CASE REPORT

Bilateral transient osteoporosis of the hip in a 20-year-old man

Jagwinder Dhaliwal,¹ Jamie S McConnell,¹ Tony Greer²

¹Department of Trauma and Orthopaedics, Queen's Hospital, Romford, Essex, UK
²Department of Orthopaedics, Southend University Hospital, Westcliff-on-Sea, Essex, UK

Correspondence to
 Jamie S McConnell,
 jamiemcc@gmail.com

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SUMMARY

Transient osteoporosis is a rare musculoskeletal condition that has been reported in pregnant women and middle-aged men. We present a bilateral case in a young man. A 20-year-old man presented with spontaneous onset left hip pain. Investigations excluded other differential diagnoses such as infection or fracture. The pain resolved completely; 6 months later the patient presented with a similar episode of pain in the contralateral hip. This also resolved spontaneously. Doctors need to be aware of the possibility of spontaneous onset musculoskeletal pain due to transient osteoporosis occurring in young men. The typical presentation is of spontaneous onset progressive pain, often affecting the hip. Other pathology must be excluded. The investigation of choice is MRI, and the treatment is simple analgesia.

BACKGROUND

Transient osteoporosis is a rare condition of unknown aetiology, usually affecting middle-aged men and pregnant women in the third trimester.^{1 2} This condition is characterised by pain, difficulty weight bearing and limited range of joint movement. Radiographically, there is often diffuse osteopenia. Pain often progresses over the course of a few weeks to a month and is most frequently apparent at the hip. Unlike osteoporosis of the elderly, transient osteoporosis is self-limiting, resolving after 6–12 months. Diagnosis can only be made after ruling out avascular necrosis, infection and stress fractures.

The patient was an unusual presentation for two reasons: first, he was younger than the typical age group for this condition. Second, both hips were affected by transient osteoporosis 6 months apart, whereas most cases affect only one side.

CASE PRESENTATION

A 20-year-old man presented with pain in his left lower limb, initially diffusely throughout the lower limb, but later localising to the hip. There was no known history of trauma, although he was required to do heavy lifting in his job as a catering assistant. The pain worsened over the course of several months, to the point where he was unable to continue working and required crutches at all times. He had no systemic symptoms or weight loss. There was a medical history of congenital thyroid aplasia, but the patient was euthyroid throughout, as a result of well-managed thyroid replacement therapy (levothyroxine). He was otherwise well.

Figure 1 Plain anteroposterior view radiograph of the pelvis.

INVESTIGATIONS

Plain radiographs demonstrated areas of radiolucency in the left proximal femur and a mild effusion, but no evidence of fracture ([figure 1](#)).

MRI of the pelvis and the left hip demonstrated focal areas of signal change in the weight-bearing areas of femoral head and neck. These regions had low signal in T1-weighted sequence and high signal in T2-weighted sequences of the left hip ([figures 2 and 3](#)). These findings are diagnostic of transient osteoporosis. MRI of the lumbar spine and the left knee excluded similar changes elsewhere. The hip was aspirated to exclude infection—the specimen contained no organisms and no crystals. Inflammatory markers were normal.

Figure 2 Coronal MRI pelvis—T1 sequence.

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Figure 3 Coronal MRI pelvis—T2 sequence.

The patient was subsequently followed up in a clinic over a period of 6 months. Spontaneous resolution of symptoms in the left hip was noted and he was able to return to his normal level of activity.

Six months later, the patient presented with a similar episode of pain affecting the contralateral hip. He had clinical assessment and investigations as before. Blood results were again unremarkable, and MRI findings were reported as transient osteoporosis of the right hip. This was followed by image-guided right hip aspiration which was negative for Gram stain and growth of organisms. The patient's symptoms again resolved completely without any surgical intervention.

TREATMENT

No treatment was required other than analgesia.

OUTCOME AND FOLLOW-UP

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DISCUSSION

Transient osteoporosis is a rare, unilateral, self-limiting condition, first described in 1959.¹ It usually affects men aged 40–60 years, and women in the third trimester of pregnancy.² Patients usually present with severe pain. It is a very different entity to the more common age-related osteoporosis, which is a generalised, painless, progressive condition.^{3 4}

The proximal femur is by far the most commonly affected site, but involvement of other lower limb regions has been reported.⁵ Possible aetiological factors implicated include genetic predisposition, compression of the obturator nerve and hormonal factors related to pregnancy.

Changes in bone mineral density lag 2 months behind onset of symptoms and dual energy X-ray absorptiometry scans are unhelpful.⁶ MRI is the recommended primary investigation for early diagnosis and monitoring disease progression.³ MRI has high sensitivity and permits early diagnosis,⁷ although Technetium-99 m bone scan may also prove helpful in difficult cases.⁸

The characteristic imaging changes in transient osteoporosis are of diffuse homogeneous osteopenia on radiographs and bone scan, and a similar diffuse bone marrow oedema on MRI, with decreased signal on T1-weighted images and increased signal on T2-weighted images.^{9–11} Changes are visible on plain radiographs after a mean of 1.3 months.⁶ The condition can thus be distinguished from avascular necrosis, in which the characteristic findings are of mottled radiolucency on plain radiographs, more localised changes on bone scan and a focal anterosuperior lesion on MRI, with decreased density in T1-weighted images and T2-weighted images.^{10 12}

Treatment for transient osteoporosis is conservative with simple analgesia and non-steroidal anti-inflammatory drugs, although the use of bisphosphonates has also been described.¹³ A period of restricted weight bearing may minimise the risk of pathological fracture.⁶ A complete spontaneous resolution tends to occur after a period of 6–12 months. We speculate that in this case thyroid aplasia could have contributed to the aetiology—however, an association with this endocrine disorder has not been previously reported, and this may indeed be a chance finding.

Doctors need to be aware of the possibility of spontaneous onset musculoskeletal pain due to transient osteoporosis occurring in young men.

Learning points

- ▶ Transient osteoporosis usually affects pregnant women and middle-aged men, although other age groups can be affected.
- ▶ Unlike age-related osteoporosis, the investigation of choice is MRI, although bone scan may be considered helpful.
- ▶ Transient osteoporosis is self-limiting. Treatment is simple analgesia.

Competing interests None.

Patient consent Obtained.

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