Imaging Use in the Management of Ossification of Posterior Longitudinal Ligament (OPLL)

Sandya Krishna[1], Cameron Henry[2]
[1]Vanderbilt University School of Medicine
[2]Vanderbilt University Medical Center

VANDERBILT UNIVERSITY
MEDICAL CENTER

Clinical Presentation

- 64 year old male with PMH of diabetes and PSH of laminectomy presents for 6 months of mild lower back pain radiating to left lower extremity
  - Patient reports worsening of balance and fine motor skills
  - Patient reports mild symptom severity

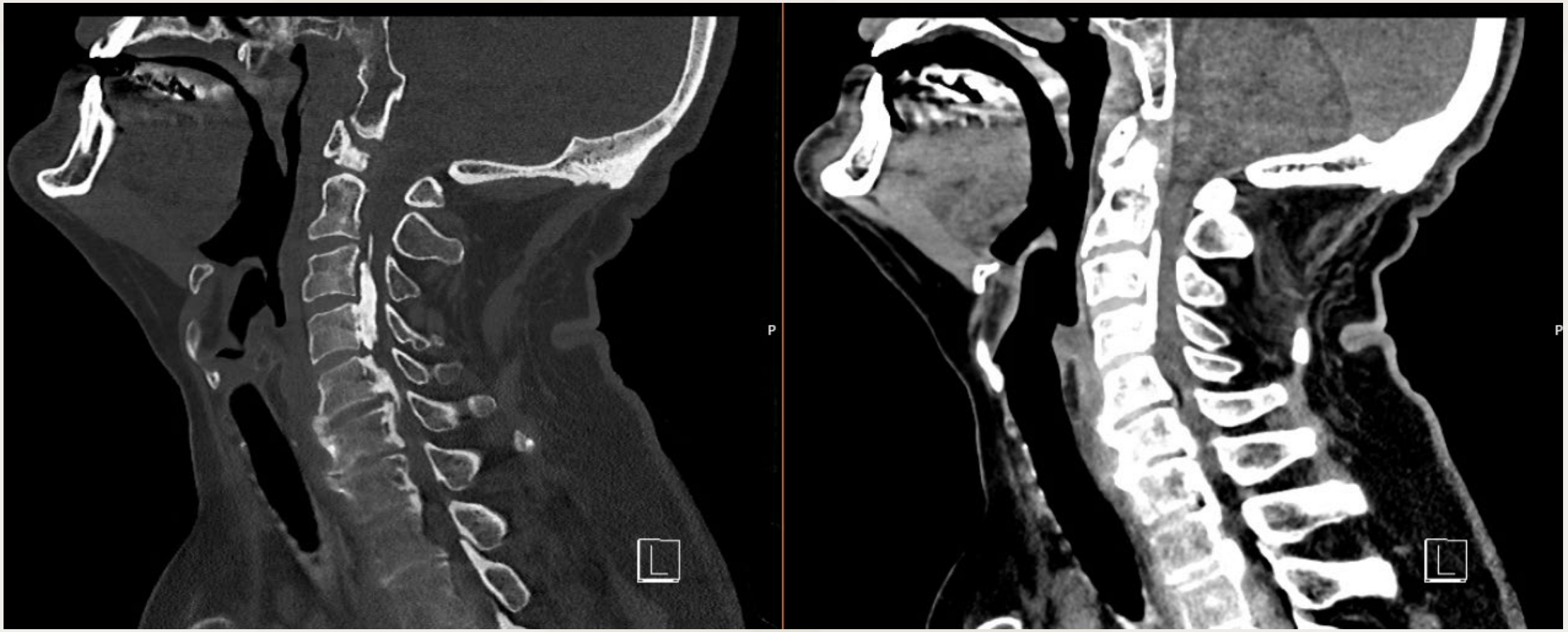
- Physical exam:
  - Positive for:
    - Absent bilateral lower extremity reflexes
  - Negative for:
    - Hoffman's sign
    - Gait abnormalities
    - Urinary dysfunction
    - Intact strength and sensation

Imaging Discussion



- CT cervical spine without contrast
  - Findings included multilevel moderate to severe canal stenosis with ossified posterior longitudinal ligament in a mixed continuous and segmental pattern.

Imaging Discussion

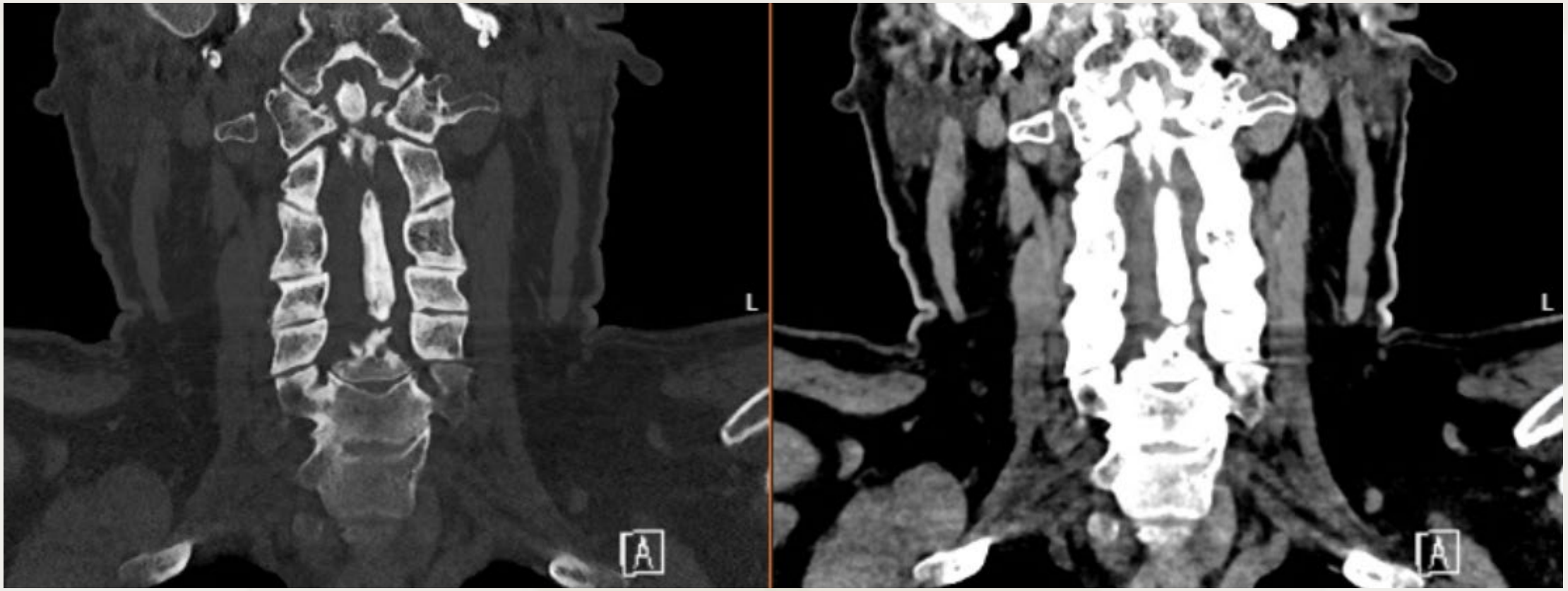


Imaging Discussion

Additional radiological impression included severe left foraminal stenosis at C5-C6 and C6-C7, moderate to severe right foraminal stenosis at C5-C6, and multilevel degenerative changes.



Imaging Discussion



Imaging Discussion

- MRI showed high grade lower cervical and upper thoracic stenosis consistent with findings on CT for OPLL.
- Mid thoracic stenosis



Management

- Conservative management was not recommended due to risk of disease progression.
- The patient underwent C2-T2 posterior spinal fusion and laminectomy with follow up cervical x-rays demonstrating intact hardware from operation.

Outcome

- Postoperatively, the patient endorsed overall symptom improvements, including fine motor skills.
- The patient initially developed shoulder stiffness and numbness, limited cervical range of motion, and dysphasia that are now improving with regular physical therapy.

Take Home Points

- CT scans are a preferred imaging modality for OPLL due to its ability to detect OPLL characteristics.
- While causes of OPLL are not fully known, some contributing factors may include COL gene and type 2 diabetes.
- This case highlights the necessity for surgery in cases of severe cervical involvement on imaging, regardless of symptoms or chief complaint.
- While myelopathy symptom severity can be an indication for surgery, patients with milder symptoms but significant imaging findings (occupying ratio of >60%) are appropriate candidates for surgery.

Take Home Points

- Surgical interventions for OPLL include anterior or posterior approaches.
- Some complications of surgical intervention include dural tear, CSF leak, and C5 palsy.
- Conservative management is a treatment option for asymptomatic cases or mild stenosis on imaging findings.

Thank You

References:

Le H, Wick J, Van B, Klineberg E. Ossification of the Posterior Longitudinal Ligament: Pathophysiology, Diagnosis, and Management. Journal of the American Academy of Orthopaedic Surgeons. 2022; 30 (17): 820-830. doi: 10.5435/JAAOS-D-22-00049

Head J, Rymarczuk G, Stricsek G, et al. Ossification of the Posterior Longitudinal Ligament: Surgical Approaches and Associated Complications. *Neurospine*. 2019;16(3):517-529. doi:10.14245/ns.1938222.111

VANDERBILT UNIVERSITY

MEDICAL CENTER