Shafa Ortho J. 2016 February; 3(1): e4098. doi: 10.17795/soj-4098

Published online 2016 February 20. **Case Report**

Regional Migratory Osteoporosis of the Hip and Talus

Mohammad Hasan Shahverdi,[1] Mostafa Salariye,[1,*] and Hosein Shokri[1]

[1]Bone and Joint Reconstruction Research Center, Shafa Orthopedic Hospital, Iran University of Medical Sciences, Tehran, IR Iran

*Corresponding author: Mostafa Salariye, Bone and Joint Reconstruction Research Center, Shafa Orthopedic Hospital, Iran University of Medical Sciences, Tehran, IR Iran. Tel: +98-9126212291; +98-2133542022, Fax: +98-2133542020, E-mail: m_salariye@yahoo.com

Received 2015 September 18**; Revised** 2015 November 15**; Accepted** 2016 January 22.

Abstract

Introduction: Transient osteoporosis of the hip (TOH) is a relatively rare disorder characterized by the loss of bone tissue in the proximal femur. Hip joint is the most common location of the disease, although it may also involve the knee, ankle or foot bones. Self-limited nature of the disease is characteristic with complete relief of symptoms occurring after 6 - 12 months.

Case Presentation: Authors report a case with transient osteoporosis of the hip and a clear migratory pattern of osteoporosis from the hip to talus bone in the ipsilateral foot. Spontaneous resolution of symptoms occurred in the patient and he was asymptomatic in the last follow-up.

Conclusions: It is important to consider TOH in the differential diagnosis of middle-aged males and young females with hip pain. It should be included in the differential diagnosis of patients with acute foot and ankle pain. The importance of recognizing this condition lies in its self-limiting nature, with spontaneous resolution in less than a year in the majority of cases. Consequently, invasive investigations may often be avoided in these patients.

Keywords: Regional Migratory Osteoporosis, Recurrence, Hip, Talus

1. Introduction

Bone marrow edema syndrome (BME) also known as transient osteoporosis of the hip (TOH) is an uncommon condition initially diagnosed in 1959 (1), affecting mostly middle aged males and rarely females in the third trimester of pregnancy. The etiology and physiopathology is not clear (2). The patient presents with progressive pain in hip or other weight bearing joints and usually with a decreased range of motion (3). It is also known as regional migratory osteoporosis (RMO), since many patients with an involved joint, developed the same symptoms in other joints (4). The most common involved joint at first presentation is the hip following by the knee (4).

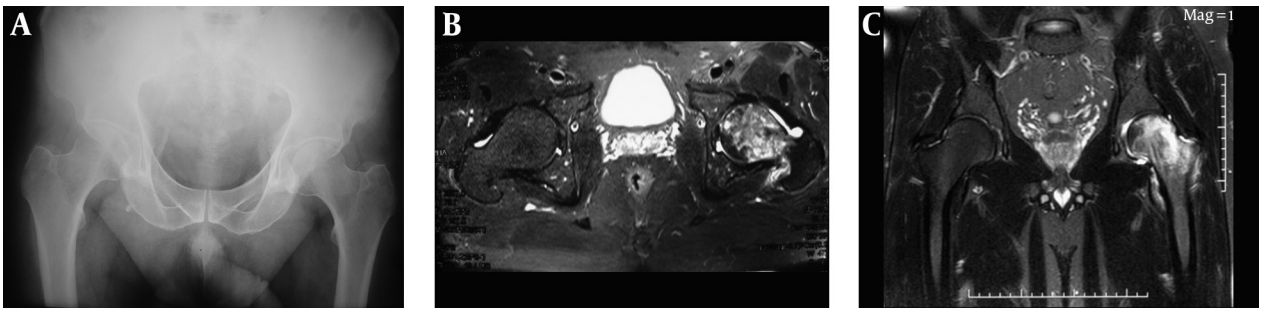
2. Case Presentation

The patient is a 60-year-old male who complained of a gradually increasing pain in his left hip joint, when he was walking, without a history of any preceding trauma. The pain decreased over night and with rest and had worsened over the blast two months, therefore, his walking became painful. The patient did not have any significant risk factors.

Hip joint tenderness and slightly reduced passive range of motion of the joint at terminal were found on physical examination. The plain radiography and blood tests were normal (Figure 1). Bone scintigraphy showed increased uptake of radioisotope in the left femoral head and neck (Figure 2). Resting, non-NSAIDs (nonsteroidal anti-inflammatory drugs) analgesia and protected weight bearing were recommended. The patient's hip pain improved completely after ten months and his walking was normal.

Five months after his full recovery, the patient represented with acute pain in his right ankle joint. He expressed that the pain was more severe than the previous hip joint involvement, and denied any history of precipitating event or trauma. The plain radiography and blood tests were normal. Magnetic resonance imaging (MRI) of his ankle joint demonstrated moderate joint effusion and severe deep soft tissue edema around the ankle with increased signal intensity on T2-weighted images and decreased signal intensity on T1-weighted images (Figure 3). The Findings were consistent with bone marrow edema syndrome. The patient received the same medications and recovered after six months.

Figure 1. Transient Osteoporosis of the Left Hip



A, Pelvic radiograph obtained in a 60-year-old male with hip pain shows normal findings; B, MR images showed a BME pattern in the left femoral head and neck; C, MR T2-coronal image revealed diffuse and homogeneous high signal intensity throughout the left femoral head and neck.

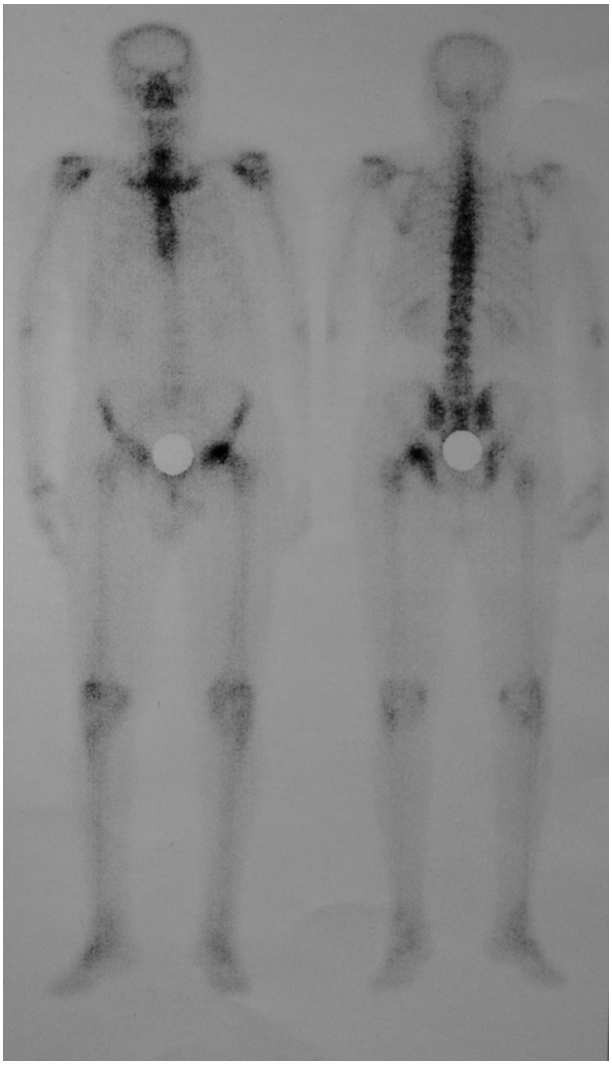


Figure 2. Anterior and posterior whole-body bone scan demonstrated obviously increased uptake in the left femoral head and neck.

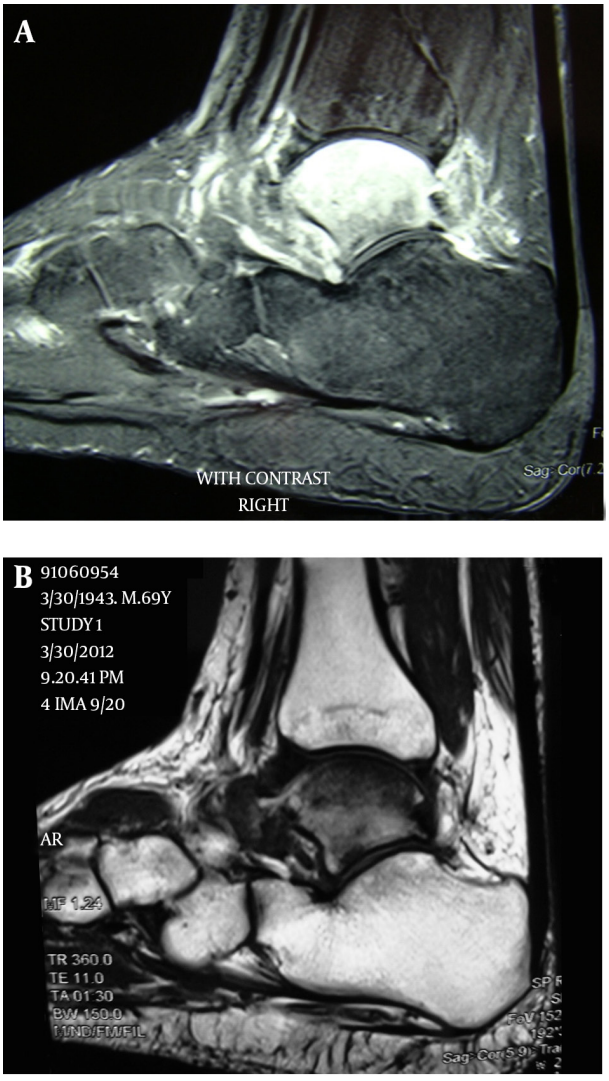


Figure 3. A, Lateral T2-weighted MRI showing increased signal intensity; B, lateral T2-weighted MRI showing decreased signal intensity in the talus. Bone marrow edema syndrome consistent with these findings.

3. Discussion

Transient osteoporosis first explained by Curtiss and Kincaid in 1959 as transient demineralization of the hip in pregnant females (1) and was named "Transient osteoporosis of the hip" nine-years later by Lequesne (5) as an uncommon condition without proved etiology and pathology. It is indicated as regional migratory osteoporosis (RMO) when another involved adjacent joint with similar clinical and radiological features appears (6).

RMO manifestations include acute pain, most frequently in weight-bearing joints with local soft tissue swelling that progress rapidly and increase by weight bearing which make walking painful and influence the patient gait. It usually involves lower limb joints and few reports of upper limb involvement are published. Disease spreads through proximal to distal and hip is the most commonly joint involvement as primary following by the knee, ankle and foot (4). Symptoms subside over a nine-month period and then RMO involves another region. The knee, ankle and the hip respectively, are the joints which RMO usually involves in the first recurrence (4). RMO demineralization radiography manifestations may not be observable in plain radiography at first but computed tomography scan can show bone osteoporosis at this stage. Enhanced radioisotope uptake is observed in bone scintigraphy. Magnetic resonance imaging shows bone marrow edema features that increase signal intensity in T2-weighted sequences and decrease signal intensity in T1-weighted sequences. Dietary of low calcium intake and smoking were recommended as RMO risk factors (7). Differential diagnoses such as avascular necrosis (AVN), reflex sympathetic dystrophy (RSD), osteomyelitis and septic arthritis should be considered. RMO and AVN might have the same radiological appearances at first, but they have typically different risk factors (7). RSD can be ruled out by its skin change features, muscle atrophy, history of injury and more involvement of upper limb (8, 9). Normal blood tests are indicators to exclude some causes such as septic arthritis and osteomyelitis.

RMO is a self-limited disease with a spontaneous resolution, 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. Bisphosphonate (alendronate) and iloprost are helpful medications (10, 11). Surgical decompression for conservative therapy resistant cases can be a good choice (12). It seems that corticosteroids do not change the duration of the disease (13).

When a middle-aged male or a pregnant female especially in the third trimester of pregnancy presented with a history of acute weight-bearing joint pain in the clinic, without any trauma and probably with a history of smoking who has normal plain radiography and blood tests, one of the conditions that should be considered is transient osteoporosis and most of the times it is underdiagnosed or mislabeled. It is important to consider migratory osteoporosis as a differential diagnosis in such patients since RMO is a self-limited, reversible and good prognosis condition that can emulate some irreversible conditions such as avascular necrosis and bone neoplasm which need invasive investigations and costly therapeutic strategies. Also the patient should be oriented about recurrence nature of the disease in the same or another weight-bearing joint.

References

1. Curtiss PJ, Kincaid WE. Transitory demineralization of the hip in pregnancy. A report of three cases. *J Bone Joint Surg Am.* 1959;**41-A**:1327–33. [PubMed: 13849487]
2. Samdani A, Lachmann E, Nagler W. Transient osteoporosis of the hip during pregnancy: a case report. *Am J Phys Med Rehabil.* 1998;**77**(2):153–6. [PubMed: 9558017]
3. Van Wagenen K, Pritchard P, Taylor JA. Transient osteoporosis of the hip: A case report. *J Can Chiropr Assoc.* 2013;**57**(2):116–22. [PubMed: 23754856]
4. Cahir JG, Toms AP. Regional migratory osteoporosis. *Eur J Radiol.* 2008;**67**(1):2–10. doi: 10.1016/j.ejrad.2008.01.051. [PubMed: 18355999]
5. Lequesne M. Transient osteoporosis of the hip. A nontraumatic variety of Sudeck's atrophy. *Ann Rheum Dis.* 1968;**27**(5):463–71. [PubMed: 4175667]
6. Banas MP, Kaplan FS, Fallon MD, Haddad JG. Regional migratory osteoporosis. A case report and review of the literature. *Clin Orthop Relat Res.* 1990;(250):303–9. [PubMed: 2403495]
7. Trevisan C, Ortolani S. Bone loss and recovery in regional migratory osteoporosis. *Osteoporos Int.* 2002;**13**(11):901–6. doi: 10.1007/s001980200124. [PubMed: 12415438]
8. Trevisan C, Ortolani S, Monteleone M, Marinoni EC. Regional migratory osteoporosis: a pathogenetic hypothesis based on three cases and a review of the literature. *Clin Rheumatol.* 2002;**21**(5):418–25. doi: 10.1007/s100670200112. [PubMed: 12223996]
9. Papadopoulos EC, Papagelopoulos PJ, Boscainos PJ, Paschaloglou D, Gandaifis ND, Kaseta M, et al. Bone marrow edema syndrome. *Orthopedics.* 2001;**24**(1):69–73. [PubMed: 11199358]
10. Miltner O, Niedhart C, Piroth W, Weber M, Siebert CH. Transient osteoporosis of the navicular bone in a runner. *Arch Orthop Trauma Surg.* 2003;**123**(9):505–8. doi: 10.1007/s00402-003-0532-x. [PubMed: 14605829]
11. Aigner N, Meizer R, Stolz G, Petje G, Krasny C, Landsiedl F, et al. Iloprost for the treatment of bone marrow edema in the hindfoot. *Foot Ankle Clin.* 2003;**8**(4):683–93. [PubMed: 14719835]
12. Hofmann S, Engel A, Neuhold A, Leder K, Kramer J, Plenk HJ. Bone-marrow oedema syndrome and transient osteoporosis of the hip. An MRI-controlled study of treatment by core decompression. *J Bone Joint Surg Br.* 1993;**75**(2):210–6. [PubMed: 8444939]
13. McCord WC, Nies KM, Campion DS, Louie JS. Regional migratory osteoporosis. A denervation disease. *Arthritis Rheum.* 1978;**21**(7):834–8. [PubMed: 697952]