

# Retrofascial Bilateral Psoas Abscess in a 6-Year-Old Child

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**R**etrofascial abscess of the psoas muscle was first described by Herman and Mynter in 1881 and is considered a rare disease.<sup>1-5</sup> Possible etiologies for the primary form of the disease are trauma, skin infection, lymph node suppuration, and nutritional and socioeconomic factors; the secondary form results mainly from Crohn's disease or tuberculosis.<sup>1,2,6-8</sup>

Classic features of the disease are a triad of insidious installation of flank pain, limping, and flexion contracture of the ipsilateral hip, normally accompanied by consumptive signs and symptoms.<sup>1,2,6,9,10</sup> Among the differential diagnoses are hip and sacroiliac septic arthritis, lymphadenitis, lymphoma, pelvic inflammatory disease, osteomyelitis of the spine, sarcoma on the thigh,<sup>1</sup> psoas and retroperitoneal tumors,<sup>11,12</sup> hematoma of the psoas,<sup>13</sup> and avascular necrosis of the hip.

Ultrasonography and computed tomography (CT) are the main, complementary examinations used to diagnose the disease.<sup>1,4,6,14-18</sup> Treatment consists of percutaneous puncture or open drainage, followed by appropriate antibiotic therapy.<sup>1,6,9,12,19</sup>

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Prognosis is good, even though mortality rates are 2.5% for the primary form, 20% for the secondary form, and up to 100% in cases of late diagnosis and inadequate treatment.<sup>3,4,8,20</sup>

In this article, we present the case of a 6-year-old boy with bilateral psoitis. Psoitis affects both muscles simultaneously in less than 1% of cases; approximately 500 cases have been reported worldwide.<sup>8,21</sup>

## CASE REPORT

A 6-year-old boy was presented to the orthopedic emergency department with a furuncle in the right gluteus. The furuncle had drained spontaneously, and the child had been treated at another institution with oral antibiotics for 7 days. However, the patient developed lombalgia and progressive functional incapacity of the hips, more prominent on the left side, as well as intermittent fever. There was no previous history of trauma or urinary or gastrointestinal alterations, but pneumonia (3 years earlier) and repeated furunculosis were reported.

The clinical examination showed that the patient was in a regular state, prostrated, and with mild anemia, moderate dehydration tachycardia, and hyperthermia (39°C). His abdomen was flaccid and depressible, with no signs of peritoneal irritation.

During the orthopedic physical examination, the patient showed antalgic attitude with hip flexion of 90° to the right and 100° to the left (Figure 1). Extreme anxiety and apprehension were observed at the attempt to move his hips; also observed were incapacity and intense pain to extension, both passively and actively, reacting with lumbar hyperlordosis. Internal and external rotations seemed free and painless with the hips flexed.

Hemogram showed discrete anemia (hemoglobin, 10.5 mg/dL; hematocrit, 32%) and leukocytosis (26400/μL) with predominance of segmented neutrophils in 70% of blood cells. Hemosedimentation velocity in the first hour was 25 mm/h. Given the clinical and laboratory findings, psoitis was suspected.

An evaluation from pediatrics and pediatric surgery was obtained; their findings agreed with the clinical hypothesis.

Simple x-rays of the abdomen and pelvis (in the Lauensteins and anteroposterior incident) showed no abnormalities. CT of the abdomen showed a volumetric increase in the ventral region of the psoas muscle extending all the way to the region of the pelvis. There was a



**Figure 1.** Antalgic flexion of the thighs at initial examination.

volumetric increase on the left side ranging from the L4 to the infra-acetabular region (Figure 2).

Bilateral anterior extraperitoneal drainage over the iliac was performed. From each side, approximately 180 mL of a thick purulent secretion was drained. After intensive cleaning with saline solution, Penrose drains were placed for 48 hours and mobilized daily. After surgery, the inferior members were submitted to bilateral cutaneous traction to release the pain and to obtain a progressive pelvis extension.

The material was sent for culture, and treatment with oxacillin and amikacin was administered.

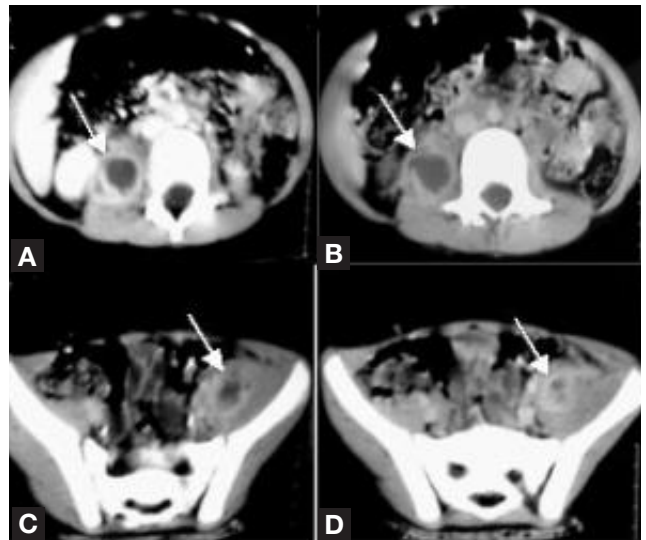
The culture identified *Staphylococcus aureus* resistant to penicillin but sensitive to amikacin, and the antibiotic therapy was continued for 14 days. The patient was discharged from the hospital with his condition improved and is being followed clinically.

## LITERATURE REVIEW

The psoas muscle originates in the transition between the lower thoracic cavity and the high lumbar region, profoundly passing into the inguinal ligament until its insertion into the lesser trochanter of the femur. Together with the iliac muscle, it forms a compound tendon that is separated from the articulations of the hip by the iliopectinea bursa. In up to 15% of adults, there can be interaction of this tendon with the articulations of the hip.<sup>9,14</sup> Through its trajectory, the psoas muscle is contained in the retrofascial space delimited anteriorly by the fascia transversalis, posteriorly by the fascia of the psoas muscle, medially by the vertebral spine, and superiorly by the diaphragm. Therefore, *retro-fascial abscess* is considered the most appropriate term.<sup>2</sup>

### A Different Diagnosis

The disease is considered a difficult diagnosis because it is insidious and rare. We should also consider that the psoas muscle is deep and has a close relationship with multiple anatomic structures, so an inflammatory process can lead to symptoms involving the genitourinary tract, abdomen, spine, and hip.<sup>22</sup> The primary form of the disease is the most common in developing countries. Although the etiology remains obscure, hematogenic dissemination of a cutaneous focus seems the most probable etiopathogenic



**Figure 2.** Computed tomography cuts show volumetric increase in the psoas muscles, with well-delimited collection and density reduction in the interior. (A/B) right psoas. (C/D) left psoas.

mechanism.<sup>1,6</sup> Our patient showed no signs of trauma or symptoms suggestive of any other osseous or adjacent abdominal infections that could be considered etiologic triggers. His case is singular because of the rarity of simultaneous bilateral compromise of the psoas, the furunculosis that preceded, and the previous infected lesion on the right gluteus.

Clinically, our patient presented with classic symptoms consistent with psoitis, an antalgic attitude with hip flexion, and lateral and medial rotations remaining free in this position. The data do not exclude but do reduce the possibility of septic arthritis of the hip, which is an important differential diagnosis, given that the blood tests may be similar and the radiographic evidence of hip synovitis can be secondary to the inflammatory process in the psoas muscle. The surgeon must be alert to the presence of femoral nerve neurapraxia, bladder irritability, and other atypical symptoms associated with hip pain.<sup>22</sup> There were also fever, asthenia, and anorexia. According to Lam and Hodgson,<sup>19</sup> pain and evidence of an abdominal mass are often found (but were not detected in our patient's case).

We might have found evidence of anemia, leukocytosis with a deviation to the left, and a significant increase in velocity of hemosedimentation, but our patient presented with anemia, leukocytosis with no deviation, and a discrete increase in velocity of hemosedimentation, possibly because of interference from the previous antibiotic therapy.

### Imaging Choices

According to the literature, simple x-rays of the abdomen are nonspecific, because the loss of definition of the psoas muscle can be seen in healthy people and is not always observed in cases of the disease.<sup>9</sup> Ultrasonography is an important noninvasive alternative but depends on the availability of trained staff. Ultrasonography is less accurate

in the initial manifestation of small lesions and in the presence of gaseous distension of the abdomen, in obesity or in scoliosis.<sup>1</sup> Unfortunately, ultrasonography was not performed in the present case.

CT is a more sensitive examination (sensitivity, 80%-100%). CT scans can be obtained to assess the extent of the abscess, to see whether adjacent structures have become involved, and to help guide therapeutic planning.<sup>20</sup>

### Treatment

As described in the literature, percutaneous drainage is an alternative treatment when the abscess is well defined and has no septations, as long as the path of the percutaneous drainage is safe. Percutaneous drainage may also be used in patients with toxemia.<sup>9</sup>

But most authors consider open drainage the treatment of choice, performed extraperitoneally by low abdomen incision.<sup>6</sup> This procedure should be avoided in the thigh, pelvis, and dorsal region because of the high rate of drainage failure.<sup>12</sup> We used open and extraperitoneal drainage, with a cutaneous incision centered bilaterally on the iliac apophysis, and after cleaning with saline solution, followed by placement of Penrose drains and approximation of the skin with simple sutures and separated stitches.

Gruenwald and colleagues,<sup>18</sup> in an extensive review of the literature, found that, in primary abscesses, *S aureus* is the most frequent etiologic agent, being isolated in 88.4% of the cases, which happened also with our patient. The abscess should be considered secondary, until proven otherwise when the culture identifies intestinal organisms.<sup>12</sup> Appropriate antibiotic therapy is an important adjuvant and should be always established.

Early diagnosis and adequate treatment usually determine a good prognosis. In primary abscesses, the reported mortality rate, 2.5%, is related to inappropriate treatment, with sepsis being the most common cause of death.<sup>4,8</sup> Our patient had satisfactory improvement, with regression in the major symptoms after postoperative day 2 and full recovery after antibiotic therapy for 14 days and a rehabilitation program.

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