

# Acute paraplegia by epidural abscess: full neurological recovery following surgical decompression

F. DE IURE, A. GASBARRINI, S. PADERNI, S. BORIANI

Divisione di Ortopedia e Traumatologia, Maggiore Hospital – Bologna (Italy)

**Abstract.** – Authors report a case of acute paraplegia due to an epidural spinal abscess caused by a heroin injection that happened four months before. A complete neurological recovery is obtained by surgical decompression and antibiotic therapy despite the preoperative neurological status. The need for a surgical stabilization following extensive laminectomy is discussed.

*Key Words:*

Spine infection, Epidural abscess, Surgical decompression.

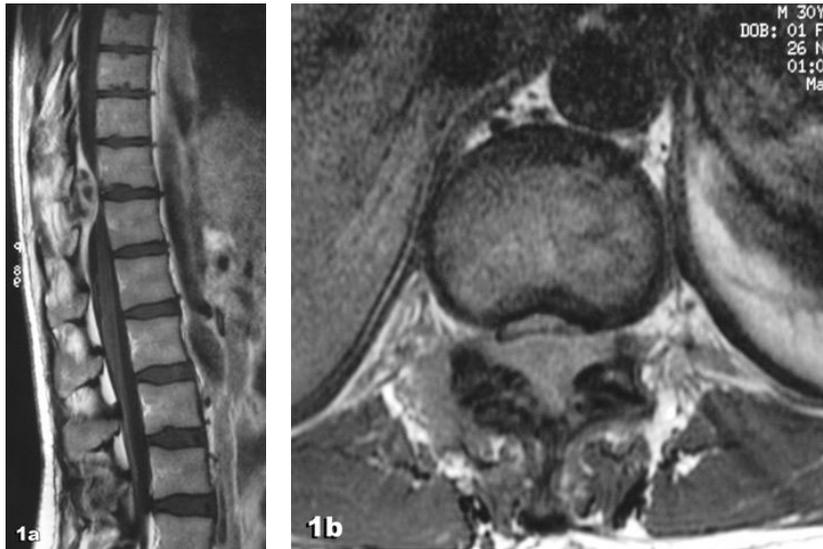
## Introduction

Spine infections frequently involve the intervertebral disc and the neighbouring vertebral bodies. Exceptionally they localize in the posterior joints or inside the spinal canal<sup>1,2</sup>. In this last occasion, they generally follow medical manoeuvres like spinal anaesthesia, epidural analgesia, lumbar puncture, corticosteroid facets injection<sup>3-8</sup>. Sometimes they are caused by hematogenous spreading of bacteria or by contiguous retroperitoneal abscesses. The majority of authors supports the need of a urgent decompression without stabilization<sup>1,6,9,10</sup>, with a clinical outcome being strictly related to the preoperative neurological status<sup>2,6,11,12</sup>.

## Case Report

A 30 years old male, known to be a heroin addicted in the past, referred to a first aid station because of an increasing back pain. This was the only patient's symptom. He re-

ported his last heroin injection 4 months before; after that he underwent a drug withdrawal program by methadone. Blood test were normal except a rise in ESR (105). The day after he started complaining inferior limbs paresthesia and weakness that turned to complete paraplegia in about 12 ours. Sphincters paralysis was present as well. An MRI performed the next morning showed a cord compression due to a round mass arising from the posterior arch of T12 (Figure 1). The patient was finally referred to our spine surgery department and, 15 hours after the paralysis onset, he underwent T11-L1 posterior laminectomy and T10-L2 stabilization with a pedicle screw and rod titanium system (Figure 2). During laminectomy we performed the epidural abscess debridment and bacterial test drawing. Close to the abscess a thick fibrous tissue surrounding the dura and substituting the normal epidural fat was found (Figure 3). This tissue was carefully removed up to the laminectomy border where it turned again into normal epidural fat. No changes in patient's neurological status were observed in the next 24 hours. Two days after surgery inferior limbs sensitivity and feet extension movements appeared. Bacterial test revealed a *Staphylococcus aureus* to cause the infection and the specific antibiotic therapy was started and maintained for 3 months. The patient was then sent to another hospital for rehabilitation. A complete neurological recovery was achieved two months after surgery. Complete subsidence of infection. Normal laboratory parameters. At 1 year follow up no evidence of disease. Normal spine balance and stability. Construct stable (Figure 4).

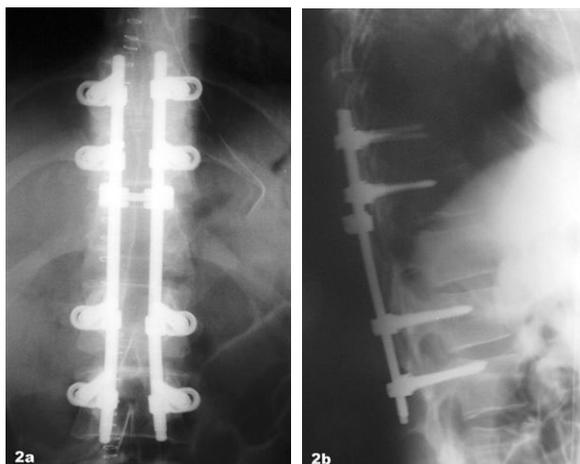


**Figure 1. A, B,** T2-weighted MRI showing cord compression.

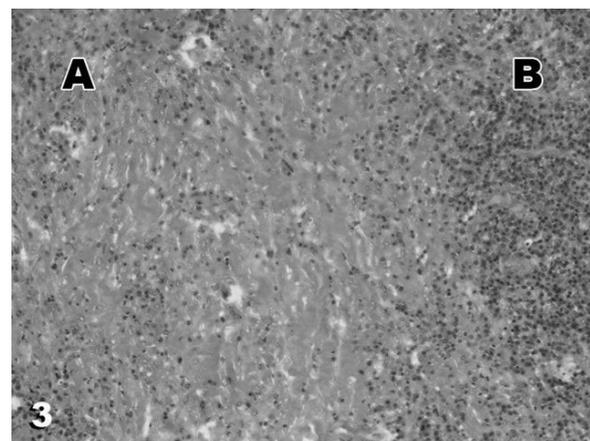
### Discussion

Epidural abscess formation in people with drug abuse history is well known<sup>6,10,13,16</sup>. In this case we could go up to the starting pathogenetic moment and it is interesting to notice how the bacterial injection took place 4 months before the clinical onset of symptoms. The infectious process probably started as a slow infection (fibrosis from epidural fat metaplasia) followed by the epidural abscess formation that caused a sudden paraplegia. Spine stabilization was carried on to prevent instability of the thoracolumbar

junction. In fact a wide laminectomy was performed to enlarge the surgical field in order to minimize manoeuvres on the injured cord. Previous experiences from other authors proved spinal instrumentation to be adequate also when dealing with the surgical treatment of vertebral infection<sup>2,17-20</sup>. Furthermore, the option of a cast immobilisation in a paraplegic patient with few chances of neurological recovery was excluded from the beginning. Surprisingly, despite most authors experience<sup>2,6,11,12</sup>, the patient had a complete neurological recovery in a short time, which remained stable at long term.

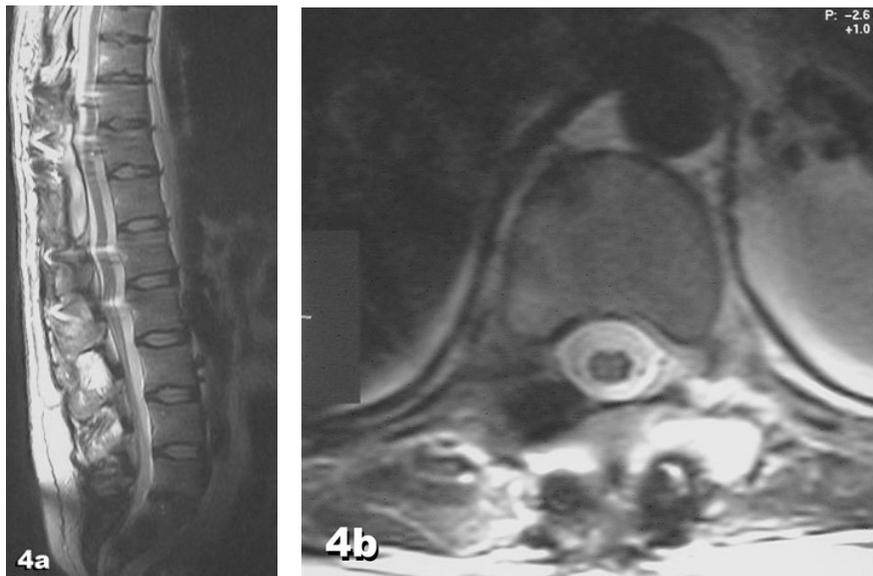


**Figure 2. A, B,** Postoperative x-rays following T10-L2 stabilization.



**Figure 3.** Epidural abscess (A) and fibrous tissue (B).

Figure 4. A, B, MRI control 1 year after surgery.



### Conclusions

Epidural abscess diagnosis can be difficult. Both because it is rare and because symptoms are non specific. A low back pain in a patient known to be drug addicted (even in the past) together with an ESR rise should bring the suspicion of a spine infection, even without a patient immunodeficiency. Even if, according to the literature, a better clinical outcome is related to an unimpaired preoperative neurological status, a urgent decompression should be attempted anyway as the good outcome of our patients proves. Furthermore we think that a surgical stabilization helps a quicker functional recovery without affecting the antibiotic therapy effectiveness.

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