



Case Report

Report of Four Cases and Literature Review of Psoas Abscess

Ateaze Chrisantus Formelah^{1*} Guifo Marc-Leroy¹, Angu Gideon Ndenge¹, Nkolaka Atems¹, Fola Olivier¹, Bombah Freedy², Guy Aristide Bang¹, Arthur Essomba¹

¹Department of surgery and specialties, Faculty of Medicine and Biomedical Sciences, University of Yaoundé I, Yaoundé, Centre Region, Cameroon

²Department of surgery and specialties, Faculty of Medicine and Pharmaceutical Sciences, University of Douala, Douala, Cameroon

***Corresponding author:** Ateaze Chrisantus Formelah, Department of surgery and specialties, Faculty of Medicine and Biomedical Sciences, University of Yaoundé I, Yaoundé, Centre Region, Cameroon

Citation: Formelah AC, Marc-Leroy G, Ndenge AG, Atems N, Olivier F, et al. (2023) Report of Four Cases and Literature Review of Psoas Abscess. J Surg 8: 1854 DOI: 10.29011/2575-9760.001854

Received Date: 29 May, 2023; **Accepted Date:** 17 July, 2023; **Published Date:** 19 July, 2023

Abstract

Objective: To report four psoas abscess cases which we treated and review the challenges to the management of psoas abscess cases in Yaoundé in 2022.

Method: Four patients who were diagnosed and treated with psoas abscess in our hospitals between 2021 and 2022 were evaluated retrospectively.

Results: All the patients were discharged after an average of 14.5 days following surgical treatments, and parietal suppuration was noted in one who needed two attempts after initial failure of percutaneous drainage.

Conclusion: Psoas abscesses are rare, we believe that the incidence of these cases is more frequent in recent years due to the improvements in radiological imaging methods and the fact that these tests are used more frequently by clinicians. Mycobacterium tuberculosis is not-longer the predominant *Microorganism* in psoas abscess. We think that for the diagnosis of psoas abscess, it is necessary to suspect the diagnosis and keep this rare condition in mind.

Keywords: Open surgery; Percutaneous drainage; Psoas abscess

Introduction

Psoas abscess is a rare disease with multiple clinical presentations and may be seen in any area from the lumbar region to the inguinal region due to the anatomy and course of the psoas muscle [1]. Psoas abscess was identified by Herman Mynter in 1881 for the first time [2]. The psoas muscle extending from the legs to the spine is the only muscle that connects the legs and the backbone. The muscles coming out of the T12 vertebrae move towards the lumbar vertebrae and eventually connect to the hip

bone [3]. It locates nearby organs like kidneys, spine, sigmoid colon, jejunum, appendix, ureters and abdominal aorta. Therefore, infection in these organs may translocate into the psoas muscle [4]. Psoas abscess can be primary or secondary. Primary psoas abscesses are usually of hematogenic origin and comprises 30% of all psoas abscesses; secondary psoas abscesses often develop from a neighboring infectious process originating from the spine, urinary system or gastro-intestinal system and comprises 70% of all cases. The diagnosis is often delayed due to the rare occurrence of the disease, the lack of specific clinical findings, and the insidious progression of the infection process [5]. Early diagnosis and appropriate treatment can prevent morbidity and mortality. Broad-spectrum antibiotics and drainage percutaneously or by

open surgery is the primary treatment of choice for psoas abscess. Especially in secondary psoas abscess mortality rates may increase up to 18.9% despite these treatment methods [6]. In the present study, we aimed to evaluate the patients with psoas abscess treated in our hospital retrospectively.

Case Report

Between January 2021 and April 2022, four patients were diagnosed and treated with psoas abscess in our hospital. Patients whose data could not be reached and who were out of follow-up were excluded from the study. There were 6 patients diagnosed with psoas abscess when the medical records of the patients were reviewed, 2 patients were excluded due to the lack of follow-up. The study group was limited to the four patients. Four patients with psoas abscess were evaluated in a retrospective 1-year screening. The mean age of the patients was 31.5 years (range: 22 to 42 years). Three cases were male and one was female. Two patients had left side and two had right side. Two patients were students (22 years and 24 years), 1 patient was a business man (38 years) and 1 was a worker (42 years). The mean hospital stay was 14.5 (12-18) days and the mean follow-up was 15.3 (13-18) months. No urinary or gastrointestinal tract pathology was detected in any of the patients. As a physical examination finding, hip joint movements were evaluated as painful and limited in all patients. Direct radiography and ultrasonography (USG) were performed in all patients. Computed Tomography (CT) was also performed only in one patient. This was a retrospective clinical study. The present study was approved by the Ethical Committee of our hospital. Demographic characteristics of the patients, clinical presentation, additional disease and predisposing factors, diagnostic methods, treatment method, microbiological examination, treatment responses and complications, duration of hospitalization and treatment outcomes were evaluated.

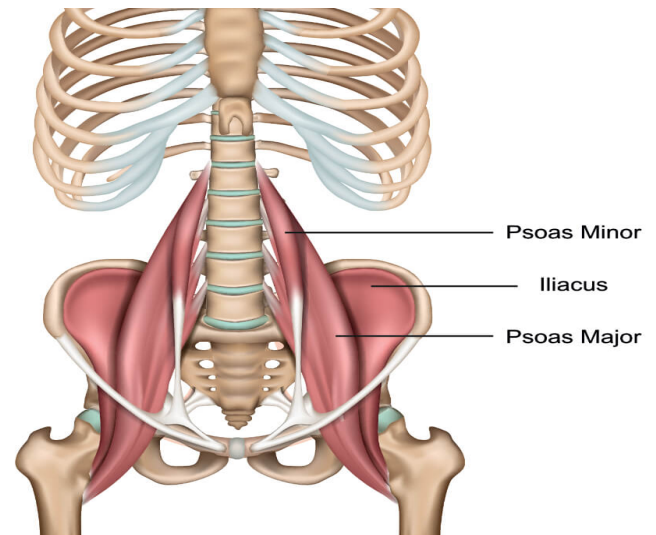


Figure 1: Anatomical location of the psoas muscles.

Case 1

A 24-year-old male patient was transferred from a local clinic, complaining of lower back pain and fever for two weeks. The patient had no contributive past medical history. Physical examination revealed a fever at 38.7°C, tenderness of the back and left flank. The range of motion of her spine was limited and we noted a flexion contracture in the left hip and knee joints. Lumbar spine examination was normal. An abdominal ultrasound showed a heterogeneous collection at the posterior aspect of the left lumbar region within the left psoas muscle. His C-reactive protein count was elevated at 130mg/L and his complete blood count revealed elevated leucocyte count at 12000/mm³ predominated by neutrophils. An ultrasound-guided percutaneous catheter was introduced into his left psoas muscle, the pus was drained and part of it sent for culture. Initial medical treatment comprised a third generation cephalosporine, an imidazole and analgesics. The culture results revealed the presence of *Klebsiella species* and *Escherichia coli*.

	Patient 1	Patient 2	Patient 3	Patient 4
Age	24	38	24	42
Past history	-	-	-	Right iliac psoas abscess
Job	Student	Business man	Student	Worker
Length of hospitalization (days)	14	12	14	18
CRP Turbidmetric (mg/L)	130	160	123	238
Leucocytes (n/mm ³)	12000	14000	11000	13000
Microorganism	<i>Klepsiella species</i> and <i>Escherichia coli</i>	<i>Escherichia coli</i> and <i>Staphylococcus aureus</i> .	<i>Escherichia coli</i> and <i>Staphylococcus aureus</i> .	Sterile culture

Table 1: Demographic distribution of patients.

The patient was later operated through a lumbar incision to drain the abscess due to failure to control the focus of infection. He was followed with antibiotherapy for an appropriate period after surgery and was discharged without any complications after 14 days of hospitalization. In the postoperative follow-up, the patient's CRP level was 2.24 mg/L and white blood cell count was 6200/mm³.

Case 2

A 38-year-old male patient was received at the emergency, complaining of fever and left lumbar pain for 4 weeks. The patient had no contributive past medical history. Physical examination revealed a fever at 39.2°C, tenderness of the back and left flank. The range of motion of his spine was limited and we noted a flexion contracture in the left hip and knee joints. Lumbar spine examination was normal. An abdominal ultrasound revealed a heterogeneous collection at the posterior aspect of the left lumbar region within the left psoas muscle. His C-reactive protein count was elevated 160mg/L and his complete blood count revealed an elevated leucocyte count at 14000/mm³ with neutrophilic predominance. A surgical drainage of the abscess through a lumbar incision was performed under general anaesthesia with sample collection, debridement and lavage. The sample was sent for culture and antibiotic sensitivity testing. Initial medical treatment comprised a third generation cephalosporine, an imidazole and an aminoside. The culture results were revealed the presence of *Escherichia coli* and *Staphylococcus aureus*. He was followed with antibiotherapy for an appropriate period after surgery and was discharged without any complications after 12 days of hospitalization. In the postoperative follow-up, the patient's CRP level was 2.04 mg/L and white blood cell count was 4200/mm³.

Case 3

A 22-year-old male patient was referred from a local clinic, complaining of lower back pain, asthenia and fever for ten days. The patient had no contributive past medical history. Physical examination revealed a fever at 38.9°C, tenderness of the back and right flank. The range of motion of her spine was limited and we noted a flexion contracture in the left hip and knee joints. Lumbar spine examination was normal. An abdominal ultrasound showed a heterogeneous collection at the posterior aspect of the right lumbar region within the right psoas muscle. His C-reactive protein count was elevated at 123mg/L and his complete blood count revealed an elevated white blood cell count at 11000/mm³ with neutrophilic predominance. An ultrasound-guided percutaneous catheter was introduced into his left psoas muscle, the pus was drained and part of it sent for culture. Initial medical treatment comprised a third generation cephalosporine, an imidazole and analgesics. The culture results revealed the presence of *Staphylococcus aureus* and *Escherichia coli*. The patient was later operated through a lumbar incision to drain the abscess due to failure to control the focus of infection. He was followed with antibiotherapy for an appropriate period after surgery and was discharged without any complications after 14 days of hospitalization. In the postoperative follow-up, the patient's CRP level was 1.36 mg/L and white blood cell count was 5000/mm³.

Case 4

A 42-year-old female patient was transferred from a nearby hospital, complaining of right groin pain, fever and loss of function of the right lower limb for 6 weeks. The patient had a surgical drainage of a right iliac psoas abscess two months ago through an inguinal incision. Physical examination revealed an altered

general state, a fever at 38,8°C, right groin erythematous swelling that was hot and sensitive on palpation. The right lower limb was maintained in an antalgic position, and its mobilization was painful. Lumbar spine examination was normal. An abdomino-pelvic CT scan was performed and the results revealed a collection in the right iliacus and psoas muscles.

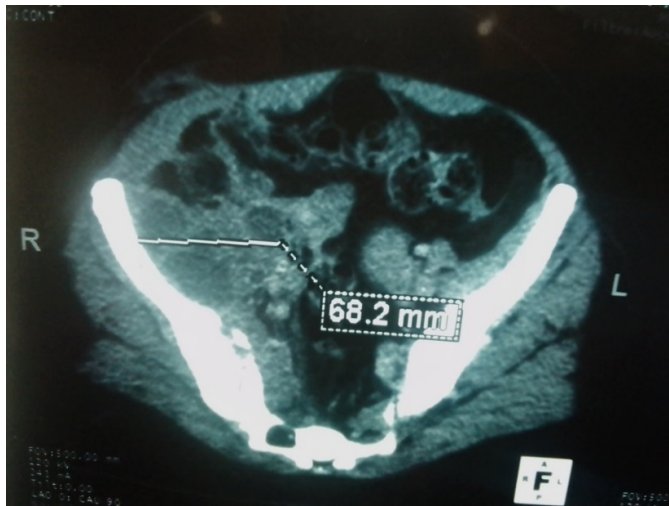


Figure 2: CT Scan revealing a right iliac psoas abscess.

Her C-reactive protein count was 238mg/L and her complete blood count revealed an elevated white blood cell count at 13000/mm³ with neutrophilic predominance. A surgical drainage of the abscess was performed with an inguinal incision. Samples were taken for bacteriology, the pus was drained, necrotic tissues debrided and a lavage was done with a lamellar drain put in place. Initial medical treatment comprised a third generation cephalosporine, an imidazole and analgesics. Culture results revealed a sterile sample. She was followed with antibiotherapy for an appropriate period after surgery. She had a parietal suppuration 5 days following surgery that was managed medically and she was discharged after 18 days of hospitalization. In the postoperative follow-up, the patient's CRP level was 4.12 mg/L and white blood cell count was 6000/mm³.



Figure 3: Surgical drainage of a psoas abscess through an inguinal incision.

Discussion

Classical medical knowledge that relates psoas abscess to a lumbar spine involvement of mycobacterium tuberculosis as a primary lesion and the secondary etiology due to neighboring infections are overlooked. Although psoas abscesses were diagnosed rarely, the incidence of these cases is reported higher in recent years due to the improvements in radiological imaging methods and the fact that these tests are used more frequently by clinicians [7]. We think that the Although in the literature it has been reported that 70% of psoas abscess patients are under the age of 20, recent studies have identified the mean age above 40 years [7]. Also psoas abscess is seen more often in men [8]. In the present study all but one patients were men and mean age of patients was 31.5. Side pain and fever are the most common symptoms in psoas abscess [9]. All of patients in the present study had side pain and high fever. In accordance with the literature, leukocytosis and elevated C-reactive protein levels were common laboratory findings in our patients. In the diagnosis of psoas abscess CT has a high sensitivity of up to 100%. CT can show the location and depth of the lesion and also can show the exact sizes [10]. In this study CT was applied to only one patient. Psoas abscess has been mostly reported unilaterally in the literature (95-97%) [8]. All patients in the present study were also unilateral. Although right side involvement was reported in the literature, our study had two right side involvement while two were involved on the left side [8,11].

Among all psoas abscesses, 30% is known as primary and 70% is as secondary abscess. The most common cause of primary psoas abscess is hematogenous spread, Crohn's disease is the most common cause of secondary psoas abscess (60%) [12]. Other reasons are appendicitis (16%), ulcerative colitis, diverticulitis, colon cancer (11% together) and vertebral osteomyelitis (10%) in secondary psoas abscess [12]. In this study, all patients had primary psoas abscess [7,8]. The pathogen *Microorganism* is *Staphylococcus aureus* in 80% of primary psoas abscesses have been reported. Enteric bacteria are usually responsible for secondary psoas abscesses [13]. *Staphylococcus aureus* was found to be the causative agent associated with *Escherichia coli* in two patients in this study (Both MSSA). In one of our patients, *Klebsiella species* and *Escherichia coli* were found as active *Microorganism*, whereas in the other patient no germ was detected. This could be due to the fact that this patient has been taking antibiotics for a long time. This confirms the theory that *Mycobacterium tuberculosis* is not longer the predominant *Microorganism* in psoas abscess.

Broad-spectrum antibiotics and drainage percutaneously or open surgery is the primary treatment of choice for psoas abscess [1,7,10]. Although percutaneous drainage is the primary treatment option today, It's first description dateback in 1984 [14]. There are very few reports on cases of psoas abscess treated by antibiotics only [4,15]. In general, minimally invasive open drainage is recommended when percutaneous drainage fails [8]. Although percutaneous drainage is the most effective treatment, open drainage can achieve high success rates in worsened patients requiring fast and exact response. Percutaneous drainage was applied to 75% of patients, followed by open drainage, meanwhile open drainage was applied directly in 25% of the patients in this study. Therefore, open drainage should be the treatment of choice for these patients. Patients whose general health conditions had deteriorated due to delayed diagnosis were referred to our tertiary hospital. This may be the reason why open drainage was applied to all patients in our study. When surgical treatment option is chosen, the surgeon should take some time to locate the abscess on a CT if available, to ensure an appropriate surgical approach. If the abscess is located in the iliac part of the muscle, the collection may be more accessible through an inguinal incision. This was the approach for case n° 4 in our study. Unfortunately, CT scans are not always available in our setting and most diagnosis are made on ultrasound, although the location can still be broadly obtained.

Psoas abscess is a disease with fatal consequences. Mortality rate is 2.4% in primary psoas abscess and this rate may increase up to 18.9% in secondary psoas abscess [6]. In this study, one patient had a parietal suppuration 5 days after surgery and none of the patients died. We think that early diagnosis, effective drainage and appropriate antibiotherapy are the key to manage this disease which is not easy to diagnose and treat. However, it should be kept in mind that serious complications, morbidity and mortality may occur in delayed cases especially if the patient is already bearing a comorbidity.

References

1. Gruenwald I, Abrahamson J, Cohen O (1992) Psoas abscess: case report and review of the literature. J Urol 147: 1624-1626.
2. Mynter H (1881) Acute psoriasis. Buffalo Med Surg J 21: 202-210.
3. Ataus S, Alan C, Onder AU, Mihmanli I, Talat Z, et al. (2003) Psoas abscess. Cerrahpaşa J Med 31: 89-93.
4. Mallick IH, Thoufeeq MH, Rajendran TP (2004) Iliopsoas abscesses. Postgrad Med J 80: 459-462.
5. Goldberg B, Hedges JR, Stewart DW (1984) Psoas abscess. J Emerg Med 1: 533-537.
6. Garner JP, Meiring PD, Ravi K, Gupta R (2007) Psoas abscess-not as rare as we think? Colorectal Dis 9: 269-274.
7. Bodakci MN, Hatipoglu NK, Daggulli M (2014) Etiological factors of psoas abscesses. J Clin Exp Invest 5: 59-63.
8. Tabrizian P, Nguyen SQ, Greenstein A, Rajhbeeharrysingh U, Divino CM (2009) Management and treatment of iliopsoas abscess. Arch Surg 144: 946-949.
9. Chern CH, Hu SC, Kao WF, Tsai J, Yen D, et al. (1997) Psoas abscess: making an early diagnosis in the ED. Am J Emerg Med 15: 83-86.
10. Turunç T, Demiroglu YZ, Colakoglu S (2009) [Retrospective evaluation of 15 cases with psoas abscesses.] Mikrobiyol Bul 43: 121-125.
11. Bresee JS, Edwards MS (1990) Psoas abscess in children. Pediatric Infect Dis J 9: 201-206.
12. Ricci MA, Rose FB, Meyer KK (1986) Pyogenic psoas abscess: worldwide variations in etiology. World J Surg 10: 834-843.
13. Santanella RO, Fishman EK, Lipsett PA (1995) Primary versus secondary psoas abscess. Presentation microbiology and treatment. Arch Surg 130: 1309-1313.
14. Mueller PR, Ferrucci JT, Wi2ttenberg J, Simoene JF, Butch RJ (1984) Iliopsoas abscess: Treatment by CT-guided percutaneous catheter drainage. AJR Am J Roentgenol 142: 359-362.
15. KadambariD, Jagdish S (2000) Primary pyogenic psoas abscess in children. Pediatr Surg Int 46: 408-410.