CASE REPORT

Epidural abscess secondary to acute appendicitis

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SUMMARY

A 62-year-old man presented via the emergency department with a 1-week history of back pain, on a background of non-insulin-dependent diabetes mellitus and rectal carcinoma for which he had undergone abdominoperineal resection, chemotherapy and radiotherapy. He exhibited signs of sepsis, midline lumbar spine tenderness and reduced hip flexion. CT of the abdomen and pelvis showed a presacral collection contiguous with the tip of the appendix, and MRI lumbar spine revealed abscess invasion into the epidural space extending to T9. He underwent a laparotomy with washout of the presacral abscess and appendicectomy and prolonged course intravenous antibiotic therapy. At 3 months after initial presentation he had made a full clinical recovery with progressive radiological resolution of the epidural abscess. The objective of the case report is to highlight a unique and clinically significant complication of a very common pathology (appendicitis) and to briefly discuss other intra-abdominal sources of epidural abscess.

BACKGROUND

This was a very unusual presentation of a common pathology (appendicitis) and to the author's knowledge this has not been reported previously. This presentation necessitated early and aggressive treatment to avoid major complications of sepsis. The patient in question had had previous pelvic surgery which disrupted normal presacral and retroperitoneal anatomy, and in such patients who present with sepsis it may be worth considering the possibility of epidural abscess from an abdominal source.

CASE PRESENTATION

A 62-year-old man presented to the emergency department at 22:00 with a 1-week history of back pain which started while doing some heavy lifting. The pain had become worse over the past 2 days and was now associated with fever and rigours. He denied abdominal pain. He had vomited several times on the day of admission, but was having normal bowel movements. He had no urinary symptoms.

His medical history included well-controlled non-insulin-dependent diabetes-mellitus, L4/5 disc degeneration and rectal adenocarcinoma, which had been treated with abdominoperineal resection, neoadjuvant chemoradiotherapy and adjuvant chemotherapy (completed more than a year prior to presentation).

On examination he was febrile (temperature 38.9°C) and tachycardic (heart rate 138 bpm) with a blood pressure of 127/94 mm Hg. His oxygen saturation was 99% on room air with a respiratory

rate of 18 breaths/min. Cardiac and respiratory examinations were unremarkable. The abdomen was soft and non-distended, with very minimal tenderness in the right lower quadrant, but no focal tenderness, rebound tenderness or guarding. He exhibited tenderness in the midline lumbar spine and had reduced power of left hip flexion (4/5 power compared to right side). The remainder of the full neurological examination including tone, power of all other muscle groups, coordination, sensation, reflexes and cranial nerve assessment was normal.

INVESTIGATIONS

Blood tests revealed elevated inflammatory markers (white cell count $15.4 \times 10^9/L$, C reactive protein 384 mg/L). Renal function, hepatic function and urinalysis were all normal. Plain chest and abdomen X-rays were also normal.

The patient was started on empiric antibiotics (piperacillin/tazobactam and gentamicin) and an urgent CT scan of the abdomen and pelvis demonstrated a presacral pelvic abscess (maximum diameter 7.8 cm) invading into S1–3 vertebral bodies and continuous with the tip of the appendix (figure 1).

TREATMENT

He was observed in high-dependency unit (HDU) overnight, and the following morning MRI of the lumbosacral spine confirmed abscess invasion into S1–3 vertebral bodies and revealed an associated epidural abscess extending up to T9 (figure 2). On consultation with the microbiology department, antibiotic therapy was broadened to intravenous meropenem, clarithromycin, gentamicin, anidulafungin, metronidazole and oral linezolid. He remained under close observation in the HDU. A neurosurgical consult was obtained and recommendations were

Figure 1 CT image (axial) of pelvis showing pelvic collection (A) contiguous with the tip of the appendix (B).

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Figure 2 T-2 weighted MRI (sagittal) demonstrating abnormal collection anterior to spinal cord in epidural space (A) and high signal (B) in the sacrum indicating osteomyelitis. There is abscess present up to the upper limit of this image, the T9–10 junction.

made for broad spectrum antimicrobial cover and drainage of the pelvic abscess, as posterior drainage via a spinal approach would be unlikely to be effective in clearing the infection.

The patient continued to have spiking fevers and proceeded to laparotomy on day 3 of admission. The appendix was found adherent to the sacrum with an associated abscess at the tip. An appendectomy was performed, the collection was drained and washed out and a pelvic drain placed. Histology confirmed extensive transmural inflammation of the appendix. Microscopy of the drained fluid showed scanty Gram-positive cocci (no growth) and scanty *Candida albicans*. Blood cultures taken on admission were positive for *Streptococcus intermedius*, *Bacteroides fragilis* and *Eikenella corrodens*. Following the results of the culture and sensitivities of the cultured organisms,

antibiotic therapy was rationalised to intravenous meropenem and intravenous cotrimoxazole.

OUTCOME AND FOLLOW-UP

The patient recovered well from this procedure and stabilised. Subsequent blood cultures were sterile and he was discharged to convalescence on rationalised antibiotics of intravenous meropenem and oral cotrimoxazole for 6 weeks. Repeat imaging 2 weeks later showed resolution of the pelvic collection and marked reduction in epidural collection. Antibiotic therapy was further rationalised to oral coamoxiclav. At 6 weeks follow-up, he was asymptomatic, examination was normal, C reactive protein was 10 mg/L with a normal white cell count. Repeat MRI showed only minimal residual epidural and sacral changes.

DISCUSSION

While epidural collections directly extending from intra-abdominal sources have previously been reported secondary to fistulating Crohn's disease,^{1–3} duodenal ulceration⁴ and colospinal fistula following rectal surgery and radiotherapy,⁵ to our knowledge this is the first reported case of appendicitis as the underlying cause. In this case infection appears to have spread contiguously through sacral vertebral bodies into the epidural space. In the absence of any existing literature, we postulate that disruption of normal retroperitoneal anatomy due to previous abdominoperineal resection may have allowed an unusual pathway of microbial transit into the epidural space.

Learning points

- ▶ Complicated appendicitis may have a very atypical presentation.
- ▶ Any suspicion of epidural abscess (back pain or lower limb neurology with sepsis) warrants early MRI imaging, aggressive empiric treatment and sampling of causative organisms at the earliest opportunity for targeted antimicrobial therapy.
- ▶ We postulate that prior surgery disrupting the presacral space may provide an abnormal pathway for bacterial migration.

Contributors MC was involved in collecting the data and writing the case report. BM and SE-M took part in reviewing and editing the manuscript for submission. All authors contributed to the planning of the report.

Competing interests None.

Patient consent Obtained.

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