Spontaneous spinal epidural hematoma: MRI findings.

Published on 24.11.2009

DOI: 10.1594/EURORAD/CASE.7005
ISSN: 1563-4086
Section: Neuroradiology
Case Type: Clinical Cases
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Patient: 69 years, female

Clinical History:

A female patient, 69 year old, was transferred to the emergency department of our hospital due to intense back-pain localized in between the scapulae. During her hospitalization she developed paraparesis. A MRI examination was performed.

Imaging Findings:

The MRI protocol included T2- and T1-sequences with fat saturation techniques at transverse, sagittal and coronal section, before and after paramagnetic substance administration.

T2-weighted images with fat saturation techniques demonstrated an epidural fusiform collection of increased signal intensity (Fig 1), at the level of the arch of Th1 and extending inferiorly to the level of Th8 vertebral. T1-weighted images the collection presented inhomogeneous (with areas of increased and decreased signal intensity (Fig 2). T1-weighted images with fat saturation techniques the collection had markedly increased signal intensity. At both T1- and T2-weighted images at cross section (Fig 3,4), the subarachoid space observed diminished and the spinal cord compressed. After contrast medium administration (Fig 5), no enhancement of the collection was noted.

Discussion:

Spinal cord epidural hematoma can be caused either after trauma (lumbar puncture, epidural anaesthesia) or less frequent spontaneously. Spontaneous spinal epidural hematoma (SEDH) is a rare condition requiring an urgent diagnosis and decompression. A description by Jackson in 1869 is credited as the first official record of an SEH. Since that time, 200 cases of spinal EDH until 1996 has been described in the literature [1,2] and at a latest study at the only neuro-surgical department existing in Southern Sweden an incidence of 0.1 patient per 100.000 per year was given [2]. Patients with SEDH typically present with acute onset of back pain and rapid progression with development of spinal cord or cauda equine signs [1,2,3] that progress to radicular pain and paresis that may lead rapidly to total paralysis. The progression of symptoms may take about 48-72 hours and result from the compression of the cord. A male dominance and an age above 50 were observed.

The cause is unknown, but It is postulated that the valveless nature of rich venous plexus in epidural spase [1,2,3] is responsible for the development of EDH. Predisposing factors of SEDH are coagulopathy, anticoagulation therapy, thrombolysis, vascular malformation (arteriovenous malformation, hemangiomas and other vascular lesions, neoplasia, disc herniation, bone disease such as Paget, Valsava maneuver, whereas there is debate if hypertension is involved.

Prior to advent of MRI imaging, myelography and CT were used to evaluate SHE. Sagittal MR Imaging usually shows hematoma at the posterior epidural space with peak at upper thoracic spine, with well defined borders tapering superior and inferiorly. The dura mater separates the hematoma from the spinal cord on T1 and T2
weighted images. In acute stage (within 24 hours of onset), the EDH is usually isointense on T1-weighted image. On T2 weighted image, there may be homogeneous high signal intensity or inhomogeneous areas of high and low signal intensity. After 24 hours there is usually high signal intensity on T1 weighted images whereas T2 presents with analogous to cerebrospinal fluid signal intensity.

Major considerations in the differential diagnosis include epidural abscess, disk prolapse, acute tranverse myelopathy and intraspinal tumour. As she had no fever and no history responsible for abscess formation this case was excluded and confirmed with the absence of the contrast enhancement of the lesion after contrast medium administration. The spinal cord integrity was maintained and the case of myelopathy or intraspinal cord was also excluded. No disk prolapse observed. Epidural hematoma was suggested by MRI examination and was confirmed at surgery when clotted blood was found at epidural space.

MRI imaging is the technique of choice for evaluating epidural hematoma provides information for the nature and extent of the SDH, as well as the degree of cord compression. It is valuable in guiding treatment, because frequent follow up examinations can be performed.

**Differential Diagnosis List:** Spontaneous spinal epidural hematoma.

**Final Diagnosis:** Spontaneous spinal epidural hematoma.

**References:**

Description: At the level of thoracic vertebra (Th) Th1-8, an oblong lesion of increased signal intensity was observed. Origin:
Description: At the same leve T1 sequence the lesion presented inhomogeneous. Origin:
Description: at lower level of the thoracic spine axial view. The lesion obscures the posterior subarachnoid space and compresses the spinal cord. Origin:
**Description:** at intermediate level of the thoracic spine axial view. The lesion obscures the posterior subarachnoid space and compresses the spinal cord. **Origin:**
**Description:** at lower level of the thoracic spine axial view. The lesion obscures the posterior subarachnoid space and compresses the spinal cord. **Origin:**
Figure 4

Description: at lower level of the thoracic spine axial view. The lesion obscures the posterior subarachnoid space and compresses the spinal cord. Origin:
**Description:** upper level of the thoracic spine axial view. The lesion obscures the posterior subarachnoid space and compresses the spinal cord. **Origin:**
Figure 5

Description: No contrast enhancement was observed.

Origin:
Description: Normal follow up post-contrast examination Origin: