

## **Case report**

### **A case report of septic sacroilitis due to *Staphylococcus aureus***

**Seyed Mohammad Alavi<sup>1</sup>, Mohammad Hassan Pipelzadeh<sup>2</sup>**

<sup>1</sup>*Infectious and Tropical Diseases Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran*

<sup>2</sup>*Department of Pharmacology, School of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran*

**Received:** January 2008

**Accepted:** March 2008

---

#### **Abstract**

**Sacroilitis is an inflammatory disease, which is often caused by *Brucella* species (mainly by *Brucella melitensis*, and *B. abortus*), *Mycobacterium tuberculosis* or inflammatory diseases such as ankylosing spondilitis. It is rarely associated with Staphylococcal infections. In this report, a case of a 24-year-old sailor with a history of low back pain is presented who was initially suspected to suffer from ankylosing spondilitis or brucellosis. Further evaluation of this case revealed septic sacroilitis due to *Staphylococcus aureus* and was successfully treated with vancomycin.**

**Keyword:** Septic sacroilitis, Ankylosing spondilitis, *Staphylococcus aureus*

#### **Case history**

Our case was a 24-year old Iranian sailor working in one of the Iranian shipping lines in the Persian Gulf, who had suffered from low back pain one month ago. This pain gradually progressed to his hip causing parenthesis in his right upper thigh. Repeated visits to orthopedics and rheumatologists and use of NSAIDs and antibrucella antibiotic (doxycyclin) did not produce any improvement of his condition. The initial diagnosis was ankylosing spondilitis. On his first visit, his previous laboratory tests showed CRP=+3, ESR=108. He still had low back pain and tenderness at his sacroiliac region. He was hospitalized for further evaluation. Laboratory results showed normal CBC, CRP=+2, ESR=120 and normal urinalysis. His body temperature was 37.5°C. Serological tests were negative

for Wright and Combs-Wright. Other serological tests included monoclonal antibodies for Brucellosis, PPD (TB skin test was less than 0.5mm), ASO test, HB<sub>s</sub>Ag, anti-HCV, anti-HIV, VDRL, anti-DNA, RF, ANA and HLAB27 all of which were also negative.

Radiological investigations and bone scan showed sacroilitis of his right side. His chest X-ray was normal. No osteomyelitis or epidural abscess was reported on his MRI. On consultation with other colleagues in rheumatology department who suggested his illness to be treated as a seronegative vascular collagen disease, he was treated with anti-inflammatory drugs. But his condition did not improve after seven days of treatment. Further investigations were undertaken on the eighth day of his admission, which included blood and bone

marrow cultures (three blood samples were taken at 20min intervals), histopathological evaluation of bone marrow and echocardiography. Blood culture tests were positive for *Staphylococcus aureus* in two of the cultures tested. Bone marrow culture and histopathological evaluation were negative for both *Brucella* and *Mycobacterium tuberculosis*. Echocardiography showed no abnormalities. More details on his medical history were taken which revealed that he had no history of drug addiction (cross matched with his character type). He had suffered a trauma after falling on the ground during his duty on his knee, which produced a small pussy wound on his skin, which healed without any treatment. He was treated with cloxacillin (2g/4hourly) and 80 mg gentamicin three times a day. No improvement of his condition was observed after five days of treatment.

He left the hospital on his own demand and visited a rheumatology centre in Tehran. Investigations ruled out vascular collagen disease. He still had the same symptoms when he returned two weeks later to our hospital for follow up of his condition. All his NSAIDs medications were discontinued and vancomycin (IV, 1g/12hourly). His condition improved after six days. After 14 days of this treatment, his general health was stable and had no pain. Laboratory results at this stage showed ESR=50 and normal CRP. He was discharged from the hospital after four weeks with good general health and no medications were prescribed. Weekly follow ups over two months showed no clinical or laboratory findings suggestive of recurrence of his illness.

### Discussion

Sacroilitis is a common manifestation for connective tissue disorders and is also observed in brucellosis infections [1]. From epidemiological point of view, the majority of cases of septic sacroilitis in Iran are due to *B. melitensis*, or *B. abortus* [2]. On the other hand, radiological investigations are valuable diagnostic tools for identification of

asymptomatic ankylosing spondilitis, well before its clinical development. In addition, ankylosing spondilitis, a disease of unknown etiology, is strongly linked to serum HLAB27 level in both young men and women [3]. This disease usually responds well with administration of various anti-inflammatory agents. Our patient did not benefit from these medications, which were prescribed for him over a month before being hospitalized in our centre.

Furthermore, sacroilitis, on one or both sides of the body, is observed in two thirds of patients with Reiter's syndrome, in which the eyes and genitals may be affected [3]. This syndrome develops following intra-bladder injection of BCG or after various infections such as Sexual Transmitted Diseases (STD), gastrointestinal disease arising from infections caused by *Salmonella*, *Shigella*, *Campylobacter*, *Yersinia* or *Chlamydia* [3]. Viral infections and rarely mycobacterial infections have been implicated as the causative agents of this disease [4]. Laboratory investigations carried out on the case patient linked to any of the above causes were negative, and he had no previous medical history of STD or intra-bladder injection of BCG. The initial suggestion of seronegative vascular disease was the only possible link to his illness. However, this was also ruled out in his visit to Tehran.

*Staphylococcus* has a significant role in human pathogenesis causing a wide spectrum of diseases ranging from superficial cutaneous infections to life threatening systemic maladies. It normally grows on the skin and mucus membrane. *S. aureus* together with *Pseudomonas aeruginosa* and *Escherichia coli* are three microorganism species associated with human diseases, are responsible for many of hospital acquired infections and have propensity to developing resistance to many antibiotics. This microorganism is a common cause for septic arthritis and osteomyelitis in the large major joints (shoulders, knee, hip and elbow) but has not

been linked to less moving ones such as to sacroiliac joint [5]. It is believed that infections in these joints to be associated with super virulent strains of this microorganism. Patient had two out of three of blood cultures positive for *S. aureus* and was successfully treated with vancomycin. The combination of cloxacillin and gentamycin failed to relieve the symptoms of his disease, and this confirms the virulence and resistance of this strain.

The findings of this case report suggest the small accidentally produced wound was the underlying cause of entry of this microorganism into the circulation and eventually caused the development of sacroilitis in this patient. Furthermore, although the occurrence of septic sacroilitis is a rare one, blood culturing for identifying the causative microorganism can be simple and helpful in elucidating the nature of sacroilitis and guide for proper management of these types of patients.

### References

- 1) Solera J, Lozano E, Martinez-Alfaro E, Espinosa A, Castillejos M L, Abad L. Brucellar spondylitis: review of 35 cases and literature survey. *Clinical Infectious Disease* 1999; 29: 1440-1449.
- 2) Hashemi SH, Keramat F, Ranjbar M, Madani M, Farzam A, Jamal-Omidi SH. Osteoarticular complications of brucellosis in Hamedan, an endemic area in the west of Iran. *International Journal of Infectious Disease* 2007; 11: 496-500
- 3) Nordström D, Kontinen YT. Reactive arthritis: an update. *Biomedicine and Pharmacotherapy* 1989; 43: 737-742
- 4) Shoenfeld Y, Aron-Maor A, Tanai A, Ehrenfeld M. BCG and Autoimmunity: Another Two-Edged Sword. *Journal of Autoimmunity* 2001; 16: 235-240.
- 5) Michel-Batôt C, Dintinger H, Blum A, Olivier P, Laborde F, Bettembourg-Brault I, Poureil J, Loeuille D, Chary-Valckenaere I. A particular form of septic arthritis: Septic arthritis of facet joint. *Joint Bone Spine* 2008; 75: 78-83.

### Address for correspondence:

Mohammad Hassan Pipelzadeh, Department of Pharmacology, Medical School, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Tel: +98611 4446121; Fax: +98611 3738283

Email: mhpipelzadeh@yahoo.com