A 25-year-old man with a 3-year history of ankylosing spondylitis presented with a sudden onset of pain in his left thigh. His ankylosing spondylitis had been treated for 2 years with the tumour necrosis factor-alpha (TNF-α) antagonist infliximab. The initial diagnosis was a muscular tear, and non-steroidal anti-inflammatory drugs were prescribed. 40 days later, the patient had tender swelling with warmth and light redness on his left thigh. His knee function had decreased markedly. His C-reactive protein level was 320 mg/l and white cell count was 30.4 x10⁹/l, indicating severe infection. Magnetic resonance imaging revealed a loculated fluid collection in the quadriceps musculature measuring 30 cm. Hyperintensity seen on T1-weighted images was suggestive of infection. The infliximab therapy was stopped and repeated debridement and drainage performed, with about 2.5 litres of pus evacuated. Flucloxacillin was administered for 2 weeks. The wound was closed 9 days later. The patient was discharged 20 days after surgery. An alternative immunosuppressive therapy—abatacept—was introduced. At the 18-month follow-up, the patient reported only light discomfort in the thigh during exercise, with a mildly impaired range of knee movement. No infectious complications recurred.

**Key words:** abscess; spondylitis, ankylosing; Staphylococcus aureus; tumor necrosis factor-alpha

**INTRODUCTION**

Tumour necrosis factor-α (TNF-α) plays an important role in the pathogenesis of several immune-mediated diseases, including rheumatoid arthritis, ankylosing spondylitis, and Crohn’s disease. Infliximab, a chimeric monoclonal antibody to TNF-α, is an effective agent for treating such diseases, but puts the patient at risk of severe infections. We report a
case of severe pyogenic infection of the left thigh in a patient treated with infliximab for his ankylosing spondylitis.

CASE REPORT

In April 2008, a 25-year-old Caucasian man with a 3-year history of ankylosing spondylitis presented to a general practitioner with a sudden onset of pain in his left thigh. His ankylosing spondylitis had been treated for 2 years with the TNF-α antagonist infliximab (5 mg/kg body weight administered intravenously every 6 weeks) and paracetamol on demand (maximum 4 g/day). The initial diagnosis was a muscular tear, and non-steroidal anti-inflammatory drugs (NSAIDs) were prescribed, but there was no remission of pain for 3 weeks.

The patient was then referred to our hospital. He presented with tenderness on palpation in the distal quadriceps, mildly impaired knee function, and painful quadriceps contraction against resistance. Signs of inflammation were not assessed. Ultrasonography showed a quadriceps tear and a haematoma, and ambulatory treatment was prescribed (analgesic therapy with NSAIDs as required and partial weight bearing on crutches). 10 days later the patient reported mildly attenuated symptoms. After 7 more days he had developed tender swelling with warmth and light redness over the distal anterior portion of the thigh (Fig. 1). His knee function had decreased markedly (extension/flexion, 0°–20°), but no fluctuation or lymphadenopathy was observed. The patient had a pulse of 72 beats/min, a blood pressure of 130/90 mm Hg and a temperature of 36.7°C. His respiratory and abdominal systems were normal. His left leg power was diminished (grade 4/5) by pain. The C-reactive protein level was 320 mg/l and the white cell count was 30.4 x10⁹/l indicating severe infection. The patient did not have any underlying immuno-compromising conditions including the human immunodeficiency virus and hepatitis. Magnetic resonance imaging (MRI) revealed a loculated fluid collection in the quadriceps musculature, its craniocaudal extent measuring 30 cm (Fig. 2a). Hyperintensity seen on T1-weighted images was suggestive of infection.

The infliximab therapy was stopped and repeated
debridement and drainage performed. Approximately 2.5 litres of pus were evacuated from the quadriceps musculature involving the rectus femoris, the vastus medialis and intermedialis as well as the sartorius and extending through the intramuscular septum posteromedially to the distal femur. The muscles were partially necrotic and were thus largely debrided. The femoral neurovascular bundle passing through the middle of the posteromedial compartment of the collection could be identified and preserved. Flucloxacillin was administered for 2 weeks after \textit{Staphylococcus aureus} was cultured. The wound was left open for investigation 2 days later. MRI showed remaining hidden cavities of the abscess in the mid rectus femoris and the sartorius muscle (Fig. 2b). During the second operation, drainage and a vacuum dressing were applied. In the third operation, only a small amount of potentially infectious fluid was drained, and in the fourth operation a clear washout was performed, so the wound was closed 9 days after the first operation. The patient was discharged 20 days after the first operation. After the infection resolved, the ankylosing spondylitis flared up and the patient again required anti-TNF-\textgreek{a} treatment. An alternative immunosuppressive therapy—abatacept—was introduced. At the 18-month follow-up, the patient reported only light discomfort in the thigh during exercise, with a mildly impaired range of knee movement (extension/flexion, $0^\circ$–$100^\circ$). No infectious complications recurred.

**DISCUSSION**

Ankylosing spondylitis is a chronic inflammatory disease belonging to the spondyloarthropathies, which are characterised by seronegative, inflammatory arthritis of the spine, peripheral arthritis and enthesitis.\textsuperscript{4} Its treatment includes the use of NSAIDs, disease-modifying antirheumatic drugs such as sulfasalazine and methotrexate as well as anti-TNF-\textgreek{a} agents.\textsuperscript{5}

TNF-\textgreek{a} plays a crucial role in the immune-mediated response to infection, especially that against intracellular pathogens and tumour growth control.\textsuperscript{2,6} Infliximab is a monoclonal antibody directed against the soluble and cellular components that block TNF-\textgreek{a} from binding to its cell surface receptor.\textsuperscript{7} Infliximab is indicated for treatment of ankylosing spondylitis in patients exhibiting severe axial symptoms, elevated serological markers of inflammatory activity, and an inadequate response to conventional therapy. The risk of severe infectious complications during the use of a TNF-\textgreek{a}-blocker appears low.\textsuperscript{2} Nevertheless, infliximab's unique induction of apoptosis\textsuperscript{7} together with its half-life of about 10 days may account for a higher infection rate than that seen with other TNF-\textgreek{a} antagonists. The most common site of serious infection is the lower respiratory tract, followed by skin and soft tissue, bones and joints.\textsuperscript{1,8} Various pathogens are involved, including viral, bacterial, fungal, and protozoal organisms, with \textit{Mycobacterium tuberculosis} being the most common (over 100 cases have been described).\textsuperscript{9} Other cases reported have involved \textit{Pneumocystis carinii} pneumonia,\textsuperscript{10} histoplasmosis,\textsuperscript{11} listeriosis,\textsuperscript{12} and aspergillosis.\textsuperscript{13}

Although infections have been repeatedly implicated in the pathogenesis of the disease, extensive epidemiological data on the spontaneous occurrence of severe infections with spondyloarthropathies are not available. Although a causal relationship between the use of infliximab and abscess formation in this patient was not demonstrated, this case highlights the potentially life-threatening infections that can be masked in patients immunocompromised by anti-TNF-\textgreek{a} treatment. We assume that our patient was more susceptible to opportunistic infections resulting in superinfection of a haematoma and, ultimately, the formation of a large abscess. Further investigation into the relationship between the use of immunosuppressive drugs and the development of severe infections in patients with spondyloarthropathies is needed.

**REFERENCES**


