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Case Report

Synovial osteochondromatosis in a 14-year-old boy with a history of Legg–Calve–Perthes disease

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ABSTRACT

We describe a case of a 14-year-old boy with a history of Legg–Calve–Perthes disease diagnosed at the age of 6 years and development of synovial osteochondromatosis of the same hip joint 7 years later. Synovial osteochondromatosis is very rare in children, and to the best of our knowledge, only a single case of Legg–Calve–Perthes disease and secondary synovial osteochondromatosis was described in the literature in a 35-year-old male, making this the first reported case of Legg–Calve–Perthes disease with development of synovial osteochondromatosis in a pediatric patient.

Introduction

Synovial (osteo)chondromatosis is a benign condition with synovial membrane proliferation and formation of cartilaginous or osseous bodies. Synovial osteochondromatosis can be either primary or secondary to various conditions that affect the joint. Trauma, osteochondritis dissecans, and inflammatory and noninflammatory arthropathies have commonly been reported as predisposing factors in cases of secondary synovial osteochondromatosis. A possible suggested mechanism is that a cartilaginous or osteocartilaginous fragment becomes attached to a synovial membrane, and like in primary synovial osteochondromatosis, these fragments nourished by synovial fluid grow and proliferate [1].

The two types of synovial osteochondromatosis may be difficult to differentiate based on imaging alone because long-standing primary synovial osteochondromatosis predisposes to degenerative joint disease. Conversely, secondary synovial osteochondromatosis may be caused by degenerate change [2].

A useful differentiating feature is that in primary synovial osteochondromatosis, the mineralized bodies are usually numerous (normally over five) and equal sized, whereas in secondary synovial osteochondromatosis, there are fewer bodies of variable size. Primary synovial osteochondromatosis typically affects adults, predominantly men, in the third to fifth decades of life. Patients with secondary synovial osteochondromatosis are generally older than those with primary

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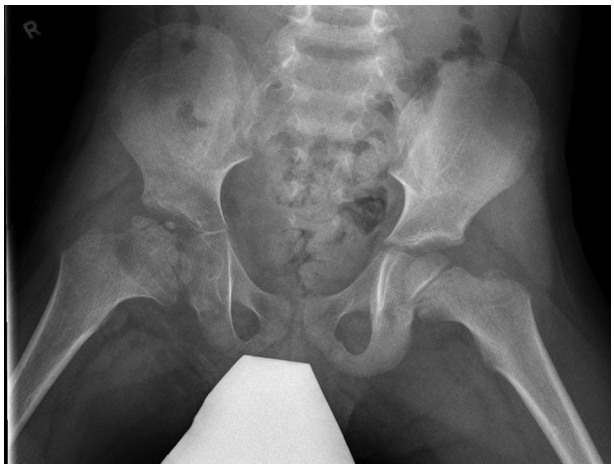

Fig. 1 – Supine anterior posterior with hips abducted radiograph at 6 years of age shows flattening and fragmentation of the proximal right femoral epiphysis with secondary remodeling of the acetabulum, foreshortened and broadened femoral neck, and demineralized femoral neck related to proliferative synovitis.

disease [3]. Therefore, primary and secondary synovial osteochondromatosis are quite rare in the pediatric age group [4,5].

A single report in the literature describes association between Legg–Calve–Perthes disease and secondary synovial osteochondromatosis in a 35-year-old male, wherein the synovial osteochondromatosis presented after 27 years of follow-up [6].

We present a case of a 14-year-old male who first presented with Legg–Calve–Perthes disease at the age of 6 years and developed radiological evidence of synovial osteochondromatosis 7 years later, at the age of 13 years.

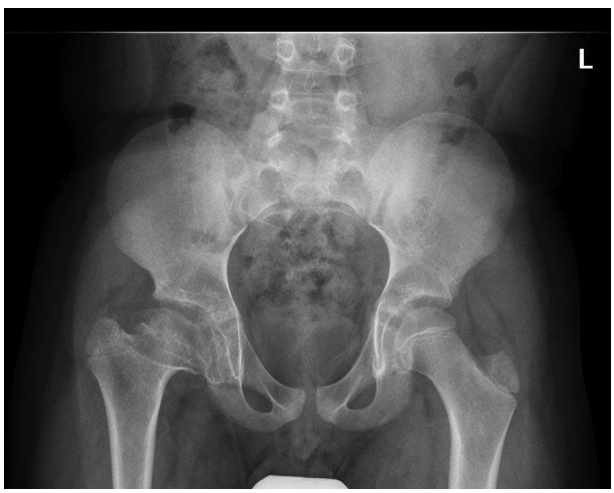

Fig. 2 – Standing anterior posterior radiograph at 11 years of age shows mature healed Legg–Calvé–Perthes with coxa magna, advanced maturation compared to the left and mild pelvic obliquity.

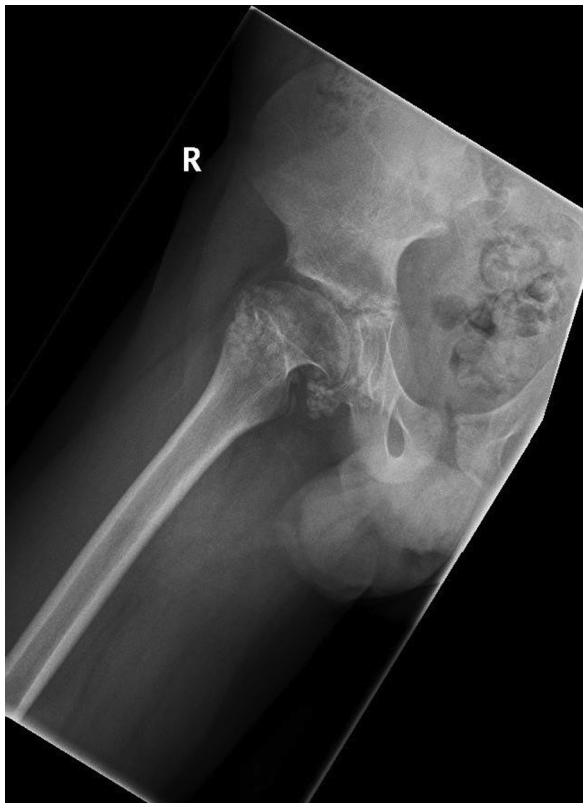

Fig. 3 – Frog lateral view of the right hip at 12 years of age shows progressive chondrolysis and new intraarticular loose bodies of similar size and shape.

Case report

A 14-year-old male with right hip changes associated with known history of Legg–Calve–Perthes disease since the age of 6 years (2008) was referred for follow-up MR imaging (August 2016). He was followed with annual radiographs and had 1 prior MR in April 2013. The radiographs demonstrated progressive changes in the hip over time. Figure 1 shows the initial image from 2008, wherein the right femoral head and neck are significantly decreased in density. The right femoral head appears flattened superiorly, and there is significant widening of the femoral neck. There is widening of the right hip joint in comparison with the left. Figure 2 shows a follow-up image obtained April 2013, wherein severe ongoing deformity of the right femoral head and neck is evident with coxa magna and coxa vara configuration of the hip. The right femoral neck is short and wide with flattening and irregularity of the femoral head and hypertrophy of the greater trochanter. There is mild periarticular osteopenia. Subtle uncovering of the femoral head with mild acetabular dysplasia is also evident. The joint space now is narrowed diffusely suggestive of cartilage loss.

On the subsequent radiograph obtained December 2014 (Fig. 3), there was a new substantial finding of numerous round calcific densities of similar size and shape seen within the right hip joint, most likely intraarticular calcific bodies. At this stage, a diagnosis of synovial osteochondromatosis was made.