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Maximizing Opportunities: MRI for Everyone

Mark Palacio

Magnetic resonance imaging (MRI) is a powerful diagnostic tool with excellent soft-tissue visualization. From neurology to musculoskeletal to extremity imaging, MRI is a lynchpin in most diagnostic imaging organizations. While the modality has tremendous clinical benefits, it has generally not been the right choice for everyone—especially those who are claustrophobic or obese. However, the OASIS™ 1.2 Tesla (T) Bore-less MR from Hitachi Medical Systems America Inc., Twinsburg, OH, is poised to help hospitals and outpatient imaging centers make the technology available to more patients than ever before. At the highest field strength ever produced for a truly open MRI, the OASIS satisfies the needs of radiologists, administrators and patients.

Even with two MRIs at Saint Louis University (SLU) Hospital in St. Louis, MO, as many as 50 to 75 patients per month were being turned away either because they were obese or claustrophobic. Acknowledging this unmet demand, SLU Hospital turned to the OASIS as a primarily outpatient-focused imaging resource.

"In the first seven months working with the scanner, we have seen a 19% incremental increase in patient volume," said Jeffrey Dossett, Director of Imaging Services at SLU Hospital. "The OASIS can handle all patients, even those that we originally scheduled on our 1.5T or 3T closed-bore systems that were unable to be scanned."

Exam quality

The decision to install the OASIS focused on more than meeting the expected demand for imaging services. As a teaching hospital, SLU Hospital's radiology department typically runs complex protocols for referring physicians, like orthopedic surgeons. Those physicians have come to expect high-quality imaging, so it was not possible to satisfy the demand for open-MRI services with a low-field open system. The OASIS offers the benefits of high field strength with a claustrophobia-reducing open-sided design and a high patient-weight capacity.

"Hitachi has the strongest open magnet on the market," said Dossett. "Personally, I think there is no comparison between the wide, 70 cm bore magnets and the OASIS. If you cannot stretch your arms out to the side, the magnet is not open."

Outstretched arms

With patients able to stretch their arms in the OASIS, radiologists are benefitting from the ability to acquire better extremity and joint imaging, compared with closed-bore systems, according to Ece Isin Akduman, MD, Director of Body MR at SLU Hospital, and Associate Professor of Radiology at Saint Louis University School of Medicine.

"In MSK imaging, our orthopedic surgeons are extremely happy with the OASIS and they generally prefer images from the OASIS over those from the 1.5T," said Dr. Akduman. "While the 1.5T and 3T magnets have dedicated coils, we find it easier to position patients in the isocenter of the OASIS, which is especially important when imaging small joints like the wrists, elbows or digits. This yields an increased signal-to-noise ratio, leading to better images. I always know when I'm reading studies acquired on the OASIS because they have a distinct, sharp look."

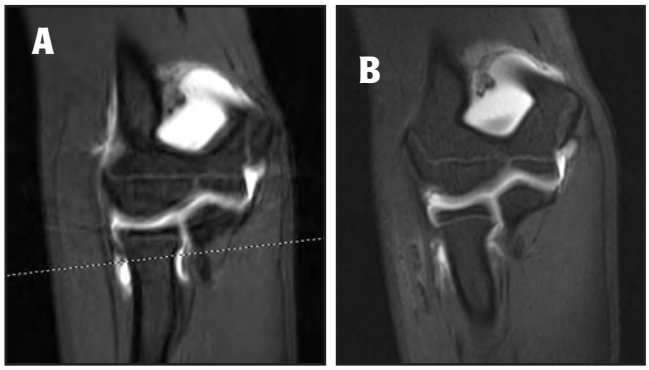

Figure 1. *Coronal, T1-weighted fat-supressed images (TR/TE: 600/12) of the elbow were obtained from a pediatric patient. There was significant motion artifact (A) affecting image quality. The study was repeated with the same parameters, but employing RADAR (B), and the motion artifacts completely resolved.*

Less sedation

The OASIS also confers numerous benefits over closed-bore systems in that it enables a number of exams to be done without sedation. In many closed-bore sequences, sedatives sometimes cause the patient to fall asleep, which means they can not comply with breath-hold instructions. The open-sided OASIS alleviates many of those challenges. Of particular benefit when imaging pediatric patients, the OASIS also employs RADAR™ (RADial Acquisition Regime) technology to reduce motion artifact. RADAR is integrated into numerous sequences at SLU Hospital, including cervical-spine and joint imaging.

"We recently imaged the elbow of a pediatric patient who was in a lot of pain and could not remain still," said Dr. Akduman. "We imaged her both with and without RADAR. The images with RADAR were nearly perfect. It really aids the diagnostic acquisition for challenging patients (Figure 1)."

No compromise

SLU Hospital runs complex abdominal protocols, and those studies have been reserved for the 1.5T and 3T magnets. However, there is always a possibility that the patient will not be able to tolerate the MR procedure on those systems. There is no such concern when scheduling patients on the Oasis.

"When doing abdominal imaging, dynamic imaging is really important to be able to see contast enhancing lesions, and this was hard to achieve with older low-field open magnets," said Dr. Akduman. "After a few months working with the system, if a patient can not tolerate the 1.5T or 3T units, for most instances, they can be scheduled for the OASIS and dynamic imaging can be performed without significant compromise."

Conclusion

After only seven months at SLU Hospital, the magnet has been gaining popularity with the referring community and it has opened up new outreach efforts to bariatric patients. In the future, Dr. Akduman is excited to see the scanner expand its footprint by allowing the hospital to perform more breast MRI procedures. With the OASIS, SLU Hospital is truly offering MRI for everyone.