

Primary psoas abscess as a complication of postpartum: A case report

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Abstract

Primary psoas abscess is an uncommon yet critical factor contributing to postpartum sepsis. This report is of a case of postpartum primary psoas abscess in a 24-year-old Moroccan woman. After an uncomplicated vaginal delivery, a 24-year-old primiparous Moroccan woman presented to our hospital with a 3-week history of severe left-sided lower abdominal pain that radiated to the anterior aspect of the left thigh. She had been taking ciprofloxacin, metronidazole, and paracetamol for a week without any improvement. On examination, she was febrile and pale. The laboratory analysis revealed the presence of microcytic anemia, an elevated erythrocyte sedimentation rate, and an increased level of C-reactive protein. Computed tomography scans of the abdomen, and pelvis were conducted, revealing a substantial left psoas abscess. Under the guidance of computed tomography, anterior abdominal percutaneous drainage of the abscess was successfully performed. A pan-sensitive *Streptococcus agalactiae* strain was identified through culture of the specimen. The patient showed a favorable response to treatment with amoxicillin/clavulanate and gentamicin. This case illustrates that primary psoas abscess should be considered in cases of any postpartum infectious presentation.

Keywords

Case report, psoas abscess, postpartum, diagnosis

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Introduction

The postpartum period, or puerperium, encompasses the time from 1 h after delivery to 6 weeks post-birth.¹ During this phase, a wide range of complications can arise, including postpartum infection, which contributes significantly to maternal mortality rates, especially in low-income countries.² Furthermore, postpartum infection plays a role in the increased neonatal mortality rates and can result in long-term complications for mothers, such as chronic pelvic pain and secondary infertility.³ Cesarean section is a primary risk factor for postpartum infection, while various community factors in low-income countries, including cultural aspects and limited healthcare access, influence the risk of puerperal infections. The etiologies of postpartum infection include obstetric causes like wound infections as well as non-obstetric causes such as urinary tract infections, pneumonia, gastrointestinal infections, breast infections, and septic pelvic thrombophlebitis.⁴ Primary psoas abscess (PPA) represents an uncommon etiology of postpartum infection. Lower back and buttock pain emerges as a prevalent and frequently non-specific symptom throughout both pregnancy and the postpartum phase. Moreover, discerning PPA poses a notable

challenge owing to its diverse clinical presentations.⁵ Here, we present a case report of PPA in a 24-year-old Moroccan woman, diagnosed and managed within a rheumatology department. We highlight the challenges encountered in diagnosing and managing this uncommon condition.

Case reports

A 24-year-old primiparous Moroccan woman was referred to the rheumatology department due to suspicion of septic arthritis of the left hip. She presented with a 3-week history of severe left-sided lower abdominal pain that radiated to the anterior aspect of the left thigh. The pain began 15 days after an uncomplicated vaginal delivery, assisted by a midwife, and resulted in the birth of a healthy female infant. The patient had no significant medical history. She had

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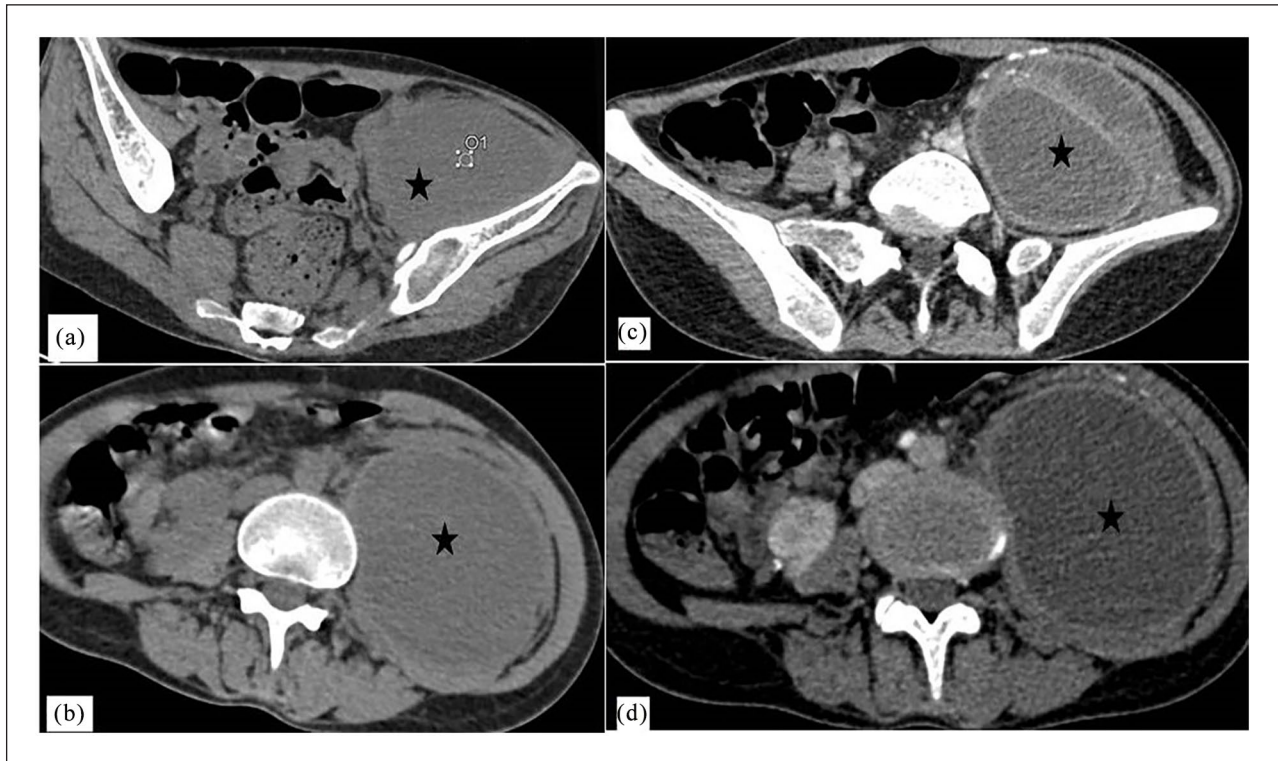


Figure 1. Axial view of abdominal and pelvic computed tomography-scan before (a) and (b) and after (c) and (d) contrast injection showing a large left psoas muscle abscess (black stars).

sought medical care from a general practitioner, who prescribed a course of ciprofloxacin, metronidazole, and paracetamol (prescription basis unknown). However, despite taking the prescribed treatment for 1 week, her condition showed no signs of improvement. On examination, she was febrile at 39°C and his blood pressure was 120/80 mmHg with a pulse rate of 100/min. She exhibited marked pallor with pale conjunctivae. The examination of the abdomen revealed extreme tenderness in the left iliac fossa and groin regions. Bimanual vaginal examination and speculum examination did not reveal any notable findings. The mobility of the hips was normal and a neurological assessment of the lower limbs was unremarkable. Initial laboratory investigations showed hemoglobin of 7.6 g/dl with a mean corpuscular volume (MCV) of 73, 6 fL, a white cell count of $19.240 (10^3/\mu\text{L})$, and a platelet count of $970 (10^3/\mu\text{L})$. The C-reactive protein (CRP) level was 140.23 mg/L, and the erythrocyte sedimentation rate (ESR) was 125 mm/h. Creatinine, liver function tests, blood glucose level, Glycated hemoglobin, and electrolytes were within normal ranges. Multiple cultures of blood, urine, and stool all remained negative. Serology tests for human immunodeficiency virus (HIV-1 and HIV-2), hepatitis B virus, hepatitis C virus, and syphilis were negative. Vaginal and endocervical swabs were also negative. Screening for tuberculosis through direct examination and culture of sputum samples in three tests was also negative.

Radiographs of the spine, and pelvis were normal. The bilateral hip ultrasound (US) results were normal. Abdominal and pelvic US examinations revealed the presence of a collection within the left psoas muscle. Computed tomography (CT) scans of the lumbar spine, abdomen, and pelvis were conducted, revealing a substantial left psoas abscess measuring $28\text{ cm} \times 8\text{ cm} \times 9\text{ cm}$ (Figure 1). No signs of sacroiliitis, coxitis, or spondylodiscitis were identified. Under the guidance of CT, anterior abdominal percutaneous drainage of the abscess was successfully performed. The procedure resulted in the extraction of approximately 800 mL of purulent fluid (Figure 2). Microscopic examination of the aspirate revealed the presence of gram-positive cocci. Subsequent culture of the specimen confirmed the growth of pan-sensitive *Streptococcus agalactiae*. Acid-fast staining and the Gene-X-pert test were negative in the abscess sample. She received a therapeutic regimen consisting of amoxicillin/clavulanate (4 g/d) and gentamicin (160 mg/d for 5 days). The patient exhibited excellent improvement starting on the second post drainage day. Fever and pain had significantly subsided, and there was a notable improvement in the biological inflammatory markers (Table 1). Follow-up US revealed a substantial reduction in the size of the abscess, measuring $28\text{ mm} \times 48\text{ mm}$. The follow-up evaluation conducted on the eighth day following the drainage procedure demonstrated the normalization of the biological markers of inflammation (Table 1). Furthermore, the US examination revealed a

complete regression of the abscess. The drain was removed on the subsequent day, and the patient was discharged to home with oral amoxicillin/clavulanate (4 g/d for 4 weeks). She was reevaluated 1 month later, and there have been no reports of symptom recurrence during that time, with normal biological parameters (Table 1). She was referred to the gynecology clinic for further management of her postpartum condition.

Discussion

PPA is an uncommon complication of postpartum. In the literature, only a few reported cases have been documented.⁵



Figure 2. Anterior percutaneous drainage of the purulent collection.

To our knowledge, this is the first reported case of non-tuberculous postpartum PPA in Morocco.

PPA is characterized by an unclear source of infection and is more prevalent among younger people, as illustrated by our case involving a young primipara. It arises as a result of the hematogenous spread of infection from distant sites, taking advantage of the well-developed blood supply to this muscle. In contrast, secondary iliopsoas abscess occurs when the infection spreads directly from neighboring structures, including the vertebral bodies, gastrointestinal tract, and urinary tract. This form is commonly observed in older people with underlying comorbidities.^{5,6}

In our case, no identifiable source of infection was found. The pathogenesis of postpartum psoas abscess remains uncertain, and various hypotheses have been proposed to elucidate its occurrence. One hypothesis suggests that changes in the immune system during pregnancy may render individuals more susceptible to infections and promote bacteremia. Obstetric trauma, such as vaginal and cervical lacerations, is also recognized as a possible source of infection that can spread to the psoas muscle. Furthermore, obstetric trauma can lead to the formation of a hematoma within the psoas muscle, which can subsequently become infected. In addition, several factors have the potential to contribute to the development of secondary psoas abscess in the postpartum period. These factors include vaginal colonization with *S. agalactiae* and complications associated with pudendal anesthesia.^{5,7,8}

Staphylococcus aureus serves as the principal etiological factor in the majority of cases associated with PPA. Conversely, secondary psoas abscesses are primarily attributed to enteric bacteria.⁹ In our case, the causative organism was *S. agalactiae*. The same germ was also reported by Saleh et al.⁷ Shahabi et al documented a case of PPA attributed to *Streptococcus viridans*.⁸ Bhattacharya et al identified Group B *Streptococcus species* in their case.¹⁰ Akhaddar et al reported a case of PPA caused by *Mycobacterium tuberculosis*.⁵

The clinical presentation of an iliopsoas abscess is characterized by a diverse and nonspecific array of symptoms.¹¹ Constitutional symptoms like malaise, feeling unwell, anorexia, and weight loss are common features.¹² The classic triad, consisting of fever, back pain, and lower extremity

Table 1. Summary of biological parameter monitoring.

| Laboratory test | Admission | Day 2 post-drainage | Day 8 post-drainage | 1 month after drainage | Normal values |
|-----------------------------------|-----------|---------------------|---------------------|------------------------|---------------|
| Hemoglobin (g/dl) | 7.6 | 9 | 10 | 12 | 13–16 |
| MCV (fL) | 73.6 | 75.9 | 76 | 86 | 85–95 |
| Leukocytes ($10^3/\mu\text{L}$) | 19.240 | 10 | 6.8 | 6.8 | 4–10 |
| Platelets ($10^3/\mu\text{L}$) | 970 | 915 | 722 | 400 | 150–450 |
| CRP (mg/l) | 140.23 | 76 | 5 | 2 | 0–5 |
| ESR (mm/h) | 100 | 95 | 50 | 15 | 0–10 |

CRP: C-reactive protein; ESR: Erythrocyte sedimentation rate; MCV: Mean corpuscular volume.

weakness, is observed in only approximately 8% of cases.¹² Given the innervation of the psoas muscle by the L2, L3, and L4 nerve roots, pain may radiate anteriorly to the hip and thigh.¹³ Hyperextension of the hip on the affected side exacerbates the pain “psoas sign.” Therefore, the most comfortable position for the patient is lying down with the knee moderately flexed and the hip slightly externally rotated. The combination of the “psoas sign” and reduced hip pain during hip flexion can serve as valuable indicators for clinicians in diagnosing the condition.¹⁴ Scoliosis can be induced by paravertebral muscle spasm, serving as a valuable indicator of a retroperitoneal process.^{6,13} In our case, the patient presented with severe lower left abdominal pain radiating to the anterior aspect of the left thigh. Akhaddar et al described low back pain, right sciatic pain, and tenderness in the right iliac fossa.⁵ Saleh et al reported spasm-like pain starting from the left hip and radiating down the entire left leg.⁷ Saylam et al reported a case of PPA with fever and swelling in the right thigh.¹⁵ These case reports highlight the nonspecific nature of clinical presentations of psoas abscess, which can lead to delayed diagnosis and increased mortality and morbidity.

The serum markers reveal nonspecific findings, including anemia, hyperleukocytosis, elevated ESR, increased CRP levels, and signs suggestive of septicemia.^{6,16}

The diagnosis of PPA relies on imaging tests such as a CT scan, US, or Magnetic Resonance Imaging (MRI). CT scan is considered the gold standard for diagnosing an iliopsoas abscess. US is operator-dependent and may have limitations in visualizing the retroperitoneal space due to bowel gas, resulting in accurate diagnosis in only 60% of cases. MRI provides better discrimination of soft tissues, but it is less sensitive than CT scan.^{17,18}

The management of PPA involves CT-guided percutaneous drainage in combination with appropriate antibiotic therapy. For small abscesses, antibiotic therapy alone may be sufficient.¹⁷ In this case, the patient's condition improved after undergoing CT-guided percutaneous drainage and receiving antibiotic therapy. This therapeutic approach has also been associated with favorable outcomes in the majority of cases reported in the literature.^{5,7,8,10,15,19} In the case reported by Saleh et al, the abscess size was small, and antibiotic therapy alone proved to be effective.⁷

Conclusion

PPA should be recognized as a rare complication of postpartum. The nonspecific clinical manifestations and low incidence of this infection contribute to delayed diagnosis, which can lead to increased maternal morbidity and mortality. Therefore, healthcare professionals should maintain a high index of suspicion for PPA in the setting of any postpartum infectious presentation.

Author contributions

A.M. followed the patient closely, collected and analyzed the data, and took the lead in writing and structuring the manuscript. I.E. conducted a comprehensive review of the manuscript, provided critical feedback, and contributed significantly to the overall improvement of the manuscript.

Declaration of conflicting interests

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Ethical approval

Our institution does not require ethical approval for reporting individual cases or case series.

Informed consent

Written informed consent was obtained from the patient(s) for their anonymized information to be published in this article.

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