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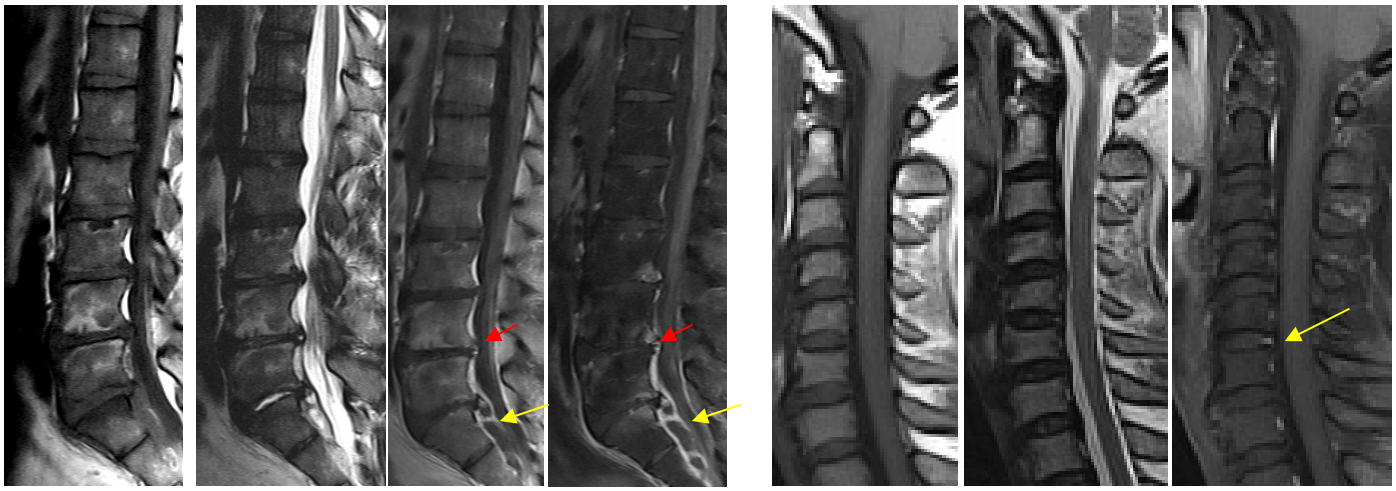
VALUE OF GADOLINIUM CONTRAST IN SPINE MRI



1a 1b 1c 1d 2a 2b 2c

There seems to be frequent confusion regarding the use of contrast material for MRI and CT scans. This newsletter will address some of the indications for the use of contrast material in MRI of the spine.

FIGURE 1: This patient was referred to AIC by **Dr. G. Haeri, MD** (orthopedic surgeon) for lumbar strain and low back pain. The routine, non-contrast MRI revealed multilevel disc disease and bulges and possible annular tear at L45 and raised the possibility of a large disk extrusion at L5/S1migrating inferiorly (**Fig. 1a, 1b: sagittal T1W & T2W**). The patient was recalled for a post-contrast study (**Fig. 1c, 1d: sagittal T1W post without and with Fat Saturation**). They clearly delineate an extruded fragment (possibly with some epidural hematoma) migrating almost 4 cm inferiorly (yellow arrows), outlined by rim enhancement, and enhancement at L45 annulus consistent with an annular tear (red arrow).

FIGURE 2: This patient was referred to AIC by **Dr. Robert Jackson, MD** (ENT specialist) for neck pain. The routine, non-contrast MRI (**Fig. 2a, 2b: sagittal T1W & T2W**) reveals mild multilevel disc disease and bulges and possible annular tear at C56. The post-contrast study (**Fig. 2c: sagittal T1W post with Fat Sat**) shows enhancement at C56 posterior annulus, confirming the presence of an annular tear (arrow).

CLEAR INDICATIONS FOR CONTRAST IN THE SPINE:

- Work-up of or ruling out a tumor or metastasis to the bones or spinal canal in a patient with a known primary
- Post-operative spine (differentiates between recurrent/residual disk herniation vs. scar tissue)
- Unusual findings on a non-contrast MRI or other studies

WHAT ELSE CAN A POST-CONTRAST SPINE MRI SHOW THAT MAY OTHERWISE BE MISSED?

- Enhancement of annular tears and nerve roots (neuritis)
- Optimal delineation of extrusions or sequestration (distinguishes disk material from enhancing granulation tissue)
- Enhancement of acute stage 1, fibrovascular (Modic I) degenerative endplate marrow changes

The MRI contrast (**gadolinium**) is NOT iodine-based and is, therefore, very safe and can increase diagnostic accuracy of spine MRI's. Without it, potential tumors, annular tears, and subtle extrusions / sequestered fragments may be overlooked.

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