



Sagittal T1



Sagittal
Reformat CT



History: 68-year-old man with prior lumbar surgery now with persistent low back pain and left lower extremity radicular symptoms.

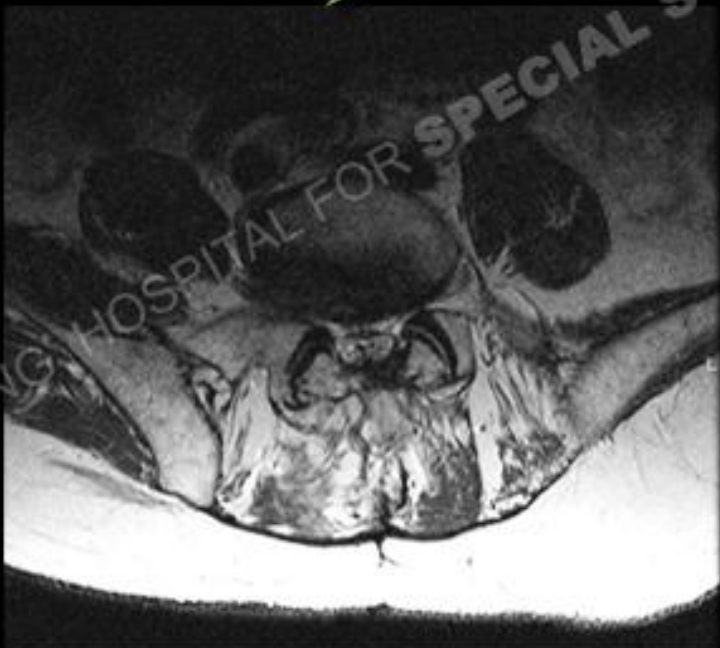
Sagittal T1



Sagittal T2



Axial T2 at L4/L5 and L5/S1





Sagittal CT reformation



Axial CT through L5



Coronal CT reformation

2007



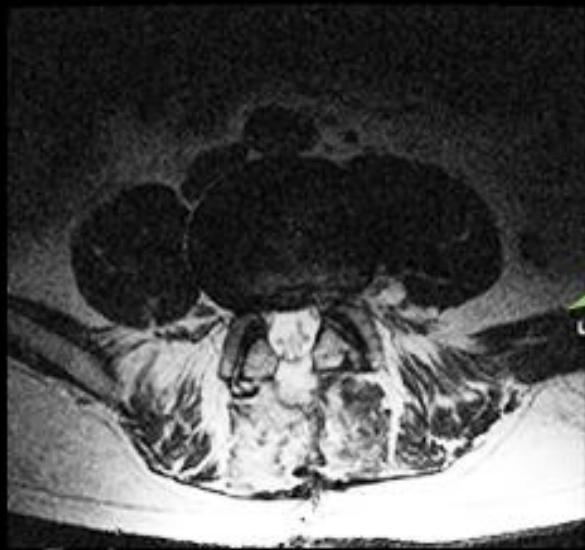
Sagittal Reformat

2013



Axial images
Through L5





Axial T2 at L4/L5



Sagittal T2

2007



2013



Axial T2 at L5/S1



Findings

- The first set of images demonstrate an abnormal configuration of the inferior aspect of the thecal sac on the T1 sequence and ossification in the spinal canal on the CT image. Further MR images demonstrate thickened nerve roots adhered to each other with scarring of the thecal sac compartmentalizing the thecal sac and yielding an overall markedly irregular configuration of the thecal sac. CT images on all planes corroborate the ossification in the spinal canal centered at L5. When comparing the images of 2007 to 2013, there is no change in the previous posterior decompression but with the findings of the thecal sac and the ossification of the spinal canal being an interval change.



Normal thecal sac



Abnormal thecal sac

2007

2013

Post operative
Changes/Decompression

Ossification of
spinal canal

Normal spinal
canal

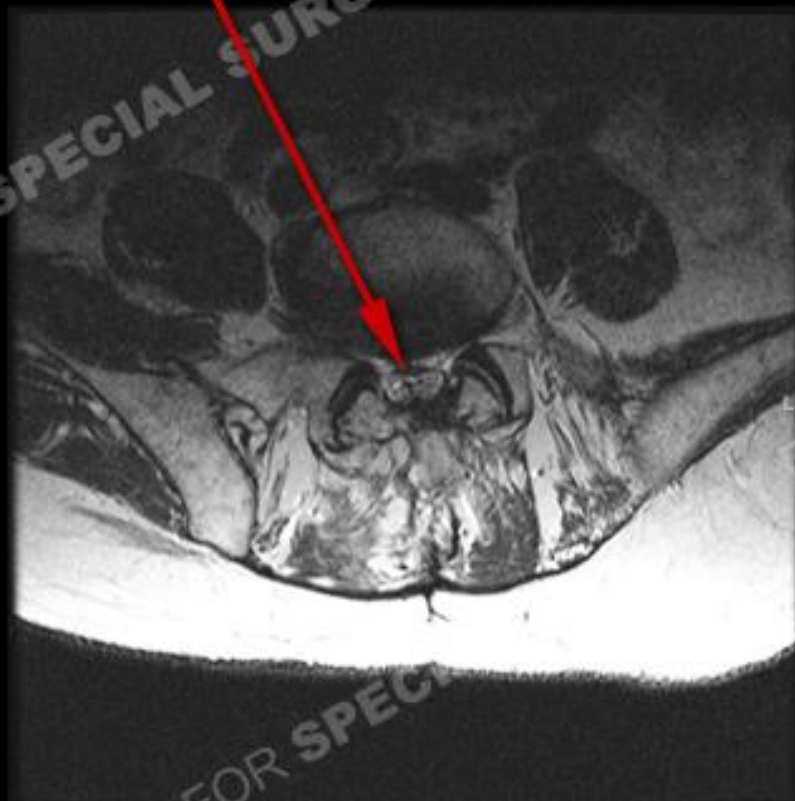
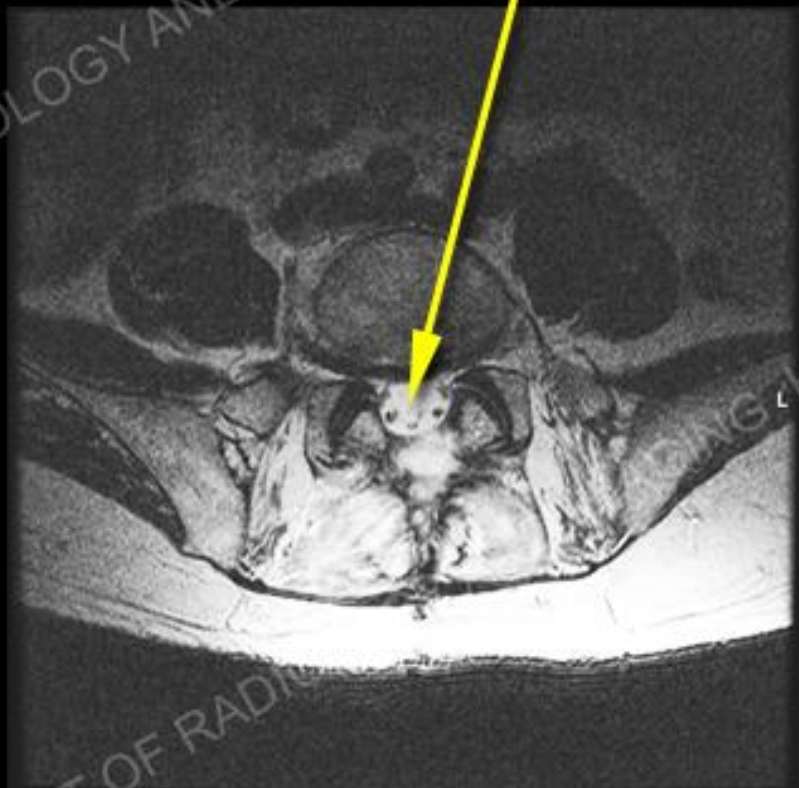




Normal thecal sac

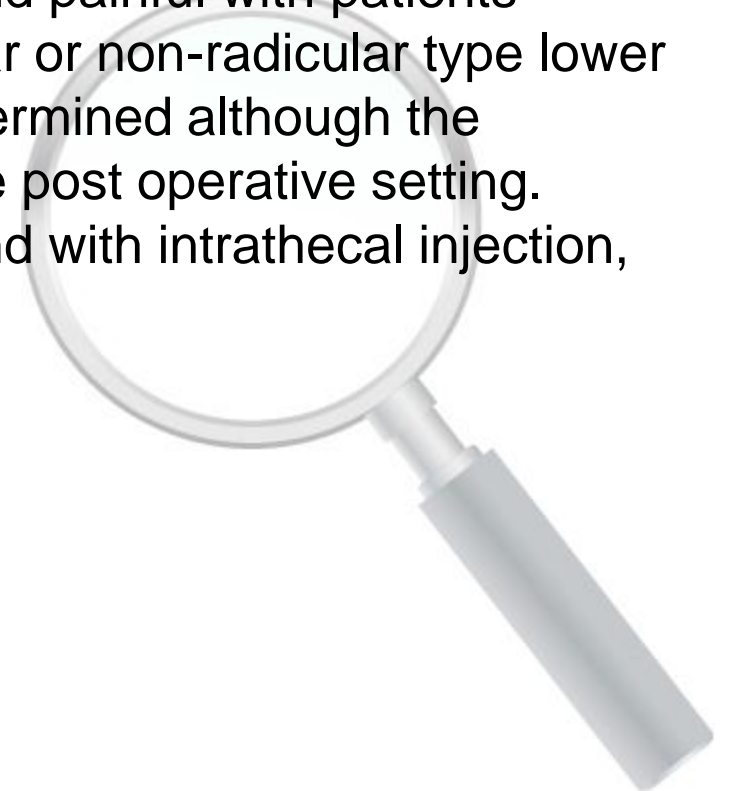


Thickened/adhered nerve roots with compartmentalized thecal sac



Diagnosis: Adhesive Arachnoiditis/ Arachnoiditis Ossificans

- Adhesive arachnoiditis is an inflammation of the meninges leading to inflammation and scarring of the nerve roots within the subarachnoid space. This frequently progresses in stages with a thickening and clumping of the nerve roots, followed by scar adherence to the periphery of the thecal sac, and then subsequent marked scarring of the thecal sac yielding an irregular sac with adhesions leading to a compartmentalization of the thecal sac. Very rarely, as in this case, there can then be subsequent ossification at the areas of scarring and adhesions leading to arachnoiditis ossificans.
- The process can be extremely debilitating and painful with patients typically having back pain as well as radicular or non-radicular type lower extremity pain. The cause is still not yet determined although the pathology is now seen most commonly in the post operative setting. Limited treatment successes have been found with intrathecal injection, spinal cord stimulation, or lysis of adhesions



Resources

- Diagnostic Imaging. Spine. Ross, Brant-Zawadzki, Moore. Amirsys Inc. 2004
- Arachnoiditis ossificans: MR imaging features in five patients. Frizzell B, Kaplan P, Dussault R, Sevick R. AJR Am J Roentgenol. 2001 Aug;177(2):461-4.
- <http://www.burtonreport.com/infspine/adhesarachanatomy.htm>

