Chronic Ankle Pain in Soldiers: The Role of Ankle Arthroscopy and Soft Tissue Excision

Maj JC Clasper
FRCS(Ed), RAMC*

Lt Col CA Pailthorpe
FRCS(Ed) RAMC**
Cambridge Military Hospital, Aldershot, Hants GU11 2AN

SUMMARY: We describe 13 cases of soft tissue impingement in the ankle by localized synovial proliferation and scar tissue. A number of papers have described symptomatic improvement in sportsmen who have undergone resection of this tissue. We report the results of this procedure in Army personnel.

Of the 13 patients, 8 had excellent or good results, while 5 had poor results. Two of the latter subsequently revealed another significant problem and were then excluded, thus 8 out of 11 patients had an excellent or good result. We therefore believe that this procedure is useful in the management of chronic ankle pain in Army personnel.

Introduction
For over 40 years it has been recognized that chronic ankle pain, especially in sportsmen, may be due to soft tissue impingement between the talus and the lateral malleolus (1). More recently ankle arthroscopy has become established as both a diagnostic, and therapeutic tool and a number of papers have described an anterolateral hypertrophic synovitis, the resection of which produced symptomatic improvement (2-6).

Chronic ankle pain is a common symptom in military personnel, who have somewhat different physical demands to sportsmen. We have reviewed our experience of arthroscopic soft tissue excision to assess its efficacy in the management of chronic ankle pain in military personnel.

Method
Between September 1992 and November 1994, 21 ankle arthroscopies were performed at the Cambridge Military Hospital for chronic ankle pain. Of these, 3 were carried out on civilians, 3 involved bone, or articular surface debridement, 1 required arthrotomy, and in another case the diagnosis was felt to be instability, with no evidence of impingement. These 8 were all excluded from further analysis.

This left 13 arthroscopies, which were performed on military personnel where, both pre-operatively, and at arthroscopy the main cause of the symptoms was felt to be soft tissue impingement. Resection was carried out arthroscopically, and the group was analysed.

All were male, all were in the Army, and the average age was 27 (range 21-38) years. All complained of pain within the ankle in relation to sport. Symptoms had been present for an average of 25 months (range 4 months-11 years). In 12 out of the 13 there was a definite history of injury. In 11 this was due to over-inversion whilst 5 could be described as a simple sprain, in the other 6 a greater degree of violence was involved (Table 1).

Table 1
Initial injury resulting in chronic ankle pain

<table>
<thead>
<tr>
<th>Initial Injury</th>
<th>Number</th>
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<tbody>
<tr>
<td>Inversion Injury:</td>
<td></td>
</tr>
<tr>
<td>Low energy twisting</td>
<td>5</td>
</tr>
<tr>
<td>Heavy parachute landing</td>
<td>3</td>
</tr>
<tr>
<td>Assault course</td>
<td>2</td>
</tr>
<tr>
<td>SAS selection</td>
<td>1</td>
</tr>
<tr>
<td>(Uneven ground, heavy weight)</td>
<td></td>
</tr>
<tr>
<td>Eversion Injury</td>
<td></td>
</tr>
<tr>
<td>No initial injury remembered</td>
<td>1</td>
</tr>
</tbody>
</table>

All 13 patients complained of pain as the prominent symptom located to a specific site. Despite the pain, 11 could still pass the basic army fitness tests.

All patients had failed to settle with conservative treatment, which included rest, physiotherapy, and anti-inflammatory medication. A number had also had a local steroid injection, with no lasting benefit.

On examination all bar one were noted to be locally tender over the anterolateral aspect of the ankle, as described by Meislin in all of these cases (5). In the other of who appeared to have suffered an eversion injury, this tender spot was located medially and medial impingement was found. A similar case was described by Martin (2).

In some cases although the plain X-rays were

*now Orthopaedic Trauma Fellow, R Adams Cowley Shock Trauma Center, 22 S Greene Street, Baltimore MD 21201 USA
**Consultant Orthopaedic Surgeon, Royal Berkshire Hospital, London Road, Reading, RG1 5AN
considered abnormal, the pre-operative diagnosis, and findings at arthroscopy were felt to be consistent with soft tissue impingement.

Arthroscopy was carried out under general anaesthetic, with the patient supine on the operating table. After saline distension of the ankle joint, an anteromedial portal was established, and diagnostic arthroscopy carried out. The normally good view of the lateral gutter was obscured by an impinging area of soft tissue (Fig 1) corresponding to the same location as the pre-operative tender spot.

Fig. 1
Arthroscopic view of the ankle joint with the lateral gutter obscured by soft tissue impingement.

Although other abnormalities were noted to be present in 9 of the 13 patients (Table 2), the synovial impingement was felt to be the most important factor. An anterolateral portal was established, and resection of the impingement carried out through this using a power shaver, with a synovectomy blade (Fig 2). Any other findings were left untreated.

The wounds were closed with strip plasters, and the patients were mobilized on crutches and sent on 10 days hospital sick leave the following day. They were encouraged to move the ankle, but not to bear weight.

All were reviewed 6 weeks postoperatively, and their condition noted. They were again in 7 cases interviewed at an average of 13 months after the operation (range 6-27 months) and all case notes were available for analysis.

In the 7 patients reviewed after one year, there had been no symptom change from the 6 months post-operation assessment, therefore we felt that review at 6 months after the surgery was sufficient to predict the outcome.

As most patients could pass a Basic Fitness Test and the only consistent finding on examination was of a locally tender spot, no objective assessment could be made. Based upon the improvement in symptoms and sporting ability the patients were assessed as Excellent, Good, Fair, or Poor (Table 3).

Table 2

<table>
<thead>
<tr>
<th>Finding</th>
<th>Number</th>
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<tbody>
<tr>
<td>Damage to articular surface of:</td>
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</tr>
<tr>
<td>Distal tibia</td>
<td>4</td>
</tr>
<tr>
<td>Medial dome of talus</td>
<td>1</td>
</tr>
<tr>
<td>Lateral dome of talus</td>
<td>2</td>
</tr>
<tr>
<td>Widespread early degenerative changes</td>
<td>1</td>
</tr>
<tr>
<td>Lateral instability</td>
<td>1</td>
</tr>
<tr>
<td>No additional findings</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 3

<table>
<thead>
<tr>
<th>Result of arthroscopy and soft tissue excision</th>
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<tbody>
<tr>
<td>Excellent</td>
</tr>
<tr>
<td>Good</td>
</tr>
<tr>
<td>Fair</td>
</tr>
<tr>
<td>Poor</td>
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Results

Of our 13 patients, 4 had an excellent result, 4 had a good result, and 5 had a poor result. There were no fair results.

However of the poor results, one was in the patient noted to have ankle instability at the time of arthroscopy. He initially had a marked improvement in his symptoms, but by 6 months postoperatively, had sustained a further inversion injury, with recurrence of his symptoms. He subsequently underwent an Evans procedure.

In another Computerized Tomography was carried out...
because of persistence of symptoms, which were affecting his army career. This showed an osteochondral fracture of the lateral aspect of the talus, where an area of articular damage had been noted at arthroscopy, but had been felt to be stable. A further arthroscopy was carried out, together with debridement of the area, with good results.

We feel that both of these patients can be legitimately excluded from our series, as subsequently the main cause of their symptoms has been shown not to be due to soft tissue impingement. Our results then show that 72.7% of our patients had an excellent or good result.

Discussion

Ferkel et al estimated, that of approximately 2000 patients treated for ankle sprains at the Southern Californian Orthopaedic institute, 2% developed anterolateral impingement of the ankle (3). He felt that this was due to a partial tear of the lateral ligament. Repetitive motion then led to a mass of scar tissue and synovium, which in turn may impinge between the talus, tibia, and fibula leading to chronic ankle pain. All underwent arthroscopic resection of the synovium, and 26 of the 31 patients had an excellent or good result.

Martin described 16 patients who were treated in this way, and found that 75% had a good, or excellent result(2). Their reported 9 cases of a “sports related synovitis of the ankle” 8 of whom had an excellent result after arthroscopic partial synovectomy(4). He described this as a condition which affects athletes, after acute or recurrent inversion injuries, or an undisplaced fracture, where the main complaint is of pain.

Chronic ankle pain is also a common symptom of military practice. However, given the more physical demands of military life, which may include parachuting, assault courses, or long distance runs carrying weight, we felt this procedure may not be as beneficial.

In these patients few symptoms were present in everyday life, and for many sport was still possible. With the exception of local tenderness the pre-operative examination was essentially normal, and therefore it was not possible to apply any objective testing to these patients. We used a subjective assessment based on the relief of symptoms, and an improvement in sporting abilities. As sport and fitness are an important factor in army life, we felt that this was an effective measure of any benefit of this procedure.

Ferkel et al (3), and Jerosch et al (6), use an evaluation which they attribute to Bray (7). However this scoring system would not be applicable to our patients, who were not in constant pain, did not require walking aids, and could walk, and in many cases run long distances.

Meislin et al (5), Martin et al (2), and Thein et al (4), all graded their results in a similar manner to our report, based mainly on the relief of symptoms.

Our results compare favourably to the other reports. Although the numbers concerned were small, we attempted to analyze the patients further. The majority of our patients had other arthroscopic findings, but this seemed to make little difference to the outcome, whether these were present or not.

One factor however may affect the outcome. Of the 5 patients who had a low energy type injury, 3 had an excellent result, and 2 had a good result. However if a greater degree of violence was involved initially, such as a bad parachute landing, or assault course injury, then only 1 patient had an excellent result, 2 had a good result, but 3 had a poor result.

Conclusion

We believe that soft tissue impingement can cause chronic ankle pain in military personnel, and can be treated by arthroscopic resection of the lesion. Of 11 patients 8 had excellent or good results. In patients whose initial injury was of low energy, the outcome was better than in those patients where a greater degree of violence is involved.

Instability, and talus dome fractures, can also cause chronic ankle pain, and must be considered in the differential diagnosis.

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