

Sacral stress fracture during pregnancy—a case report

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A 28-year-old orthopedic nurse presented with pain in the lower back and right hip, starting during the last 3 months of pregnancy and continuing for 1.5 months after delivery. She had a negative personal and family history. She gained 9 kg during pregnancy and gave birth to a normal boy after 40 weeks of gestation. Labor took 4 hours. Walking was difficult and she had pain in the lower back and groin when lifting her child, but no irradiating sciatic pain. She consulted us because her limp had gradually become worse. Physical examination revealed a Trendelenburg's gait pattern. Internal and external rotation of the right hip were restricted and painful. Pressure on the groin was not painful, but the sacral area was tender.

A plain radiograph of the pelvis showed a widened symphysis. To exclude avascular necrosis or transient osteoporosis of the hip, MRI was performed. This revealed a possible sacral stress

fracture. CT-scan confirmed this diagnosis. A period of absolute rest was prescribed and all symptoms disappeared after 2 months. 2 years later she gave birth to a healthy girl. The delivery was uneventful and she had no recurrence of the stress fracture.

Discussion

Sacral stress fractures are uncommon (McFarland and Giangarra 1996). They are mostly reported in athletes or in osteoporotic patients (Hoang et al. 1988, Brahme et al. 1990, McFarland and Giangarra 1996). To our knowledge, only one case has been described occurring during pregnancy and this was in a woman who gained 20 kg (Hoang et al. 1988). Since low back pain is frequent during pregnancy, we think that stress fractures usually are undiagnosed. During gestation and breast feeding, there is a combination of predisposing factors. Increased levels of relaxin loosen the pelvic ligaments of the pubic symphysis and the sacroiliac joints. It is known that pubic instability may cause sacral stress fractures (Albertsen et al. 1995). Moreover, gain in weight and hyperlordosis increase stress on the sacrum (McFarland and Giangarra 1996). Finally, a higher level of prolactin induces osteopenia, which diminishes during weaning (Kent et al. 1990).

The stress fracture is usually not detected on plain radiographs, only widening of the symphysis can sometimes be seen (Hoang et al. 1988, Albertsen et al. 1995, McFarland and Giangarra 1996). Radionuclide bone scan and MRI have the highest sensitivity (Hoang et al. 1988, Brahme et al. 1990, Albertsen et al. 1995, McFarland and Giangarra 1996). On bone scan, the characteristic "butterfly" sign is seen in bilateral cases. Since the pelvis is a closed ring, pubic instability generally results in bilateral sacral fractures. However, in



MRI of the sacrum: T2 Turbo Inversion Recovery Sequence. The hypointense zone shows the fracture with early callus formation. The hyperintense zone shows the surrounding edema.

our case it was unilateral clinically and radiographically.

On MRI a stress fracture is difficult to distinguish from a malignancy or infection on T1-sequences (Hoang et al. 1988, Brahme et al. 1990, McFarland and Giangarra 1996). Therefore we used the T2-weighted Turbo Inversion Recovery Sequences. The hypointense zone shows the fracture and callus with the surrounding hyperintense edema (Figure).

A CT-scan is helpful since it images the osseous lesion most accurately, but should be obtained only after delivery (Hoang et al. 1988, Brahme et al. 1990, McFarland and Giangarra 1996).

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