Brucella arthritis of the knee in a young soccer player

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A case is presented of brucella arthritis of the knee in a young soccer player. The diagnosis is outlined, together with possible errors of observation.

Keywords: Brucella arthritis, knee, soccer

Introduction

Brucellosis is an infectious disease with protean manifestations. In its acute form, peripheral poly- or mono-arthritis, especially of the larger joints, is a common clinical finding. The knee has in fact been found to be one of the two most commonly affected joints in endemic areas in Greece¹, Iraq², Kuwait^{3,4}, Peru⁵ and Saudi Arabia⁶.

The knee, being the weakest and most poorly protected joint in the body⁷, is also highly susceptible to direct and indirect injury, especially in competitive sports. Since soccer is a popular national sport worldwide, rotational injuries of the knee are common and severe ones often present with haemarthrosis or effusion. Some patients, however, may be vague historians and do not necessarily give any indication of recent trauma, particularly when swelling of the knee is delayed. In such patients, especially in endemic areas, it is important to exclude brucellosis as a cause of the knee pain and swelling.

Case report

A 21-year old male amateur club soccer player presented with a one month history of painful swelling affecting the right knee. He was uncertain about the occurrence of sporting injury antecedent to the onset of swelling, but admitted to having had rotational or direct trauma to his knees in the past. Although he was living in an area endemic for brucellosis, he denied having ever ingested unpasteurized milk or been in contact with farm animals. As he was a young athletic person, it was initially assumed that unremembered trauma was the most likely cause of his problem.

Examination showed no fever but a marked effusion of the right knee without cutaneous inflammation. There was a 2 cm wasting of the right quadriceps. Roentgenograms of the right knee showed the presence of a large effusion but no bony injury. Arthrocentesis yielded 30 ml of sero-sanguinous fluid, prolonged culture of which grew *Brucella abortus* sensitive to co-trimoxazole, tetracycline and netilmicin. *Brucella* antibody titres were significantly raised (IgM/IgG at 10240 and IgG at 1280). An R.A. Latex test was negative. The ESR was 27 and WBC $5.1 \times 10^9 l^{-1}$. Following treatment with a combined course of co-trimoxazole and tetracycline, his condition improved and the antibody titres fell markedly (IgM/IgG at 320 and IgG at 160). He was unfortunately lost to further follow-up.

Discussion

Septic arthritis is an important condition that can affect the knee and should therefore be included in the differential diagnosis of a painful swollen knee, especially in patients who do not give a definite history of antecedent trauma. Where indicated, *Brucella* arthritis should always be excluded since the knee has been shown to be commonly affected in human brucellosis¹⁻⁶. It is thus advisable not only to send the knee aspirate for culture, including extended culture for *Brucella*, but also to request *Brucella* serology in such patients from endemic areas. The importance of requesting *Brucella* serology simultaneously as synovial fluid culture is highlighted by the finding by Andonopoulos *et al.*¹ that only three out of their five patients with *Brucella* arthritis had positive synovial fluid cultures. Similarly, Kelly *et al.*⁸ reported negative synovial fluid culture in all patients with *Brucella* peripheral arthritis, but culture of synovial tissue from the same joints yielded the causative organism, and *Brucella* serology was positive for all patients. Mavridis *et al.*⁹ also reported only five positive cultures for *Brucella* out of a total of seven joint aspirates sent for analysis.

With the ease of modern international travel, *Brucella* arthritis of the knee may even present in a non-endemic country. The treating physicians should thus have a high index of suspicion for the condition.

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