



# Early investigation of acute shoulder injury in the ED. Does MR Arthrography have a role?

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# Objectives

- + Injuries to the shoulder joint are common reasons for patients to present to the emergency department. Fracture and dislocation are easily identifiable through the use of plain X-ray. However, injuries to the rotator cuff will not be revealed on plain film and as a result patients with serious injury are missed in the ED, struggling on for months before finally reaching definitive care.
- + This study aimed to determine the pattern of underlying soft tissue injury in patients without plain film abnormality injuries to the shoulder.

# Methods

- + Clinicians in an inner city ED (150000/year) were invited to refer patients with acute shoulder injury to a specialist ED based clinic run by Emergency Physicians and a Specialist physiotherapist.
- + We screened patients with acute (within 1 week) shoulder injuries. Patients with fracture or dislocation were excluded.
- + Patients unable to raise their arm above 90 degrees in abduction at 1-2 weeks post injury underwent MR arthrography within 2 weeks of initial injury.
- + MR arthrography was facilitated by intra-articular injection of Technetium under USS control by ED physicians.
- + MR scans were reported by a consultant radiologist blinded to the clinical findings.

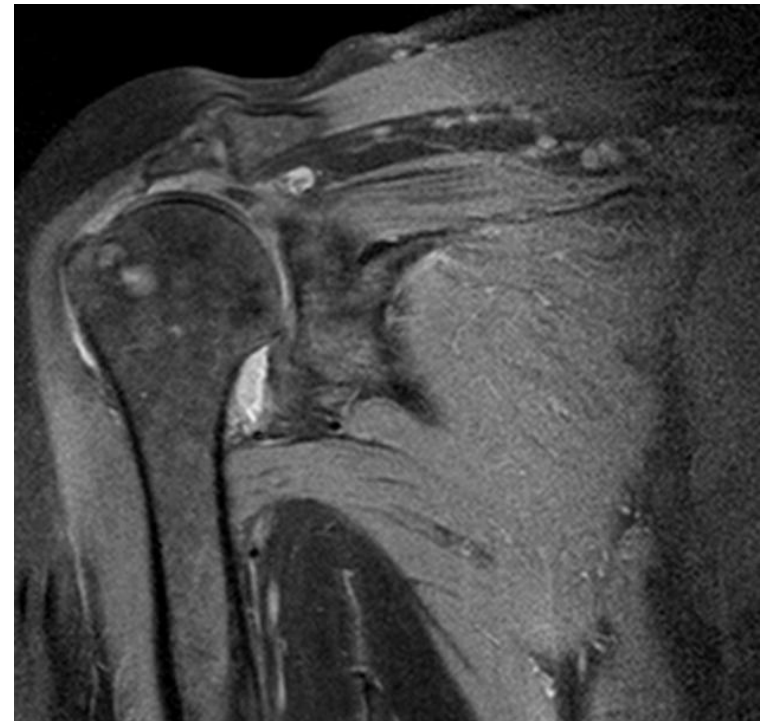
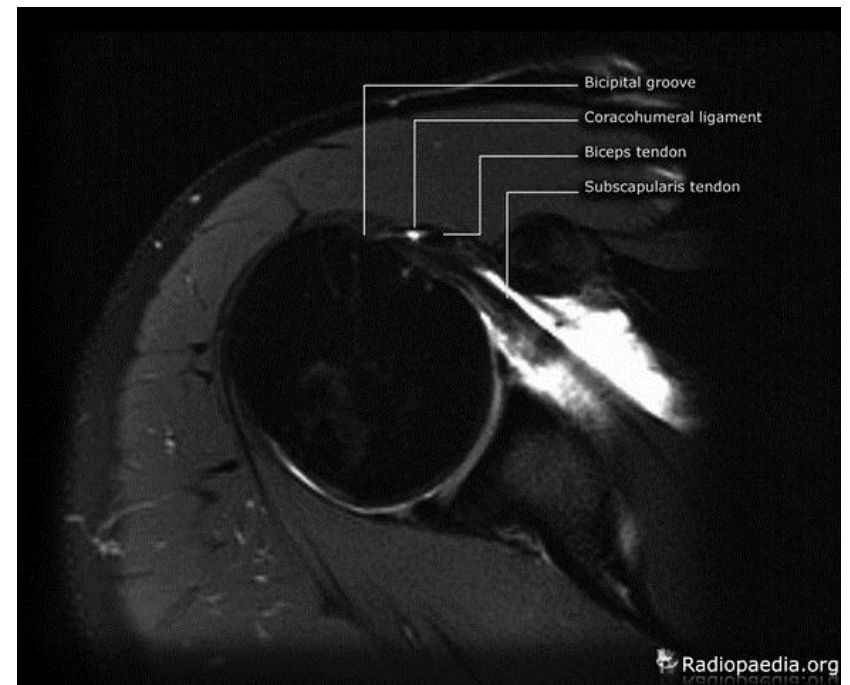


Image courtesy of radiopaedia

# Results 1

- + In 18 months we have completed MR scans on 20 patients. One patient declined investigation. One patient was too large to fit in the scanner. A variety of pathologies have been revealed during this study. We were surprised to see a significant number of patients with bony injury which had not been identified on the initial plan radiographic films.
- + Only 4 of the 20 patients scanned had pathology that did not require further management by an orthopaedic surgeon.





- + This table shows the final diagnoses for patients in this study.
- + Although numbers are small the pathologies are significant and the majority required further evaluation and/or therapy.
- + This data suggests that the burden of disease in patients who cannot abduct to 90 degrees at 1-2 weeks is high.

<b>Finding</b>	<b>No</b>	<b>Abnormalities</b>
<b>Normal/minimal change</b>	4	<ul style="list-style-type: none"> <li>• Normal</li> <li>• Bruising to Deltoid muscle</li> <li>• Minor AC joint disruption and a possible bone bruise/<u>undisplaced</u> fracture of the clavicle*</li> <li>• Minor AC joint injury</li> </ul>
<b>Isolated bony/labral Injury</b>	4	<ul style="list-style-type: none"> <li>• Posterior Labral tear</li> <li>• Posterior/superior labral tear</li> <li>• Anterior labral tear</li> <li>• Evidence of anatomically resolved dislocation. Stripping of anterior capsule from <u>glenoid</u></li> </ul>
<b>Isolated rotator cuff Injury</b>	8	<ul style="list-style-type: none"> <li>• 2 x <u>Supraspinatus + Subscapularis</u> tears</li> <li>• <u>Infraspinatus + Subscapularis</u> tear</li> <li>• <u>Incomplete supraspinatus</u> tear</li> <li>• Complete supraspinatus tear x2</li> <li>• Full thickness tear of the Supraspinatus a partial thickness tear of the Sub scapularis tendon and a <u>subluxed bicipital</u> tendon</li> <li>• Torn Supraspinatus tendon, torn Subscapularis tendon and <u>subluxed biceps</u> tendon. Capsular tear.</li> </ul>
<b>Combined bony/rotator cuff Injury</b>	4	<ul style="list-style-type: none"> <li>• Middle <u>glenohumeral</u> tear + <u>Supraspinatus</u> tear</li> <li>• 2x Greater tuberosity fracture + <u>Supraspinatus</u> tear</li> <li>• <u>Supraspinatus musculotendonous junction</u> tear and a bone bruise of the outer clavicle</li> <li>• SLAP lesion + humeral neck fracture</li> </ul>

- + The number of patients presenting with significant acute shoulder injury is small but serious pathology is common in patients who are unable to actively abduct beyond 90 degrees at 1-2 weeks post injury.
- + Our early results suggest that these patients should have an MR Arthrogram to identify significant underlying injury.



# Acknowledgments

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