

SUBCAPITAL FRACTURE OF THE HIP IN TRANSIENT OSTEOPOROSIS OF PREGNANCY

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Transient osteoporosis of the hip (TOH) is an unusual self-limiting skeletal disorder of unknown etiology, characterized by pain in the hip and radiographic osteopenia of the femoral head and neck. TOH usually occurs during the third trimester of pregnancy. It was first described by Curtiss and Kincaid in 1959 [1], and Lequesne [2] coined the term “transient osteoporosis” in 1968. To our knowledge, there are no data on the incidence of TOH during pregnancy and the early postpartum period [3]. Its clinical diagnosis can be difficult and the symptoms are often initially misinterpreted. Pathologic fracture is considered to be the most serious complication of this disorder.

A 29-year-old, gravida 1, para 0, Caucasian woman was admitted to hospital at 40 weeks' gestation for amniorrhexis. She had no medical history of hyperthyroidism, Cushing syndrome, liver or renal disease, and no history of corticosteroid, anticonvulsant or anticoagulant therapy. She was a non-smoker. There had been no recent episode of trauma. The pregnancy had been correctly controlled. For 4 weeks previously, the patient had experienced gradually increasing pain in the left buttock, groin and thigh, radiating to the left knee. These symptoms were present when the patient was at rest and were exacerbated by activity. Ten hours after admittance, an instrumental vaginal birth by vacuum extraction was performed under epidural analgesia. This was shortly followed by the development of more severe pain in the left hip during the early postpartum period. The patient weighed 99 kg and was 172 cm tall. The left leg appeared shortened and externally rotated. Active and passive ranges of motion of the hip were decreased with functional disability. The Lasègue test was negative and the left rotulian reflex was decreased. The results of full blood count, sedimentation rate, calcium phosphate, alkaline phosphatase,

liver function tests and renal function tests were normal. An anteroposterior radiograph of the pelvis revealed a completely displaced subcapital fracture of the left femur with osteopenia of the proximal part of the femur from the lesser trochanter proximally (Figure 1). External traction was applied until definitive surgical treatment was performed. The patient underwent a cementless total hip arthroplasty 2 months after delivery. Histopathologic studies revealed osteoporotic signs with regressive and reparative areas in the femoral head. The patient was given a calcium and vitamin D (400 IU) supplement twice a day and bisphosphonates once a week. The clinical and radiologic evolutions were satisfactory. Radiographs of the hip 6 months postoperatively showed a correctly placed prosthesis (Figure 2), and the patient was walking without a limp 9 months after delivery.

Transient osteoporosis is a self-limiting syndrome that can affect men and women during the fourth or fifth decade of life, but is more frequent in women during the last trimester of pregnancy. Two-thirds of cases appear in primiparas [3]. It usually affects the hips (76%) and, rarely, the knees, ankles or feet [4].



Figure 1. Postpartum anteroposterior radiograph of the pelvis showing a displaced subcapital fracture of the left hip and osteopenia of the proximal part of the femur.



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Accepted: June 17, 2008



Figure 2. Postoperative radiograph showing total hip replacement of the left hand side.

The physiologic changes associated with pregnancy play a role in its pathogenesis, as they can produce osteoporosis and can also cause deterioration of a pre-existing osteopathy, due to increased bone remodeling during the third trimester of the pregnancy [5,6].

The clinical presentation is progressive pain, localized to the trochanter, groin and anterior part of the thigh, with no history of trauma. The active and passive motion ranges of the hip are often normal. The pain is aggravated by using the limb and causes functional disability. It progresses over a variable period of 4–8 weeks [3] and gradually subsides over a period of 3–6 months.

Hip pain is reported by 38% of pregnant women [3]. The diagnosis of TOH must be made by exclusion. The differential diagnoses include avascular necrosis, reflex sympathetic dystrophy, osteomyelitis, neoplasm, stress fractures, inflammatory joint disease, and synovial osteochondromatosis.

Laboratory findings are usually within the normal ranges. Radiographic changes occur during the first 4–8 weeks after the onset of symptoms, revealing diffuse osteopenia with preservation of the joint space. Skeletal scintigraphy shows increased homogeneous radiotracer uptake in the affected area. Magnetic resonance imaging is the preferred imaging technique [7]. It reveals bone marrow edema with low signal intensity on T1 and high signal intensity on T2. Dual energy X-ray absorptiometry shows decreased bone mineral density [3].

The symptoms usually resolve within the first 2 postpartum months, and radiographic findings return to normal over a 3- to 6-month period. Recurrence in subsequent pregnancies is rare [8].

Since TOH is self-limiting, the mainstay of treatment remains analgesia, protected weight bearing, traction, and physiotherapy. Remineralization is expected within

2 months postpartum. Some case reports have shown an accelerated improvement with infusions of bisphosphonates and calcitonin [9,10]. Surgical core decompression has also been performed with prompt beneficial effects on symptoms [11], but it is an invasive procedure that should be reserved for refractory cases. Femoral neck fractures are a very rare consequence of TOH and usually require surgical treatment. There are some reports of healing subcapital fractures with minimal displacement, treated by protective weight bearing [12]. If the fracture is not dislocated, internal fixation can be performed. If a displaced fracture is diagnosed, internal fixation or a total hip replacement is required. In our case report, a displaced subcapital fracture was treated by a total hip arthroplasty.

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