Do atypical femoral fractures in patients with prolonged alendronate treatment heal?

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Osteoporosis, which is a major health problem, may have an adverse impact on the economic status of the society and the quality of the life of the patients. Long-term alendronate use may cause an increased susceptibility to fractures with an increased risk of delayed union. In this article, we describe two patients on long-term alendronate therapy which were treated for atypical femoral fractures healed with surgical treatment plus calcium, vitamin D support, and alendronate discontinuation.

Key words: Atypical femoral fracture; fracture healing; prolonged alendronate therapy.

CASE REPORT

Case 1– A 76-year-old woman was admitted with complaints of pain and swelling in her right thigh following low-energy trauma. She was on alendronate therapy for more than 10 years. Physical examination revealed mild swelling, pathologic motion and painful right thigh. Radiographs (Figures 1a, b) showed a transverse fracture with medial spike in the area of thickened cortices of femoral diaphysis. Following reduction, femoral diaphysis fracture was fixed with proximally and distally locked intramedullary nail using the image intensifier (Figures 2a, b).

The patient is pain-free and able to walk with full weight-bearing without any complications, since the first postoperative day (Figures 3-7). Dual-energy X-ray absorptiometry (DXA) revealed T score for lumbar spine: -2.89 and T score for hip: -3.55.

Case 2– A 39-year-old woman with surgical premature menopause-induced osteoporosis was...
admitted with complaints of pain and swelling in her left hip following low-energy trauma. She was on alendronate therapy for eight years. Physical examination revealed a painful left hip. Radiogram showed a transverse femoral neck fracture (Figure 8). Following reduction, femoral neck fracture was fixed with three cannulated screws using the image intensifier (Figures 9 a, b).

The patient is pain-free and able to walk with full weight-bearing without any complications, since

the third postoperative month (Figures 10, 11). Dual-energy X-ray absorptiometry revealed T score for lumbar spine: -2.5 and T score for hip: -3.0. We discontinued alendronate treatment in both patients and they received only calcium and vitamin D supplementation.

**DISCUSSION**

Increased micro-damage accumulation has been reported in women with low bone mineral densities who are treated with alendronate. Severe suppression of bone turnover, and micro-damage accumulation may increase the risk of atypical fractures. Currently, some bone specialists recommend stopping alendronate intake in most patients after five years.
Atypical femoral fractures are usually atraumatic, may be bilateral, and may have delayed fracture-healing.\cite{5,6,9} For this reason we discontinued alendronate treatment for our patients. They are now receiving only calcium and vitamin D supplementation. After a washout period, we will evaluate our patients again for anti-osteoporotic treatment.

In conclusion, physicians should be aware of the possibility of these rare adverse reactions to the
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Prolonged use of bisphosphonates. We recommend stopping alendronate after five years and following fracture reduction and fixation giving calcium and vitamin D supplements.

In patients on long-term alendronate therapy who present with a subtrochanteric or diaphyseal atypical femoral fracture, we recommend taking radiograms of the contralateral femur. Prophylactic fixation should be considered in patients with a contralateral stress fracture.

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