A "tropical disease" in an immunocompromised patient

Khawaja Manzoor
Foundation Doctor
Darlington Memorial Hospital
Khawaja.manzoor@cddft.nhs.uk

Introduction

Pyomyositis is a primary bacterial infection of striated muscles nearly always (over 90% of cases) caused by *Staphylococcus aureus*[1]. The source of infection can remain obscure as in most cases there is no prior history of skin breakdown or adjacent infection (e.g. cellulitis, osteomyelitis). But 20-40% might have a recent history of muscle trauma. The condition is common in the tropics (especially Pacific islands) but is *most unusual* in temperate climates. Recently, it has been recognized with increasing frequency in temperate climates, particularly in individuals with compromised immunity.

Case Report:

This report concerns a 23 year old female with staphylococcal pyomyositis who had a past medical history of systemic lupus erythematosus (SLE), severe lupus nephritis, right hip resurfacing arthoplasty for avascular necrosis of the right femoral head (8 years earlier) and chronic anaemia.

She presented with a two week history of excruciating pain in the right hip radiating to the right knee which started following a four hour walk. She was unable to move the hip joint or bear weight. There was no history of trauma, travel to the tropics, alcohol abuse, fall or injury.

Three earlier admissions to hospital over the previous two weeks with similar complaints were recorded. On the first two visits, she had pain only in her right hip (radiating to the right knee) and was unable to bear weight and move her hip joint. No obvious abnormality was found on physical examination and X- rays, though the C - reactive protein (CRP) was mildly raised with normal white blood cells (WBC). Pain settled after analgesics and she was sent home with reassurance and an out patient appointment.

A week following the second admission, she presented again but this time pain was more severe in the right thigh and hip. She was found to be tachycardic with a temperature of 39ºC. Inflammatory markers (CRP, WBC) were acutely raised. Mild tenderness of the antero-lateral aspect of the right thigh and localised muscle pain were noted but there was no obvious wound, laceration, redness or localized increase of temperature. Due to high Body Mass Index (BMI) of the patient, it was hard to appreciate any obvious swelling of the thigh.

Two subsequent hip X-rays showed ill defined subtle lucency within the right acetabulum. Ultrasound scan (USS) of the right thigh demonstrated distortion of the hip resurfacing with no joint effusion. The patient continued to complain of pain and inability to bear weight despite regular analgesia. In the clinical picture of continuously rising inflammatory markers, empirical antibiotics were initiated.

Due to uncontrolled symptoms she had an MRI scan which showed pyomyositis in the right thigh with a peripherally enhancing multiseptated abscess 17cm in maximum dimension in the right rectus femoris muscle (figure 1). The abscess extended from the level of the neck of right femur down to the lower third of the thigh. No hip joint involvement was appreciated although the right hip joint was obscured by the metal resurfacing in situ.

The patient underwent surgery the next morning. An incision was made in the anterolateral aspect of the mid thigh but no obvious pus was seen. The incision was then extended distally revealing an 8cm diameter cavity in the distal third of the thigh involving rectus femoris muscle.

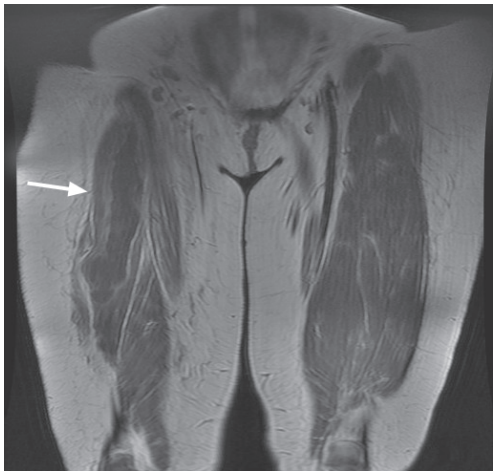

Figure 1 *Coronal T1W MRI scan of the thighs post gadolinium. Note abscess with peripheral enhancement in the right rectus femoris.*

The abscess was drained with debridement, washout and irrigation. Samples were taken for culture, sensitivity and histopathology. This showed growth of *Staphylococcus aureus*. The wound was packed with ribbon gauze soaked with betadine and was left open for delayed primary closure and subsequent washouts and dressings. Following initial surgery the patient had three further washouts of the wound with dressing. Finally the wound was closed with a distal drain for five days.

After the surgical drainage, the patient became stable and afebrile. The right hip tenderness and inflammation progressively disappeared. Intravenous antibiotics continued for two weeks in hospital and then she was discharged on oral antibiotics.

At follow-up a month later the patient remained symptom-free.

Discussion

Pyomyositis, also termed *tropical pyomyositis,* was first described by Scriba in 1885[1] and has been primarily recognized as a tropical disease occurring in young (10-30 years) and relatively healthy persons, although it may occur at any age.

The disease is characterised by the development of abscesses within skeletal muscle and may be associated with varying degrees of systemic disease[2,3].

The rarity of pyomyositis in temperate climates and the paucity of diagnostic symptoms on initial evaluation have deterred extensive laboratory and radiographic investigations and have delayed diagnosis of the disease.

Typically, three clinical stages of pyomyositis can occur[4,5,6].

I: Early invasive stage: During this stage the involved muscles become increasingly tender and indurated. Because the muscle abscess is contained by the overlying fascia, local erythema and heat may be minimal until days or even weeks after symptom onset when the infectious process extends to the subcutaneous tissues.

II: Suppurative stage: Ten to 21 days after symptom onset this stage includes fever, malaise, leukocytosis, elevated erythrocyte sedimentation (ESR) rate, and chronic anaemia. After abscess formation, the involved muscles become fluctuant. Approximately 90% of pyomyositis patients – including our patient - present during the suppurative stage[2].

III:Septicemic stage: In this stage there are metastatic abscesses and abscess complications. Multiple abscesses occur in up to 60% of patients with pyomyositis[8]. This stage has the highest mortality and occurs only if the disease is left untreated.

Most of the laboratory findings in pyomyositis are nonspecific. A left shift in leukocyte count and an increase in the erythrocyte sedimentation rate (ESR) are the most helpful findings[9].

CT images with or without contrast and MRI with gadolinium enhancement have been found to be more diagnostically sensitive.

Conclusion

Due to the rare incidence of pyomyositis in temperate climates, the disease is mostly recognised late. An increased incidence of immunocompromised patients in western countries should lead to an early suspicion of the condition especially in a patient with atypical symptoms. It should be considered as one of the differential diagnoses of septic arthritis involving large joints. One should not overlook the mortality rate of this condition which varies from 14-18% in tropical climates, reflecting the severity of this condition.

Acknowledgement

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