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Sacral Stress Fracture in a Young Healthy Athlete

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Abstract

A healthy 25-yr-old male weightlifter presented with a 1-yr history of atraumatic right buttock pain. His pain had increased over time and was limiting his ability to exercise. At the time of presentation, he could not bear weight on the right buttock in the sitting or supine position. His gait was antalgic, favoring the right. There was increased fullness of the right gluteal muscles compared with the left, with tenderness in the region of the right sacroiliac joint. Active right hip flexion was painful. Strength, sensation, and reflexes were normal in the bilateral lower limbs. Fabere test was positive on the right.

Because previous plain film results of the lumbar spine were negative, magnetic resonance imaging of the lumbar spine and pelvis was obtained. The magnetic resonance imaging revealed bone marrow edema with a T1 hypointense line on both sides of the right sacroiliac joint, best seen in coronal sections, consistent with stress fracture (Fig. 1A–B).

Sacral stress fractures are being reported with increasing frequency in the medical literature.¹ There are two subcategories of stress fractures, fatigue and insufficiency, with the fatigue subtype predominant in athletes.² Leg length discrepancy leading to unequal stride length and asymmetrical movements of the lower spine, sacroiliac joints, and hips has been proposed as a predisposing factor.¹ These fractures are thought to often result from training errors when excessive or rapid increases in the athlete's training regimen cause muscle fatigue, with resultant stress to the bone that exceeds its ability to regenerate.² These injuries are most often seen in runners or military recruits, with female athletes at higher risk than male athletes.^{1,2}

Diagnosis is most effectively made by bone scintigraphy or magnetic resonance imaging, as plain radiographs are not generally sensitive enough to reveal stress fractures.³ Computed tomography scans can be useful in staging the fracture line.³

Treatment involves rest and activity modification. A progressive return to athletic activities is advocated, starting with non-weight-bearing exercises, followed by strength training and correction of strength imbalances, and finally, gradual reentry into sport-specific activities.² Proper nutrition is also important for healing.² This patient improved rapidly with relative rest. A follow-up computed tomography obtained 3 mos later showed no further evidence of fracture. He was advised to abstain from deep squats beyond 90 degrees indefinitely, as this exercise was felt to be the most likely precipitant of his injury.

Referemces

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Figure 1. Coronal T1 image (A) demonstrates a fracture line involving predominantly the fibrous portion of both sides of the right sacroiliac joint, with associated edema demonstrated on image (B).