Case Report

Pyrexia due to pyogenic sacroiliitis with iliopsoas abscess after spinal cord injury

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Study design: Single case report.

Objectives: To present an unusual cause of fever in a patient with spinal cord injury (SCI).

Setting: University Hospital, Belgium.

Methods: A 52-year-old man with a complete T9 paraplegia was admitted to hospital with a 7 day history of fever above 39°C without pain and without gastrointestinal, urinary, or respiratory complaints. The patient had had a flap coverage for a sacral pressure ulcer 6 months prior to admission.

Results: Bone scintigraphy demonstrated markedly increased activity in the left sacroiliac joint. Computed tomography (CT) revealed an infection of the left sacroiliac joint with a large abscess involving the iliopsoas muscle. The responsible organism, *Pseudomonas aeruginosa*, was isolated from abscess liquid obtained by CT - guided aspiration. We postulated that *P. aeruginosa* had colonized the eschar and, due to the proximity, infected the sacroiliac joint and the adjacent iliopsoas muscle. Prompt intravenous antibiotic therapy ensured clinical improvement and radiological regression.

Conclusion: Pyogenic sacroiliitis is a relatively rare condition that may be difficult to diagnose in patients with normal sensation, and even more so in SCI patients. As far as we know, psoas abscess associated with pyogenic sacroiliitis has never been described in SCI patients. This infectious pathology must be kept in mind in SCI patients with fever of unknown origin and with a history of sacral eschar.

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Introduction

Febrile episodes are frequent in spinal cord injured (SCI) patients and the source of the fever is sometimes difficult to ascertain in part due to these patients' altered sensation and inability to control body temperature. The most frequent causes are urinary tract infections, respiratory tract infections, and soft tissue infections.¹

We present a case of iliopsoas abscess associated with pyogenic sacroiliitis, an unusual cause of pyrexia never reported previously in SCI patients to our knowledge.

Case report

A 52-year-old man with a motor and sensory complete T9 paraplegia due to a motor cycle accident 14 months

earlier was admitted to hospital with a 7 day history of fever above 39°C without pain and without gastrointestinal, urinary, or respiratory complaints. Clinical neurological examination immediately after the accident revealed a motor and sensory T9 level, Asia impairment scale² grade A. At 6 months prior to admission, he had had a flap coverage for a sacral pressure ulcer, which now showed a normal scar. Several blood cultures were negative, erythrocyte sedimentation rate (ESR) was 121 mm in the first hour and white blood cell count was normal. The patient gave no history of intravenous drug abuse. Bone scintigraphy demonstrated markedly increased activity in the left sacroiliac joint. Computed tomography (CT) revealed an infection of the left sacroiliac joint with a large abscess involving the iliopsoas muscle (Figure 1). Review of the abdominal CT performed before the pressure ulcer surgery revealed a presacral infiltration.

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Figure 1 CT scan with soft tissue windows showing an abscess in the enlarged iliopsoas muscle on the left side and involvement of the sacroiliac joint

The responsible organism, *P. aeruginosa*, was cultured from abscess liquid obtained by CT-guided aspiration for evacuation of the abscess. As the organism was multiresistant to oral antibiotherapy, intravenous therapy (ceftazidime 6 weeks and amikacin 2 weeks) was initiated.

The fever decreased rapidly. A second CT performed after 4 weeks showed regression of the volume of the iliopsoas abscess. After 6 months, the CT showed complete resolution of the abscess and postinfectious repair of the sacroiliac joint with condensation, irregularities of the bony borders, and intra-articular osseous fusion (Figure 2).

The patient was followed up as an outpatient for a period of 10 months with no clinical or radiological evidence of recurrent infection.

Discussion

Bacterial pyogenic sacroiliitis is an uncommon entity usually affecting children and young adults. A review of the English literature in this field by Vyskocil³ in 1991 identified 166 cases. In 1996, Zimmerman *et al*⁴ noted 177 additional cases reported since 1990 or not included in the Vyskocil review. Almost all cases of sacroiliac joint infection are unilateral.⁵

The conditions associated most often with pyogenic sacroiliitis include infections of the skin, trauma, pregnancy, gynaecological infections, intravenous drug use, and respiratory tract infections or an identifiable focus of infection elsewhere, but 44% of patients have no identified predisposing or associated factors.^{3,4} The sacroiliac joint may become infected by the haematogenous route, by contamination from a contiguous suppurative focus, by direct implantation, or after surgery. In many instances, the exact mechanism leading to infective arthritis at this site is not clear.⁵

The sacroiliac joint is located in close proximity to the iliopsoas muscle during its descent to the pelvis, so

Figure 2 CT scan performed 6 months later confirming complete resolution of the abscess within the left iliopsoas muscle and anterior osseous bridging of the sacroiliac joint

pyogenic sacroiliitis may spread to the adjacent iliopsoas muscle.^{6,7} Isolated iliopsoas abscess in the non-SCI patient is associated with Crohn's disease, appendicitis, colonic diverticulosis, pancreatitis, tuberculosis of the spine, septic hip joint, infected hip replacement, fall, and urological disorders.^{6,8} Psoas abscess is rarely described as a complication of pyogenic sacroiliitis.^{6,7,9} Iliopsoas abscess occurring in conjunction with deep extensive pressure ulcers involving the hip joint was reported by Rubayi *et al*⁸ in six SCI patients.

In our patient, we hypothesize that this infection originated a few months earlier, when the patient had a flap coverage for a sacral pressure ulcer. *P. aeruginosa* probably colonized the eschar and, due to the proximity, infected the sacroiliac joint and the adjacent iliopsoas muscle. The abdominal CT performed before the pressure ulcer surgery revealed a presacral infiltration that could be the first sign of local infection; at this time, the iliopsoas muscle still appeared normal.

Initial symptoms and signs of iliopsoas abscess may be nonspecific; however, inaccurate localization of the source of infection is frequently due to failure to suspect the diagnosis and to examine the sacroiliac joints. The sensate patient with iliopsoas abscess will likely present with hip flexion deformity with external rotation and quadriceps wasting to a degree dependent on the length of illness; hyperextension of the hip and internal rotation will cause severe pain.⁸ In SCI patients with iliopsoas abscess and sacroiliitis, it is impossible to elicit those physical signs due to the insensate condition of these patients.

The ESR is almost uniformly elevated but the white blood cell count can be either normal or elevated. Blood cultures are positive in less than 25% of cases.³

Owing to delayed radiographic findings (2 or 3 weeks), bone scintigraphy is important in localizing the osteoarticular involvement as early as 48 h after onset of symptoms. CT is valuable to define the extent of articular involvement and associated abscess and to guide percutaneous needle aspiration. MRI may be more accurate at diagnosis than CT.

More than 80% of reported cases of septic sacroiliitis were caused by Gram-positive microorganisms, of which *Staphylococcus aureus* was by far the most common, followed by *Streptococcus*. Gram-negative infections were reported in 17% of all cases, mainly *P. aeruginosa*, and were seen almost exclusively in the setting of intravenous drug abuse.⁴ Other organisms, including *S. epidermidis*, *Serratia*, *Salmonella*, and *Escherichia coli* have been isolated.^{3,4} Tuberculosis of the sacroiliac joint is rarely seen in developed countries.⁷

For the treatment of bacterial septic sacroiliitis, most authors recommend a minimum of 4 and preferably 6 weeks of intravenous antibiotic therapy followed, in some cases, by a course of oral antibiotics.

Management of iliopsoas abscess consists of early and effective drainage, either surgically or percutaneously. In case of complex or multilocular abscesses, surgical drainage is the procedure of choice, while in simple abscesses, percutaneous drainage is adequate.⁶ In accordance with the results published by Rubayi *et al*⁸ percutaneous drainage by needle aspiration of the iliopsoas abscess resulted in a rapid response with defervescence in our patient.

Conclusion

This case is, to the best of our knowledge, the first report of a pyogenic sacroiliitis with iliopsoas abscess as a

cause of pyrexia in an SCI patient. This infectious pathology must be kept in mind in SCI patients with fever of unknown origin and history of sacral eschar after having ruled out usual causes of pyrexia.

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