



Case Report

Pyogenic sacroiliitis: A rare complication of inflammatory bowel disease

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ABSTRACT

Although sacroiliitis is not uncommon in patients with inflammatory bowel diseases (IBD), bacterial infection of the sacroiliac joint is rare. The diagnosis is often delayed because of low clinical suspicion, a vague clinical picture and poorly defined localization of symptoms. We report a case of pyogenic sacroiliitis in a patient with Crohn's disease caused by *Clostridia* spp. and discuss key clinical components and protocol for the successful evaluation, diagnosis, and treatment of this uncommon illness.

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1. Introduction

The incidence of pyogenic sacroiliitis is relatively low, reported as 1%–2% of all cases of septic arthritis [1,2]. Nonspecific initial symptoms and variable physical examination findings make it a difficult diagnosis that is often initially overlooked. Clinical presentation varies, but the most common reported clinical examination finding is localized pain in the lower back, hip, and buttocks that worsens with ambulation. Predisposing conditions include pregnancy, intravenous drug abuse, trauma, immunosuppressive therapy, infectious endocarditis, and primary infections of the skin, bone, or urinary tract [2–5]. We report on a case of delayed diagnosis of pyogenic sacroiliitis in a patient with Crohn's disease.

2. Case report

A 43-year-old female with a history of Crohn's disease presented with 2–3 weeks of mild low back pain and left buttock pain that acutely worsened on the day of presentation. She reported the pain at times radiated down her left leg to the level of her knee. Her past medical history is positive for Crohn's disease. Patient reported that she was taking adalimumab (Humira) 40 mg subcutaneous injections every 2 weeks. Physical examination showed an afebrile woman in no acute distress. Cardiovascular, pulmonary, abdominal, and neurological examinations were normal. There was no midline spine tenderness, however, patient had significant tenderness over her left sacroiliac joint. The emergency department course included skeletal radiographs of lumbar spine and pelvis which were negative. Patient received an intramuscular

hydromorphone with significant improvement with ambulation. She was discharged home with the suspected diagnosis of lumbar radiculopathy.

Patient presented again two days later with worsening left leg and buttock pain. At that time she was unable to bear weight on her left leg. Vitals on arrival included temperature of 38.3 °C; blood pressure, 115/67; pulse rate, 114 beats/min; and respiratory rate, 18 breaths/min. The physical examination showed diffuse tenderness of her left hip and she refused to move her left leg. Laboratory studies showed a white blood cell (WBC) count of 10,450/mm³, with a differential of 67% neutrophils, 8% monocytes, 11% bands, and 13% lymphocytes. Erythrocyte sedimentation rate (ESR) of 87 mm/h (normal, 0 to 13 mm/h), and C-reactive protein (CRP) of 312.8 mg/L (normal, 0 to 10 mg/L). Computed tomography showed poorly defined edematous changes and several air bubbles present adjacent to the anterior aspect of the left sacroiliac joint consistent with septic arthritis involving the left sacroiliac joint. Also noted was diffuse thickening of the wall of the colon with complete loss of colonic haustrations consistent with chronic inflammatory bowel disease. The patient was admitted to the hospital for suspected left septic sacroiliac joint. She was started on IV ceftriaxone and vancomycin.

On hospital day two the patient underwent aspiration of left hip and left sacroiliac joint. No significant fluid could be evacuated from the left SI joint or the left hip joint, sterile saline was instilled into the joints with minimal fluid aspiration and samples were sent to the lab for analysis, but cultures were negative. The patient had been on antibiotics for 2 days prior to the joint aspiration. On hospital day four, the blood cultures obtained on admission were found to be positive for *Clostridium perfringens*. After 10 days, the patient was discharged home; oral antibiotics were given for 2 months. At follow-up, a physical examination, pelvic radiograph, and ESR were normal. At 6 months, the patient remained asymptomatic.

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3. Discussion

Pyogenic sacroiliitis is a rare disease that presents with nonspecific symptoms and often results in a delayed diagnosis. We report a case in which the patient had an inflammatory disease with immunosuppressive therapy who presents with subacute pain in her leg and buttocks for 2–3 weeks. The initial radiologic studies were normal, and diagnosis was not made until two days later when patient returned to the emergency department with fever, leukocytosis, and elevated inflammatory markers. It has been published in the literature that inflammatory bowel disease patients are at risk of inflammation of the sacroiliac joint, ranging from 2 to 32% [6,7]. It stresses the likely predisposing role played by immunosuppressive treatment in a patient whose underlying disease state may have contributed to the development of infectious complication.

The presentation of pyogenic sacroiliitis is variable. Its initial manifestations may mimic those of more common conditions, including low back pain, ruptured disk with sciatica, intra- or extra-pelvic abscess, hip sepsis, psoas abscess, hip sepsis, abdominal infection, and kidney stones or pyelonephritis. Given that the most typical complaints include low back, buttock, and posterior thigh pain with difficulty walking on the affected side, it is not surprising that more than half of the reported cases were not correctly diagnosed for 10 or more days after onset of symptoms [1,5]. Patients may also present with low-grade fever and elevated WBC. The most reliable laboratory tests are inflammatory markers including ESR and CRP, and although these markers are sensitive, they are not specific [2]. Blood cultures are positive in 40%–67% of patients [1], and low-grade leukocytosis is seen in only half of patients [3].

Early diagnosis of a sacroiliac joint infection is facilitated by specific physical findings including posterior sacroiliac joint tenderness, pain with posterior pelvic compression, straight leg raising sign, Gaenslen's sign (hyperextension of the ipsilateral hip), and the Patrick's test [8]. The Patrick's test is performed by having the tested leg flexed, abducted, externally rotated, and extended. If pain is elicited on the ipsilateral side anteriorly, it is suggestive of a hip joint disorder on the same side. If pain is elicited on the contralateral side posteriorly around the sacroiliac joint, it is suggestive of pain mediated by dysfunction in that joint. Although these provocative tests have proven to be reliable in terms of sensitivity, specificity, and predictive values in determining the source of pain in many chronic conditions, they are often not performed in the present clinical context because of a low degree of clinical suspicion.

MRI is the imaging technique with the highest sensitivity and specificity (95% and 100%, resp.) for the confirmation of the diagnosis of pyogenic sacroiliitis [8,9]. MRI combines good visualization of the complicated anatomy of the sacroiliac joint with the ability to localize different degrees of inflammation and edema. It also has the ability to visualize fluid in the sacroiliac joint, bone marrow edema, and soft tissue abscess. Bone scanning has also been described as a valuable diagnostic tool in the early diagnosis of sacroiliitis. Unilateral increased uptake can be seen as early as 3 days after onset of symptoms [9]. Computed topography may also be useful in the early diagnosis as in our case where CT showed edematous changes and several air bubbles consistent with septic arthritis involving the left sacroiliac joint.

High suspicion of a pyogenic sacroiliitis requires joint aspiration in order to establish the causative organism even if blood cultures and conventional radiography are normal. However, aspiration is technically difficult due to the joint being deep seated and oblique and thus relatively inaccessible [4]. Although the definitive diagnosis requires bacteria isolation from blood or joint fluid cultures, acute onset, one-sided involvement of the joints, and severe gluteal pain accompanied by fever are considered as findings supporting the diagnosis of pyogenic sacroiliitis.

The most commonly described organisms in the etiology of pyogenic sacroiliitis include: *Staphylococcus aureus*, *Group B streptococcus*, *Streptococcus pneumoniae*, *Escherichia coli*, *Salmonella species*, *Mycobacterium catarrhalis*, *Haemophilus influenzae*, *Brucella species*, and *Pseudomonas aeruginosa* [1–3]. Septic arthritis due caused by anaerobic organisms, such as *Clostridium*, is rare. Anaerobic septic arthritis accounts for only 1% of all reported cases of bacterial arthritis in both children and adults [10]. However, *Clostridium perfringens* is considered as a one of important factors in the immunopathogenesis of IBD [6]. The pathophysiology of pyogenic sacroiliitis is presumed to be the hematogenous spread of bacteria from a distant source of infection to the sacroiliac joint [8]. The joint space is invaded by bacteria by either direct penetration, hematogenous, or by nearby structures such as the gut. The subchondral circulation on the iliac side of the sacroiliac joint is an end-arterial site and so may act as an entry point for inoculation of organisms with subsequent extension into the joint.

The definitive microbiological diagnosis may be based on blood cultures, joint fluid by CT-guided percutaneous puncture, or surgical investigations. When performed, blood cultures are positive in 58% to 69% of adults and 46% of children [1,10]. In the absence of any identified microorganism, it is preferable to consider antibiotic therapy active against *Staphylococcus*, which in the case of failure, should be extended to include Gram-negative bacilli [3]. The usual duration of treatment is 4–6 weeks of antibacterial medication, although currently there is not a clear consensus on the length of treatment [1].

4. Conclusion

Pyogenic sacroiliitis is an uncommon infectious disease but should be remembered as a complication in immunosuppressed patients with inflammatory diseases. The diagnosis should be considered in patients presenting with hip, lower back, and buttocks pain that worsens with ambulation associated with low-grade fever. Diagnostic imaging studies, particularly MRI, should be performed early in the disease course to aid in the timely diagnosis. With prompt antibiotic therapy, clinical improvement of the patient can be expected, with no long-term debilitating effects, although consensus on the duration of antibiotic therapy and the modalities of patient follow-up remain to be established.

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