Pyomyositis presenting as septic arthritis
A report of 2 cases

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Two cases of pyogenic infection of skeletal muscle presented in a fashion that initially suggested a diagnosis of septic arthritis. One infection was caused by *Staphylococcus aureus*, but the other was caused by *Streptococcus pyogenes*, which is rarely implicated in pyomyositis. We note that the number of reported cases of pyomyositis in temperate climates has increased in recent years.

Pyogenic infections of skeletal muscle are rarely seen in temperate climates, although they are common in the tropics. Such infections may mimic septic arthritis and osteomyelitis. We report 2 cases of pyomyositis whose initial presentations suggested the diagnosis of septic arthritis.

Case 1

A 63-year-old Caucasian man presented with a 3-week history of pain and swelling of the right elbow. During the 14 days before presentation, he had also developed a painful swelling on the front of the right thigh. He had been unwell and feverish during the week before admission. He was a known diabetic, and was normally on oral hypoglycemics, although his blood sugar control during the period before admission had been poor. There was no history of recent foreign travel.

He had an inflamed swelling over the lateral epicondyle of the elbow. There was also some swelling on the medial side of the elbow, though this was less marked. The elbow was held at 90° of flexion, and pain prevented movement of more than 5° on either side of this position. In addition, he had a firm tender swelling over the right distal quadriceps that was slightly red, but not markedly inflamed. He had leucocytosis (22 x 10^9/L) and an ESR of 80 mm/h. Aspiration of the elbow from the medial side produced some serous fluid, which proved to be sterile on culture.

Reexamination of the elbow the next day indicated that the swelling over the extensor origin was fluctuant. The swelling was aspirated and pus was obtained. Both the extensor musculature and the quadriceps were explored. Large amounts of pus were found in each site, both within the muscles and as abscesses under the deep fascia. Drainage of both sites, together with treatment with flucloxacillin, resulted in rapid resolution of the infection. Pus from both sites grew pure *Staphylococcus aureus*. Histologic studies of tissue samples from the quadriceps confirmed the diagnosis of pyomyositis.

Case 2

A 38-year-old Caucasian woman presented with a 12-hour history of pain in the right shoulder. There was no history of trauma or foreign travel. The pain had gradually become more severe during this period, and at the time of admission only 0–90° flexion and abduction were possible. She was very tender in the right axilla. She had one episode of rigors on the day of admission and developed a pyrexia of 39 °C. The shoulder was aspirated at the time of admission, and a small amount of clear fluid, which proved to be sterile, was aspirated.

On the day after admission, her right upper arm had become cellulitic and edematous. The area affected was the whole of the upper arm and the anterior axillary fold. The pain had become worse and she appeared very unwell. She had an intermittent pyrexia. A full blood count revealed leucocytosis that was 13 x 10^9/L on the day of admission and had increased to 22 x 10^9/L by the next day. Blood cultures were taken, but proved to be negative. An ultrasound examination performed at this stage revealed diffuse edema of the muscles of the upper arm and anterior axillary fold, but no definite abscess.

The upper arm was explored, and beads of pus were found under the deep fascia and within the substance of the triceps. No abscess was found. Culture of the pus grew Lancefield group A ß-hemolytic streptococcus.

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Postoperatively, the patient was treated with large doses of benzylpenicillin and made a rapid recovery. A delayed primary closure was performed after 1 week. She was discharged 11 days after admission with a full range of movements of the shoulder. Histologic samples from the triceps muscle confirmed the diagnosis of pyomyositis.

Discussion

Pyogenic infection of skeletal muscle is classically considered to be a tropical disease. However, recognition of this condition in the United States has increased in recent years. Gibson et al. (1984) reviewed the 31 cases previously reported in the the United States. They noted that two thirds of these cases had multiple muscle involvement, which is a higher figure than in the tropics. Two thirds of Gibson's cases were younger than 20 years, whereas in the tropics, patients in the second to fourth decades of life are mostly affected. Two of Gibson's patients were diabetic, and it was though this might be a predisposing factor. The main problem noted, however, was lack of familiarity with the condition and consequent delay in diagnosis. This problem has also been apparent in European reports (e.g., Rogers 1973).

Pyomyositis is typically caused by *Staphylococcus aureus*. The muscles frequently affected include those of the thighs and calves, the glutei, psoas, latissimus dorsi, pectorals, and deltoids. Tenderness, induration, and inflammation increase with time, but generalized symptoms often only appear late in the condition. As the disease progresses the muscle may become fluctuant, reflecting abscess formation. Failure to drain the abscesses appropriately may result in septicemia. Blood cultures are, however, frequently negative earlier in the disease. Only 7 of the 30 patients found by Gibson et al. (1984) had positive blood cultures.

Streptococcal pyomyositis is far less common than that caused by staphylococcus. The total number of recorded cases in 1985 was 21 (Adams et al. 1985), and we have found reports of a further 5 cases (Gibson et al. 1984, Grau et al. 1986, Moore et al. 1986, Vlasveld and Hogewind 1986). The condition is extremely aggressive, and extensive muscle necrosis may occur. In several cases, muscle necrosis and toxemia have progressed in spite of adequate and early antibiotic treatment; and extensive debridement of muscle has been required. The overall mortality found by Adams et al. (1985) was 18/21 patients. It may be that early surgical decompression of the most severely affected muscles in our cases resulted in relatively rapid resolution of the infection.

Pyomyositis may mimic septic arthritis, osteomyelitis, thrombophlebitis, and cellulitis, and might be expected to present to orthopedic surgeons. However, references in the orthopedic literature are scanty. The only reference that we have been able to find is one to pyomyositis mimicking soft tissue sarcoma (Tucker et al. 1978).

References

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