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A suspicious fracture

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1. Introduction

A 67 year-old woman referred to our Metabolic Bone Diseases Outpatient Clinic for non-traumatic left thigh pain occurring in the last few weeks. She had been diagnosed with osteoporosis in 2004 and was treated with oral bisphosphonates (alendronate 70 mg weekly for the first four years and then with risedronate 35 mg weekly until the day she came to our attention) and vitamin D (cholecalciferol 25000 IU monthly). Her bone densitometry showed, according to the World Health Organization classification, a T-score in the osteoporosis range (−2.7 SD at femoral neck, −3.0 SD at lumbar spine). Routine laboratory tests, 25-OH vitamin D and bone turnover markers were all in the normal range. She suffered from gastro-esophageal reflux disease treated with ranitidine, hypertension treated with lisinopril, and dyslipidaemia treated with rosuvastatin.

An X-ray of both femurs was performed, showing a small, transverse, radiolucent line in the lateral cortex of left femoral diaphysis associated with a localised thickening of the lateral cortex (Fig. 1).

2. What is the diagnosis?

Atypical femoral fracture (AFF) associated with long-term bisphosphonate treatment.

3. Discussion

AFF is a rare complication of long-term bisphosphonate therapy [1]. Evidence suggests that AFF is a stress fracture and that prior bisphosphonate treatment impairs the adaptive remodelling response, hampering stress fracture healing. AFF is preceded by prodromal symptoms such as thigh or groin pain and is typically located along the femoral diaphysis. It is associated with minimal or no trauma. AFF originates at the lateral cortex with a transverse orientation and is associated with localised periosteal or endosteal thickening of the lateral cortex in the fracture site. Sometimes it may be bilateral and have delayed healing or evolve into a complete fracture. Plain radiographs are usually the initial imaging procedure for diagnosis, but can be followed by MRI, CT scans or bone scintigraphy in doubtful cases. AFF is treated by discontinuing bisphosphonates, evaluating calcium and vitamin D status and prescribing adequate supplementation. No definite conclusion has been

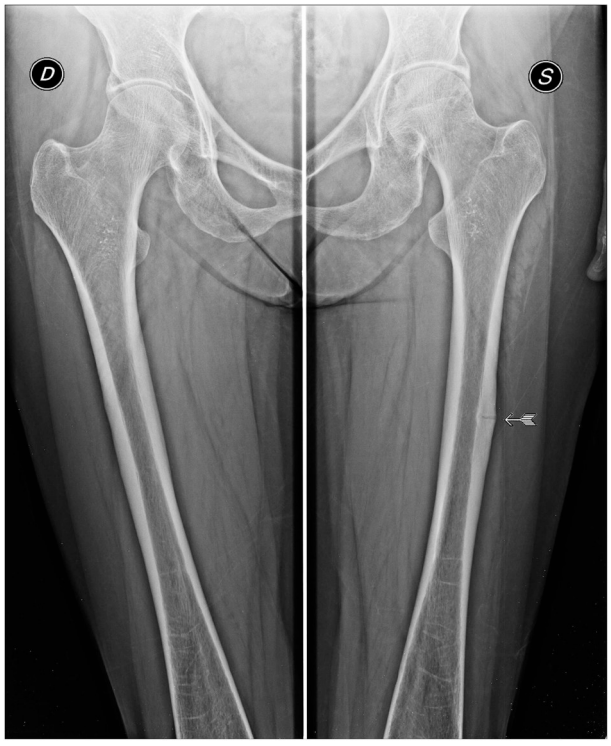

Fig. 1. X-ray of both femurs. The arrow indicates an incomplete fracture of left femoral diaphysis.

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reached about teriparatide efficacy in AFF. In cases of a complete fracture or an incomplete fracture with pain, orthopaedic intervention is recommended. In cases of an incomplete fracture with minimal pain, a trial of conservative therapy, in which weight-bearing is limited, may be considered [2].

Conflicts of interest

The authors have no conflicts of interests.

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