



## EVALUATION OF EFFECTIVENESS OF INTRAARTICULAR CORTICOSTEROID WITH AND WITHOUT LOCAL ANAESTHESIA FOR ADHESIVE CAPSULITIS SHOULDER

Dr Upendra Gupta<sup>1</sup>, Dr Deepak Aher<sup>2</sup>, Dr Nimish Rai<sup>3</sup>

<sup>1</sup> Senior resident, Orthopaedics, GMC Bhopal, MP

<sup>2</sup> Senior resident, Orthopaedics, GMC Bhopal, MP

<sup>3</sup> senior resident, Orthopaedics, GMC Bhopal, MP

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Corresponding author: Dr Deepak Aher

### Abstract:

**Background:** adhesive capsulitis leading to Shoulder pain and stiffness is a very common orthopaedic presentation. Still today, the Treatment for idiopathic adhesive capsulitis of the shoulder is inconclusive. We conducted this study to determine the efficacy of injections in shoulder joint for frozen shoulder to determine the short-term effects following corticosteroid injection, either alone or with combination with a local anesthesia into the shoulder.

**Methods:** 60 patients with shoulder pain due to adhesive capsulitis were enrolled for the study in our hospital from Jan 2018 to April 2018. They were divided into two equal groups. Patients received either triamcinolone acetonide 40 mg with lidocaine 2% (total volume 2 ml), or triamcinolone acetonide 40 mg alone (total volume 2 ml), injected into the subacromial space. Clinical outcome and range of movements was measured with Oxford Shoulder Score (OSS) at baseline and 12 weeks.

**Results:** The OSS at 12 weeks showed improved scores, more in group 1. The range of movements of the affected shoulder also increased satisfactorily in group 1 especially abduction, compared to group 2.

**Conclusions:** Corticosteroid along with local anesthesia is more effective than corticosteroid alone in frozen shoulder in terms of pain and range of movements

**Keywords:** frozen shoulder, triamcinolone acetonide, lidocaine

### Introduction

At any one time, shoulder pain in adults carry a prevalence of up to 34%, making it a common orthopaedic problem.<sup>1</sup> Shoulder pain arises mostly due to some rotator cuff tendinopathy, adhesive capsulitis ('frozen shoulder') or glenohumeral arthritis. There are many ways to manage pain and stiffness arising due to these pathologies, including analgesia, non-steroidal anti-inflammatory drugs, physiotherapy, and corticosteroid injection (with or without local anaesthesia)<sup>2</sup>. Now a day, Corticosteroid injection is a widely used cost effective treatment for shoulder pain.<sup>3</sup> Corticosteroid for glenohumeral joint may reduce synovial inflammation and decrease capsular fibrosis allowing the range of motion to improve. Few studies have been done on this, where Van der Heijden et al found positive effect of steroid injections for shoulder disorders and Green et al

proposed improvement in abduction in patients with rotator cuff tendinitis, but that no conclusion can be drawn about their effectiveness for patients with a frozen shoulder<sup>4,5</sup>. So, we did this study to check for the comparative effectiveness of corticosteroid alone versus corticosteroid injection with local anaesthesia for frozen shoulders.

### Materials and method

This study was done in our tertiary level hospital from Jan 2018 to April 2018, with 60 patients with frozen shoulder divided into 2 groups, one receiving corticosteroid with local anaesthesia injection (CS+L) (group 1) and other group receiving just corticosteroid injection (CS) (Group 2). When the pain presented to the OPD, their baseline Oxford shoulder score (OSS) was taken.<sup>6</sup> Range of movements were also noted. After injection was given, follow up was done and OSS was taken again

on 12 weeks. Range of motion noted again on 12 weeks.



**Figure 1: injection of CS+L (group 1) into GH joint**

**Results**

The oxford shoulder score improved after 12 weeks. The mean range of movements, particularly abduction, showed good improvement. External rotation (ER) and forward flexion (FF) too showed improvement

**Table 1: Oxford Shoulder Score comparison into two groups**

Oxford shoulder score	CS + L group	CS group
Baseline	15	18
12 weeks	26	22
Difference	9	4

**Table 2: Abduction Comparison in two Groups**

Range of movement (Abd)	CS + L group	CS group
Baseline	50	60
12 weeks	100	90
Difference	50	30

**Table 3: External rotation: comparison in two groups**

Range of movements(ER)	CS + L group	CS group
Baseline	40	50
12 weeks	70	70
Difference	30	20

**Table 4: Forward flexion: comparison in two groups**

Range of movements(FF)	CS + L group	CS group
Baseline	90	80
12 weeks	110	100
Difference	20	20

The OSS score showed more improvement in group one, suggesting its effectiveness over a higher side than group 2. The range of movements also improved more in group 2, but forward flexion showed no difference in result as such.

**Discussion**

The use of corticosteroid in injectable forms has gained universal acceptance after the studies in 1950s, on the effects and benefits of corticosteroids in management of intra-articular and soft tissues conditions conducted by Hollander et al. and Wrenn et al., respectively <sup>7,8,9</sup>. Many studies suggest that adhesive capsulitis involves both inflammation and fibrosis <sup>10,11,12,13,14</sup>. In the patients with painful stiff shoulders, a comparison was done between glenohumeral injection of corticosteroid to 6 weeks of physical therapy by Van der Windt et al. and found significant improvements in pain, disability, and motion in the injection group at 3 and 7 weeks <sup>15</sup>. The recent national commissioning guidelines for rotator cuff tendonopathy and subacromial impingement also recommend corticosteroid use in primary care. <sup>16</sup> In patients with adhesive capsulitis, treatment with either steroid injection or steroid injection and distension with 19 cm<sup>3</sup> of Lidocaine was done by Gam et al. and found that the distension with steroid group (12 patients) used fewer analgesics and had improved range of movements compared to the steroid-only group (8 patients). However, there was no difference in the visual analog pain scores in the groups <sup>17</sup>. In our study, we found that corticosteroid with lidocaine gave a better clinical outcome and range of movements specially abduction. Forward flexion showed similar results in both group. But a very few conclusive studies have been done on this topic and most studies are inconclusive, as were short term. In our study, efficacy of corticosteroid plus lidocaine surely was beneficial than corticosteroid alone. The shortcoming of this study

was there was not a long term follow up. Also, we didn't consider physiotherapy in any patients.

### Conclusion

Corticosteroid along with local anaesthesia produces good functional outcome of shoulder in terms of pain and stiffness, improving range of movement when compared to corticosteroid alone. Long term studies are needed to consolidate the results.

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