

38-year-old male with a history of lymphoma presenting with back pain

Andrew Klufas, MD, MBA
Racquel Helsing, MD

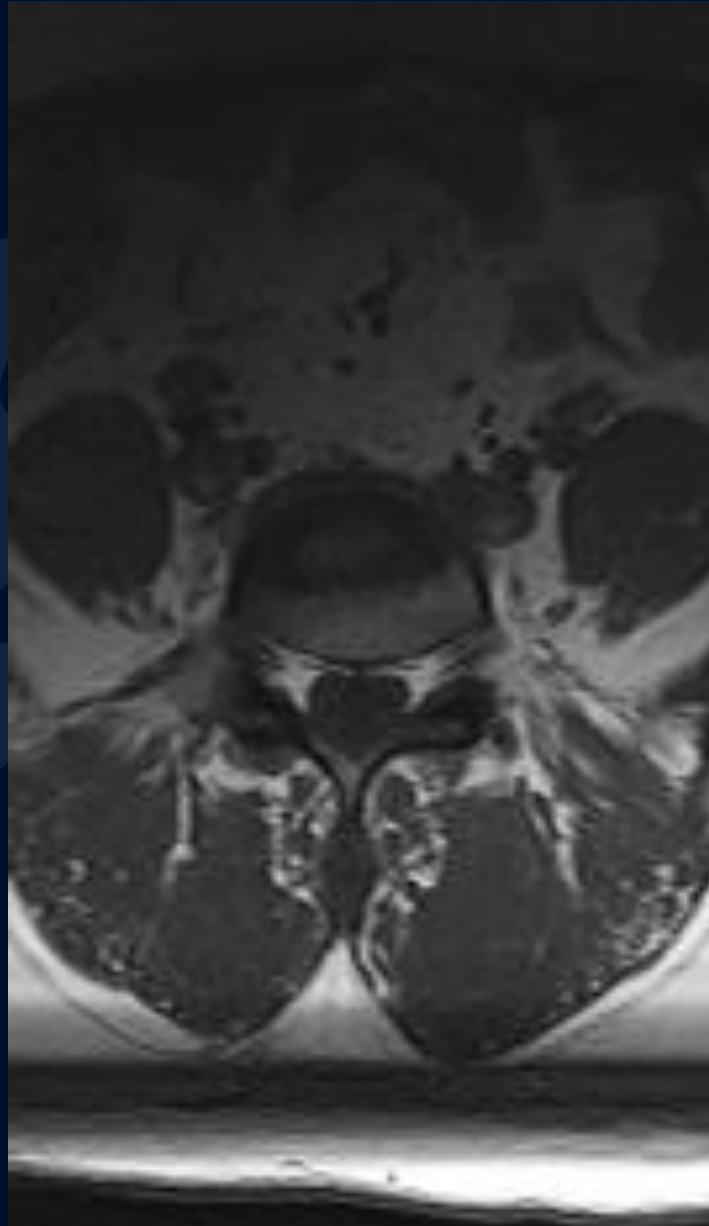
MR T1



MR T2



MR T1



CT without contrast



CT without contrast

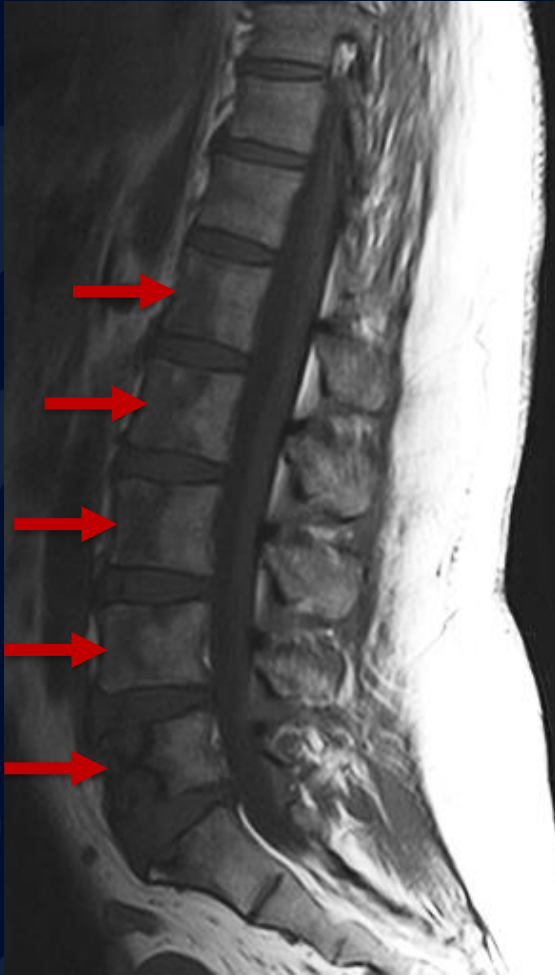




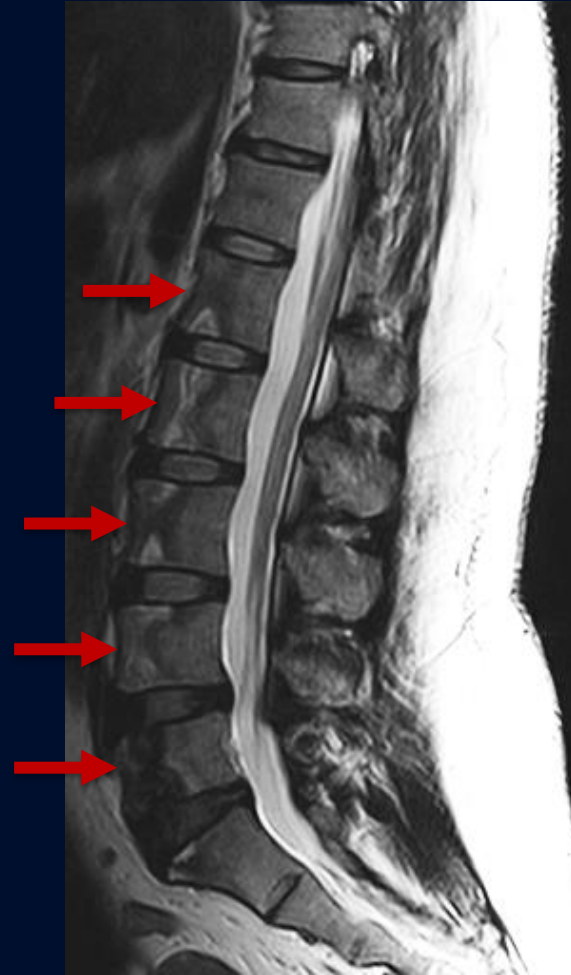
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Notochordal Canal

T1



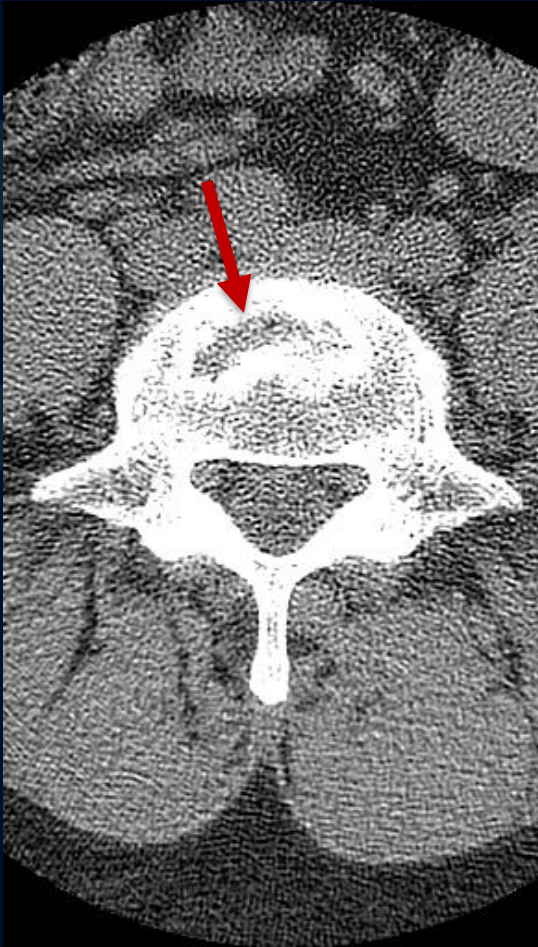
T2



T1 hypointense relative to bone

T2 hyperintense with isointense rim relative to bone

CT w/o contrast



CT w/o contrast



Notochordal Canal

Embryonic Development

- Notochord forms after the 3rd week of development, eventually being surrounded by mesenchymal sclerotomes and forming the vertebral bodies and discs of the mature vertebral column
- At the time of birth, no residual notochord should be present

Clinical Presentation

- Although incredibly rare, notochordal canals may present as non-specific back pain or pathologic fractures of the vertebral bodies

Imaging

- MRI
 - T1: hypo-to-isointense in signal with well-defined, low signal outlining the periphery of the canal
 - T1 + Gad: rounded central components (corresponding to nuclei pulposi) do not enhance in comparison to the cord
 - T2: hyper-intense signal with similar hypo-intense periphery

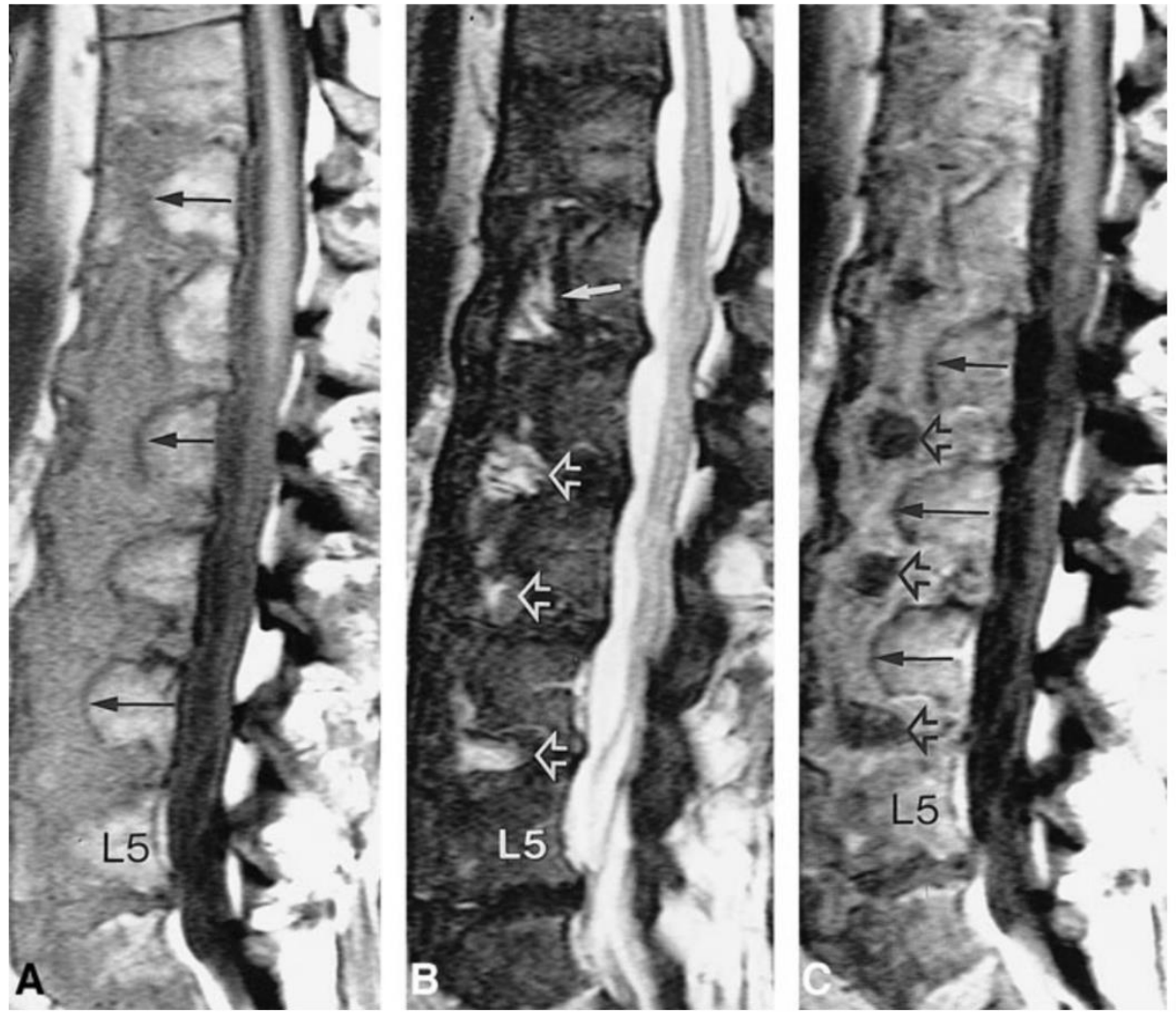
Notochordal Canal

FIG 1. Persistent notochordal canal.

A, Sagittal T1-weighted (522/15/4; TR/TE/excitations) MR image shows a vertically oriented canal (*arrows*) spanning T12–L5 vertebrae. The intravertebral canal is similar in signal to the intervertebral canal. Note the well-defined low signal outlining the periphery of the canal, compatible with sclerosis.

B, Sagittal T2-weighted (2700/220/4) MR image shows hyperintense, rounded central components at the disk spaces (*open arrows*), corresponding to the nuclei pulposi. Hyperintense signal extends for a short segment superiorly and inferiorly into the intravertebral portions of the canal (*solid arrow*).

C, Sagittal contrast-enhanced T1-weighted (522/15/4) MR image shows enhancement of the canal (*solid arrows*). The rounded central components at the disk spaces (*open arrows*), corresponding to the nuclei pulposi, do not enhance.



Christopherson LR, Rabin BM, Hallam DK, Russel EJ. Persistence of the Notochordal Canal: MR and Plain Film Appearance. *AJNR Am J Neuroradiol* 20:33–36, January 1999.

References

Taylor JR. Persistence of the notochordal canal in vertebrae. J Anat 1972;11:211–217.

Christopherson LR, Rabin BM, Hallam DK, Russel EJ. Persistence of the Notochordal Canal: MR and Plain Film Appearance. AJNR Am J Neuroradiol 20:33–36, January 1999.

Cotten A, Deprez X, Lejeune JP, Chastanet P, Francke JP, Clarisse J. Persistence of the notochordal canal: CT and plain film findings. Neuroradiology 1995;37:308–310