

# A teenager with knee pain

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This case highlights the importance of checking the hip when a skeletally immature patient presents with knee pain.

## Case presentation

### History and examination

A 15-year-old boy wearing a knee guard presented with a five-month history of left knee pain and an associated limp. Several months previously, he had presented with the same features to the emergency department of a major teaching hospital. An x-ray and MRI of the knee had been performed, which were normal in appearance (Figure 1). He was subsequently referred to a rheumatologist, who arranged x-rays of the hip (Figure 2) and bone scans (Figure 3). On the basis of these findings, the patient was urgently referred to an orthopaedic surgeon.



Figure 1. MRI scan of the knee was normal in appearance.

Physical examination showed that the patient had a limp with external rotation of the lower limb and a positive Trendelenburg sign (i.e. the pelvis dropped on the opposite side when standing on the affected limb). He used a crutch held on the opposite side to assist walking. There was obligatory external rotation (i.e. abduction and external rotation) of the left limb when the hip was flexed, and 1 cm shortening of the leg. The hip was painful on flexion and internal rotation. The knee was normal on examination, with a full range of motion and with no swelling.

### Diagnosis and management

The patient was diagnosed as having a chronic slipped capital femoral epiphysis. Unfortunately, because there had been a long delay in diagnosis the slip had united. The pain that the patient was experiencing was referred from the hip and due to impingement of the anterior femoral neck on the anterosuperior rim of the acetabulum (Figure 4). Management at this point involved a valgus flexion proximal femoral osteotomy as a salvage procedure.

The prognosis of such a severe slip without treatment is poor in terms of the development of premature osteoarthritis. In most cases, treatment involves percutaneous screw fixation across the proximal femoral physis *in situ*. In this case, how-



Figure 2. Anteroposterior x-ray of the pelvis showed left slipped capital femoral epiphysis.

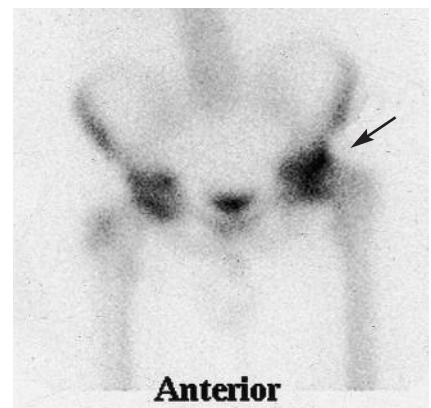


Figure 3. Bone scan of the pelvis showed increased uptake at the hip (arrow).

ever, proximal femoral osteotomy was chosen to relieve the impingement of the femoral neck on the anterior rim of the acetabulum because the diagnosis had been delayed and the slip had united (Figure 5).

## Discussion

This case dramatically demonstrates the trap of hip pathology presenting as knee pain. This patient even wore a knee guard and had an MRI of the knee.

A slipped capital femoral epiphysis is best classified as stable or unstable. Unstable slips are characterised by the inability to weight-bear without crutch support and are generally moderately to severely displaced on x-ray. Stable slips

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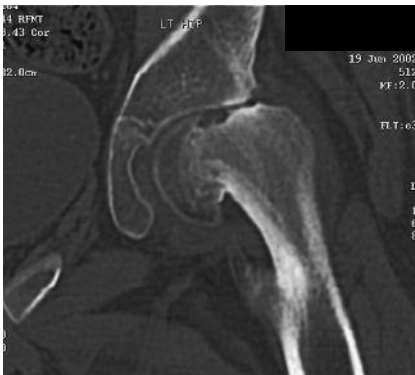


Figure 4. MRI of the left hip showed impingement of the femoral neck on the acetabulum.



Figure 5. Anteroposterior x-ray taken after proximal femoral osteotomy.

generally show less displacement on x-ray and patients can weight-bear without the need for aids. Anteroposterior and frog or transverse lateral x-rays will generally detect the slip. The prognosis is markedly different – unstable slips have a much higher incidence of avascular necrosis of the femoral head despite treatment. Regardless of the type of slip, however, patients should be placed on crutches, nonweight-bearing and referred directly to an orthopaedic surgeon.

### Keypoint

Always check the hip when a skeletally immature patient presents complaining of knee pain. **MT**

DECLARATION OF INTEREST: None.