

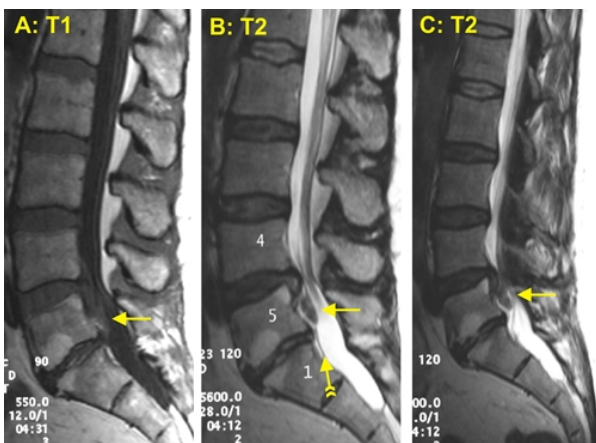
Disk Herniation

1) Disk Herniation

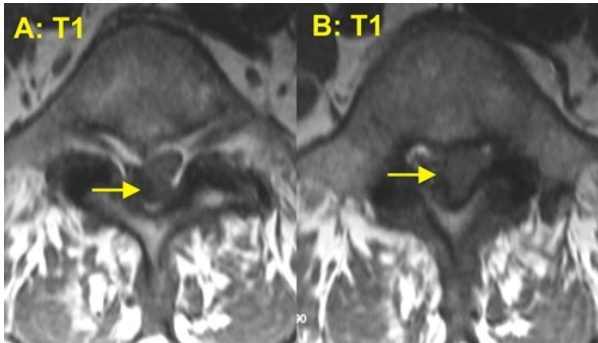
- The hallmark of disk herniation is a focal disk contour abnormality along the posterior disk margin with a soft tissue mass. This mass has usually the same CT density as the nucleus and the MRI signal iso- to slightly hyper-intense relative to the nucleus in T1-weighted images and usually iso- to hypo-intense relative to the nucleus (isointense relative to the outer annulus) in T2-weighted images.
- Disk fragment size can be small, medium, or large. A small focal disk protrusion cannot be distinguished from a tiny disk herniation. Disk herniation can displace or even compress the epidural fat, nerve root, epidural vein and thecal sac. Disk herniation is usually contiguous with the disk by a narrow waist, which is a radial tear in the disk annulus.
- Disk herniations can be in midline, posterolateral, lateral foraminal, and extraforaminal location. Lateral disk herniations in the neural foramen are often undetected by myelography.
- Disk herniation may lie anterior to the posterior longitudinal ligament, they are contained by the ligament or subligamentous. Extruded disk fragments may lie entirely or in part behind the posterior longitudinal ligament they are extraligamentous and may lie below or above the disk space.
- A free disk fragment is no longer in continuity with its parent disk, free disk fragments may migrate inferior or less commonly superior to the parent disk, rarely a disk fragment may extend in the thecal sac.
- After contrast medium injection herniated disk fragments are usually not enhanced centrally, but a subtle enhancement at the periphery of the fragment is usual, even an intense enhancement at the periphery of the fragment is possible.
- Old herniated disk fragments may calcify.

2) Cases

Case 1 : Low back and leg pain in a 30-year-old man.



A: T1 Spin Echo weighted image. B and C: T2 Spin Echo weighted image. Large posterolateral free fragment (arrow I) no longer in continuity with its parent disk, lying behind the posterior longitudinal ligament and below the parent disk space. Disk herniation displaces the thecal sac (arrow II).

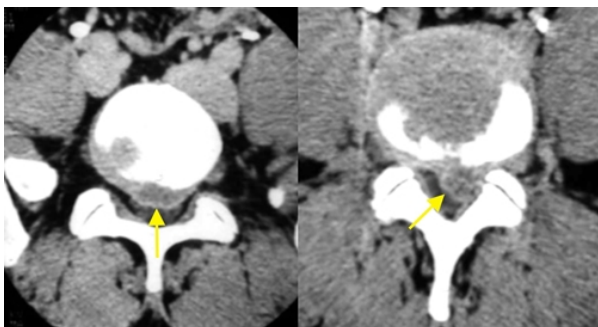


A and B: T1 Spin Echo weighted image. Large posterolateral free fragment (arrow I) no longer in continuity with its parent disk, lying behind the posterior longitudinal ligament

Case 2

Case 2a: Low back pain in a 34-year-old man.

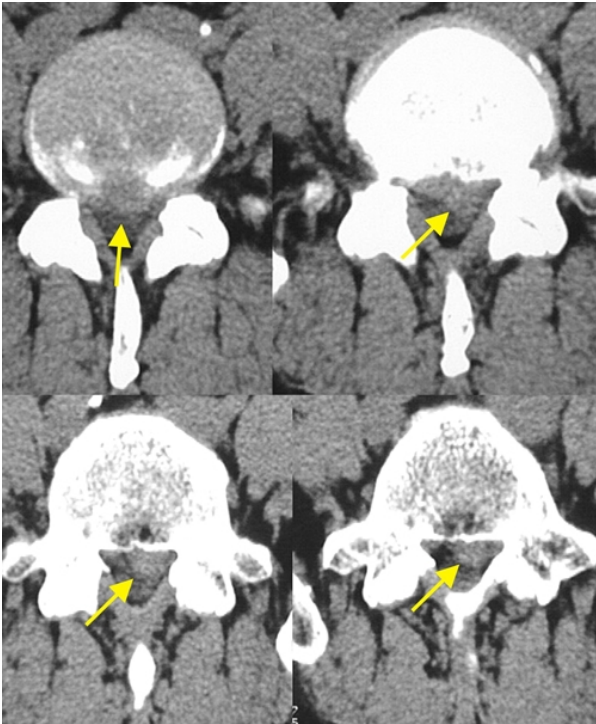
Case 2b: Low back and leg pain in a 41-year-old man.



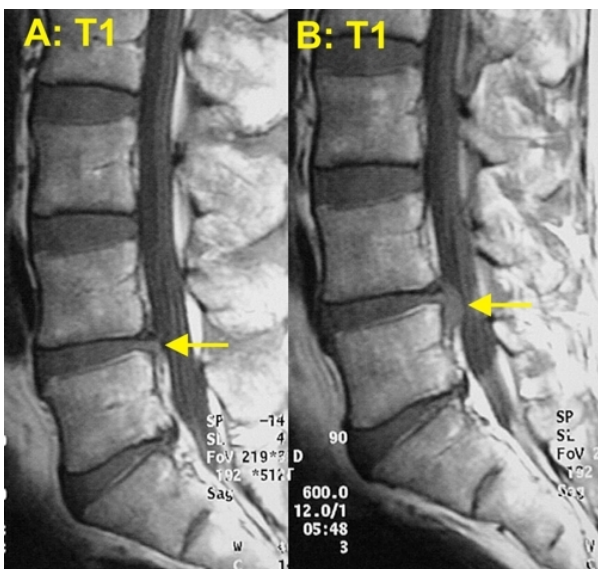
A: Case 2a. CT image. Small midline subligamentous disk herniation (arrow).

B: Case 2b. CT image. Large extraligamentous posterolateral disk herniation (arrow) lying behind the posterior longitudinal ligament.

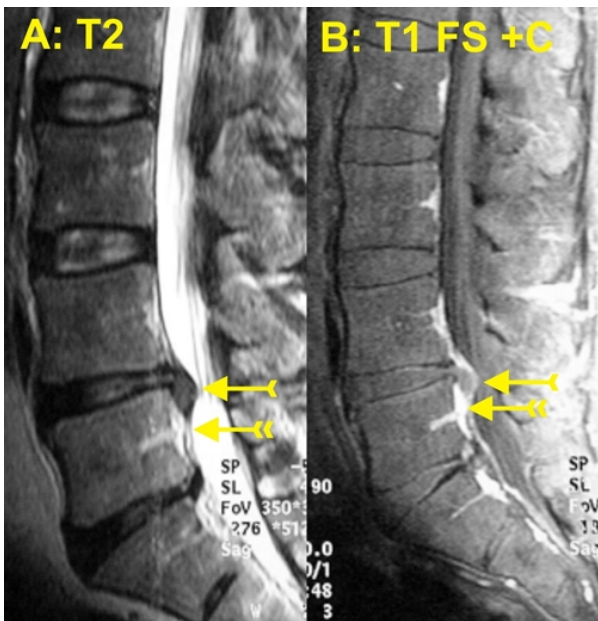
Case 3 : Sudden low back pain and severe leg pain in a 35-year-old man.



A: L4-L5 CT image. B: CT section 5 mm below. C: CT image 10 mm below. D: CT image 15 mm below. Large subligamentous herniated disk (arrows) with inferior migration but still in continuity with its parent disk.

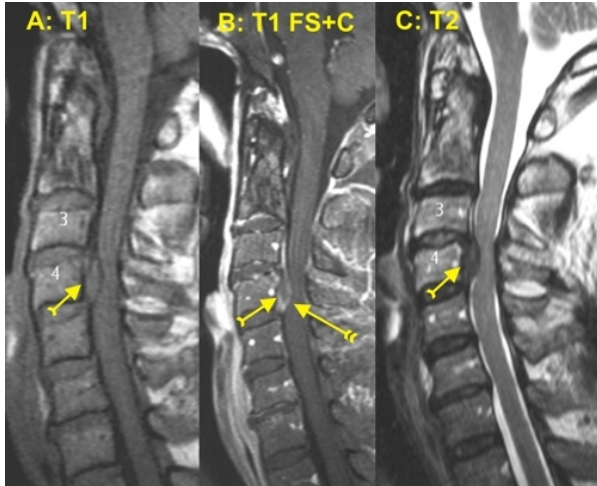


A and B: T1 Spin Echo weighted images. Large subligamentous disk herniation with inferior migration (arrow I), but still in continuity with its parent disk.

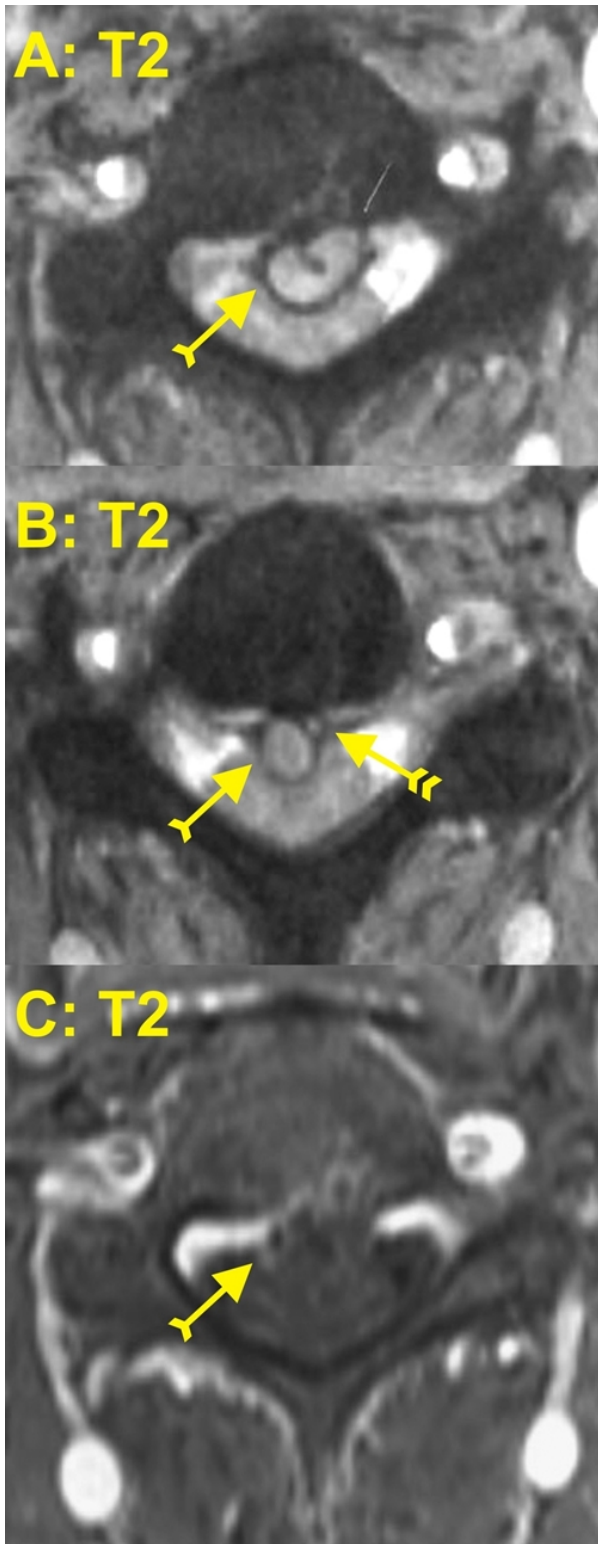


A: T2 Spin Echo weighted image. B: T1 Spin Echo weighted fat suppressed image after contrast medium injection. Large subligamentous disk herniation (arrow I), posterior longitudinal ligament (A arrow II). The disk herniation is displacing epidural fat, compressing the epidural veins (B arrow II).

Case 4 : Neck pain and myelopathy in a 42-year-old woman.



A: T1 SE weighted image. B: T1 SE weighted fat suppressed image after contrast medium injection. C: T2 SE weighted image. Free disk fragment (arrow I). Large herniated disk no longer in continuity with its parent disk (level c3-c4), lying midline behind the posterior longitudinal ligament and below the parent disk space. Disk herniation displaces and compresses the epidural veins, thecal sac, and spinal cord (arrow II).



A: T2 SE weighted image. B: T2 SE weighted image 3 mm below A. C: T2 SE weighted image 6 mm below A. Free disk fragment (arrow I) level c3-c4, perforating the posterior longitudinal ligament. Disk herniation displaces and compresses the epidural veins, thecal sac, and spinal cord (arrow II).