Clinical History:

A 43-year-old immunocompetent male patient with severe abdominal pain was admitted to the emergency department (ER). Laboratory findings showed elevated acute phase reactants (APR). There were no urinary or respiratory complaints.

Imaging Findings:

An abdominal ultrasound (US) was initially performed, which did not show any abnormalities. Due to the severity of the symptoms and a new onset of severe back pain along with laboratory findings, a computer tomography examination (CT) was performed with intravenous contrast administration at the ER. The abdominal CT did not show outstanding abnormalities except for changes in presacral area with some fat stranding. Spondylodiscitis was suggested as a probable diagnosis based on the narrowing of the disc space and the irregularity of the vertebral plates.

Further examination of the patient showed sudden onset of cauda equine syndrome and MRI with gadolinium was performed, revealing bilateral para-vertebral abscesses with extension to left psoas muscle and an epidural abscess with inner septa from C3 to S1. There was no clear communication between the para-vertebral and the epidural abscess, but it seems to be the most likely origin.

Discussion:

Spinal epidural abscess (SEA) may cause severe neurological morbidity and its prevalence is increasing due to chronic illnesses and immunocompromised patients among other reasons [1]. They are uncommon but severe lesions with non-specific symptoms such as back pain, fever or inconclusive neurological deficits and usually the diagnosis is made after a CT or MRI is performed [2]. The most frequent pathogens are Staphylococcus Aureus, Staphylococci coagulase-negative and Streptococcus spp and the route of infections may be secondary of haematogenous spread or direct spread from an osteomyelitis [3, 4].

MRI plays a major role in the diagnosis of this condition, which usually appears hypointense in T1-WI and hyperintense on T2-WI with peripheral enhancement after the administration of Gadolinium [5].

In our patient, a high signal collection on T2-WI was found in the posterior epidural space extending from C3 to the sacrum with low signal and a rim of enhancement in T1-WI compatible with an epidural abscess. Degenerative disc diseases at the level L4–L5 with Modic type II changes in the endplates were also seen. There was no disc enhancement nor were there other findings suggestive of spondylodiscitis. Streptococcus pneumoniae was found in
post-surgical samples, which probably gained access to the epidural space from the bilateral para-vertebral abscesses.

Surgical drainage along with antibiotics is the main treatment option. Surgical intervention must be performed as soon as possible, especially if neurological symptoms are present, although there is no specific guideline for the treatment of this condition [2, 6].

Our patient underwent surgical decompression with extensive laminectomy L1-L5 as well as pus drainage of the epidural space. He was discharged from the hospital after completing medical treatment, consisting in intravenous Ceftriaxone (4 weeks).

Main differential diagnosis should be made with epidural haematomas. Although the appearance of the blood varies as times passes, this condition usually shows heterogeneously T2-hyperintensity plus T1-hyperintensity-signals related to the spinal cord. Additionally, the presence of fever and para-vertebral abscesses along with the imaging findings made this diagnosis unlikely.

Written informed patient consent for publication has been obtained.

**Differential Diagnosis List:** Epidural abscess C3-S1 with para-vertebral abscesses, Epidural haematoma, Lipoma, Tumours (primary and metastatic)

**Final Diagnosis:** Epidural abscess C3-S1 with para-vertebral abscesses.

**References:**


Description: Spondylitis was initially suggested as possible diagnosis based on fat stranding of presacral space and bone changes at L4-L5 (Figure 1b). Origin: Alonso J, Department of Radiology of 12th October Hospital, Madrid, Spain.

Description: Coronal CT, bone window. L4-L5 disc space narrowing, sclerosis and irregularity of the vertebral endplates and anterior osteophytes. Origin: Alonso J, Department of Radiology of 12th October Hospital, Madrid, Spain.
**Figure 2**

Description: T2-WI sagittal view of the cervicothoracic spine. High-signal fluid collection occupying the posterior epidural space (red arrow). Note anterior displacement of the dura mater (green arrow).

Origin: Alonso J, Department of Radiology of 12th October Hospital, Madrid, Spain.
Description: T1-WI sagittal view of the cervicothoracic spine after administration of paramagnetic contrast. Low-signal collection occupying the posterior epidural space with peripheral enhancement and internal septa occupying the posterior epidural space (red arrow). Origin: Alonso J, Department of Radiology of 12th October Hospital, Madrid, Spain.
Figure 3

Description: T1-WI + Gd axial view of the thoracic spine. Fluid collection with rim enhancement occupying the posterior epidural space (red arrow) that narrows the spinal canal and displaces anteriorly the medulla. **Origin:** Alonso J, Department of Radiology of 12th October Hospital, Madrid, Spain.
Description: T2-WI sagittal view of the lumbar spine. High-signal fluid collection occupying the posterior epidural space (red arrow). Degenerating changes at the intervertebral disc L4–L5 and bone marrow changes. Origin: Alonso J, Department of Radiology of 12th of October Hospital, Madrid, Spain.
Description: T1-WI sagittal view of the lumbar spine. Low signal collection occupying the posterior epidural space (red arrow). Degenerating changes at the intervertebral disc L4–L5 and fatty marrow replacement at the vertebral endplates. Origin: Alonso J, Department of Radiology of 12th of October Hospital, Madrid, Spain.
Description: T1-WI + Gd sagittal view of the lumbar spine. Peripheral enhancement of the fluid collection occupying the posterior epidural space (red arrow). Note that the intervertebral disc L4–L5 does not show contrast enhancement. Origin: Alonso J, Department of Radiology of 12th of October Hospital, Madrid, Spain.
Description: T2-WI STIR sagittal view of the lumbar spine. There are no anomalies in the signal of the bone marrow suggesting osteomyelitis. Degenerating changes at the intervertebral disc L4 – L5. Origin: Alonso J, Department of Radiology of 12th of October Hospital, Madrid, Spain.
Figure 5

a

Description: T2-WI axial view of the lumbar spine. Fluid collection occupying the posterolateral epidural space (red arrow). Inflammatory changes in left psoas and paravertebral muscles (green arrow). **Origin:** Alonso J, Department of Radiology of 12th of October Hospital, Madrid, Spain.

b

Description: T1-WI + Gd lumbar spine axial view. Hypointense collection with rim enhancement occupying the epidural space (red arrow). Inflammatory changes in left psoas and paravertebral muscles. Collection within the left longissimus thoracis muscle (green arrow). **Origin:** Alonso J, Department of Radiology of 12th of October Hospital, Madrid, Spain.
Description: T1-cervical sagittal view. Complete resolution of spinal epidural abscesses. Origin: Alonso J, Department of Radiology of 12th of October Hospital, Madrid, Spain.
**Description:** T2-cervical sagittal view. Complete resolution of spinal epidural abscesses. **Origin:** Alonso J, Department of Radiology of 12th of October Hospital, Madrid, Spain.
Description: T1-dorsal sagittal view. Complete resolution of spinal epidural abscesses. Origin: Alonso J, Department of Radiology of 12th of October Hospital, Madrid, Spain.
**Description:** T2-dorsal sagittal view. Complete resolution of spinal epidural abscesses. **Origin:** Alonso J, Department of Radiology of 12th of October Hospital, Madrid, Spain.
Description: T1-lumbar sagittal view. Postoperative changes after extensive lumbar laminectomy. Complete resolution of spinal epidural abscesses. Origin: Alonso J, Department of Radiology of 12th of October Hospital, Madrid, Spain.
Description: T2-lumbar sagittal view. Postoperative changes after extensive lumbar laminectomy. Complete resolution of spinal epidural abscesses. Origin: Alonso J, Department of Radiology of 12th of October Hospital, Madrid, Spain.