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Acute Generalized Peritonitis Revealing a Ruptured Psoas Abscess: A Case Presentation

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Abstract

Background: Psoas abscess is a rare and complex entity with poor clinical manifestation. The etiologies are usually in relation to the neighboring structures. Imaging modalities help in diagnosis and guide therapeutic decisions. Complications are rare and generally associated with a delayed diagnosis. **Case Presentation:** We are presenting the case of a 55-year-old male immune-compromised patient who presented with an acute generalized peritonitis and was found at laparotomy to have an intraperitoneal rupture of a psoas abscess. We performed peritoneal lavage, drainage, post-operative broad spectrum antibiotherapy and resuscitation which were unsuccessful since the patient died on the 4th day post-operative. **Conclusion:** Delayed diagnosis of a complicated psoas abscess in an immunocompromised patient can lead to a fatal outcome despite surgery and antibiotics.

Keywords

Psoas Abscess, Primary Psoas Abscess, Secondary Psoas Abscess, Intraperitoneal Fistulization

1. Introduction

A psoas abscess (PA) is a purulent collection in the psoas muscle compartment. In 1881, a psoas abscess was described and treated by Mynter H for the first time, classifying them into primary form and secondary forms, according to the physiopathological mechanism. Primary PA accounts for 30% of all psoas abscesses,

and originate from an infection at a distant site, spread through hematological or lymphatic routes. Secondary PA constitutes 70% of all cases with an infectious process involving adjacent structures via direct invasion. It is an uncommon disease, with high mortality and morbidity in case of delay in diagnosis [1]-[4].

The psoas muscle originates from the transverse processes and intervertebral discs of 12th Thoracic and all lumbar vertebrae. It lies in close proximity to organs such as sigmoid colon, appendix, jejunum, ureters, abdominal aorta, kidneys, and spine. Infection of these organs may easily spread to the psoas muscle [5] [6]. Documented risk factors associated with psoas abscess are immuno-compromised patients, chronic disease, intra-venous drug users, diabetics, malnourished and alcoholics [7] [8].

The psoas abscess is a diagnostic nightmare for the clinician as the classical picture of fever, lumbar pain and tenderness provoked by palpation are rarely present in the initial stages of the disease. Ultrasound and Computed tomography scans play important roles in clarifying the diagnosis and guide choice of drainage [8]. Historically psoas abscess has been linked to Tuberculosis (TB). Current tendencies show *Staphylococcus aureus* to be the most common germ (88.4%), followed by *enterococcus* (4.9%), and *E. coli* (2.8%) [9]. Broad-spectrum antibiotics and drainage whether percutaneous or via open surgery are the recommended treatment for PA. Despite these treatment modalities, mortality rates can reach 18.9% especially in secondary PA [3]. Rarely psoas abscess can diffuse in the peritoneal cavity causing peritonitis which in this case would be extremely serious. The diagnosis will be confirmed on imaging tests, particularly an abdominal CT scan. We report a case of a psoas abscess fistulated in the peritoneal cavity and presenting as an acute generalized peritonitis in a 55-year-old male.

2. Case Description

We present the case of a 55-year-old African male seen at the surgical emergency unit of the Yaoundé central hospital for generalized abdominal pains of 2 weeks evolution prior to the consultation, poorly characterized, associated to asthenia, undocumented night fevers and sweats, vomiting, arrest of transit and weight loss of 13 kg over the past 3 months. The patient had been consuming over the counter drugs and traditional potions prior to seeking medical care. As relevant past medical history, the patient was diagnosed HIV positive 5 months earlier and was placed on anti-retroviral drugs with poor compliance to treatment. The CD4 counts and viral load were respectively 95 cells/µl and 1,099,732 copies/ml at the time of diagnosis and there were no recent control results of these exams when we received the âtient. The anti-retroviral regimen was composed of dolutegravir, tenofovir and emtricitabine. Previous screening for TB was negative.

On physical examination, we had a chronic ill looking patient with an altered general status WHO 3, blood pressure of 106/74 mm/hg, a pulse of 134 beats/minute, respiratory rate of 26 cycles/minute, oxygen saturation of 93% in air and a body temperature of 38.7˚C. The conjunctivae were pale pink, he had bilateral

coarse crackles in both lower lung fields, abdominal distention, generalized guarding on palpation which was more marked on the right flank, without disappearance of the hepatic dullness there was no psoas sign, no hips movement limitations and digital rectal examination was unremarkable. Examination of the lumbar region was unrevealing. Laboratory examinations showed: white blood cell count of 22,000/mm^3 of granulocyte predominance (70.1%), red blood cell count of 2.72×10^6, hemoglobin count of 7.2 g/dl microcytic and hypochromic, platelet count of 420,000. C-reactive protein was 873.6 mg/L, creatinine levels were twice the normal for his age 32.7 mg/l. The rest of the biological examination was normal. Abdominal ultrasound showed a free complex abdominal collection of moderate abundance, plain abdominal X-ray showed bowel stasis and was unrevealing of bowel perforation. CT-Scan requested could not be realized because of the financial burden.

The patient was prepared for an emergency laparotomy and informed consent was obtained. About 200 mls of a purulent collection were drained from the abdominal cavity. This was also sampled for culture and sensitivity and the result released 5 days after the surgery revealed a *Proteus mirabilis* sensitive to amikacine, meropenem, imipenem, ofloxacine. Multiple false membranes over the small and large bowels could be seen (**Figure 1**). An approximately 1.5 cm opening was seen in the posterior wall of the abdomen, medial to the ascending colon communicating with the retroperitoneal space letting out the purulent discharge (**Figure 2**). This was not in contact with the urologic organs in the retroperitoneal space, the ascending colon, caecum and the appendix were normal. The rest of the abdomen was observed without any macroscopic abnormalities. The peritoneum was washed abundantly, resection of the edges of the abscess was done, and large tubular drains were placed in drainage sites. The patient was transfused 3 pints of packed RBCs, placed on 3.5 L of fluids 24 hrly, a broad spectrum antibiotherapy ofloxacine 200 mg/12hrly, Metronidazole 500 mg/08hrly was debuted, analgesics for pain, anticoagulants and proton pump inhibitors. On the first post-operative day, the patient was placed in the intensive care unit for respiratory distress with an oxygen saturation of 76% in air, BP 111/84 mm/Hg, pulse of 130 bpm, respiratory rate of 28 cpm, a temperature at 39.7˚C. Despite aggressive resuscitation measures, the patient did not respond favorably and died on the fourth day after surgery.

3. Discussion

The psoas major muscle is a deep muscle originating from the lower thoracic (T12) and lumbar vertebrae (L1 - L5), running down the spine joining the iliacus muscle to form the iliopsoas muscle. Their primary role is in stabilizing the spine and flexion of the hip joint. Anatomically, the psoas is in contact with the diaphragm superiorly, medially by the spine, posterior-laterally with the quadratus lomborum [5]. It is in direct contact with the kidneys, the ureters, the pancreas, the peritoneum, the colon, ganglions, and lymphatic. Any inflammatory pathology of these could be the origin of psoas abscess [8].

Psoas abscess is an uncommon infectious disease without any specific clinical features, which may require advanced imaging techniques for diagnosis. Morbid-

ity and mortality are high during the course of disease especially with delays in diagnosis and treatment [1]-[11]. The psoas-muscle sign, the triad of fever, flank pain, and limitation of hip movement, is noted in only 30% patients. Fever and side pain are the most frequent symptoms observed, leukocytosis, elevated sedimentation rate and anemia are the laboratory findings commonly observed in patients [10]. This was the case with our patient, who presented with a clinical picture with few signs of psoas abscess and which was more consistent with generalized acute peritonitis. PAs are more common in males than in females. Certain authors have reported psoas abscess to be more common among older patients [3] while other authors have reported that 70% of the PA patients are under 20 years of age [1] [8].

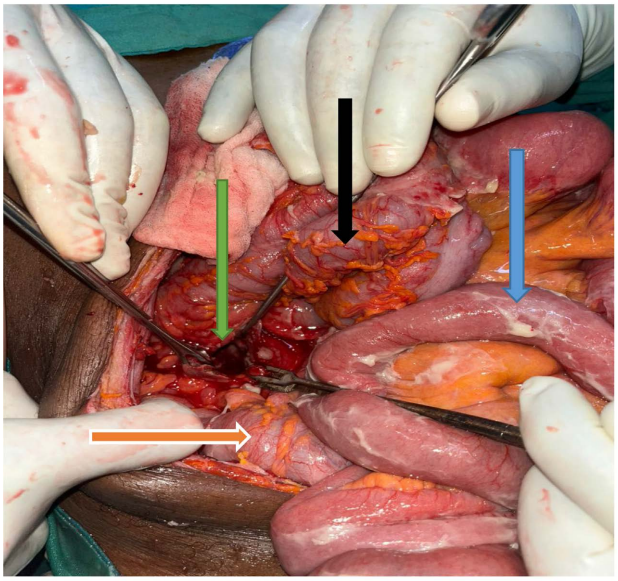

Figure 1. Orange arrow showing ascending colon. Green arrow showing retroperitoneal abscess opening. Black arrow showing transverse colon. Blue arrow showing ileum with false membranes.

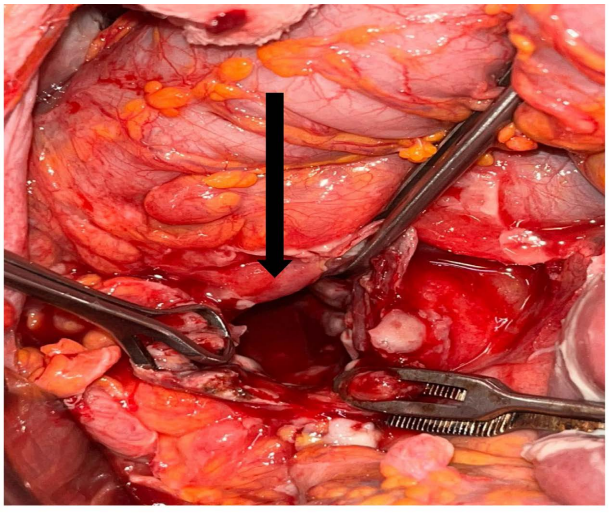

Figure 2. Black arrow showing abscess opening into peritoneal cavity.

CT has a high sensitivity, as much as 100% in the diagnosis of PA. CT scan can depict the depth and location of the lesion, as well as its exact dimensions. Other radiological examinations such as plain abdominal radiographs, ultrasound (specificity of 40%) and MRI have not been shown to be superior to CT regarding PA diagnosis [4] [8] [10].

PA is mostly reported to be unilateral in the literature (95% - 97%) and predominantly on the right side [11] [12]. Unilateral right side PA in our patient was consistent with the literature.

Psoas abscess was described and treated by Mynter H for the first time in 1881, classifying them into the primary form and secondary forms, according to the pathophysiological mechanism. Primary PA account for 30% of all psoas abscesses and originate from an infection from a distant site, spread through hematological or lymphatic routes. Secondary PA constitutes 70% of all cases with an infectious process involving adjacent structures via direct invasion [1]-[4].

Prior to introduction of effective anti-tuberculosis drugs, PA was once a common complication of tuberculous spinal infection. Current tendencies show that it is now mostly associated with bacterial infections originating from the bowel, kidney or spine, *Staphylococcus aureus* is the most common germ (88.4%), followed by *enterococcus* (4.9%), and *E. coli* (2.8%) [9] [12]. Navarro *et al.* [13] have demonstrated that PA in HIV patients is mostly due to *Mycobaterium tuberculosis*, *Staphylococcus aureus* and *Mycobacterium avium*. It has also been proven that despite the availability of ART, patients with poorly controlled HIV or low CD4 counts remain at high risk of opportunistic and atypical infections [14]. This was the case for our patient who presented an atypical infection like a psoas abscess and who probably had an uncontrolled HIV infection considering his poor adhesion to ART. We weren't able to clearly expose the etiology of the PA since the patient was unable to have a CT scan due to financial issues and died shortly after the surgery. We did not find any signs of bowel or kidney infections in our patient during the surgery, thus suggesting that the origin could be the spine. The possibility of a primary psoas abscess could have been explained by a hematogenous bacterial spreading to the muscle but we have not identified any other obvious source of infection in this patient during his management.

Once the diagnosis is confirmed, the choice of therapy follows the modified GRUENWALD flow chart [15] (**Figure 3**). Broad-spectrum antibiotics and drainage whether percutaneously or via open surgery are the recommended treatment options for PA. Percutaneous drainage was first described in 1984, and today it is presented as the first treatment option [3] [12] even for complex multiloculated abscesses. There are few reports, which present PA cases, which responded to antibiotic therapy alone [16]. CT-guided drainage has been reported to achieve a success rate of 70% - 90%. Open drainage, which has as a more limited practice generally recommended when percutaneous drainage fails [8]. Open drainage, which has as a more limited practice is generally recommended when percutaneous drainage fails. Although percutaneous drainage appears to be effective, open

drainage can achieve a success rate of 97% in deteriorated patients requiring fast and precise response [10] [12]. Our choice of an open surgery was guided by the state of sepsis of our patient, the presence of peritoneal irritation signs, coupled with the inability to do a CT-scan. The mortality registered is in line with literature where diagnostic and therapeutic delays adversely affect morbidity and mortality [1]-[16].

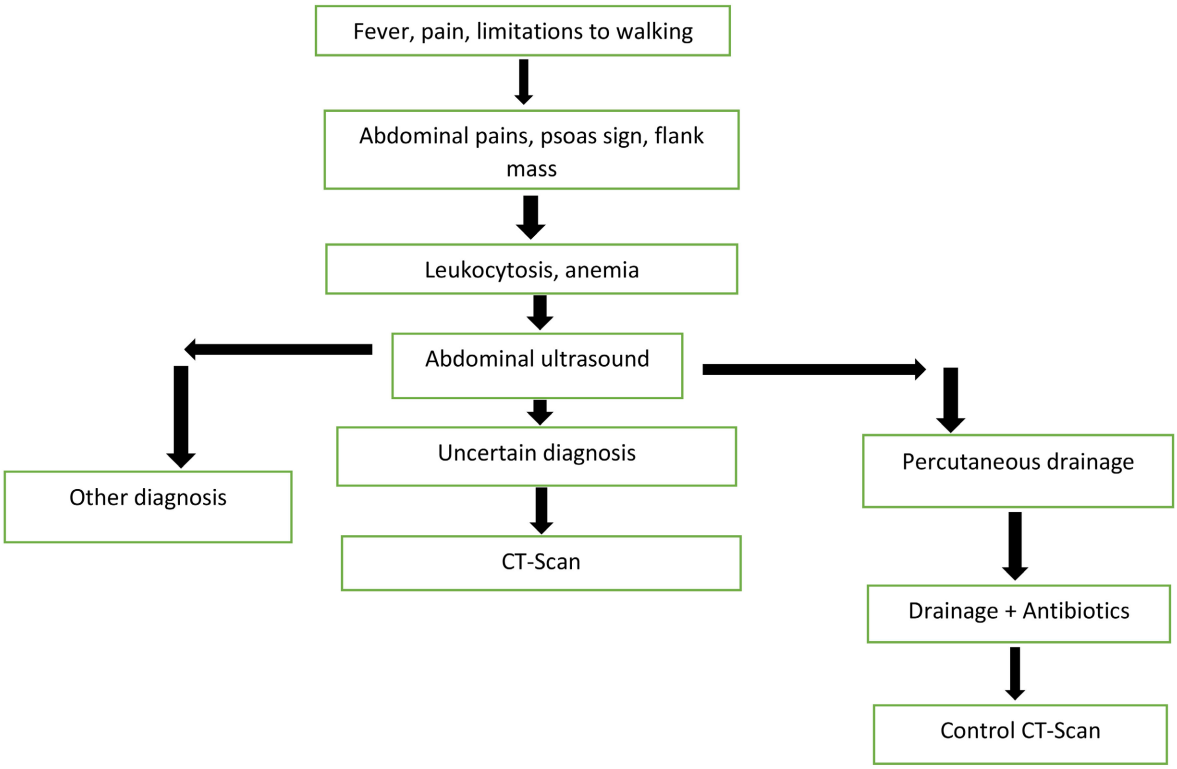

Figure 3. Modified Greunwald flow chart [15].

4. Conclusion

Psoas abscess remains a rare complex entity with nonspecific symptoms making diagnosis challenging in a setting without diagnostic imaging. It is common in patients with comorbidities. Every delay in diagnosis or treatment adversely affects mortality and morbidity. Management is with antibiotics associated with either percutaneous drainage or open surgery.

Informed Consent

Written informed consent was obtained from the patient and their family for publication of this case report and any accompanying images.

Author Contribution

Biwole B D: study concept, data collection, data interpretation, and writing the paper, Orok-Tambe O: data collection, data interpretation, literature review, and

writing the paper, Arthur Essomba: Supervision and revision of the work. All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors do not have any conflict of interest.

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