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INNER SPACES
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CT-Like Bone Images on MRI

There are many instances where we need to do a CT scan along with an MRI to see bony or articular lesions better. This is often a logistical problem necessitating another test or going from one place to another.

Over the last few years, the use of zero echo time or ultra-short echo time (ZTE/UTE) sequences on MRI has allowed the acquisition of CT-like bone images that are often good enough to avoid the need for a formal CT scan.

This sequence is useful to diagnose fractures (Figs. 1, 2, 3), enthesophytes (Fig. 4) and sometimes better appreciation of calcification/ossification and tumors.

As the technology becomes more robust, we will likely see it being used more and more to add to the information and MRI can give us in the bones and joints.

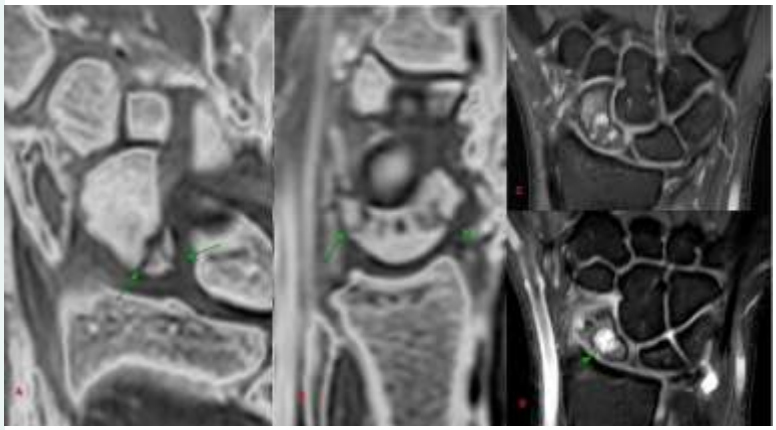

Fig. 1: Proximal scaphoid fracture and fragmentation of proximal fragment. The coronal MRI images (C, D) show the scaphoid fracture with cystic change, but the CT-like bone

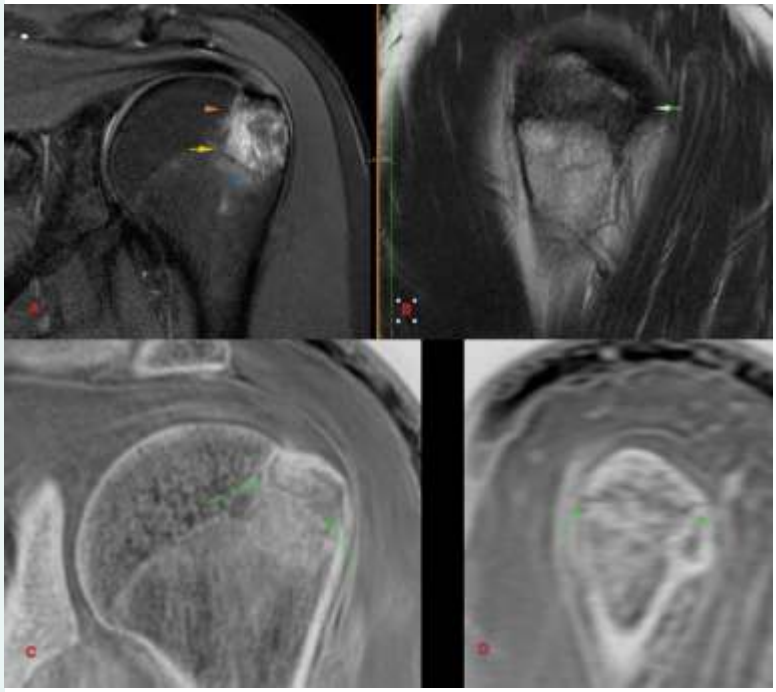

Fig. 2: Greater tuberosity fracture – non-displaced. Coronal (A) and sagittal (B) MRIs show a non-displaced fracture of the left greater tuberosity after trauma. The CT-like bone images (C, D) show the fracture line much better in both planes.

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At a glance

- MRI is great for bone and articular pathologies.
- In many instances such as fractures, ossification, calcification, entheophytes and tumor margins, a CT scan is needed.
- ZTE/UTE MRI sequences can provide CT-like bone images and help obviate the need for a CT in many instances.

Fig. 3: L3 fracture. Sagittal T2 MRI (A) shows an L3 fracture with posterosuperior retropulsion and canal compromise. The CT-like bone image (B) shows this well with better appreciation of the retropulsed fragment.

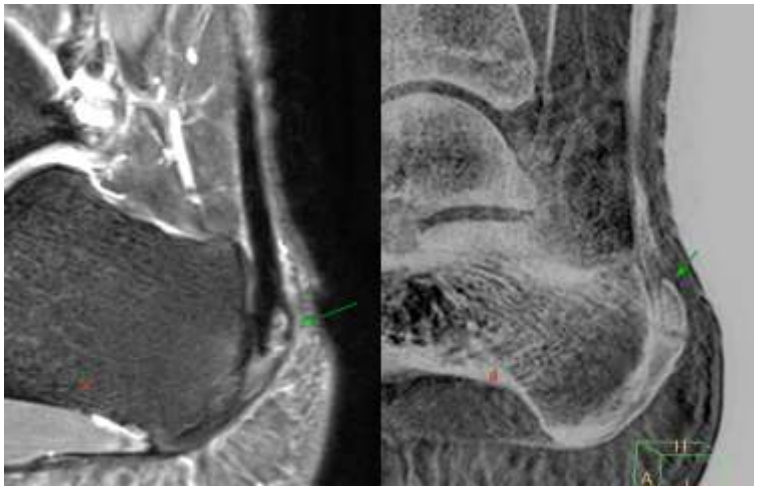

Fig. 4. Calcaneal enthesophyte. Sagittal PD image (A) shows a dorsal calcaneal enthesophyte with Achilles tendinitis. The CT-like bone image (B) shows the enthesophyte much better. There were three separate enthesophytes all well depicted on this sequence.

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