Acute-on-Chronic Osteomyelitis of the Scapula Treated via Trephination

Timothy Woodacre* and Timothy Mason
The Knee Unit, Princess Elizabeth Orthopaedic Centre, Royal Devon and Exeter Hospital, UK

*Corresponding author: Timothy Woodacre, The Knee Unit, Princess Elizabeth Orthopaedic Centre, Royal Devon and Exeter Hospital, UK, Tel: +447824393322; E-mail: timothywoodacre@yahoo.co.uk

Abstract
We present a 12 year old girl who developed pyrexia and a widespread rash following 5 weeks of right shoulder pain. No initial source for sepsis was found. She was diagnosed with right scapula osteomyelitis following plain radiographs and Magnetic Resonance Imaging (MRI). No collection was demonstrated. Despite five days of intravenous antibiotics, she became haemodynamically compromised. She was taken to theatre and her scapula was trephined. Whilst no gross collection was drained, post-operatively she improved rapidly and was discharged home on intravenous (IV) antibiotics.

Keywords: Osteomyelitis; Trephination; chronic inflammation

Background
Osteomyelitis is defined as the acute or chronic inflammation of bone and its surrounding structures by pathogenic organism [1]. Haematological spread is the most common method in children (staphylococcus aureus in 80% of cases) [2]. Most commonly affected are the humerus, tibia, femur, maxilla, vertebrae and maxillary bodies. Long bones are more commonly affected in children because of their highly vascular metaphyses [2]. Involvement of short flat bones such as the scapula is rare. Acute presentation of scapula osteomyelitis is however recognised in the literature [3]. We describe a case of subacute osteomyelitis of the scapula in a child with an atypical presentation, successfully treated with trephination.

Case Presentation
We present a previously fit and well 12 year old girl who developed insidious onset right shoulder pain. This was initially attributed to straining during a vigorous game of swing ball. Shoulder pain persisted for 5 weeks before she became systemically unwell. She was admitted to the local district general hospital by the paediatric team with a 4 day history of pyrexia and a progressing erythematous papular rash on her chest. Initial observations revealed her to have a temperature spiking to 40°C and a tachycardia of 136. Full systemic examination and initial investigations failed to reveal a source of infection. C-reactive protein (CRP) and neutrophil count were raised at 249mg/L and 8.2*10⁹/L respectively. She was started on IV ceftriaxone, and later flucloxacillin, for treatment of sepsis of unknown origin. Her pyrexia persisted. Her CRP rose to 311mg/L within 48hours.

72 hours after admission she was reviewed by the orthopaedic team. Examination revealed no localised deformity or swelling, but tenderness to the lateral border of her right scapula. Shoulder flexion and abduction was limited to 90 degrees due to pain.

Investigations
Plain radiograph of her right shoulder revealed an irregular lateral border of the scapula (Figure 1) corresponding to her clinical findings. Subsequent MRI of her right shoulder suggested osteomyelitis of the lateral aspect of the right scapula with no surrounding collection and no evidence of septic arthritis (Figure 2).

Blood tests showed a positive antinuclear antibody (ANA) with speckled pattern and a moderately raised anti-streptolysin oxygen-labile (ASO) titre, suggestive of infection; however initial blood cultures failed to identify a pathogen.

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treated it can spread regionally to involve the spinal column3 or the glenohumeral joint [10] and cause overwhelming sepsis. Osteomyelitis is not usually visible on plain radiograph until 20 days of infection [11] or until there is 30% of bony destruction [12]. MRI or technetium scintigraphy can be used to aid diagnosis. MRI has a high specificity and sensitivity [13]. In the case presented, although changes were evident on radiograph, no significant collection or gross bony destruction was found on MRI or during surgical exploration.

Treatment for osteomyelitis, irrespective of location, initially involves targeted antibiotic therapy and rest for the affected area2. Trephination is proposed when there is a purulent collection within the bone3. In the case presented trephination was initiated in the absence of an obvious collection but in response to failed non-operative management and demonstrated a successful clinical response.

Learning Points

Scapula osteomyelitis should be an important if rare differential diagnosis for shoulder pain and pyrexia.

Acute on chronic osteomyelitis without permanent disability has not previously been described in literature.

Trephination of the scapula may be indicated, even in the absence of a defined collection, when non-operative treatment has been ineffective.

References