

VALUE OF MRI IN DIAGNOSIS OF STRESS FRACTURES

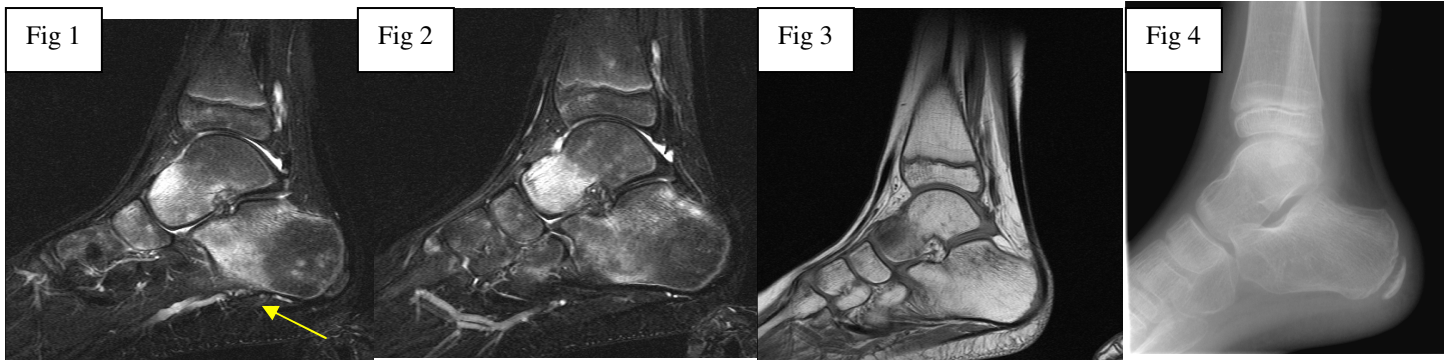


Fig 1-2: Sagittal STIR images showing bright marrow edema in multiple bones, especially talus and calcaneus. **Fig.3:** Sagittal T1W showing dark edema in talus. **Fig 4:** Lateral x-ray showing no definite fractures.

CLINICAL HISTORY:

This 7-year-old boy presented with bilateral foot pain after walking. He had recently come out of a cast for a healed spiral tibial fracture on the right side and had resumed Karate lessons for a few weeks prior to complaints of foot pain. X-rays were negative except for possible osteopenia.

MRI FINDINGS:

The MRI was very impressive for multiple areas of bilateral marrow edema in the heels and talar bones and some of the metacarpals, worst in the right talus and both calcanei. With negative x-rays (and even negative CT – not shown), these findings were compatible with multiple stress-type trabecular fractures.

DISCUSSION:

MRI is an excellent modality for diagnosis of marrow edema related to multiple causes: trauma, infection, arthritis, neoplasm, etc. MRI is almost 100% sensitive when a FAT SUPPRESSION technique, such as STIR (stands for Short Tau or Short TI Inversion Recovery) or T2 Fat Sat sequence, is utilized. In the above case, STIR images were obtained. Some of the marrow edema areas cannot be seen on T1 and T2W images. In most cases, X-rays are unremarkable. Bone scan would also be sensitive, but the disadvantages are: 1. probably not as sensitive as MRI; 2. more time consuming (inject the patient first, perform an initial angiographic phase, and a delay scan in 2 hours); 3. involves radiation.

CONCLUSION:

MRI is indicated in a patient with non-specific extremity pain, including foot/heel pain, to rule out occult fractures not visible by x-rays.

For more information, please call me directly.

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