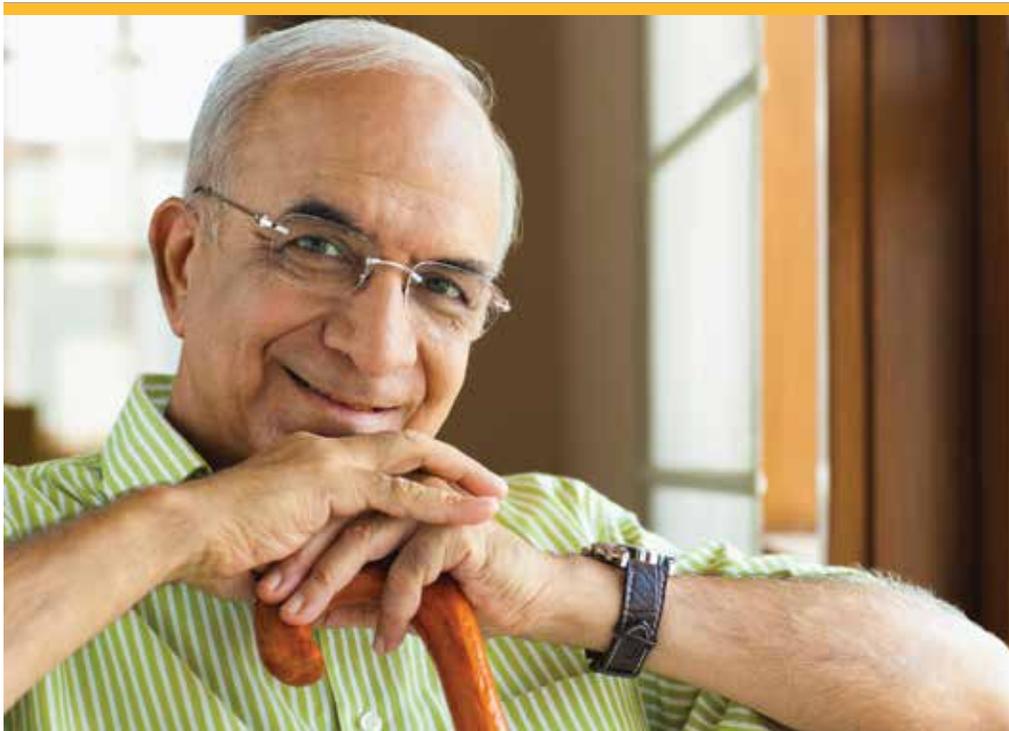


Musculoskeletal ultrasound gains wider acceptance



Ultrasound, an imaging technology long used to examine fetuses in the womb and peer into patients' organs, is gaining wider acceptance for imaging joints, muscles, nerves, tendons and ligaments. Known as musculoskeletal ultrasound, or MSUS, this special application of high-frequency sound waves can play a role in diagnosing and managing common conditions such as arthritis, tendonitis and carpal tunnel syndrome.

Musculoskeletal ultrasound has been used in medical practices in Europe for two decades. It surfaced in the U.S. only in the last decade and is rapidly growing in popularity.

Using ultrasound in rheumatology

Musculoskeletal ultrasound, or MSUS, is a relatively new imaging technology of special interest to rheumatologists. "MSUS can be very important for better diagnosis, better drug decision-making and the comfort of the patient," says John FitzGerald, MD, associate clinical professor of medicine in the UCLA Division of Rheumatology.

Ultrasound provides a closer look at joints, nerves, tendons and other structures without exposing patients to radiation and at lower cost than using a CT scan or MRI. Because it is dynamic, it can show how a tendon moves or help guide a needle to a precise site – useful for treating arthritis, tendonitis and other disorders.

Long popular in Europe, musculoskeletal ultrasound is just taking hold in the U.S. "We're still on the exponential curve of growth in use," Dr. FitzGerald says.

Advantages and disadvantages

Ultrasound offers several advantages over other imaging technologies. Unlike X-rays and computed tomography (CT) scans, it does not expose the patient to radiation. It can be more comfortable for the patient and cost less than CT or magnetic resonance imaging (MRI). In addition, by producing a dynamic image, MSUS can reveal how a tendon is sliding or help a physician accurately insert a needle at a specific site.



But ultrasound has disadvantages too. Compared with MRIs, MSUS has a limited field of vision. The musculoskeletal application of ultrasound requires a special probe, software and training. While MSUS generally costs less than CT and MRI, it costs more than a simple X-ray.

New guidance for physicians

In a report published in the November 2012 *Arthritis Care & Research*, the American College of Rheumatology observed that the technology offers substantial potential benefits in enhancing diagnosis, accelerating implementation of treatment and possibly reducing use of tests such as MRI. The report emphasizes that MSUS should be viewed as a complementary procedure and not as an alternative to systematic clinical evaluation.

Based on an exhaustive review of research literature, the report describes 14 clinical scenarios in which MSUS may be helpful to pinpoint a diagnosis or aid interventions such as drug injections. These scenarios include: pain, swelling or mechanical symptoms at certain joints that clinical examination fails to diagnose; new symptoms in inflammatory arthritis patients; diagnosing entrapment of the median nerve at the carpal tunnel in patients with regional neuropathic pain; and guidance of articular and periarticular aspirations and injections at certain sites.

Musculoskeletal ultrasound at UCLA

UCLA scientists are leaders in researching musculoskeletal ultrasound technology and training practitioners in its use. They played key roles, including that of senior author, in developing the American College of Rheumatology's recent recommendations for using musculoskeletal ultrasound. The UCLA Department of Radiology offers an annual workshop to radiologists, rheumatologists, sonographers and others seeking to master this technology.

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