

Figure 2 Postreduction radiograph.

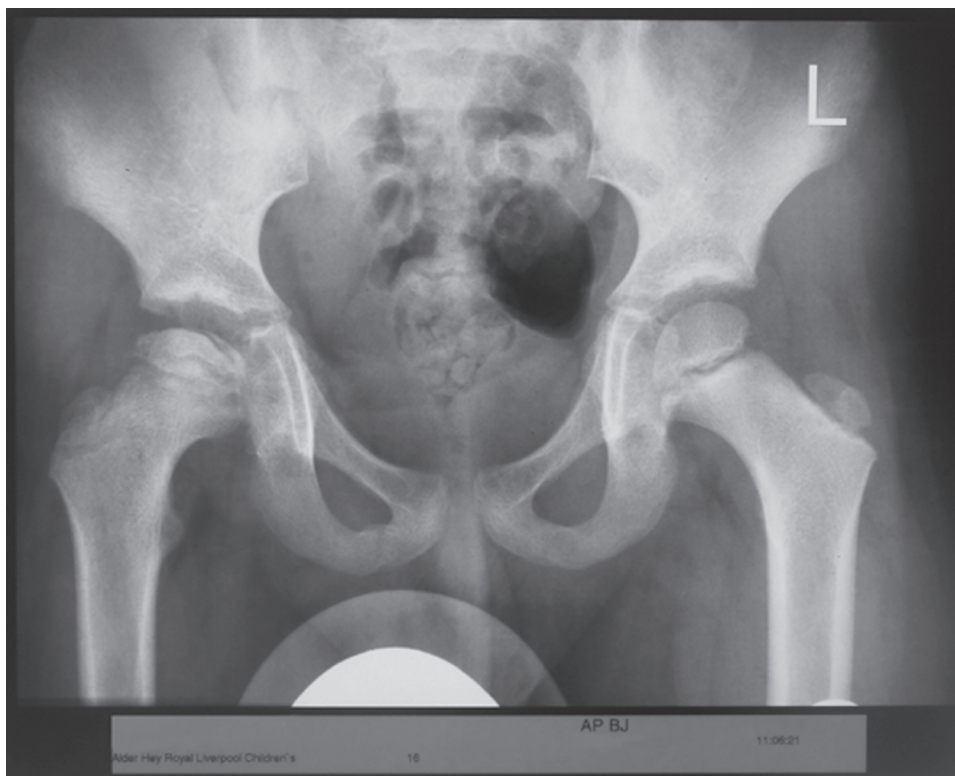


Figure 3 Radiograph at 6 months postreduction. The right femoral epiphysis is seen to be sclerotic and flattened with evidence early fragmentation. This is typical of changes seen in avascular necrosis.

the knee were normal. A knee sprain was diagnosed and the patient was discharged with analgesia.

The patient represented 2 days later with increasing knee pain. Examination noted a flexion, adduction and

internal rotation deformity at the right hip and shortening of leg by approximately 2 cm. All movements of the right hip were painful, knee examination was unremarkable and there was no neurovascular deficit.

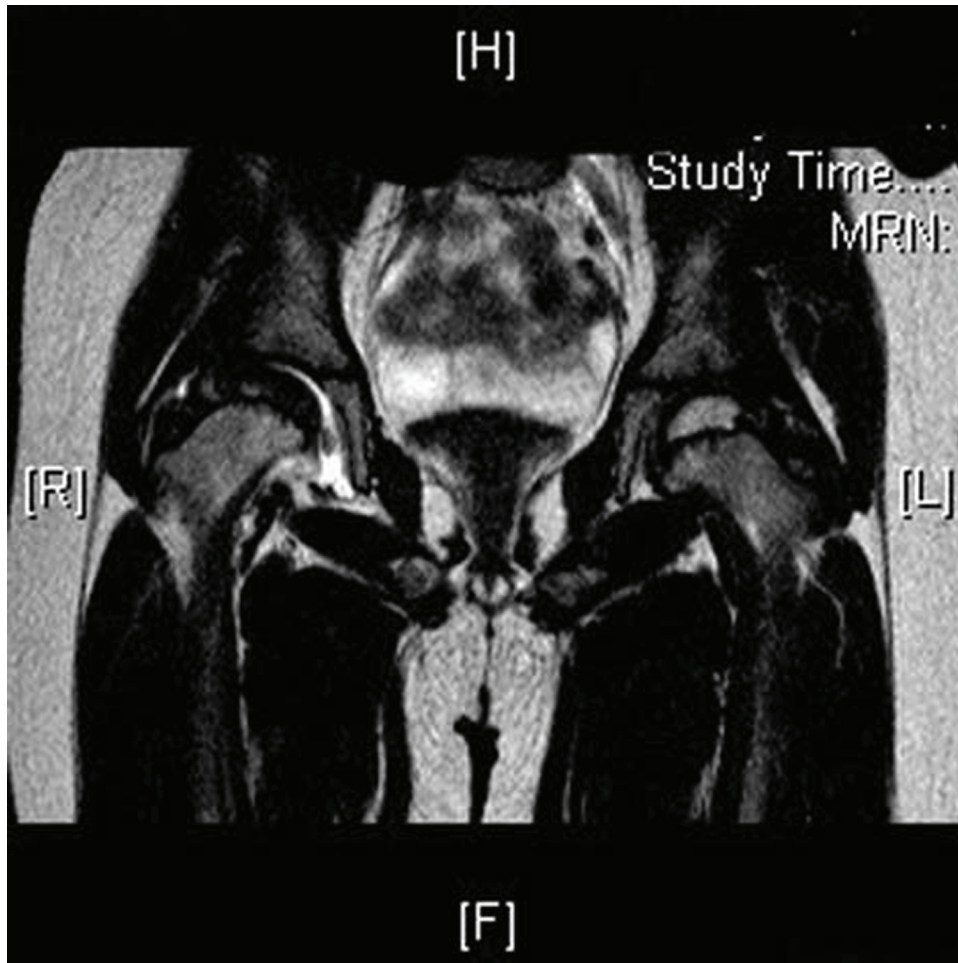


Figure 4 MRI demonstrating avascularity of the right femoral epiphysis.

INVESTIGATIONS

Radiographs revealed a posterior dislocation of the right hip (figure 1).

Closed reduction of the right hip under general anaesthesia was performed on the same day (figure 2). A postoperative CT scan confirmed concentric reduction and no associated fractures. The postoperative regimen encompassed 2 weeks of non-weight bearing, 6 weeks of partial weight bearing following which full weight bearing was allowed.

Six months postreduction, the patient presented with insidious onset right groin pain. Examination revealed a Trendelenberg gait with restricted movements of the right hip. There was a complete loss of abduction and restricted rotation. Radiographs identified the femoral epiphysis to be sclerotic with early fragmentation, similar to the changes of Perthes disease (figures 3 and 4).

TREATMENT

Given the restriction in movement it was identified that passive containment was not being achieved and therefore active containment was required. A varus osteotomy, incorporating 20° of varusisation, with blade plate fixation was therefore performed (figure 5).

OUTCOME AND FOLLOW-UP

Nine years after corrective osteotomy, the patient is actively participating in sports. His only complaint is a

limp following lengthy sporting activity. He has a full and painless range of movement in all planes except a slight restriction of internal rotation of 10° compared to the contralateral hip. There is no clinically significant limb length discrepancy. Radiograph (figure 6) shows a concentrically located, well rounded and remodeled femoral head.

DISCUSSION

This case demonstrates a well recognised pitfall. Children presenting with knee pain may be experiencing referred hip pain and the hips must be examined. The case further highlights that children suffer traumatic hip dislocations even with seemingly trivial trauma.¹⁻⁵

Early identification of hip dislocation is crucial to the long term prognosis. Funk in 1962 studied different factors influencing the outcome after traumatic hip dislocation in children. He stated that the fate of the femoral head seems to be determined by the delay in reduction of the dislocated hip. He concluded that permanent hip changes should be expected when reduction is delayed for more than 24 h.² Similar more recent reports support this notion that earlier reduction results in a better outcome.³⁻⁶

Barquet⁷ in 1982 conducted a retrospective review of 145 cases of traumatic dislocation of hip in childhood and attempted to outline the natural history of this complication. He concluded that in children younger than 12 years the changes of AVN following traumatic hip dislocation

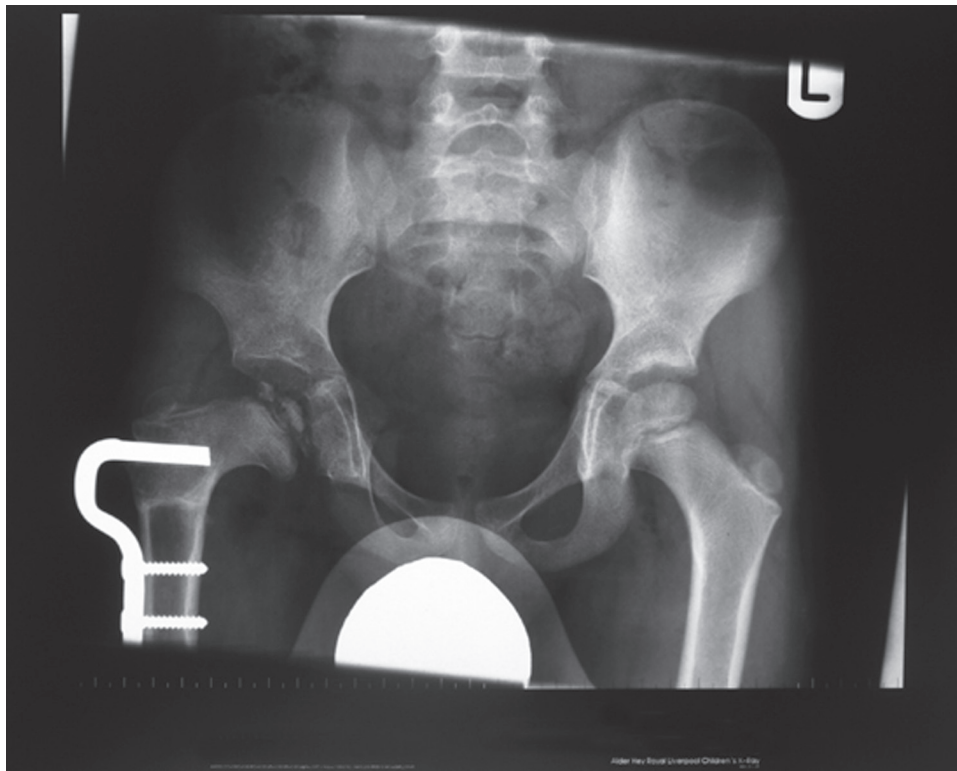


Figure 5 Radiograph at 1 year postreduction. This demonstrates the blade plate in-situ following a right femoral varus osteotomy. The epiphysis is well contained within the acetabulum and is late in the fragmentation stage of AVN. >50% collapse of the lateral pillar (equivalent to a Herring C hip).



Figure 6 Radiograph 9 years postosteotomy. The femoral head is spherical, with a congruent acetabulum. Slight coxa vara and coxa magna remains.

are similar to Perthes disease while in older children these changes resembled AVN of femoral head in adults.⁷

AVN that follows trauma results from a tear and resultant division of the vasculature around the hip,⁸ yet the mechanism which underpins Perthes disease of the hip is unknown. The radiological appearance in both is similar with initial flattening and sclerosis of the epiphysis, progressing to fragmentation with later reossification.

Containment is necessary to support the demineralised and therefore malleable femoral head within the acetabulum.⁹ This achieves a femoral head which moulds to the shape of the acetabulum and sustains this shape as revascularisation and remineralisation occurs along with the return of the structural integrity.

This case emphasises the importance of investigating knee pain in children, and that even significant hip injuries may present solely as 'knee pain'. It similarly demonstrates that 'containment' procedures may achieve successful results in AVN in childhood, even in those hips with a poor prognosis. We advocate treating traumatic AVN of the hip as one would treat Perthes disease – with the necessary interventions to achieve 'containment'.

Learning points

- ▶ Children presenting with knee pain may be experiencing referred hip pain and the hips must be examined.
- ▶ The case further highlights that children suffer traumatic hip dislocations even with seemingly trivial trauma.
- ▶ 'Containment' procedures may achieve successful results in AVN in childhood, even in those hips with a poor prognosis. We advocate treating traumatic AVN of the hip as one would treat Perthes disease – with the necessary interventions to achieve 'containment'.

Competing interests None.

Patient consent Not obtained.

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