

## Reassessing the Role of MRI in the Evaluation of Knee Pain

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► See related article on page 247.

Magnetic resonance imaging (MRI) has been established as an effective, noninvasive test for identifying meniscal tears and other knee pathology. When used for the appropriate indications, MRI is a valuable tool in the evaluation and management of knee pain. However, it may provide clinically irrelevant information by identifying pathology that is not related to a patient's symptoms, which may ultimately lead to unnecessary surgery. Primary care physicians should consider this and other issues, including increased costs of care, before ordering MRI for patients with knee pain.

Several studies have shown that MRI may identify signal change that suggests a meniscal tear when the meniscus is not actually torn.<sup>1</sup> Other studies have shown that even when a meniscal tear is detected, it may not be related to the presenting symptoms.<sup>2,3</sup> Research suggests that a fairly high percentage of arthroscopic procedures may be performed based on abnormal MRI findings instead of clinical findings.<sup>4</sup>

A thorough patient history and physical examination combined with plain radiography are effective in differentiating surgical knee pathology (e.g., meniscal and ligamentous tears, loose bodies) from nonoperative, patellofemoral (anterior) knee pain.<sup>1,5</sup> Most patients with knee symptoms have patellofemoral knee pain or some other form of tendinitis and do not require surgery. MRI is not needed to differentiate a patient with patellofemoral pain or tendinitis (who would not benefit from surgery) from one who requires surgery.

When and under what circumstances should MRI be obtained in the evaluation of knee pain? Most patients will improve after four to six weeks of conservative care (e.g., anti-inflammatory medication,

physical therapy); therefore, emergent MRI is typically not required. Even in patients with a suspected anterior cruciate ligament tear, there is no urgent need for MRI because surgery is usually performed after knee rehabilitation has started. The only situation in which urgent MRI (within four weeks) is required is when a younger, athletic patient (younger than 40 years) sustains a traumatic injury, is unable to straighten the leg, and has a suspected meniscal tear. In such cases, MRI can be helpful in identifying repairable meniscal tears (especially the “bucket-handle” variety), and surgery should be performed within a few months to optimize outcomes.<sup>6</sup> Aside from this indication, MRI should not be performed for at least four to six weeks after the onset of knee pain, and then only after conservative treatment has been ineffective. As discussed by Grover in this issue of *American Family Physician*, MRI can then be used as a confirmatory test before surgery in patients with suspected internal derangement based on historical and physical examination findings.<sup>7</sup> MRI may also be helpful in patients with persistent pain after a few months of conservative treatment, in whom the etiology is not known. In these patients, MRI can rule out surgical pathology, such as a meniscal tear.<sup>7</sup> Surgery may not be advisable for patients in whom clinical findings do not correlate with MRI results. When used for the appropriate indications, MRI has been shown to decrease the number of arthroscopies performed.<sup>1,8</sup>

The bottom line is that there needs to be a good reason to obtain knee MRI, and in the majority of cases there is no rush. Performing MRI in patients without supporting clinical findings and without an initial trial of conservative treatment can be detrimental, encouraging patients to take a passive role in their care. The patient may focus on an abnormal—perhaps incidental—MRI finding rather than on the need to rehabilitate the knee. The patient may ultimately be ►

referred to an orthopedist, with the false expectation that surgery will be curative because of the MRI findings. To satisfy the patient and referring physician, an orthopedist may be willing to perform knee arthroscopy. Unfortunately, the patient's condition may not improve with surgery. Therefore, an expensive series of events has taken place without resolution of symptoms, and the patient has been exposed to unnecessary surgical risks.

In conclusion, primary care physicians have a critical role in establishing appropriate expectations in patients with knee pain. Evaluation must be based on a thorough history and physical examination, rather than relying on MRI. When used judiciously, knee MRI should decrease the number of surgical procedures performed, resulting in better patient outcomes and significantly decreased costs.

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