

VISUALISING SHOULDER AND ELBOW CONDITIONS WITH ULTRASOUND TECHNOLOGY

Ultrasound technology is aiding specialist treatment of shoulder and elbow problems at Germany's Charité – Universitätsmedizin Berlin, enabling primary diagnosis, screening and monitoring of patients' progress, as well as needle guidance for injections. Professor Markus Scheibel, Head of the Shoulder and Elbow Department at the hospital, explained the benefits of point-of-care ultrasound for his work, both in clinic and at external outpatient departments.

The Charité is one of the largest university hospitals in Europe. Its busy Shoulder and Elbow Department, a subdivision of the Centre for Musculoskeletal Surgery, performs around 1,000 to 1,200 surgical procedures a year, as well as treating in the region of 100 to 150 outpatients each week. Outpatient services are provided at a number of different locations, both on site and elsewhere in the city, catering for a mixture of private and general insurance patients, including a specialist clinic for sports injuries. Professor Scheibel explained: "Most of our patients are treated for shoulder problems, with just 5 to 10 % presenting with an elbow condition. Some will be primary patients displaying very early signs of a problem, others will be more complex cases that may already have received some treatment, but now need specialist attention. We also see many sporting injuries. These range from acute injuries in young, high level athletes to the overuse injuries often incurred by older sportsmen and women."

Professor Scheibel began using ultrasound quite early in his career, attending basic musculoskeletal ultrasound courses while training as a resident at the ATOS hospital in Heidelberg, and has been using the technique for almost 15 years now. He continued: "Working at a hospital that performed mainly shoulder and elbow procedures, I got good exposure to this specific aspect of musculoskeletal surgery at a very young age. The hospital's orthopaedic specialists – particularly the experts in shoulder and elbow procedures – carried out a lot of ultrasound examinations, and I was able to undertake ultrasound training certified by the German Society of Ultrasound in Medicine (DEGUM). I have used the technique constantly since

then, realising that, for the shoulder joint in particular, ultrasound is a valuable diagnostic tool. The shoulder is a relatively 'young' joint in terms of our knowledge of its pathologies and treatment and, at the moment, most treatment is curative. However, as we extend our understanding of the pathogenesis of different conditions, we will be able to move towards preventative strategies."

Point-of-care ultrasound is a perfect tool for screening patients with shoulder and elbow problems in the primary diagnostic setting. A torn tendon in the shoulder can be diagnosed easily, no matter which tendon is affected. Similarly any effusions within the elbow joint, and the insertion site of the elbow extensor and flexor tendons, can be evaluated. "Ultrasound is ideal for primary diagnostics, and we work with two SonoSite point-of-care ultrasound systems, an Edge® and an X-Porte® for this reason. The X-Porte's large screen is ideal for training purposes, while the portability of the Edge allows it to be easily transported between our various outpatient locations. The image quality of both systems is excellent. Although ultrasound can offer advantages compared to MRI, many patients are still initially referred for an MRI scan, often because access to an ultrasound specialist is not available or, as MRI enables the structures inside the joint to be visualised, to get a precise diagnosis. However, ultrasound offers a dynamic evaluation, whereas MRI, in most cases, is static. Ultrasound also has the advantage that both shoulders – or elbows – can easily be scanned, allowing comparison of the healthy and damaged joints, which is really useful since everyone has their own unique anatomy. An MRI examination, in contrast, focuses on just the affected joint."



Univ.-Prof. Dr. med.
Markus Scheibel

Head of the Shoulder and Elbow Department
Centre for Musculoskeletal Surgery (CMSC)
Charité-Universitätsmedizin Berlin

"Point-of-care ultrasound is a perfect tool for screening patients with shoulder and elbow problems in the primary diagnostic setting. A torn tendon in the shoulder can be diagnosed easily, no matter which tendon is affected."





Ultrasound needle guidance is also beneficial for both the clinician and the patient when performing joint injections. "Ultrasound guidance can be a very good tool in patients whose anatomy is different to usual, for example in post-trauma cases. I find it particularly useful when injecting into the bicipital groove where the biceps tendon is located, as this part of the shoulder cannot be palpated. With ultrasound, the needle and the biceps can be seen, enabling the needle's proximity to the tendon to be established. It is a better experience for the patient too, and so I prefer to use ultrasound in these circumstances."

In addition to its use as a screening tool, ultrasound is highly beneficial for post-operative evaluation of a patient, enabling progress to be monitored. For example, following a rotator cuff repair, ultrasound can

be used to periodically check that the tendon remains attached to the bone, and to identify any potential re-tear. "Ultrasound allows us to show the patient exactly what their shoulder looks like, pointing out the tendon and the bone. When they can see that everything is good, they have confidence in their shoulder."

The popularity of ultrasound technology continues to grow. The need to wait for an MRI scan can often be avoided, enabling a diagnosis to be made more quickly, and clinicians are not dependent on the services of a radiographer. "The availability of easy-to-use, point-of-care ultrasound systems enables clinicians to work independently of the location. Portable instruments, such as the Edge, can simply be carried from site to site. This allows ultrasound to be used whenever and wherever it is required, which is a big advantage," concluded Professor Scheibel.

"The availability of easy-to-use, point-of-care ultrasound systems enables clinicians to work independently of the location. Portable instruments, such as the Edge, can simply be carried from site to site. This allows ultrasound to be used whenever and wherever it is required, which is a big advantage."

FUJIFILM
Value from Innovation

SonoSite

SonoSite GmbH – Germany
+49 69-80-88-40-30

www.sonosite.com/de

SonoSite Worldwide Offices

| | |
|---|--------------------|
| FUJIFILM SonoSite Africa Ltd | +254 20-2710801 |
| FUJIFILM SonoSite Australasia Pty Ltd – Australia | 1300-663-516 |
| – New Zealand | 0800-888-204 |
| FUJIFILM SonoSite Brazil | +55 61-8118-7100 |
| FUJIFILM SonoSite Canada Inc. | +1 888-554-5502 |
| FUJIFILM SonoSite GmbH – Germany | +49 69-80-88-40-30 |
| FUJIFILM SonoSite Iberica SL – Spain | +34 91-123-84-51 |
| FUJIFILM SonoSite, Inc. – USA | +1 425-951-1200 |
| FUJIFILM SonoSite, Inc. – Russia | +7 495-775-6964 |
| FUJIFILM SonoSite India Pvt Ltd | +91 124-288-1100 |
| FUJIFILM SonoSite Italy S.r.l. | +39 02-9475-3655 |
| FUJIFILM SonoSite Japan K.K. | +81 3-5304-5337 |
| FUJIFILM SonoSite Ltd – China | +86 21-5239-6693 |
| FUJIFILM SonoSite Ltd – United Kingdom | +44 1462-341151 |
| FUJIFILM SonoSite SARL – France | +33 1-82-88-07-02 |
| FUJIFILM SonoSite Singapore Pte Ltd | +65 6380-5589 |