Online Case Report

Spinal epidural abscess presenting as acute abdomen

Guy Hagan¹ and James Adjogatse²

¹South Warwickshire Hospital, Warwick, UK

²North Staffordshire Hospital, Stoke on Trent, UK

Causes of an acute abdomen unrelated to abdominal surgical pathology are uncommon, but are often important due to the degree of associated morbidity (and mortality) many of them cause. One such case of an extra-abdominal cause of acute abdomen is presented here together with a review of the literature.

Case report

A 47-year-old male was admitted to the surgical assessment unit with a 6-week history of increasing back and abdominal pain. He also complained of feeling 'cold and shivery' about twice a day for the last 2 days. He had been treated empirically for a urinary tract infection or osteoarthritis unsuccessfully by his general practitioner.

A more detailed history revealed that his pain had been in the LIF for the last 3 weeks but had shifted to the RIF and right flank over the last 2 days. His pain was constant, with no radiation, and had no relieving/exacerbating factors. He denied any urinary symptoms and had passed a normal stool that day. He had no significant past medical history, and was on no regular medication. He was a social drinker, a life-long heavy smoker and had no recent history of foreign travel.

On examination, he was in distress, moving about the bed. Temperature was 39°C, SaO₂ was 99% on air, pulse was 96 and blood pressure was 122/76. Examination of his abdomen revealed tenderness, guarding and rebound tenderness in the right iliac fossa, as well as right renal angle tenderness. His bowel sounds were normal. Rectal examination was very tender to the right.

Blood tests showed a leukocytosis of $14.5 \times 10^9 \text{ l}^{-1}$ and a thrombocytosis of $538 \times 10^9 \text{ l}^{-1}$, with normal electrolytes, glucose and amylase. Erect chest X-ray showed no free

Figure 1 Abdominal X-ray on admission. Interestingly, the L2/L3 discitis can be seen here, but this was not noted at the time.

gas, and abdominal X-ray revealed dilated small bowel loops in the left upper quadrant and a degree of faecal

Correspondence to: GC Hagan, South Warwickshire Hospital, Lakin Road, Warwick CV34 5BW, UK

E-mail: guychagan@hotmail.com

Figure 2 X-ray of the lumbar spine showing the L2/L3 discitis.

loading (**Fig. 1**). Intravenous cefuroxime and metronidazole were started. Blood and urine cultures taken on admission were subsequently both negative.

Abdominal ultrasonography showed no appendix mass or free peritoneal fluid, or any other abnormality. In light of his worsening abdominal symptoms, a laparotomy was performed that evening. A dilated proximal with collapsed distal small bowel was found, but there was no mechanical cause of obstruction. No other abnormality was seen.

Postoperatively, his pain and temperature settled. But on the fifth postoperative day, he again developed a tender RIF and back pain. On detailed questioning, he admitted to being an ex-intravenous heroin user. Examination revealed tenderness to deep palpation in the RIF and marked bony tenderness over the mid-lumbar spine. Repeat blood tests revealed an elevated white cell count and platelets, with a CRP of 160 mg/l.

A thoraco-lumbar spine X-ray showed changes consistent with a discitis (**Fig. 2**). Neurological examination was normal, except for grade 4/5 power on right knee extension. An orthopaedic opinion was sought at this stage.

An urgent spinal MRI revealed a large epidural collection consistent with a spinal epidural abscess

compressing the canal at the L2/L3 level (**Fig. 3**), and a right-sided psoas abscess. He was commenced on i.v. flucloxacillin and gentamicin, and on the following day underwent a posterior decompressive laminectomy and disc space pus drainage of the L2/L3 region.

He made a good postoperative recovery, complicated only by re-exploration and debridement of the wound site due to infection 8 days postoperatively. Culture of the pus grew *Staphylococcus aureus*. He was discharged home 6 weeks after admission, with complete resolution of neurology and inflammatory markers.

Discussion

The first mention of spinal epidural abscess in the medical literature was by the Italian anatomist Morgagni in 1761. He described a 40-year-old man with severe back pain and paralysis of the legs. Spinal epidural abscess is a relatively uncommon condition. A recent international meta-analysis¹ estimated spinal epidural abscess to account for 0.2–2 cases per 10,000 hospital admissions. It carries a significant risk of mortality and morbidity. In the pre-antibiotic era, the mortality rate was about 83%.² Even with the modern treatment of surgery and long-term

Figure 3 MRI showing the epidural collection.

antibiotic therapy, mortality rates range between 5–32%.³ Just over 50% of spinal epidural abscess patients presenting with neurological signs make a complete neurological recovery;¹ in patients with neurological signs present for more than 48 h, the changes are usually permanent.⁴

The meta-analysis found the main risk factors to be diabetes mellitus (15–53.7% of cases), co-existing infection (44%), invasive procedures, including spinal instrumentation (22%), and intravenous drug use (8.8%). Trauma and alcoholism also accounted for a small number of cases.

Clinical and biochemical presentations of spinal epidural abscess are very varied in published case series,^{1,3,5,6} but a number of consistent factors have been identified. Either 72%³ or 100%¹ of patients have been shown to present with back pain, and approximately two-thirds with pyrexia. Less commonly, patients presented with paralysis (34%), localised neurology (about 30%) or signs of meningism (20%).¹ Biochemically, the ESR was raised in 94%¹ or 100%⁶ of spinal epidural abscess cases, and an accompanying leukocytosis was present in 76% of patients.⁶

The incidence of abdominal pain associated with spinal epidural abscess is rare, appearing in the literature usually as case reports. In a few cases,^{7,9} the patient's abdominal symptoms were severe enough for them to undergo an abdominal operation before the underlying cause of their pain was found. In one case, a 7-year-old boy with a spinal epidural abscess underwent a negative appendectomy.⁹ Our patient presented with symptoms and signs of acute abdomen for which he underwent negative laparotomy.

Conclusions

Spinal epidural abscess is a rare cause of abdominal pain but one that carries a high morbidity and mortality. As

neurological signs often only present at an advanced stage of the disease, spinal epidural abscess should form part of the differential diagnosis of a patient with abdominal ($\pm$ back) pain and risk factors for spinal epidural abscess. Early diagnosis is the key to a successful treatment outcome. In any patient with localised back pain, fever and raised inflammatory factors, spinal epidural abscess should be considered and spinal plain X-rays with or without MRI performed. A high index of suspicion is required in cases presenting with atypical symptoms, particularly if these patients have risk factors for spinal epidural abscess. It is important to examine the spine in all cases of obscure abdominal pain as spinal tenderness is the main clinical pointer to the diagnosis.

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