Case 16388

Idiopathic chondrolysis of the hip
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Section: Musculoskeletal system
Area of Interest: Musculoskeletal joint
Imaging Technique: MR
Case Type: Clinical Cases
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Workplace:

Patient: 11 years, female

Clinical History:
An 11-year-old female patient presented with right hip joint pain and limping for one month. She reported a fall during playing. There was no history of fever.

Imaging Findings:
She was evaluated with radiograph of pelvis which showed mild right hip joint space reduction. Further evaluation was done with MRI to look for the cause of the persistent pain. MRI revealed wedge-shaped T1 hypointense, T2/STIR hyperintense area in the mid region of the right femoral head with mild thinning of the articular cartilage and narrowing of the joint space. The acetabulum appeared normal. Mild joint effusion and synovial thickening was seen. The femoral head contour and alignment of the hip joint were within normal limits. She was managed conservatively with analgesics and rest.

Discussion:
Progressive articular cartilage loss in the femoral head and acetabulum is referred to as chondrolysis of the hip. This phenomenon finally results in severe joint space narrowing and restricted joint movements. In 1930 the first case of hip chondrolysis was reported by Waldenstrom [1]. Chondrolysis occurs in children as well as in adults [2].

Many paediatric conditions can lead to chondrolysis of the hip such as slipped capital femoral epiphysis, Perthe’s disease, trauma, immobilisation for a long time, infective/inflammatory joint diseases and malignancies. However, when no cause for chondrolysis is identified it is labelled as idiopathic [3].

Idiopathic chondrolysis of the hip (ICH) is commonly seen in adolescents and young children in the age group of 9-12 years with female predilection. It is most commonly unilateral, often seen involving the right joint. Patients present with painful hip sometimes associated with restriction of movements, often without an identifiable cause.

Initial radiographs of the hip are usually normal. MRI is the imaging modality of choice for diagnosis and also to rule out certain identifiable causes. There is wedge-shaped marrow oedema (T1-hypointensity, T2-hyperintensity) in the middle of the femoral head in the early stage [4]. Fluid-sensitive sequences with fat-suppression like STIR can make it more conspicuous. Progressive disease manifests as articular cartilage loss, joint space reduction, acetabular changes, finally secondary osteoarthritis and spontaneous fusion of the joint. CT can be used as a problem-solving tool in doubtful advanced cases.

The staging method includes [5]:

Stage 0 – Normal imaging
Stage 1 – Variable reduction in the hip joint space. Wedge-shaped focal area of marrow oedema (characteristic and earliest finding in MRI) located in the middle third of the femoral head in coronal images + synovial hypertrophy and joint effusion.
Stage 2 – Marrow oedema in the superomedial aspect of the acetabulum along the triradiate cartilage in addition to the above findings. There may be protrusio acetabuli.
Stage 3 – Enlargement of the marrow oedema seen in the proximal femoral epiphysis, femoral head collapse, widely involved acetabulum, osteoporotic and degenerative changes (fibrous ankylosis) ± femoral head overgrowing on the neck (“buttress” sign).

The natural course of the disease is reversible with conservative management focusing on alleviating pain, rest, and avoiding weight bearing. If neglected initially it can progress to severe joint deformation and end up with spontaneous ankylosis in which case surgical management [6] is warranted.

It is prudent to know the various stages of ICH on imaging so that early diagnosis and appropriate treatment can limit permanent joint deformities.
Written informed patient consent for publication has been obtained.

**Differential Diagnosis List:** Idiopathic chondrolysis of right hip joint, Chondroblastoma, Marrow contusion, Infections

**Final Diagnosis:** Idiopathic chondrolysis of right hip joint

**References:**


Description: Radiograph AP view of pelvis showing mild reduction in right hip joint space and subtle irregularity of the femoral head. Origin: © Department of Radiodiagnosis, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Pondicherry, India
**Figure 2**

Description: Arrow pointing to wedge-shaped hypointense area on T1 coronal image (a), and hyperintense on T2 sagittal image (b), STIR coronal image (c). There is mild joint effusion and synovial thickening. (d) T1 VIBE post-contrast coronal image to show the articular cartilage loss, joint space reduction and enhancing synovial thickening (star) in right hip joint. Articular cartilage mapping (e) at 3 tesla MRI showing irregularity and areas of loss of articular cartilage in right hip joint. **Origin:** © Department of Radiodiagnosis, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Pondicherry, India
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