Transient Osteoporosis of the Hip During Pregnancy

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Introduction
Transient Osteoporosis is a well organised form of regional osteoporosis, though rare. It affects the activities of daily living by its extended course of the disease and disproportionate pain of the affected joint, even though it resolves spontaneously with a benign course. If not recognised, the presentation can be alarming both clinically and radiologically. Curtis and Kincad introduced the term “transient demineralisation of the hip” referring to a rapidly developing, painful local osteoporosis of limited nature but of unexplained patho-physiology. Later on, Lequesne coined the term, transient osteoporosis of the hip in 1968.

Transient osteoporosis can occur at any age, and in either sex, but most commonly occurs in women during the third trimester of pregnancy and in middle-aged men. Hip is the most commonly affected joint, though migratory pattern may affect the contra-lateral hip joint or the ankle and foot joints. Higher incidence of transient osteoporosis has been reported in patients with osteogenesis imperfect. Here, we report a case of transient osteoporosis affecting the hip joint during the third trimester of pregnancy.

Case Report
A 37 year old female reported to our OPD with complaints of pain both hip joints (right side > left side) in September 2009. She was walked with a limp/antalgic gait brought to the clinic supported by the attendants. She had given birth to a healthy female baby about two and half months back by lower segment caeserian section, which was uneventful. On further enquiry, she reported noticing the pain at her hip joint during the last trimester of pregnancy, insidious in nature with no history of trauma or fever. Pain was aggravated by movement and weight bearing and increased in intensity during the last one month.

When observed, she was walking with support and she could not bear full weight on her right lower limb due to pain in right hip. On examination, range of motion of the right hip was reduced (Flexion 60°, abduction/adduction 30° each and external and internal rotation 15° each) and hip was tender. Left hip was clinically normal. Power of the muscles around the hip was good. Lumbo-sacral spine was clinically normal.

Investigation reports showed: Hb 12.0 gms%, TLC 5400/cu.mm, ESR 42 mm/1st hr, serum calcium 11.0 mg%, serum phosphorous – 3.5 mg%, Serum Alkaline phosphatase 165 IU/L (49 IU/L for bone specific fraction), Mycodot for Koch’s antibody for IgG and IgM were both negative). MRI of the hip showed discrete reduced signal intensity changes on T1-weighted image and high signal intensity changes in the femoral head, neck and acetabulum on the right side, on STIR sequence film.

She was managed conservatively with protected weight bearing, analgesics. Active assistive ROM exercise of the hip was also advised within the limits of pain. Intravenous bis-phosphonate (3 mg Ibandomic acid) was given along with oral Calcium supplementation.

Discussion
Transient osteoporosis is an uncommon cause of hip pain which is characterised by self limiting transitory clinical nature, osteopenia on radiograph and bone marrow edema on MRI. Transient osteoporosis typically affects women, exclusively during the third trimester of pregnancy and middle-aged men. There were no known predisposing factors except pregnancy in this case. However, the risk of acquiring transient osteoporosis is reported much higher in patients with osteogenesis imperfecta than in general population. Probably, a pathological micro-fracture in such patients might have been the triggering factor for transient osteoporosis.
It has been suggested that transient osteoporosis is a form of non-traumatic variety of reflex sympathetic dystrophy, because of the diffuse variety of involvement around the affected joints and migratory involvement of other joints. However, the absence of classical signs that are pathognomonic of sympathetic reflex dystrophy did not support the patho-physiologic mechanism of transient osteoporosis.

Symptoms and radiological changes of transient osteoporosis usually lasts an average of 8-12 months. Its typical clinical presentation has three phases. The first phase (rapid aggravation phase) lasts one to two months with acute onset of pain and increasing functional disability. The second phase (maximal intensity) lasts another two to three months with signs and symptoms reaching a plateau. Radiographs show diffuse osteopenia without loss of joint space. There is no evidence of sub-chondral fracture, dense sclerosis or degenerative changes which are the hallmark of osteonecrosis. The third phase (regression phase) lasts another four to six months. Radiographs show reconstitution of normal bone density while the symptoms subside to complete clinical resolution.

The diagnosis of transient osteoporosis is usually made by exclusion. The differential diagnosis includes septic arthritis, osteonecrosis and malignant infiltration. Differentiation between transient osteoporosis and osteonecrosis may be difficult at early phase, but MRI has been shown to sensitive to differentiate between the two at an early stage. Lesions of osteonecrosis show focal lesions typically in antero-lateral aspect of femoral head, demonstrating decreased signal intensity on both T1 and T2-weighted images on MRI whereas MRI finding of transient osteoporosis is characterised by diffuse bone marrow oedema in upper femur and acetabulum, with ill-defined intensity in T-1 weighted image with a matching area of increase intensity in on T-2 weighted images.

Treatment of transient osteoporosis is directed towards protected weight relief and analgesics for pain control and active and passive range of motion exercises as tolerated is prescribed to prevent contractures and deformities when the course of illness is prolonged. Use of second- and third-generation bisphosphonates has been the recent medical strategy for management of transient osteoporosis.

We have presented the case because of its rarity and uncertainty of the underlying etiology, as well. Transient osteoporosis may be confused with a variety of conditions and perhaps, with avascular necrosis as the most common misdiagnosis. Conservative management will suffice, but with due assurance and patience, as the course is a benign and self-limiting one and also to avoid sinister complications like fractures and collapse of the femoral head during the initial phases as outlined above. Transient osteoporosis in pregnancy deserves special attention as traumatic fractures of the femoral neck and stress fractures have been reported in pregnant women.

References


