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# Role of Intra-articular Steroid Injection in Primary adhesive capsulitis of shoulder

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**ABSTRACT**

Introduction: Frozen shoulder is an idiopathic disorder which is characterized by pain and decreased range of motion (ROM) of the shoulder. Overall incidence of idiopathic adhesive capsulitis of shoulder is near about 2% in general population. 40 to 70 is the most common age group affected. Approximately 70% of patients are women.

Material and Methods: The present study titled "Role of intra-articular steroid injection in primary adhesive capsulitis of the shoulder." was conducted in Postgraduate Department of Orthopaedic, GMC Srinagar 5th March 2017 to 25th December 2017. 80 patients with idiopathic adhesive capsulitis of either sex were included in the study. The shoulder joint was injected via a posterior approach using a 20-guage spinal needle; the solution injected contained 2ml of 80 mg of depomedrol, and 1% of 2ml lidocaine. All patients above 40 years with primary frozen shoulder with duration of pain more than or equal to two months and that were not responding to physiotherapy were included.

Results: 80 patients were included in the study.32 were males (40%) and 48 were females (60%). 35 were in Lundberg stage I and 45 were in stage II. The age of the patients ranged from 39 to 62 years with the mean age being 51.4 years. The average VAS preoperative score was 8.43 ± 1.52 points which drastically improved to 2.35 ± 0.61 points at their final follow up of 6 months. It was found stastically significant ($p < .001$).

Conclusion: The study conclude that, local intra-articular steroid injection is easy, effective and safe for patients with idiopathic adhesive capsulitis and improves range of motion and relieves pain.

**Keywords:** Intra-Articular Steroid Injection; Idiopathic Adhesive Capsulitis; VAS Score; CSS Score

## INTRODUCTION

Frozen shoulder, also known as adhesive capsulitis, is a common disorder affecting the glenohumeral joint.The condition is characterised by progressive inflammation of the joint capsule with subsequent stiffness of the shoulder. It was first described by Duplay in 1896.[(1)] The term 'frozen shoulder' was coined by Dr Codman.[(2)] Duplay described it as "periarthrite scapulohumerale".(3) It is mainly characterized by spontaneous chronic shoulder pain and gradual loss of shoulder motion including all active and passive movements.(4)Patients with adhesive capsulitis start with the phase of "freezing" with increasing pain and stiffness , that last for several months, followed by a steady-state stage of "frozen" when shoulder motion is lost, then progressing into a "thawing" phase which presents less pain and return of the restricted motion.(5,6) Although thought to be a self-limiting disorder, complete resolution of the pain and disability does not always occur.(7) The aetiology of primary adhesive capsulitis is still unknown. It is frequently associated with other systemic conditions, most commonly diabetes mellitus. Besides diabetes, it is seen commonly in thyroid disorders, Parkinson's

disease, cardiac and pulmonary diseases. Surgical procedures, such as radical neck dissection, neurosurgery and cardiac surgery can also trigger frozen shoulder, particular where patients are bedridden for prolonged periods of time.(8,9,10)

Individuals between age 40 and 70 are more commonly affected.

Approximately 70% of patients are women.[11] It is generally diagnosed clinically and normally does not require extensive investigations. Plain radiographs of the shoulder are usually done to exclude osteoarthritis or other pathologies of shoulder. Frozen shoulder can be classified either as primary (idiopathic) or secondary. The first group has a gradual onset and slow development of symptoms, where no obvious trigger mechanism can be found. Secondary cases are in general due to trauma or prolonged immobilization which may be due to a range of pathologies e.g. stroke etc.[12 -15] Numerous treatment options are available for frozen shoulder depending on the stage of the disease. It includes oral corticosteroids, intra-articular corticosteroid injection, distension arthrography, closed manipulation, and open or arthroscopic surgical release. The purpose for intra-articular steroid injection is to reduce synovial inflammation to decrease capsular fibrosis and allow improvement of range of motion. We describe short term results of intra-articular steroid injection in the management of idiopathic adhesive capsulitis.

## MATERIAL AND METHODS

The study was conducted in Postgraduate Department of Orthopaedic, GMC Srinagar from 5th March 2017 to 25th December 2017.

1) Inclusion Criteria
2) Lundbergs Stage I and II
3) All patients above 40 years with primary frozen shoulder with duration of symptoms more than or equal to two months
4) Patients not responding to physiotherapy Both sexes

### Exclusion Criteria

1) Patients with systemic disorders like rheumatoid arthritis
2) Patients with previous history of trauma or surgery to the concerned shoulder
3) Patients with any bleeding disorder or any recent history of aspirin or aspirin like drug intake
4) Patients with diabetes mellitus
5) Bilateral involvement of shoulder
6) Lundberg stage III

80 patients of either sex were studied. Before Conducting the study ethical clearance was obtained from ethical committee of GMC Srinagar. Patients were diagnosed on history and clinical examination. This diagnosis was made when there was pain with loss of motion compared to the contralateral shoulder and only when other causes of pain and motion loss were excluded. Visual analogue scale (VAS) was used to grade pain in our study in which calculations were done based on 0 being no pain and 10 representing worst pain. Shoulder movements were assessed by using CSS (Constant Shoulder Score). After taking written informed consent. Under all aseptic precautions part was prepared. The shoulder joint was injected via a posterior approach using a 20-guage spinal needle; the solution injected contained 2ml of 80 mg of Triamcinolone, and 1% of 2ml lidocaine. It was an out-door procedure and patients were sent home after 2 - 3hours of observation. They were advised to do range of motion exercises for quicker recovery.All our patients received only one injection. Patients were followed at three weekly intervals and final follow-up was done at 6 months. SPSS software version 16 was used for calculating P-value in our study.

Results

80 patients were included in the study.32 were males (40%) and 48 were females (60%). 35 were in Lundberg stage I and 45 were in stage II. The age of the patients ranged from 39 to 62 years with the mean age being 51.4 years. The average VAS preoperative score was 8.43 ± 1.52 points which drastically improved to 2.35 ± 0.61 points at their final follow up of 6 months. It was found stastically significant ($p < .001$).



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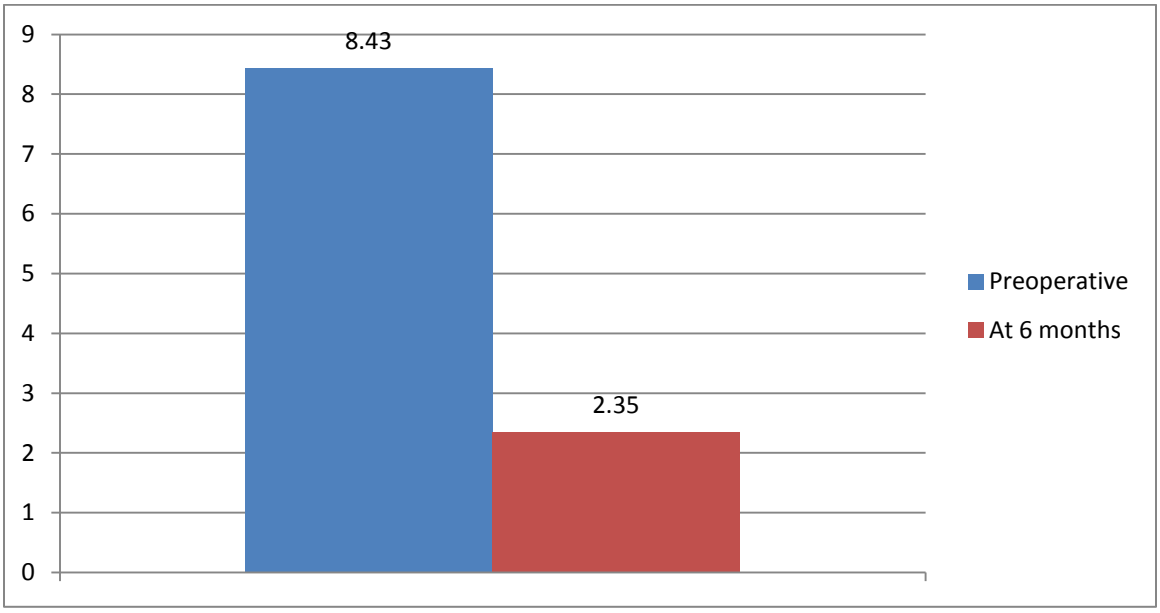
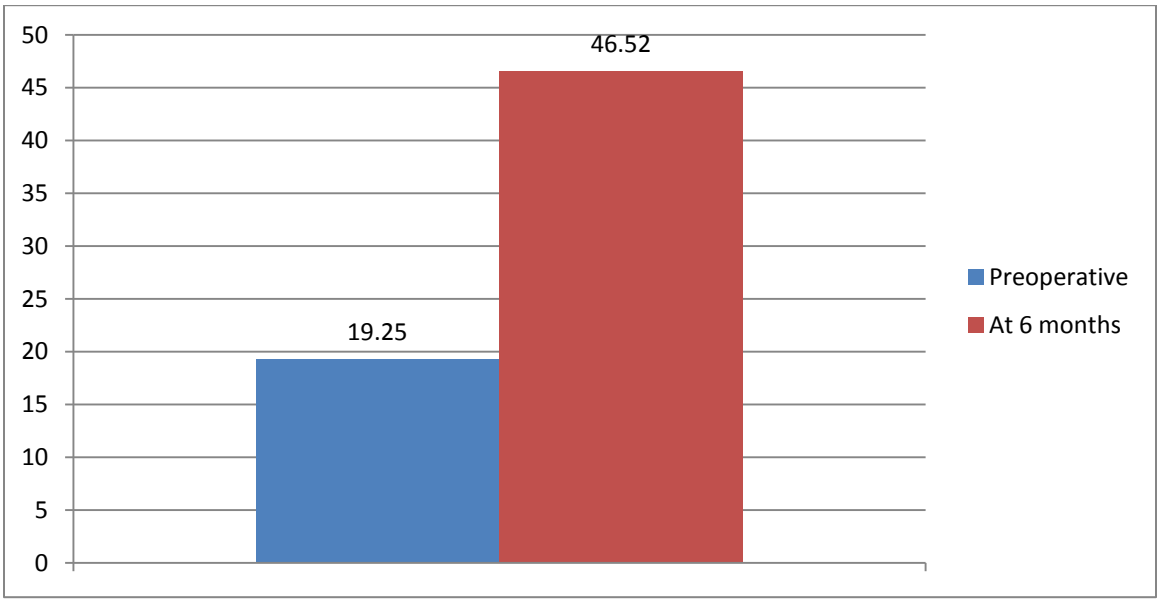
**VAS COMPARISION SCORE**




CSS was found to be 19.25 ± 2.35 points preoperatively which postoperatively at 6 months increased to 46.52 ± 4.87

**CSS COMPARISION SCORE**




## Discussion

Adhesive capsulitis was considered as a self limiting disorder. Neviaser and Naviaser[16] suggested that it consists of four stages that ranged from synovial inflammation with limited motion to adhesive synovitis, to more mature adhesions with less synovitis, and finally to mature adhesions with limited motion. Hannafin., *et al.*[17] compared arthroscopic, clinical and histological findings to describe the first three stages . In stage 1, the patient presents with pain and limited range of motion. During this stage, full ROM can be obtained on examination under anesthesia. Pathological results show an inflammatory synovitis with normal underlying capsule. In Stage 2, the patient still presents with pain and limited ROM, but it is not restored on exam under anesthesia.Pathology shows synovial hyperplasia and capsular fibroplasia and fibrosis. In Stage 3, patients presents with mild pain, marked loss of motion, minimal synovitis, and capsular fibroplasia with dense capsular scar



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formation. Dudkiewicz et al[18](2004), in the study of 54 patients with mean follow up of 9.2 years, claimed that conservative treatment for frozen shoulder i.e., physiotherapy and intra-articular steroid injection was an effective long term treatment method. Hazleman[19] concluded that the use of intra-articular corticosteroid injections and its success depends upon the duration of symptoms. According to him when treatment is started within 5 months from the onset of symptoms patients will recover in 8.1 months. Bulgen et al[19] compared results of different methods like treatment with intra-articular steroid injection, ice, physical therapy, benign neglect.It was concluded that short term results were better in patients with steroid injections, but statistically no significant difference was found in long term follow-up. Robert G Marx et al[20] suggested that treatment with Intra-articular steroid injection halts the progression of synovitis, thus decreasing the development of fibrosis, and hence the duration of disease.

## Conclusion

The study conclude that, local intra-articular steroid injection is easy, effective and safe for patients with idiopathic adhesive capsulitis and improves range of motion and relieves pain.

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