

Ultrasound Scans

Ultrasound utilises sound waves to produce images of the body. A transducer is placed on the skin, which generates high frequency sound. The sound penetrates the body and is returned as echoes at the interface of anatomic structures or areas of pathology. The echoes are received by the transducer and are combined to form an image. Ultrasound is particularly useful for muscle and tendon injuries, particularly of the shoulder.

The recent advances in technology has made Ultrasound machines small, light and accessible for surgeons and other clinicians. An ultrasound scan can be done at the first clinic visit and a diagnosis often made. However, the surgeon needs to have experience and training in using ultrasound to use it effectively.

Portable Office Ultrasound, which is performed at the time of first consultation, offers the following advantages to patients:

1. Immediate diagnosis and confirmation of the rotator cuff pathology, allowing:
 1. One stop clinic, avoiding patients being sent away for a scan and then return a few weeks (or months) later with the result.
 2. Management planning and listing for the appropriate surgery at that visit, thus reducing waiting time for surgery.
 3. Patients to know their diagnosis immediately and plan accordingly.
2. Allows therapists treating patient to manage accordingly
3. Patient convenience
4. Surgeon convenience
5. Cheap - avoids cost of MRI and the radiology department costs.
6. Quick
7. Safe - no dangerous radiation
8. Elimination of unnecessary injections - if a patient has a rotator cuff tear I would not inject the subacromial bursa with steroid usually.

This 'One-stop clinic' approach is popular with patients and is excellent for teaching purposes and honing clinical examination skills.

Ultrasound is used as an extension of the normal examination (if required). We also use a technique of Dynamic Ultrasound to assess muscle bulk and movement.

Ultrasound can reveal many different diseases of the shoulder:

- **Subacromial bursitis** - when the bursa is too thick (more than 2 mm thick or clearly asymmetric with the asymptomatic shoulder)
- **Calcifications in the cuff** - These calcifications are of course almost always seen on the plain films. However, in some cases, they are missed because of their location (subscapularis calcifications) or direction of the x-ray beam. The appearance of the calcifications on ultrasound can predict their action on the symptomatology. Thin, long calcifications are often asymptomatic whereas thick, rounded or irregular calcifications give rise to symptoms. The amount of posterior attenuation can also predict the hardness of the calcifications, eventually helping when arthroscopic removal of the calcium deposits is considered for treatment.
- **Partial rotator cuff tears** can also be depicted, although the accuracy is lower than for complete tears.
- **Complete rotator cuff tears** are well seen with ultrasound.

In summary, office ultrasound is a quick imaging process for the diagnosis of soft tissue injuries. Performed at the first consultation it offers the advantages of patient and surgeon convenience and shorter waiting times. It is, however, dependent on the skill and experience of the operator who needs to be suitably trained to perform it.

[Print/Download Patient Information Leaflet \(pdf\)](#)

Also see:

- ***Office Shoulder Ultrasound in the Education Section***
- ***Exciting times in diagnostic imaging - British Journal Intensive Care, 2005***
- ***One Stop clinic - article in Synergy Magazine, Nov. 2006***
- ***Are shoulder surgeons any good at ultrasound?***