

Severe back pain – is it a spinal abscess?

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Fortunately for this elderly patient, an infection of an intervertebral disc was diagnosed and treated before it progressed to become a spinal epidural abscess.

It is part of the practice of medicine to hear of bad outcomes relating to patients with rare conditions who had initially presented with very common everyday symptoms. These cases may even end up in court.

As a GP also working in your local hospital's emergency department, you are aware that many of the patients you see are likely to be completely unknown to you, unlike in general practice. In the emergency department, however, it is easier and quicker to obtain diagnostic investigations such as blood tests and x-rays than it is in a general practice, and also there is the opportunity to reassess the patient and hopefully discuss him or her with a colleague.

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The case

Arrival at hospital

During a busy Sunday afternoon shift, an 85-year-old man was brought in by his wife because of severe back pain. They were a lovely couple, constantly apologising for attending and not wishing to be any trouble. Having lower back troubles yourself, you are quite happy to attend 'back pains'. From the outset, you felt this case was possibly different.

The patient, helped by his wife, gave a concise history of a very active grandfather who played golf and who also enjoyed time at the computer, where he would sit for hours without much problem. His background health was good, with no diabetes and no raised cholesterol, although he did have chronic sinus troubles for which he had had two drainage procedures in the past 12 months. He had chronic atrial fibrillation, treated with sotalol 40 mg twice daily, and he also had a pacemaker for sick sinus syndrome.

Over the past week, however, he had stoically suffered an increasing back pain that was now incapacitating. His wife said he seemed sick as he was 'off his food' and was lethargic. He, of course, contradicted, insisting he was fine. His wife reported increasing use of analgesics,



Figure 1. CT of the patient's thoracic spine without contrast (sagittal view), showing no fracture, no loss of vertebral or intervertebral height and no paravertebral soft tissue swelling.

including codeine combinations (with resulting severe constipation), but without pain relief.

The patient ascribed his back pain to 'overdoing it' on his exercise walker, as often happens. However, the back pain had started 24 hours after he had been using the walker, and he had been woken from sleep in excruciating pain, unable to move.

Examination and assessment

The patient's pain was bilateral and radiated around both sides of the lower thoracic region towards the costal margins in front. He mentioned profuse sweats over the past three days but no rigors or fevers. He had a history of an allergic rash to cephalosporins.

On examination, the patient did not look unwell and he was co-operative and alert. His vital signs were normal: he was afebrile with a pulse of 60 beats per minute and a blood pressure of 130/60 mmHg.

Spinal epidural abscess – selected literature excerpts

Excerpt 1

Sendi P, Bregenzer T, Zimmerli W. Spinal epidural abscess in clinical practice. *QJM* 2008; 101: 1-12; doi: 10.1093/qjmed/hcm100.

From abstract: 'In clinical practice, a diagnosis of SEA [spinal epidural abscess] is often not considered, particularly in the early stages of the disease when neurological symptoms are not apparent. Knowledge of persons at risk, clinical features and the required diagnostic procedures may decrease the number of initially misdiagnosed cases. Clinical signs, duration of symptoms and the rate of neurological deterioration show a high inter-individual variability, and the classic triad (spinal pain, fever and neurological deficit) is often not found, especially not at first presentation to a physician.'

Excerpt 2

Darouiche RO. Spinal epidural abscess. *N Engl J Med* 2006; 355: 2012-2020.

From abstract: 'Despite advances in medical knowledge, imaging techniques, and surgical interventions, spinal epidural abscess remains a challenging problem that often eludes diagnosis and receives suboptimal treatment. The incidence of this disease – two decades ago diagnosed in approximately 1 of 20,000 hospital admissions – has doubled in the past two decades, owing to an aging population, increasing use of spinal instrumentation and vascular access, and the spread of injection-drug use. Still, spinal epidural abscess remains rare.'

Excerpt 3

Davis DP, Wold RM, Patel RJ, et al. The clinical presentation and impact of diagnostic delays on emergency department patients with spinal epidural abscess. *J Emerg Med* 2004; 26: 285-291.

From abstract: 'Previous reports have recommended the use of a 'classic triad' of fever, spine pain, and neurological deficits to diagnose spinal epidural abscess (SEA); however, the prognosis for complete recovery is poor once these deficits are present... The use of risk factor assessment is more sensitive than the use of the classic diagnostic triad to screen ED patients with spine pain for SEA.'

From text:

'Table 2. Prevalence of a priori risk factors in SEA patients

Risk factor	Percent
Intravenous drug use	60
Immunocompromised	21
Alcohol abuse	19
Recent spine procedure	16
Distant site of infection	14
Diabetes	13
Indwelling catheter	11
Recent spine fracture	3
Chronic renal failure	3
Cancer	3
Presence of one or more of the above	98

.... These data suggest that misdiagnosis of SEA is the rule rather than the exception, and that neurologic deterioration often results from these delays, including those occurring during hospitalization.'



Figure 2. MRI of the patient's thoracic spine, showing inflammation but no epidural abscess.

Full examination, including a detailed neurological assessment, revealed no signs. Routine blood tests were performed, as were plain x-rays of his thoracic spine looking for a crush fracture, as these are common in the elderly. The x-rays showed no fracture or paravertebral soft tissue swelling.

The blood tests revealed that although the total white cell count and neutrophils

were only mildly raised at 13.9×10^9 (normal range, 4.0 to $11.0 \times 10^9/L$) and $8.5 \times 10^9/L$ (normal range 2.0 to $7.5 \times 10^9/L$), respectively, the C reactive protein (CRP) was extremely raised at 353 mg/L (normal range, below 10.0 mg/L).

A CT scan was arranged as a further investigation in this patient, whose condition had worsened after a week of conservative therapy. The CT showed no fracture, no loss of vertebral or intervertebral height and no paravertebral soft tissue swelling (Figure 1).

The diagnosis

Following the CT scan and blood culture results that had been performed as part of the septic work-up, a clinical diagnosis of 'staphylococcal discitis spinal ?epidural abscess' was made, based on the severe localised pain.

Echocardiography showed vegetations on the pacemaker leads, and the pacemaker and leads were removed. An MRI (now able to be done because the metal pacemaker had been removed) and nuclear scans showed inflammation but not an epidural abscess (Figure 2).

The staphylococcus was flucloxacillin-sensitive and responded to the antibiotic over six weeks. It had a similar sensitivity

to a strain cultured previously from the patient when he had surgery for a chronic frontal sinusitis.

Conclusion

Fortunately the final diagnosis in this patient was not a spinal epidural abscess but a staphylococcal discitis and osteomyelitis. The staphylococcus strain was identical to a strain cultured three months earlier from a chronic frontal sinusitis, and it was thought that the bacteria had colonised the pacemaker leads and spread to the degenerative intervertebral disc.

You are impressed by how easy it would have been to miss the diagnosis in this patient, especially in the early stages of the back pain. A literature search of spinal epidural abscess highlights the uncommonness and difficulty of diagnosis of the condition (see the box on page 66).

You feel reassured and glad your patient had been diagnosed and treated before the infection had progressed to the epidural space. The patient recovered well, and even returned to playing golf.

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COMPETING INTERESTS: None.