

Appropriate Diagnosis

When to use MRI for knee and shoulder injuries

By Thomas J. Klein, MD

For amateurs and professionals alike, the knee and shoulder are particularly vulnerable to athletic injury. Many patients visit their primary care physicians for evaluation and treatment when acute injuries to these joints occur or chronic conditions are aggravated.

Often, common knee and rotator cuff injuries that patients experience are less severe and do not require an MRI. While each case must be evaluated individually, some

general guidelines apply to determine whether to treat a knee or shoulder injury conservatively, order an immediate MRI, or send a patient on for orthopaedic consultation.



Before ordering an MRI scan of the knee or shoulder the orthopaedist makes judgments about whether the scan will make a real difference in determining the best treatment to improve the patient's outcome.

Following are guidelines to determine the need for an MRI of the knee:

Trauma/acute injuries – If a patient experiences a trauma and/or sudden athletic twisting injury that results in significant swelling and ambulatory loss or a sudden giving way with an indication of a meniscal or ligament tear, a timely MRI is indicated. If an ACL injury is suspected in a patient where there may be a delay in orthopaedic assessment, order an MRI immediately to minimize unnecessary delay in treatment.

Acute joint line pain – In the case of acute joint line pain and tenderness exacerbated by any twisting motion, an MRI is indicated when symptoms are severe or persist for more than three to four weeks. Given that an x-ray is a cost-effective diagnostic measure, it is best first to order an x-ray to confirm the absence of significant arthritis or other bone abnormalities.

Arthritis – When moderate to severe arthritis is suspected or appears on the x-ray, an MRI can be postponed until the patient is evaluated by an orthopaedist. Frequently, arthritic conditions are assessed more accurately with specific radiographs. Orthopaedists prefer three views: AP standing, lateral, and sunrise.

Chronic knee pain – In the absence of acute pain, buckling or giving way of the knee, an MRI is not necessary prior to orthopaedic evaluation. With chronic knee pain, an MRI is not advised unless conservative therapies (medication and physical therapy) have proven ineffective.

The basic guidelines for ordering an MRI of the shoulder are similar:

Acute injury – An immediate MRI is indicated if a patient falls or experiences a sudden loss of strength or a sudden ripping pain and an inability to raise the arm.

Rotator cuff tear – In the case of a tear, the patient will be unable to move the arm, but the physician will be able to raise it. This situation indicates the need for an MRI of the shoulder. Generally, partial rotator cuff tears

are less clearly defined clinically and necessitate evaluation by an orthopaedist.

Frozen shoulder – In the case of a frozen shoulder, neither the patient nor the physician can lift the shoulder, with differences existing between the symptomatic and asymptomatic side. When this occurs, an MRI is not initially necessary because treatment almost always involves NSAIDs, cortisone injection, or physical therapy.

SLAP or labral tears – Many throwing or overhead athletes such as baseball, volleyball, or tennis players present with chronic shoulder pain where a superior labral anterior to posterior (SLAP) or labral tear may be suspected. An arthro-MRI is recommended for such patients because the injected dye allows a much more accurate diagnosis of the tear.

Shoulder dislocation – An acute dislocation of the shoulder should be referred to an orthopaedist for a decision regarding the use of MRI. In the case of radiographically undocumented recurring dislocation, if an MRI is ordered it should again be an arthro-MRI for more specific imaging.

Tendonitis – In patients with rotator cuff tendonitis it is often difficult to determine if a small or partial tear is present. If the patient has failed conservative care consisting of anti-inflammatories, cortisone, and physical therapy, then an MRI may be needed.

Arthritis – As with the knee, if arthritis is suspected and initially confirmed by x-ray, an MRI can be postponed until the patient is evaluated by an orthopaedist.

A broad rule of thumb for determining whether to order an MRI: Use the test when it will make a difference in making decisions about a patient's course of treatment. Generally, a patient needs an MRI only when he or she is considering surgical treatment. Ultimately, the goal of both the primary care physician and the orthopaedist is to minimize unnecessary (and expensive) testing and to maximize the MRI test to ensure that patients get the most appropriate care and enjoy a timely return to their active lifestyles. **co**



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