

Polyarticular septic arthritis with bilateral psoas abscesses following acupuncture

Michihiro Ogasawara, Keisuke Oda, Ken Yamaji, Yoshinari Takasaki

We report a case of polyarticular septic arthritis with bilateral psoas abscesses. A 50-year-old woman was admitted with fever, multiple joint swelling and pain. She had a clinical history of acupuncture therapy for treatment of her chronic lower back pain two days before the appearance of her symptoms. Methicillin-sensitive *Staphylococcus aureus* was isolated from blood culture, knee joint fluids and psoas abscess. After a long course of antibiotics for 70 days together with drainage of the abscess, the condition completely resolved. The acupuncture is the probable cause of the infection, and this case report reveals the importance of asking about a clinical history of acupuncture treatment and of making repeated bacterial examinations in undiagnosed polyarthritides patients.

CASE REPORT

A 50-year-old woman was admitted to our hospital for investigation of high fever, general fatigue, pain and swelling of multiple joints. There was no family history of arthritis, including collagen diseases. Four weeks prior to admission, she received acupuncture therapy for chronic low back pain, with needles inserted into the lower back. We were unable to obtain further information about the acupuncture technique. Two days after the acupuncture, new symptoms of multiple joint swelling, pain and fever developed gradually. She was diagnosed as having sero-negative rheumatoid arthritis and treated with non-steroidal anti-inflammatory drugs in another hospital. As her condition did not improve, she consulted our hospital and was admitted for investigations. Her clinical course is shown in fig 1.

On admission, her blood pressure was 126/72 mmHg, pulse rate 86 beats/minute and temperature 37.9°C.

Initial investigations revealed C-reactive protein (CRP) of 21.9 mg/dl, white blood cell count of 19000/mm³ with 87.5% neutrophils. Plain radiographs of the chest, hands, elbow and knee joints were normal. Physical examination showed significant swelling and tenderness of several joints, including bilateral temporomandibular, sternoclavicular, shoulder, elbow, wrist, knee and ankle joints. As two sets of blood cultures were positive for Methicillin-sensitive *Staphylococcus aureus* and was also cultured from knee joint fluid, we diagnosed her as having septic arthritis. A CT scan revealed abscess formation in the bilateral psoas muscles (fig 2).

We initiated intravenous antibiotics with ampicillin sodium/sulbactam sodium 3 g every 6 hours in combination with gentamicin sulfate 350 mg per day. Although CRP fell gradually, the fever did not improve and CRP stayed around 7–8 mg/dl for 3 weeks. We performed abscess drainage under CT scan.



Figure 2 An abdominal CT scan shows bilateral abscesses (white arrows) in the psoas muscles.

Methicillin-sensitive *Staphylococcus aureus* was isolated from the abscess also. About one hour after drainage, as she complained of severe dyspnoea and the value of oxygen saturation decreased to 60% despite the use of a 15 L/min O₂ mask, we left her on a respirator. Her chest x ray film showed bilateral severe reticular shadow mixed with consolidation (fig 3). Toxins such as toxic syndrome toxin 1 might have been released by puncture of the encapsulated abscess and resulted in the occurrence of acute respiratory distress syndrome. We conducted steroid-pulse therapy using methylprednisolone sodium succinate 1000 mg per day for three days followed by prednisolone 30 mg/day in combination with sivelestat sodium hydrate 300 mg per day. One day later, her x ray film showed rapid improvement.

On the seventh day of acute respiratory distress syndrome treatment, she was removed from the respirator as the blood gas analysis showed improvement. We continued intravenous antibiotics using cefmetazole sodium 2 g per day for 4 weeks for septic arthritis. As the value of CRP had fallen to 0.5 mg/dl and we confirmed disappearance of the abscess formation under CT scan (fig 4), we stopped the antibiotic therapy of her septic arthritis after a total of 70 days. She showed no flare-up and no joint dysfunction occurred.

DISCUSSION

Septic arthritis, bacterial infection of joint fluids, is a medical emergency that may be associated with significant mortality (10–15%) and morbidity (25–50%), if management is delayed, and may cause rapid and irreversible destruction of joints.^{1,2} It usually occurs in immune deficiency or

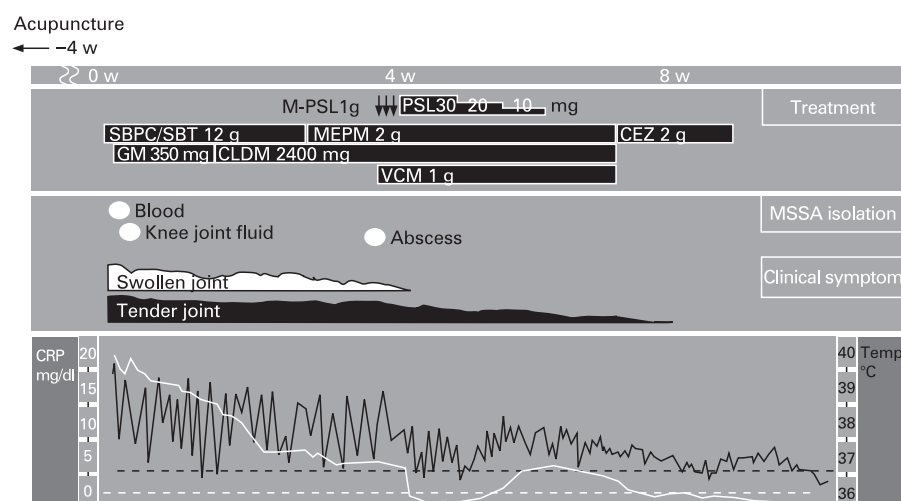


Figure 1 The clinical course of the patient evolved over 8 weeks.

Case report



Figure 3 A chest x ray shows bilateral severe reticular shadow mixed with consolidation, acute respiratory distress syndrome following abscess drainage.

scar formation. However, this patient developed polyarticular septic arthritis with bilateral psoas abscesses following acupuncture and probably caused by it. Although various adverse events following acupuncture have been reported, the risk of serious adverse events occurring in association with acupuncture is very low, and polyarticular septic arthritis with bilateral psoas abscesses is rather rarely reported.³⁻⁵ We report here a previously healthy patient who developed life-threatening polyarticular septic arthritis as a probable complication of acupuncture.

It is important to take septic arthritis into consideration when we make a diagnosis in arthritis patients. Serum CRP and erythrocyte sedimentation rateⁱ are usually raised in septic arthritis patients but these findings are non-specific and acute gout or a flare of rheumatoid arthritis (RA) may also show raised inflammatory indices. It is important to investigate blood culture and aspiration of synovial fluid from inflamed joints in order to differentiate the condition from other causes of arthritis. As blood cultures are positive in only 50% of patients with acute septic arthritis^{6,7} it is

ⁱ ESR is the rate at which red blood cells precipitate in a period of 1 hour. It is a common haematology test which is a non-specific measure of inflammation.

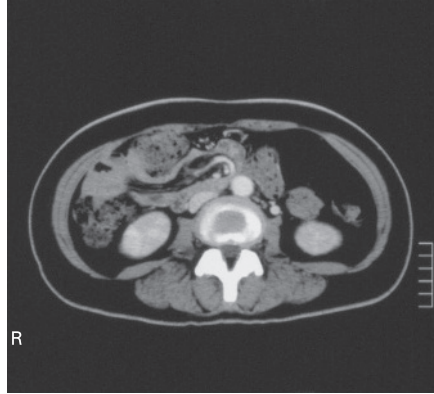


Figure 4 Improvement of bilateral abscesses after a long course of antibiotics treatment and abscess drainage.

critical to perform blood cultures repeatedly in order to confirm a diagnosis of septic arthritis or to exclude the possibility. Two samples of blood should be taken for culture at each test to rule out possible contamination. An initial course of antibiotics given on clinical judgment for undiagnosed arthritis is insufficient to exclude the possibility of septic arthritis because of the possible existence of abscess as in this case in which antibiotics are not directly effective.

Septic arthritis is more common in patients with previous intra-articular corticosteroid injection,⁸ RA, diabetes mellitus² or other underlying arthritides such as gout and osteoarthritis.⁹ In particular, patients with RA have a 10-fold higher incidence of septic arthritis than the general population.⁹ This increased risk should be considered when making decisions on acupuncture in these high-risk patients.

Acupuncture is a common therapeutic procedure for pain control worldwide. Most adverse effects related to acupuncture are due to either a lack of adequate anatomical knowledge or failure to use proper precautions against infection.¹⁰ The occurrence of septic arthritis in this case may have been due to the failure to avoid contamination of the needle during acupuncture,¹¹ and is a reminder of the importance of proper precautions.

Rheumatologists who treat polyarthritic patients should be aware of septic

arthritis as a serious complication of acupuncture. Despite being an important clinical presentation with significant morbidity and mortality, there is little high-quality evidence on its diagnosis and treatment. Further research is required to address these problems.¹²

We report an unusual case of septic arthritis with bilateral psoas abscesses following acupuncture, emphasising the importance of asking about acupuncture when taking a clinical history, and of taking repeated bacterial examinations in undiagnosed polyarthritic patient.

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