

**MR / CT ARTHROGRAPHY of the SHOULDER:**  
**WHY THEY ARE BECOMING MORE ROUTINELY USED**

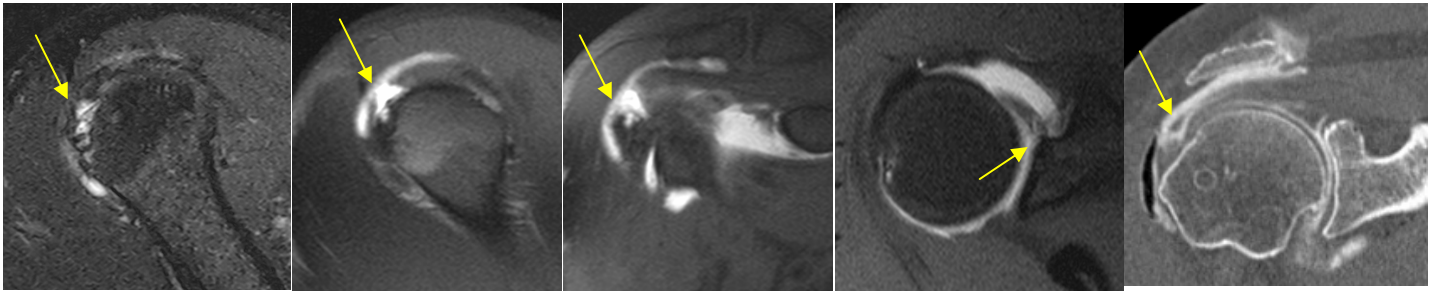


FIG. 1a

FIG. 1b

FIG. 1c

FIG. 2

FIG. 3

This is a sequel to a previous newsletter on MR/CT arthrography. In this newsletter, the value of shoulder arthrography, even in the absence of prior surgery, is discussed. Some imaging centers routinely perform shoulder MR arthrography.

**Q. WHAT IS MR /CT ARTHROGRAPHY?**

Intra-articular **contrast** is injected under CT or fluoroscopic-guidance and MRI images with fat suppression or high-resolution (0.5 mm thick) CT slices are obtained and multiplanar reformations are acquired.

**Q. WHAT ARE SOME ADVANTAGES?**

- Routine MRI of the shoulder is excellent for diagnosis of rotator cuff rupture. However, frequently it is very difficult to distinguish between a small tear and focal tendonitis and to differentiate between a small full-thickness tear and a partial-thickness tear (the former usually requiring surgery). MR/CT arthrography has nearly 100% accuracy for a full-thickness tear and can demonstrate partial tears as well. Precontrast images are still required for diagnosis of tendinosis, bursitis, and intrasubstance tears. **Fig. 1a** is a precontrast sagittal T2 Fat Sat image showing a focal area of tendonitis vs. a tear (which appears partial at best) in the anterior supraspinatus tendon (SST). **Fig. 2a, b** are arthrogram sagittal and coronal images clearly demonstrating a small, actually full-thickness, tear less than 1 cm causing the intraarticular contrast to communicate with the bursa (arrows).
- Routine MRI of the shoulder can show large labral/biceps tears, but small labral tears including Bankhart lesions (torn antero-inferior labral tear due to anterior dislocation) and SLAP lesions (superior labrum anterior posterior tear) may not be well visualized. **Fig. 2** is an axial image showing a subtle superior labral tear (SLAP lesion).
- CT arthrogram is preferable if the patient is claustrophobic. **Fig. 3** is a coronal shoulder CT arthrogram showing a full-thickness tear of the SST.

**MR/CT Arthrography:** enhances accuracy of RCT tears in the shoulder to nearly 100%, and also greatly improves diagnosis of labral or biceps tendon pathology including SLAP lesions; nearly 100% accuracy in the wrist for ruling out TFCC or SLL tears; significantly improves diagnosis of chondromalacia in any joint. Most shoulder MRI's should be done with arthrography to avoid confusing partial or small full-thickness tears with tendonitis, and also to adequately evaluate the biceps tendon and glenoid labrum (including diagnosis of Bankhart and SLAP lesions).

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