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 aspiration 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.

---

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, apyreal 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 an 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 [sepsis$ 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

<table>
<thead>
<tr>
<th>Study type (level of evidence)</th>
<th>Outcomes</th>
<th>Key results</th>
<th>Study weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey</td>
<td>White cell count</td>
<td>1.52 x 10^8 to 1.08 x 10^9 per mm^3</td>
<td>Small numbers</td>
</tr>
<tr>
<td>Predominant white cell type</td>
<td>Mononuclear v polymorphonuclear</td>
<td>No statistical analysis</td>
<td></td>
</tr>
<tr>
<td>Diagnostic</td>
<td>Culture in liquid medium</td>
<td>Sensitivity 100%, specificity 89%</td>
<td>Small numbers</td>
</tr>
<tr>
<td>Median white cell counts</td>
<td>Sensitivity 94%, specificity 79% at &gt;2 x 10^9/l</td>
<td>Gold standard was expert opinion</td>
<td></td>
</tr>
</tbody>
</table>

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.