



Transient osteoporosis of the hip in pregnancy: a report of three cases

Gebelikte geçici kalça osteoporozu: Üç olgu sunumu

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Geçici kalça osteoporozu (GKO), etyolojisi halen tam olarak ortaya konamamış nadir bir hastalıktır. Genellikle orta yaş grubundaki erkeklerde ve üçüncü trimester gebelerde kalça ağrısıyla seyreden bu durum kendiliğinden iyileşir. Gebeliklerinin üçüncü trimesterinde başlayan tek taraflı kalça ağrısı nedeniyle başvuran üç hastaya klinik muayene ve radyolojik incelemeler sonucunda GKO tanısı kondu. Tüm hastalara ilk bir ay tam yatak istirahati, ardından klinik düzelme tamamlanana kadar koltuk değneği ile hareket önerildi. Ek olarak, üç ay süreyle non-steroidal antiinflamatuar ilaç (diklofenak sodyum, 100 mg/gün) uygulandı. Hastalar klinik ve radyolojik açıdan en az 24 ay süreyle izlendi. Klinik düzelme bir hastada tedavinin başlangıcından sonra üçüncü ayda, iki hastada ise altıncı ayın sonunda tamamlandı. Radyolojik iyileşmenin tamamlanması ise tüm hastalarda 12. ayın sonuna kadar devam etti.

Anahtar sözcükler: Kalça eklemi/radyografi; osteoporoz/radyografi/tedavi; gebelik komplikasyonları/radyografi/tedavi.

Transient osteoporosis of the hip is a rare disease of unknown etiology. It is usually seen in middle-aged men and women in the third trimester of pregnancy and is associated with hip pain. It typically runs a benign course with eventual resolution of symptoms. We report three patients who presented with unilateral hip pain that started in the third trimester of pregnancy. Diagnosis of transient osteoporosis of the hip was made with the help of clinical and radiologic studies. Treatment was comprised of pain control therapy with diclofenac sodium (100 mg/day) for three months, bed rest for a month followed by mobilization with a walking aid. The follow-up period was at least 24 months. Clinical improvement occurred in the third month in one patient, and at the end of six months in the remaining patients. Complete radiologic improvement was seen at the end of 12 months.

Key words: Hip joint/radiography; osteoporosis/radiography/therapy; pregnancy complications/radiography/therapy.

Transient hip osteoporosis (THO) is a rare cause of hip pain. It usually develops in middle-aged men, and women who are in the third trimester of pregnancy.^[1,2] The etiologic factors are still unknown, and the condition eventually resolves symptomatically and radiologically.^[1-5]

Presentation of cases

Case 1 – The twenty-seven years old patient, who was in the third trimester of pregnancy was evaluated in consultation with the orthopedics department due to

pain in her right hip detected by the obstetrics polyclinic. The pain, which had progressively increased in the last two months of pregnancy, was not preceded by any history of trauma. Orthopedic examination showed that the motion of the right hip was painful and limited. The initial Harris hip score was found to be 75 (poor). Directography (standard antero-posterior and frog-leg lateral hip views) revealed osteopeny and demineralization in the femoral head and neck; magnetic resonance imaging (MRI) showed effusion, and signal changes decreased in T₁-weighted, and

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increased in T_2 - weighted sequences (Figure 1a-c). The entire body bone scintigraphy (technetium 99m isotope) exposed increased diffuse homogeneous density in the proximal femur (Figure 1d). In addition diagnostic laboratory tests (leucocytes, sedimentation, C-reactive protein, PPD test, Brucella Ig test) were normal. Diagnosed with transient hip osteoporosis, the patient was recommended to take a complete bed rest for the first month, followed by mobilization with a walking aid, without putting weight on the extremity involved. Also, a three-months treatment of non-steroidal anti-inflammatory drug (NSAIDs) (diclofenac sodium, 100 mg/day for three months) was initiated. The follow-ups were planned for once a month during the first three months, once every three months until the end of the first year and then once a year. The hip pain of the patient seemed to decrease by the end of the three-month follow-up, and completely dissolve by the end of month 6. Also, during this period, the motion range of the hip returned to normal again. The partial radiological improvement seen in the sixth month was completed by the end of month 12. The Harris hip score of the patient, who was

asymptomatic in the last follow-up (month 24), was 94 (very good).

Case 2 – A twenty-nine years old patient presented to our polyclinic one month after the delivery due to the pain in her right hip. The pain that had started and proceeded mildly during the last two months of pregnancy gradually became severe and began to limit the motion range of the hip. During the orthopedic examination, the Harris hip score of the patient, who had painful and limited motion range during the examination, was found to be 68 (very poor). The standard hip views revealed osteopeny and demineralization in the femoral head and neck while the motion range of the joint was evaluated as normal. The magnetic resonance imaging showed no effusion in the proximal femur, but the signal density decreased in T_1 - weighted and increased in T_2 -weighted sequences (Figure 2a, b). Entire body bone scintigraphy showed diffuse and increased homogeneous intensity. The laboratory analyses were normal. The recommended treatment was bed rest, followed by mobilization with a walking aid, and initiation of NSAIDs (100 mg/day diclofenac

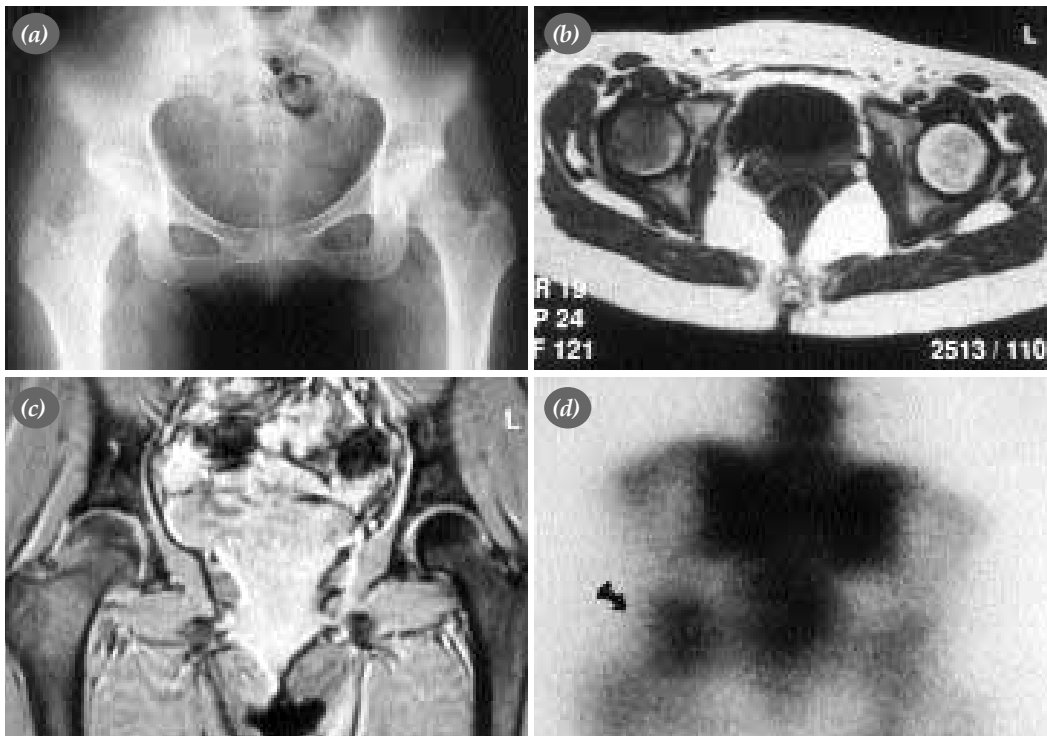


Figure 1. In case number one, (a) standard antero-posterior view showed osteopeny and demineralization in the femoral head and neck; while MRI revealed effusion, and (b) change in signals as decrease in T_1 -weighed sequences and (c) increase in T_2 -weighed sequences. (d) The entire body bone scintigraphy showed increased homogeneous density in the proximal femur.

sodium for three months) treatment. At the end of the third month, the pain was resolved; and the motion range of the hip returned to normal. The radiological changes, which started to improve at the end of month 6, had completely disappeared by the end of month 12. The Harris hip score of the patient, who was asymptomatic in the last follow-up (month 24), was 92 (very good).

Case 3 – A twenty-nine years old patient presented within the first month of delivery due to the pain in the her left hip. The pain, which had started in the last trimester of pregnancy, had gradually increased. The pain was severe, and the motion range of the hip was highly limited. The Harris hip score was found to be 72 (poor). The directography showed a normal hip-joint intermediate space, but osteopeny and demineralization in the femoral head and neck. The magnetic resonance imaging revealed that signal density decreased in T₁-weighted sequences and increased in T₂-weighted sequences. The entire body bone scintigraphy showed increased diffuse homogeneous density. The laboratory analyses were normal. This patient was also advised to take a bed rest followed by mobilization with a walking aid, and NSAID (100 mg/day diclofenac sodium for three months) treatment was initiated. The hip pain, which started to resolve at the end of the third month, had disappeared by the end of month 6, and the motion range of hip returned to normal. The radiologic changes had completely dissolved by the end of month 12. The Harris hip score was found to be 96 (very good) in the last follow-up (month 24).

Discussion

The exact etiology of transient hip osteoporosis is still unknown. No etiology was found in 25 % of the reported cases^[1-5] while half of the remaining cases were reported as having been to a trauma. Other triggering factors proposed are neuralgia, herpes zoster, hemiplegia and vascular disorders.

The transient hip osteoporosis is clinically evaluated in three phases. In the first phase which lasts for one to two months, there is accelerating hip pain and disorder in the functions of the joint. In the second phase, which lasts for two to three months, clinical symptoms become prominent. Radiologically there are diffuse osteopeny and demineralization in the bone, but no constriction in the joint intermediate space. The third phase corresponds to a period including the six months after the emergence of symptoms and where the symptoms are gradually regressed. The radiological improvement may last longer^[4,5].

The diagnosis should also be made with avascular necrosis, septic arthritis and malignancies. The history, physical examination, radiological analyses, laboratory tests and clinic course of the condition are also important in diagnosis. The diagnosis of septic arthritis was eliminated as a result of prominence of hip pain and limited motion range advanced in a one-to-two months period instead of an acute emergence; absence of infectious findings such as high fever, leucocytosis, sedimentation and high C-reactive protein; presence of radiological changes in the proximal femur; and a normal joint intermediate

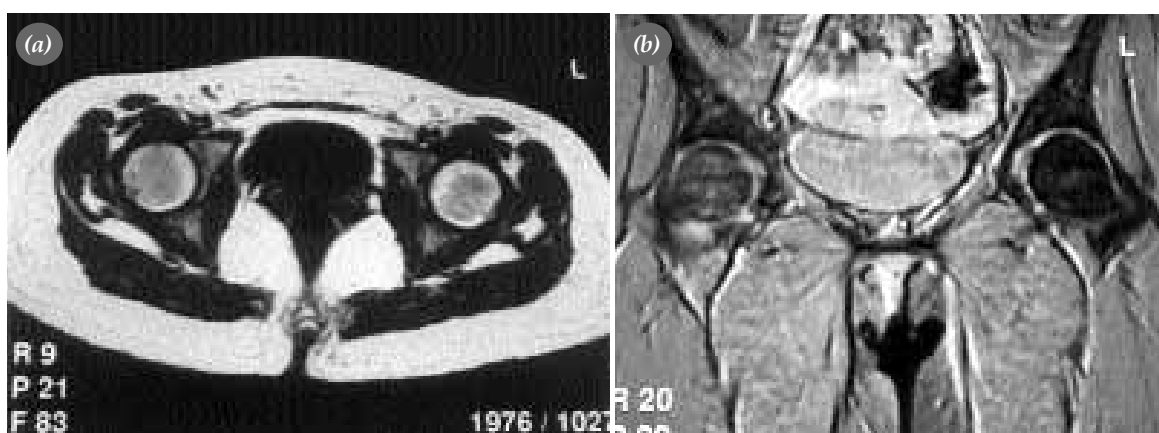


Figure 2. In case number 2, MRI showed no effusion in the proximal femur, but signal density (a) decreased in T₁-weighed sequences, and (b) increased in T₂-weighed sequences.

space. Similarly, absence of systemic findings (high fever, high sedimentation, weakness, weight loss) and results of radiological analyses excluded tumoral involvement in our cases.

It may be difficult to discriminate between transient hip osteoporosis and avascular necrosis. The radiological analyses is very helpful in discriminating these two problems from similar clinic presentations. The involvement in the transient hip osteoporosis usually diffuses into the proximal femur (head-neck, sometimes intertrochanteric region), as it was in all cases presented, and the lesion is homogeneous. However, in avascular necrosis there is no homogeneity, and the involvement is segmental or focal in the anterosuperior (subchondral) region of the femoral head.

The osteopeny observed in the femur proximal by directography is very typical of THO. And, the subchondral collapse (sign of half-moon), which particularly develops in the advanced phases of avascular necrosis and which is pathognomonic in this condition is not seen in THO [3-7]. The directographies of the cases presented showed osteopeny and demineralization in the femoral head and neck. The scintigraphic evaluation revealed a diffuse, homogenous activity increase in the proximal femur [4,5,8-11] while in avascular necrosis, the increased activity is at the femoral head and cold points (decreased activity areas) can be found in the anterosuperior of the head [4,5]. The entire body bone scintigraphy of our cases showed diffuse and homogenous increase in the density in the proximal femur. The MRI findings, which result from the increased oedema in the proximal femur, are very well defined in the transient hip osteoporosis; the signal density is decreased in T₁-weighed sequences, and increased in T₂-weighed sequences. It was demonstrated that the directography, MRI and scintigraphy results of the cases were in tandem with THO as it was described in the literature.

Another major issue in discriminating between the transient hip osteoporosis and avascular necrosis is the remarkable difference in their clinical courses. The first usually has a benign course; the development of the condition is limited, and it resolves itself

symptomatically and radiologically a few months after its occurrence. However, the clinical and radiologic presentations always get worse in avascular necrosis. The treatment approach is different for each condition due to the diversity in their prognosis; THO can improve within a few months by preventing the hip to bear any weight, but avascular necrosis usually requires surgical treatment. [4] The clinical course of our cases conformed to the literature, and complete clinic and radiologic improvement was achieved in all of them, following the conservative treatment.

In conclusion, THO must be considered in the differential diagnosis of the patients with hip complaints during the third trimester of their pregnancy, and it should be kept in mind that a conservative approach is efficient in the treatment of this condition.

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