Bilateral Postpartum Sacral Stress Fracture: An Uncommon Cause of Low Back Pain

Bilateral Postpartum Sakral Stres Kırığı: Nadir Bir Bel Ağrısı Nedeni

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ABSTRACT

Although rare, sacrum stress fractures may be seen in young women during pregnancy and postpartum period. Only two bilateral postpartum sacral stress fracture cases have been reported so far. In this paper, we report the case of a 37 year old woman suffering from low-back and buttock pain which occured two weeks after vaginal delivery.He had negative history for significant medical problems.Direct radiograps, laboratory results and bone mineral density were normal. MRI studies revealed bilateral sacral stress fracture. The patient's complaints significantly improved with pain control, rest, activity modification and supplements of calcium and vitamin D within six weeks.In conclusion sacrum stress fractures should be considered in diagnosis of low back pain in postpartum period.Although majority of the previously reported cases were unilateral, bilateral cases may also be seen.

Keywords: Bilateral, postpartum, sacral fracture

ÖZET

Sakral stres kırıkları nadir de olsa, gebelikte ya da postpartum dönemde görülebilmektedir. Günümüze kadar sadece iki bilateral postpartum sakral stres kırığı olgusu bildirilmiştir. Bu yazıda, normal doğumdan iki hafta sonra ortaya çıkan bel ve kalça ağrısı ile başvuran 37 yaşında bir kadın olguyu sunuyoruz. Hastanın özgeçmişinde önemli bir özellik yoktu. Direkt grafileri, laboratuvar bulguları ve kemik mineral dansitometri sonucu normaldi. MR görüntülemede bilateral sakrum kırığı tespit edildi. Hastanın şikayetleri ağrı kontrolü, istirahat, aktivite modifikasyonu ve kalsiyum ve D vitamini desteği ile altı hafta içinde belirgin şekilde düzeldi. Sonuç olarak postpartum dönemde ortaya çıkan bel ve kalça ağrısı olgularının ayırıcı tanısında, sakral stres kırıkları göz önünde bulundurulmalıdır. Daha önce bildirilen olguların çoğunluğu tek taraflı olmasına rağmen , bilateral olgular da görülebilir.

Anahtar sözcükler: Bilateral, postpartum, sakral kırık

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Introduction

Low back and buttock pain is common during pregnancy and the postpartum period and often related mechanical lesions of pelvic soft tissues or ligaments (1). Sacral stress fractures are unusual, but well-known causes of low back pain and especially occur in elderly population with weakened bone structure due to radiotherapy, metabolic bone disorders or hyperparathyroidism (2, 3). Although less common, sacral stress fractures have been reported in younger population such as long-distance runners (4). In addition a few cases of sacral stress fracture leads to low back pain in pregnant and postpartum patients have been reported previously (5-7). Almost all of these were unilateral fractures, only two were bilateral (6, 7). We report a new case of bilateral sacral stress fractures during postpartum period in a young woman presenting as low back pain.

Case Report

A 37-years-old woman was referred to our clinic with low back and buttock pain that occurred about two weeks after her first normal delivery. The pain was aggravated by walking, sitting on her buttock, and standing, and it decreased by lying down. There was no history of trauma, night pain, weight changes or constitutional symptoms. Her medical history was negative for metabolic bone disease, eating disorders, menstrual irregularities or any significant medical problems.

On physical examination, range of motion of the lumbosacral spine was within normal limits but mild painful in extension and tenderness was found over paraspinal muscles during palpation. There were severe pain and tenderness over bilateral superior gluteal region, and during sacral and iliac compression. Neurological examination was normal. The patient ambulated with a normal symmetric gait.

Laboratory results were normal for blood cell counts, erythrocyte sedimentation rate, C-reactive protein, renal and liver function tests, calcium, phosphorus, alkaline phosphatase and thyroid hormones. Serum parathormone level was 24 pg/ml (15-68) and 25-(OH) vitamin D3 32 µg/l (9.4-59.1). Direct radiographs of lumbar spine and pelvis showed no definite abnormality.

Lumbo-sacral magnetic resonance imaging (MRI) demonstrated microfractures and moderate bone marrow edema in the anterior-inferior aspect of the both side of sacrum (Figure 1, 2, 3). No evidence of significant disk pathology or sacroiliac joint abnormalities was observed. Dual-energy x-ray absorptiometry (DXA) was performed and it revealed the following: L1-4 T score (-0.2), Z score (0.1); right femur neck T score (0.4), Z score (0.7).

Management consisted in pain control with analgesics, rest, weight bearing-activites could be tolerated, supplements of calcium (1200 mg/day) and

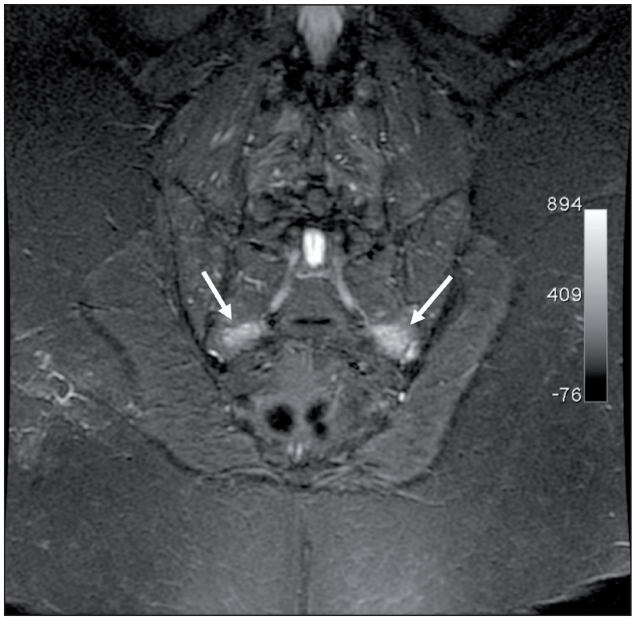

Figure 1. Coronal short inversion-time inversion-recovery sequence MRI of the sacrum demonstrates the microfractures surrounded by bone marrow edema in anterior-inferior part of bilateral sacrum.

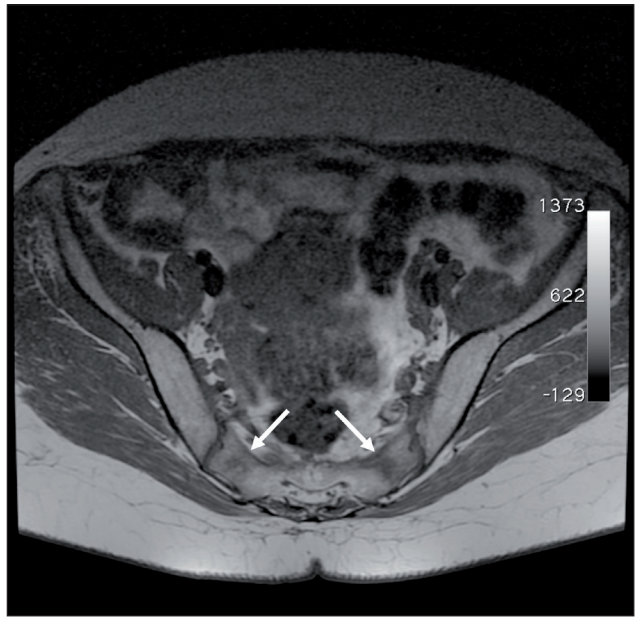

Figure 2. T1 weighted axial MRI of sacrum demonstrates fracture lines as low signal areas in the inferior part of sacral alas.

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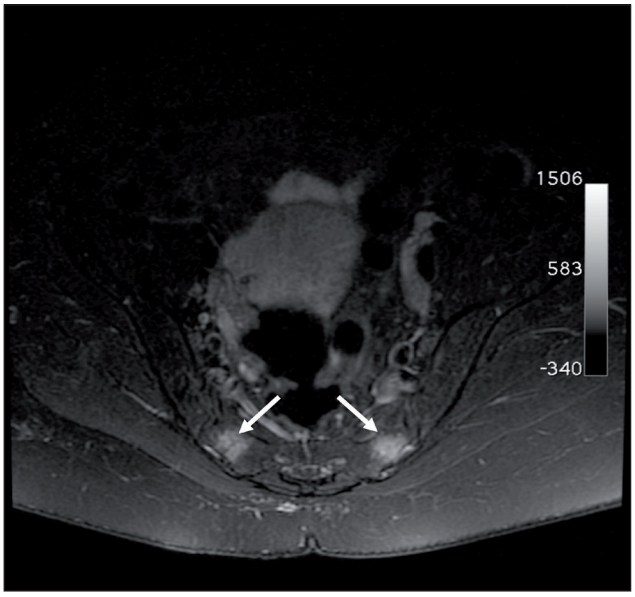

Figure 3. T2 weighted axial MRI of sacrum demonstrates fracture lines as increased signal uptake in bilateral sacral alas.

vitamin D (800 IU/day) and activity modification. The patient's complaints significantly improved within 6 weeks.

Discussion

Stress fractures may be defined as either fatigue fractures occur in normal bone under abnormal stress or insufficiency fractures occur in already weakened bone under normal stress. Lourie (2) first described sacral insufficiency fracture in 1982 as a "distinct clinical entity of spontaneous osteoporotic fracture of the sacrum," in elderly patients. Although uncommon sacral stress fractures are being reported with increasing frequency in young women during pregnancy and the postpartum period (5-9)

The etiology of postpartum sacral stress fractures has not been clearly determined thus far. Pregnancy may lead to sacral stress fractures for many reason such as high levels of relaxin loosened pelvic ligaments, weight gain, contribution of mechanical factors during vaginal delivery and hyperlordosis (5, 10). Moreover a few case of sacrum stress fracture due to pregnancy related osteoporosis have been described (8, 11). In our patient there was no laboratory or radiological evidence for osteomalasia, osteoporosis, or another metabolic bone disease. She had no any risk factors associated with sacral stress fracture apart from the normal vaginal delivery. Therefore fatigue fracture is most likely diagnosis in our patient.

Clinical presentation of sacrum stress fractures includes buttock, and low back pain. Symptoms are exacerbated by weight-bearing activity, whereas they improve with rest and lying down. Radicular symptoms are uncommon but may be seen (9).

Physical examination usually reveals tenderness over the sacrum, buttock and paraspinal muscles and normal neurologic examination (5, 7, 9). Flexion-abduction-external rotation (FABER) and Gaenslen's test are often found positive (12). On our case there were pain and tenderness over bilateral superior gluteal region, and during sacral and iliac compression. Neurological examination was normal.

Imaging studies are quite helpful for diagnosis in accordance with the physical examination. Plain radiographs of the pelvis are the first exam performed but they are often inconclusive due to the presence of fecal material, vascular calcifications and bowel gas, which may overshadow the underlying fracture line. MRI and computed tomography (CT) scans are the examinations of choice to establish the diagnosis. MRI is more commonly being used for the diagnosis of sacral stress fractures because of its ability to determining the presence of marrow edema consistent with fracture, whereas CT scans best illustrates fracture lines. Tc–99m bone scan has also excellent sensitivity to demonstrate sacrum fractures (5, 9). On the lumbo-sacral MRI of our patient, fracture lines were seen in anterior-inferior part of bilateral sacrum.

Differential diagnosis of sacral stress fractures include lumbar disc pathologies, vertebral compression fractures, spinal stenosis, facet and sacroiliac joint dysfunction, hip pathologies, and neoplasms (5, 9). Furthermore metabolic bone disease and pregnancy related osteoporosis should be ruled out through appropriate laboratory studies and DXA. The first step in the treatment of sacral stress fractures is pain control with analgesics and rest. Early weight bearing activites should be recommended in order to stimulate osteoblastic activity and facilitate bone healing. Moreover early mobilization and rapid return to active life minimizes the complications of immobility (5,9,12).

Conclusions

Pregnancy-related sacral fractures are uncommon but should be considered in the differential diagnosis of buttock or low back pain during pregnancy or the early postpartum period. Although majority of the previously reported cases were unilateral, bilateral cases may also be seen.

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