

# AMSER Case of the Month

## August 2021

### Cervical Spine Trauma

Vincent Hayes, MS4 - Drexel University College of Medicine

Danielle Yin, MD –PGY-3, Allegheny Health Network

Joseph Delic, MD – Allegheny Health Network

Matthew Hartman, MD – Allegheny Health Network



# Patient Presentation

- **HPI:** 78-year-old male presented from OSH to ED after a ground level fall while setting up a ladder in his yard. He denied hitting his head or loss of consciousness. He was unable to get up after the fall. Patient stated initial left sided shoulder and neck pain that progressed to involve bilateral upper extremities. Associated symptoms included burning and numbness from the shoulder to the elbows bilaterally. Denied any chest pain, shortness of breath, lightheadedness, or dizziness.
- **PMHx:** COPD, asthma, HTN
- **PE:** Awake and alert, GCS of 15. No scalp hematoma/laceration, PERLA, EOMI. Regular rate and rhythm. Radial and femoral pulses 2+ bilaterally. Strength 5/5 throughout. Mid thoracic and lumbar vertebral bodies tender to percussion without obvious deformity. Paresthesias present in bilateral upper extremities from shoulder to elbow

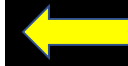
# ACR Appropriateness Criteria

**Variant 2:**

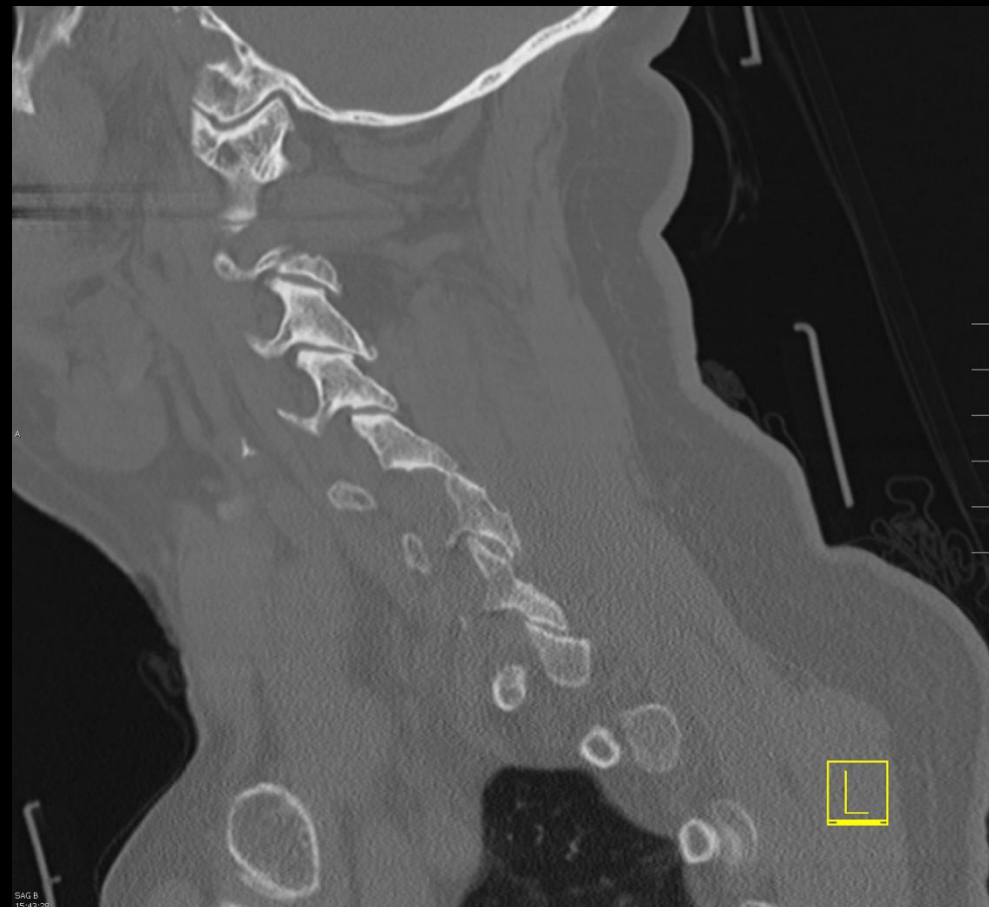
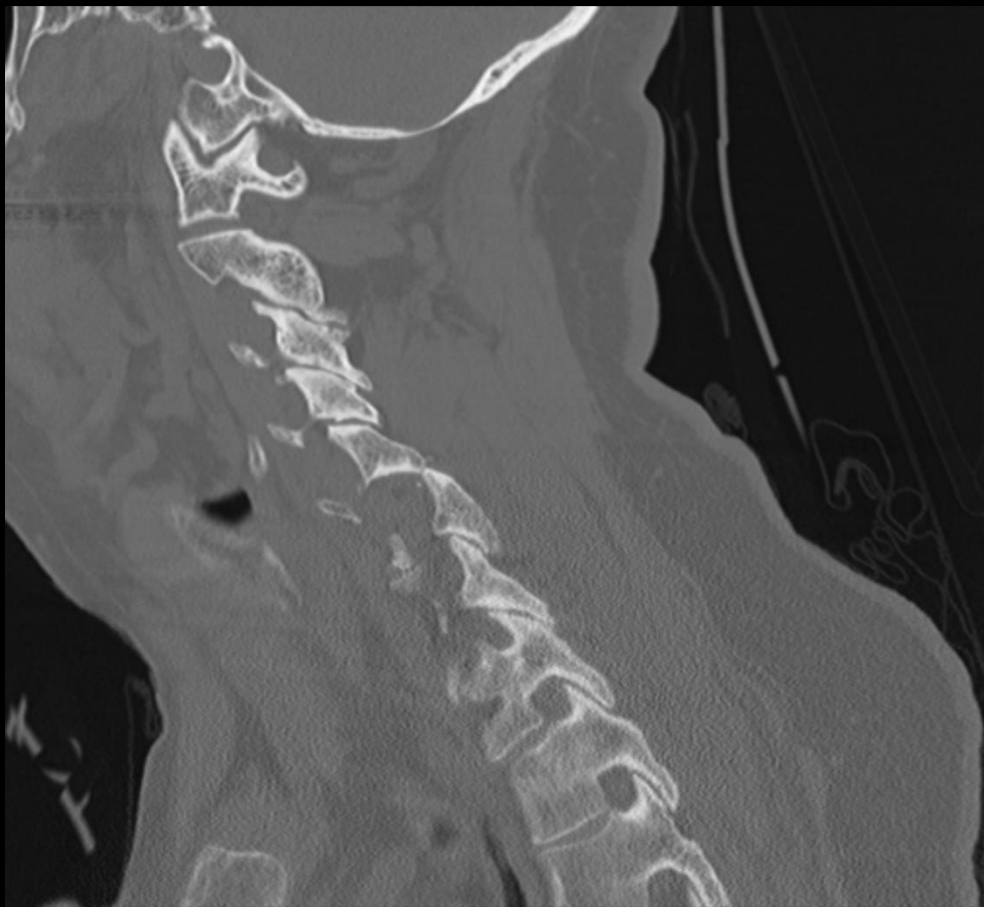
**Age greater than or equal to 16 years. Suspected acute cervical spine blunt trauma. Imaging indicated by NEXUS or CCR clinical criteria. Initial imaging.**

Procedure	Appropriateness Category	Relative Radiation Level
CT cervical spine without IV contrast	Usually Appropriate	☼☼☼
Radiography cervical spine	May Be Appropriate	☼☼
Arteriography cervicocerebral	Usually Not Appropriate	☼☼☼
CT cervical spine with IV contrast	Usually Not Appropriate	☼☼☼
CT cervical spine without and with IV contrast	Usually Not Appropriate	☼☼☼
CT myelography cervical spine	Usually Not Appropriate	☼☼☼☼
CTA head and neck with IV contrast	Usually Not Appropriate	☼☼☼
MRA neck without and with IV contrast	Usually Not Appropriate	○
MRA neck without IV contrast	Usually Not Appropriate	○
MRI cervical spine without and with IV contrast	Usually Not Appropriate	○
MRI cervical spine without IV contrast	Usually Not Appropriate	○

This imaging modality was ordered by the ER physician at the OSH



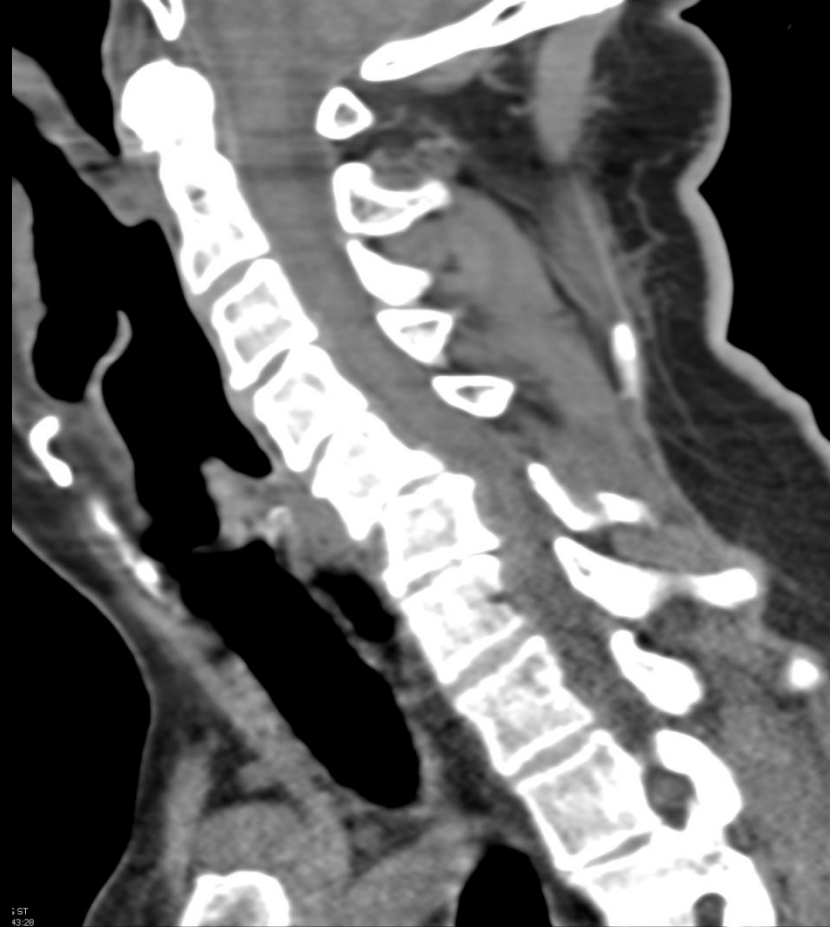
# Findings (unlabeled)



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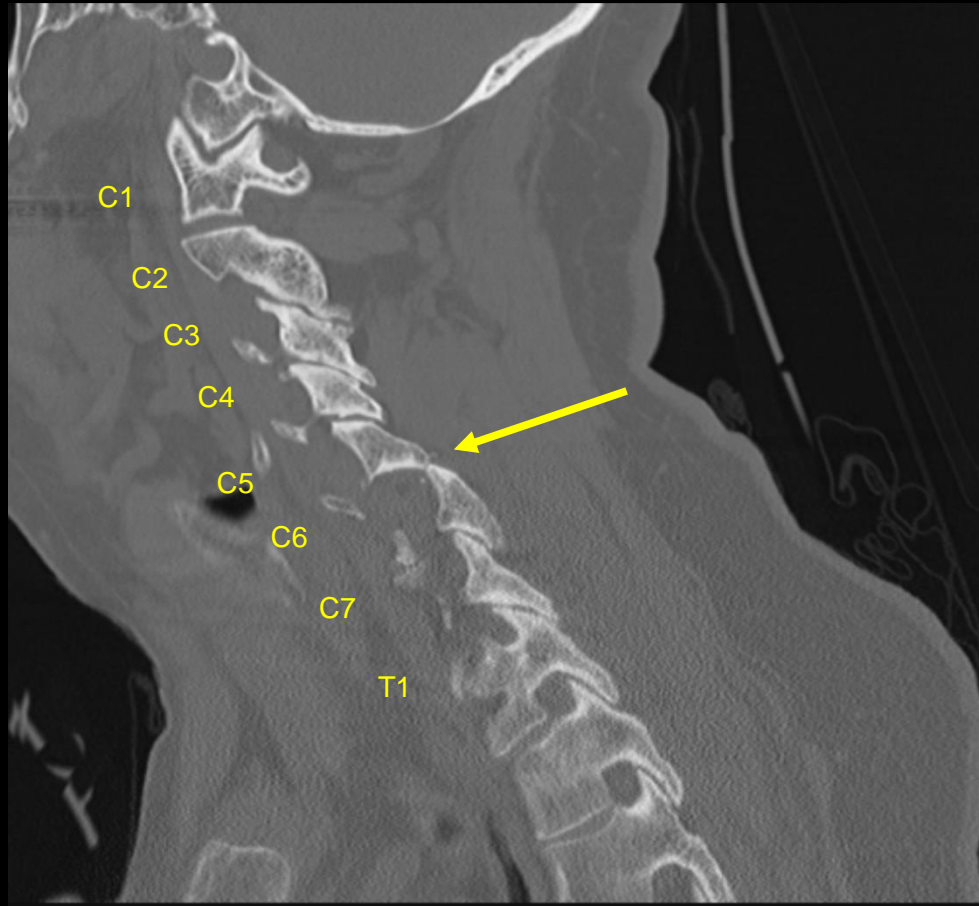
# Findings (unlabeled)



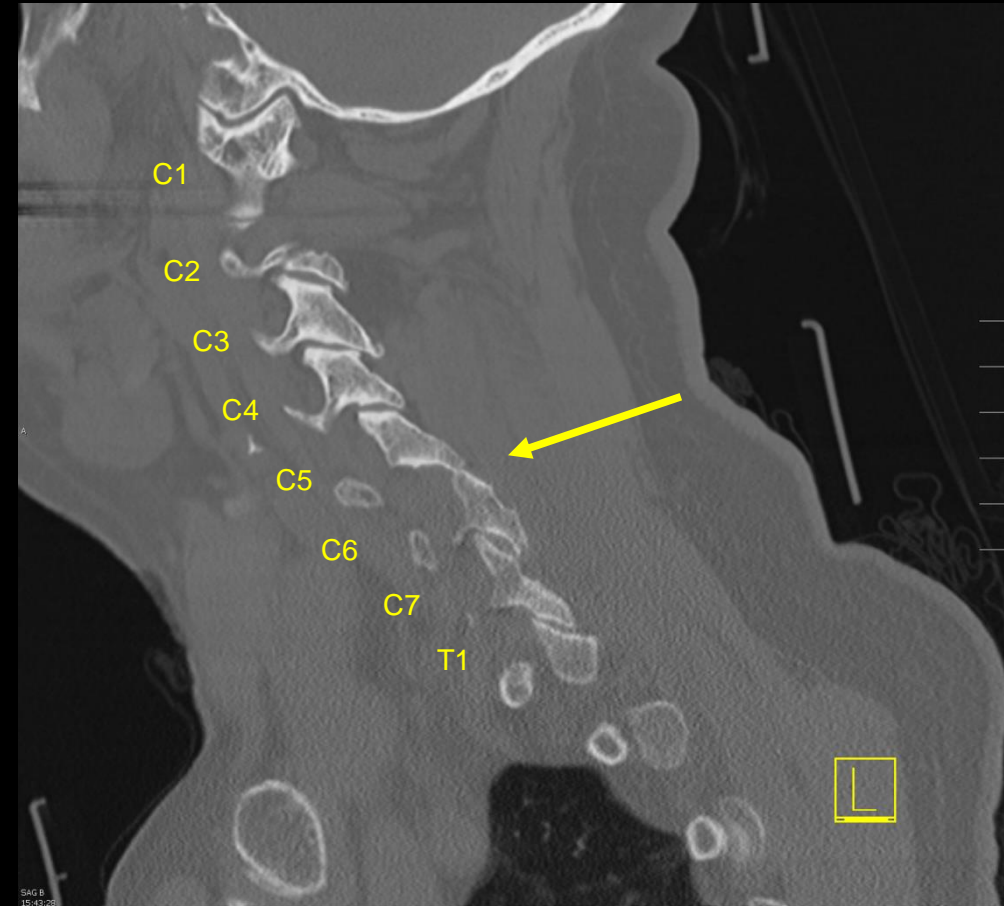
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# Findings (labeled)

Bilateral  
perched facets  
at C5-C6



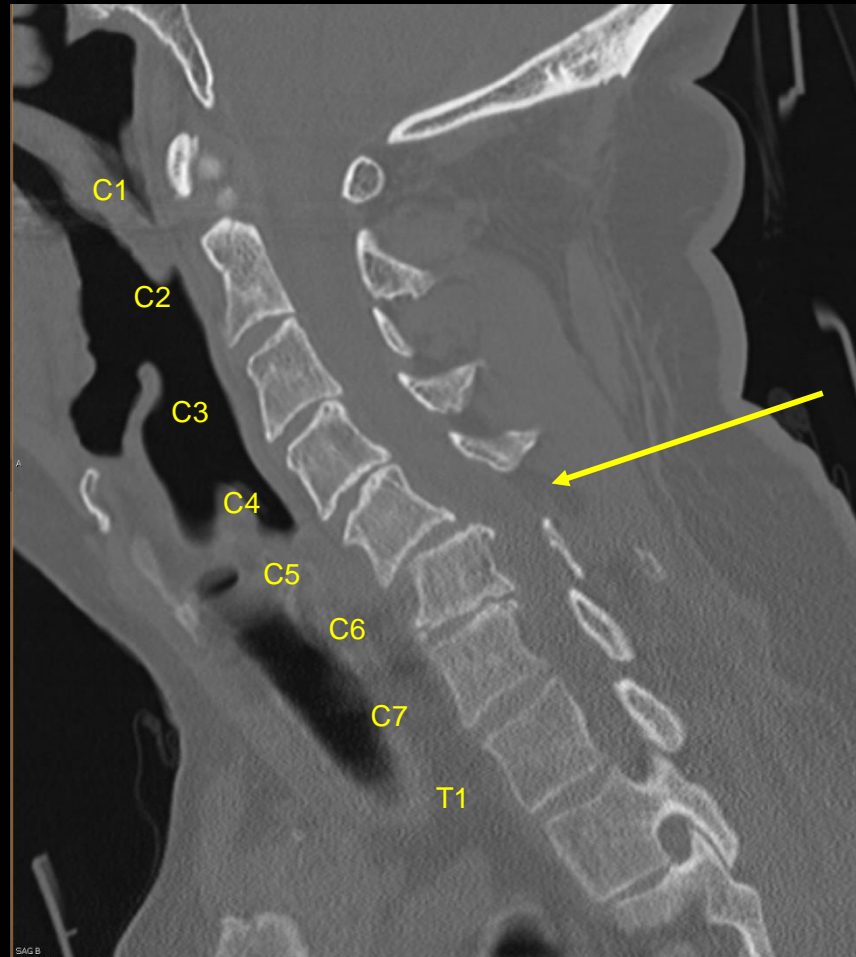
Left Facets



Right Facets

# Findings (labeled)

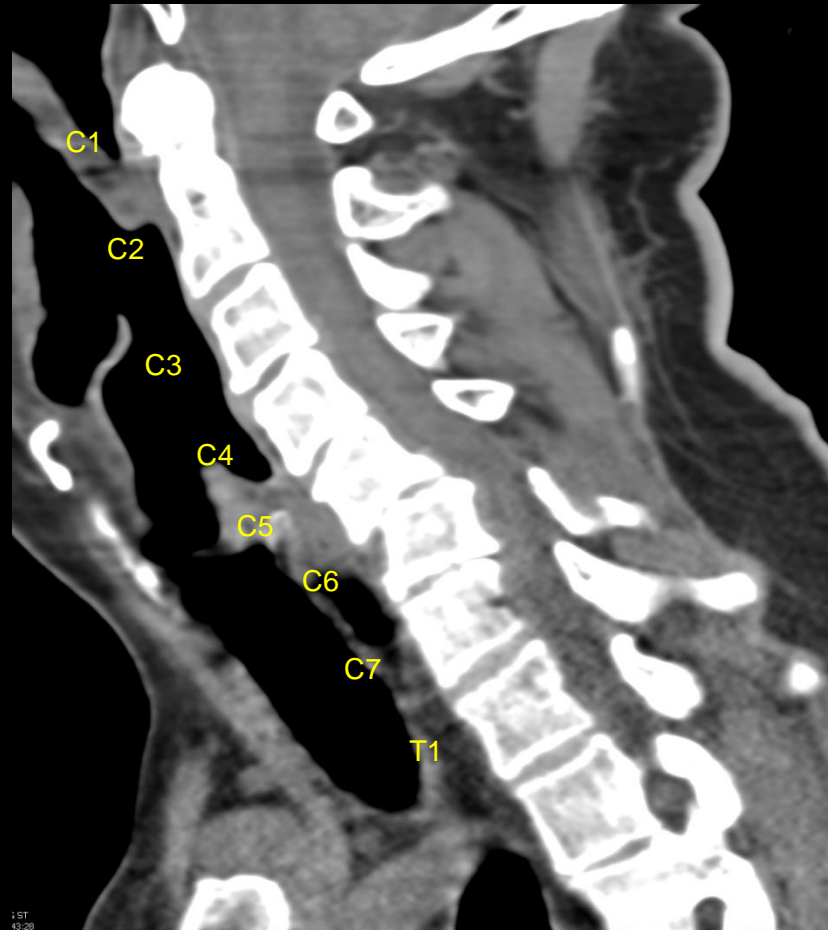
Traumatic malalignment with grade 2 anterolisthesis of C5 on C6 with widening between the spinous processes





# Findings (labeled)

Sagittal soft tissue window showing cord compression at the C5-C6 level



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## Final Dx:

Traumatic malalignment with grade 2 anterolisthesis C5 on C6 and bilateral perched facets at the C5-C6 level

# Cervical Facet Dislocation

- Cervical spine injuries can result in significant and long-term disability
- Mechanism of injury is most commonly trauma in the form of MVA but can also include falls, penetrating/blunt trauma, and sports or diving related injuries
- Most commonly occurs at C5, C6, and C7
- Occurs more commonly in males than females with highest prevalence in ages 15 – 30 and greater than 65
- Direction and strength of force may predict the type of injury
  - Flexion, Extension, Rotation, Lateral bending, Distraction (stretching), Compression (axial loading)

# Cervical Facet Dislocation

- Bilateral perched facets are classified as a stage 3 flexion-distraction injury
- Facet joints are exposed to disruptive tensional stress and the inferior facets of the superior vertebra jump or perch on the superior facets of the inferior vertebra
- Commonly disrupts or injures the supporting ligamentous complex and may also result in vertebral body or disk injury
- A retrospective study by Carrino et al. investigated patients with bilateral perched facets and showed 97% have injury to the interspinous and supraspinous ligaments, 90% have injury to the ligamentum flavum, 40% have posterior longitudinal ligament disruption, and 27% have anterior longitudinal ligament disruption

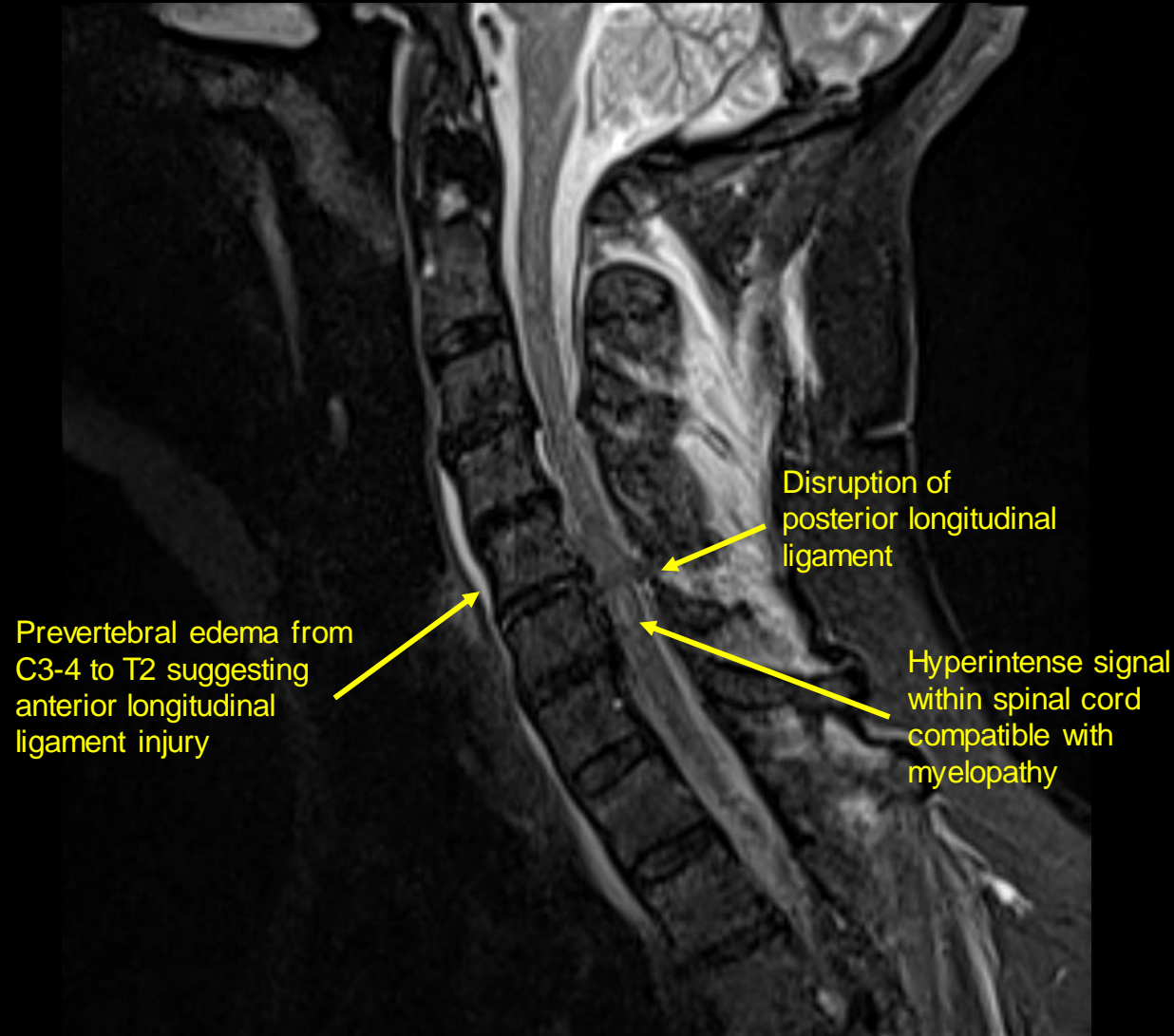
# Cervical Facet Dislocation

## Treatment:

- Determined by extent of deficits and level of consciousness of patient
- Unilateral or bilateral facet dislocation with deficits in awake and cooperative patient (our patient)
  - Emergent closed reduction usually precedes surgical intervention
  - Emergent MRI following closed reduction
  - Anterior cervical discectomy and fusion of dislocated cervical vertebrae
- Unilateral or bilateral facet dislocation in patient with mental status changes
  - Emergent MRI
  - Emergent open reduction and surgical stabilization

# Cervical Facet Dislocation

Our patient's MRI following interval closed reduction prior to ADCF



# References:

Carrino JA, Manton GL, Morrison WB et al (2006) Posterior longitudinal ligament status in cervical spine bilateral facet dislocations. *Skelet Radiol* 35:510–514

Curtis, B.R., Curtis, E. Perched facets diagnosed in a neurologically intact patient 5 weeks after a fall. *Intern Emerg Med* 12, 1323–1325 (2017). <https://doi.org/10.1007/s11739-017-1649-1>

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