CASE REPORTS

An unusual cause of chest pain

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Abstract

Flail chest is an uncommon condition that generally arises due to a significant impact to the chest, resulting in multiple fractures of the anterior and posterior ribs. This force may be much less if the bones are weakened for any reason, in osteoporosis or myeloma for instance. We describe a case of flail segment that arose secondary to a large sternal abscess resulting from methicillin-resistant Staphylococcus aureus bacteraemia.

Keywords: sternal abscess, flail chest, methicillin-resistant Staphylococcus aureus (MRSA), chest pain, elderly

Case report

An 83-year-old man, with a history of moderate to severe cognitive impairment, was admitted with urinary retention. The patient was catheterised and urinalysis suggested a urinary tract infection, for which appropriate antibiotics were commenced. He subsequently developed Clostridium difficile diarrhoea and pre-renal renal failure, requiring treatment with metronidazole and intravenous fluids, and slowly improved.

During this patient’s admission he complained of intermittent chest discomfort, though this was difficult to localise reliably due to his cognitive impairment. Numerous electrocardiograms were recorded, but were difficult to interpret due to the ventricular pacemaker, and cardiac enzymes were repeatedly normal. Discussions with the family revealed that the pain had started 2 months prior following a fall forwards while climbing the stairs. There were no obvious signs of trauma at this time and the patient was treated with simple analgesia, to some effect.

This gentleman suddenly deteriorated—he complained of increasingly severe chest discomfort and became more confused. He was pyrexial with a white cell count of 32,000 cells/µl and was hypotensive. He also desaturated and showed signs of respiratory distress. An intravenous cannula site appeared inflamed, although given the respiratory symptoms, it seemed an unlikely source of infection. Although a chest X-ray was unhelpful, he was treated with intravenous antibiotics for a presumed lower respiratory tract infection.

However, some hours later the patient deteriorated further and was noted to have a very abnormal respiratory pattern. There was depression of the upper portion of the sternal with ‘see-saw’ paradoxical movements, the pivot point being through the lower third of the sternum. This was thought to be consistent with sternal fracture with a flail segment. The patient was too unstable to be transferred to the radiology department for sternal views to confirm this, and unfortunately died a few hours later.

Post-mortem examination revealed a large sternal abscess which had eroded through the costochondral joints. The aspirate from the abscess grew methicillin-resistant Staphylococcus aureus (MRSA), and subsequently the results of a wound swab and blood cultures have also shown MRSA.

Discussion

Sternal abscess is a very rare complication of sternal fracture, either secondary to blunt trauma [1] or as a complication of cardiopulmonary resuscitation [2]. Sternal abscess may also occur secondary to wound infection post sternotomy [3], or as a result of primary sternal osteomyelitis [4]. Risk factors for developing a sternal abscess include the presence of a haematoma, intravenous drug usage and a source of staphylococcal infection. Staphylococci are the most commonly implicated organisms in sternal abscess; others include Mycobacterium species, M. tuberculosis in acute infection and M. bovis related to revaccination [5], and there is a reported case due to Bartonella henselae, previously called Rochalimaea henselae, in a renal transplant patient [6]. The latter is the causative agent of cat scratch disease in immunocompetent subjects and bacillary angiomatosis in the immunocompromised—bone lesions are common in bacillary angiomatosis but not in cat scratch disease. Recurrent aseptic abscesses can occur in patients with ulcerative colitis, resulting from sternal osteomyelitis as a manifestation of the synovitis, acne, pustulosis, hyperostosis and osteomyelitis (SAPHO) syndrome [7].
Flail chest is defined as a condition in which the chest deforms markedly during quiet breathing and is produced by double rib fractures of three or more contiguous ribs, or combined sternal and rib fractures [8]. To our knowledge there have been no previous reports of sternal abscess causing cartilaginous disruptions resulting in a flail segment. However, whether an undiagnosed sternal fracture or a haematoma secondary to the recent trauma was the focus for infection, or if this was primary osteomyelitis, is of lesser importance than the source and type of organism that caused the abscess.

Between 1993 and 2002, reporting rates of microbiologically confirmed MRSA bacteraemia to the Health Protection Agency Communicable Disease Surveillance Centre (CDSC) increased 24-fold [9]. In our hospital alone, in 2004 there were 70 cases of MRSA bacteraemia. A recent article by Fowler et al. [10] reiterated the importance of prompt removal of intravenous cannulae to avoid complications including haematogenous seeding of organisms, particularly MRSA. Furthermore, we would add that it is equally, if not more, important that decisions regarding the necessity to perform venous cannulation should be scrutinised more thoroughly, on every occasion that the need arises.

**Key points**

- Non-specific aches and pains in older patients can be difficult to evaluate, especially if there is cognitive impairment.
- MRSA infection is thought to be responsible for 5,000 deaths each year in the UK and is a topic that is high on the government’s political agenda, but should also be such for us all as individuals.
- Intravenous cannula insertion may be minimally invasive, but can have potentially life-threatening complications.

**Conflicts of interest**

None.

**References**


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