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Case Report

Stiff hip managed with capsular incision in adolescent girl: a case report

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ABSTRACT

Idiopathic chondrolysis is an uncommon condition defined by the complete loss of femoroacetabular articular cartilage in a child with no previous trauma, slipped capital femoral epiphysis, infection, or extended immobilisation. Because of the gradual onset of symptoms, escalating radiographic abnormalities, and the lack of a diagnostic laboratory test, diagnosis is sometimes delayed. Localized osteoporosis, subchondral erosions, femoral head alterations, and a reduction in joint space are all common radiographic findings. We report a case of Idiopathic chondrolysis of the hip in a 14-year-old Indian girl who presented with pain and stiffness in her right hip with an MRI differential diagnosis of avascular necrosis/ tuberculosis of right hip joint.

Keywords: Hip, Idiopathic chondrolysis, Magnetic resonance imaging

INTRODUCTION

Idiopathic chondrolysis of the hip (ICH) in children is a rare condition that is largely described in case reports in the literature. Female adolescents of Asian or African ancestry are most usually affected by ICH, which is typically monoarticular (right side affected in 60% of cases). Five percent of instances of ICH are bilateral.[1,2]

Without any known causes, ICH is characterised by the rapidly progressing breakdown of articular cartilage in the hip joint.[3-5] The diagnosis is made by ruling out other hip conditions with similar symptoms and signs. Most patients complained of knee, groin, or hip discomfort, along with limping or stiffness in the affected hip. The majority of laboratory tests are normal. The hallmark radiographic observation is concentric narrowing of the joint space along with periarticular osteopenia and no frank osteophyte formation, without or with treatment, ICH's natural course is unpredictable.[3,5]

In our case A 14-year-old female child presented with similar complaints and she was examined thoroughly and a differential diagnosis of tuberculosis of hip and idiopathic chondrolysis of hip was done. She was operated for the same and was diagnosed to have idiopathic chondrolysis of hip.

CASE REPORT

A 14-year-old girl presented with right hip pain and complaints of stiffness in her right hip with abnormal gait for 1 and ½ years duration which was gradually progressive. The patient had symptoms of pain in the right hip since last one year which was continuous, dull aching, and exaggerated with activity. She was a healthy girl, with no previous illness or injury nor family history of rheumatologic diseases no history of trauma, constitutional symptoms, or any other joint involvement.

Examination revealed stiff hip gait with antalgic component. Hip was fixed in neutral position in coronal plane and 30 degree of sagittal plane flexion deformity and 30 degree of external rotation deformity.

Inspection revealed wasting of thigh and gluteal muscles of same side. Exaggerated lumbar lordosis was present along with hip and knee flexion. On palpation, the greater trochanter and the anterior and posterior joint lines tenderness present.

Measurements showed Apparent limb length shortening of 4 cm. There was a shortening of 2 cm on right side in the femur component. Bryant's triangle revealed a supratochanteric shortening of 2 cm on the same side. Shoemaker's line crossed below the umbilicus and Chien's line were not parallel.

The patient had a fixed flexion deformity of 30° with further range of flexion from 30-60°. Abduction, adduction and rotation of the right hip was restriction with secondary leg length inequality and increased compensatory lumbar lordosis

Management and results

ESR, CRP and CBC were normal. Radiographs of the hips showed narrowing and cortical irregularity of the femoral head, mild protrusio acetabuli of the right side with marked osteopenia and subchondral cyst. MRI done at the same time had revealed avascular necrosis of right femoral head (Ficat and Arlet stage IV) with No signs of infection/ oedema but there was a presence of subchondral cyst in the acetabulum.

She had undergone right adductor tenotomy + Ganz safe dislocation of right hip through Gibson's approach. Intra OP finding included degeneration of the cartilage with eroded areas and osteophytes seen over the acetabulum and thickened capsule. There was mild mushrooming of the head. Intra op movements of right hip: flexion-110^0, complete abduction and adduction and full range internal rotation and external rotation. The capsule and cartilage and the bone fragments from the head was send for histopathological examination and for analysis of tuberculosis Truant for tuberculosis was negative. Histopathological findings showed non inflammatory pathology and chondrolysis.

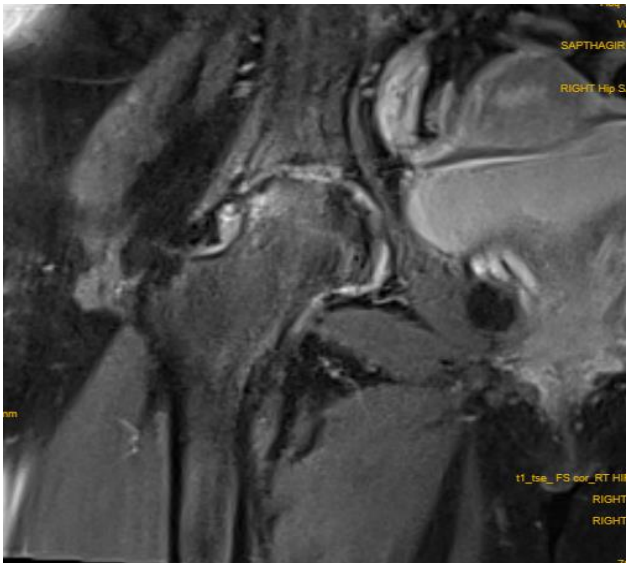

Figure 1: T2 weighted coronal picture of right hip showing loss of femoroacetabular cartilage and cortical irregularity of femoral epiphysis.

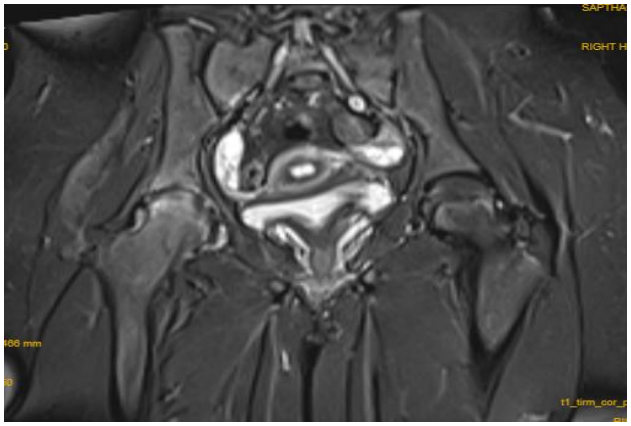

Figure 2: Coronal short tau inversion of the pelvis shows right femoral epiphysis in the pelvis has widespread T2 hyperintense areas as well as isolated regions of overlaying cortical irregularity. There was some mild joint effusion.

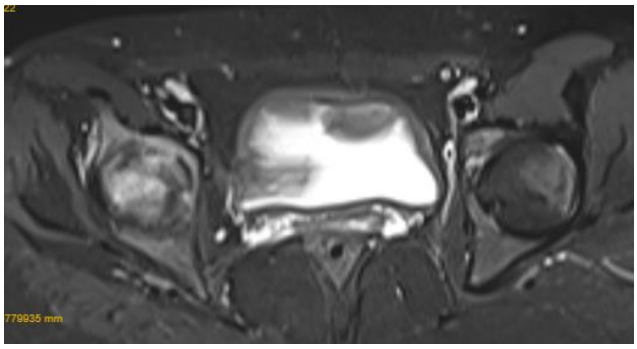

Figure 3: Axial section of the MRI showing thinning of the articular cartilage covering the medial third of the right femoral head.

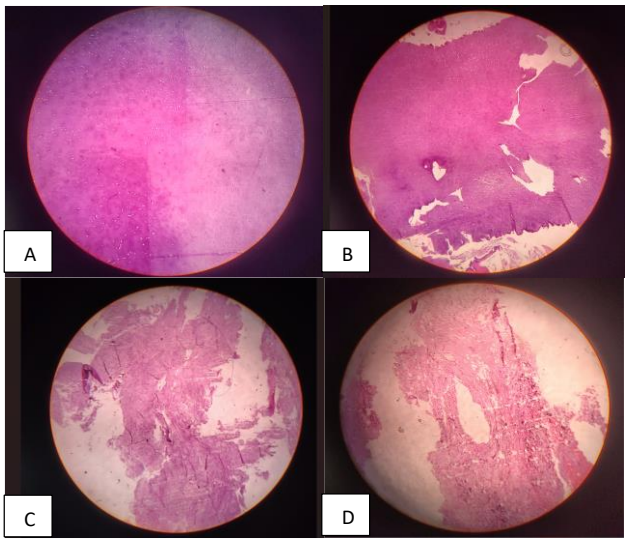

Figure 5 (A-D): Histopathological images revealing thin bone trabaculae, while the cartilage shows degenerative changes. Places with fatty marrow are noted. Loose fibroconnective tissue with numerous clogged blood arteries and bleeding could be seen.

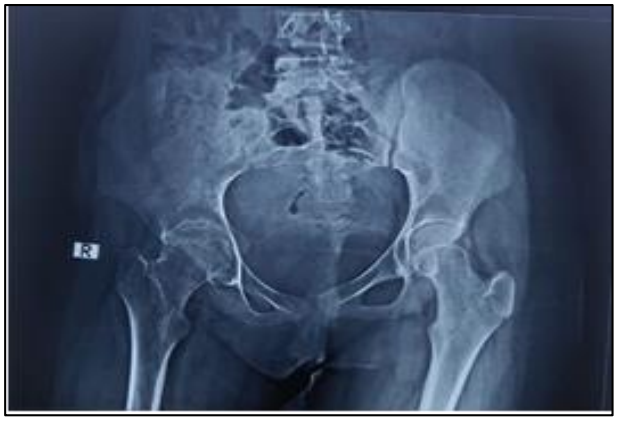

Figure 6: Anterior-posterior radiograph of the pelvis showed a marked loss of joint space and cortical irregularity of femoral epiphysis. Left acetabular irregularity seen. Protrusio acetabuli present.

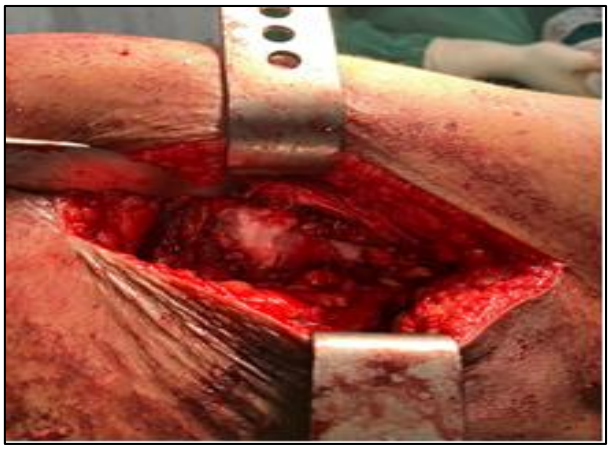

Figure 7: Intra-op image showing mushrooming of the head.

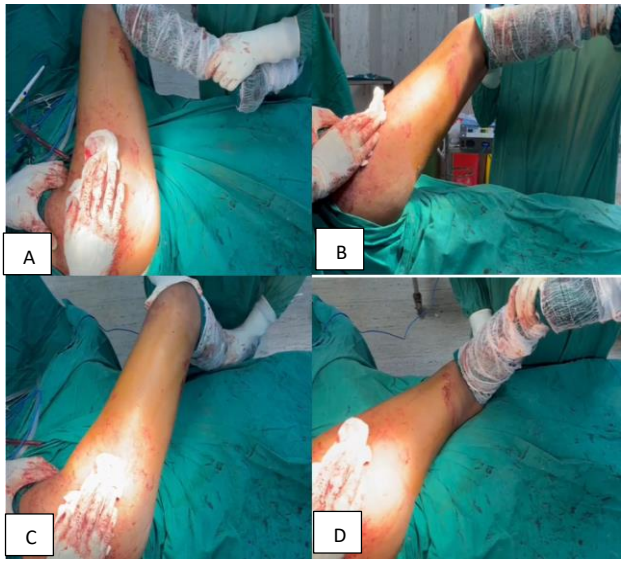

Figure 8 (A-D): Intra-op movements of right hip showing flexion -110, complete abduction and full range internal rotation and external rotation.

DISCUSSION

Waldenstrom was the first to describe chondrolysis of the hip joint in 1930.[6] It is a known complication of a Slipped capital femoral epiphysis, but it can also occur as a result of trauma, septic arthritis, immobilisation, juvenile idiopathic arthritis, Marfan's syndrome, and Stickler syndrome.[7-14]

Jones recorded nine cases of hip chondrolysis with which no underlying aetiology could be detected in 1971. To describe this condition, Duncan et al developed the term idiopathic chondrolysis of the hip.[14,15] In terms of clinical outcomes, they range from complete healing to fibrous ankylosis of a previously healthy hip joint.[10,15]

In the absence of recognised aetiologies, ICH is defined by the rapid progressive breakdown of articular cartilage in the hip joint. The diagnosis is made by ruling out all alternative possibilities. The majority of patients manifested with limping or hip, groin, or knee discomfort. The affected hip is stiff. Typically, laboratory tests are normal. Joint concentric narrowing (less than 3 mm) without Formation of osteophytes in association with periarticular osteopenia is defining radiographic finding.[23] The natural history of ICH with or without treatment is unpredictable

Idiopathic chondrolysis occurs between 9 and 15 years of age. This characteristic age of onset is among the diagnostic criteria. Females contribute 80% of cases. Based on a literature review, Hughes estimated that the right hip was involved in 60% of cases, the left hip in 35%, and both hips in 5%.[9]

Mechanical hip pain with progressive mobility range restriction, resulting in a limp, is common in late infancy or early adolescence.

The patient is otherwise healthy, and there are no known triggers. As near-normal mobility in all planes is noticed during the assessment of the hip under general anaesthesia, fixed flexion, abduction, and external rotation of the hip may occur, most likely as a result of the discomfort.

MRI finding were Secondary chondrolysis and other causes such as avascular femoral head necrosis, reflex sympathetic dystrophy syndrome, and Villonodular synovitis are ruled out. It's possible that an intraarticular effusion is visible.[20] Major capsular thickening and oedema of the capsule and synovial membrane were found pathologically, with no indications of inflammation or caseous lesions. The cartilage is fibrillated and fragmented, with defects exposing the subchondral bone. The synovial tissue is replaced by fibrosis.

Analgesics, nonsteroidal anti-inflammatory medications, and traction or crutches are commonly used to relieve pain and prevent weight bearing. Patients who do not react to medical treatment are candidates for surgery. It is possible

to conduct hip fusion or an arthrotomy to release the joint.[19.21]

There were a number of peculiar features to this case, including the atypical presentation, radiological features of the X-ray revealing degenerative change and that of the MRI showing an image of avascular necrosis, and the Histopathology showed chondrolysis of articular cartilage.

With substantial stiffness but no pain in around half of the afflicted joints, the functional prognosis is cautious. In around 54% of cases, recovery is possible. Acetabular protrusion is a very common condition.[22] ICH is a very uncommon illness that is frequently misdiagnosed as chronic infective or inflammatory arthritis. It will be easier to diagnose this disease if people are aware that it exists. There are distinct clinical and radiological symptoms, but there is no effective treatment to slow the disease's progression. More research is needed to better understand the aetiology and pathophysiology of this disorder so that it can be managed effectively in the future.

CONCLUSION

Paediatric idiopathic chondrolysis of the hip joint is a rare but severe condition marked by pain, stiffness, and concentric radiological decrease of joint space. Important differential diagnoses to rule out immediately include septic arthritis and slipping upper femoral epiphysis. A previously healthy hip joint may develop ankylosis as a result of the clinical course, which is unpredictable. Early diagnosis is necessary for an accurate prognosis and early treatment to stop future consequences**.**

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