

# “But the MRI of the Ankle Is Normal....”

Glenn B. Pfeffer, MD

**M**agnetic resonance imaging (MRI) is an invaluable tool for the orthopedic surgeon. The foot and ankle lends itself particularly well to the multiplanar images. Too often, however, in the face of a normal MRI reading, the correct diagnosis is never made. These patients are often diagnosed with a “chronic sprain” and treated for months with cortisone injections, braces, orthotics, and physical therapy.

Two years ago we opened the Cedars-Sinai/University of Southern California Dance Medicine Center. Four of our first patients were young ballet dancers whose professional careers had been cut short by chronic posterior ankle pain. Each patient had had an MRI of the ankle that was read as normal and had received more than 9 months of treatment without benefit. In 2 cases, the workers’ compensation insurance carriers had cut off treatment because of the normal MRI readings. In this issue of *The American Journal of Orthopedics*, there is an excellent review from the University of Miami on the radiologic aspects of posterior ankle impingement, which was the source of symptoms in our dancers. After surgical excision of the os trigonum, they were all able to resume their careers without pain.

Over the past decade there have been significant advances in MRI imaging, largely because of the increased acuity of our radiology colleagues and the improved sensitivity of their MRI magnets. The subtleties of an ankle MRI can be difficult to interpret, however, even in the best hands. A nonunion of the anterior process of the calcaneus, a small tear of the peroneus longus or, for that matter, a pathologic os trigonum, may be present on a scan, but not understood by the reader. The result is a “normal study,” the wrong course of treatment, and chronic pain.



**“...insurance carriers frequently base their treatment decisions on an MRI reading...”**

There are certain ankle conditions that continue to elude detection by MRI. Soft-tissue impingement of the ankle is a common problem that can rarely be visualized, nerve entrapments are essentially invisible to the scanner, and isolated chondral lesions are almost never picked up, except by the most powerful magnets and the most skilled radiologists. Mechanical ligamentous laxity is another condition that remains a clinical diagnosis, often not supported by MRI findings. Unfortunately, insurance carriers frequently base their treatment decisions on an MRI reading, as happened with our Dance Medicine Center patients. Worse yet, an orthopedic surgeon may rely on an incorrect MRI report to determine treatment.

There are several key issues to consider in the evaluation and treatment of chronic ankle pain:

1. If a patient has more than 3-4 months of symptoms following an injury, something is wrong. “Chronic sprain” is not a diagnosis.

2. Since most of the foot and ankle is readily accessible to palpation, the exact localization of a patient’s tenderness is more valuable than any ancillary study. Ask your patient to focus on his/her symptoms and mark the epicenter of the pain.

3. A careful examination for ankle laxity should be performed several times. It is not uncommon to miss laxity on one exam, perhaps because of patient guarding, only to detect it on the next. In watching the residents, I have come to appreciate how difficult it is to master the exam of ankle laxity. Check for generalized ligament laxity and always compare sides. A stress radiograph can be helpful.

4. Ankle laxity, peroneal tendon tears, and intra-articular ankle lesions often occur together. If one is present, be sure to exclude the others.

5. Look for subtalar pathology, which may be present but not mentioned on a radiograph or MRI report.

Dr. Pfeffer, the journal’s Associate Editor for Foot and Ankle, is Director of the Foot and Ankle Center, Cedars-Sinai Medical Center, Los Angeles, California.

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6. The differential injection of lidocaine is an invaluable technique, especially in a patient with a normal MRI reading. Patients with an intra-articular soft-tissue impingement or a chondral lesion, for example, will be transiently cured by an injection into the affected joint.

7. Complex regional pain syndrome (CRPS) occurs but is often overdiagnosed. Exclude all

other possibilities before making the diagnosis of CRPS.

8. Review the actual MRI, not just the report. Study the T<sub>2</sub>-weighted fat-suppressed images. High signal within a ligament, tendon, or bone is usually abnormal.

9. A technetium-99 bone scan may be non-specific, but it is highly sensitive and not reviewer dependent. A study limited to the feet and

ankles has helped me sort out many suboptimal MRIs.

10. When you order an MRI, provide a list of potential diagnoses. The more the radiologist knows, the better chance you have of getting an accurate MRI reading.

Every day in clinic I see patients with normal MRIs and chronic undiagnosed ankle pain. This editorial is for them.

## 2009 Resident Writer's Award

The 2009 *Resident Writer's Award* competition is sponsored through a restricted grant provided by DePuy. Orthopedic residents are invited to submit original studies, reviews, or case studies for publication. Papers published in 2009 will be judged by *The American Journal of Orthopedics* Editorial Board. Honoraria will be presented to the winners at the 2010 AAOS annual meeting.

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