

# The Hip or Not

JENNIFER HAMILTON, HILARY WILSON, HILARY CAPELL, IAIN McINNES, and RAJAN MADHOK

**ABSTRACT.** Pathologies within the iliopsoas compartment can present as hip pain and as such can be mistaken for diseases of the hip joint. Radiological investigations are useful in helping to differentiate between these pathologies. (J Rheumatol 2001;28:1398–400)

*Key Indexing Terms:*

ILIOPSOAS COMPARTMENT

HIP

LYMPHOMA

ABSCESS

We describe 3 cases of hip pain presenting to one rheumatology unit over an 18 month period. After radiological investigation, however, the true source of the pathology was identified. These cases illustrate the need to consider alternative pathologies when patients present with hip pain.

## CASE REPORTS

**Case 1.** A 45-year-old man with a history of Perthes' disease presented with a history of increasing pain in the left hip, malaise, and rigors. On examination he was pyrexial and tachycardic. The left hip was shortened, externally rotated, and painful on movement. Investigations revealed an elevated white cell count  $24.6 \times 10^9/l$  [normal range (NR)  $4\text{--}10 \times 10^9/l$ ] with associated neutrophilia and elevated C-reactive protein (CRP) at 409 mg/l (normal  $< 6$  mg/l). Hip radiography showed marked deformity of the left femoral head in keeping with previous Perthes' disease.

A diagnosis of septic arthritis was made. Empiric intravenous antibiotics were commenced after hip aspiration under ultrasound guidance yielded a small amount of sterile fluid. Blood cultures grew *Staphylococcus aureus*. However, fever continued. Four days later a triple phase bone scan showed increased uptake in the left hip, confirming the suspicion of hip sepsis.

The following day a fluctuant swelling had developed over the left lateral thigh. Computerized tomographic scan showed a large abscess within the left iliopsoas muscle. No osteomyelitis was seen. Surgical drainage was performed. No pus was found within the hip capsule. No predisposing factors for infection or source of sepsis was found. He has had no recurrence of sepsis since discharge.

**Case 2.** A 51-year-old woman with a 20 year history of seropositive erosive rheumatoid arthritis (RA) on treatment with intramuscular gold was admitted because of increasing right hip pain. History included breast carcinoma, atrial fibrillation, and poor left ventricular function.

On admission she was afebrile. Hip examination revealed painful movement in all directions. Radiographs showed joint space narrowing and erosions in keeping with established RA. Admission examinations revealed white blood cells  $14 \times 10^9/l$ , lymphocytes  $1.8 \times 10^9/l$ , (NR  $1.5 \times 10^9/l$ ), hemoglobin 11.1 g/dl (NR 11.5–16.5 g/dl), ESR 92 mm/h, and CRP 78 mg/l. Bone

scan showed increased uptake around the right knee and right hip joint, consistent with RA.

Although symptoms were disproportionate to plain hip radiograph a right total hip replacement was planned. To alleviate symptoms a right paravertebral nerve block was performed. Two weeks later she developed flexor spasm of the right hip and a persistent low grade fever. ESR was 88 mm/h and CRP had risen to 120 mg/l. Computerized tomography (CT) scanning showed a bulky right psoas and iliacus muscle with a fluid collection anterior to the iliac blade, thought to be hematoma secondary to the paravertebral nerve block. One week later swinging pyrexia developed and intravenous antibiotics were added for a presumed infected hematoma. Two hundred milliliters of purulent sterile fluid was obtained via percutaneous drain over 14 days. Repeat CT scanning at 2 weeks showed no fluid collection although the previously noted mass around the right iliopsoas muscle persisted. Seven days later fever, hip pain, and flexion contracture recurred. CRP was 144 mg/l. Loculated collections in both psoas and iliacus were seen on repeat CT scan (Figure 1). At open drainage, however, retroperitoneal lymphadenopathy was found to be the cause of the loculated collections seen on CT. Histology showed a B cell lymphoma. She died from cardiac complications within 24 h of surgery.

**Case 3.** A 20-year-old man presented with a 4 week history of left hip and knee pain associated with general malaise and weight loss. He gave a history of reactive arthritis 4 years earlier and had a strong family history of spondyloarthritis (brother) and RA (mother). He was found to be HLA-B27 positive. A clinical and radiological diagnosis of sacroiliitis was made and sulfasalazine was started. Emergency admission was required 2 weeks later for progressive gluteal pain. His left hip was held in flexion and movement restricted in all planes. A left upper quadrant mass was detected on abdominal examination. Investigations revealed normochromic normocytic anemia (10.7 g/dl) and normal white cell differential. ESR was 77 mm/h.

Abdominal CT scan revealed a retroperitoneal mass (Figure 2). Tumor markers were consistent with choriocarcinoma [ $\beta$  HCG 148920 u/l (NR 0–5 u/l)]. Clinical and ultrasound examination did not reveal a primary testicular tumor. Following chemotherapy and debulking of tumor mass, his pain resolved.

## DISCUSSION

The iliopsoas compartment lies close to the hip, making it difficult clinically to differentiate between primary hip pathology and an infective, inflammatory, or neoplastic process affecting the iliopsoas compartment. Preexisting hip/sacroiliac disease can confuse the clinical picture, leading to a delay in diagnosis with serious consequences.

Patients with psoas irritation hold the hip in flexion and complain of thigh paresthesia due to lumbosacral plexus irritation. The loss of the psoas shadow on plain radiograph indicates the presence of psoas abscess. Patients with iliacus

From the Centre for Rheumatic Diseases, Glasgow Royal Infirmary, Glasgow, Scotland.

J.D. Hamilton, MRCP, Senior Registrar in Rheumatology; H. Kerr, MRCP, Specialist Registrar in Rheumatology; H.A. Capell, FRCP, MD, Consultant Rheumatologist; I.B. McInnes, MRCP, PhD, Senior Lecturer in Rheumatology; R. Madhok, FRCP, MD, Consultant Rheumatologist.

Address reprint requests to Dr. J. Hamilton, Centre for Rheumatic Diseases, Glasgow Royal Infirmary, 84 Castle Street, Glasgow G4 0SF, UK. E-mail: Jendh@email.msn.com

Submitted August 18, 2000 revision accepted December 23, 2000.



Figure 1. CT scan reported as showing loculated fluid within iliacus and psoas with associated inflammatory mass. No collection found at laparotomy (Case 2).

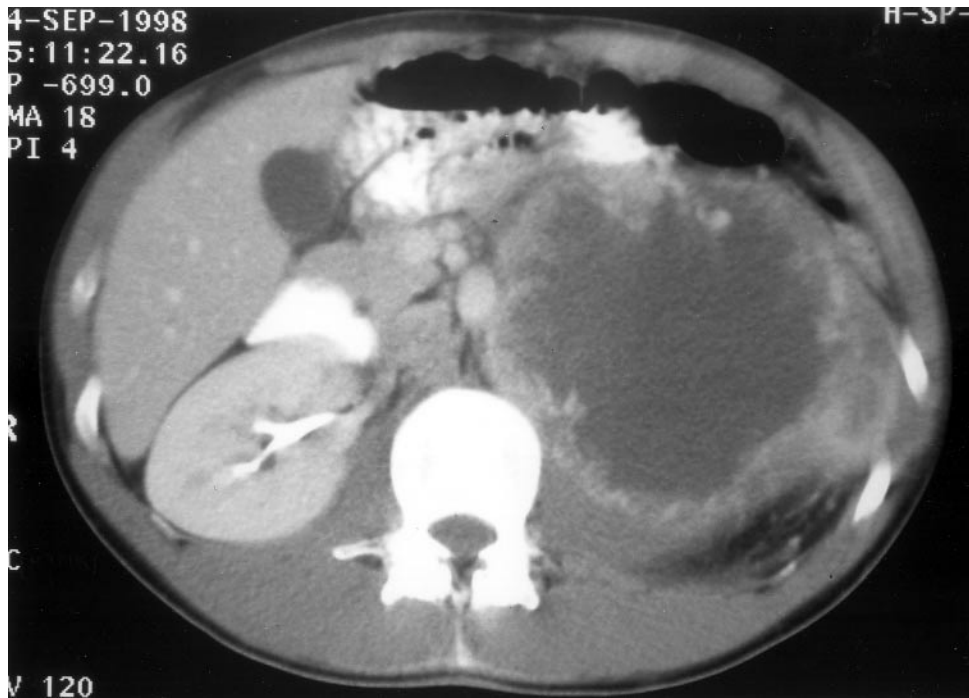


Figure 2. CT scan of abdomen revealing large retroperitoneal tumor (Case 3).

lesions find hip rotation in flexion more comfortable. Where primary hip pathology is the cause, hip rotation is painful in both flexion and extension<sup>1</sup>.

Imaging studies can be misleading. Due to the close proximity of the hip to the iliopsoas compartment 3 phase MDP bone scan may incorrectly suggest primary hip pathology as

opposed to iliopsoas compartment disease. CT scanning is therefore more appropriate. However, it can be difficult on CT to differentiate between hematoma, inflammatory, and neoplastic processes in this area, as illustrated by case 2.

Iliacus muscle abscess has only rarely been reported<sup>2-4</sup>. Primary infections are usually staphylococcal. Patients with

Crohn's disease, diverticular disease, and appendicitis may develop iliacus or psoas muscle abscess due to secondary spread when fecal flora is usually cultured. Secondary spread may occur from tuberculous or staphylococcal osteomyelitis<sup>5</sup>.

Primary retroperitoneal germ cell tumors have been described<sup>6-8</sup>. They are diagnosed late because of their localization and complete excision is often not possible.

The relative risk of lymphoma in patients with RA is estimated to be 2.7<sup>9</sup>. Initial symptoms in case 2 were disproportionate to plain radiographic findings, suggesting iliopsoas irritation secondary to lymphoma from the outset. This assumption is strengthened by the absence of an abscess collection at laparotomy.

A high index of suspicion for iliopsoas compartment pathology is required in cases where symptoms of hip pain appear disproportionate to plain radiograph. CT scan should be performed initially with lymphangiography, magnetic resonance imaging, or laparotomy where indicated.

Bone scans are best reserved for those cases where bony metastases or a distant focus of osteomyelitis is suspected.

## REFERENCES

1. Isdale AH, Foley-Nolan DF, Butt WP, Birkenhead D, Wright V. Psoas abscess in rheumatoid arthritis — an inappreciable diagnosis. *Br J Rheumatol* 1994;33:853-8.
2. Liu KY, Wang SJ, Lin LC. Primary iliacus muscle abscess due to *Staphylococcus aureus*. *J Formosan Medical Assoc* 1999;98:452-4.
3. Salvatore A, Pavlovsky M, Maxit M, de Wouters L, Valdivia H. Iliopsoas muscle abscess. *Medicina* 1996;56:126-32.
4. Simons GW, Sty JR, Starshak RR. Iliacus abscess. *Clin Orthop Rel Res* 1984;183:61-3.
5. Torres GM, Cerrigliano JG, Abbitt PL, et al. Iliopsoas compartment: normal anatomy and pathologic processes. *Radiographics* 1995;15:1285-97.
6. Lopez Alcina E, Rodrigo Aliaga M, Martinez Jabaloyas JM, et al. Extragenital germinal tumors of retroperitoneal localization. *Actas Urol Esp* 1997;21:956-96.
7. Amiel JL, Droz JP, Ruffie P, et al. Primary retroperitoneal malignant germinal tumours in man. *J Urol (Paris)* 1983;89:141-5.
8. Saltzman B, Pitts WR, Vaughan ED. Extragenital retroperitoneal germ cell tumors without apparent testicular involvement. A search for the source. *Urology* 1986;27:504-7.
9. Naschitz JE, Rosner I, Rozenbaum M, et al. Cancer associated rheumatic disorders: Clues to occult neoplasia [abstract]. *Semin Arthritis Rheum* 1995;24:231.