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CASE REPORT

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Bilateral tuberculosis psoas abscess in a human immunodeficiency virus-positive patient: a case report

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Abstract

Background Worldwide, there is an increase in the frequency of reports of psoas abscesses due to advances in imaging technology, which has led to early diagnosis and treatment. A bilateral psoas abscess is rare and, when it occurs, is usually secondary and in immunocompromised patients. We present a case of a bilateral tuberculosis psoas abscess in a human immunodeficiency virus-positive patient.

Case presentation A 21-year-old Ugandan female undergraduate who contracted human immunodeficiency virus through vertical transmission and has been on highly active antiretroviral drugs presented with bilateral lower abdominal pain with associated fever and headache. Clinical examination revealed abdominal tenderness in both iliac fossae with palpable masses. Ultrasonography revealed fluid collection in both psoas muscles confirming bilateral abscesses. The aspirate was acid-fast bacilli positive. A diagnosis of bilateral tuberculosis psoas abscess was made. Open drainage was performed and antituberculosis drugs were commenced.

Conclusions Bilateral tuberculosis psoas abscesses occurring in human immunodeficiency virus-positive patients, although uncommon, is not unexpected. It is a form of secondary psoas abscess in immunocompromised patients. Here, the outcome was successful with a combination of early surgical drainage and appropriate medical therapy.

Keywords Bilateral psoas abscess, Tuberculosis, HIV, Case report

Introduction

The frequency of case reports on psoas abscesses has increased due to a high index of suspicion coupled with readily available advanced imaging modalities in developed countries [1–4]. Despite this rise in the number of reported cases, it is still relatively uncommon, making the prevalence of this disease difficult to estimate. The average age of occurrence is 52.5 years, with a slight female preponderance [5].

The psoas muscle, with the iliacus muscle, are enclosed in the retro fascia space, which lies between the transversalis and the posterior psoas fascia. An abscess in the psoas muscle can be primary when there is no known etiological factor, or secondary, usually due to contiguous spread from a neighboring infection. The disease has an insidious onset mimicking different diseases in the bone, genitourinary tract, and gastrointestinal system [6–8]. This accounts for the delay in presentation, diagnosis, and treatment, which increases the associated morbidity. Although, the triad of pain, fever, and limp are pathognomonic in children, it may be absent or incomplete in other patients [2]. In developing countries,

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a psoas abscess mainly affects young females, especially those who are immunocompromised or intravenous drug abusers. It usually occurs on the right side and is rarely bilateral (less than 3% of cases) [5, 7]. Although human immunodeficiency virus (HIV) infection is endemic in some countries, the occurrence of bilateral tuberculosis psoas abscess is not commonly reported. Sometime the diagnosis of bilateral psoas abscess might be a red herring to the immunocompromised status the patient. There is dearth of reports of bilateral tuberculosis abscess reported in HIV-positive patients in the literature, hence this case report [9–11]. It also highlight the challenges of making early diagnosis in resource-constrained environments and the need for a high index suspicion among clinicians. We report a case of bilateral tuberculosis psoas abscess in a 21-year-old HIV-positive female patient.

Case report

The patient, a Ugandan 21-year-old female, HIV positive, who was infected through vertical transmission at birth and has been on highly active antiretroviral therapy (HAART), presented with bilateral lower abdominal pain with associated fever, malaise, and had trouble walking for 2 weeks duration. She was pyrexic (38.5 °C), tachypneic, and tachycardic but was normotensive (100/60 mm Hg). Examination revealed deep tenderness on the right and left iliac fossae with a deep-seated palpable mass. There was bilateral tenderness on both flanks posteriorly. There was no pseudoflexion of the hip joints. Digital rectal examination was normal. Chest radiograph revealed hilar lymphadenopathy and lumbar radiograph demonstrated a well-defined opacity along the distal portion of the right psoas muscle.with central locules of lucency seen adjacent to the L4–L5 vertebrae bodies extending to the iliac and sacral bones. There was associated solid periosteal reaction seen on the right lateral aspect of L5 vertebrae body and reduced intervertebral space (Fig. 1). We suspected a diagnosis of bilateral psoas abscesses The complete blood count was 64×10^9/L, with a platelet count of 407×10^9/L, hemoglobin of 10.1 g/dL, an elevated erythrocyte sedimentation rate of 60 mm/hour, C-reactive protein of 75.1 mg/L, and a CD4 cell count of 550 cells/mm^3. Ultrasonography confirmed the diagnosis (Figs. 2 and 3). Needle aspiration yielded thick

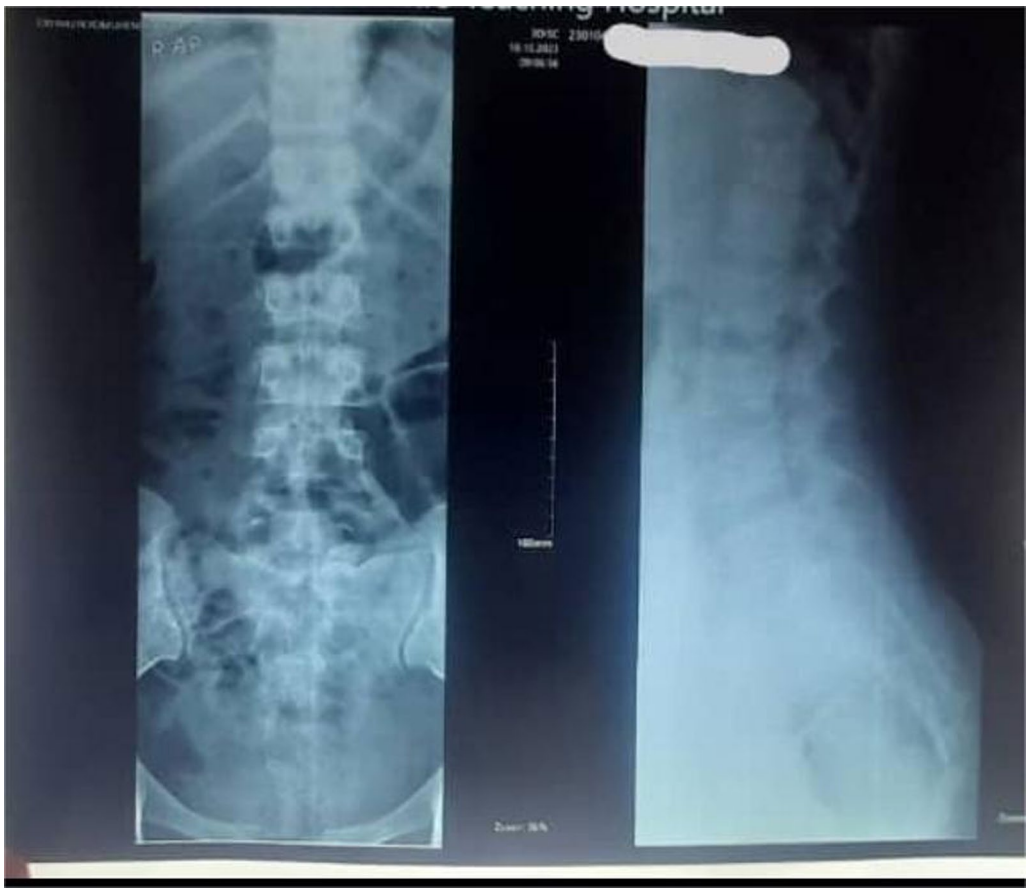

Fig. 1 Lumbosacral radiograph of the patient

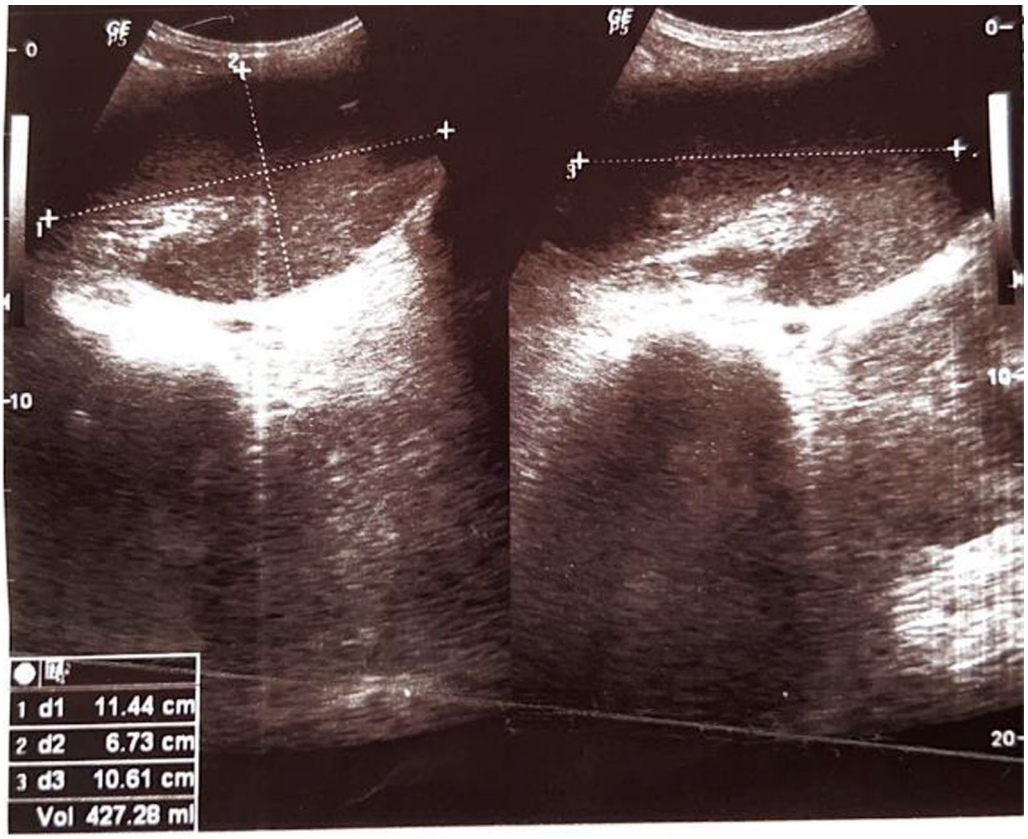

Fig. 2 Left psoas abscess showing the diameter and the volume of pus was 427.28 ml, but more than 1 L was drained after incision at the left side

yellowish pus, which was sent for culture and sensitivity. The patient was commenced on intravenous ceftriaxone/sulbactam 3 g every 24 hours, intravenous metronidazole 500 mg every 8 hours for 7 days and intravenous paracetamol 1 g every 6 hours for 10 days. The choice of antibiotics was based on the clinical experience of the lead physician of the infectious disease team of our institution. The patient had an emergency incision and drainage performed under spinal anesthesia with drainage of 1000 ml and 200 ml of pus on the left and right side, respectively. The time from admission to surgical intervention was 2 days. We performed generous saline irrigation of the two cavities, broke all the loculations, and inserted a tubular drain in the neocavities on both sides. Pus aspirate was Gram stain negative and bacterial culture was sterile; however, it was acid-fast bacilli positive. She was commenced on anti-Koch drugs monitored by the infectious disease unit of the hospital. The patient experienced a gradual recovery. We followed her on a weekly basis at the consultant surgical outpatient clinic.

However, 2 weeks after the procedure, she came to the clinic with lower abdominal pain and vaginal discharge. She could not move her hip joints but did not have a fever. Essential findings on examination were mild tenderness in the right iliac fossae with right flank tenderness and a palpable mass. There was fullness in the pouch of Douglas. Needle aspiration yielded frank pus. A diagnosis of acute inflammatory disease with pelvic abscess and recurrent bilateral psoas abscesses was made. Repeat ultrasound scans (USS) confirmed a reaccumulation of pus in the psoas fascia sheath and fluids in the pouch of Douglas. Intravenous piperacillin/sulbactam 4.5 g every 8 hours, metronidazole 500 mg every 8 hours, levofloxacillin 500 mg every 24 hours, and paracetamol 1 g every 6 hours was commenced. Repeat incision and drainage was done using the posterior approach, and the pelvic abscess was drained per vagina by the gynecologist under ultrasound guidance. The patient had an uneventful recovery.

The patient is being followed-up at the consultant outpatient clinics. At the last follow-up on the 9 October 2023, all wounds were healed (as shown in Figs. 4 and 5), and there were no new complaints.

Discussion

Despite the increase in the sporadic reports of cases of psoas abscess, it is still a rare disease. Though the prevalence globally is difficult to determine, it is estimated

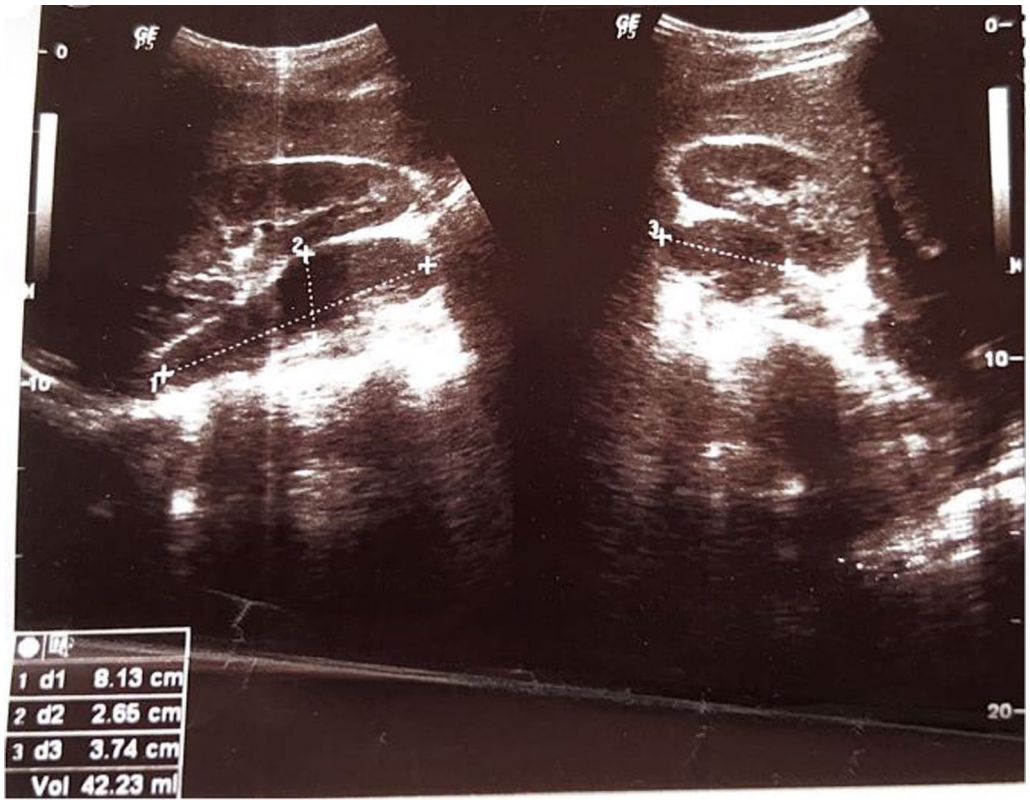

Fig. 3 The right psoas abscess measured 8.1 × 2.66 × 3.74 cm and contained 42.23 ml of pus on ultrasound but more than 200 ml was drained after the incision

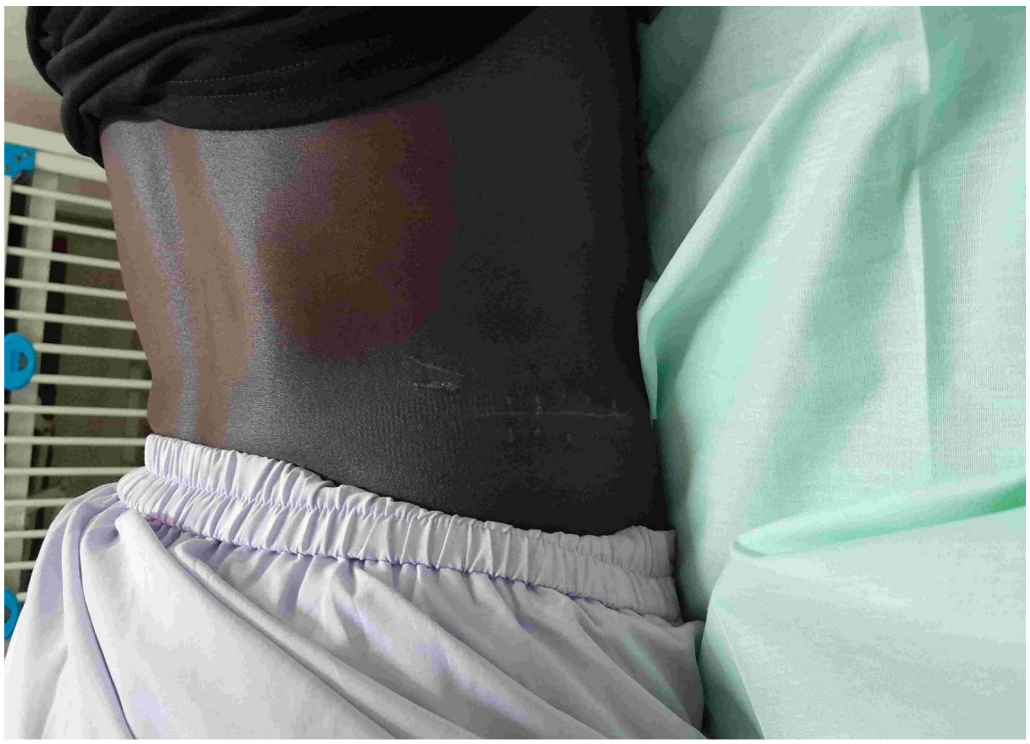

Fig. 4 Postoperative scar on the left side

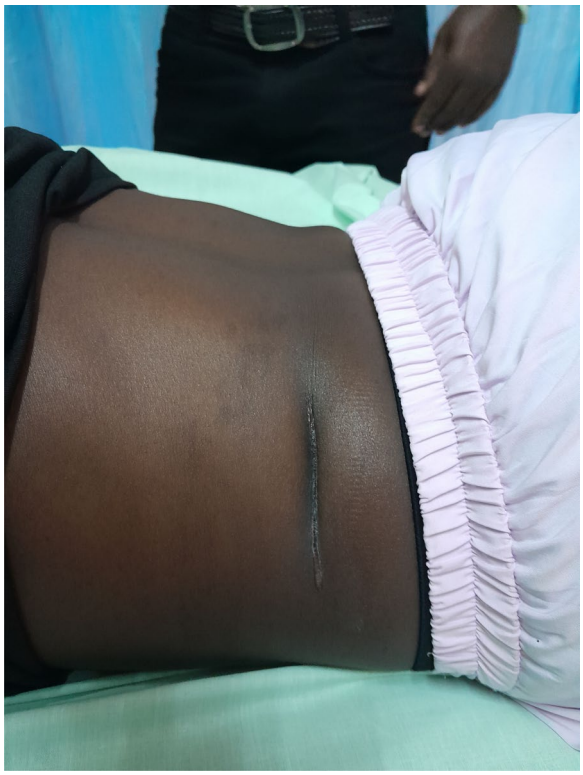

Fig. 5 Postoperative scar on the right side

to be 1–5 per 100,000 population with an average of 12 new cases per year. The recent rise is not unconnected to heightened sensitivity among clinicians, in addition to advances in imaging [1, 5].

Psoas abscess can be primary when there are no known etiological factors, or secondary usually due to contiguous spread from infections in adjacent structures of osteoarticular, genito-urinary, and gastrointestinal origin [7, 12].

In developing nations, the primary psoas abscess is more prevalent and is usually caused by a single bacteria. Developed countries in contrast have a higher prevalence of secondary psoas abscesses. A recent review shows an increase in secondary psoas abscess cases in adults, with slightly higher mortality of 8.1% compared with 6.7% in the study by Ricci *et al*. [5, 13].

Reports from most published data show that it is usually unilateral, with the right side being more commonly affected, while bilateral cases account for less than 3%. When it is bilateral, it often occurs in immunocompromised patients [8–10, 14, 15]. Our patient is a young undergraduate who is HIV positive on highly active antiretroviral therapy (HAART). She contracted the disease at birth through vertical transmission from the mother. While a computed tomography (CT) scan is the gold standard for confirming a diagnosis of psoas abscess, it may not be readily available in most resource-constrained environments, and where it is available, the high cost may preclude its use. This was the situation in our patient who could not afford to pay for the CT scan. The CT scan has a diagnostic yield of close to 95%, mainly where the primary disease is located in osteoarticular tissue. This is in contrast to ultrasonography, which has a diagnostic yield of 60–70%. However, when both scans are combined, the diagnostic yield approaches 100% [16]. The plain radiograph of the lumbar vertebrae showed solid periosteal reaction on the lateral aspect of L5 vertebrae and reduced intervertebral disc space of L4–L5. This was not unexpected because of the low sensitivity of radiography in detecting early tuberculosis of the spine. This was suggestive of osteoarticular origin of the abscess. Magnetic resonance imaging is the diagnostic investigation of choice in suspected cases of tuberculosis of the spine as it has a sensitivity of 100%, specificity of 80%, and accuracy of 90% [17]; unfortunately our patient could not afford this investigation. The preferred treatment is a percutaneous CT scan or USS-guided drainage combined with use of pathogen-specific antibiotics, which usually gives a successful outcome. However, open surgical drainage via extraperitoneal or lower abdominal incision still has a place in secondary psoas abscess, recurrent abscess, large volume, and in those with multiple loculations [14, 15]. Our patient was a case of tuberculosis bilateral psoas abscess with large volume who had open drainage via a posterior approach, which reaccumulated 2 weeks after the first incision and drainage with associated pelvis abscess secondary to pelvic inflammatory disease. The diagnosis of tuberculosis was confirmed at the second incision and drainage. The delay in diagnosis was due to suspicion of bacterial abscess and also the thick yellowish pus aspirated before and drained during the first intervention, but a negative bacterial culture led to acid fast bacilli test on the aspirate using Ziehl–Neelsen stain. This confirmed the diagnosis. Immune suppressed patients due to HIV infection and intravenous drug abuse are known risk factors for tuberculosis psoas abscess [10] However, similar cases have also been reported in immunocompetent persons are internally displaced and who reside in concentration camps, with underlying malnutrition as the predisposing factor [9, 12]. The paucity of published data on bilateral psoas abscess in the literature lends credence to the rarity of its occurrence even among HIV patients, with only one case report in PubMed and a second case who was an acquired immunodeficiency syndrome patient who had disseminated tuberculosis [10, 18].

Conclusions

The diagnosis of bilateral tuberculosis psoas abscesses is uncommon and should draw the attention of the clinician to proper evaluation of the patient to find an underlying cause. This case report emphasizes the usefulness of USS in confirming the diagnosis in resource-limited environments. Open drainage combined with appropriate antibiotic therapy yielded a successful outcome in the absence of standard facilities and expertise for percutaneous drainage.

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Author contributions
AAO conceived and drafted the manuscript. JBM did case summary. MM operated the patient. KF reported the radiographs and ultrasound films. AO and BJK were involved in editing of the draft. All the authors read and approved the final manuscript for submission.

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Availability of data and materials
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Declarations

Ethics approval and consent to participate
The ethical approval is not required by our institution for this case report.

Consent for publication
Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Competing interests
The authors have no relevant financial or non-financial interests to disclose.

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