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Case Report

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Idiopathic Chondrolysis of the Hip: A Case Report

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Abstract

Idiopathic chondrolysis of the hip is an uncommon disorder characterized by the progressive destruction and ultimate loss of articular cartilage of the hip joint. While trauma, infection and immobilisation can lead to chondrolysis of the hip, the exact underlying cause for idiopathic chondrolysis is not clearly defined. Studies have suggested immunological aetiology for idiopathic chondrolysis. Imaging studies including plain radiography and MRI scanning are useful in diagnosis this condition at early stages. We present a case report of this rare condition in a preadolescent girl with the emphasis of early imaging findings which helped in arriving the accurate diagnosis.

Keywords: Idiopathic chondrolysis, Hip joint, Preadolescent

INTRODUCTION

Idiopathic chondrolysis is a rare disease that involves progressive destruction of the articular cartilage of the femoral head and the acetabulum with no identifiable cause [1,2]. While the chondrolysis of the hip is known to be associated with trauma, infection and arthritis, the aetiology for idiopathic chondrolysis is not clearly defined [1,3]. However, an underlying autoimmune process leading to cartilage destruction is the currently accepted theory[1]. Studies have found that imaging has been playing a crucial role in diagnosing this condition at early stages. Although plain radiographs may appear normal at early stages, characteristic MRI features have been described to diagnose this condition [1,4,5]. This condition is commonly described in adolescents who present with unilateral hip pain with restriction in joint movements [4]. A preadolescent girl was presented to our institution with unilateral limping and her biochemical and imaging findings confirmed the diagnosis of idiopathic chondrolysis. Since her initial MRI scan was performed at early stages, the characteristic MRI features were observed in the affected femoral head.

CASE PRESENTATION

A 10-year-old schoolgirl without previous illness presented with limping due to painful right hip for one-month duration. There was no history of trauma to the joint. She had no complaints regarding other joints. It was a gradual onset of pain involving the hip and leg. Restricted movements noted in the right hip. She did not

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attend the follow-up clinics for several months and then again presented with the limp. Laboratory investigations including full blood count, Erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), blood picture and rheumatoid factor were within the normal limits. Further her antinuclear antibody (ANA) and rheumatoid factor levels were negative.

Imaging findings

Her initial plain radiograph of the pelvis showed narrowing of the right hip joint, predominantly the medial space and the pelvis was tilted towards the right side. There was bilateral protrusio acetabuli deformity (Figure1). The plain radiograph of the hip takes one year later showed further concentric narrowing of the right hip joint with pelvic tilt. The ultrasound scan of the right hip showed mild synovial hypertrophy.

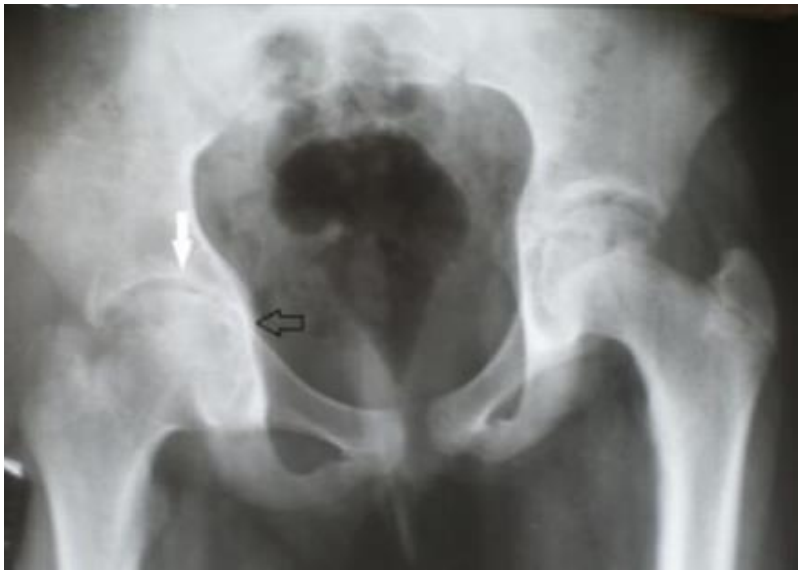

Figure 1: AP view of the pelvis which shows narrowing of the right hip joint space (white arrow) and protrusio acetabuli deformity (black arrow)

The initial MRI scan of the hip showed a geographic area of bone marrow oedema which was concentrated mainly in the medial third of the femoral head with evidence of bone marrow oedema in the adjacent acetabulum (Figure 2). MRI of the right hip joint after 1 year of the initial presentation showed marked narrowing of joint space with signal pattern compatible with bone marrow oedema involving the femoral head. Further, there was right gluteal muscle atrophy. (Figure 3)

Considering her clinical presentation, laboratory investigation results and imaging findings the diagnosis of idiopathic chondrolysis was made. She was referred for specialised orthopaedic management.

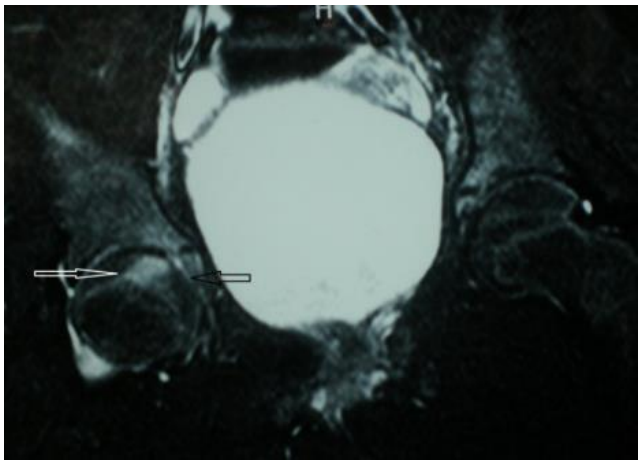

Figure 2 Coronal MRI STIR image demonstrating bone marrow oedema in the femoral head (white arrow) and in the acetabulum (black arrow)

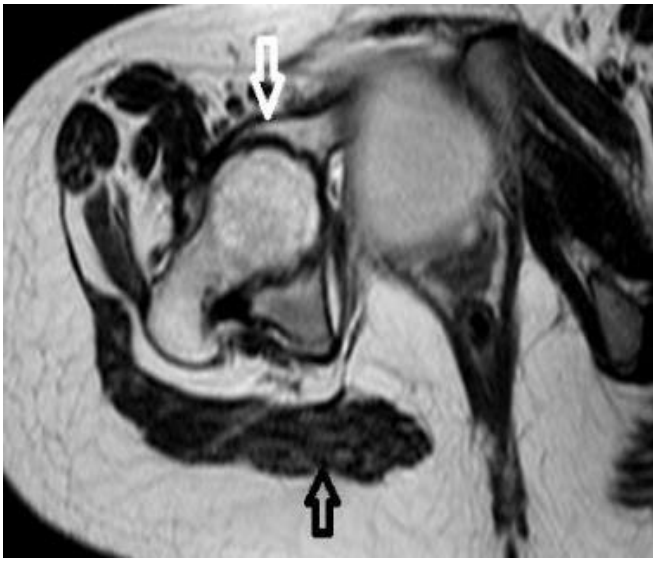

Figure 3: Axial MRI T1W image showing concentric narrowing of the right hip (white arrow) and right gluteal muscle atrophy (black arrow)

DISCUSSION

Idiopathic chondrolysis of the hip joint is a rare condition and the exact aetiology is not clearly understood. The first description of this condition dates to 1971, where this was described as extensive loss of articular cartilage of the femoral head and acetabulum with no clear aetiology[4,6,7]. The conditions which are known to cause chondrolysis of the hip include slipped capital femoral epiphysis, prolonged immobilization, infection, rheumatoid arthritis, and trauma [1]. However, conditions clinical presentation, physical examination and imaging findings aid in excluding these conditions [1]. While the exact aetiology for idiopathic chondrolysis is not identified, a possible underlying autoimmune process that leads to articular cartilage destruction is the most widely recognized theory [1]. The hip pain that progress to limping is the usual presentation [1,7]. Later, with progressive movement restrictions, the patient develops hip contractures and difficulty in standing [1]. The laboratory investigations including the erythrocyte sedimentation rate, rheumatoid factor, antinuclear antibody, and human leukocyte antigenB27 surface antigen are usually within the normal range [1].

The initial MRI signal characteristics of the hip joint in our patient were similar to those that were described in the literature. In the early stages of idiopathic chondrolysis, there is geometric abnormal signal intensity mainly within the proximal femoral epiphysis with adjacent acetabular bone marrow oedema[1,4]. Some studies have described synovial hypertrophy [1] and mild synovial hypertrophy in our patient was noted on ultrasound scan. In addition to the demonstration of the bone and bone marrow changes related to idiopathic chondrolysis, MRI scanning also delineate the associated muscle abnormalities [5]. In our patient, the initial MRI showed minimal gluteal muscle wasting and the MRI did one year later demonstrate more marked gluteal muscle wasting.

The documented radiographic abnormalities include periarticular osteoporosis, joint space loss and protrusio acetabuli which are seen in the early course of the disease and degenerative changes with marginal osteophyte formation, lateral buttress formation, early closure of capital and trochanteric epiphyseal plates, widening of the femoral head and neck, and ankylosis in the late stages [1,8,9]. Studies have shown that there is a strong association between protrusio acetabuli deformity and idiopathic chondrolysis and have stated that these two conditions may be a result of the same disease process [10]. There was protrusio acetabuli deformity on both sides of our patient. However, the contralateral hip showed no MRI features to suggest chondrolysis.

The natural history of idiopathic chondrolysis is unpredictable with or without treatment. While the traditional treatment methods for this rare condition include conservative management or surgical intervention [1,2.7], a recent case report has described a case of idiopathic chondrolysis where a patient was managed with medications targeted on immunological pathways [6]. This would further strengthen the autoimmune theory and also open a new management pathway for these patients.

Idiopathic chondrolysis is a rare but, well-documented disease entity. While there are characteristic MRI features to identify this disease in the early stages, collective findings of clinical presentations, laboratory investigations and

imaging findings important in arriving at the definitive diagnosis.

Author declaration

Authors' contributions: MCW and SR were involved in the conception and design of the study, data collection, analysis and interpretation. MCW and SR prepared the manuscript. All authors read and approved the final manuscript.

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Ethics approval and consent to participate

Informed consent was obtained from the father of the child to publish the case without revealing the identity of the child.

Conflicts of interest

The authors declare that they have no competing interests.

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