Clinical Reports

Pyomyositis complicating pneumococcal meningitis

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Summary: A young male with a previous splenectomy presented with *Streptococcus pneumoniae* meningitis complicated by pyomyositis. Pneumococcal meningitis in asplenic patients is well recognized, but the association of pyomyositis as a complication has not to our knowledge been previously reported.

Introduction

Pyomyositis is a bacterial infection of skeletal muscle, usually caused by *Staphylococcus aureus*. Endemic in the tropics as a primary disease, it accounts for 4% of surgical admissions in Uganda.¹ It is very rare in temperate climates, occurring mainly in male patients under 30 years of age with a mortality between 0.5 and 2%.² We present a case of pyomyositis complicating pneumococcal meningitis.

Case report

A 36 year old Caucasian man presented with a 5 day history of headache, neck stiffness, vomiting, malaise and generalized arthralgia. Ten days prior to admission he suffered minor trauma to his shoulders. Twenty years previously he had a traumatic splenectomy following which he received 14-valent pneumococcal vaccination, but no prophylactic antibacterial therapy. He had never been in the tropics.

On examination, he appeared unwell, had a temperature of 39.5°C, a tachycardia, and a positive Kerning's sign. Lumbar puncture produced turbid cerebrospinal fluid with a glucose content of less than 0.5 mmol/l, protein 1.5 g/l, white cell count 3,200 mm³ (90% polymorphs and 10% lymphocytes), and Gram-positive diplococci. The peripheral white cell count was $25.9 \times 10^9/l$ (86% neutrophils) and the ESR was 70 mm/hour. *Streptococcus pneumoniae*, sensitive to penicillin, was later isolated from blood cultures. A diagnosis of pneumococcal meningitis was made on admission, and the patient was treated with high-dose intravenous benzylpenicillin.

On day two of admission the patient's right elbow became painful, erythematous and swollen. The next day he developed similar clinical signs in his right shoulder and left hip. Despite repeated aspirations of the shoulder and elbow joints, only small amounts of sterile synovial fluid were produced. During the following few days the white cell count and ESR remained raised as did his pyrexia. The symptoms in his right elbow settled; the right shoulder, however, became increasingly painful. Radiographs of all the affected joints were normal. The diagnosis at this time was of a multiple septic arthritis.

On the 8th day of admission the patient had an open drainage of his right shoulder. At operation there was a localized area of muscle necrosis yielding 4 ml of sterile pus in the right deltoid muscle; the shoulder joint was not involved. Aspiration of the left hip joint, during the operation, yielded no fluid and a diagnosis was made of multiple pyomyositis affecting the right deltoid, with probable milder involvement of the muscles surrounding the right elbow and left hip.

Postoperatively, his symptoms and clinical signs quickly improved. Three months later he had fully recovered and there was little residual restriction of shoulder movement.

Discussion

As yet no one set of aetiological factors has been isolated in the development of pyomyositis. It is proposed here that the combination of previous trauma to the shoulders, impaired immunity due to asplenia, pneumococcal septicaemia and meningitis, contributed to the development of pyomyositis.

Miyake³ demonstrated that bacteraemia alone was insufficient to produce pyomyositis, unless muscle trauma was also present. In the United

States 50% of such patients had prior muscle trauma.² So far the evidence for the role of immunosuppression in pyomyositis is unproven. It has been recognized in patients with diabetes, acquired immunodeficiency syndrome and haematological malignancies.⁴ *S. pneumoniae*, present here, is rare as it causes fewer than 1% of cases of pyomyositis, *S. aureus* being causative in 90%.⁵ Muscle involvement is multiple in 40–60% of cases.² The muscles of the upper leg are most frequently involved, those of the upper arm are less commonly affected.⁵

Pyomyositis is usually accompanied by pyrexia, malaise, leucocytosis, a raised ESR and blood cultures are usually sterile. The involved muscle becomes tender and the overlying skin erythematous. Fluctuation is only present at a late stage and if untreated progresses to systemic sepsis.⁴ The diagnosis is difficult because the typical features of an abscess are absent. Diagnosis, however, may be made by ultrasound scan, computed tomography scan, magnetic resonance imaging, direct aspiration or drainage. Treatment is with surgical drainage and antibiotics. Functional recovery is usually good.⁵

This case illustrates the problem of diagnosis as

the clinical signs may mimic septic arthritis. Although still rare in temperate climates, pyomyositis has to be considered in such atypical presentations, because it is vital to institute treatment early in the course of the disease to prevent progression to septic shock.

At follow-up our patient received the 23-valent pneumococcal vaccine and was advised to seek an early medical opinion if he developed any symptoms of infection. The evidence for antibacterial prophylaxis in asplenic patients is controversial and our patient did not receive such prophylaxis. In the light of this case, it is reasonable to suggest that such patients should seek early medical help when they recognize any symptoms of an infectious illness. Re-immunization with pneumococcal vaccine is not widely recommended in view of the potential reactions, however, due to the serious nature of sepsis in this case re-immunization was considered an appropriate measure.

Acknowledgements

We are grateful to Mr C. Pool and Dr P. Gillette for their help in this case.

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Cervical ribs: a cause of distal and cerebral embolism

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Summary: The thoracic outlet syndrome occurs when the neurovascular structures are compressed as they traverse the thoracic outlet. Degenerative changes can occur in the subclavian artery and the vessel may become a source of embolism with the risk of acute or chronic upper limb ischaemia. Rarely, distal thromboembolism in the thoracic outlet syndrome may be associated with retrograde flow when there is the added risk of cerebral thromboembolism.

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Accepted: 28 May 1992