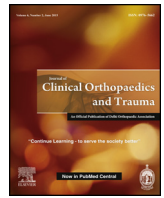




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Journal of Clinical Orthopaedics and Trauma

journal homepage: www.elsevier.com/locate/jcot



Case report

Rare case of atypical femoral fracture with blocked medullary canal associated with bisphosphonate therapy

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ARTICLE INFO

Article history:

Received 19 November 2017
Received in revised form 17 February 2018
Accepted 21 April 2018
Available online xxx

Keywords:

Osteoporosis
Geriatric
Bisphosphonates

ABSTRACT

Bisphosphonates are widely used for treatment of osteoporosis and its use is increasing in geriatric population.

Atypical femoral fractures are associated with bisphosphonate therapy.

We report an unusual case of femoral shaft fracture following bisphosphonate therapy where the femoral canal of the proximal and distal fracture fragments was blocked and its management.

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1. Case report

76 year old woman of Asian origin was admitted with a short oblique fracture of mid shaft femur following a fall at home, she was on Alendronate for more than 5 years for treatment of osteoporosis, she had symptoms of thigh pain for weeks prior to fall. On examination it was found that the limb was deformed with no distal vascular deficit, she was splinted in a Thomas splint and was listed for cephalomedullary nail.

Radiographs revealed thickening of cortices, with blunt fracture ends typical fracture pattern in patients on bisphosphonates (Fig. 1).

During fixation with cephalo medullary nail It was not possible to pass the guide wire beyond the distal end of the proximal fracture fragment, we realized the canal was blocked and tried reaming the proximal fragment to clear without success, we tried reaming with end cutting reamer as well without success, we tried tapping the guide wire with mallet to clear the block in the process she had comminution of the distal end of the proximal fracture fragment. We should have had a low threshold for open reduction and reaming and could have prevented the comminution (Fig. 2).

We were unable to negate the guide wire through the distal fragment and had to open the fracture site and found even the distal fragment medullary canal was obliterated, the fragment had to be drilled with 3.2 mm guide pin and guide wire was passed through the fragments and each fragment reamed separately (Fig. 3).

Post operative period was uneventful and she was subsequently discharged to rehabilitation unit with full weight bearing with crutches under the supervision of physiotherapists. At one year following the operation the fracture had healed and patient had no symptoms in the contralateral limb and radiographs of the contralateral femur showed no radiological changes (Figs. 4 and 5).

2. Discussion

Osteoporosis is characterized by low bone mass and micro architectural deterioration of bone tissue leading to enhanced bone fragility subsequently increasing fracture risk. Bisphosphonates are frequently used in the treatment in osteoporosis, and their use is increasing widely in geriatric population, It increases bone mass and reduce the risk of fragility fracture, however there use over long periods can cause atypical femoral fractures as it inhibits the osteoclastic activity and suppresses the overall bone turnover.

Odvina et al. in 2005, first reported bisphosphonate related femoral fractures, since then there are numerous case reports of atypical femoral fractures related to bisphosphonates.³

Atypical femoral fractures (AFF) are essentially stress fracture arising at the tensile surface (Lateral aspect) of the femur, the fracture is transverse in orientation and as it reaches medially it can become oblique.⁶

Atypical features are characterized by lateral cortical beaking, diaphyseal cortical thickening, or a dreaded black line with prodromal pain in patients and associated with minimal or no trauma.

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Fig. 1. (a) and (b) Radiographs showing transverse fracture of midshaft of femur.

The patients may present with incomplete or complete fractures, clinical symptoms include prodromal thigh pain, and acute pain with a history of prolonged thigh pain usually indicates completeness of the incomplete fracture.

This is now a well-recognized complication with incidence of up to 7%⁷ and task force of American society for bone and mineral

research has come out with major and minor criteria associated with atypical femoral fractures.⁶

Lo Jc et al. in his study reported Women with atypical femur fracture tend to be younger, Asian and stress or complete fracture of the contralateral femur in 39.5%.²

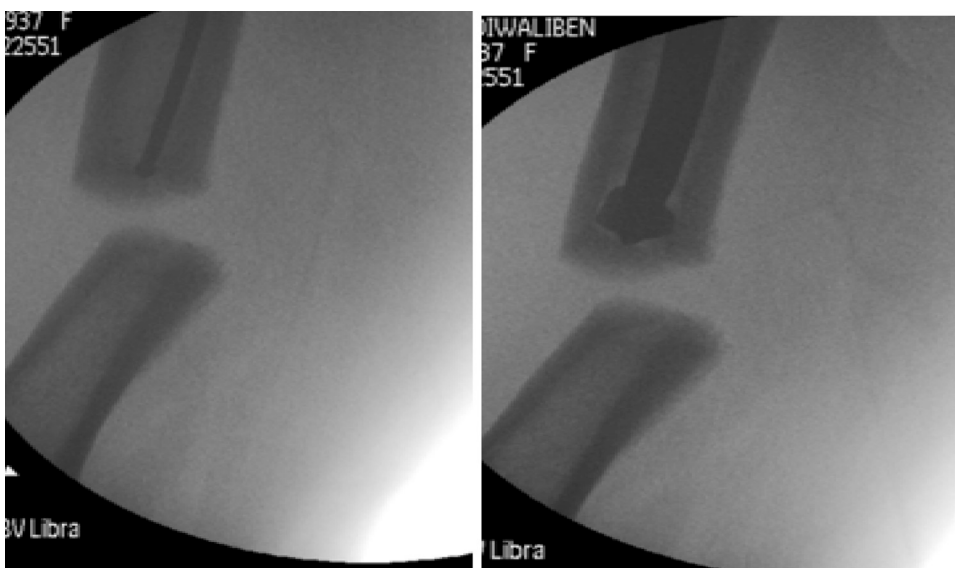


Fig. 2. (a) and (b) Intra operative pictures showing guide wire and reamer unable to penetrate proximal fragment.

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