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Clinical case

Femoral neck fatigue fracture: case report

Fracture de fatigue du col fémoral : à propos d'un cas

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Résumé

Les fractures de fatigue du col fémoral sont relativement rares et se présentent le plus souvent dans un contexte de sport. Le tableau clinique est variable et un diagnostic précoce facilite la prise en charge et permet de minimiser la survenue de complications telle la pseudarthrose du col fémoral ou la nécrose avasculaire, aboutissant à une altération de la fonction de la hanche. Nous présentons le cas d'une fracture de fatigue basicervicale du col du fémur chez une femme au foyer de 26 ans, en surpoids avec un IMC à 28,73 Kg/m2, sous contraception à base d'acétate médroxyprogestérone injectable depuis 2 ans.

L'indice de suspicion de fractures de fatigue du col fémoral chez l'adulte jeune présentant une douleur atypique de hanche, devrait être élevé, surtout dans un contexte de surpoids ou sportif. Cela pourrait passer, dans nos régions, par la sensibilisation des médecins.

Mots-clés : Fracture de fatigue, Surpoids, Fracture basicervicale, Contraception.

Abstract

Femoral neck stress fractures are relatively rare and most often present in a sport context. The clinical presentation is variable and early diagnosis facilitates management and allows minimizing the occurrence of complication such as non-union of the femoral neck or avascular necrosis leading up to an altercation of the hip function. We present the case of basicervical femoral neck fatigue fracture in a 26-year-old housewife, overweight with a body mass index at 28.73 Kg/m2, under contraception with Medroxyprogesteron Acetate injectable for 2 years. The femoral neck stress fracture index of suspicion in young adult with atypical hip pain should be high, especially in a context of overweight or sportive.

It could go in our regions, through the awareness of doctors.

Keywords: Stress fracture, Overweight, Basicervical fracture, Contraception.

Introduction

Fatigue or stress fractures were described for the first time by Briethaupt in 1855 in soldiers on long marches. [1,2]. It can be defined as a complete or incomplete fracture, caused by the repeated application of forces that are not strong enough to produce a fracture in a single step. It may occur on a healthy skeleton or on weakened bone tissue [3-6]. Fatigue fracture of the femoral neck is a rare injury, accounting for around 1% of all fatigue fractures [7]. It most often occurs in athletes such as long-distance walkers and runners (marathons), or in the context of pregnancy, osteoporosis or rapid and significant weight gain. [5-7].

We report a rare case of a fatigue fracture of the femoral neck in a 26-year-old woman.

Clinical case

She was a 26-year-old housewife, overweight (BMI 28.73 kg/m2) with no previous pathological history and had been on injectable medroxyprogesterone acetate contraception for 2 years. She does not practise any sport but reports long-distance walking (between 3 and 5 km per day) and carrying heavy loads as part of her activities of daily living.

She was seen for hip pain of abrupt onset, evolving for 3 months, occurring at the end of the day after a long walk. She had consulted a health center where an X-ray of the pelvis had been taken and was normal (Figure 1).

Treatment with analgesics and non-steroidal anti-inflammatory drugs was initiated. As the pain worsened, she was referred again to another facility, where a CT scan of the right hip was performed, revealing a minimally displaced fracture of the right femoral neck (Figure 2). The option of functional treatment with a pair of walking sticks was adopted. Given the persistence of her pain, she is now consulting our facility for further treatment.

On examination, the patient walked with the aid of a cane, with a right limp. There was no vicious attitude or limb deformity. Physical examination revealed exquisite pain on palpation of the groin crease. Joint amplitudes were normal on passive mobilization of the right hip. A frontal radiograph of the pelvis revealed a basicervical fracture of the neck of the right femur, displaced coxa-vara with a cervicodiaphyseal angle of 115˚. Computed tomography confirmed the fracture with a sclerotic appearance of the fracture margins (Figure 2 and 3).

Magnetic resonance imaging (MRI) of the right hip showed no evidence of an underlying tumor process.

Surgical treatment with a 135˚ DHS dynamic screw-plate osteosynthesis was performed (Figure 4). A bone biopsy, performed at the same time, revealed bone tissue with chronic, non-specific inflammatory remodelling, with no objectified sign of malignancy.

Immediate post-operative follow-up was straightforward. Support was partial for 45 days with a pair of walking sticks, then total.

At 6 months post-op, the patient was walking independently, without limping, and there was no lower-limb length inequality. X-rays of the pelvis showed fracture consolidation with no evidence of aseptic osteonecrosis of the femoral head or coxarthrosis (Figure 5).

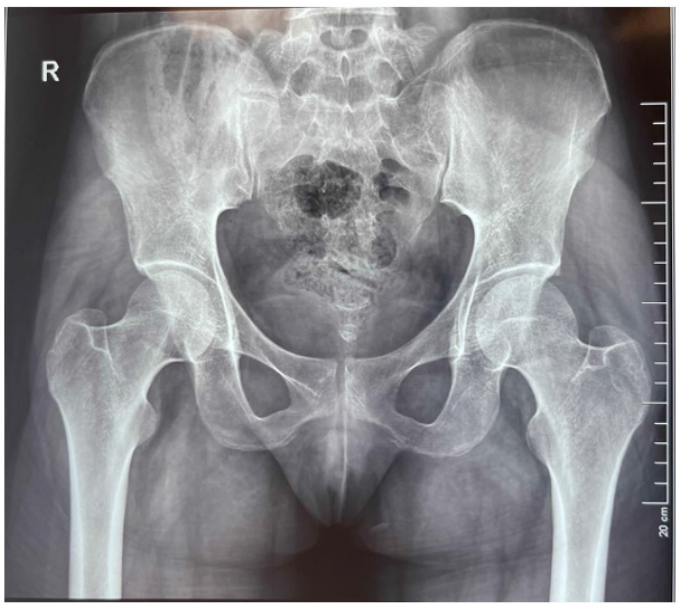


Figure 1: Front radiograph of the pelvis taken 1 month after the onset of symptoms

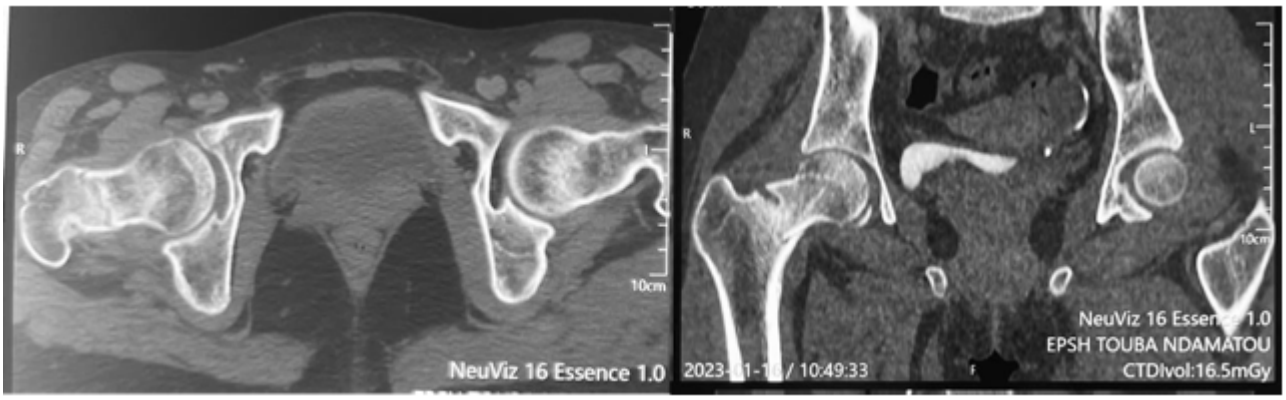


Figure 2: CT image of the fracture with a sclerotic appearance of the edges and minimal coxa- valga displacement.

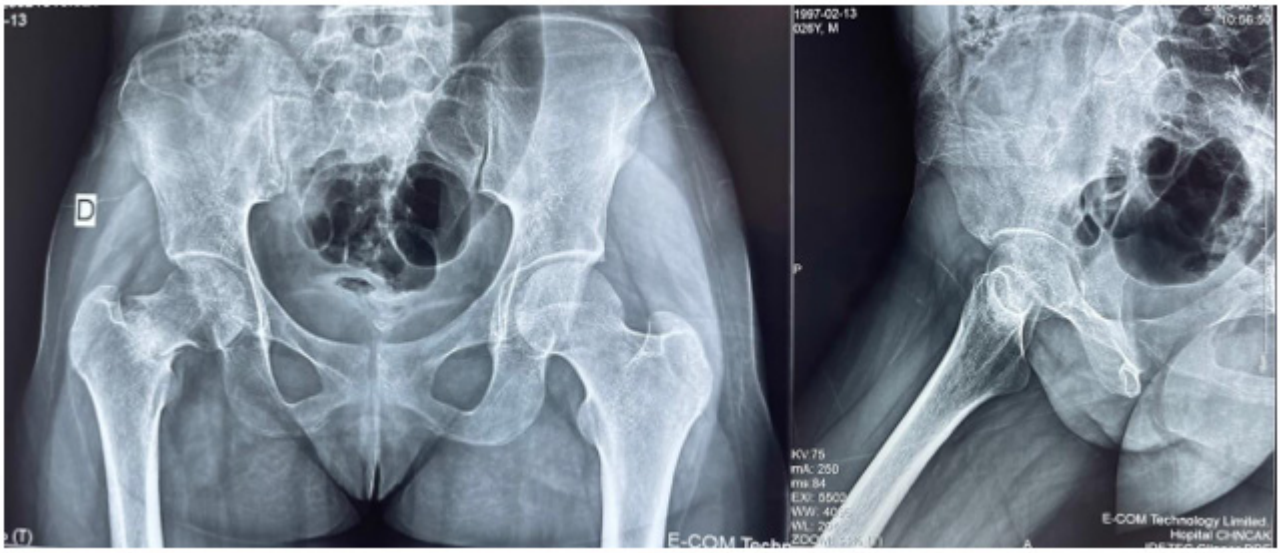


Figure 3: X-ray showing a coxa-vara displaced fracture of the right femoral neck with a cervico-diaphyseal angle measured at 113˚ and a sclerotic appearance of the edges.

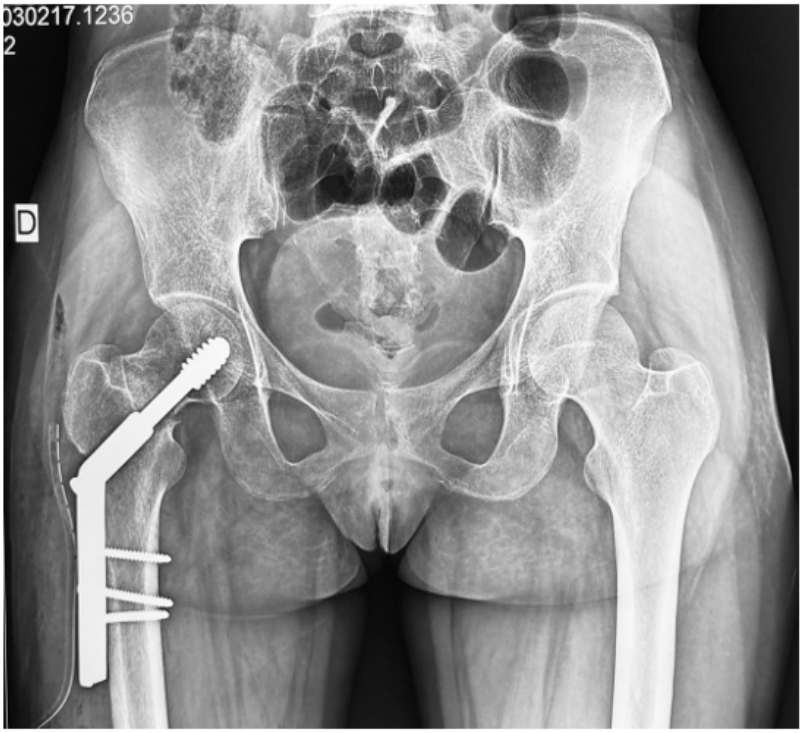


Figure 4: Frontal radiograph of the pelvis showing postoperative 135˚ DHS screw-plate osteosynthesis.



Figure 5: X-ray at 5 months postoperative and 8 months posttraumatic, showing consolidation of the neck fracture with a cervicodiaphyseal angle of 125˚ with no signs in favor of osteonecrosis or coxarthrosis, despite dismantling of the plate.

Discussion

This patient's clinical picture is typical of a fatigue fracture of the femoral neck, as described by several authors such as Daffé et al. [8]as well as Fullerton [7-10]. It is characterized by insidious hip pain, exacerbated by walking and exercise, and calmed by rest. This pain may persist for several weeks to several months. Diagnosis is often delayed, as patients tend to carry on with their activities, and X-rays at the onset of symptoms are strictly normal [6,7].

Fatigue fracture of the femoral neck is a relatively rare injury, accounting for less than 5% of all fatigue fractures [9,11]. It is most frequently reported in athletes such as marathon runners and walkers, and in cases of rapid weight gain such as during pregnancy [5,6,10]. The exact etiology is often poorly elucidated. In our case, the patient was overweight (BMI 28.73 kg/m2) and reported chronic use of medroxyprogesterone acetate, which is associated with a reduction in bone mineral density [12,13]. These two phenomena combined may explain the occurrence of this fracture in our patient.

The standard frontal pelvic X-ray, supported by the clinic, was sufficient to make the diagnosis of fatigue fracture, and magnetic resonance imaging enabled us to make the differential diagnosis with other etiologies such as tumours.

In femoral neck fractures, the type of displacement, the delay in management and the quality of reduction are the determining factors in the risk of avascular osteonecrosis of the femoral head. [14,15]. In our case, the patient presented with a displaced coxa vara fracture with a 3- month delay in management; despite this, over a 6-month follow-up, no clinical or radiographic signs of osteonecrosis of the femoral head were observed.

Displaced femoral neck fractures in young active subjects are treated surgically [6,7,9,11,14,15]. This reduces the risk of osteonecrosis of the femoral head, pseudarthrosis of the neck and chronic hip pain.

Conclusion

Fatigue fractures of the femoral neck should be suspected in the event of atypical hip pain in a healthy, active adult with no known trauma. Early diagnosis and appropriate management can significantly reduce the risk of complications.

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Conflict of interest : None

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