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NECROTIZING FASCIITIS AS THE CLINICAL PRESENTATION OF A RETROPERITONEAL ABSCESS

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□ **Abstract—Infections of the retroperitoneal space may present with insidiously vague symptoms and non-specific clinical signs. We report a case of a retroperitoneal abscess presenting as necrotizing fasciitis of the thigh from direct spread over the iliac crest. In cases of necrotizing fasciitis of the thigh with no obvious source, an intra-abdominal nidus of infection may be considered.** © **2008 Elsevier Inc.**

□ **Keywords—retroperitoneum; necrotizing; fasciitis; diverticulitis; abscess**

INTRODUCTION

Infections of the retroperitoneum and psoas sheath may present with insidious symptoms and non-specific clinical signs. These infections commonly present with indolent fevers and chills; weight loss; abdominal, flank, groin, or back pain; malaise; and anorexia. Diagnosis is usually delayed, often for months, or confused with other clinical entities (1,2). Presentations may be dramatic, with the rapid onset of septic shock or other complications after perforation and release of bacterial contents into the peritoneum, thorax, meninges, and thigh (3–7). Before the age of antibiotics, spread of infection from tuberculous vertebral osteomyelitis to the lower extremities via the psoas fascia was also common. These complications are now rarely seen due to improved diagnostic and therapeutic modalities. We report a case of retroperitoneal abscess whose diagnosis was delayed for weeks before it developed into a lower extremity necrotizing fasciitis.

CASE REPORT

A 45-year-old man presented to the Emergency Department (ED) with the chief complaint of a painful and swollen left thigh. The pain and swelling began 3 days before presentation, worsening until he was unable to walk. He reported having hit his left thigh several days before presentation, and to having "fallen in the kitchen" a month earlier, with subsequent left flank and hip pain. In the weeks before presentation, he made two visits to community EDs and was evaluated with plain films of the pelvis, lumbar spine, and left hip. He was told he did not have "hip arthritis," and discharged with a prescription for a non-steroidal anti-inflammatory drug. Review of systems was notable for intermittent subjective fever, low back pain, and weight loss. He denied abdominal pain, nausea, vomiting, melena, weakness, numbness, or tingling. He had no previous medical history and was not taking medications, but described moderate alcohol consumption and cigarette smoking.

Vital signs included a blood pressure of 123/65 mm Hg, heart rate of 103 beats/min, respiratory rate of 20 breaths/min, and oral temperature of 36°C (97.2°F). He

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was in no obvious distress or discomfort, and did not appear dehydrated. The breath sounds were clear bilaterally. The abdominal examination was notable for moderate tenderness over the left iliac crest, but he had normal bowel sounds and no peritoneal signs. The rectal examination was unremarkable and negative for occult blood.

The left thigh was diffusely swollen and exquisitely tender to touch, with palpable crepitance. The skin overlying the thigh, and extending from the knee to the left iliac crest, was circumferentially erythematous, shiny, and tense, but not indurated. There were no bullae or vesicles. The left calf was normal in appearance and on palpation, but the range of motion of the left hip and knee was limited secondary to pain. The distal neurovascular examination was normal.

A portable radiograph of the left thigh was quickly obtained (Figure 1), showing air dissecting subcutaneously and along multiple fascial planes. Blood cultures were sent. The patient was immediately started on piperacillin/tazobactam (Zosyn, Lederle Laboratories, Pearl River, NY) and taken to the operating room (OR) for debridement. Laboratory results were remarkable for a white count of 28,900/μl, with a bandemia of 24%. Serum biochemistry assays were within normal limits, except for a moderately elevated creatinine phosphokinase of 554 U/L (normal $<$ 130 U/L).

Figure 1. Portable radiograph of the left thigh demonstrates air dissecting subcutaneously and along multiple fascial planes.

In the OR, the patient's left thigh was longitudinally incised and necrotic vastus lateralis muscle débrided. A necrotic tract containing feculent material was found extending superiorly in the subcutaneous tissue. The tract continued lateral to the ilium, where it communicated with a large retroperitoneal abscess overlying the left superior iliac crest as well as an inflamed sigmoid colon diverticulum. A contrast-enhanced spiral computed tomography (CT) scan of the abdomen and pelvis was performed (Figure 2) demonstrating the extent of the retroperitoneal abscess and its communication with the sigmoid colon.

Culture of the abscess fluid grew *Escherichia Coli*, *Streptococcus Viridans*, and *Enterococcus fecalis*. Blood and urine cultures were negative. The patient returned to the OR for debridement and sigmoidectomy with colostomy. Over the next 4 weeks, the patient was taken to the OR five more times for multiple irrigations, split thickness skin grafts over the thigh and flank, and removal of the colostomy. Hyperbaric oxygen therapy was not available at the institution, and because the patient's clinical status was improving, the inpatient surgical team elected not to transfer him. Five weeks after being admitted to the hospital, the patient was discharged home with full left lower extremity function.

DISCUSSION

A rare but life-threatening complication of intra-abdominal infection is extension to the thigh. In the absence of a clear lower extremity origin for soft tissue infection of the thigh, the peritoneum, psoas sheath, and retroperitoneum must be evaluated for occult infection. Historically, retroperitoneal and psoas abscesses were most frequently encountered with tuberculous vertebral osteomyelitis, but cases have been described resulting from appendicitis, ischiorectal abscess, vaginal delivery, pancreatitis, colonic carcinoma, diverticulitis, blunt trauma, hematogenous spread, biliary tract disease, inflammatory bowel disease, perinephric abscess, and acupuncture (8–23).

Several routes have been described for communication of infection and neoplastic disease to the lower extremities (11). The psoas sheath forms a tough, fibrous, tube-like structure that can carry inflammatory material deep to the inguinal ligament to the proximal femoral shaft under the femoral triangle. Due to the strength of the psoas sheath, infection tracks into the thigh from psoas abscesses more commonly than it ruptures into the peritoneum (24). The femoral sheath and canal, and sacrosciatic notch and obturator foramen also may serve as routes of entry (9,25). Extravasated air from perfo-