

Primary Retroperitoneal Abscess Complicated with Septic Arthritis of the Hip

Chuan-Nan Su, Dar-Shih Hsieh, Guang-Huan Sun, Dah-Shyong Yu, Chau-Jye Fong*

*Division of Urology, Department of Surgery, Tri-Service General Hospital, National Defense Medical Center,
National Defense University, Taipei, Taiwan, R.O.C.*

Primary retroperitoneal abscess complicated with septic arthritis of the hip is an unusual disease. The insidious and occult nature of abscess coexistent with arthritis causes diagnostic delays, prolonged sepsis, and considerably higher morbidity and mortality. We herein present a case of gouty arthritis and avascular necrosis of the femoral head in a 41-year-old woman who complained of fever, right flank pain, body weight loss, swelling over her right lower limb, and 2 weeks of pain in the right hip. The computed tomographic scan showed a huge abscess (about 32 × 10 × 8 cm) over the right posterior pararenal space, with swelling of the right psoas, iliac, and obturator muscles. During surgery, the abscess was drained and sequestrectomy of the right hip was performed. Cultures of pus from the retroperitoneum and right hip showed *Escherichia coli* and *Staphylococcus aureus*. We review the literature and discuss possible causes. [*J Chin Med Assoc* 2006;69(1):51–53]

Key Words: arthritis, psoas abscess, retroperitoneal space, septic

Introduction

Retroperitoneal abscess is most commonly due to bowel-related diseases and spinal and renal tuberculous disease, and it is difficult to diagnose.¹ Delayed diagnosis or inadequate drainage of a retroperitoneal or psoas abscess could increase infection in the hip region. Such infections include subcutaneous emphysema,² crepitant myositis³ and cellulitis¹ of the thigh, femoral osteomyelitis,⁴ and septic arthritis of the hip.⁵ In this report, we present a rare case of primary retroperitoneal abscess complicated with septic arthritis of the hip.

Case Report

A 41-year-old female was admitted to our institute because of fever, right flank pain with abdominal distention, and a 15-day history of swelling over the right lower limb with painful motion of the right hip.

She had a history of gastric ulcer, gouty arthritis, and alcoholism with liver cirrhosis. Her temperature was 38.5°C. Physical examination revealed an acute, ill-looking appearance, general cachexia, dehydration, tachycardia, hypotension (90/50 mmHg), pale conjunctiva, bilateral redness of the skin, and tenderness over the right iliac region. She guarded her abdomen against deep palpation, which was without rebounding pain, but a right psoas sign was present. Also, the right hip was noted with local tenderness without definite skin lesion. Laboratory examination revealed an elevated C-reactive protein of 23.6 mg/dL (normal, < 0.8), hemoglobin of 4.4 g/dL (normal, 12–16), impaired renal function blood urea nitrogen (BUN)/creatinine of 97/5.1 mg/dL (normal, 7–20/0.5–1), and an electrolyte imbalance Na/K of 125/3.3 mmol/L (normal, 135–145/3.5–4.5). An arterial blood gas assay identified metabolic acidosis with respiratory compensation. The abdominal film revealed a mottled region of gas accumulation in the right lower flank area and narrowing of the hip joint space with destruction

*Correspondence to: Dr. Chau-Jye Fong, Division of Urology, Department of Surgery, Tri-Service General Hospital, 325, Section 2, Cheng-Gung Road, Neihu, Taipei 114, Taiwan, R.O.C.

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Figure 1. The abdominal film revealed a mottled region of gas accumulation in the right flank area (arrowheads) and narrowing of the hip joint space with destruction of the femoral head (white arrow). Gastrograffin retention in the cecum region was noted (black arrow).

of the femoral head (Figure 1). A computed tomography (CT) scan revealed a huge abscess (about $32 \times 10 \times 8$ cm) with gas formation over the right retroperitoneal and pararenal spaces, with swelling of the psoas muscle, iliac muscle, and obturator muscle, and with displacement of the intestine and sigmoid colon to the left side (Figure 2).

On the first day of hospitalization, open drainage of the retroperitoneal and pelvic abscess from a right lateral flank incision was performed. About 600 mL of purulent yellowish pus was drained. Cultures of the abscess contained colonies of *Staphylococcus aureus* and *Escherichia coli*. The patient was treated intravenously with ceftriaxone and prostaphilin, each at 2 g per day and every 4 hours since admission.

On the fourth day, persistent purulent discharge was still noted. In addition, local heat and erythematous swelling were noted over the right thigh region. Septic arthritis of the right hip was proved by arthrodesis. Consequently, the patient had a sequestrectomy of the

right hip using the Girdle-stone procedure on the same day. Operative findings indicated that necrotizing inflammation from the retroperitoneal region extended to the right thigh region. Destruction of the right hip and purulent discharge accumulated in the joint surface were also noted. The patient died of septic shock, acute respiratory distress disease, and multiple organ failure on postoperative day 14.

Discussion

Because of the close anatomic relationship of the abscess and the lower extremities, a retroperitoneal abscess may spread to the lower extremities by the following pathways: (1) from the greater or lesser sciatic foramen;³ (2) from the obturator or femoral canal;³ (3) along the fascial coverings of the iliacus muscle to its insertion at the lesser trochanter;⁶ and (4) through the iliopsoas bursa.⁷ Delay-induced complications of a retroperitoneal abscess with subcutaneous emphysema and crepitant myositis may be due to pathway (1) or (2), and deep complications may be due to pathway (3) or (4). Guerra et al⁷ reported that the iliopsoas bursa, located at the lesser trochanter, communicates with the hip in 15% of patients and provides access to the joint. In our patient, abscess from the retroperitoneum may have passed through the psoas muscle to the lesser trochanter via a rupture of the iliac bursa stemming from previous gouty arthritis or avascular necrosis.

The similarity of clinical symptoms between retroperitoneal abscess and septic arthritis of the hip necessitates reliable methods to make the differential diagnosis. In 1972, March et al⁸ reported 14 cases of retroperitoneal abscess and 20 cases of septic arthritis that showed symptoms of fever, hip pain, limping, and abdominal pain occurring in both retroperitoneal abscess and septic arthritis groups. But pseudoparalysis and swelling of the lower limb were only seen in the septic hip arthritis group. In contrast, back pain and weight loss were only seen in the retroperitoneal abscess group. Additionally, physical signs of abdominal mass, iliac tenderness, and spinal curvature only occurred in the retroperitoneal abscess group. Local swelling only presented with septic hip disease.

In our patient, CT scan of the abdomen revealed retroperitoneal abscess, and wide-open drainage was consequently performed. However, the occult septic arthritis was neglected because the presence of gouty arthritis and avascular necrosis of the femoral head were thought to account for all the symptoms. March et al⁸ reported that hip pain was present in

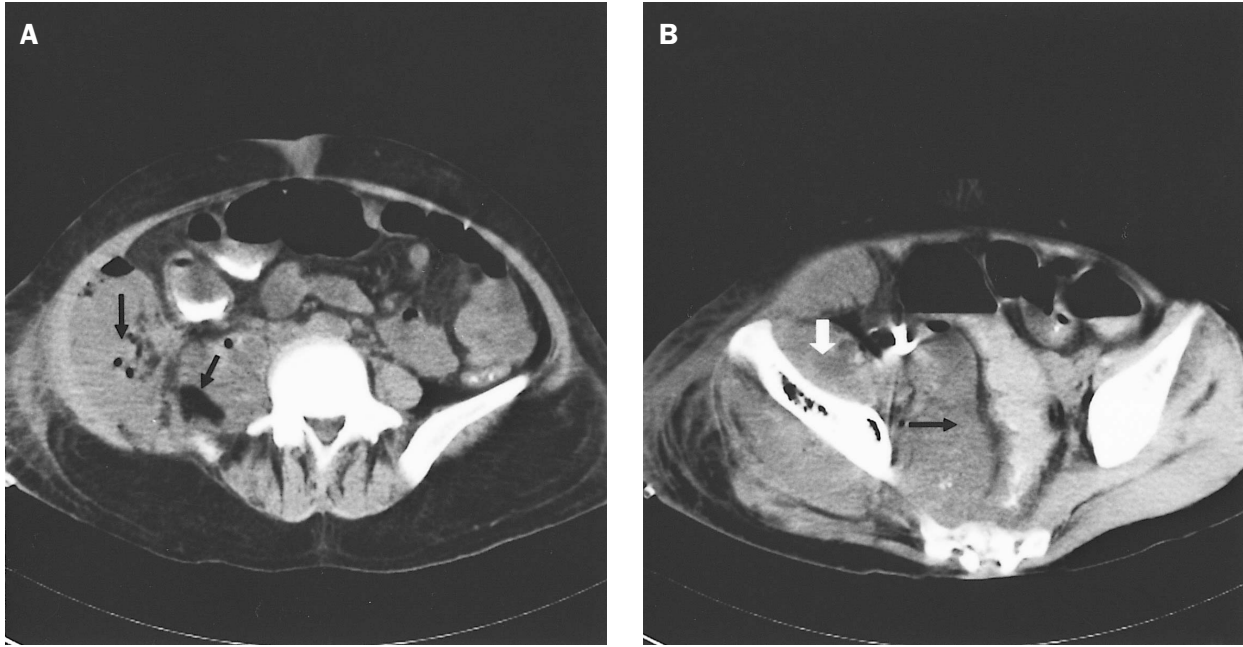


Figure 2. (A) An abdominal CT scan revealed a huge abscess (arrows) with gas formation over the right pararenal space with swelling of the psoas and iliac muscles. (B) A huge pelvic abscess with displacement of the intestine and sigmoid colon to the left side (black arrow) and swelling of the obturator muscle (white arrows).

retroperitoneal abscess in about 42.8% of cases but in 60% of cases of septic arthritis. The persistent discharge of purulent material and heat and swelling of the right lower extremity were noted in our patient. A needle aspiration of the right hip was performed and cultured as if the patient were suffering from a retroperitoneal abscess. These findings imply that there were some pathways of communication between the retroperitoneal space and the lower extremity. Proof of this was provided by debridement using an orthopedic procedure.

Treatment of retroperitoneal abscess plus septic arthritis that is diagnosed early includes wide-open drainage and adequate antibiotic management. Because the symptoms of retroperitoneal abscess with septic arthritis are often subtle, precise preoperative diagnosis is somewhat difficult, resulting in prolonged sepsis and associated high morbidity and mortality.

In summary, the original source of infection in our patient was not known. If a patient is a victim of retroperitoneal abscess with arthritis or avascular necrosis of the femoral head, the issue of septic arthritis should be addressed along with that of swelling of the hip and pseudoparalysis of the lower limb. The usefulness of testing hip motion, aspirating the hip joint, and viewing abdominal roentgenograms should be kept in mind. Early diagnosis and a combination of

appropriate antibiotics and adequate drainage of the retroperitoneum and debridement of the femoral head and infected hip definitely reduce mortality and morbidity rates.

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