Cervical Disc Herniation Mimicking Spinal Epidural Abscess

İbrahim Sun¹, Burcu Kasapoğlu², Ali Genç¹, Serdar Özgen¹, Necmettin Pamir¹
¹Acıbadem Üniversitesi, Beyin ve Sinir Cerrahisi, İstanbul, Türkiye
²Max Planck Deneysel Tıp Enstitüsü, Nörogenetik, Göttingen, Almanya

ABSTRACT
The differential diagnosis between degenerative and infectious spinal abnormalities can be challenging for neurosurgeons due to the subjectivity of the patient’s symptoms and physical findings, and inconclusive MRI data. This report describes a case of a cervical intervertebral disc hernia with surprising MRI findings suggesting the possibility of an epidural abscess formation.

Key words: epidural infection, cervical disc, MRI

Case report
A thirty-four year-old female patient presented at our clinic with numbness in both hands and radicular pain in the left arm. Significant power loss was noted on her left biceps. Her physical exam was otherwise normal. Her past medical history was unremarkable. MRI revealed a viscous mass at the anterior epidural space between the cervical 4th and 5th vertebrae. The mass lesion created an indentation on the dural sac and the spinal cord. T2W sections showed a hyperintense signal, whereas T1W sections a hypointense one (Figure 1-2). After intravenous contrast administration, cervical MRI revealed hypointense epidural enhancement (Fig. 3). This view suggested a possible epidural abscess formation. However, her C-reactive protein (CRP) and sedimentation levels were normal as well as the leukocyte count. An anterior cervical approach was planned and the patient was prepared for the operation. Intraoperatively, the intervertebral disc tissue was anteriorly intact and the annulus fibrosus degenerated. No nucleus pulposus found. A microdiscectomy was performed and the disk tissue...
and confirmed under C-arm fluoroscopic guidance (Figure 4a and 4b). She was discharged on the following day, postoperatively. Pathological examination of the intervertebral disk tissue revealed degenerative findings without any elements of infection.

**Discussion**

Cervical disk herniation is sometimes hardly distinguished from infection. Magnetic resonance imaging is the ideal diagnostic modality for identification of the pathology. Additional of gadolinium contrast can enhance the visualisation of epidural enhancement suggestive of active infection. Our patient’s MRI revealed these findings and we aimed to explain in this paper that cervical disk herniation may be confused with infection.

With increasing longevity of life, the prevalence and associated clinical disability related to disc degeneration disease is on the rise. Cervical disc degeneration is the most common cause of neck pain (4). In neurosurgical practice, a major aspect of disc degeneration is disc herniation.

The most common symptom associated with cervical disc degeneration is neck pain and it is due to the presence of neural tissue around the intervertebral disc. Other main symptoms of disc degeneration are unilateral or bilateral
pain radiating to shoulders, arms and hands as well as numbness in corresponding dermatomes (5).

Intervertebral disk is a collagenous tissue composed of a viscous nucleus pulposus surrounded by a tough shell of annulus fibrosus. Cervical disc herniation is characterized by a bulge or rupture of the nucleus pulposus through a crack in the degenerated annulus fibrosus. The pulp leaks into the epidural space and results in radicular symptoms by compression of nerve roots (6,7).

The two most common levels in the cervical spine to herniate are the C5 - C6 level (cervical 5 and cervical 6) and the C6 - C7 level. The next most common is the C4 - C5 level, and rarely the C7 - T1 level may be herniated. It usually develops in the 30 - 50 year old age group (8). Although a cervical herniated disc may originate from some sort of trauma or injury to the cervical spine, the symptoms commonly start spontaneously. Modern development of MRI scans allows an excellent, non-invasive means of imaging the entire cervical spine. Its contrast, sensitivity and multi planar images clarify the disc anatomy within or adjacent to the spine.

On the other hand, despite the progress in diagnostic technologies, diagnosing spinal infections remains to be complicated as it was in the past. The interpretation is still difficult due to non-specific clinical and laboratory findings. Many imaging techniques, including conventional plain radiography, computed tomography (CT), MRI, and radionuclide studies, have been used for radiological diagnosis of spinal infections (9,10). Plain radiographs and CTs are generally inadequate in differentiating infections from degenerative end-plate abnormalities. In recent decades, MRI has become almost the first preferred method to search for spinal infections. With the advent of diffusion weighted imaging, MRI is able to show the early signs of infection and abscess formation. IV gadolinium contrast injection, increases the sensitivity of MRI investigation and facilitates the diagnosis (11).

In conclusion, MRI is a very useful tool in identifying cervical degenerative diseases. Cervical disk herniation may challenge the neurosurgeon by presenting with confounding findings on MRI. Differential diagnosis may further be complicated when a spinal infection is in question.
References


