Transient osteoporosis of the hip

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Abstract

Transient Osteoporosis of Hip (TOH) is an uncommon disorder of idiopathic nature, particularly in the Asian population. It has been described to mostly occur in middle aged men and women in their third trimester of pregnancy. A distinctive hallmark of this condition is that it is self limiting and resolves in a few months. The patient presents to the physician with pain on movement and impaired mobility of the affected joint, developing without any history of trauma. MRI is the main diagnostic tool. We report herein a case of a forty five year old male, who developed transient osteoporosis of the hip, and was managed conservatively.

Keywords: Transient, Osteoporosis, Hip, Bone marrow oedema.

Introduction

The term Transient Osteoporosis of the Hip (TOH) was first introduced by Curtis and Kinkade in 1959 for women in their 3rd trimester of pregnancy and was later on described in middle aged men.[1] It is an uncommon disorder of idiopathic nature, particularly in the Asian population.[2] Bone marrow oedema syndrome (BMED), regional migratory osteoporosis, migratory osteolysis, transient hip demineralization and transient osteoporosis are all recognized as various terms for the same condition.[3] Transient osteoporosis is also known to have been reported in decreasing frequency in the knee, foot, ankle and hand. TOH is a transient disorder in which the patient presents with pain in and around the hip joint which generally increases on weight bearing and regresses both clinically and radiologically in most patients in 6-12 months.[1] Bone marrow edema with low T-1 and high T-2 signals on MRI is diagnostic of the disease.[4] The following patient presented with left hip TOH and was managed conservatively. He was informed that his data will be used for publication and consent was taken.

Case Report:

Here is the case of a 45 year old male patient, who presented in the outpatient department with complaints of lower back pain and left hip pain since two weeks. The pain was severe in nature, radiated to the groin and was aggravated on any kind of movement, especially straining or weight bearing. There was no history of trauma, fever or any other joint involvement. Examination revealed tenderness over the left hip joint and there was pain in internal and external rotation of hip.

A plain X-ray of the hip joint showed no abnormality but the lumbo-sacral spine showed minimal early degenerative changes.

His blood investigations, which included Hb, TLC, DLC, ESR, creatinine and electrolytes, were all within the normal range. The patient was advised an MRI of the pelvis which showed signal abnormality in the femoral

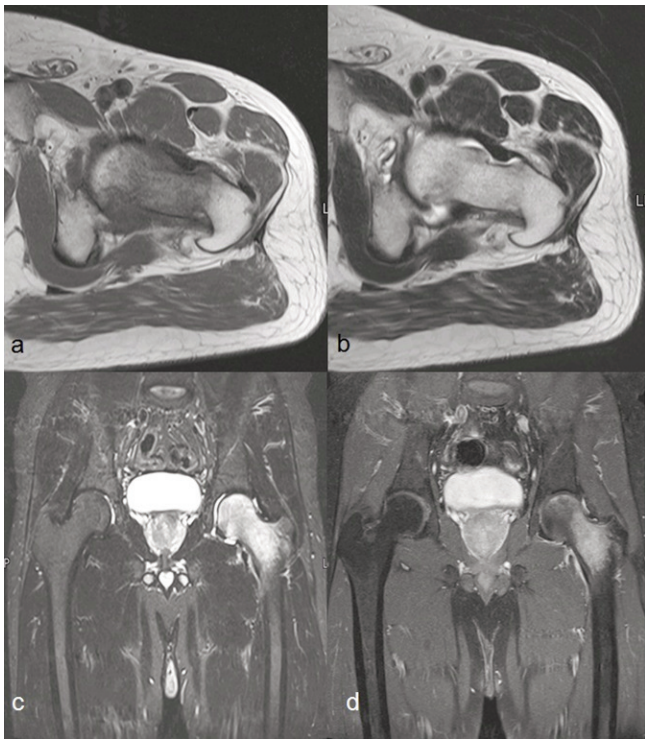

Figure-1: Axial T1 and T2 weighted fast spin echo images (a & b) show signal abnormality in femoral head and neck, which is hypointense to the normal marrow on T1 and hyperintense on T2. Homogenous pattern of involvement is better appreciated on coronal STIR image (c) which shows hyperintense signal in the involved area. Coronal T1 weighted fat suppressed post contrast image (d) shows homogenous enhancement. Note the absence of any fracture, mass lesion and bone destruction on all images.

head and neck, which was hypointense to the normal marrow on T1 and hyperintense on T2 with enhancement on post contrast images, minimal joint effusion and inflammatory changes in the surrounding tissues without any involvement of the acetabulum (Figure-1). A technetium-99 MDP bone scan showed diffusely increased uptake of moderate intensity over the left femoral head, neck and trochanteric region (Figure-2).

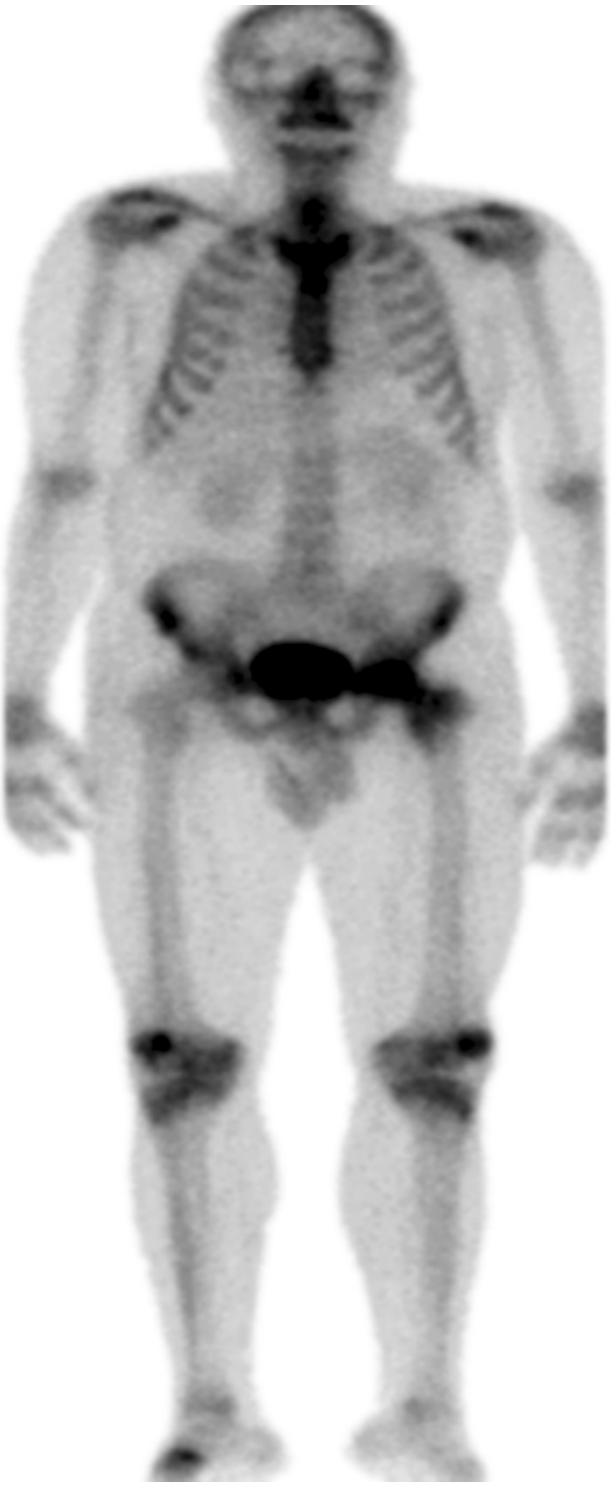

Figure-2: Nuclear scan shows increased tracer uptake in left femoral head and neck.

A diagnosis of TOH was made with a differential diagnosis of Regional Miratory Osteoporosis as the differential.The patient was advised to avoid any straining activity involving the joint and analgesics were given as required. 8 weeks later, his pain had subsided greatly. He was able to drive his car and walk with ease, activitites which he was unable to do previously. His pain had become intermittent and of very mild intensity. Three months later, the pain was gone and the patient was completely asymptomatic.

Discussion

TOH has been previously known to occur in pregnant women, more specifically in the last trimester, but young and middle aged men between 40 and 70 years of age represent about 66% of the cases.[1,5,6] A distinctive hallmark of this condition is that it is self limiting and resolves in a few months, with the patient presenting to the physician with pain on movement and impaired mobility of the affected joint, developing without any history of trauma.[6]

The exact cause of TOH remains unknown. However, it is speculated that it may be due to "genetic predisposition, intermittent compression of the obdurator nerve, a non-traumatic form of reflex sympathetic dystrophy, small vessel ischaemia, bone medullary hypertension, fatty marrow conversion of proximal femoral metaphysis, viral infection, hormonal imbalance, trauma or a subchondral fracture of the femoral head."[6,7] Steroids, alcohol, obesity and haemoglobinopathies are additional risk factors.[7] It has also been proposed that microfractures due to stress weariness and their repair are a constant phenomenon in a normal adult but at times substantial microfractures override the reparative process and become clinically overt and present similar to TOH.[6] This can also account for the aggravation of the microfractures during weight gain in the third trimester of pregnancy and hence the increased incidence of TOH during that period of gestation.[6]

It is imperative that TOH is distinguished from other conditions that include avascular necrosis, cancer, stress fracture of neck of femur, septic arthritis, soft tissue injury, radiculopathy, infiltrative marrow process and inflammatory joint diseases.[1,5] TOH is a diagnosis of exclusion. The condition is confirmed by the spontaneous convalescing of the clinical symptoms over a few weeks to months and by plain radiographs that demonstrate widespread osteopenia,[8,9] nuclear scans that show increased tracer uptake[9] or an MRI, which is the investigation of choice, that shows "a diffuse bone marrow edema pattern signal or joint effusion with an

increased signal intensity on T2 images and decreased intensity on T1 images."[3,5,10] It should however be noted that there have been reservations about using nuclear scans as a diagnostic tool.[9] Also, "an absence of subchondral lesions, suspended peak enhancement of the abnormal marrow on perfusion images and sparing of the subchondral zone from marrow oedema are also MRI findings strongly associated with TOH."[3]

We report a patient with TOH in whom the diagnosis was made based on the resolution of clinical symptoms in a few weeks and the correlation of his symptoms with MRI. The condition was treated conservatively with analgesics, physiotherapy and reduction of weight stress as has been established in literature.[3] Radiographic and MRI follow up for the next two years is advised.[5,7]

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