

Osteomyelitis of the scapula with secondary septic arthritis of the shoulder joint

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ABSTRACT

We report a delayed diagnosis of osteomyelitis of the scapula involving the inferior angle, and extending to the glenoid, with secondary septic arthritis of the glenohumeral joint in a 7-month-old female infant. The patient was treated with arthrotomy of the shoulder joint, anterior drainage of pus and intravenous antibiotics. The diagnosis was delayed as the patient was found to have bilateral lung abscess and other foci of infection, for which she was treated in the neonatal intensive care unit, with all the medical efforts directed toward saving her life. The diagnosis of septic shoulder arthritis is uncommon and difficult, requiring a high index of suspicion, which was another reason for the delayed diagnosis.

Keywords: acute septic arthritis, glenohumeral joint, osteomyelitis, scapula infection

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INTRODUCTION

Osteomyelitis of the scapula is a rare clinical entity, and most authors have merely mentioned that the scapula is rarely affected.⁽¹⁾ Acute septic arthritis of the shoulder in children is usually a complication of osteomyelitis of the proximal humeral metaphysis.⁽²⁾ We report a case of delayed diagnosis of osteomyelitis of the scapula in a 7-month-old female infant, which involved the inferior angle of the scapula and extended to the glenoid, with secondary septic arthritis of the glenohumeral joint. The diagnosis of septic shoulder is uncommon and difficult, and requires a high index of suspicion.⁽³⁾

CASE REPORT

A 7-month-old female infant was admitted to the hospital on October 22, 2007. She was referred from another hospital as a case of pneumonia with bilateral pneumothorax, for which bilateral chest tubes were inserted. At Day 10 of admission, the patient was found to have pseudoparalysis of the right shoulder and right upper limb, with swelling over the right scapula and



Fig. 1 Initial anteroposterior radiograph of the chest and both shoulders shows the destruction of the glenoid and the lateral border of the scapula.



Fig. 2 Anteroposterior radiograph of the right shoulder taken three weeks later shows an obvious destruction of the glenoid and the lateral border of the scapula, as well as a normal humeral head.

right shoulder region. This swelling was associated with pain and aggravated by movement of the shoulder joint. No indication of previous trauma was observed. The attending general surgeon drained the collection in the posterior aspect of the scapula through a small opening in the skin and the subcutaneous tissue under local anaesthesia in the ward. Unfortunately, the patient continued to have active drainage at the incision site for several days.

At this stage, the patient was referred to the authors

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for consultation and evaluation. On examination, the patient was found to have pseudoparalysis of the right upper limb and swelling of the right shoulder region. A draining sinus was also observed in the posterior aspect of the shoulder region. According to the observations of the attending general surgeon, the swelling was more evident at the posterior aspect of the scapula than around the shoulder. As a subcutaneous collection was suspected, that area was drained in the ward under local anaesthesia. No improvement was noticed after several days, and the swelling in the shoulder joint had become more obvious. Therefore, it was thought that the infection had first occurred in the scapular region as the swelling was initially observed there. The blood count revealed an increased leucocyte count of 16,250, with 70.9% neutrophils and 21.4% lymphocytes, an erythrocyte sedimentation rate of 25 mm/hr and C-reactive protein (CRP) 96 mg/L. The blood culture was obtained, but no organism was isolated. Cultures from the lung infection revealed *Staphylococcus epidermidis*. Radiological studies found bone destruction of the glenoid extending down the lateral border of the scapula to the inferior angle of the scapula, which was accompanied with soft tissue swelling over the right shoulder region (Figs. 1 & 2).

The patient was treated by arthrotomy of the shoulder joint under general anaesthesia in the operating room. The drainage of the pus and irrigation of the joint were performed through an anterior approach.⁽³⁾ The drained fluid was sent for culture and sensitivity tests, but no organism was detected. During the operation, glenoid erosions and destruction of the articular cartilage were found, but the humeral head appeared to be healthy, without any sign of destruction or erosion of the articular surface. The wound was closed loosely over a drain which was removed after 48 hours. The patient was well for the first week, and the shoulder joint motion improved significantly in the second week postoperation. Intravenous antibiotics was continued for six weeks. The CRP was 6 mg/L and the leucocyte count was 8,500, with 37% neutrophils and 67% lymphocytes. The patient was subsequently discharged from hospital and closely followed up as an outpatient. In the last follow-up visit seven months later, the patient had regained an excellent range of motion in the right

shoulder except for some limitations in the complete above-head abduction. She was able to abduct her right shoulder above 90 degrees but was unable to perform a complete abduction.

DISCUSSION

Acute septic arthritis results from bacterial invasion of a joint space, which can occur through haematogenous spread, direct inoculation from a trauma or surgery, or contiguous spread from an adjacent site of osteomyelitis or cellulitis. The diagnosis of septic arthritis can be difficult, especially in neonates and infants as they have minimal clinical findings, such as fever, swelling or pain. In addition, a multifocal involvement, which is not apparent at presentation, is common in this age group. Most cases of septic arthritis and osteomyelitis of the lower extremities present with limping or an inability to bear weight. In the upper extremities, the decreased use of the shoulder, associated with discomfort, pain or pseudoparalysis, is the most common presenting complaint of septic arthritis or osteomyelitis in the shoulder region.

Septic arthritis of the shoulder joint secondary to osteomyelitis of the scapula is considered an uncommon disease that requires a high index of suspicion. Associated infectious focus, which is more prevalent in the pediatric population, as in our case, adds to the difficulty in diagnosis. A delay in diagnosis prior to treatment is the most important prognostic factor. Late diagnosis may lead to damage in the articular surfaces. The involvement of the proximal humerus in infants and young patients may lead to the deformation of the humeral head, with shortening of the humerus. Early diagnosis and treatment can prevent articular damage and preserve the range of motion of the shoulder joint. The treatment should include intravenous antibiotics and drainage of the shoulder joint.

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