

## CASE REPORT

## Perthes disease in a 2-year-old child

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**SUMMARY**

Perthes disease represents a transient interruption of the blood supply to the femoral head followed by collapse and subsequent remodelling. The majority of cases present between the ages of 4 and 10 years. We report the case of a child who developed a painful right-sided limp some days after his second birthday. The limp was initially interpreted as a transient synovitis of the hip. However, when the limp persisted, further investigations revealed that he had Perthes disease.

**BACKGROUND**

The youngest case of Perthes disease or a condition resembling Perthes reported in the literature occurred in a child aged 13 months.<sup>1</sup> There have been other reports of the condition occurring in children under 2 years of age.<sup>2</sup> However, it remains a rare condition in this age group.

**CASE PRESENTATION**

We present the case of a male child who developed a right-sided limp some days after his second birthday. His parents took him to see their general practitioner (GP) as they had noticed that the child had been limping on his right side for a day. The GP then referred him to the emergency department (ED) for an urgent paediatric orthopaedic opinion. He received a specialist review within 48 h of the onset of his limp. There was no history of trauma and nothing of note in his medical history other than recent coryzal symptoms. On examination, the child was afebrile with stable vital signs and appeared to have a full pain free range of movement at both hips and both knees. However, he was noted to have an antalgic gait with a limp on the right side. Bloods were taken in ED and revealed a mildly raised erythrocyte sedimentation rate (ESR) of 17 mm/h. All other blood tests including full blood count, C reactive protein and bone profile were normal. Septic arthritis was considered to be extremely unlikely and the child was discharged the same day with a presumptive diagnosis of transient synovitis of the right hip. He was reviewed a week later at which stage his ESR had returned to normal but he continued to have a distinct limp. Plain film radiographs revealed a focal area of collapse of the right femoral head (figure 1). He continued to limp intermittently over the next few months. Radiographs taken 6 months (figure 2) and 9 months (figure 3) after the onset of symptoms have shown progressive collapse.

**INVESTIGATIONS**

A general anaesthetic MRI further confirmed the diagnosis of Perthes disease with avascular necrosis



**Figure 1** Initial radiograph of the pelvis.

and collapse of the femoral capital epiphysis (figure 4).

**DIFFERENTIAL DIAGNOSIS**

The differential diagnoses considered in this case included septic arthritis, developmental dysplasia of the hip, transient synovitis, Meyer's dysplasia, non-accidental injury, juvenile idiopathic arthritis and neoplastic conditions such as leukaemia.

**TREATMENT**

The child has not described pain or discomfort at any stage. He has maintained an excellent abduction range of at least 30° and radiographs have consistently shown a concentrically contained femoral head. The senior author has therefore employed a non-interventional strategy. His parents were advised regarding activity modification and avoiding impact activity such as trampolining. He also received regular passive hip abduction stretches administered by his mother.

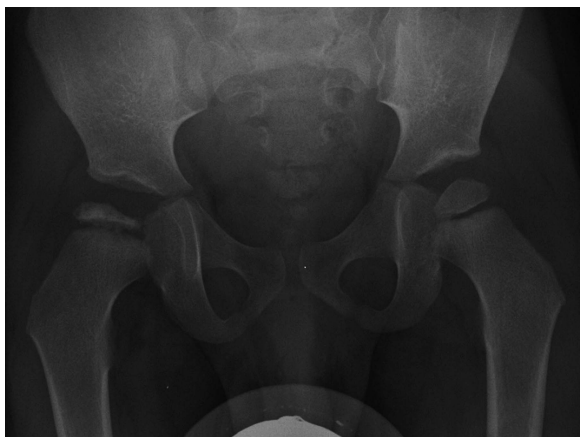


**Figure 2** Radiograph of the pelvis 6 months after onset of symptoms.



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**Figure 3** Radiograph of the pelvis 9 months after onset of symptoms.

### OUTCOME AND FOLLOW-UP

The child has been asymptomatic but has had a persistent limp for over a year. This has been reported by his parents and observed in clinic. He has never described pain. He is currently reviewed in clinic every 6 months. He has plain film and frog-lateral radiographs of the pelvis performed at every clinic attendance.

### DISCUSSION

In a child presenting with a limp, many different causes must be considered. The priority must be to diagnose or exclude those conditions that require urgent or emergency treatment. Trauma (including non-accidental injury) and infection must be considered. If blood tests and radiographs are normal, then most causes of limping that require emergency treatment may be excluded. If the limp resolves within a few days then a presumptive diagnosis of transient synovitis is reasonable.

Even in these children it is prudent to advise that the apparent symptoms and signs of transient synovitis may represent a prodrome to subsequent Perthes.<sup>3–5</sup>

Perthes disease is traditionally considered to occur at a peak age of 5–7 years.<sup>6</sup> However, in the literature, there are three previous cases reported of Perthes disease occurring in children under the age of 3.<sup>1 2</sup> Other cases of avascular necrosis in very

young children have been reported following primary developmental dysplasia of the hip.<sup>7</sup> Another possible cause of hip pain or a limp in a young child is Meyer's dysplasia. This can easily be confused with Perthes disease. It typically presents at the age of 2, can frequently be bilateral and, similar to Perthes, is more commonly seen in boys than in girls. Radiologically, Meyer's dysplasia shows a marked delay in the development of the femoral epiphysal nucleus.<sup>8</sup> Meyer's dysplasia requires no treatment and symptoms resolve within weeks, with radiological resolution by the age of six.

Equally, the prognosis of Perthes disease is considerably better in children who acquire the condition at a younger age. From the few reports available,<sup>1 2</sup> a good outcome can be predicted without surgical intervention.

There are other rare causes of a painful hip in a young child, which may or may not have obvious radiological features. Such conditions include multiple epiphysal dysplasia, hypothyroidism, dyschondroplasia and arthritis. Although Perthes disease in this age group is rare, after infection and trauma have been excluded it should certainly be considered even in the younger child if symptoms persist.

### Learning points

- ▶ A limp in a 2-year-old child should always raise the suspicion of bone or joint infection.
- ▶ If infection is excluded it is legitimate to observe the child over a few days.
- ▶ If the limp rapidly resolves, then no further investigation is required and the most likely diagnosis is transient synovitis or minor trauma.
- ▶ If the limp does not resolve, further investigation is mandatory.
- ▶ Perthes disease should be considered even in the younger child.

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**Contributors** DD and AV worked together to write the first draft of this case report. MDL proposed the idea and edited their first and second drafts.

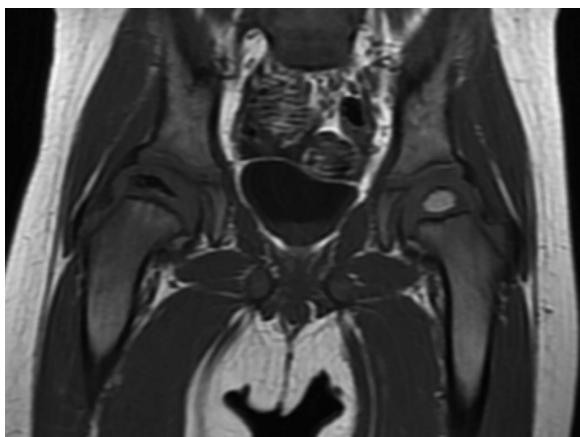
**Competing interests** None.

**Patient consent** Obtained.

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**Figure 4** MRI of the pelvis 9 months after onset of symptoms.

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