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IP International Journal of Orthopaedic Rheumatology

Journal homepage: [www.ijor.org](http://www.ijor.org)

## Original Research Article

## Intra-articular steroid using lor technique in managing frozen shoulder

Yogesh Kumar Agrawal<sup>1</sup>, Saksham Sharma<sup>1,\*</sup>, Sachin Pachori<sup>1</sup>, Abhinav Sharma<sup>1</sup><sup>1</sup>Dept. of Orthopedic, SJP Medical College and RBM Hospital, Bharatpur, Rajasthan, India

## ARTICLE INFO

## Article history:

Received 19-10-2022

Accepted 09-01-2023

Available online 23-01-2023

## Keywords:

Frozen shoulder

Steroid

Intraarticular

## ABSTRACT

**Introduction:** Frozen shoulder a condition very commonly encountered in Orthopaedics OPD with multiple variable treatment options. The study was done to infer out the efficacy of intraarticular steroid in shoulder joint in managing frozen shoulder.

**Materials and Methods:** study encompassed 28 female patients, coming in Orthopaedics OPD of RBM Hospital and medical College, Bharatpur, Rajasthan.

**Results:** 30 min post procedure 22 patients gained significant range of motion of shoulder with minimal pain. 24 patients completed their follow up of 6 weeks with significant overhead abduction and rotation. 4 patients had limited rotation.

**Conclusion:** Intra articular steroid injections in managing frozen shoulder is a cost effective, simple and safe method with clinical evaluation to exclude tendinopathy and radiography to exclude glenohumeral arthritis a mainstay before procedure.

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## 1. Introduction

Idiopathic adhesive capsulitis also known as frozen shoulder a condition characterized by non specific inflammatory condition causing the joint capsule to become thick limiting the movement of shoulder joint presenting as painful limited shoulder functions.

The condition mostly is found in females between age groups of 40 to 60 years, more commonly in those who are diabetic or hypothyroid patients.

The treatment options remains controversial, while some advocate this to be a self resolving condition,<sup>1,2</sup> while others have demonstrated incomplete recovery with persistent disability,<sup>3</sup> treatment options documented are physical rehabilitation,<sup>4</sup> non steroidal anti-inflammatory drugs,<sup>5,6</sup> oral steroids,<sup>7</sup> intraarticular corticosteroid injection,<sup>8–11</sup> distention arthrography, closed manipulation

and arthroscopic capsular release.

The rationale for corticosteroid injection is to attempt to reduce synovial inflammation and prevention of secondary capsular fibrosis thereby improving the functional outcome.

## 2. Materials and Methods

28 patients all females without underlying diabetes presenting in orthopaedic out patient department of R.B.M. Hospital and Medical College, Bharatpur, Rajasthan with limited shoulder abduction to 90 degrees; were taken up for study after they failed to respond to conservative management of rehabilitation and NSAIDs for a period of 21 days. Any preexisting rotator cuff injury or glenohumeral arthritis was ruled out by clinical evaluation, history and radiographs, clinical diagnosis of frozen shoulder was confirmed.

\* Corresponding author.

E-mail address: [drsakshamthesage@gmail.com](mailto:drsakshamthesage@gmail.com) (S. Sharma).

### 2.1. Preparation

The procedure was done in out patient procedure room in complete aseptic conditions, the usual trolley consisted

1. 5 ml sterile disposable syringe.
2. 2 ml sterile disposable syringe.
3. 80 mg / 2ml of methylprednisolone acetate.
4. 2 ml of 2% lignocaine.
5. 20 gauge cannula.
6. Distil water ampule.

Technique: After painting and draping the postero inferior border of acromion was marked, tip of coracoid was palpated, 20 gauge cannula was inserted just beneath the acromial border marked amining towards the coracoid i.e. keeping the direction from postero-lateral to antero-medial; the advancement of cannula was stopped as soon as loss of resistance was felt, to further assure the presence in joint cavity the stylet was removed and 2ml syringe with air was connected and air was pushed to look for free flow within the cavity, once confirmed 5ml syringe was filled with 2ml of methylprednisolone acetate and 2 ml of 2% lignocaine, which was then pushed via the cannula into the joint cavity, next about 1 ml of distil water was pushed.

Cannula was removed and shoulder was manipulated in all directions, pendulum exercises were initiated for next 15 minutes and improvement in pain and range of motion was observed

Post procedure NSAIDS and physical rehabilitation of shoulder were explained.

### 2.2. Case illustration



**Fig. 1:**

### 3. Results

Of all 28 patients taken up for study, 22 had a significant improvement in range of motion about 30 minutes post procedure with all having improvement in pain.

The mean follow up was done for 6 weeks post procedure. 4 patients lost follow up, remaining 24 patients had improved outcome in terms of ability to do overhead abduction as well as rotation, there was limitation of some degrees of external rotation in 4 patients with minimal persistent pain.

### 4. Discussion

Multiple treatment options in a disabling condition poses challenges to the treating doctor in terms of optimum treatment choice.

Our hypothesis is of early chemical ablation of inflammatory cascade of synovial inflammation which forms the basic pathophysiology of adhesive capsulitis in turn preventing the resultant capsular fibrosis which is well documented in orthopaedic as well as rheumatological literature.<sup>12,13</sup>

Vander Windt et al.<sup>13</sup> compared intra-articular steroid to physical therapy reports no significant difference in outcome in two groups at 52 weeks with early improvement of pain and range of motion in injection group at 3 and 7 weeks.

Gam et al.,<sup>14</sup> compared steroid only with steroid + lignocaine finding better results with combination therapy.

Bulgen et al., compared treatment with steroids v/s physical therapy or benign neglect and noted initial positive response to steroid group.

### 5. Conclusion

The technique described for intra-articular steroid is a minimally invasive, cost effective method with limited complications and an early response with simple technique. The documented complications of rotator cuff tears were not encountered as there was a limited sample size.

A pre-procedure confirmation of absence of glenohumeral arthritis and tendinopathy is a mandatory check.

### 6. Conflict of Interest

None.

### 7. Source of Funding

None.

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### Author biography

**Yogesh Kumar Agrawal**, Assistant Professor

**Saksham Sharma**, Assistant Professor

**Sachin Pachori**, Senior Resident

**Abhinav Sharma**, Assistant Professor

**Cite this article:** Agrawal YK, Sharma S, Pachori S, Sharma A. Intra-articular steroid using lor technique in managing frozen shoulder. *IP Int J Orthop Rheumatol* 2022;8(2):84–86.