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Case report

Acute knee pain in pregnancy. Case report of Regional Transient Osteoporosis

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ABSTRACT

The article presents the case of a patient who after her first pregnacy, during the immediate postpartum period, suffered a femoral supracondylar fracture complicated by bone marrow edema syndrome (BMES), also known as regional temporary osteoporosis (RTO). The fracture of the distal femur was treated with an open reduction and internal fixation of the distal femur by means of a minimally invasive procedure.

Gonalgia aguda en el embarazo: reporte de un caso de osteoporosis regional transitoria

Palabras clave:
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Síndrome de edema de médula ósea
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RESUMEN

Se presenta el caso de una paciente que en el posparto inmediato de su primer embarazo sufrió una fractura supracondílea del fémur en el contexto de una osteoporosis regional transitoria (ORT), tratada mediante reducción y osteosíntesis por técnica mínimamente invasiva (MIPO).

Introduction

Regional transient osteoporosis (RTO) is an uncommon bone alteration, usually self-limited, with a currently unknown exact etiology.[1] The most common localization of this problem is the hip, with a lesser degree of affection on the knee.[2,3] A common complication is the appearance of pathologic fractures.[4]

Case report

Anamnesis

A 32-year-old woman with no history of importance or toxic habits came to the clinic during her fifth month of pregnancy due to the sudden onset of pain and the inability to use the right knee. She had no history of trauma. Pain was irradiated to the leg and increased with walking and prolonged standing.

She had come to the ER on two occasions prior with the same symptoms; she had been treated conservatively with analgesics, anti-inflammatory drugs and relative rest, after ruling out an x-ray due to her pregnancy. Symptoms did not improve and three days after delivery she came to the ER again, sent by a traumatologist.

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Physical examination

Right knee-swelling, pain upon palpation of both femoral condyles and the internal joint line, limited flexion and extension due to pain, discrete patellar crepitation, no ligament instability. Distal neurovascular examination was normal.

Complementary tests. The initial x-rays showed diffuse radioopacity of the metaphysis and distal femoral epiphysis, with no fracture lines; the joint space remained normal (Figure 1). Magnetic resonance (MR) showed extensive bone edema of the distal femoral epiphysis, especially on the external condyle, with a reduction in T1 signal and an increase in T2, in addition to a diffuse joint effusion (Figure 2).

Hours after these test the patient fell spontaneously, with immediate onset of intense pain and functional limitation of the right knee. X-rays showed a right femoral suprachondyleal pathological fracture (Figure 3).

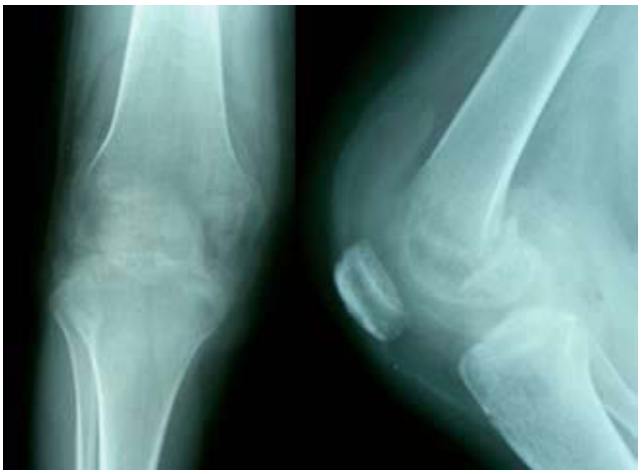

Figure 3. Pathological supracondyleal fracture, with intense femoropatellar and tibial radio-opacity, with no significant soft tissue alterations.

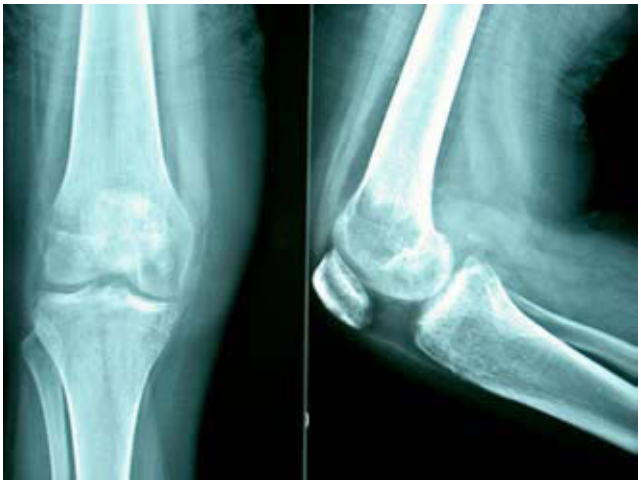

Figure 1. Diffuse radiopacity of the metaphysis and distal femoral epiphysis with no signs of fracture.

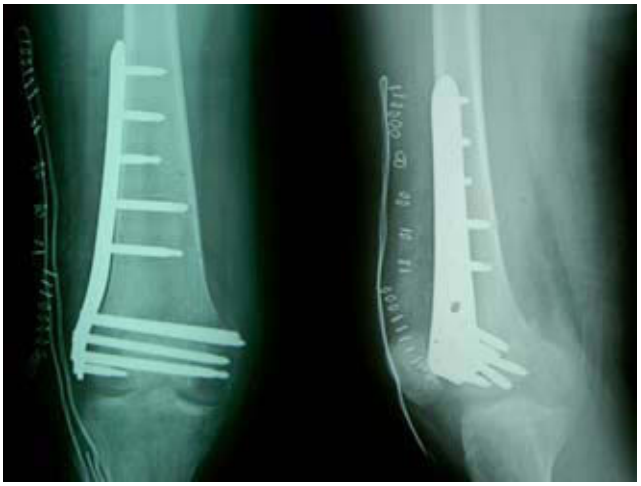

Figure 4. Postsurgical radiographical control after reduction and percutaneous osteosynthesis with a LISS plate on the distal femur.

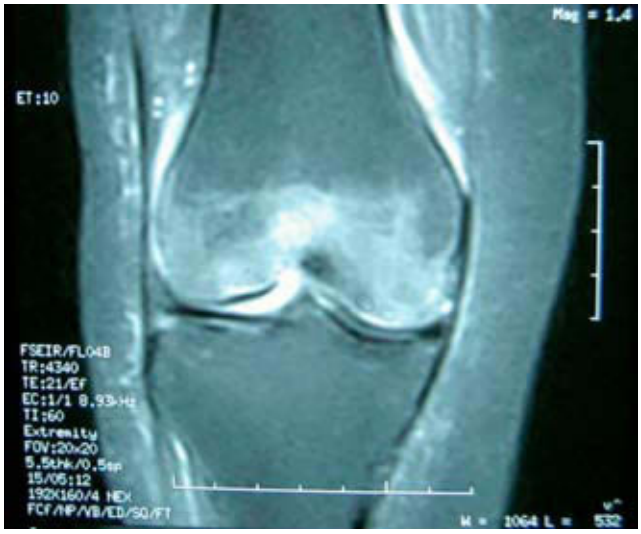

Figure 2. MR in T2: extensive bone edema at the level of the distal femoral epiphysis with no alterations in bone architecture.

Diagnosis

Pathological fracture of the distal femur in a patient with RTO (bone marrow edema syndrome) during pregnancy.

Treatment

The fracture was surgically stabilized 48 h after with a minimally invasive technique (MIPO) (Figure 4); two biopsies were taken for pathological study, which later confirmed the diagnosis of bone marrow edema syndrome with no areas of trabecular necrosis (Figure 5).

Progression

In the last clinical and radiological control (14 weeks after the intervention), the patient was completely asymptomatic, performing complete loads, with a 5°-110° joint balance. Radiological control showed the consolidation of the fracture and re-establishment of bone density.

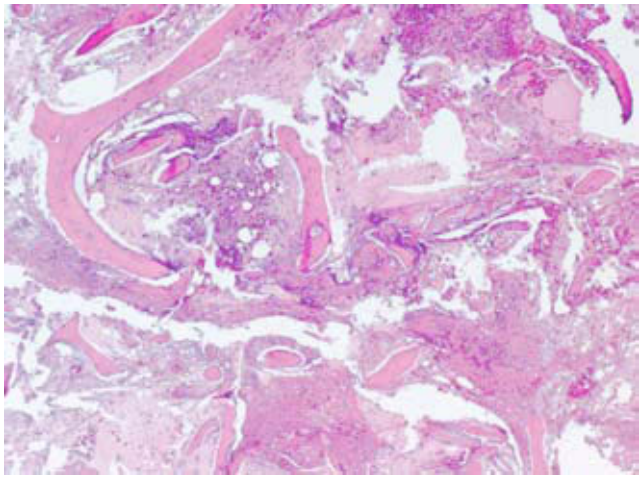

Figure 5. Bone marrow with severe edema, vasodilation and hemorrhage. Lax fibrous tissue with isolated islets of adipose tissue. Absence of hematopoietic cells. Altered pattern of bone trabeculae with irregularity and alterations in their disposition.

Discussion

The clinical course or RTO usually follows a characteristic pattern, appearing during the third trimester of pregnancy, characterized by pain and functional limitation of the affected joint, with a rapid or gradual onset. Symptoms are self limited, with recuperation of the bone density.[1,2]

Complementary data of interest, such as laboratory analysis are usually no different than in other asymptomatic pregnant patients. At the onset of symptoms, x-rays are normal; several degrees of osteopenia of the condyles can be seen between the fourth and eighth week. A bone scan with Tc99 reveals an increase in focal uptake in the affected joint, something that can be present before onset of symptoms. MR has shown that alterations can occur within 48 hours since symptoms onset, with hyperintense lesions in T2 and fat suppression (STIR) and hypointensity in T1.[3]

Differential diagnosis must be made with osteonecrosis, infection (osteomyelitis, septic arthritis), pigmented villonodular synovitis, stress fractures and neoplastic processes (metastasis, myeloma, lymphoma or primary bone tumor). An MR is indispensable in order to reach the correct diagnosis. RTO is differentiated from osteonecrosis mainly because the transient bone marrow edema compromises the metaphysis and epiphysis, preserving the joint contour. It can be differentiated from osteomyelitis because this presents mainly epiphyseal affection.[4-6] It has been suggested that RTO is also a form of reflex sympathetic distrophy.[7,8]

Disclosures

The authors have no disclosures to make.

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