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

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 chondralmalacia 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).

For more information, you may call me at (661) 949-8111.

Ray Hashemi, MD
Ray H. Hashemi, M.D., Ph.D., Director