IMAGING 360°

Rheumatoid Arthritis

In rheumatoid arthritis, imaging often helps contribute to early diagnosis, and can assess response to treatment. But all forms of imaging are not equal in RA.

While both ultrasound and MRI can visualize synovitis and erosions, only MRI can show osteitis.

Dr. Norman B. Gaylis, a practicing rheumatologist in Aventura, Fla., and the president of International Society of Extremity MRI in Rheumatology (ISEMIR), has been using imaging in his practice for many years.

He has a small-magnet (0.27 T) MRI extremity scanner, which he uses not only to diagnose RA but also to monitor patient response to treatment.

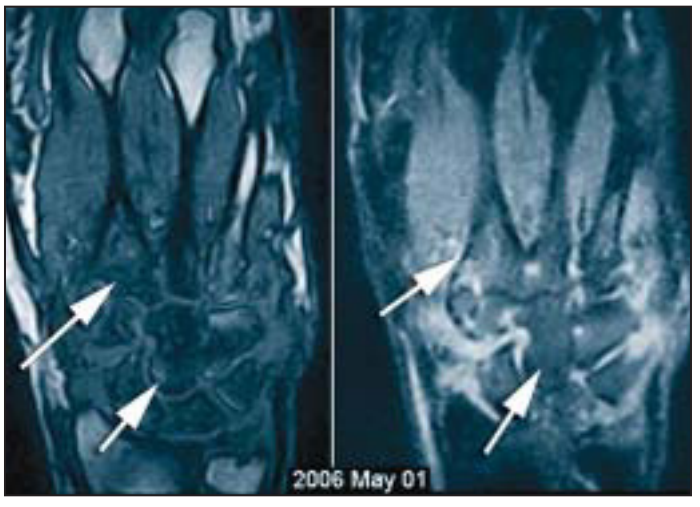
He also uses in-office ultrasound. "I think MRI and ultrasound are very different modalities. Everyone tries to compare them . . . but that's not how they're meant to be used. They should complement each other, not be alternatives."

Here are Dr. Gaylis' thoughts on how different imaging modalities can help to better manage RA.

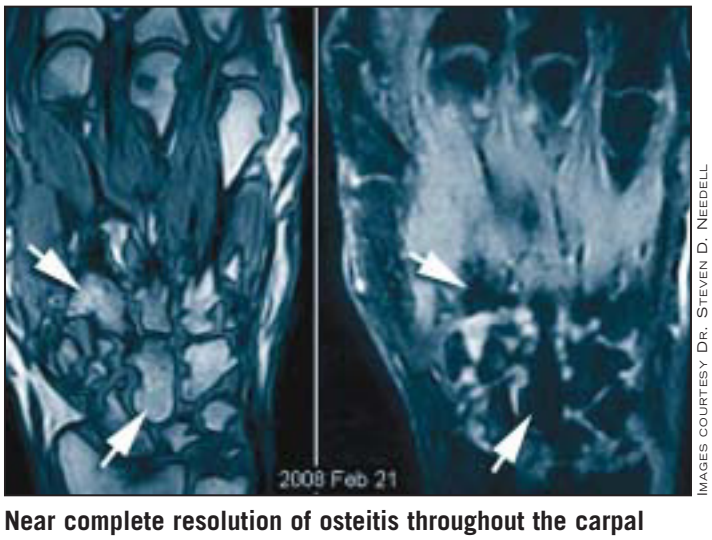
MRI

MRI is useful for much more than simply making an early diagnosis. MRI is also a powerful tool for helping to manage, maintain, and adjust a patient's treatment regimen.

We have 10 years' experience using MRI to evaluate and monitor rheumatoid arthritis changes. The detection of erosions that are not present on x-ray is not the exclusive reason for using MRI. Visualization of bone marrow edema is equally important, Dr. Gaylis noted.



T1 (left) and STIR imaging (right) reveal a profound, diffusely abnormal signal consistent with osteitis (arrows).



Near complete resolution of osteitis throughout the carpal bones and metacarpal bases (arrows) can be seen.

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In fact, osteitis and synovitis "are almost markers for disease activity in RA," particularly in patients who appear to be free of inflammation by other indicators (sedimentation rates, CRP levels, and subjective perception of wellness). "On MRI, the presence of synovitis or osteitis may be a reason to continue treatment," said Dr. Gaylis.

On the other hand, when no osteitis, synovitis, or active erosions are visible using MRI, it suggests the time has come to discontinue biologic treatment. If, on repeat MRI in 6-12 months, there are no signs of active disease, the patient is in remission. On the other hand, if there are signs of disease activity on repeat MRI, biologic treatment needs to be restarted.

Ultrasound is a good option when you're not sure what is going on with your patient and you need to know right away.

DR. GAYLIS

It's generally adequate to repeat MRI scans on a yearly basis, regardless of the treatment. However, clinical or serologic findings may prompt rescanning sooner.

Some patients who are clinically and serologically in remission with no progression on MRI for several years of observation may not require continued yearly imaging, Dr. Gaylis said.

Getting paid for performing MRI scans for RA remains a challenge, largely because of the American College of Rheumatology white paper, "Evaluation of Low Field Extremity Magnetic Resonance Imaging (MRI)," which has been used as a basis to deny reimbursement.

In May 2008, however, the ACR issued a letter (see resources box), in which the organization stated that insurance companies should not be using the white paper to deny coverage or reimbursement for MRI scans to evaluate RA. "It's clear that MRI imaging, both high field and low field, is more sensitive than plain x-ray in detection of erosions and osteitis," the letter stated.

"One still has to recognize that this is a problem with some insurance companies. There are other insurance companies that are very up to date with the literature," he said. For the majority of insurance companies with which Dr. Gaylis works, "once I have documented the reason why, they are actually reimbursing."

In-office MRI can be attractive to some rheumatologists. "The bulk of [RA] patients who need an MRI in a community environment would have to be referred to an MRI center," said Dr. Gaylis. These facilities have a number of drawbacks. The first is scheduling, because RA patients must compete with patients from a number of other specialties.

In addition, these facilities typically use large, whole-body, high-field scanners. Positioning is very uncomfortable for RA patients in these large machines, which require hands above the head.

These scans are usually read by radiologists who do not have specific musculoskeletal training. These radiologists "are never going to have the ability to interpret and understand the nuances of RA findings to the same extent as someone who is a board-certified musculoskeletal radiologist, who is reading the scans of 100 RA patients a week," he said.

Ultrasound

Ultrasound "definitely does help us see synovitis," said Dr. Gaylis. "We know that clinically there may be no evidence of synovitis and yet in many cases the Doppler ultrasound imaging is going to be positive." Ultrasound is very helpful in following disease activity by measuring synovial inflammation.

Ultrasound is a good option when you're not sure what is going on with your patient and you need to know right away if there is inflammation that needs to be addressed. "We use it in the in-between periods for that reason," he said.

Ultrasound's convenience makes it an attractive imaging modality. "The beauty of ultrasound is that you can pull out the ultrasound machine while the patient is in the office. You can look at a few joints in the hand or the wrist or the elbow. You don't have to go through the process of MRI," said Dr. Gaylis.

Ultrasound also can be used to visualize erosions, though this is very dependent on the experience of the technician and viewer. "Having experience in ultrasound is something that is critical for the management of these patients."

Dr. Gaylis has an ultrasound technician in his office. He finds that it is easier to read the image if someone else is handling the technical component. He and the technologist will discuss the reading while it's being done. However, many rheumatologists perform their own ultrasound imaging.

It's almost mandatory to go to ultrasound courses to learn how to perform and read. He recommends 6 months of ultrasound practice without billing, just to become comfortable with the technique.

X-Ray

"X-rays don't help me much if at all in the diagnosis and management of rheumatoid arthritis, especially in the peripheral joints," said Dr. Gaylis. X-ray doesn't help rheumatologists make biologic treatment choices for their patients with RA. "Changes occur so slowly on x-ray that it really just doesn't fit the rhythm of biologic therapy," he said.

X-rays allow visualization of erosions and joint space narrowing. "I think if you were doing a SHARP score on every patient, then x-rays would have more validity because then you would be looking at joint-space narrowing and erosions in many joints. But that's a measurement used primarily in research alone and is totally impractical in clinical practice," he said. ■

By Kerri Wachter, Senior Writer

To view a video interview of Dr. Gaylis, go to http://www.youtube.com/watch?v=8Q6iRPzJ3a8.

Resources

► ACR letter addressed to insurance companies clarifying the college's position on extremity MRI for rheumatologic conditions: http://rheumatology.org/practice/advocacy/asc/letters/index.asp

► International Society of Extremity MRI in Rheumatology: www.isemir.org

► American College of Radiology meetings: www.acr.org/SecondaryMainMenuCategories/Meetings andEvents.aspx

► American College of Radiology accreditation: www.acr.org/accreditation/mri/mri_reqs.aspx

► Intersocietal Commission for the Accreditation of Magnetic Resonance Laboratories: www.icam rl.org/icamrl/index.htm