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Sacral Insufficiency Fracture: A Frequently Overlooked Musculoskeletal Mimic of Lumbosacral Radiculopathy

Lumbosakral Radikülopatiyi Taklit Eden, Sıklıkla Gözden Kaçan Bir Kas-iskelet Sistemi Nedeni: Sakral Yetersizlik Kırığı

İlhami Ata, Alper Uysal

Mersin City Training and Research Hospital, Clinic of Physical Medicine and Rehabilitation, Mersin, Türkiye

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Anahtar kelimeler: Sakral yetersizlik kırığı, görüntüleme protokolleri, osteoporoz

Dear Editor,

A 73-year-old female patient presented with persistent lower back, hip, and thigh pain for three months, without any history of trauma. She reported a history of previous episodes of low back pain, which had resolved either spontaneously or with medical treatment. At presentation, she arrived in a wheelchair due to severe pain, which was exacerbated by standing and walking. She exhibited an antalgic gait pattern.

On physical examination, hip range of motion was painful and limited, especially on the left side. The sacroiliac joint was also markedly tender bilaterally, especially on the left. Muscle strength in the lower extremities was reduced, particularly in the proximal muscles (4/5 on the right, 3/5 on the left). Sensory examination was normal, and no abnormal reflexes were detected.

Direct radiographs did not reveal any significant pathology to explain the patient's symptoms. Lumbar spine magnetic resonance imaging (MRI) showed only moderate disc degenerations, failing to explain the severity of her symptoms. Given the clinical suspicion, further imaging was pursued. Pelvic computed tomography (CT) revealed a sacral fracture, and subsequent sacroiliac MRI confirmed hypointense changes on T1-weighted images and hyperintense changes on T2-weighted images, characteristic of sacral insufficiency fractures (SIF) (Figure 1). Whole-body positron emission tomography ruled out malignancy, and DEXA confirmed osteoporosis (L1-L4: -2.1; femoral neck: -3.3; total hip: -2.9). The patient was diagnosed with an osteoporotic SIF and opted for conservative management involving bed rest, analgesics, and osteoporosis treatment, despite recommendations for surgical intervention.

SIFs are stress fractures of the sacrum, frequently associated with osteoporosis and often seen in postmenopausal women. Additional risk factors include prior fragility fractures, metabolic bone diseases, malignancy, local radiotherapy, and multi-segment spinal fusion (1). SIF can present with non-specific lower back and hip pain and often mimics lumbar spine pathology (2). In some cases, patients may also experience radiating pain or possibly neurological disorders (3). Importantly, CT can detect sclerosis or fracture lines, but MRI remains the most sensitive modality and reveals low T1 and high T2/STIR signal intensities (1). For example, in a study involving 50 patients diagnosed with SIF, MRI successfully confirmed the diagnosis in 74% of cases, whereas CT and X-ray each identified only 12% of cases accurately (4).

A significant limitation of standard lumbar MRI protocols is the exclusion of the sacral region, which complicates the identification of SIF in patients with chronic low back pain. In a study analyzing lumbar MRI scans, sacroiliac joint screening was absent in 40% of cases, and essential sequences such as T1-weighted axial or sagittal views were also frequently omitted (5). These findings highlight the need for comprehensive imaging protocols that include sacral evaluation to differentiate musculoskeletal conditions that may mimic radiculopathy.

This case highlights the need for standardized lumbar MRI protocols that routinely include sacroiliac joint and sacral bone

Corresponding Author/Sorumlu Yazar: Alper Uysal MD, Mersin City Training and Research Hospital, Clinic of Physical Medicine and Rehabilitation, Mersin, Türkiye
E-mail: alperuysal82@gmail.com **ORCID ID:** orcid.org/0000-0002-4114-1649
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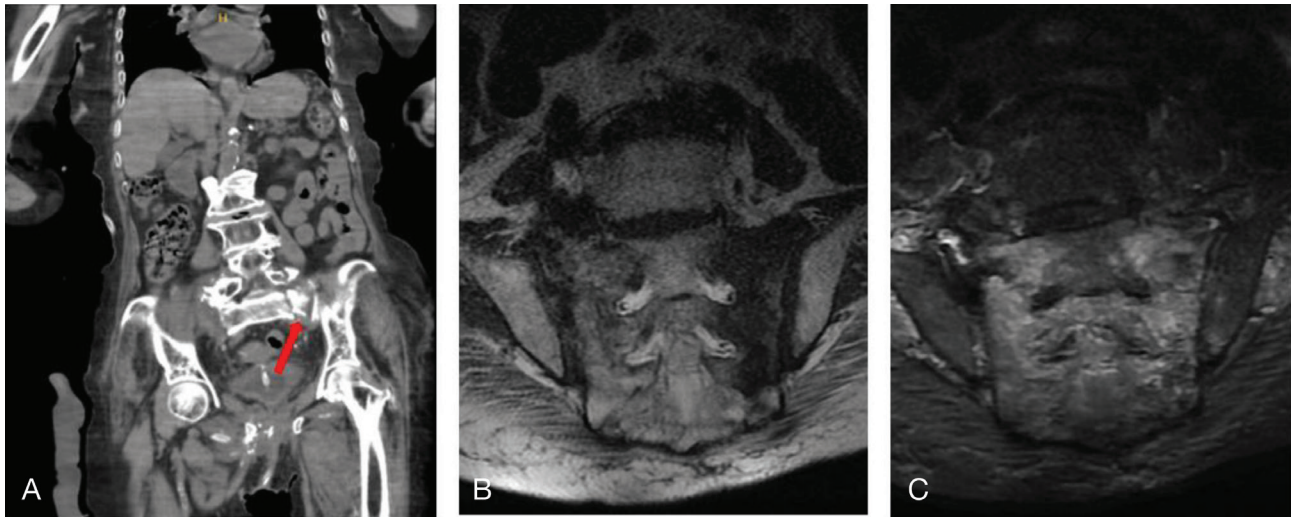


Figure 1. (A) The red arrow indicates a fracture line in the left sacrum in the coronal plane on CT. **(B)** T1-weighted MRI shows hypointense changes in the sacrum. **(C)** T2-weighted MRI shows hyperintense changes in the sacrum

MRI: Magnetic resonance imaging, CT: Computed tomography

imaging in patients presenting with chronic low back pain. Increased clinical awareness and revised imaging guidelines are essential for the timely diagnosis and effective management of SIFs.

Yours sincerely,

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