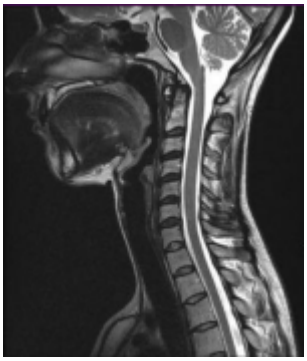
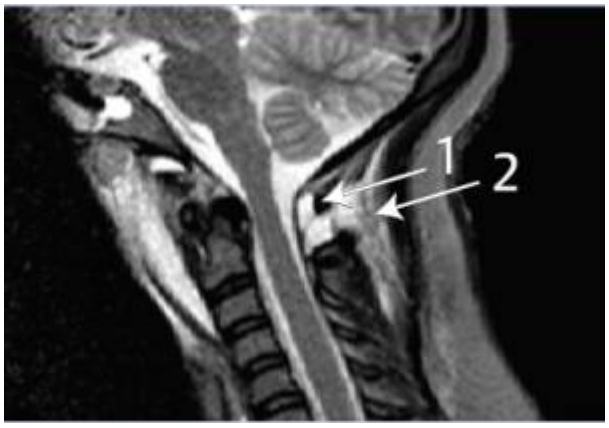
Cervical Spine Magnetic Resonance Imaging

- Twenty-One-Year Experience With Cervical Diagnostic Blocks and Denervation: A Study of 1031 Cases at a Single Institution
- Risk Factors of Cervical Spine Involvement in Patients With Rheumatoid Arthritis in the Imaging Era: A Cross-Sectional Study
- Increased cervical disc degeneration in ischemic stroke: a 10-year retrospective data review
- Transverse myelitis following guselkumab treatment for severe plaque psoriasis
- Creating a Superiorly Based Pharyngeal Flap: Is Prominence of C1 Superior Enough, and Will Adenoid Pad Be in the Way?
- The Influence of Cervical Ossification of the Posterior Longitudinal Ligament on Retro-odontoid Soft Tissue Thickness and Cervical Sagittal Balance
- The Relationship between Upper Airway Anatomy and Obesity in Patients with Obstructive Sleep Apnea
- Diagnostic imaging of the equine cervical spine and clinical significance of findings - review of literature - Part two: Ultrasonography, myelography, computed tomography, magnetic resonance tomography, and nuclear medicine



General information

MRI may be used to identify potentially unstable occult ligamentous or soft tissue injury. Note: an abnormal signal on MRI is not always associated with instability on flexion-extension X-rays [1]. It has been recommended that this MRI should be done within 48 hours [2] or 72 hours [3] of injury. MRI is not reliable for identifying the osseous injury.



Abnormal MRI findings include: abnormal high signal on T2 weighted image in the occipitoatlantal

joints or in the posterior occipitoatlantal (O-C1) ligaments. Very sensitive (≈ 100%) but not specific for unstable AOD. The figure at left shows abnormal signal in the posterior O-C1 ligaments (arrow 1) and in the ligamentum flavum and soft tissues (arrow 2).

Indications

Indications for non-emergent MRI (modified):

1. inconclusive cervical spine radiography, including questionable fractures

2. significant midline paraspinal tenderness and patient unable to have flexion-extension X-rays

3. obtunded or comatose patients

T2 weighted image and STIR are the most helpful sequences. Significant abnormal findings:

1. ventral signal abnormalities with prevertebral swelling

2. dorsal signal abnormalities. Abnormal signal limited to the interspinous is probably not as unstable as when it extends into the ligamentum flavum [4]. These patients were treated with rigid collars or Minerva jackets for 1–3 months, and one that was felt to be very unstable underwent fusion.

3. disc disruption indicated disc disruption indicated by abnormal signal intensity within the disc, increased disc height, or frank disc protrusions

Dynamic Cervical Magnetic Resonance Imaging

see Dynamic Cervical Magnetic Resonance Imaging.

1)
Horn EM, Lekovic GP, Feiz-Erfan I, et al. Cervical magnetic resonance imaging abnormalities not predictive of cervical spine instability in traumatically injured patients. J Neurosurg Spine. 2004; 1:39–42
2)
Section on Disorders of the Spine and Peripheral Nerves of the American Association of Neurological Surgeons and the Congress of Neurological Surgeons. Radiographic assessment of the cervical spine in symptomatic trauma patients. Neurosurgery. 2002; 50 Supplement:S36–S43
3)
Schuster R, Waxman K, Sanchez B, et al. Magnetic resonance imaging is not needed to clear cervical spines in blunt trauma patients with normal computed tomographic results and no motor deficits. Arch Surg. 2005; 140:762–766
4)
Benzel EC, Hart BL, Ball PA, et al. Magnetic resonance imaging for the evaluation of patients with occult cervical spine injury. J Neurosurg. 1996; 85: 824–829