Unusual presentation of more common disease/injury

Unusual presentation of a spinal epidural abscess

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Summary

A 59-year-old female patient presented with a 3-day history of abdominal pain and confusion. She had no significant medical history. On admission her Glasgow Coma Scale was 14/15; she was septic and examination revealed right upper quadrant tenderness. She deteriorated quickly, becoming acidotic and hypoxic, and was sedated, intubated and transferred to the intensive care unit.

Blood tests revealed raised inflammatory markers and blood cultures grew *Staphylococcus aureus*. Initial CT head revealed raised intracranial pressure and she was treated for meningoencephalitis. Repeat CT head 12 days later showed resolving oedema, and a lumbar puncture was attempted. This drew only frank pus and an abscess was suspected. CT spine confirmed a possible paravertebral abscess. Once extubated, MRI spine was possible which confirmed spinal epidural abscesses—1 month postadmission. These were rapidly drained by the neurosurgical team and the patient is currently receiving rehabilitation in a specialist centre.

BACKGROUND

- ▶ Abdominal pain is an unusual presenting feature of an epidural abscess.
- ▶ Epidural abscesses carry a high morbidity and mortality, which may be reduced by having a high clinical index of suspicion and by making an early diagnosis.

CASE PRESENTATION

A 59-year-old female patient presented with a 3-day history of abdominal pain and confusion. She had no significant medical history.

On admission her Glasgow Coma Scale was 14/15; she was tachycardic, febrile and hypoxic and examination revealed right upper quadrant tenderness. She quickly deteriorated within hours, becoming acidotic and hypoxic

and following anaesthetic review she was sedated, intubated and transferred to the intensive Care unit.

Initial blood tests showed raised inflammatory markers and deranged liver function tests. Gentamicin and metronidazole were started empirically for treatment of sepsis. CT head was performed due to rapid deterioration and delirium; this showed effacement of the sulci and prominence of the tonsillar horns, suggesting hydrocephalus. Following this result, antibiotics were changed to cover meningoencephalitis and mannitol was started.

Blood cultures taken on admission grew *Staphylococcus aureus* on day 2; at this point a repeat thorough examination was performed, which showed a healed small lesion on the patient's elbow. Following a discussion with her GP, it was discovered that she had been treated with

Figure 1 Axial MRI showing epidural abscess.

Figure 2 Sagittal MRI spine showing increased signal throughout cord.

erythromycin for a small abscess on her elbow some days prior to admission.

By day 5, the patient developed neurological signs—a left third nerve palsy, right sixth nerve palsy and flaccid weakness of the lower limbs with a sensory level at T8. She was, however, able to obey commands. An MRI spine was planned in view of these neurological signs but was unable to be performed as she remained intubated.

In view of mild clinical improvement, a tracheostomy was created and a repeat CT head was performed on day 12, in the hope of being able to perform a lumbar puncture. This showed resolving oedema and therefore a lumbar puncture was attempted, from which only frank pus was obtained. A CT spine (14 days post admission) was therefore performed, which showed a possible paravertebral collection. Throughout the patient's clinical course, the medical team closely liaised with the nearest neurosurgical centre who did not feel an emergency transfer was necessary, particularly, as no definitive diagnosis had been reached.

The patient was able to be weaned gradually from the ventilator and once extubation was possible an MRI spine was performed (4 weeks postadmission). This showed epidural abscesses from T1 to T6 and T12 to L5. The whole cord also appeared swollen, suggestive of spinal cord infarction (figures 1 and 2).

INVESTIGATIONS

Initial investigations

- ▶ Blood tests
 - Hb: 13.3
 - WCC: 18.8
 - Platelets: 204
 - Glucose: 9.9
 - C-reactive protein: 107
 - Alk phos: 398
 - Alanine aminotransferase (ALT): 100
 - Bilirubin: 23
- ▶ ECG normal
- ▶ Mid-stream urine (MSU) negative
- ▶ Sputum sample negative
- ▶ Antistreptolysin O titre (ASOT) negative
- ▶ Meningococcal PCR negative
- ▶ CT head—effacement of sulci and prominence of the tonsillar horns, suggesting hydrocephalus
- ▶ Blood cultures—*S aureus*

Subsequent investigations

- ▶ Transoesophageal echocardiogram day 7—no evidence of bacterial endocarditis
- ▶ Repeat CT head day 12—resolving oedema
- ▶ Lumbar puncture day 14—frank pus aspirated
- ▶ CT-thoracolumbar spine day 14—possible paravertebral collection
- ▶ MRI spine day 28—epidural abscess T1–T6 and T12–L5; whole cord swollen, suggestive of inflammation or infarction (figures 1 and 2).

DIFFERENTIAL DIAGNOSIS

- ▶ Initial presentation—sepsis of unknown source—possibly urinary, intra-abdominal or meningitis.
- ▶ Following initial CT head—presumed meningoencephalitis.
- ▶ Final diagnosis following MRI spine—spinal epidural abscess.

TREATMENT

- ▶ Early sedation and intubation.
- ▶ Initial broad spectrum cover with gentamicin and metronidazole.
- ▶ Antibiotics changed to cover meningoencephalitis with ceftriaxone and aciclovir.
- ▶ Antibiotics later converted to linezolid following growth of *S aureus* from blood cultures.
- ▶ Following diagnosis, drainage of abscesses under neurosurgeons.

OUTCOME AND FOLLOW-UP

- ▶ The patient developed a flaccid paralysis of the lower limbs with a sensory level at T8.
- ▶ Following diagnosis, she was transferred to a specialist neurosurgical centre where the abscesses were drained.
- ▶ She was then transferred to a rehabilitation facility where she is receiving ongoing therapy.

DISCUSSION

Epidural abscesses form within the epidural space and may be intracranial or spinal.

Epidural abscesses are relatively rare, the incidence of which are between 0.2 and 2 per 10,000 people admitted to hospital.¹

The majority of patients presenting with abscesses will have an underlying risk factor; either a cause for immunosuppression (eg, diabetes), recent spinal intervention or abnormality or a source of sepsis.²

A meta-analysis of 915 patients discovered that the most common presenting features of this condition were back pain (71%), fever (66%) and neurological deficit.³ There is little literature available regarding abdominal pain as the main presenting feature of epidural abscesses, although there have been some published case reports.^{4–5} In one case, abdominal pain was so severe as to warrant a diagnostic laparotomy.⁶ Two published case reports^{7–8} describe spinal epidural abscesses presenting as abdominal pain in paediatric patients, one of which was initially diagnosed as acute appendicitis.⁸

Duration and progression of symptoms vary greatly between cases.³ Indeed, in our patient, in contrast to the cases described above presenting as abdominal pain, deterioration was very rapid, intubation being necessary within hours of presentation.

Prognosis depends on several factors. The greatest predictor of neurological outcome is neurological status prior to surgery.² Up to 22% of cases result in paralysis,² unfortunately mainly due to a delay in diagnosis (up to 75% of cases⁹).

Learning points

- ▶ Early diagnosis is key to optimal clinical outcome with regard to epidural abscess.
- ▶ Diagnosis necessitates a high clinical index of suspicion.
- ▶ Think of epidural abscess as a potential source of sepsis in a patient with vague abdominal pain and neurological symptoms and perform a spinal examination in these cases.

Competing interests None.

Patient consent Obtained.

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