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Warning: Your MRI May Be Out of Focus; Why Scans Often Miss What's Wrong

PHYSICAL THERAPIST Diann Inch knew she had injured her hip climbing a ladder, but an MRI scan didn't find anything wrong.

As it turns out, it was the scan that was wrong.

After suffering pain and disability for 14 months, Ms. Inch, 47 years old, of Grosse Pointe Farms, Mich., finally made her way to the Hospital for Special Surgery in New York. There, orthopedic radiologist Hollis Potter performed another magnetic-resonance-imaging scan using special coils and pulse sequences. This time, the scan clearly showed a cartilage tear that other scans had missed.

The MRI scan is one of the most-widely used medical tests in the world, but doctors and researchers say not all MRIs are created equal. Some scans and techniques produce such low-quality images that the results are meaningless. Some problems simply can't be detected with traditional scanning methods.

"There are a whole host of patients walking around in pain for years who have had several MRIs who were told their hips were normal," says Dr. Potter, chief of magnetic-resonance imaging at HSS. He adds that some patients were actually referred to psychiatrists because doctors told them, "You

have a normal MRI...so the pain must be in your head."

There are some newer approaches, such as the techniques Dr. Potter uses or a "standing MRI," which attempt to address MRI's shortcomings. But they have their own drawbacks. Patients should educate themselves about the type of scan they're getting and the qualifications of the person performing it before agreeing to a procedure.

MRI scans use magnets to create images of the soft tissue inside the body—such as cartilage, organs and tumors. The traditional scanning machine looks like a long tube. It often produces a high-quality image, but many patients who don't normally have claustrophobia panic inside the scanner. With nearly two-thirds of the population now overweight, increasingly, patients don't fit into the tubes.

"Open" scans are heavily marketed by scanning centers as a way to solve those problems, but the open scans typically have far less strength and produce lower-quality images. Although the images may be good enough to find many problems, some patients may need a repeat scan. The patient usually must pay at least part of that cost, which can run \$1,500 or more.

When Anju Bagaria of South Brunswick, N.J., sought a second opinion for her foot surgery, the surgeon asked for a new scan performed by an

orthopedic-radiology specialist, because the first one wasn't clear. She had to fork over another \$350 to cover 20% of the cost.

Some problems simply don't show up on traditional scans. Pittsburgh physician Keerthy Sunder, 39, injured his neck playing squash about 18 months ago. Three MRI scans failed to detect any abnormality, and his doctors told him they couldn't correct a problem they couldn't find. The problem was, he felt fine while laying down for the scan—it was only when he stood up that he felt the pain. He became increasingly disabled and could stand for only minutes at a time.

By chance, he stumbled across information about a new "standing" MRI from Fonar of Melville, N.Y. Dr. Sunder found a Maryland clinic that used the device, which allowed him to stand in the position where he felt the most pain. The radiologist was then able to capture an image of a ruptured disk in his neck and shoulder area. Surgery has since corrected the problem.

Proponents say such "positional" imaging is needed because many patients suffer pain only in certain positions. "There's nothing on any medical image that says pain," says neuro-radiologist J. Randy Jenkins, who has a research grant from Fonar. "This is the way of getting close to that."

The downside is that the standing MRI has less than half the strength of current state-of-the-art scanners. And there isn't enough research to show whether

the machine really can consistently detect problems that standard MRI scans miss.

Radiologists say the best solution is for patients to ask questions before getting a scan. Peter L. Choyke, chief of MRI in the National Institutes of Health Clinical Center, says patients should ask about the age of the scanner and how recently the software was upgraded. The best centers will have machines and software no more than a few years old.

Patients should also ask about the strength of the machine, which is measured in a unit called a "Tesla." The best machines are one to 1.5 Tesla. Some manufacturers are introducing three-Tesla machines, but those haven't been widely studied.

"Open" machines, including standing MRIs, are typically just 0.5 or 0.6 Tesla.

Ask your doctor why he or she is referring you to the scanning center, and whether he or she has a financial interest in it. "You want them to be as independent as possible," Dr. Choyke says.

Finally, check out your radiologist just as you would any other doctor. The best bet is to find one who specializes in whatever field your problem falls into, such as orthopedics, pediatrics or neuroradiology.

E-mail me at healthjournal@wsj.com.

A "standing" MRI scans patients in the position that causes pain.

