

## Case Report

# Transient osteoporosis of the hip associated with pregnancy: case report

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### ABSTRACT

Transient osteoporosis of the hip associated with pregnancy is a clinical condition with an unclear etiology seen in pregnant women in the 3<sup>rd</sup> trimester that may lead to severe pain and disability. In this article we present a case getting transient osteoporosis associated with pregnancy based on clinical and radiological findings and discussed it under the guidance of the literature.

**Keywords:** Bone mineral density, Osteoporosis, Pregnancy

## INTRODUCTION

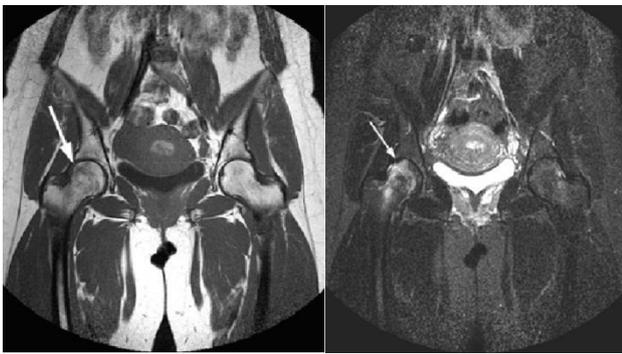
Transient osteoporosis of the hip associated with pregnancy (TOHAP), is a rare musculoskeletal disease with an unknown etiology occurring in the third trimester of pregnancy. First, it was described by Curtiss and Kincaid in 1959.<sup>1,2</sup> General prevalence is not known but in a series it was reported that it was observed in only one subject among 4900 pregnant woman.<sup>3</sup> It's usually unilateral and mostly observed at the right side.<sup>4</sup> It's bilateral in 25-30% of patients.<sup>5</sup> Its pathogenesis is not clear, however, minor trauma, trabecular micro fractures due to decreasing bone density, pelvic sympathetic or obturator nerve compression resulting from uterus enlargement or physiologic changes observed in pregnancy were considered as responsible.<sup>6</sup> Progressive hip groin and anterior thigh pain may be seen clinically. Migratory types are also described involving feet, ankle and knee joints.<sup>2</sup> Hip pain may be seen in 38% of pregnant women; thus, differential diagnosis is important.<sup>7</sup> In differential diagnosis osteonecrosis, infection, fractures and malignancies should be considered.<sup>8</sup>

## CASE REPORT

26 years old female patient has referred to our clinic because of right hip pain starting in Week 34 of her first pregnancy and increasing gradually and continuing up to post-partum 15<sup>th</sup> day. She reported that she felt the pain in anterior aspect of thigh and there was an increase in pain with increasing load. In medical history there was no known disease, no chronic drug use, no smoking or alcohol use and no history of trauma. Physical examination of the patient revealed minimal restriction in right hip external rotation and painful hip movements in all directions. VAS (visual analogue scale) score of the hip pain was 8. There was antalgic gait pattern. Nerve tension tests were negative. Neurological exam was normal.

Anteroposterior pelvic radiography has shown asymmetrical osteopenia in right hip. MRI images of the right hip has shown weak intensity loss that doesn't disrupt bone cortex integrity in femoral head and femoral neck in T1 weighted images and hyper intense areas suggesting bone marrow edema in fat saturated T2

weighted images (Figure 1). There was no effusion in hip joint space. Laboratory tests were normal. The diagnosis as the result of clinical and radiological evaluations was transient osteoporosis of the hip associated with pregnancy. A physical therapy schedule consisting from rest, walker support, paracetamol 2000 mg/day, Transcutaneous Electrical Nerve Stimulation (TENS) to right hip for 15 séance and isometric exercises was recommended. During the control of patient in the end of 1<sup>st</sup> month pain reduction was observed. VAS score was 4. At 3-months control antalgic gait of the patient has regressed. Hip joint range of motion was painless. VAS score was 1. Normal appearing MRI images were observed at 3-months and previous signal intensity changes in right hip femoral head and femoral neck were resolved (Figure 2).



**Figure 1: MRI images of the right hip has shown weak intensity loss that doesn't disrupt bone cortex integrity in femoral head and femoral neck in T1 weighted images and hyper intense areas suggesting bone marrow edema in fat saturated T2 weighted images.**



**Figure 2: Normal appearing MRI images were observed at 3-months and previous signal intensity changes in right hip femoral head and femoral neck were resolved.**

## DISCUSSION

There are numerous conditions associated with musculoskeletal system during pregnancy, particularly in back and pelvic area.<sup>9,10</sup> This may lead to misconception that pain occurring in pregnant women is usually

physiologic or normal. Thus, to be informed about pathological conditions that may occur during pregnancy is important. TOHAP is a clinical condition that may lead to severe disability and should be kept in mind, particularly in pregnant women having acute onset hip pain with a progressive course. 2/3 of the patients affected from this disease are primipar.<sup>7</sup> Advanced age and multiple pregnancy may increase the risk for the disease.<sup>11</sup> In our patient the disease was developed during the first pregnancy and multiple pregnancy or advanced age is not present.

TOHAP is usually self-limiting disease within several months.<sup>7</sup> Spontaneous hip fracture may be observed in these patients, though rare. Spontaneous fractured may occur during pregnancy (41%), birth (3%) and lactation (56%).<sup>12</sup> The most common areas of hip fractures are femoral head and acetabulum. There are nearly 90 cases with reported fracture in the literature.<sup>8</sup> Since there is risk of hip fracture because of the position during normal birth, caesarean section is recommended in various cases.<sup>13,14</sup> Excessive flexion, external rotation and abduction motions especially during dorsal lithotomy position may increase the risk for fracture in these patients.<sup>15</sup> In our patient there was no spontaneous fracture. At 3-months there was marked improvement in clinical and radiological findings.

MRI examination is relevant in TOHAP diagnosis and differential diagnosis. MRI is considered as a safe method, particularly during pregnancy and it's a valuable non-invasive method in terms of early diagnosis and exclusion of other pathologies.<sup>16</sup> In TOHAP MRI reveals low signal intensity at T1 sequences indicating bone marrow edema of femur head and femur neck and high signal intensity at T2 sequences; on the other hand it's known that in pathologic conditions with similar clinical symptoms such as avascular necrosis further signal intensity changes are localized at femur head anterosuperior and there are pathognomonic radiological findings (half-moon sign) due to subchondral collapse.<sup>17</sup> MRI was used for differential diagnosis in our patient and only signal changes due to bone marrow edema at femur head and femur neck were observed. In studies bone lesion size observed in the MRG and duration of symptoms were found to be correlated.<sup>18</sup> In our patient edema at femur head and femur neck in MRI was limited to a small area; thus duration of symptoms was shorter.

Analgesic medications, unloading, walker support and physical therapy and rehabilitation techniques are recommended for TOHAP treatment.<sup>4</sup> As analgesic medication acetaminophen which is commonly used in pregnant women and accepted as a safe drug is recommended.<sup>19</sup> In the literature there are some cases treated with bisphosphonate and calcitonin, calcium, vitamin D, steroids and surgical therapies.<sup>8</sup>

Transient osteoporosis of the hip associated with pregnancy is a rare condition and is an important reason

for disability. Thus, early diagnosis is important in order to allow necessary measures to be taken. In patients with an early diagnosis, conservative treatment options are usually enough.

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