Transient Migratory Osteoporosis of the Hip and Talus: A Case Report

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What to Learn From this Article?

Transient Migratory Osteoporosis is a self-limiting condition commonly affecting pregnant females and middle aged males in the form of migratory pain which gets resolved spontaneously with conservative management.

Abstract

Introduction: Transient migratory osteoporosis (TMO) is a rare and self-limiting condition of unknown etiology. The hip joint is the most common joint to get involved in this disease followed by a knee, ankle, and foot.

Case Report: We report a case, which illustrates the importance of recognizing the typical clinical and radiological features of TMO of the hip and ankle, thereby allowing an appropriate form of treatment. Spontaneous resolution of symptoms occurred in the patient.

Conclusion: TMO can present a diagnostic challenge, but awareness of the typical presenting features and investigation findings can often avoid diagnostic difficulties.

Keywords: Transient migratory osteoporosis, regional migratory osteoporosis, bone marrow edema syndrome, avascular necrosis.

Introduction

The term transient osteoporosis or primary bone marrow edema syndrome (BME) has been used where BME is found on magnetic resonance imaging (MRI) as an isolated finding without apparent cause [1]. The term BME was first used for ill-defined bone marrow hyperintensities on T2-weighted MRI in patients with knee and hip pain [2]. The etiology and pathophysiology of this condition are unknown, and it mostly affects middle-aged males and females in the past trimester of pregnancy [3]. The patient presents with pain and stiffness of the involved joint. The most common joint to get involved is hip followed by the knee and ankle [4]. Usually, only one joint is affected, but it is known as transient migratory osteoporosis (TMO) if more than one joint is involved in succession. This condition has been described by various other nameWs in the literature such as regional migratory osteoporosis, transient regional osteoporosis, shifting BME, and transient BME syndrome. We report a rare case which illustrates the importance of recognizing the typical clinical and radiological features of TMO of the hip and ankle, thereby allowing an appropriate management.

Case Report

A 27-year-old male presented with gradually increasing pain in his left ankle joint since the past 3 months. There was no history of any trauma. The pain gets aggravated on weight bearing and relieved with analgesics and rest. He also had a history of left hip pain 7 months back which was insidious in onset and gradual in progression. He consulted local orthopedic surgeon, and core decompression of his left hip was done 1 month after the onset of symptoms for the suspicion of avascular necrosis (AVN). Retrospectively, viewing his MRI of the hip was

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consistent with BME (Fig. 1). His hip symptoms gradually subsided over a period of 2 months after the core decompression surgery. Repeat MRI of his left hip showed significant signs of improvement (Fig. 2). The patient did not have any risk factor for AVN. On physical examination, left ankle joint tenderness was present with a slightly reduced range of motion of the ankle joint. The radiograph and routine blood tests were within normal limits. MRI of his left ankle joint showed that mild joint effusion with high signal intensity on T2-weighted images and low signal intensity on T1-weighted images (Fig. 3). Dual energy X-ray absorptiometry measurement of bone demonstrated values consistent with the normal range. The findings were consistent with BME syndrome. Considering his full clinical picture a diagnosis of TMO was made. The patient was advised rest, non-steroidal anti-inflammatory drugs analgesics, bisphosphonate, and protected weight bearing. The patient recovered fully after 6 months of follow-up, and he regained his normal gait.

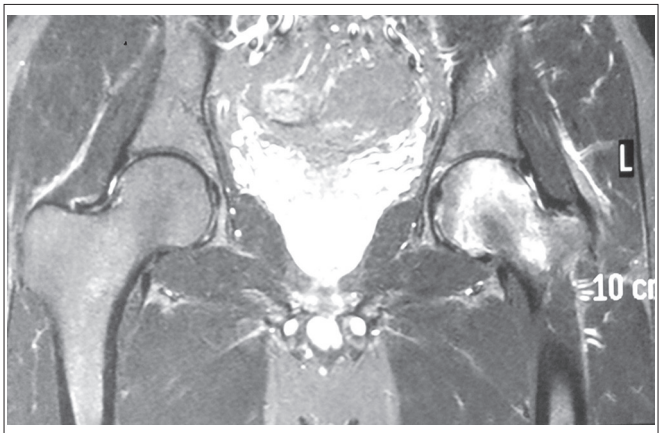

Figure 1: A coronal T2-weighted image with fat saturation shows diffuse high signal intensity in the left femoral head and neck with a joint effusion. These findings are typical of transient osteoporosis of the left hip.

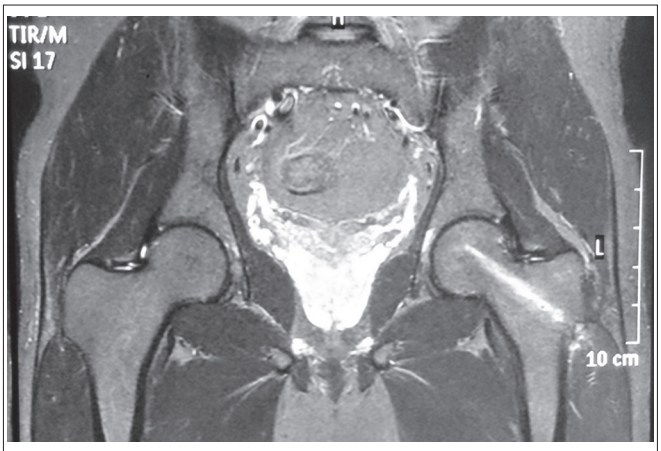

Figure 2: Repeat coronal T2-weighted image with fat saturation magnetic resonance imaging pelvis (post-core decompression) shows significant improvement in bone marrow edema.

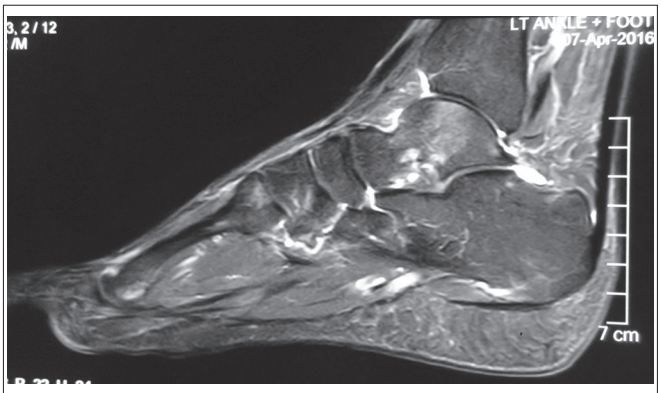

Figure 3: Magnetic resonance imaging left ankle joint showing mild joint effusion with high signal intensity on T2-weighted images consistent with transient osteoporosis of talus.

Discussion

Transient osteoporosis was first described by Curtiss and Kincaid in 1959 as transient demineralization of the hip in pregnant females. It was named "Transient osteoporosis of the hip" 9 years later by Lequesne [5] as an uncommon condition. It is called as regional migratory osteoporosis or TMO when another joint with similar clinical and radiological features appears [6].

TMO manifestations include acute pain and mild soft tissue swelling mostly in weight-bearing joints. The pain progresses rapidly and increases by weight bearing. It usually involves lower limb joints and few reports of upper limb involvement are published. The disease spreads through proximal to distal, and hip is the most commonly joint involved as the primary joint followed by the knee, ankle, and foot. The symptoms of the first joint subside over a few months period followed by involvement of another joint. Initial X-rays usually are not remarkable however computed tomography scan can show bone osteoporosis at this early stage. Enhanced radioisotope uptake in the affected areas observed in a bone scan. MRI shows BME features that increase signal intensity in T2-weighted sequences and decrease signal intensity in T1-weighted sequences. Low dietary intake of calcium and smoking was attributed as TMO risk factors [7]. Differential diagnoses of TMO include AVN, reflex sympathetic dystrophy (RSD), osteomyelitis, and septic arthritis. It is hard to differentiate TMO and AVN radiologically, but they have different associated risk factors. RSD is usually a clinical diagnosis and present as typical skin changes and muscle atrophy of the affected region. They present with a history of injury, and upper limb is more commonly involved [8, 9]. Infective pathologies such as septic arthritis and osteomyelitis can be ruled out by normal inflammatory blood markers.

TMO is a self-limiting disease with a spontaneousresolution. Therefore, conservative treatment and following up the patients are the best therapeutic strategies. Recommendations such as protected and limited weight-bearing and use of analgesics can result in complete resolution. Bisphosphonates and iloprost are effective medications [10, 11]. Surgical decompression can be reserved only for the conservative therapy-resistant patients [12]. Corticosteroids do not change the duration of the disease [13, 14].

Transient osteoporosis should be considered in any middle-aged male or a pregnant female presenting with a history of acute weight-bearing joint pain, with a history of smoking and without any history of trauma, especially, in patients with normal plain radiography and blood

tests. It is not uncommon to see this condition as under-diagnosed or mislabeled.

Conclusion

TMO should be considered as a differential diagnosis if the symptoms involve more than one joint over a period. It is important to diagnose TMO at an early stage itself as it is a self-limited and reversible condition with good prognosis. Moreover, this condition can emulate some irreversible conditions such as AVN and bone neoplasm which needs further invasive investigations and costly therapeutic strategies. In addition, the patient should be oriented about recurrent nature of the disease in the same or another weight-bearing joint.

Clinical Message

TMO is a self-limiting condition with good prognosis. The clinician should be aware of the recurrent nature of the disease in the same or another weight-bearing joint.

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