Psoas abscess as a differential diagnosis in the Emergency Department

ABSTRACT

Background: Psoas (or iliopsoas) abscess is a rare clinical entity with a wide etiological range. It is defined as a collection of pus that begins and extends through the iliopsoas muscle and can reach up to the inguinal region.

Methods: We performed a retrospective descriptive study by reviewing medical records from the General Surgery Department of Reina Sofía General University Hospital. Information was collected from patients diagnosed with psoas abscess who were admitted to the General Surgery Department from 2006 to 2011.

Results: Five cases were reported for 6 years: four males (80%) and one female (20%). Average age was 51.6 years (range: 35–75 years). All patients were admitted to the hospital through the Emergency Department. Lumbar pain, fever and rash were clinical features in three patients. Two patients initiated with septic shock. Each patient had computed tomography performed, which confirmed the diagnosis. Causes of the abscess were as follows: one perforated colon neoplasm, two cases of left hip osteomyelitis, one case of Crohn’s disease and one patient with primary abscess. Surgery was the treatment in three cases and placement of a pigtail drainage was the treatment in two patients. Two patients were admitted to the Intensive Care Unit and ultimately died.

Conclusion: In our case series report, it is seen that treatment delay resulted in septic shock and death. We should consider this entity in emergency practice in order to carry out timely treatment.

Key words: Psoas, emergency, abscess, abdominal.
BACKGROUND

Psoas abscess is a rare disease of diverse etiology and represents a collection of pus that starts and extends through the iliopsoas muscle and can even reach the inguinal region. It originates due to continuity from adjacent structures (often kidney, spinal column and intestine) or by hematogenous spread when the cause is primary.1 It is more common in middle-age males. Its incidence is low; however, due to the use of computed tomography (CT), diagnostic frequency has increased, whereas prior to this, diagnosis was only made postmortem.2

METHODS

A descriptive and retrospective study was conducted by reviewing medical records. Clinical reports were collected from patients with a discharge diagnosis of psoas abscess treated at the Reina Sofía General University Hospital from Murcia between January 1, 2006 and September 31, 2011. The selection was recorded on the documentation database service, recording patients who were assigned the code of psoas abscess (tuberculous and non-tuberculous) (A18.8 and M60.0) according to the International Classification of Diseases (ICD-10). From these case histories, we collected data for demographics, clinical presentation, diagnostic methods and prescribed treatment. The most relevant findings were described and analyzed. The study protocol was approved by the Research Committee of the hospital where the study was conducted.

RESULTS

During a 6-year period, five cases were found: four males (80%) and one female (20%) with a mean age of 51.6 years (range: 35–75 years). All patients were admitted to the Emergency Department. In two patients, the chief complaint was back pain, fever and skin erythema. Another patient developed fever and abdominal pain, and two patients initiated with a scenario of septic shock. All patients underwent an abdominal CT that confirmed diagnosis. In four cases the cause of the abscess was a secondary type: one from a perforated colon neoplasm, two due to osteomyelitis of the left hip after prosthesis placement, and one due to Crohn’s disease. The last case was of a primary abscess without determining its cause. Microorganisms found in the samples for culture were diverse for the different cases: two samples were positive for *Staphylococcus aureus*, one for *Alcaligenes* species with *P. aeruginosa*, another appeared with *E. coli* along with *E. cloacae* and *B. fragilis* and one culture was negative due to the absence of growth of organisms. Average hospital stay of the patients was 26.28 days (median of 12 days). The average time elapsed from symptom onset to treatment application was 4.2 days (Table 1).

In three cases surgical drainage was performed. The approach was through a laparotomy, inguinal incision and lumbar approach. In two of the cases, pigtail drainage was placed under radiological control (one patient suffered two relapses despite the use of appropriate treatment with radiological drainage and the other patient received surgery as definitive treatment). Two patients (40%) were hospitalized in the intensive care unit; both died (40%) at 21 and 10 days, respectively, after the onset.

DISCUSSION

Psoas abscess is a rare condition that manifests with a broad spectrum of signs and symptoms, almost always its nonspecific, delaying the diagnosis.3 The common cause was believed to be tuberculosis; however, today it is a type of infectious myositis from another cause (bacteria, fungi, parasites and viruses) due to the decline of tuberculosis in the Western world.4 Few cases were registered a year later. Most were primary or secondary to urinary, gastrointestinal, and bone...
infections, especially those affecting the spine or after abdominal surgery.4

Primary psoas abscess is usually unilateral and occurs in young patients. The condition is more common in developing countries of Africa or Asia where rising seropositivity for HIV has increased greatly in recent years, leaving these patients exposed to all kinds of opportunistic infections.5 Secondary type abscesses originate from gastrointestinal diseases such as appendicitis, Crohn’s disease, diverticulitis and perforated colon neoplasm. In some Asian countries, the secondary etiology to renal disease is increasing in incidence.1 Less common causes include leukemia, pancreatitis, septic arthritis or Henoch-Schölein purpura. Hip prosthesis infection has not been a common cause of psoas abscess; however, recent studies claim that it is a common but underdiagnosed cause among the complications of the implantation of a hip prosthesis.6

In our study the predominant etiology was secondary. Osteomyelitis from postoperative hip prosthesis occurred in 40% of cases. The rest are caused by classical causes of intestinal disease such as Crohn’s disease, a recurring more complicated abscess and perforated sigmoid neoplasm. In one patient, a determination was unable to be made as to what the primary cause of the abscess was.

When a patient with hip prosthesis shows any signs or symptoms of suspected psoas abscess, then a differential diagnosis needs to be included. The typical clinical triad of fever, flank pain and limited hip movement occurs only in a small percentage of patients. Symptoms such as abdominal pain, fever, local heat, and weight loss are associated with relative frequency. In our study, most of the cases began with fever and pain, either lumbar or abdominal, and nonspecific signs that led to the delay in diagnosis with a mean of 2.8 days.

Table 1. Characteristics of the patients diagnosed with psoas abscess

<table>
<thead>
<tr>
<th>Patient</th>
<th>Sex</th>
<th>Age</th>
<th>Diagnostic method</th>
<th>Microorganism</th>
<th>Etiology</th>
<th>Clinical manifestations</th>
<th>Type of drainage</th>
<th>Hospital stay (days)</th>
<th>Days of treatment delay</th>
<th>Died</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case 1</td>
<td>F</td>
<td>75</td>
<td>CT</td>
<td>Alcaligenes species, P. aeruginosa</td>
<td>Perforated colon neoplasm</td>
<td>Septic shock</td>
<td>Surgical</td>
<td>21</td>
<td>4</td>
<td>Yes</td>
</tr>
<tr>
<td>Case 2</td>
<td>M</td>
<td>51</td>
<td>CT</td>
<td>Staphylococcus aureus</td>
<td></td>
<td>Abdominal pain with vomiting and low-grade fever</td>
<td>Radiologic</td>
<td>62</td>
<td>3</td>
<td>No</td>
</tr>
<tr>
<td>Case 3</td>
<td>M</td>
<td>38</td>
<td>CT</td>
<td>E. cloacae, B. fragilis, E. coli</td>
<td>Crohn’s disease</td>
<td>Abdominal pain, low-grade fever and limp</td>
<td>Radiologic and surgical</td>
<td>1st admission: 12 2nd admission: 10 3rd admission: 62</td>
<td>1st: 4 2nd: 3 3rd: 2</td>
<td>No</td>
</tr>
<tr>
<td>Case 4</td>
<td>M</td>
<td>48</td>
<td>CT</td>
<td>S. aureus</td>
<td></td>
<td></td>
<td>Surgical</td>
<td>10</td>
<td>4</td>
<td>Yes</td>
</tr>
<tr>
<td>Case 5</td>
<td>M</td>
<td>46</td>
<td>CT</td>
<td>Negative</td>
<td></td>
<td>Back pain, low-grade fever and tumor</td>
<td>Surgical</td>
<td>7</td>
<td>2</td>
<td>No</td>
</tr>
</tbody>
</table>

CT, computed tomography.
Currently, *S. aureus* is the most common agent causing the psoas abscess.\(^1\) However, increased infection from acquired immunodeficiency virus and the use of intravenous drugs are increasing the number of new multiresistant agents, prompting us to carefully consider antibiotic treatment. In our study, *S. aureus* was the cause of two cases with the same secondary etiology: osteomyelitis of the hip. The other agents varied, although all were the result of a type of bacteria.

CT is recognized as the best imaging method for the diagnosis of psoas abscess.\(^7\) However, it is not specific enough to differentiate a neoplastic psoas abscess or a hematoma in the area. Ultrasound has a low sensitivity (53%). Magnetic resonance imaging is useful when the disease is due to tumor or there is an infection adjacent to vertebral bodies or channels.

All of our patients underwent an abdominal CT (Figure 1) that was diagnostic. Treatment of psoas abscess consists of drainage, supportive measures and early initiation of antibiotics. Types of drainage are discussed in several studies and we concluded that the radiological method is the one of choice as long as the patient’s condition allows it. It is the quickest, easiest and least dangerous method when performed by an experienced interventional radiologist.\(^8\)

Surgery should be reserved for cases where radiological drainage has been ineffective. This technique is contraindicated in very large abscesses, and if the location does not allow. In some cases of secondary causes such as perforated tumors, surgery is the most effective treatment.\(^7\) Initial antibiotic treatment should be empirical against anaerobic gram-negative bacilli and *S. aureus*.\(^7\)\(^9\)

In most of our cases the treatment indicated was emergency surgery. We intervened three patients, two with acute abdomen and septic shock and the other had an easy accessible abscess via lumbar access. The remaining patients were treated with radiological drainage (Figures 2 and 3).

Initiation of treatment from symptom onset plays a decisive role in this condition because the rapidity of diagnosis and antibiotic administration improves the prognosis.\(^9\)\(^10\) In our study, the time of treatment initiation had a mean of 4.2 days. In cases where treatment was delayed >5 days, patients died due to complications caused by septic shock.

In conclusion, psoas abscess has a low incidence; however, its frequency has increased with the routine use of abdominal CT in the Emergency Services. Psoas abscess can result in
significant morbidity and mortality. In cases not treated appropriately, mortality can even reach 100%. In our study we have seen that treatment delay has led to septic shock resulting in death in both cases. The risks of increased mortality include diagnostic delay, advanced age, bacteremia and *E. coli* infection. Over time, the etiology has varied; therefore, it is important to understand and keep in mind in our daily clinical practice to establish the differential diagnosis in order to administer timely treatment.

**REFERENCES**


**Figure 3.** Placement of *pigtail* for drainage of right psoas abscess.