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Case Report

# Pyogenic iliopsoas abscess: An uncommon presentation of nonspecific leg pain

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**Abstract**

Psoas abscesses can have a high mortality rate, particularly when left untreated. Diagnosis is commonly delayed owing to the relative paucity of cases and its varied clinical presentation. We describe a patient with psoas abscess who presented to the emergency department at Milton Keynes General Hospital, illustrating how psoas abscesses are still misdiagnosed by junior and senior clinicians, even when patients present with the classical signs of fever, leg pain, and antalgic gait. This highlights the need for an increased emphasis on training at all levels, to increase the index of suspicion for a psoas abscess in those presenting with leg, hip, or back pain with a fever.

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**1. Introduction**

Psoas abscess is a focus of infection and surrounding inflammatory reaction within the iliopsoas muscle, a large retroperitoneal muscle. It is a major flexor of the trunk and thus important for walking, running and sitting upright.<sup>1</sup>

The true incidence of psoas abscess is difficult to estimate owing to its nonspecific presentation and reliance on cross-sectional imaging for identification. Worldwide incidence was reported as 3.9 cases/year prior to 1985,<sup>2</sup> but this figure had increased to 12 cases/100,000/year in 1992<sup>3</sup>—reflecting the increased use of cross-sectional imaging in diagnosis.

Abscesses in the psoas muscle can be primary or secondary in origin. The highly vascular nature of the psoas muscle predisposes it to infection from hematogenous spread, causing primary psoas abscesses, which have been associated with

immunosuppression, AIDS, diabetes, renal failure, and intravenous drug use.<sup>4</sup>

Secondary psoas abscesses arise from a direct local spread of infection from viscera lying along the course of the iliopsoas. Crohn's disease has been reported as the most frequent predisposing factor with diverticular disease, appendicitis, and colon carcinoma as other common causes.<sup>5</sup>

Both primary and secondary abscesses predominantly occur in males<sup>6</sup> and tend to occur in younger patients.<sup>2</sup> In an older patient, the abscess is more likely to be secondary to an underlying pathology.<sup>2</sup> Primary abscesses represent a higher proportion of cases in the developing world but are also seen in industrialized nations. Secondary abscesses are largely confined to developed nations.<sup>2</sup>

Whatever the etiology of the abscess, it is important not to miss the diagnosis as mortality of up to 19% has been reported.<sup>3</sup> Unfortunately, diagnosis is commonly delayed because of the relative paucity of cases and its varied clinical presentation. Classically, the patient has a triad of fever, flank pain, and hip movement limitation; in one case series, however, this was present in only 30% of patients.<sup>7</sup> Laboratory investigations are nonspecific, and a high level of clinical

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suspicion is required to make the diagnosis by cross-sectional imaging.<sup>8</sup>

We describe a patient with psoas abscess who presented to the emergency department at Milton Keynes General Hospital, illustrating how psoas abscesses are still misdiagnosed by junior and senior clinicians.

## 2. Case report

A 59-year-old Caucasian businessman presented with a 9-day history of pain in his left leg. The pain was sharp and bandlike, down the back of his left thigh and knee. He was having difficulty mobilizing, and it was keeping him awake at night. He denied swelling of the left leg. He had been to the emergency department 7 days previously complaining of the leg pain where he was diagnosed with sciatica.

His medical history included hypertension, appendicectomy, left total knee replacement, and right hip resurfacing for osteoarthritis. There was no significant family history. His only regular medication was lisinopril. He denied a smoking history and drank 6 units of alcohol a week. He was independent, living with his wife at home. He traveled extensively because of his work, and in the past month he had visited China and Austria.

On examination, he was febrile, and he had a temperature of  $>38^{\circ}\text{C}$ , a pulse rate of 92 beats/min, and a blood pressure of 161/92 mmHg. His gait was antalgic. The results of his neurological examination were completely normal, and there was no sciatic pain reproduced by straight leg raise. Both active and passive movements across the left hip were painful while the patient was in bed with no overlying swelling or erythema.

The blood tests showed significantly raised inflammatory markers with a white cell count of  $22.2 \times 10^9/\text{L}$  and C-reactive protein of 345 mg/L. Renal function and electrolytes were normal, but liver function tests were deranged with raised alkaline phosphatase (181 IU/L) and gamma-glutamyl transpeptidase (142 IU/L) with normal aspartate transaminase and bilirubin. Synthetic function was also abnormal with albumin at 17 g/L and a prolonged prothrombin time of 17.5 seconds. The D dimer result was negative.

Tazocin, metronidazole, and intravenous fluids were commenced, and a full septic screen was undertaken to identify the source of infection.

A chest X-ray revealed no abnormality and a urine dip was normal. A contrast computed tomography (CT) abdomen–pelvis scan was undertaken to rule out biliary sepsis or a pelvic collection to account for the deranged liver function tests, raised inflammatory markers, and leg pain. This revealed a large abscess in the left iliacus muscle measuring 12 cm  $\times$  10 cm  $\times$  4.5 cm and no other abnormalities (Fig. 1).

The patient's care was taken over by the surgical team. Subsequently, *Staphylococcus aureus* was grown from both blood culture bottles. A drain was inserted under fluoroscopic guidance on Day 2 of admission, samples of which also grew *S. aureus*.



Fig. 1. Contrast computed tomography of the abdomen and pelvis on admission shows an abscess in the left iliacus muscle measuring 12 cm  $\times$  10 cm  $\times$  4.5 cm (arrow).

The patient clinically improved on intravenous tazocin, metronidazole, and teichoplanin. A repeat CT abdomen–pelvis scan on Day 8 of admission showed marked improvement of the iliopsoas abscess, with only a small amount of fluid remaining in the iliacus (Fig. 2). The CT scan also showed mild diverticulosis at the descending colic–sigmoid junction, but the patient had no prior colonoscopy to confirm this. The drain was removed on Day 10 of admission, and he was discharged with a further 2-week course of oral antibiotics. A few sigmoid diverticulae were noted on outpatient colonoscopy. The patient has had no recurrence of the abscess.

## 3. Discussion

This case demonstrates that the presentation of a psoas abscess continues to be a diagnostic challenge for clinicians. The patient's presenting features of fever with leg pain and an antalgic gait should raise suspicion, although the classical clinical triad of flank pain, fever, and limitation of hip movement were absent.<sup>7</sup> The leg pain, which was sharp and burning, radiated down the back of the leg. The psoas sign



Fig. 2. Computed tomography of the abdomen–pelvis on day 8 of admission showing a reduction in the size of the left iliacus abscess.

where pain is elicited by hip flexion against resistance or hip hyperextension was not examined for, but if positive, would have been another clue to the diagnosis.<sup>1</sup>

The nonspecific symptoms that psoas abscesses present with, lead to its diagnosis not being considered by several clinicians. In the emergency department, this resulted in the patient being referred to the medical team rather than to the surgeons. When the CT scan was discussed with the radiologist by the medical team, a psoas abscess was still not part of the differential diagnosis. A likely contributor to this development is the lack of education and awareness of psoas abscesses on the part of junior trainees, who are sometimes the only clinicians available to examine the patient before being referred on, and form the initial differential diagnosis. This case highlights a learning need at both junior and senior levels.

In this case, the psoas collection was identified by cross-sectional CT imaging, which is the gold standard in the initial diagnosis and can reveal the underlying cause in secondary abscesses.<sup>5</sup> Other radiological options are magnetic resonance imaging, which has the advantages of not requiring contrast and gives superior imaging of the soft tissues, bone marrow, and spinal vertebrae.<sup>9</sup> Ultrasound scanning has a reported rate of detection of only 48%,<sup>10</sup> but one report highlights its usefulness as a prompt diagnostic tool in the emergency department.<sup>7</sup>

The etiology of the patient's abscess was unclear in this case. Both blood cultures and pus from the abscess itself grew *S. aureus*, which is the causative pathogen in 88% of primary abscesses.<sup>7</sup> Although the patient's second CT scan showed mild diverticulosis at the sigmo-colonic junction, it is unlikely to be the source of the collection because enteric bacteria are usually implicated in secondary psoas abscesses.

The patient in this case was managed effectively with CT-guided percutaneous drainage, alongside antibiotic therapy. More recently, CT or ultrasound guided percutaneous drainage has become more commonplace as it has shown good results and is less invasive than surgical drainage. Multiloculated abscess are more of a challenge and may require additional drainage attempts, and occasionally drainage catheters can dislodge and require replacement.

Incision and drainage has been reported to resolve >97% of primary abscesses.<sup>7</sup> In this case, a near-complete resolution was achieved on repeat a CT scan 6 days after percutaneous drain insertion. Secondary abscesses have a much lower resolution rate with percutaneous drainage alone.<sup>11–13</sup> When Crohn's colitis is the underlying cause, bowel resection together with drainage may be required for complete resolution, although percutaneous drainage may have a role in avoidance of surgery in the short term for some patients.<sup>14,15</sup>

This case of psoas abscess had a good outcome, and the patient was discharged with no reoccurrence. However, the condition can be fatal particularly if the diagnosis is delayed. Secondary abscesses have worse outcomes than primary ones, with reported mortality of up to 19%.<sup>3</sup>

Psoas abscess should be part of clinicians' differential diagnosis in patients presenting with fever, leg pain, and antalgic gait as well as back pain or abdominal pain. Education of the junior staff is needed to improve recognition of the condition and cross-sectional imaging should be considered early to reduce the risk of fulminant sepsis and to improve outcomes.

### Conflicts of interest

None of the authors have conflicts of interest to declare.

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