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# Ultrasound evaluation of painful shoulder

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High frequency ultrasonography is an accurate non-invasive imaging technique for evaluation of painful shoulder. Ultrasound has a benefit of being a dynamic form of -imaging as compared to the static MRI. US is portable, quick, and a more cost effective method should be used as the routine and first-line of investigation which obviates the need for further imaging for the assessment of painful shoulder where appropriate skills are available. Painful shoulder conditions can present with or without limitations in passive and or active motion. Limits in passive motion can be classified as either capsular or non capsular pattern. Conversely, patients can present with shoulder pain that demonstrates no limitation of motion. Bursitis, tendopathy and rotator cuff tears can produce shoulder pain that is challenging to diagnosis especially when they are the consequence of impingement and or instability. Numerous non surgical measures can be implemented in treating the painful shoulder, reserving surgical interventions for those patients who are resistant to conservation care. Ultrasonography should be used wherever possible to improve diagnosis and treatment of painful shoulder. The diagnostic accuracy of us is good and comparable with that of MR imaging in regard to identifying and measuring the size of partial and full-thickness rotator cuff tears. US and MR imaging can be used as a primary modality for evaluation of the rotator cuff. The most common indication for shoulder ultrasonography (US) is the diagnosis of rotator cuff disease. However, there is a spectrum of non-rotator cuff abnormalities that are amenable to US examination, including instability of the biceps tendon, glenohumeral joint, and acromioclavicular joint; arthropathies and bursitis (inflammatory diseases, degenerative and infiltrative disorders, infections); nerve entrapment syndromes; and space-occupying lesions. Many of these conditions may be overlooked clinically or can even mimic rotator cuff tears, and US can help redirect the diagnosis if a complete shoulder examination rather than a simple rotator cuff assessment is performed. In addition, US can be remarkably helpful in guiding either needle aspiration procedures or local injection therapy in patients with synovial processes. Although radiography, magnetic resonance (MR) imaging, and computed tomographic and MR arthrography are effective modalities for the evaluation of non-rotator cuff disorders, US is both less costly and less invasive and will likely be used more frequently in this setting as experience increases. Once adequate radiographs have been obtained to exclude apparent bone disorders, high-resolution US should be the first-line imaging modality in the assessment of non-rotator cuff disorders of the shoulder, assuming the study is performed with high end equipment by an experienced examiner. High-resolution us has been shown to

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be an efficient imaging modality for the assessment of a wide spectrum of rotator cuff and non-rotator cuff disorders. It is fast and inexpensive and allows dynamic assessment of the joint. A direct correlation of the imaging findings with the symptoms of the patient can be easily obtained, and interventional procedures can be guided. The use of US has increased significantly in shoulder pain cases the combination of clinical history, clinical examination and ultrasound fulfil the need for diagnostic certainty and permit the initiation of therapy in most cases. It is important to ascertain the integrity of the rotator cuff and the extent of the tear the presence of retraction, rotator cuff muscle atrophy and fatty replacement. These informations allows the surgeons to plan a strategy for further management of the patient. Ultrasound's accuracy on some shoulder lesions is limited, due to its difficulty in distinguishing tendinopathy from partial-thickness tears. This distinction may not be clinically relevant, though, because both conditions can be managed nonoperatively, abnormal findings related to cartilage would likely indicate the need for an MR arthrogram. However ultrasound has a promising role in the evaluation of the labrum, with sensitivities and specificities ranging from 88% to 95% and 67% to 100%, respectively. High-resolution ultrasonography with color Doppler imaging could differentiate the formative and resorptive phases of the calcification and could be used as a follow-up modality in calcific tendonitis of the shoulder.