



Injection and Manipulation-Under-Anaesthesia for the Treatment of Post-Operative Adhesive Capsulitis

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Abstract

Adhesive capsulitis is a recognised complication of shoulder surgery, reported in 5.8 - 9.5% of patients after simple arthroscopic procedures [1]. Studies have shown an improvement in symptoms following manipulation-under-anaesthetic and injection for primary adhesive capsulitis amongst diabetic patients [1], but there are no papers on its use for secondary adhesive capsulitis following subacromial decompression and acromioclavicular joint excision.

In this paper, the authors describe a technique for the management of patients presenting with symptoms of secondary adhesive capsulitis, and analyse their outcomes following injection and manipulation-under-anaesthetic. In this centre, patients who received treatment were asked to complete an Oxford Shoulder Score, as well as to rank their pain out of a maximum score of twenty, to assess the effectiveness of our technique.

The mean pre-procedure Oxford score was 19.68 +/- 7.17 out of a maximum score of 48. The mean post-treatment score was 42.76 +/- 4.25, with an average increase in 23.08 points ($p < 0.001$). The mean pre-treatment pain score was 15.78, and 2.15 following intervention ($p < 0.001$).

This is a simple, quick and safe technique conferring substantial benefit. All patients saw a dramatic improvement in outcome, with a statistically significant increase in function and improvement in pain levels. The authors would recommend its use in those patients with post-operative capsulitis, who fail to settle with conservative measures.

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Introduction

Primary adhesive capsulitis is a common condition that presents with pain and restriction in both passive and active movements of the shoulder. It accounts for 2-5% of cases of shoulder pain and is a recognised complication of shoulder surgery, with studies previously quoting occurrence rates between 5.8 - 9.5% in patients following arthroscopic procedures [1]. It can have a major impact on a patient's post-operative rehabilitation, prolonging recovery, and reducing quality of life. Evans and Guyver, in their retrospective review of patients undergoing arthroscopic procedures, reported an overall risk of developing secondary adhesive capsulitis of 5% [1].

Manipulation-Under-Anaesthetic (MUA) with injection has previously been shown to be a successful treatment for primary adhesive capsulitis [2-3]. We have identified, first-hand, the disabling impact which post-operative capsulitis will impose on the patient, including pain, stiffness, sleep disturbance and inevitably prolonged rehabilitation. Consequently, we were eager to assess the benefit of shoulder injection in conjunction with MUA for the treatment of secondary adhesive capsulitis, complicating Subacromial decompression (SAD) and Acromioclavicular Joint (ACJ) excision surgery.

Method

Patient Selection

Once a diagnosis of post-operative capsulitis had been made, through history and clinical examination, the patient was initially offered conservative treatment, in the form of analgesics and physiotherapy. If this failed to resolve symptoms, or indeed they were not keen on a conservative approach, then a MUA and injection was suggested. Having counselled the patient, with appropriate information on mechanism, technique and potential complications, it was their own decision both if and when the procedure would be undertaken.

Prior to the procedure, each patient completed an Oxford Shoulder Score to measure their functional level, with a maximum achievable score of 48. They also completed the hospital pain score, where a score of 0 indicated "no pain" and the maximum achievable score was 20.

As we were evaluating the use of this technique for the management of post-operative adhesive capsulitis, those patients with confounding medical conditions such as diabetes, which have a known association with adhesive capsulitis, were excluded from the analysis. In addition, those who had alternative arthroscopic procedures were excluded.

Technique

The procedure was performed under general anaesthetic, by the same consultant surgeon using the same technique protocol. The patients were initially placed in a lateral position and the skin marked. Gentle axial traction was applied to assist instrumentation of the glenohumeral joint. The joint was then instilled with a cocktail containing 0.25% chirocaine, 1% lignocaine, triamcinolone and saline, approached posteriorly. During the procedure, aspiration confirmed the intra-articular position of the needle. The patients were then placed supine for manipulation under anaesthesia. The manipulation involved flexion, abduction, and rotation, the latter of which was undertaken in various positions of flexion/abduction to improve the magnitude of release.

Analysis

Functional and pain scores were then repeated following the procedure. Statistical analysis was subsequently performed using Deducer software, with conduction of a Wilcoxon rank test and a significance level set at $p < 0.05$.

Results

Over a four-year period, thirty-four patients underwent injection and MUA for capsulitis complicating primary SAD/ACJ surgery. The mean age was 58.8 years (range 40-76 years), with almost twice as many females as males included (23 females, 11 males). Nearly a third of patients were treated with injection and MUA within four months after their initial arthroscopic surgery (29.4%; mean 4 months, range 1-8 months, with variance due to patient choice). Thirty-four patients completed the Oxford Shoulder Score pre- and post- intervention, whereas twenty-seven patients completed the pain score.

The mean pre-procedure Oxford Shoulder Score was 19.68 \pm 7.17 out of a maximum score of 48. The average post-procedure score was 42.76 \pm 4.25, with an average increase of 23.08 points ($p < 0.001$). All patients reported an improvement in their function following this treatment, and four patients achieved the maximum functional score of 48. 76% of our patients achieved an Oxford Shoulder Score above 40 points after treatment.

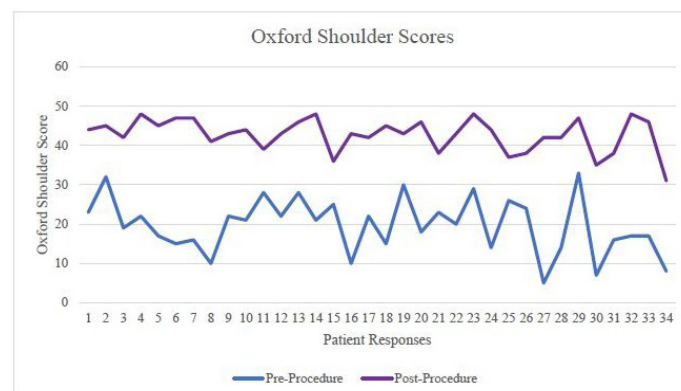


Figure 1: Graph demonstrating improvement in function following treatment.

The results also demonstrated a statistically significant improvement in pain levels post-procedure. The average initial pain score was 15.78, and 2.15 after treatment. The difference in pain scores (13.63 points) was found to be significant ($p < 0.001$). Four patients had no pain following surgery, and 27 patients (100% of pain scores submitted) had a pain score level of less than five.

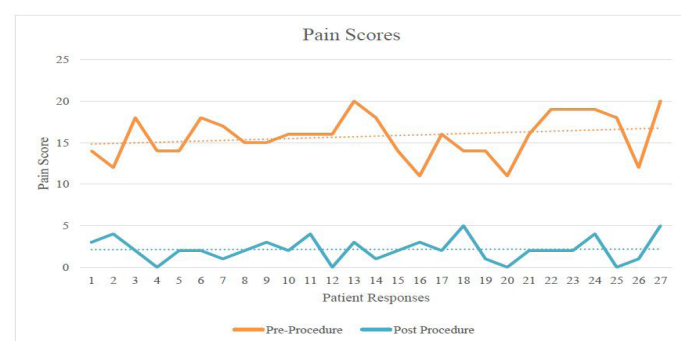


Figure 2: Graph demonstrating fall in pain levels post-treatment.

Discussion

The beneficial use of manipulation under anaesthetic for the management of primary adhesive capsulitis has been widely documented, with improvements seen both in the strength of the shoulder and active range of movement [4]. Dodenhoff et al found a significant improvement in their cohort of patients presenting with primary adhesive capsulitis, treated with early MUA [5]. Randomised controlled studies have shown the benefit of manipulation-under-anaesthesia, with and without hydrodilatation, for the management of primary adhesive capsulitis [2,4,8-11], but there is little work on the management of post-operative adhesive capsulitis.

The development of adhesive capsulitis following primary arthroscopic procedures can have a significant and long-standing impact on patients; hindering rehabilitation and prolonging recovery [1,6-7]. This may often be wrongly perceived by the patient as a surgical failure, or wrongly attributed by the clinician as simple post-operative pain.

To our knowledge this is the first study to both describe and demonstrate the benefit of this technique in post-operative capsulitis. It demonstrates that injection with MUA can be an effective treatment for adhesive capsulitis complicating SAD/ACJ surgery. We have shown a significant improvement in functional outcome, with each patient improving their score following MUA and injection. We have also shown that this intervention reduces the pain associated with adhesive capsulitis, demonstrating a statistically significant fall in pain scores following treatment ($p < 0.001$). The results of our local study can be used to facilitate larger clinical randomised-controlled trials.

The procedure is simple to perform, requires only a short period of anaesthesia, and is performed as a day case. Each patient reported a noticeable and often dramatic benefit following surgery, with additional comments including “instantaneous relief” and of “being symptom-free”.

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