

Brief Commentary

e Sacral Insufficiency Fracture: An Insidious Cause for Low Back Pain

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A 79-year-old woman was seen due to low back pain and severe right hip pain. The pain was radiating to the right calf. The patient reported numbness of her right ankle and toes. On detailed questioning, she reported that her hip pain worsened with sitting and walking. She stated that her hip pain improved when lying supine. Her medical history revealed hypertension and osteomalacia, but no trauma. On physical examination, low back flexion and extension were painful at the end of range of motion testing. Neurological examination was normal except for hypoesthesia along the right L5 dermatome. Visual analog scale (VAS) pain score was 8/10. Bone mineral density measurements revealed osteoporosis (T-scores of femoral neck and L1-4 vertebra were -2.7 and -1.4, respectively). Laboratory investigations yielded decreased levels of total calcium, phosphorous, and 25-hydroxyvitamin D, in addition to elevated values of alkaline phosphatase, C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), and parathormone. Lumbosacral anteroposterior radiograph showed severe degeneration in all lumbar vertebrae, L5-S1 spondylolisthesis, decreased T12-L2 vertebral body height,

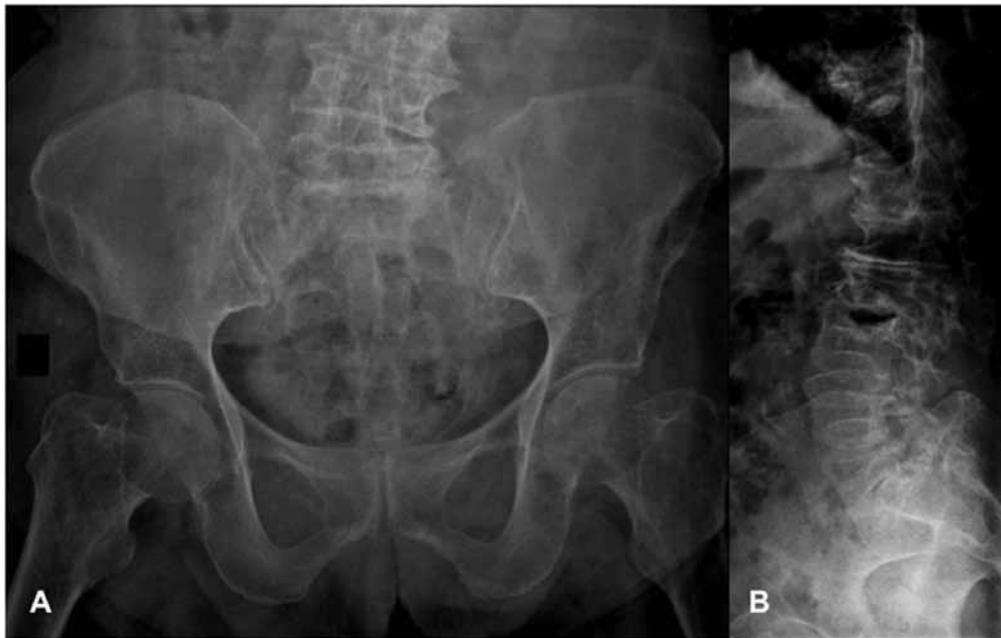
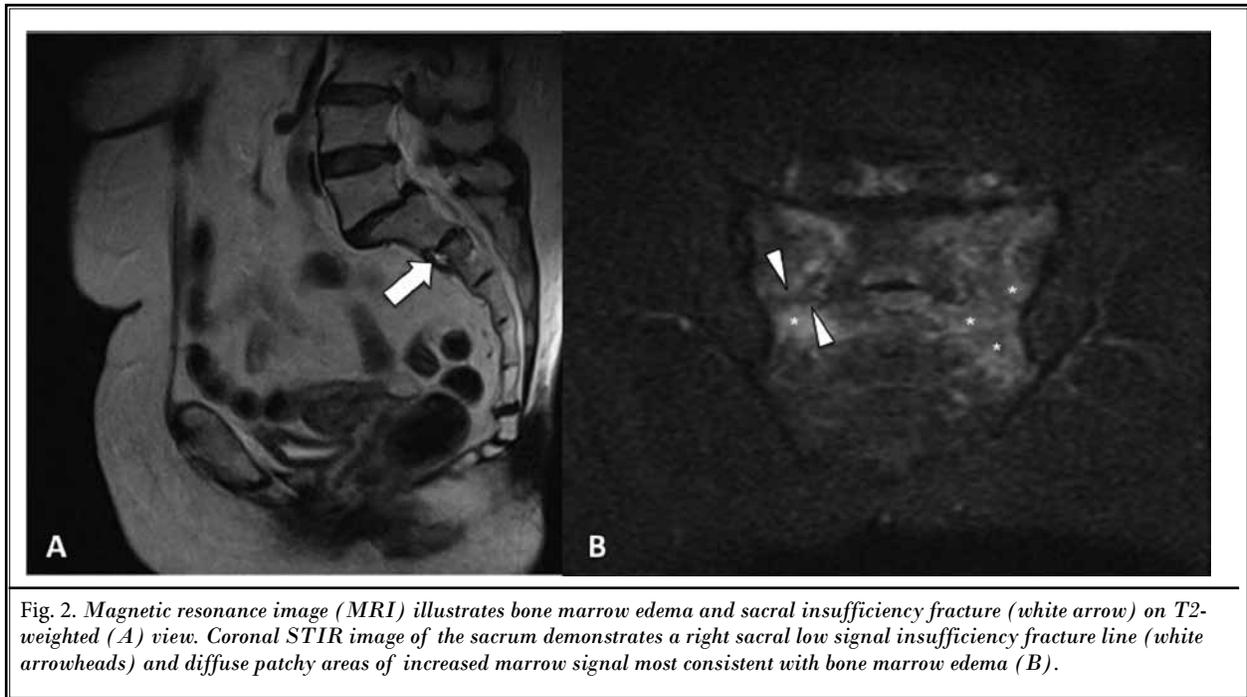


Fig. 1. Radiographic images of a 79-year-old woman with sacral insufficiency fracture on the right side of sacrum. A) Anterior-posterior pelvis radiograph shows normal sacrum, and radiolucency indicating osteoporosis. B) Sagittal view of lumbar region demonstrates severe degeneration of the lumbar column.



and narrowing of each thoracolumbar disc space (Fig. 1). Lumbosacral magnetic resonance imaging (MRI) demonstrated disc protrusions at T12-L1, L2-3, L3-4, and L4-5 levels, and reactive marrow changes within the sacrum. Consequently a sacral MRI was performed which demonstrated a right sacral alar insufficiency fracture with surrounding marrow edema (Fig. 2). A pain treatment program consisting of rest, a non-steroidal anti-inflammatory drug, and transcutaneous electrical nerve stimulation was performed. With respect to the osteoporosis and osteomalacia treatment, oral ibandronic acid 150 mg/month, oral calcium plus vitamin D3 1000 mg-880 IU/day, and oral calcitriol 0.5 µg/day were prescribed. After 2 weeks, the pain did improve significantly (VAS pain score was 3/10). ESR and CRP values also decreased after this period.

Sacral insufficiency fractures (SIF) appear when normal stresses are placed on weakened bone. Postmenopausal osteoporosis, pelvic radiotherapy, inflammatory arthritides, prolonged corticosteroid therapy,

and metabolic bone diseases have been reported to be the predisposing factors (1). Concerning the clinical characteristics, SIF can present with low back and/or pelvis pain. The pain is usually worse with activities and better with rest or laying supine (2). In addition, tenderness over the involvement area (i.e., sacrum, parasymphseal area) can be indicative for the diagnosis. Although an elevated alkaline phosphatase level can be seen in SIF, it is not remarkable. Since the sacrum is not well seen on plain radiographs, particularly in severe osteoporosis, imaging SIF can be challenging. In presenting this patient, we caution clinicians that since sacral fractures may not be seen on plain radiographs, SIF should be part of a differential diagnostic list in older patients with hip pain and osteoporosis. When a plain radiographic report does not discuss pathology relevant to the patient's symptoms, and the patient is tender on palpation over the sacrum, MRI of the sacrum should be considered as further work up for SIF.

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