

Atypical Femur Fracture in the setting of Chronic Bisphosphonate Use



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Setting

Tertiary care teaching hospital

Patient

A 77-year-old female presented with left hip pain following a near fall

Case Description

A 77-year-old female was walking up the stairs when she felt her left knee give out and she heard a “pop”. She did not fall and was able to reach for the railing and lower herself to the ground. She was found to have a left subtrochanteric femur fracture. She underwent open reduction internal fixation and was subsequently admitted to the acute rehabilitation unit. She was taking Ibandronic acid for the past three years and was previously on alendronate for over five years for treatment of osteoporosis. Radiographic imaging was taken of the patient’s right hip, which revealed cortical thickening at the lateral aspect of the proximal femur, raising the possibility of bisphosphonate related insufficiency fracture.



This image is a radiograph of the right hip depicting cortical thickening at the lateral aspect of the proximal femur

Case Diagnosis

Bisphosphonate therapy is commonly used to treat osteoporosis in order to prevent fragility fractures. Though they have been efficacious in reducing fracture occurrences, there is concern for long term bisphosphonate use due to the risk of atypical femur fracture.

Discussion

Studies have shown an increased risk of atypical femur fracture with bisphosphonate therapy greater than five consecutive years. Atypical femur fractures occur with minimal trauma, are located in the subtrochanteric region and femoral shaft, have an absence of comminution, and demonstrate cortical thickening and periosteal reaction in the lateral cortex. It is hypothesized that prolonged bisphosphonate therapy can cause over-suppression of bone and impair the normal healing process through microdamage accumulation.

Conclusion

Though rare, atypical femur fractures have been associated with long term bisphosphonate use and clinicians should be aware of this occurrence. If an atypical femur fracture occurs, bisphosphonates should be discontinued. In this case, the patient’s left subtrochanteric femur fracture likely resulted from long term bisphosphonate use and imaging of the right femur also demonstrated changes supporting a bisphosphonate related fracture.

References

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