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Low-energy femoral shaft fracture in elderly patient with prolonged use of alendronate

Fraturas diafisárias do fêmur por baixa energia nos pacientes idosos com uso prolongado de alendronato

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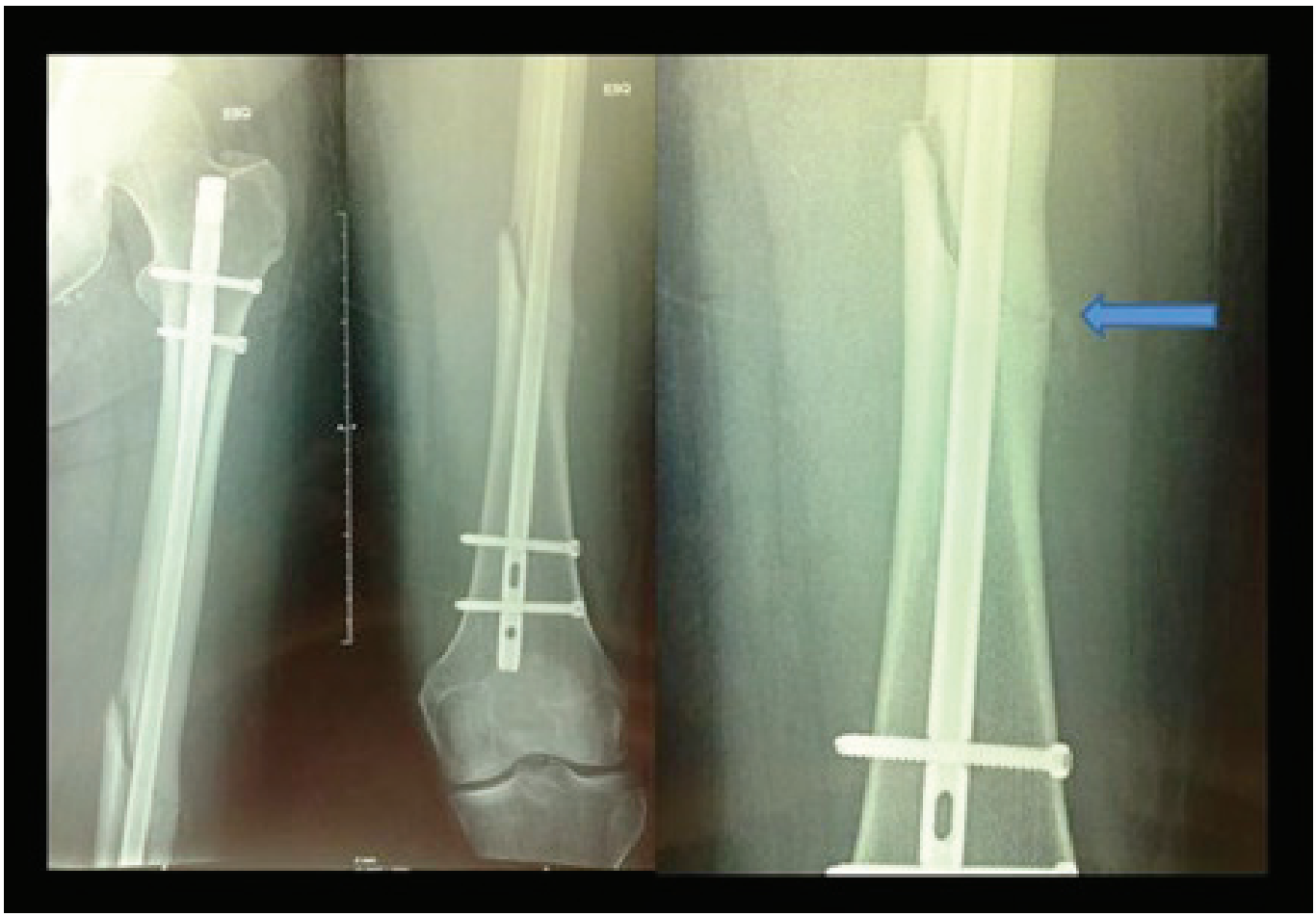

Figure 1. Stress fracture in the lateral córtex.

Study carried at Hospital Israelita Albert Einstein – HIAE, São Paulo (SP), Brasil.

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Fractures in the proximal femur occur in female and male elderly population due to low-energy trauma in osteoporotic bones. In order to prevent these fractures, treatment of osteoporosis has been indicated, particularly using biphosphonates[1].

Alendronate was the first drug approved by the Food and Drug Administration (FDA), in 1995, to treat osteoporosis[2]. This drug acts in bone metabolism, inhibiting osteoclasts, inducing their apoptosis[3], raising the bone mineral density and reducing the incidence of osteoporotic fractures[4].

In the past years, some authors described an unusual shaft femoral fracture in elderly women undergoing prolonged treatment of osteoporosis with biphosphonates. These fractures were associated with low-energy trauma or no evidence of any trauma event[5,6].

Femoral structure submitted to physiological stress results in microdamages to bone microstructure. The inhibition of osteoclasts may also lead to severe suppression in bone turnover, leading to accumulation of microdamage[7-9]. These processes may make bone brittle and cause unexpected and uncommon femoral fractures.

A recent increase in the incidence of such fractures in patients on alendronate therapy led some authors to conduct a retrospective review of these cases. A characteristic fracture configuration suggestive of an insufficiency stress fracture was identified on plain radiographs. This consists of a cortical thickening in the lateral side of the subtrochanteric region, a transverse or short oblique fracture, and a medial cortical spike (Figure 1).

A retrospective study evaluating 19 patients with this fracture pattern among 70 patients with low-energy shaft fractures was 98% specific to alendronate users[6]. Thus, alendronate treatment might be stopped for a while after five years to prevent severe suppression of bone turnover and subsequent stress fractures[7].

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