SLIPPED CAPITAL FEMORAL EPIPHYSIS: A CASE REPORT

Clinical History: A 9 year-old girl presents with a limp and pain in the right hip after a fall, few weeks ago.

Findings:

- Fig 1 (CT Scan), 4 (MRI TWi Coronal): Coronal images show widening of the right femoral physis and a medial slip of the femoral head on the right. Klein's line on the right does not intersect the femoral capital epiphysis compared to the normal relationship on the left.
- Fig 2(MRI T2Wi Sag): The sagittal image of the right hip depict posterior rotation of the femoral head epiphysis axis relative to the femoral neck axis indicating retroversion at the epiphyseal-metaphyseal junction.
- Fig 3(MRI STIR Axial): Long axis of the femoral neck is anterior to the femoral head as seen on axial images. There is diffuse marrow edema in the right femoral head and metaphysis.
- Mild irregularity of the metaphysis is noted. There is no evidence of avascular necrosis.
- Abnormal hyperintense signal noted within the proximal femoral physis.
- Grade I hip joint effusion.
Diagnosis: Slipped capital femoral epiphysis of right proximal femur.

Discussion:
Slipped capital femoral epiphysis (SCFE) is a Salter-Harris type1 fracture through the proximal femoral physis and is the most common adolescent hip disorder. The exact etiology of SCFE is unclear. Only in a small number of cases is there a specific traumatic event, such as a fall. In addition to trauma, suggested causes have included mechanical factors, inflammation, endocrine and renal disorders, nutritional deficiencies, and radiation therapy. The combination of abnormal shear forces on the growth plate during rapid growth at the time of adolescence has been implicated.

Plain film: The slip that occurs is posterior and to a lesser extent, medial and therefore is more easily seen on the frog-leg lateral view rather than the AP hip view. A line drawn up the lateral edge of the femoral neck; (line of Klein) fails to intersect the epiphysis during the acute phase. Additionally, because the epiphysis moves posteriorly, it appears smaller because of projectional factors.

CT Scan :Is a sensitive and an accurate method of measuring the degree of upper femoral epiphyseal tilt and detecting the disease in its early stage. 3 D images may allow viewing of the relationship of femoral head to the metaphysis in three planes. A metaphyseal blanch sign is an increase in density in the proximal metaphysis. It represents an attempt of healing process that occurs before the visible displacement of the epiphysis.

MRI: Early marrow edema and slippage is seen as increased signal on T2-weighted imaging and STIR sequences. Cartilage abnormalities and changes due to avascular necrosis are better appreciated on MRI.

Potential complications of SCFE include avascular necrosis, chondrolysis, deformity, degenerative arthrosis (long term), limb length discrepancy.

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N.B: This case is authentic and from the archives of Radiance Diagnostics. For any queries/suggestions/feedback write to us at radiance@radiancediagnostics.in. Case of the month can also be accessed anytime online at VIEW BOX at www.radiancediagnostics.in