Inflammatory Sacroiliitis in a Man With Spinal Cord Injury

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Abstract

Background: Inflammatory sacroiliitis associated with spinal cord injury (SCI) as an unusual cause of elevated erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) level has not been reported previously to our knowledge.

Objective: To represent a case of SCI associated with bilateral sacroiliitis causing ESR and CRP level elevation.

Methods: Case report of a man with T9 paraplegia.

Findings: ESR and CRP levels were high. Pelvic radiography was nearly normal, except for mildly blurred sacroiliac joints with normal margins. A 3-phase bone scan revealed bilateral sacroiliitis and heterotopic ossification at medial side of the left knee. Past history was significant for a recent urinary tract infection. Indomethacin and etidronate were prescribed. Significant decreases in ESR and CRP level were seen 1 month later.

Conclusions: Sacroiliitis might be an unusual cause of elevated ESR and CRP levels in patients with SCI. Sensory and motor deficits may obscure the typical clinical presentation; therefore, imaging studies are essential for the diagnosis.

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Key Words: Sacroiliitis, Reactive arthritis, Paraplegia, Heterotopic ossification, Spinal cord injuries

INTRODUCTION

Elevated C-reactive protein (CRP) level and erythrocyte sedimentation rate (ESR) are commonly noted in patients with spinal cord injury (SCI), especially during early rehabilitation. They increase due to various conditions that can complicate spinal cord injury (SCI). The most common causes are urinary, pulmonary, gastrointestinal, and soft-tissue infections.

Sacroiliitis is not an expected complication of SCI. One case of paraplegia with unilateral pyogenic sacroiliitis causing pyrexia was found in the literature (1). We present a man with T9 paraplegia and bilateral inflammatory sacroiliitis. To our knowledge, this is the first case of SCI associated with inflammatory sacroiliitis as an unusual cause of elevated CRP and ESR level.

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Case Description

A 26-year-old man with T9 paraplegia sustained in a traffic accident 25 days previously was transferred to the rehabilitation department. Thirteen days prior to transfer, he had developed fever, and a urinary tract infection was diagnosed (urine culture positive for >100,000 colonies/hpf *Klebsiella oxytoca*), for which he had received antibiotic therapy.

Neurological examination revealed T9 motor and sensory levels, ASIS impairment scale grade A. The next day, we noted mild swelling and warmth of his left knee and leg distal to the knee. He was afebrile, and erythema was absent. Venous Doppler ultrasonography was normal. ESR was 67 mm/h (normal: 0–20 mm/h), CRP was 95 mg/L (normal: 0–6 mg/L). Workup for urinary, pulmonary, and gastrointestinal diseases was negative. White blood cell count was normal. Alkaline phosphatase (ALP) was elevated: 268 U/L (normal: 38–155 U/L).

Plain radiography of the knee was normal. Three-phase bone scan revealed heterotopic ossification (HO) at medial side of the left knee and bilateral sacroiliitis (Figure 1a). Pelvic radiography was nearly normal, except for mildly blurred sacroiliac joints with normal margins (Figure 1b). The patient had no history of sacroiliitis or low back pain before the accident. Testing for the presence of the genetic marker HLA-B27, a known risk

Figure 1. (a) Bone scan showing bilateral sacroiliitis and heterotopic ossification around knee. (b) Pelvic radiography showing mildly blurred appearance of the sacroiliac joints.

factor for seronegative arthritis, was negative. Therapy was initiated with indomethacin (100 mg/day) and etidronate (1600 mg/day) (7). One month later, CRP had declined to normal range; ESR and the ALP level had declined to slightly above normal (26 mm/h and 161 U/L, respectively), and effusions had decreased. After continuing indomethacin and half dosage of etidronate, ESR and ALP were found to be normal at 3-month followup.

DISCUSSION

In paraplegia, diminished pain sensation and motor dysfunction may obscure the typical clinical presentation of sacroiliitis. Thus, diagnosis relies heavily on biochemical and radiological findings. Because the level of suspicion for this condition is low in SCI, it can be easily overlooked.

In this patient, the left knee was swollen and the ESR and CRP values were high, but there were no systemic findings, such as fever and elevated white blood cell count. Our initial diagnoses were HO, traumatic arthritis, and reactive arthritis of the knee. Plain radiograph of the left knee was normal, and no other pathology that could increase ESR and CRP levels was found. Estores et al (2), in their study of patients who developed HO after SCI, found normal CRP levels in 91.2% of the patients; CRP levels of the remaining patients were 8.9 ± 5.6 mg/L. In contrast, the CRP level in this patient was as high as 95 mg/L. Subsequently, a 3-phase bone scan was planned to clarify whether any skeletal or articular pathology existed. The bone scan revealed bilateral sacroiliitis and HO around the left knee. Although HO and sacroiliitis may both cause elevations in the ESR and CRP level, elevations are usually mild in HO; therefore, we attribute this patient's abnormalities mainly to sacroiliitis.

Degenerative joint abnormalities of hips, shoulders, symphysis pubis, and the axial skeletal changes involving sacroiliac joints may develop years after the SCI (3–6). However, we did not find reports of sacroiliac joint problems during early SCI in the literature. Sacroiliitis usually occurs as a component of a chronic rheumatologic disease, as a component of reactive arthritis, or as septic arthritis of sacroiliac joint. In each kind of sacroiliitis, the main symptom is low back pain. Inflammatory sacroiliitis is characterized by pain and stiffness that tend to worsen after prolonged inactivity. Elevated ESR and CRP level are typical findings, and bone scans show an increased uptake in affected regions. In subacute or chronic diseases, the plain radiograph reveals marginal irregularity, narrowing, sclerosis, ankylosis in sacroiliac joints and rarefaction, enthesitis, and calcifications in lumbar vertebrae. Septic sacroiliitis is a more acute condition, manifesting with such systemic signs and symptoms as fever, fatigue, and elevated white cell count. This HLA-B27–negative individual had no history of previous sacroiliitis or back pain before the accident. Although the bone scan showed increased uptake and revealed bilateral sacroiliitis, there was no increased lumbar uptake, and plain pelvic radiographs showed only mild abnormalities, revealing no significant sclerosis, narrowing, or marginal irregularity that would suggest chronic sacroiliitis. Moreover, the ESR and CRP level were high without elevated white blood cell count or fever and decreased gradually with use of indomethacin without antibiotic therapy, which is typical for the course of acute inflammatory reactive arthritis. HO may cause effusion and inflammation in the adjacent joint but not in joints far from the affected region. In our opinion, the findings of sacroiliitis and HO around the knee are unrelated and not a consequence of each other.

It is well known that urinary tract infection is one of the common causes of reactive arthritis (8,9). Reactive arthritis occurs usually a few weeks after the infection and most commonly affects the joints of the lower limb;

however, it could involve the sacroiliac joints as well (10). This patient had a documented history of recent urinary tract infection. Although not strong evidence for a causative relation, lack of other findings suggests that the urinary tract infection might be a causative factor of sacroiliitis in this patient.

CONCLUSIONS

This case shows that sacroiliitis might be an unusual cause of elevated ESR and CRP level in patients with SCI. Sensory and motor deficits may obscure the typical clinical presentation.

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