



Towards evidence-based emergency medicine: Best BETs from the Manchester Royal Infirmary

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BET 1: UTILITY OF ULTRASOUND IN THE DIAGNOSIS OF SHOULDER DISLOCATION

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ABSTRACT

This short-cut review was carried out to examine the evidence for the use of ultrasound in diagnosing shoulder dislocation in adult patients presenting to EDs. A literature search was carried out that found two relevant papers. The author, date and country of publication, patient group studied, study type, relevant outcomes, results and study weaknesses of these papers are tabulated. The clinical bottom line is that ultrasound of the shoulder appears to have a very high sensitivity and specificity within this patient group.

THREE PART QUESTION

In [adult patients with clinically presumed shoulder dislocations] is [ultrasound as reliable radiography] in [identifying shoulder dislocation]?

CLINICAL SCENARIO

A 30-year-old man with a history of remote shoulder dislocation presents with left shoulder pain and decreased range of movement after quickly reaching for the telephone. There was no direct trauma and the clinician is wondering if a shoulder radiograph is necessary.

SEARCH STRATEGY

PubMed, EMBASE and MEDLINE searches.

(‘Shoulder AND dislocation’) AND (‘Ultrasound OR Ultrasonography’) LIMIT to Human studies, English Language and Last 10 years.

SEARCH OUTCOME

Fifty-six papers identified via EMBASE, and 26 papers via MEDLINE, of which 11 papers were duplicated between both

searches. There was one unique PubMed search result. Of these 72 identified papers, 17 were case reports and two were relevant to the question asked (see [table 1](#)).

COMMENTS

Both prospective studies demonstrated 100% accuracy for identifying both shoulder dislocations and subsequent reductions in a convenience sample of patients with suspect shoulder dislocation.

Table 1 Relevant papers

Author, year, country of publication	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Abbasi <i>et al</i> , 2013, ¹ Iran	73 patients with suspected shoulder dislocation over 7 months	Prospective, observational	Diagnostic accuracy of ultrasound for confirming dislocation and reduction	Ultrasound was 100% sensitive and specific for both dislocations and reductions. Ultrasound also identified 11 associated fractures.	Small sample size, high proportion of dislocated shoulders in the sample.
Akyol <i>et al</i> , 2016, ² USA	103 patients over 15 years old with suspected shoulder dislocation on examination in the ED (98 patients had dislocation on X-ray)	Prospective, observational	Efficacy of Point of Care Ultrasound in ruling in and out shoulder dislocation in the ED	100% sensitivity and specificity of confirming shoulder dislocation and relocation. 100% sensitivity and 84.2% specificity in excluding associated fractures.	Requires ultrasound-trained staff. Some false-positive results.

Although there were no other, or larger, studies to support this evidence further, there were multiple case studies and are several online blog posts,^{3–5} which confirm the use and success of diagnosing shoulder dislocations, both in the ED and in the prehospital setting.

Ultrasound has been shown to be accurate and successful in confirming shoulder dislocation, and reduction, in a patient group with a high incidence of dislocation. There is likely to be an element of operator dependency and so further studies would be required to validate this finding with a wider range of settings and operators. The presence of an associated fracture was also detected by this method with a high level of sensitivity although the numbers involved are very small and need to be interpreted with caution.

LEVEL OF EVIDENCE

Level 3—small number of small studies or great heterogeneity or very different population.

Clinical bottom line

The use of ultrasound shows promise as a method of confirming shoulder dislocation without requiring X-ray. Although both studies had sensitivity and specificity of 100% compared with plain X-rays, only two relatively small studies were found in the literature search; further validation of these findings would be required before recommending this as standard practice.

REFERENCES

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- 2 Akyol C, Gungor F, Akyol AJ, *et al*. Point-of-care ultrasonography for the management of shoulder dislocation in ED. *Am J Emerg Med* 2016;34:866–870.
- 3 Use of ultrasound to confirm shoulder dislocation. <http://www.smartbrief.com/s/2015/04/ultrasound-may-beat-radiographs-ed-identification-shoulder-dislocation>
- 4 Clinical explanation of ultrasound use in suspected shoulder dislocation. <http://broomedocs.com/2013/10/clinical-case-092-shoulder-shrugging/>
- 5 Blog review of referenced 2013 paper, with video guidance for ultrasound use in shoulder dislocation diagnosis and regional anaesthesia. <https://sonospot.wordpress.com/2013/12/23/sonostudy-ultrasound-for-shoulder-dislocation-dx-to-anesthesia-reduction-foamed-foamus/>

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