CASE REPORT

1. Department of Obstetrics and Gynecology. Central Hospital "Dr. Urquinaona". Maracaibo Venezuela
   a. Specialist in Gynecology and Obstetrics ORCID 0009-0004-2035-7389
   b. Specialist in Gynecology and Obstetrics, Doctor in Clinical Medicine ORCID 0000-0002-5433-7149

Declaration of ethical aspects

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Corresponding author:
Dr. Eduardo Reyna-Villasmil
Hospital Central "Dr. Urquinaona" Final Av. El Milagro, Maracaibo, Venezuela
+58162605233
sippenbauch@gmail.com

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Postpartum pyogenic sacroiliitis
Sacroileitis piógena posparto

Maira Sarmiento-Piña[1,a], Eduardo Reyna-Villasmil[1,b]

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ABSTRACT
Back and buttock pain is a common and nonspecific problem that frequently occurs during pregnancy and the postpartum period. Generally, this pain improves on its own and rarely causes complications. Septic sacroiliitis, on the other hand, is an inflammation of the sacroiliac joint caused by microbial invasion of the synovial space. Pyogenic sacroiliitis coexisting with pregnancy, although rare during the peripartum period, is associated with significant morbidity and mortality. Timely diagnosis can be difficult due to the nonspecific symptomatology of the disease. It is characterized by sacroiliac joint tenderness, difficulty walking, and progressive, lancinating low back pain that may radiate to the buttocks. In addition, increased serum concentrations of inflammatory markers are observed. Magnetic resonance imaging may show edematous changes in the sacroiliac joint. Intravenous antibiotic therapy is the first-line treatment for patients diagnosed with pyogenic sacroiliitis, preventing the occurrence of severe joint complications. A case of postpartum pyogenic sacroiliitis is presented.
Key words: Postpartum, Pyogenic, Sacroiliitis, Sacroiliac joint, Infection

RESUMEN
El dolor de espalda y glúteos es un problema común e inespecífico que se presenta con frecuencia durante el embarazo y el puerperio. Generalmente, este dolor mejora por sí solo y rara vez ocasiona complicaciones. La sacroileitis séptica, por otro lado, es una inflamación de la articulación sacroilíaca causada por la invasión de microbios en el espacio sinovial. La sacroileitis piógena asociada al embarazo, aunque poco frecuente durante el período periparto, se relaciona con una morbilidad y mortalidad significativas. El diagnóstico oportuno puede ser difícil debido a la sintomatología inespecífica de la enfermedad. Se caracteriza por sensibilidad en la articulación sacroilíaca, dificultad para caminar y dolor lumbar lancinante y progresivo que puede irradiarse a los glúteos. Además, se observa un aumento en las concentraciones séricas de marcadores inflamatorios. Las imágenes de resonancia magnética pueden mostrar cambios edematosos en la articulación sacroilíaca. La antibioticoterapia intravenosa es el tratamiento de primera línea en pacientes diagnosticados con sacroileitis piógena, previniendo la aparición de complicaciones graves en la articulación. Se presenta un caso de sacroileitis piógena posparto.
Palabras clave. Sacroileitis, piogénica, Posparto, Articulación sacroilíaca, Infección

Introducción

Pyogenic sacroiliitis during pregnancy and puerperium is a rare condition, with fewer than 20 cases documented in the medical literature. Diagnosis can be challenging, as low back pain is common in pregnant women (prevalence ranging from 30% to 78%) and usually resolves spontaneously[1,2]. Although most cases present as nonspecific arthritis, the sacroiliac joint can harbor bacteria following bacteremia[2]. Pyogenic sacroiliitis may also be a consequence of susceptibility to any transient bacteremia occurring in the context of pregnancy-induced immunosuppression. Timely diagnosis is crucial, as delay in treatment may lead to irreversible destruction of the sacroiliac joint[3]. A case of postpartum pyogenic sacroiliitis is presented.

Case report

Patient 42 years old, 2 gestations, 2 cesarean sections, who arrived at the emergency room complaining of persisting, sudden, trigger free pain in the left lumbar and gluteal region which radiated to the left thigh. The intensity of the pain increased with ambulation in the previous 6 days resulting in a limitation of movement and inability to bear weight. The condition was accompanied by anorexia, chills and general malaise. The

patient reported a cesarean section eight days earlier due to cephalopelvic disproportion and a previous cesarean section performed under epidural anesthesia in a private center. The peripartum period passed without complications. She denied surgical complications, history of pelvic trauma, urinary symptoms, gynecological infections or other systemic symptoms. She also denied any significant medical, personal and/or family history.

On physical examination, the patient was febrile (38.1°C) but hemodynamically stable. Body mass index was 34.5 kg/m2. She referred intense pain on palpation in the lower back and left side of the pelvic region, with no evidence of neurological alterations. The pain was exacerbated by walking/moving and relieved by sitting/lying down. The left gluteal region had marked tenderness with severe pain on moving, standing or sitting. Straight leg raising test was positive (30°-40°), and Patrick's test was difficult to assess due to severe pain. There were no neurological deficits, paresthesias, weakness or irradiation to the lower limb. The surgical wound denoted correct healing with no evidence of infection, dehiscence and/or inflammation. The rest of the physical examination was within normal limits.

There were no abnormalities or acute bone changes visible on the lumbosacral spine or chest X-ray. The pelvic X-ray showed no markedly abnormal findings such as osteolysis or osteosclerosis. Laboratory findings were lymphocyte count 10,400 cells/mL, neutrophils 79%, erythrocyte sedimentation rate of 50 mm/h (normal value [NV] 0-20 mm/hour), procalcitonin 0.4 ng/mL (NV up to 0.5 ng/mL) and C-reactive protein 198 mg/L (NV less than 10 mg/L). The parameters of the urine test were within normal limits. In view of the findings, it was decided to admit the patient with a clinical diagnosis of lumbo-pelvic pain and to start empirical broad-spectrum intravenous antibiotic therapy (amoxicillin, metronidazole and gentamicin) and analgesia.

MRI of the lumbar spine revealed no abnormalities, but pelvic imaging identified widening of the left sacroiliac joint with small abscess measuring 3.5 x 2.9 x 2.2 centimeters on the posteroinferior aspect of the left sacroiliac joint extending into the greater notch with enlargement of the surrounding tissues and periarticular bony tissues. These findings represented an inflammatory/infectious process involving the left sacroiliac joint and periarticular aspect (Figure 1), compatible with left septic sacroiliiitis. The hip, femoral head and acetabulum were all intact and showed normal congruence.

In view of the small size of the collection, conservative management was decided, changing antibiotic therapy to metronidazole - ceftriaxone - amikacin and pain control with non-steroidal analgesics plus opioids. The results of urine and blood cultures showed no bacterial growth.

The patient showed clinical improvement with decreased pain and ability to ambulate without support on the third day of intravenous treatment, with normalization of inflammation markers (lymphocyte count 7,100 cells/mL, neutrophils 61%, globular sedimentation 19 mm/h, procalcitonin 0.03 ng/mL and C-reactive protein 24 mg/L). The patient was discharged on the tenth day with antibiotic therapy (ciprofloxacin for 7 days) plus oral nonsteroidal anti-inflammatory drugs.

In the evaluation 14 days after admission, the patient confirmed the disappearance of pain with almost total recovery of ambulation and absence of signs of sacroiliac joint alteration (Figure 2). The control resonance images 30 days and 6 months after admission showed disappearance of the liquid collection and decrease/disappearance of inflammatory changes.

Figure 1. Coronal magnetic resonance image of the left sacroiliac joint at baseline. Arrow points to collection in the inferior aspect of the sacroiliac joint extending into the greater sciatic notch.

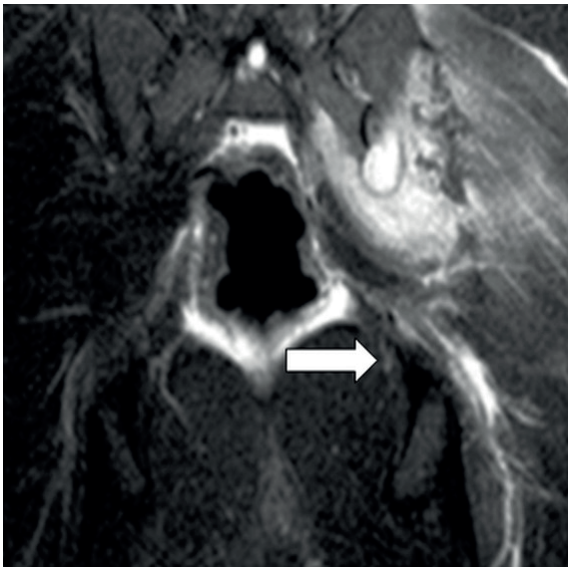
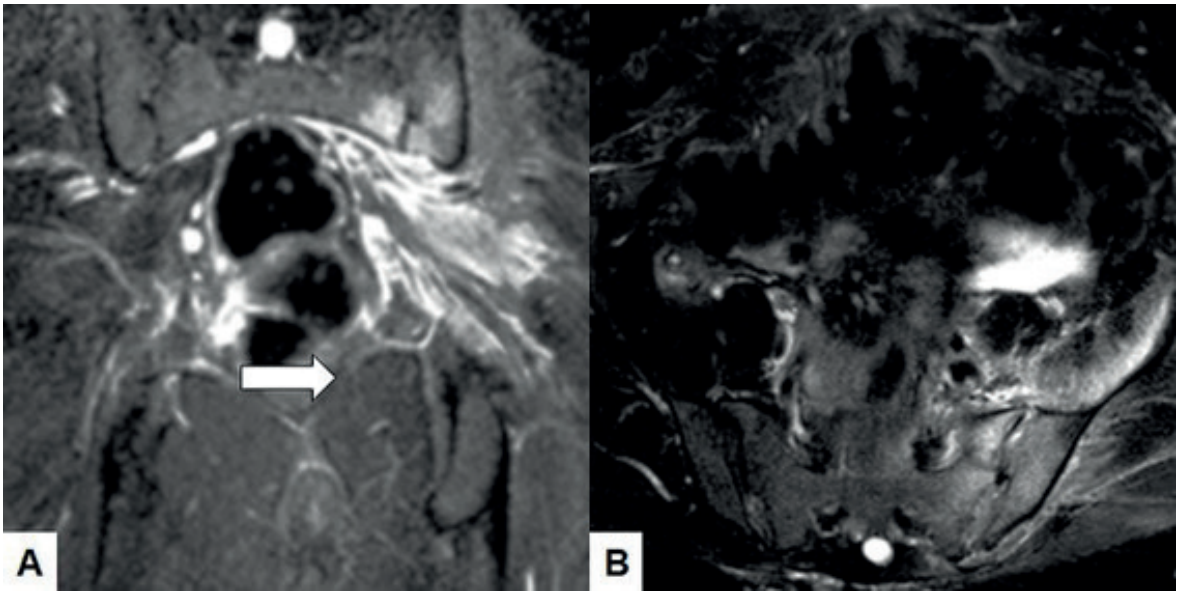


Figure 2. Coronal magnetic resonance image after treatment of the left sacroiliac joint. The arrow shows disappearance of the collection with slight residual persistent soft tissue changes and decreased bone marrow edema of the joint.



Discussion

The diagnosis of pathological conditions in the sacroiliac joint during pregnancy can be a real challenge for health professionals. Low back pain, the most common manifestation of inflammatory processes in this joint, is extremely frequent during pregnancy and the immediate postpartum period. In fact, up to 20% of pregnant women experience generalized pain in the lumbar region and buttocks, which makes it difficult to accurately diagnose diseases of the sacroiliac joint[4].

Pyogenic sacroiliitis is an uncommon infection of the sacroiliac joint caused by bacterial invasion. It usually occurs in patients with a history of intravenous drug use, trauma, joint prostheses, infective endocarditis or urinary tract infection. If not treated in a timely manner, complications can be severe and irreversible, including rapid joint destruction, abscess formation and osteomyelitis. Despite its low incidence, it accounts for 1%-1.5% of all cases of septic arthritis, and about 10% of cases occur during pregnancy, puerperium or after abortion[5].

Postpartum pyogenic sacroiliitis, an uncommon but serious infection of the sacroiliac joint, is associated with a set of risk factors that occur more frequently in women who have recently given birth[6]:

- Pelvic ligament hyperlaxity: Weight gain and hormonal changes during pregnancy can cause excessive laxity of the pelvic ligaments. This laxity affects the stability of the sacroiliac joint, making it more susceptible to microinjury. These microlesions in the periosteum can create entry points for bacteria.

- Alterations in microcirculation: The sacroiliac joint has a network of small blood vessels with relatively slow flow. This makes it easier for bacteria circulating in the blood (bacteremia) to deposit in the joint.

- Absence of protective basement membrane: The sacroiliac joint lacks a complete basement membrane in its inner lining. This membrane acts as a barrier against the entry of microorganisms. Its absence facilitates bacterial invasion into the synovial fluid, the fluid that lubricates the joint.

- Bacteremia: Bacteremia is the presence of bacteria in the bloodstream. It can occur during childbirth or in the postpartum period due to infections in the uterus, vagina or urinary tract. Bacteremia bacteria can reach the sacroiliac joint through the slow blood flow.

- Direct inoculation: In less common cases, infection can originate from direct inoculation of microorganisms into the joint. This may occur

during medical procedures, such as cesarean section or instrumental delivery, or from trauma to the pelvic area.

The main microorganisms responsible for pyogenic sacroiliitis during pregnancy are group A and B *Streptococci*, as well as *Staphylococcus* aureus. Group A *Streptococcus* is of special relevance because of its high mortality rate (20%-25%) associated with the toxic shock syndrome triggered by its exotoxin. In addition, it can cause rapid osteoarticular destruction leading to chronic disability. In contrast, gram-negative bacilli account for less than 20% of reported cases[7].

Lumbar and gluteal pain is frequently seen during pregnancy and the puerperium, so physicians may easily overlook septic pyogenic sacroiliitis because of its nonspecific symptoms. Most cases usually show one-sided involvement, most frequently the left side (59% of cases). Its diagnosis is complex because the symptoms can be confused with other conditions such as sciatica or spondylodiscitis[8]. Two-thirds of patients experience a sudden onset of symptoms, which include low back or buttock pain, difficulty walking, tenderness, swelling and pain when performing certain movements, which alters gait. Physical examination and pain provocation tests, such as Patrick's maneuver, may suggest the diagnosis, but are not conclusive. The absence of fever in a significant number of patients further complicates the diagnosis[9]. Definitive diagnosis is based on the combination of clinical, biological and radiological evidence, together with a favorable response to antibiotic treatment, even if the pathogen cannot be isolated[8].

There is no specific laboratory test for the diagnosis of septic sacroiliitis. Leukocyte count is not a sensitive marker for the diagnosis of postpartum pyogenic sacroiliitis, as one-third of patients have a normal white blood cell count[2]. Markers of inflammation (C-reactive protein and erythrocyte sedimentation rate) may be useful in guiding the diagnosis; however, they have not demonstrated acceptable diagnostic sensitivity or accuracy[10]. Only one third of patients have positive blood cultures[11].

In cases of pyogenic sacroiliitis associated with pregnancy, plain pelvic radiography is usually normal because considerable bone loss is required to see changes. Earlier changes, which may be seen two weeks after the onset of symptoms, include blurring of joint borders, increased joint space or periarticular erosion[8]. Computed tomography and magnetic resonance imaging are useful diagnostic tests. However, MRI is the imaging test of choice in the perinatal period, as it allows a detailed evaluation of the joint and surrounding soft tissues. It shows prominent edema of the bone marrow adjacent to the sacroiliac joint surfaces, synovitis of the joint itself and edema in the surrounding soft tissues. It also facilitates detection of the spread of infection to nearby muscle tissues and differentiates it from conditions such as crystalline arthropathies, reactive arthritis, insufficiency fractures, septic arthritis, IgG4-related diseases, sarcoidosis, hematologic conditions and neoplastic diseases. Since signal abnormalities can last for months, evaluations should be performed routinely. Bone scintigraphy may be useful but should only be performed during the postpartum period due to the risk of fetal exposure to ionizing radiation[12].

Evaluation of synovial fluid by arthrocentesis to isolate the infectious agent is the gold standard for diagnosis. Computed tomography or fluoroscopy-guided needle aspiration may be useful for diagnostic confirmation. However, these invasive diagnostic methods should be considered as a last resort, as obtaining a synovial fluid sample from the sacroiliac joint may be difficult in these cases[11].

The treatment of pyogenic sacroiliitis during pregnancy is based on broad-spectrum intravenous antibiotic therapy. In cases where there is high suspicion, initial treatment consists of broad-spectrum intravenous antibiotics along with culture-specific intravenous antibiotics and, finally, treatment with oral antibiotics. Empiric antibiotic treatment against *Staphylococcus* should be considered before the specific microorganism(s) and antimicrobial sensitivities have been identified and should be expanded to include gram-negative bacteria in case of failure. Transition from broad-spectrum antibiotics to culture-specific antibiotics can be made after aspiration of an adequate sacroiliac joint specimen or biopsy[8]. Delays in initiating treatment may result in joint and bone damage and even sepsis[13]. Regarding the duration of antibiotic therapy, there is no clear consensus. Some authors

propose 2 weeks of parenteral antibiotics followed by 6 weeks of oral antibiotics[14]. In some cases, non-steroidal anti-inflammatory drugs and muscle relaxants may be prescribed during the acute phase of the disease, although their efficacy decreases in chronic cases. Surgery is usually reserved as a last resort[15].

In conclusion, postpartum pyogenic sacroiliitis is a complex diagnosis because the symptoms and signs are nonspecific, which may cause a delay in appropriate treatment. The characteristic finding is lumbar and/or gluteal pain that intensifies with weight bearing or with movement of the sacroiliac joint. Intravenous antibiotic therapy is the first-line treatment in patients with a confirmed diagnosis of pyogenic sacroiliitis, with the aim of preventing serious joint complications.

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