

Perforated appendicitis causing thigh emphysema: A case report

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ABSTRACT

We report a case of thigh emphysema resulting from perforated appendicitis. The patient was an 83-year-old man who had no apparent abdominal signs and was initially misdiagnosed as having psoas abscess. Magnetic resonance imaging of the pelvis revealed appendicitis, and a barium enema showed a leakage of enhanced contrast material from the appendix region down into the thigh. A retroperitoneal perforation of the retrocaecal appendix without peritonitis was diagnosed. The patient underwent an appendectomy and curettage of the retroperitoneal and psoas muscle spaces, as well as the thigh. He recovered gradually, though the abscess had extended into the hip joint and resulted in osteomyelitis, requiring an additional procedure of resection arthroplasty. The patient fully recovered with no signs of infection one year postoperatively.

Key words: *appendicitis; emphysema; retroperitoneum; thigh*

INTRODUCTION

Groin and thigh symptoms are common musculoskeletal features; however, only rarely is a fatal abdominal disorder hidden without remarkable abdominal signs.¹⁻⁵ We treated a patient with thigh emphysema, which was caused by a retroperitoneal perforation of the appendix. Although correct diagnosis was delayed, the patient recovered uneventfully.

CASE REPORT

An 83-year-old man presented to Shiga University of Medical Science in October 2002 with a 4-month history of right groin pain. He had no history of diabetes mellitus or other immunomodulatory disease. A physical examination showed no remarkable signs in the abdomen; however, his right hip joint was in a flexed position and the range of motion was painfully restricted, especially on extension. Laboratory tests revealed a peripheral white blood cell count of 8800/mm³, with C-reactive protein at 69 mg/l. Computed tomography (CT) and magnetic resonance

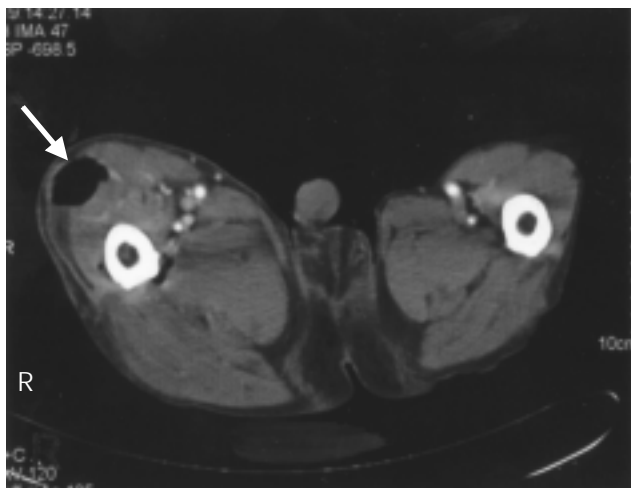


Figure 1 Computed tomographic image showing subcutaneous gas in the right thigh (arrow).

imaging (MRI) of the pelvis revealed fluid collection along the right psoas muscle, without findings of septic hip arthritis. A diagnosis of psoas abscess was made and peroral antibiotics were given.

The symptoms subsided following antibiotic treatment; however, one month after presentation, the pain in the right groin and thigh intensified, and a fever of 39°C was noted. The patient's right thigh showed marked swelling and was tender with crepitance, the peripheral white blood cell count had risen to 14 900/mm³ and C-reactive protein had risen to 170 mg/l. A CT image of the thigh demonstrated the presence of subcutaneous gas (Fig. 1). Aspiration of the thigh produced gas and pus, which contained *Bacteroides fragilis*, *Escherichia coli*, and *Streptococcus viridans* under microbiological examinations. After emergency surgical exploration and debridement of the necrotic tissues, continuous irrigation was performed. However, the discharge increased and continued for one month after the operation. The discharge was found to contain faeces and pieces of digested food, which led to a high suspicion of gastrointestinal perforation. Even at this time, the patient had no remarkable abdominal signs and continued regular food ingestion.

An MRI examination of the pelvis revealed appendicitis, with leakage between the appendix and a retroperitoneal abscess. A barium enema demonstrated a leakage of enhanced contrast material from the appendix region down into the thigh (Fig. 2). A retroperitoneal perforation of the retrocaecal appendix without peritonitis was found intraoperatively. Following an appendectomy and

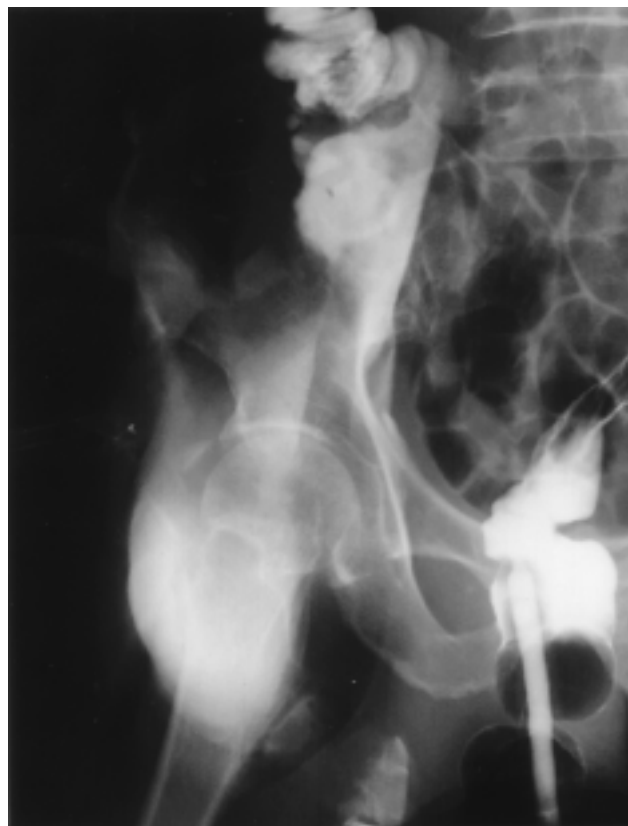


Figure 2 Barium enema showing leakage of contrast material descending into the right thigh.

curettage of the retroperitoneal and psoas muscle spaces as well as the thigh, an additional 2 weeks of irrigation was performed. The patient recovered gradually, though the abscess had extended into the hip joint and resulted in osteomyelitis, requiring an additional procedure of resection arthroplasty. One year later, the patient fully recovered with no signs of infection.

DISCUSSION

Gastrointestinal perforation due to appendicitis, diverticulitis, or a carcinoma can cause retroperitoneal and psoas abscesses, which may extend down along the inguinal ligament, or through the femoral canal, sciatic foramen, and obturator foramen, resulting in emphysema and abscesses in the thigh and leg.¹⁻⁵ Because of the origin of infection, various enteric flora are often detected, but rarely result in gas gangrene.³ The gas in the present case may have come from the bowel lumen and from non-clostridial, gas-producing organisms.³ Emphysema and abscesses on the right

side of the patient are commonly due to perforation of the appendix, whereas those on the left side are due to diverticular disease.^{1,3-5}

Previous studies have emphasised diagnostic problems, because of the absence of remarkable abdominal symptoms, which lead to misdiagnosis and delayed treatment and result in a high mortality rate.^{1,3,5} Haiart et al.¹ reported that unexplained groin

and thigh symptoms should lead to suspicion of intestinal disorders in cases with fever and leukocytosis, especially in elderly patients. Clinicians should be aware that thigh emphysema and abscess are manifestations of an intestinal perforation, despite minimal abdominal signs. The condition requires emergency CT and MRI examinations as well as a barium enema, followed by aggressive treatment.

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