Table 3

Author, date, and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Holdsworth <i>et al</i> , 1987, UK ¹	80 adult patients with radial head fractures Aspiration, bupivacaine injection, and early mobilisation <i>v</i> early mobilisation alone	PRCT	Range of movement Grip strength Aspiration success Pain after aspiration	No difference No results reported 3/41 could not be aspirated Improvement reported	Unblinded. Randomisation method not explicit. 14 patients lost to follow up. Measurements were taken at 2, 6, 12, 26, and 52 weeks; it is unclear which period the results presented apply to. Grip strength data are not reported
Dooley and Angus, 1991, UK ²	28 adult patients with type 1 or 2 radial head fractures Aspiration (13) <i>v</i> no aspiration	PRCT	Pain Range of movement	Better immediately after aspiration and at 3 and 6 months Better immediately after aspiration and at 3 and 6 months	Unblinded. Randomisation method not explicit. Small numbers. No statistical analysis. Non-standard methods for measurement of outcomes

PRCT = prospective randomised controlled trial.

The role of therapeutic needle aspiration in radial head fractures

Report by Simon Carley, *Specialist Registrar*
Search checked by Rob Birkenshaw, *Specialist Registrar*

Clinical scenario

A 17 year old female presents to the emergency department after a fall onto her right forearm. She complains of elbow pain and has a limited range of movement of that joint. Radiography reveals a moderate elbow effusion and an undisplaced fracture of the radial head (Manson type 1). You wonder whether aspirating the joint is worthwhile.

Three part question

In [patients with traumatic elbow effusions] is [aspiration of the joint better than conservative treatment] in [reducing symptoms and time to healing]?

Search strategy

Medline 1966 to 3/99 using the OVID interface. [{exp elbow OR exp elbow joint OR elbow\$.mp OR exp radius OR exp radius fractures OR radial head\$.mp} AND {exp aspira-

tion OR aspiration.mp OR aspirate\$.mp}] LIMIT to human and english language.

Search outcome

Forty seven papers were found of which 45 were irrelevant to the study question or of insufficient quality for inclusion; the remaining papers are shown in table 3.

Comment

The studies relevant to this question are very poor in design and execution. A properly designed prospective randomised controlled trial looking at pain, mobility, time to healing, and harm (infection rate) is necessary to investigate this further.

Clinical bottom line

While aspiration may benefit patients with traumatic elbow effusions the evidence is too poor to recommend it as a routine procedure.

- 1 Holdsworth BJ, Clements DA, Rothwell PN. Fractures of the radial head—the benefit of aspiration: a prospective controlled trial. *Injury* 1987;18:44–7.
- 2 Dooley JF, Angus PD. The importance of elbow aspiration when treating radial head fractures. *Arch Emerg Med* 1991; 8:117–21.

The role of diagnostic needle aspiration in olecranon bursitis

Report by Vince Choudhery, *Specialist Registrar*
Search checked by Katrina Herren, *Research Fellow*

Clinical scenario

A 45 year old labourer presents to the emergency department with a one day history of pain and swelling over his right elbow. Examination reveals a generally well, apyrexial man with a swollen, warm right olecranon bursa with overlying redness. You wonder whether it is necessary to aspirate and analyse bursal fluid to diagnose and treat this patient.

Three part question

In [adults with a clinical diagnosis of olecranon bursitis] does [diagnostic aspiration of the bursa] lead to [better diagnosis and outcome].

Search strategy

Medline 1966 to 3/99 using the OVID interface. ([{exp elbow OR exp elbow joint OR olecranon\$.mp} AND {bursa\$.mp OR exp bursa, synovial OR exp bursitis OR bursitis.mp}] OR [sepsi\$ AND {bursa\$.mp OR exp bursa, synovial OR exp bursitis OR bursitis.mp}]) LIMIT to human and english language.

Search outcome

Two hundred and nineteen papers were found of which 200 were irrelevant and 17 of insufficient quality for inclusion; the remaining papers were found in table 4.

Comment

While two studies addressed the diagnostic question alone, no studies at all could be found regarding the usefulness of diagnostic aspiration in improving outcome. The sensitivity of white cell analysis is just too low for use as a

Table 4

Author, date, and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Ho and Tice, 1979, USA ¹	30 consecutive patients with olecranon (25) or pre patellar (5) bursitis 20 non-septic and 10 septic	Survey	White cell count	1523 v 108 630 per mm ³	Small numbers
			Predominant white cell type	Mononuclear v polymorphonuclear	No statistical analysis
Stell and Gransden, 1998, UK ²	36 patients with olecranon (28) or pre-patellar (8) bursitis 19 non-septic and 17 septic	Diagnostic	Culture in liquid medium	Sensitivity 100%, specificity 89%	Small numbers
			Median white cell counts	Sensitivity 94%, specificity 79% at >2×10 ⁹ /l	Gold standard was expert opinion

SnOut, and liquid culture, while absolutely sensitive, takes so long that blind treatment will usually be necessary until the result is available.

Clinical bottom line
If septic bursitis is suspected then antibiotics

(antistaphylococcal) should be started. Aspiration may be useful in determining when to stop this treatment.

1 Ho G, Tice AD. Comparison of nonseptic and septic bursitis. Further observations on the treatment of septic bursitis. *Arch Intern Med* 1979;**139**:1269–73.
2 Stell IM, Gransden WR. Simple tests for septic bursitis: comparative study. *BMJ* 1998;**316**:1877.