



Case Report

Transient osteoporosis: Not just the hip to worry about

Nicola Berman, MD^{a,*}, Howard Brent^b, Gregory Chang^c, Stephen Honig^d^a Department of Rheumatology, Hospital for Joint Diseases, United States^b American University of the Caribbean, 901 Ponce de Leon Boulevard, Suite 700, Coral Gables, FL 33134, United States^c NYU Department of Radiology, 660 1st Avenue, New York, NY 10003, United States^d Department of Rheumatology, The Osteoporosis Center at NYU Hospital for Joint Disease, 301 East 17th Street, New York, NY 10003, United States

ARTICLE INFO

Article history:

Received 7 September 2016

Received in revised form 26 September 2016

Accepted 14 October 2016

Available online 15 October 2016

Keywords:

Transient osteoporosis

Transient osteoporosis of the hip

Transient osteoporosis of the knee

Bone marrow edema

High resolution 7 T MRI

ABSTRACT

Transient osteoporosis (TO) is a clinical syndrome characterized by joint pain and the presence of bone marrow edema on magnetic resonance imaging (MRI), both of which spontaneously resolve over time. Transient osteoporosis most commonly affects the hip, but also may involve other lower extremity sites. TO likely represents a disorder that may be monoarticular or “migratory” with involvement of two or more lower extremity sites sequentially affected over a number of months. We report on two cases of transient osteoporosis, one involving the knee and one involving the hip, demonstrating the utility of serial bone mineral density measurements at both sites. Additionally, we are able to report on the microarchitectural changes seen at the distal femur on ultra-high resolution (7 T) MRI. Case #1 describes a recurrence of transient osteoporosis of the hip three years after a similar presentation at the contralateral hip and highlights the findings of rapidly changing bone mineral density in this clinical syndrome. In contrast to the spine, hip and forearm, peripheral bone density measurements at the knee are rarely reported and to our knowledge Case #2 represents the first report of transient osteoporosis of the knee demonstrating bone density findings similar to that seen in the hip. We postulate that transient osteoporosis of the knee is part of a clinical spectrum most commonly seen in the hip and one that is marked by lower extremity joint pain, bone marrow edema on MRI and transient decreases in bone mineral density all of which spontaneously resolve without sequelae.

Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction¹

Transient osteoporosis (TO) is characterized by self-limited joint pain and by the presence of bone marrow edema on magnetic resonance imaging (MRI). TO most commonly affects the hip², but has also been reported to involve the knee, ankle and foot (Zabalbeascoa et al., 1999). The presence of bone marrow edema (BME)³ on MRI is non-specific and is commonly reported in many conditions that affect the knee (Suresh et al., 2009). We hypothesize that in many cases, BME on MRI actually represents unrecognized TO, and that TO of the knee is more common than previously reported, since a lack of clinical awareness of TO by many health care providers may lead them to misdiagnose subjects with severe, atraumatic knee pain. We propose that TO of the knee is a manifestation of the same process that occurs in the hip.

Moreover, we postulate that the migratory nature of this syndrome as seen in some patients is a reflection of a disorder that may involve one or more joints with the hip being the most common site. In the absence of osteonecrosis, osteoarthritis or meniscal tears, TO of the knee should be strongly considered in the presence of BME, especially when the clinical manifestations subsequently resolve spontaneously. We present two cases of TO, one at the hip and one at the knee, to highlight the transient and self-resolving nature of this disorder and to demonstrate how advances in imaging and targeted bone mineral density tests can distinguish TO from other causes of BME.

2. Case #1

A 35-year-old male presented to the NYU-Hospital for Joint Disease Osteoporosis Center with progressive pain in his left hip, limiting his ability to ambulate. He denied any antecedent event or trauma preceding the onset of pain. Initial X-rays showed marked demineralization of the left femoral head and neck. A subsequent MRI revealed diffuse bone marrow edema of the left femoral head and neck with a suggestion of a possible subchondral fracture and a moderate hip joint effusion. Bone densitometry of the left femoral neck revealed a BMD of 0.783 g/cm²

* Corresponding author.

E-mail addresses: Nicola.berman@nyumc.org (N. Berman),Howardbrent@students.aucmed.edu (H. Brent), Gregory.chang@nyumc.org (G. Chang),Stephen.honig@nyumc.org (S. Honig).¹ Transient Osteoporosis (TO).² Transient Osteoporosis of the Hip (TOH).³ Bone Marrow Edema.

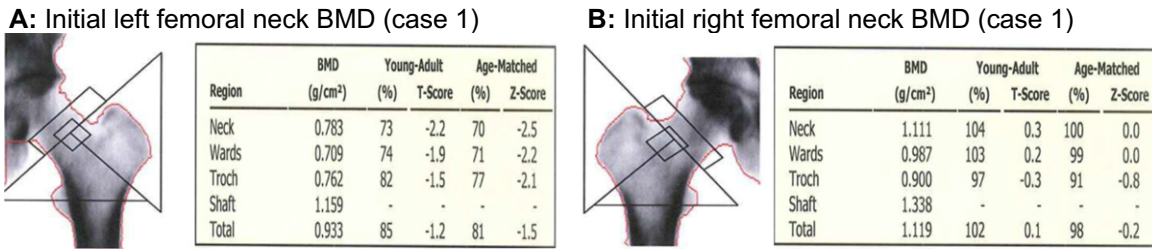


Fig. 1. A: Left femoral neck BMD of 0.783 g/cm² and a T-score of -2.1; B: Normal right femoral neck bone density of 1.111 and a T score of +0.

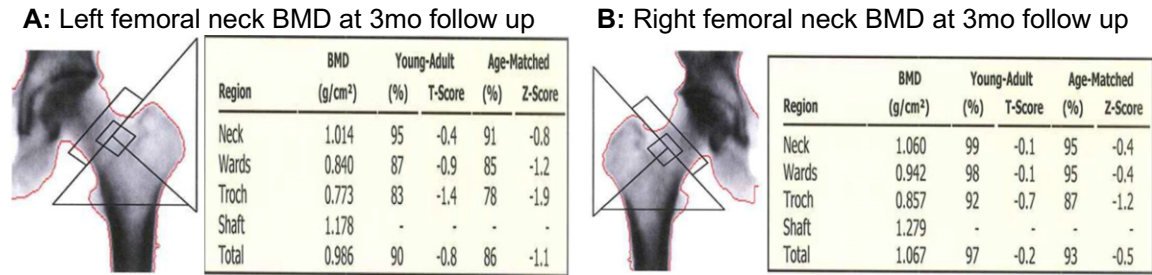


Fig. 2. A and B: Repeat BMD testing at 3 months revealing normal left and right femoral neck bone density.

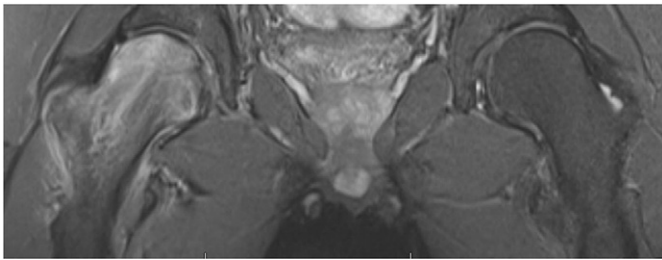


Fig. 3. MRI of right hip revealing diffuse bone marrow edema.

and a Z-score of -2.5, compared with a normal right femoral neck bone density of 1.111 with a Z score of +0.0 (Fig. 1 A and B). A diagnosis of TO was made and the patient was empirically started on risedronate 35 mg once weekly, which he used weekly for twelve weeks. Additionally, he was started on calcium and vitamin D supplementation. Repeat radiographs after three months showed complete remineralization of the femoral head and neck. A repeat bone mineral density test now showed a normal left femoral neck bone mineral density of 1.014 g/cm² and a Z score of -0.8. His right femoral neck bone density remained normal (Fig. 2 A and B). At that time, the patient reported complete resolution of his symptoms and was able to proceed with pain-free weight bearing.

Three years later, the patient developed a peroneus tendinitis of his right foot that required him to wear a cam walker. Within one month, he developed severe pain in his right hip and he was unable to bear weight on his right foot. Radiographs of the right hip were

unremarkable. An MRI revealed diffuse bone marrow edema (Fig. 3) and a minimally depressed subchondral fracture at the anterosuperior femoral head, similar to the changes seen in the left hip three years prior. A bone density test revealed a right femoral neck BMD of 0.836 g/cm² with a Z score of -2.0. His left femoral bone density was normal (Fig. 4 A and B). He was again empirically treated with a three month course of risedronate. His pain resolved completely two months after onset.

2.1. Case #2

A 64-year-old, previously healthy male presented to his orthopedic surgeon with a two-week history of progressively increasing left knee pain. He localized the pain to the lateral aspect of the distal femur and complained that the pain increased after sitting for prolonged periods and with stair climbing. He denied any trauma to the knee but had recently increased his exercise regimen and reported that he had been running on a treadmill more frequently than he had previously done. A radiograph of the knee was unremarkable. An MRI of the left knee revealed marked bone marrow edema as well as a focal subchondral fracture in the weight-bearing region of the lateral femoral condyle (Fig. 5). In addition, a high-resolution 7 T MRI of his left distal femur revealed deterioration in bone microarchitecture (manifested by trabecular loss and disruption), as compared to the right. (Fig. 6). A regional knee bone mineral density test showed his left lateral femoral condyle BMD to be 0.96 g/cm². Additional routine evaluation including ensuring adequate levels of 25-dihydroxyvitamin D, did not yield any abnormalities or areas for possible intervention. The patient did continued with

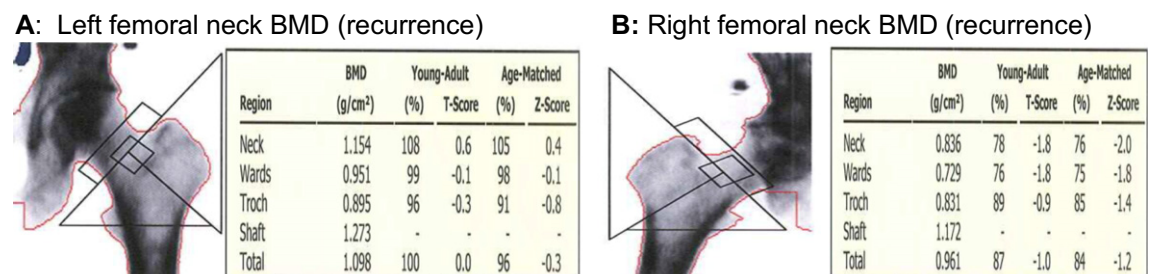


Fig. 4. Repeat BMD when patient presented with right hip pain. A: Normal left femoral neck BMD. B: Right femoral neck BMD of 0.836 g/cm² with a T score of -1.8.

Download English Version:

<https://daneshyari.com/en/article/8627740>

Download Persian Version:

<https://daneshyari.com/article/8627740>

[Daneshyari.com](https://daneshyari.com)