Inner Spaces
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Points

- Ankylosing spondylitis (AS) and other seronegative spondylo-arthropathies (SPA) are common conditions in clinical practice
- Though clinical and biochemical parameters are very useful in reaching a diagnosis, often it is helpful to evaluate the status of the sacro-iliac (SI) joints
- If there is erosive sacro-ilitis, it suggests AS and SPA
- MRI, using special sequences for the articular surface, is the most sensitive technique for this and precedes plain x-ray changes by almost two years

MRI SI joints

Patients suspected to have ankylosing spondylitis (AS) or other seronegative spondylarthropathies (SPA) are diagnosed using a combination of clinical and biochemical parameters. The patients invariably have signs and symptoms of an inflammatory arthropathy (low back pain, morning stiffness, tenderness in the low back and over the sacro-iliac joints) and / or a positive HLA-B27. They may also have conditions such as inflammatory bowel disease, psoriasis or Reiter's which make diagnosis easier.

Of all the joints to get involved in AS and SPAs, the sacro-iliac (SI) joints are usually the first and often the ones to be the most severely involved. The diagnosis of an erosive arthropathy involving both SI joints is almost always suggestive of an SPA.

Traditionally plain radiographs (Fig. 1) have been used to diagnose sacro-ilitis. However the changes on plain radiographs occur late in the course of the disease. Though CT scan also shows the erosions well (Fig. 2), the earliest findings are known to occur with MRI (Fig. 3A). MRI findings precede plain radiographic findings by at least two years in most instances.

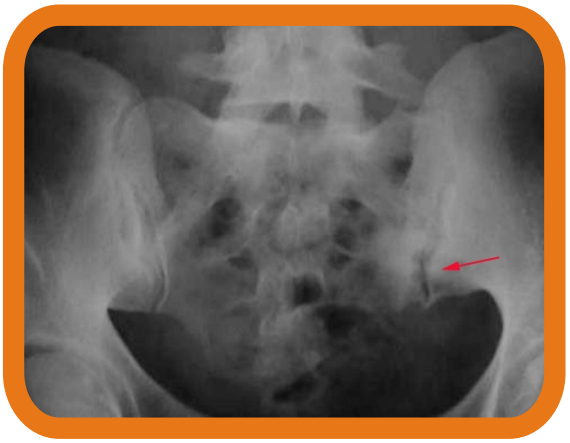

Fig. 1

Fig. 1. *Sacro-ilitis - plain radiograph. The plain radiograph of the SI joints shows typical findings of obvious erosions (arrow) and mild sclerosis.*

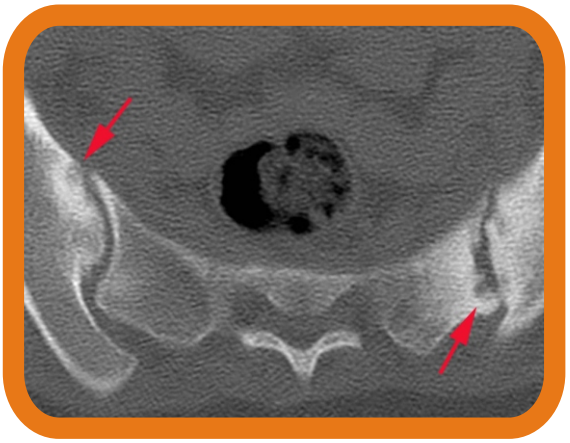

Fig. 2

Fig. 2. *Sacro-ilitis - CT scan. The CT scan shows typical findings of bilateral asymmetric erosions (arrows) and sclerosis.*

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Using special MRI sequences, which allow us to evaluate the articular surface and cartilage in detail, it is easy to look for erosions as well as sclerosis and fat infiltration (Fig. 3B). More importantly, the presence of marrow edema (Fig. 3C), helps in assessing disease activity and usually correlates with the presence, site and extent of pain.

Disease may occasionally be unilateral (Fig. 4), in which case it may be confused with tuberculosis. However in the absence of frank osteolysis and a soft tissue abscess, unilateral sacro-ilitis is more likely to represent inflammation rather than infection.

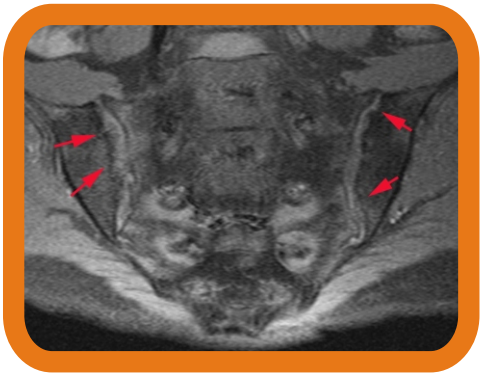

Fig. 3A

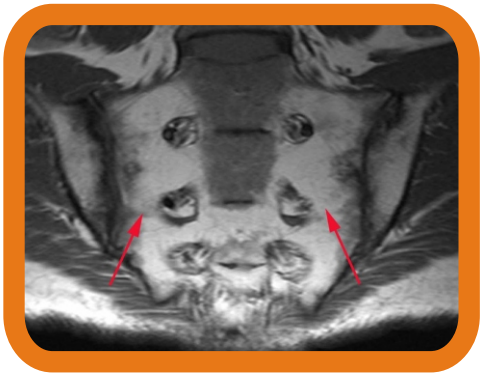

Fig. 3B

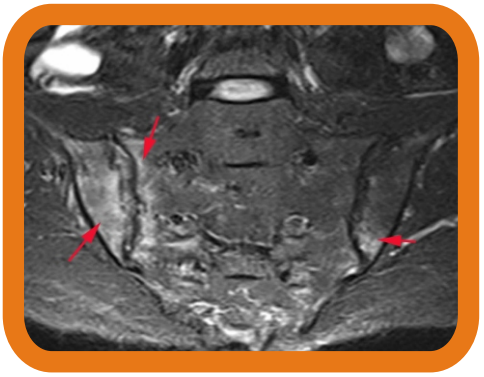

Fig. 3C

Fig. 3 (A-C): *Sacro-ilitis - MRI. The special T1W fat-sat image (A) for the articular surface shows bilateral articular margin erosions (arrows). The T1W image (B) shows extensive fat proliferation (arrows), while the STIR image (C), shows bilateral asymmetric marrow edema, which appears bright (arrows).*

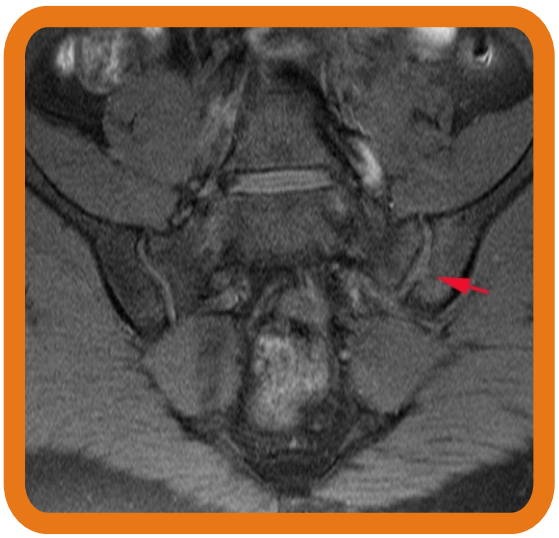

Fig. 4A

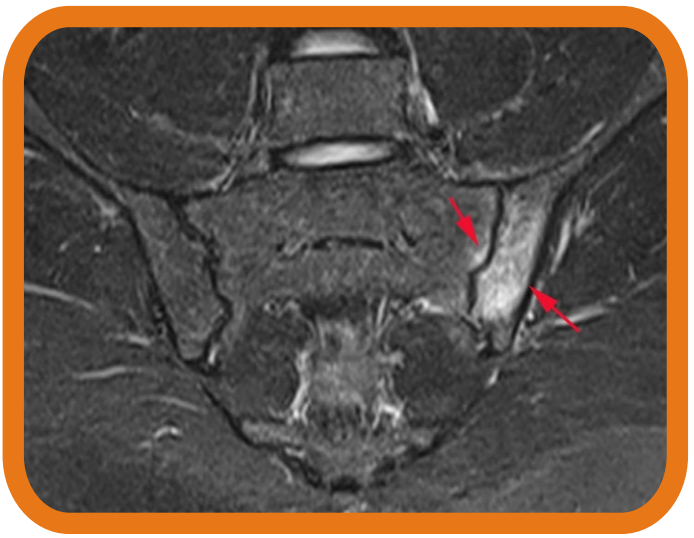

Fig. 4B

Fig. 4 (A,B): *Unilateral sacro-ilitis - MRI. The special T1W fat-sat image (A) shows articular margin erosions (arrow) only on the left with the STIR image (B) showing marrow edema involving both surfaces of the left SI joint (arrows).*

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