Cervical disc herniation magnetic resonance imaging

C5-C6: Left paramedian and foraminal disc osteophyte complex protrusion with severe involvement of the lateral recess and imprint on the spinal cord. C6-C7: Left paramedian and foraminal disc osteophyte complex protrusion with severe involvement of the lateral recess and imprint on the spinal cord. C7-T1: Left posteromedial and paramedial disc extrusion with moderate involvement.

Magnetic resonance imaging (MRI) is currently considered the imaging modality of choice in patients with cervical radiculopathy, because it does not expose patients to a radiation hazard, has an excellent soft-tissue resolution, and can create multi-planar images [1) 2) 3) 4)].

An MRI scan can image any nerve root pinching caused by a herniated cervical disc, and it does not deliver any radiation to patients who are suffering from cervical radiculopathy [5) 6) 7) 8)].

However, MRI requires almost 30 minutes to perform and is very sensitive to patient motion.

Diffusion tensor imaging (DTI) can potentially be used to assess microstructural abnormalities in the cervical nerve roots in patients with disc herniation [9)].

The diagnostic sensitivity of MRI for a cervical ruptured disc is very low (about 35-45 %) using the standardized definition of lumbar disc nomenclature.

• Two novel MRI signs can lead to a more accurate diagnosis of the surgically confirmed ruptured disc in the cervical spine.

sign 1: blurred margin of the disc; sign 2: mushroom-shaped disc.

• These two novel MRI signs showed substantial intra-and interobserver reliability [10].

Protocol

1. sagittal T1WI

2. multiple echo cardiac gated sagittal images (Tr = 1560, Te = 25, 4th echo)

3. GRASS image: axial partial flip-angle fast scan (Tr = 25, Te = 13, angle = 8°). Dark material adjacent to disc space is bone, disc is higher signal, CSF and flowing blood are high signal.

T2-weighted Dixon imaging of the cervical spine

The DLR sequence can substantially decrease the acquisition time of the Dixon sequence with subjective image quality at least as good as the conventional sequence. And no significant differences in lesion detectability were observed between the two sequence types [11].

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