



Severe right hip pain

While this patient had osteoporosis, she hadn't experienced any recent trauma or falls that would explain her pain.

A **63-YEAR-OLD WOMAN** with a 3-year history of osteoporosis presented to our clinic with a 2-week history of severe right hip pain. She had been taking a bisphosphonate—oral ibandronate sodium, 150 mg, once monthly—for about 6 years. The postmenopausal patient had a history of degenerative disc disease and lumbar back pain, but no known history of recent trauma or falls.

A clinical exam revealed full passive and active range of motion; however, she had pain with weight bearing. A full metabolic

panel revealed no significant abnormalities. A leg length discrepancy was noted, so a bone length study was ordered. Anteroposterior x-rays of the bilateral lower extremities demonstrated a focal convexity along the lateral cortical junction of the proximal right femur (**FIGURE**).

- WHAT IS YOUR DIAGNOSIS?
- HOW WOULD YOU TREAT THIS PATIENT?

FIGURE

X-ray showed a focal convexity of the proximal right femur



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➤ **Bisphosphonate therapy has been associated with significant benefits, but it's been suggested that these drugs may impair the bone remodeling process.**

Dx: Bisphosphonate-associated proximal insufficiency fracture

Based on the patient's clinical history and x-ray findings, we determined that the patient had sustained a bisphosphonate-associated proximal femoral insufficiency fracture. Insufficiency fractures arise from normal physiologic stress on abnormal bone. They commonly occur in conditions that impair normal bone physiology and remodeling, such as osteoporosis, renal insufficiency, rheumatoid arthritis, and diabetes.¹

■ Could a bisphosphonate be to blame?

Bisphosphonate therapy has been associated with significant benefits, including increased bone mineral density (BMD), decreased incidence of fracture, and improved mortality.²⁻⁴ But it's been postulated that the global suppression of bone turnover caused by these drugs may also impair the bone remodeling process.⁵ Some case reports have suggested an association between chronic bisphosphonate use and atypical insufficiency fractures. These atypical femur fractures are characterized by their location (along the diaphysis in the region distal to the lesser trochanter), the patient's history (there may be minimal to no trauma), and the potential for "beaking" (localized periosteal or endosteal thickening of the lateral cortex).^{6,7}

Several large, population-based, case-control studies have found a temporal relationship between bisphosphonate therapy and a statistically significant increased risk of subtrochanteric fractures.⁸⁻¹⁰ These studies do note, however, that the absolute risk of insufficiency fracture is very low, and that the benefits of bisphosphonate therapy greatly outweigh the risks. A 2013 meta-analysis came to the same conclusion.¹¹

Treatment options include PT, surgical intervention

When an insufficiency fracture is identified in a patient taking a bisphosphonate, the medication should be discontinued and a consultation with Endocrinology should be arranged. Nonsurgical management ranges from physical therapy to alternative medication regimens, such as teriparatide—a recombinant human parathyroid hormone used to restore

Osteoporosis: Assessing your patient's risk

Approximately 9.9 million Americans have osteoporosis, and while the disease is more common in Caucasian females, patients with osteoporosis have the same elevated fracture risk regardless of their race.¹⁴ The US Preventive Services Task Force recommends bone mineral density (BMD) testing for all women ages 65 years and older (earlier if risk factor profile warrants).¹⁵

According to the World Health Organization (WHO), patients with BMD T-scores at the hip or lumbar spine that are ≤ 2.5 standard deviations below the mean BMD of a young-adult reference population are at highest risk for osteoporotic fractures.¹⁶ There are also free online risk assessment tools, like the WHO's FRAX calculator (available at: <http://www.shef.ac.uk/FRAX/tool.jsp?locationValue=9>), which integrate clinical data to generate an evidence-based assessment of fracture risk.¹⁷

bone quality. A variety of surgical stabilization options are also available.⁶

In contrast to typical subtrochanteric fractures, about half of patients with atypical insufficiency fractures demonstrate poor fracture healing that requires surgical intervention.¹² Complete fractures almost always require surgery, while incomplete subtrochanteric femur fractures can usually be managed conservatively by altering pharmacologic prophylaxis (interval dosing or discontinuation of the bisphosphonate and initiation of an alternative therapy like teriparatide) in conjunction with routine radiologic surveillance. Internal fixation may be considered for cases of persistent pain or those that progress to an unstable fracture.¹³

■ **Our patient declined surgical intervention.** We switched her monthly ibandronate dosage to a periodic dosing schedule (6 months on, followed by 6 months off) and advised her to rest and take nonsteroidal anti-inflammatory drugs when needed. While consensus guidelines exist for the management

of osteoporosis (see Osteoporosis: Assessing your patient's risk, on page 396), there is still debate over the optimal length of bisphosphonate therapy and the impact of drug holidays; a recent review in *The BMJ* discusses bisphosphonate use in detail.⁵

Follow-up x-rays 14 months later revealed that the insufficiency fracture had healed with a bony callus. **JFP**

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Doug Campos-Outcalt, MD, MPA



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