

The presence of deep venous thrombosis in association with skin manifestations at the right upper leg, may be an indicator of a clinical presentation of necrotic appendicitis?

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Abstract

Various infectious process with intra-abdominal source can rarely show itself as infections of the skin or of the soft tissue, in the right upper leg and sometimes they represent a diagnostic dilemma.

In this uncommon case report, we describe the case of a 75-year-old woman with a clinical history of recent deep vein thrombosis of the right leg, due to mass effect of an abscess of psoas muscle itself caused to a perforated acute appendicitis.

Keywords

Acute appendicitis; psoas abscess; groin abscess; deep venous thrombosis.

Introduction

Acute appendicitis is commonly treated in daily practice, and with a proper management the rate of morbidity and mortality is very low [1]. Abscesses involving the inguinal region are uncommon manifestations of the onset of complex soft-tissue infections or intra-abdominal pathology, and the routes by which they cause infection are usually unclear and may be overlooked.

The inguinal region communicates with the peritoneal and retroperitoneal cavity by different routes such as the psoas sheath, femoral canal, pudendal canal, and obturator foramen. The infection can follow these ways and through abdominal and pelvic organs, can spread to the anatomically closely related psoas muscle, and penetrate into the thigh compartments.

The most common forms of intraabdominal infections. through which the bacteria can reach the

psoas muscle are: appendicitis, colonic diverticulitis, inflammatory bowel disease, and colorectal carcinoma [2-4].

Understanding the etiology of the inguinal abscess is useful to guide a definitive treatment and to establish an optimal antibiotic therapy [5].

We report the case of a patient with acute appendicitis, showing itself as cellulitis and pyomyositis of the thigh, in order to emphasize the possibility that an occult retroperitoneal abscess may cause infection in patients with groin abscess.

Case Report

A 75-years-old-woman with a clinical history of recent deep vein thrombosis of the right leg, treated with low molecular weight heparin and compression stockings, presented to the emergency department with massive abscess of the right upper leg and severe thigh pain.

At a first clinical observation, the patient presented with acute pain to the lower limb, blood pressure was 115/60 mmHg, heart rate was 80 beats/min and temperature was normal. Heart and lungs evaluation was unremarkable.

Local examination of the right lower limb revealed massive abscess with skin redness and foul-smelling (Figure 1).

The abdomen had physiological bowel sounds without signs of peritonism. The patient denied any other symptoms of gastrointestinal dysfunction.

Laboratory data showed Neutrophilic leukocytosis with a WBC count of 19.000/mm³, C reactive protein (CRP) of 35.71 mg /dL, haemoglobin 10.3 g/dL, Urea 60 mg/dL, serum creatinine 1.2 mg/dL.

All the other blood chemical tests were within the normal range.

Subsequently CT scan for the abdomen and upper thigh was carried out to rule out a possible abdominal source of infection or venous thrombosis as the cause of the patient's symptoms (Figure 2).

CT scan revealed extended retroperitoneal fluid collection, extending from the inferior margin of the liver up to the thigh, arising from periciecical abscess due to complicated appendicitis. This collection had a total extension of 37 cm.

Intravenous empiric vancomycin and meropenem were immediately started in addition to support infusion therapy.

The patient underwent emergency laparotomy and drainage of the thigh. Surgical exploration detected a perforated gangrenous appendicitis with extension up to the caecum causing localized peritonitis with extensive involvement of retroperitoneal cavity.

An ileocecal resection was performed with a side to side manual anastomosis. The skin of the upper leg and thigh region was incised to surgically clean and negative pressure wound therapy was subsequently started (Figure 3).

Tissue and fluid samples were collected for culture and antibiogram. Pathologic examination of the surgical specimen confirms the diagnosis of complicated acute appendicitis. The bacterial culture of purulent fluid revealed *Streptococcus pyogenes*, *Escherichia Coli*, *Bacteroides ovatus*, *Bacteroides vulgatus*. The patient continued the empirical antibiotic therapy previously set, as effective against isolated microorganisms. Blood cultures remained negative.



Figure 1: Abscess of the right upper leg with skin redness and foul-smelling.



Figure 2: Computed tomography (reconstructed coronal) image showing extended retroperitoneal fluid collection extending from the inferior margin of the liver up to the thigh.

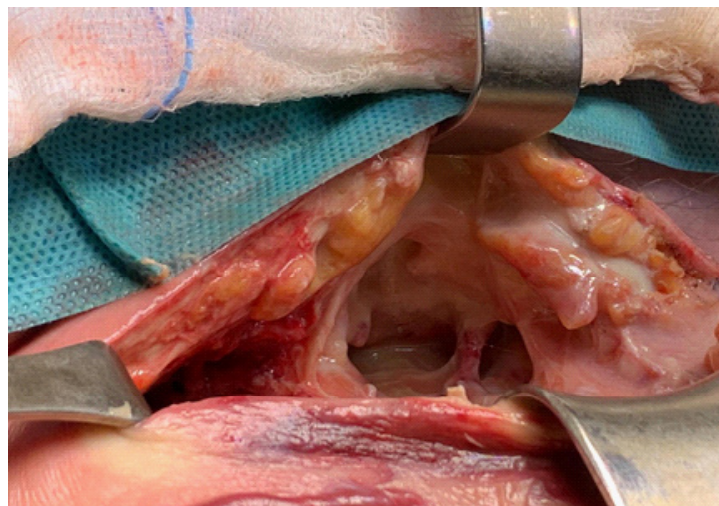


Figure 3: Intraoperative image of drainage of the upper leg.

Discussion

The pathologies of surgical interest involving the abdomen and pelvis usually manifest with a classic symptom, such as peritonitis, fever and abdominal pain. Rarely, they may occur with isolated thigh or gluteal symptoms as pain, swelling, skin erythema and impairment of function [6].

Acute appendicitis is one of the most common causes of acute abdomen. Accurate and prompt diagnosis is essential to minimise morbidity, and major complications can occur when treatment is delayed.

Some rare presentations of acute appendicitis have been described in literature like acute appendicitis presenting as acute left scrotal pain [7], distal duodenal obstruction [8], perinephric abscess [9], scrotal mass [10], chest pain [11].

The etiopathogenesis of this presentation, in this case can be explained by direct contamination of the right anterior abdominal wall and groin by an acute appendicitis. Consequently, spread of the resultant sepsis behind the inguinal ligament or through the sacrosclatic foramen into the lower limb, can result in an abscess of the right thigh.

In many cases the previous history and presenting symptoms didn't clearly indicate an intra-abdominal origin, and this often creates serious diagnostic problems.

Deep venous thrombosis is frequently seen in lower extremities. However, found at the iliac level has to let suspect a mass effect sustained by an underlying disease. In this report, we present a case with upper region deep venous thrombosis, which had underlying an appendix pathology.

In a study by Maksimovic et al [12], 91 patients with DVT were investigated and it was reported that 5 of them had sarcoma, 2 had metastatic sarcoma, 1 had lymphoma, 2 had femoral artery aneurysm, and 2 had popliteal artery aneurysm. These diagnoses were not confirmed radiologically, but instead the patients were diagnosed of pseudo-DVT. In one patient, a psoas abscess was found. Psoas abscess is rarely seen and there are only a few studies in the literature about psoas abscess complicated with DVT.

A study that included a time span of about 50 years, published in 2007, reported that a total of 24 patients were found as secondary retroperitoneal abscess due to perforated appendicitis. It also reported that none of these patients presented with classical signs and symptoms of appendicitis [13]. Another study, a case report, presented a femoro-popliteal DVT secondary to left psoas abscess and the difficulty of diagnosing a psoas abscess before clinical use of CT was emphasized [14].

As reported in the literature, CT scan (computed tomography) may be helpful in defining diagnosis. In the present case, CT-scan suggested the relationship with the abdomen and guided us to the intra-abdominal origin of the abscess and it helped us in the evaluation of its treatment.

Only the results of bacterial culture (if they could be obtained before surgery) could indicate the nature of the abscess.

In a study of Wei-Hsiu-Hsu et al, in patients with inguinal abscess of intrapelvic origin, *Escherichia Coli* was the most common pathogen, followed by *Bacteroides fragilis*. *Staphylococcus aureus* was the most common pathogen in patients with infection of extrapelvic origin [15]. In our case, bacterial examination revealed the organisms *Escherichia Coli*, *Streptococcus pyogenes* and *Bacteroides* which confirmed the intestinal relation.

Conclusion

In conclusion, unexplained skin or soft tissue infections and abscess in the thigh may be a manifestation of abdominal pathology, even without abdominal symptoms. A search for the presence of intra-abdominal pathology by a thorough clinical and radiological evaluation should be made in all patients. Early recognition and the right management enables adequate treatment, avoiding additional complications and in some case potential life-threatening conditions.

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