

CASE REPORT

Psoas Abscess after Dog Bite: A Case Report

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ABSTRACT

INTRODUCTION

Back pain is a common presentation at Emergency Department (ED) and psoas abscess is a rare cause of it. Once symptoms are generally nonspecific, it is required a high level of suspicion to make diagnose. Timely management is critical to prevent serious complications, as it has significant morbimortality.

OBJECTIVE

We pretend to increase awareness to this rare clinical entity, although the frequency of diagnosis has been increasing, perhaps due to advances in imaging technology.

CASE REPORT

We report a case of an 81-years-old woman with lower back pain, functional impotence and fever. One month before, she completed seven days of antibiotic therapy due to a dog bite. Blood cultures were positive for *Enterobacter cloacae*. A thoraco-abdominopelvic Computed Tomography (CT) scan was suggestive of pyelitis and she was empirically treated with antibiotic therapy. Due to maintenance of disabling lower back pain, a Magnetic Resonance Imaging (MRI) was performed and showed alterations suggestive of septic arthritis and multiple paravertebral abscesses from L3 to L5, but Orthopaedics assumed it as secondary from her previous lumbar laminectomy. A FDG-Positron Emission Tomography (PET) scan showed hyper caption of right psoas and iliac muscles. She repeated lumbar column and abdominopelvic CT scan that confirmed a small right psoas abscess.

KEYWORDS

Psoas abscess; Septic arthritis; Dog bite

1. INTRODUCTION

The incidence of a psoas abscess is relative rare, estimated at 12 cases annually [1]. It is more common in men with 44 years - 58 years [2].

Psoas abscesses can be classified as primary or secondary according to their pathogenic mechanism. Primary abscess results from hematogenous or lymphatic dissemination from another distant sites [3]. Diabetes, renal failure, intravenous drug use and immunosuppression are important risk factors, although trauma and hematoma formation may also predispose [2]. This type is more frequently monomicrobial, caused commonly by *Staphylococcus aureus* [4]. Secondary psoas abscess is caused by direct spread of infection from adjacent structures, like vertebral bodies and discs, the hip joint, the digestive or urinary tract and vascular structures [2,3]. Major risk factors include trauma and instrumentation in adjacent area. Contrariwise to primary abscesses, these are frequently polymicrobial (55%) and with enteric organisms in 82% of them [2]. *Mycobacterium tuberculosis* may be considered in certain areas of the world and in immunocompromised patients [4].

Symptoms are generally nonspecific and may have features suggestive of other diagnoses, including septic hip arthritis, iliopsoas bursitis and retrocecal appendicitis. The onset may be subacute and the classic triad includes fever, flank/back pain and limitation of hip movement [4].

Early diagnosis and timely management are critical to prevent serious complications. CT scan provides a definitive diagnosis, although MRI can also be used. Blood cultures and abscess material should be obtained before initiation of antimicrobial therapy [2].

Treatment involves percutaneous drainage and appropriate antibiotic therapy that should be maintained for 3 weeks - 6 weeks [2]. Nevertheless, small abscesses may be treated with antibiotics alone [4]. Follow-up CT scan should be performed by the end of the antimicrobial therapy.

Psoas abscesses are associated with significant morbidity and mortality (2.4%-19%), being higher in secondary type. It may relapse in 15%-36% upto 1 year [2,3].

2. CASE REPORT

An 81-years old woman, previously self-sufficient, presented to the ED with a 3 days history of lower back pain, functional impotence and fever.

One month prior to her admission, she suffered from a dog bite in her right lower leg which got infected, so she completed 7 days of amoxicillin/clavulanate with apparently resolution. Her past medical history included hypertension, hyperlipidaemia, obesity and degenerative osteoarticular pathology, for which she underwent a lumbar laminectomy about ten years ago.

On admission, full blood count and biochemistry only revealed a C-reactive protein (CRP) of 28.38 mg/dL (normal range: <10mg/dL). Blood cultures were positive for *Enterobacter cloacae*, but urine cultures were negative. A thoraco-abdominopelvic CT scan showed a minor thickening of the renal bacilli urothelium, suggestive of pyelitis. A probable pyelonephritis was assumed, therefore empirically treated with amoxicillin/clavulanate, which was later updated to piperacillin/tazobactam following the antimicrobial sensitivity test indication.

Due to maintenance of disabling lower back pain and increasing CRP, a CT scan of lumbosacral column was performed and excluded osteomyelitis. Subsequent MRI (Figure 1) showed alterations from L3 to L5 suggestive of septic arthritis and multiple paravertebral abscesses. These alterations were assessed by Orthopaedics as secondary from her previous lumbar surgery. A transthoracic echocardiogram was also performed and excluded infectious endocarditis. A FDG-PET scan (Figure 2) confirmed hyper caption of right psoas and iliac muscles, which led to repeating lumbar column and abdominopelvic CT scan that showed an elongated liquid collection of 8 mm in the right psoas muscle, spreading towards the posterior section of the corresponding iliac muscle (Figure 3).



Figure 1: Lumbosacral column MRI, coronal view; multiple paravertebral abscesses (arrow).

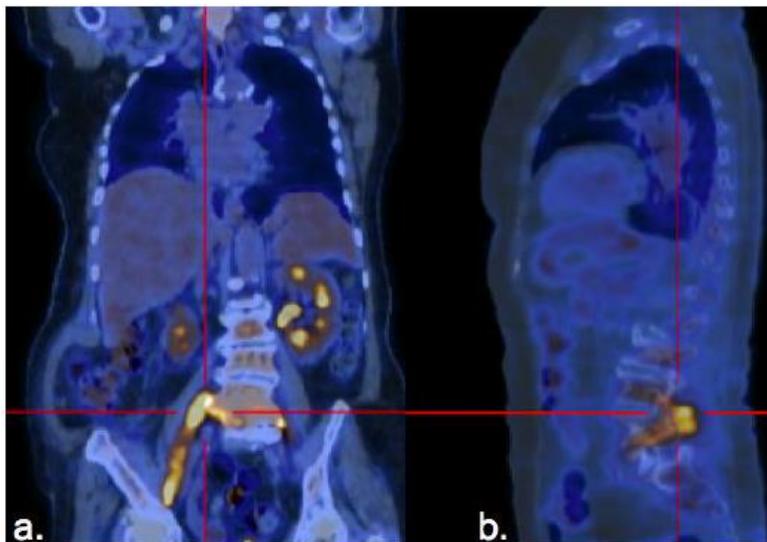


Figure 2: FDG-PET scan, coronal and lateral view; A) Hyper caption of right psoas muscle; B) Hyper caption of lumbar column.



Figure 3: Abdominopelvic CT scan, coronal view; A) On admission; B) 17 days after admission, with right-sided psoas abscess (arrow).

According to general surgery, this abscess had no indication for drainage, so she maintained intravenous antibiotic for 40 days. Blood cultures were negative after 11 days of antibiotic treatment. Nevertheless, fever was present until 20th day. Disabling lower back pain only improved after opioid titration and physical rehabilitation. Follow-up abdominopelvic CT scan showed complete resolution of the abscesses.

3. DISCUSSION

Our patient had no known risk factors for the development of psoas abscess. So, it is reasonable to assume that the psoas infection was primary, due to hematogenous dissemination after the dog bite. Nevertheless, the lumbar MRI showed septic arthritis and multiple paravertebral abscesses. Therefore, we cannot exclude it as being secondary to direct spread of infection from vertebral bodies and paravertebral muscles.

Initial blood cultures were positive for *Enterobacter cloacae*, a gram-negative bacterium included in the intestinal tract commensal microflora of humans and animals [5]. No material was collected from the dog's oral mucosa. However, we can presume that *E. cloacae* was present and spread after the bite because it is not a common microorganism found in psoas abscess, but it is frequent in the oral microflora of dogs. Unfortunately, it wasn't possible to collect material from paravertebral or psoas abscesses. It would have been important to understand if the bacteria found in the blood cultures was the same as in the abscesses. After 2 weeks of antibiotic therapy, blood cultures were negative and, progressively, the clinical status improved, so we can presume it may be the same.

Initially, the thoraco-abdominopelvic CT scan did not show the abscess because it has limited sensitivity in early stages. As our patient maintained disabling lower back pain, the suspicion of some local complication raised. More imaging tests were performed till it was possible to distinguish a small psoas abscess.

Our case highlights the importance of having a broad differential diagnosis for lower back pain associated with fever. Moreover, it is required a high level of suspicion to make diagnose of a psoas abscess and timely acquisition of imaging tests and management in order to have a good outcome.

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