

LESSON OF THE MONTH

Unexplained hip pain: look beyond the obvious abnormality

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Case history

A 53 year old self employed white business man was seen by the rheumatology unit at this hospital for the first time in May 1997. Over the last three years he had seen three different rheumatologists with an asymmetrical arthritis, affecting mainly the right hand. This had been diagnosed as rheumatoid arthritis, based on the presence of rheumatoid factor in the blood and treated with 10 to 15 mg prednisolone a day for the last two years, as well as periods of treatment with sulphasalazine and methotrexate in the past. He presented with a painful right thumb and a painful restriction of left hip joint movement, which had gradually increased over the previous six weeks. His past history included a four year history of pustular psoriasis without apparent joint involvement and a history of low back and left groin pain 10 years ago, investigated elsewhere with a bone scan, plain radiography, and computed tomography of the left hip, with no cause found for the hip pain.

Examination revealed a well looking, afebrile man. He had obvious psoriasis on the feet with involvement of the toenails, no evidence of any deformities or active synovitis but had a painful right thumb carpometacarpal joint with crepitus on movement. Examination of his left hip joint revealed a non-pulsatile fullness in the left groin and painful restriction of left hip joint movements particularly flexion, abduction and external rotation, with virtually no internal rotation. There was no evidence of an inguinal hernia. The right hip joint had essentially full, pain free range of movement.

His C reactive protein measurement was within normal limits, the rheumatoid factor was increased at 405 IU/ml (normal < 21) but radiography of the hands and feet did not show any erosive changes consistent with the diagnosis of either rheumatoid or psoriatic arthritis. He had a normal erythrocyte sedimentation rate and a blood neutrophilia (white cell count 13.1×10^9 , 72% neutrophils), which was presumed to result from his corticosteroid treatment.

A plain radiograph of the left hip was normal (fig 1A) but an ultrasound displayed an enlarged iliopsoas bursa containing semi-solid material, with no abnormality in the left hip joint. The iliopsoas bursa was confirmed by computed tomography of the left hip, per-

formed on the same day as the plain radiography (fig 1B) and was aspirated under computed tomographic guidance, showing a blood stained inflammatory synovial fluid without any crystals or organisms seen or any growth on culture. Subsequent cultures for *Mycobacterium tuberculosis* were negative.

The iliopsoas bursa was injected one week later under ultrasound guidance with 40 mg Celestone Chronodose (Schering-Plough, Baulkham Hills, New South Wales) with temporary improvement, lasting one week, in his left hip pain and restricted movements and the prednisolone dose was gradually tapered off.

His left hip continued to be painful with restricted movements and he was considerably impaired in his ability to conduct his private business. A repeat ultrasound one month after initial presentation demonstrated reduction in the size of the iliopsoas bursa to half the original size and the iliopsoas bursa was aspirated and injected again with corticosteroids. Culture of the bursal fluid again revealed no growth and he had two days of improvement in left hip pain after the second injection of the iliopsoas bursa.

In view of the discrepancy between the radiological response of the iliopsoas bursa and the lack of clinical improvement in left hip symptoms, magnetic resonance imaging was performed of both hips, two months after initial presentation (fig 1C and D). The symptomatic left hip demonstrated a high grade avascular necrosis with some early collapse of the femoral head, while the asymptomatic right hip showed a low grade avascular necrosis.

The patient is awaiting a core decompression of his right femoral head and will undergo a total hip replacement of the left hip joint after that procedure. His blood lipid profile was checked and found to be in the normal range. After withdrawal of his corticosteroids, he developed an asymmetrical polyarthritis with sausage digits, typical of psoriatic arthritis and has now started oral methotrexate treatment.

Discussion

Enlargement of the iliopsoas bursa resulting in a range of clinical presentations has been reported a number of times in the medical literature.¹⁻⁴ It has been suggested that its

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Figure 1 Radiological investigation in the index case. (A) Plain radiograph of the pelvis and hip joints; (B) computed tomography of the hip joints and iliopsoas muscles; (C) T1 and (D) T2 weighted magnetic resonance images of the pelvis and hip joints. Enlarged left iliopsoas bursa indicated by the arrowheads in (B). Osteonecrosis of the right (small arrows) and left (large arrows) hip joints indicated in (C) and (D).

incidence as a cause of hip pain has been underestimated.²⁻⁴ One group of authors has recommended that an enlarged iliopsoas bursa should be considered in the diagnostic possibilities in a patient with hip pain, reduction of hip movements and normal hip radiography. This case illustrates that the presence of an enlarged iliopsoas bursa in such a patient should not be accepted as the cause of the hip pain, especially if there is another possible cause of such symptoms, such as osteonecrosis. An association of an enlarged iliopsoas bursa with avascular necrosis of the hip has been previously reported.^{4a}

Avascular necrosis of the femoral head, or osteonecrosis as the currently preferred term, is a relatively frequent condition predisposing to joint replacement surgery and accounts for 10% of the total joint replacements performed in the USA.⁵ There are a number of potential aetiological mechanisms, including physical injury, abnormalities of lipid metabolism and fat embolism, conditions of hypercortisolism including corticosteroid treatment, alcohol abuse, and rarer conditions including dysbarism, Gaucher's disease, and sickle cell disease. This man had no history of significant trauma, a moderate alcohol intake, no demonstrable hyperlipidaemia and, apart from the use of oral corticosteroids, had no other risk factors for avascular necrosis. In Third World countries, sickle cell disease is a major contributor to the development of osteonecrosis but in the Western world, corticosteroid treatment is the major aetiological factor. There is a high incidence of bilateral and multiple site involvement.⁶ The

unifying pathogenic mechanism in most, if not all these conditions, is increased intramedullary pressure leading to venous stasis with resulting ischaemic necrosis of the subchondral bone.⁶ Early diagnosis is important to try and prevent collapse of the articular surfaces with eventual secondary degenerative joint changes.^{6,7} Plain radiography of the hip joint is frequently normal at an early stage of osteonecrosis, as is computed tomography, while bone scintigraphy often demonstrates non-specific changes.⁷ The investigation of choice for all suspected cases of osteonecrosis is magnetic resonance imaging, which is very sensitive and specific in early osteonecrosis. Osteonecrosis is usually graded based on radiological appearances, according to the method of Ficat.⁶

Progress in the development of effective treatment options for osteonecrosis has not matched the progress in detecting the disorder at an early stage. Treatment options include a period of restricted weight bearing at an early stage, joint replacement surgery at a late stage (such as the symptomatic left hip in the present case), and an uncertain role for procedures such as core decompression,⁸⁻¹⁰ osteotomy, and revascularisation procedures, including muscle-pedicle bone grafting¹¹ and free vascularised fibular grafts.¹² Of the latter procedures, core decompression holds the most promise but the major patient group that benefits from such a procedure is those with a Ficat stage-I lesion, such as the asymptomatic right hip in the present case.⁸

This case is illustrative of the presentation of osteonecrosis of the hip and reinforces the difficulties that can result in the early diagnosis of this condition, especially when there is an apparent alternative explanation for the patient's symptoms. It also emphasises the importance of considering aetiological factors and the potential for involvement of other joints that may be asymptomatic at the time that the patient first presents.

The lesson

- Osteonecrosis of the hip should always be considered when a patient receiving corticosteroid treatment develops unexplained hip pain.
- Plain radiography of the hip may be normal early in the development of this disorder. Magnetic resonance imaging is the investigation of choice in early osteonecrosis.
- The initial obvious abnormality may not always be the cause of the patient's symptoms.

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Vesalius 1543: The fourth plate of muscles. "The fourth plate shows as many as possible of the muscles of the preceding plate, lifted away in the progress of dissection, and thereupon offers for inspection many which have not yet come into view in the earlier plates; though all the subsequent muscles are exhibited to some extent as far as the eighth plate of the muscles when the anterior surface of the bones becomes denuded."