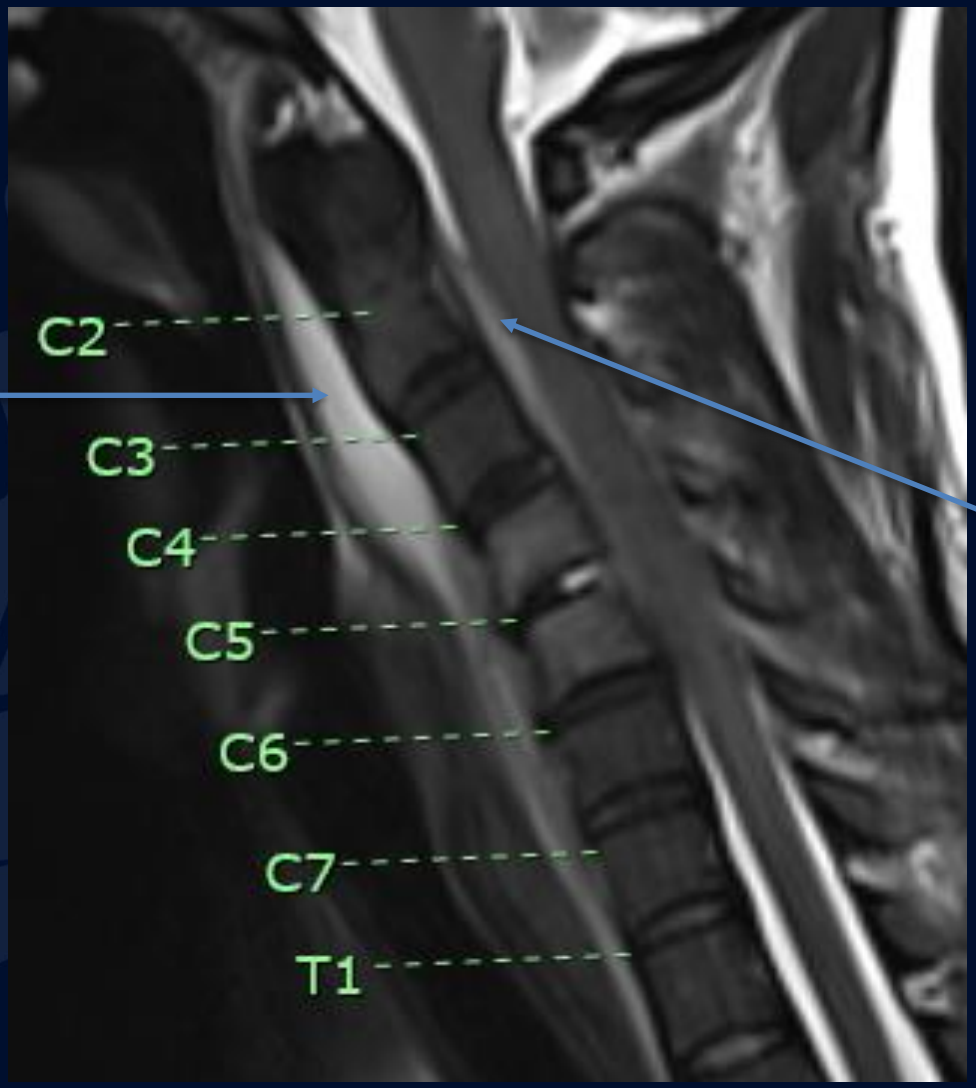
Prevertebral edema



T2 Sagittal CSpine

Slight decrease in CSF hyperintensity due to abscess

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T1 Gd Fat Sat

Rim-enhancing epidural process is typical of epidural abscess

Homogeneously enhancing epidural phlegmon

Homogeneously enhancing prevertebral phlegmon

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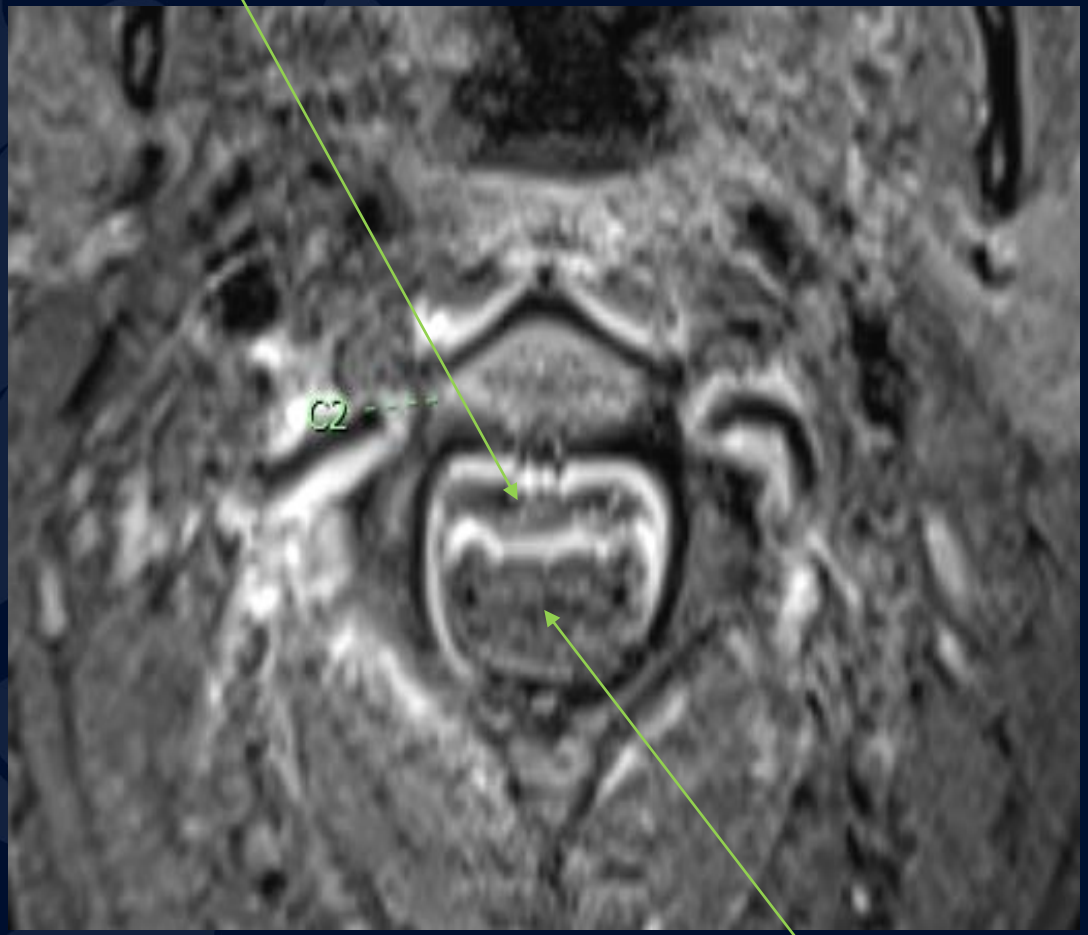
Abscess



Spinal cord

T1-Gd Fat Sat

Epidural abscess can be seen anteriorly compressing the spinal cord

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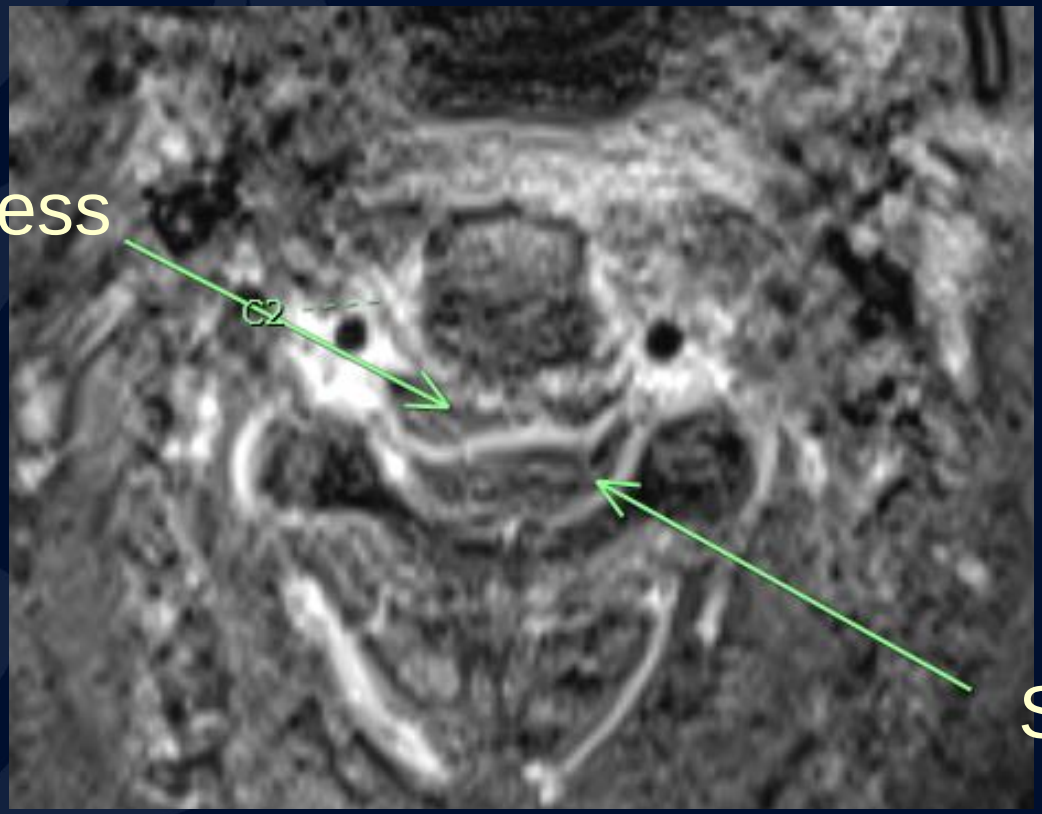
T1-Gd Fat Sat

Epidural abscess can be seen anteriorly compressing the spinal cord



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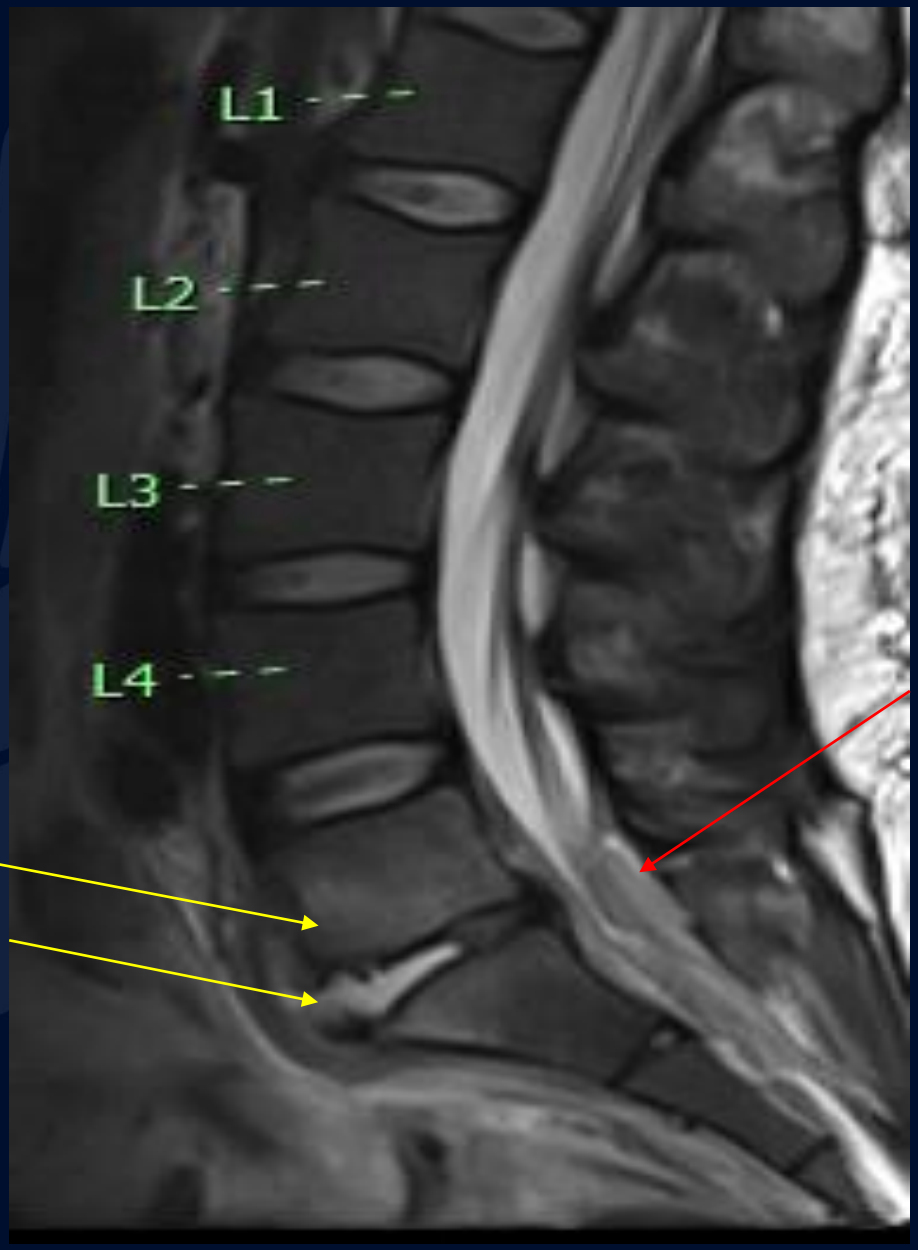

T2 Sagittal

L5/S1 endplates & intervertebral disc are hyperintense, suspicious for diskitis

Poorly seen epidural abscess

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Vertebral body enhancement

T1 MRI sagittal view, post-contrast.

Rim enhancement usually key to distinguish epidural abscess from epidural phlegmon

Epidural Abscess

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Spinal Epidural Abscess: Etiology

- Purulent infections within the epidural space, between the dural sac and vertebral body
- Can quickly cause compression of the spinal cord or cauda equina
- Can occur secondary to any infection that results in bacterial sepsis/bacteremia
  - Bacteria can enter the epidural space through hematogenous spread or directly from iatrogenic causes
- Risk factors include IV Drug use, infective endocarditis, dental abscesses resulting in bacteremia, and any iatrogenic intervention that involves entering the epidural space (i.e. injections, catheter placement)

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Presentation

- Classic “triad” is fever, spinal pain, and neurologic deficits
- Non-specific symptoms including fever, malaise, generalized pain
- Have a high suspicion in anyone who is a known IV-drug user or has bacteremia with new-onset back pain, weakness, sensory level

Diagnosis

- MRI Gd is needed to reliably distinguish abscess from phlegmon. However, even phlegmon may need decompression.
- STIR & T1 weighted images can be useful in detecting edema of marrow, prevertebral or paravertebral soft tissues

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MRI findings

- Pre-contrast
  - Isointense or hypointense to spinal cord
  - Obliteration of normal epidural fat
- Post-contrast
  - Rim enhancement → Abscess
  - Homogeneous enhancement → Phlegmon

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Management

- IV antibiotics targeted against the organism (most commonly Staph Aureus)
  - If blood cultures have yet to be drawn, draw two sets of blood cultures prior to initiating empiric antibiotics
- Urgent surgical decompression and drainage may be necessary if there is edema in the cord and concerning neurological deficits

Complications

- Without timely intervention, paraplegia or quadriplegia may result

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References

- Spinal Epidural Abscess: Evaluation with Gadolinium-Enhanced MR Imaging. Numaguchi, et al. Radiographics May 1, 1993. https://pubs.rsna.org/doi/pdf/10.1148/radiographics.13.3.8316663.
- UpToDate: Sexton, D. J., and J. H. Sampson. "Spinal epidural abscess." (2016).
- Ferrigno B, Becker K. Spinal epidural abscess. Radiology Online. (2020)

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