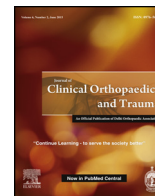




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journal homepage: www.elsevier.com/locate/jcot



Case report

Intertrochanteric fracture associated with undiagnosed ipsilateral incomplete atypical femoral shaft fracture without bisphosphonate use: Unique case report and literature review.

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ARTICLE INFO

Article history:

Received 7 November 2017

Received in revised form 6 December 2017

Accepted 18 January 2018

Available online xxx

1. Introduction

Atypical femur fractures (AFFs) are often associated with bisphosphonate (BP) administration for postmenopausal or senile osteoporosis,^{1,2} while reports on AFFs without prior history of bisphosphonate use are limited.^{3,4} However, recently (2013) the definition of AFFs does not mention prior BP administration.¹ AFFs occur as stress/insufficiency fractures and can result from significant femoral bowing.^{3–5}

This case report presents an incidentally diagnosed atypical femoral shaft fracture (AFSF) ipsilaterally to a traumatic intertrochanteric fracture.

To our knowledge, this is the first report of an AFSF in an elderly patient with no prior history of BP treatment for osteoporosis and a concomitant intertrochanteric fracture.

2. Case report

An 87-year-old female patient with no history of previous trauma was admitted to our emergency department for severe pain in her left hip while walking in the last two days. She had undergone an intramedullary nailing in her left hip for an intertrochanteric fracture at another institution one month before.

Postoperatively, she was successfully mobilized on two crutches, with mild pain in her left hip and thigh. Two days before admission to our institution, she experienced severe pain in her hip and could no longer bear weight. The patient had never been subjected to any antiosteoporotic treatment. Physical examination revealed pain during passive motion in her left hip, with no local edema, redness, or warmth at the scar site, which would have indicated infection from the recent surgery. Her blood counts analysis was within normal limits: WBC: 8.9 k/mL (normal: 4–10.0 k/mL), CRP: 0.1 mg/dL (< 0.3 mg/dL), ESR: 14 mm/1st h (0–20 mm/1st h), and GFR value: 63 mL/min/1.73 m². On admission, the roentgenographic examination detected a cranial cut-out of the lag screw associated with an ipsilateral incomplete atypical femoral fracture with transverse configuration and concomitant lateral cortex hypertrophy at the nail tip (Fig. 1a, b).

We immediately thought this femoral fracture could be related to stress-concentration at the distal nail tip. However, while we were searching for the initial pre-operative radiograms, the patient reported having had a mild thigh pain over the last three months, which she thought was typical osteoarthritic hip pain. Then, the initial plain roentgenograms, once found, revealed a small, barely noticeable transverse radiolucency line (Fig. 2a, b).

Coincidentally, surgeons had implanted a short nail that ended at the exact area of the atypical shaft fracture (Fig. 3). Authors replaced the short nail with a long cephalomedullary nail to address both lesions (Fig. 4a, b). The patient's metabolic profile {TSH: 2.1 μIU/mL (normal limits 0.27–4.2), PTH: 60 pg/mL (normal limits 15–65), ALP: 52 IU/l (normal limits 50–136), calcium: 8.3 mg/dL (normal limits 8.5–10.1), phosphorus: 3.5 mg/dL (normal limits 3–4.5), cortisol: 13.1 μg/dL (normal limits 6–23), aldosterone: 75 pg/mL (normal limits 10–160), albumin: 3.1 (normal

Abbreviations: AFFs, atypical femur fractures; AFSF, atypical femoral shaft fracture; CRP, C-reactive protein; ESR, erythrocyte sedimentation rate; WBC, white blood cells; TSH, thyroid stimulating hormone; PTH, parathyroid stimulating hormone; ALP, alkaline phosphatase; NF-κB, nuclear factor –kappa-B; GFR, glomerular filtration rate; DEXA, dual-energy x-ray absorptiometry.

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<https://doi.org/10.1016/j.jcot.2018.01.008>

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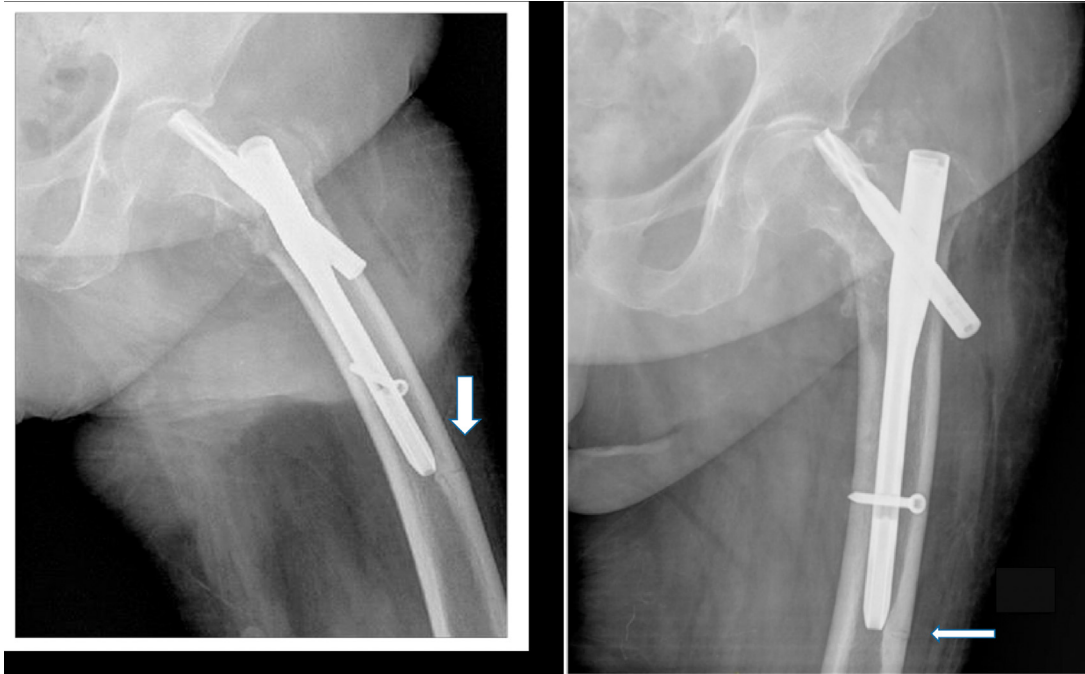


Fig. 1. a,b: Profile and anteroposterior hip radiogram showing the cut out of the lag screw with concomitant atypical femoral fracture at the tip of the nail.

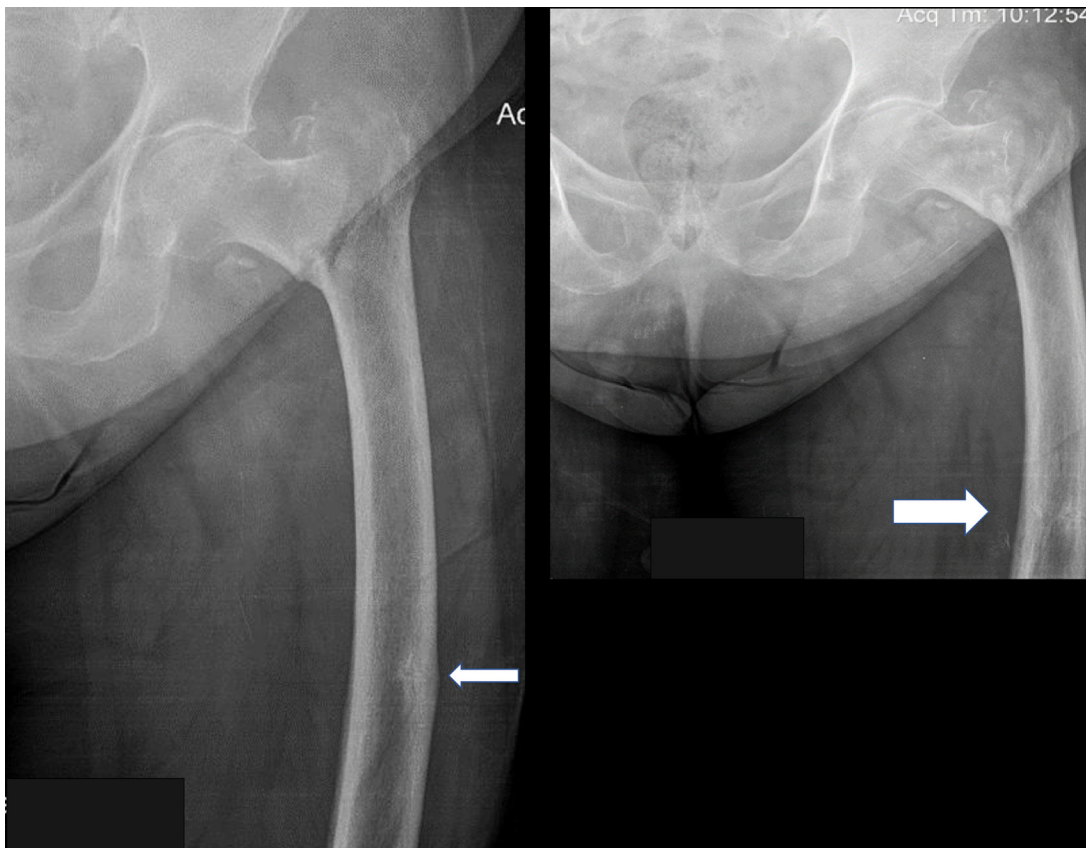


Fig. 2. a,b: AP and profile hip radiogram from our patient initial admission, showing the intertrochanteric and the ipsilateral atypical femoral fracture.

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