



PLAIN RADIOGRAPHY

- Initial investigation of choice for all shoulder problems. [1](#)
- Can detect most fractures, dislocations, calcific tendonitis and other skeletal causes of pain such as arthritis and bone tumour. [1](#)
- Different situations require different types of plain films (AP/Lateral/Axillary views):
 - Impingement views in clinically suspected impingement syndrome and/or rotator cuff tears to detect subacromial spur. [2](#)
 - Axial or anterior oblique views in trauma. [3,4](#)
 - Routine axillary views in non-traumatised shoulder. [5](#)

COMPUTED TOMOGRAPHY (CT)

- Superior to plain radiographs in evaluation of complex fractures and fracture-dislocations involving the head of the humerus. [6-8](#)



- Allows planning of treatment of complex proximal humeral fractures. [6-8](#)

CT ARTHROGRAPHY

- Alternative for assessment of gleno-humeral instability (usually following dislocation) only when MRI is contraindicated or unavailable. [9](#)
- Allows accurate evaluation of capsule/labral disorders. [10-12](#)

ULTRASOUND

- High sensitivity and specificity (>90%) for detection and staging of rotator cuff tears. [13-15](#)
- Comparable to MRI in evaluation of full thickness rotator cuff tears. [16](#)
- In many institutions, US has replaced MR imaging in the initial evaluation of rotator cuff.
- May be considered in the evaluation of patients >40 years of age with primary traumatic anterior shoulder dislocation as rotator cuff tear is more common in this age group. [17](#)
- Useful in guiding aspiration of calcium deposits or bursal injections.
- Can detect minimally displaced greater tuberosity fractures.
- Advantages: no ionising radiation, non-invasive, no contrast agent, relatively inexpensive, readily available.
- Limitations:
 - Less sensitive for detecting partial thickness rotator cuff tears. [13-15](#)
 - Cannot accurately evaluate the labral-ligamentous complex.

MAGNETIC RESONANCE IMAGING

- Highly accurate for evaluation of rotator cuff pathology. [18-20](#)
- Indicated when further investigation of rotator cuff pathology is needed.
- May be used in the investigation of rotator cuff disease when US expertise is unavailable.
- Comparable to arthrography in its diagnostic and therapeutic impact in the evaluation of shoulder problems. [21](#)
- Advantages:
 - No ionising radiation
 - Non-invasive
 - Multi-planar imaging
 - Demonstrates other lesions such as ACJ osteoarthritis and avascular necrosis.
 - Comprehensive display of soft tissue anatomy
 - Demonstration of the causes for impingement
 - Useful in characterisation and staging of bone tumours





- Limitations:
 - Less sensitive for detection of partial tears.
 - Limited availability.
 - High expense.

MRI ARTHROGRAPHY

- Most accurate and first line imaging modality for defining:
 1. Rotator cuff pathology. [22](#)
 2. Labral/capsule abnormalities in gleno-humeral instability. [10,23,24](#)
- Involves an MRI following the intra-articular injection of a dilute contrast agent - gadolinium.
- Superior depiction of partial-thickness tears compared to conventional MRI. [22](#)
- Disadvantages: invasive, limited availability and high expense.

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Website

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