

# Role of Intra-articular Steroid Injection in the Management of Idiopathic Adhesive Capsulitis of the Shoulder

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## ABSTRACT

**Introduction:** Overall incidence of idiopathic adhesive capsulitis of shoulder is near about 2% in general population. Individuals between age 40 and 70 are more commonly affected. Approximately 70% of patients are women. Frozen shoulders in patients who report no inciting event and with no abnormality on examination (other than loss of motion) or plain radiography were designated as primary and frozen shoulder in patients with precipitant traumatic injuries were designated as secondary.

**Material and Methods:** The present study titled "Role of intra-articular steroid injection in the management of idiopathic adhesive capsulitis of the shoulder." was conducted in Postgraduate Department of Orthopaedic, B and J Surgery Hospital Barzulla associated with GMC Srinagar from 15<sup>th</sup> June 2012 to 30<sup>th</sup> November 2013. 60 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-gauge spinal needle; the solution injected contained 2ml of 80 mg of depomedrol, and 1% of 2ml lidocaine.

**Results:** At final follow-up 34 (56.67%) patients were completely pain free. Only 12 (20%) patients persisted with severe pain on VAS score. At final follow-up 35 (58.33%) had ROM comparable to contralateral side. 15 (25%) patients regained ROM within 15 degrees of contra-lateral side at final follow-up. 10 (16.67%) patients persisted with severe loss of motion at final follow-up.

**Conclusion:** Local intra-articular steroid injection effectively improves range of motion and relieves pain in patients with idiopathic adhesive capsulitis.

**Keywords:** Idiopathic adhesive capsulitis, Pain, steroid injection.

oral corticosteroids, intra-articular corticosteroid injection, distension arthrography, closed manipulation, and open or arthroscopic surgical release. The rationale for intra-articular steroid injection is to attempt to reduce synovial inflammation to decrease capsular fibrosis and allow improvement of range of motion.<sup>2,4,5</sup> We describe short term results of intra-articular steroid injection in the management of idiopathic adhesive capsulitis.

## MATERIAL AND METHODS

This study "Role of intra-articular steroid injection in the management of idiopathic adhesive capsulitis of the shoulder." was conducted in Postgraduate Department of Orthopaedic, B and J Surgery Hospital Barzulla associated with GMC Srinagar from 15<sup>th</sup> June 2012 to 30<sup>th</sup> November. 60 patients with idiopathic adhesive capsulitis of both sexes were included in the study. Before Conducting the study ethical clearance was obtained from ethical committee of GMC Srinagar. All the patients with symptomatic adhesive capsulitis not responding to physiotherapy were included in the study. Visual analogue scale (VAS) was used to grade pain in our patients; 0 being no pain and 10 representing worst pain. 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 eliminated. Adhesive capsulitis associated with the condition like diabetes, cervical disc disease and stroke were excluded from the study. Bilateral cases were also excluded from the study. After taking written informed consent the part was prepared under all aseptic precautions. The shoulder joint was injected via a posterior approach using a 20-gauge spinal needle; the solution injected contained 2ml of 80 mg of depomedrol, and 1% of 2ml lidocaine. After intra-articular injection, patients were advised to perform range of motion exercise within the limits of pain. 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:** The mean age of patients in our study was 59.5 years (range 45-74 years). 38 (63.33%) patients were females and 28 (46.67%) were males. VAS pain score in our study decreased from median score of 7 (range 4-10) to a median score of 2 (range

## INTRODUCTION

Neviasser<sup>1</sup> coined the term adhesive capsulitis to describe a contracted thickened joint capsule that seemed to be drawn tightly around the humeral head with a relative absence of synovial fluid and chronic inflammatory changes within the subsynovial layer of the capsule. The incidence of frozen shoulder in the general population is approximately 2 % but several conditions are associated with an increased incidence including female sex, age older than 49 years, prolonged immobilization, diabetes mellitus (five times more), stroke, and trauma.<sup>1,2</sup> Individuals between age 40 and 70 are more commonly affected. Approximately 70% of patients are women.<sup>2</sup> Lundberg<sup>3</sup> developed a classification system of frozen shoulder based on the presence or absence of an inciting event. Frozen shoulders in patients who report no inciting event and with no abnormality on examination (other than loss of motion) or plain radiography were designated as primary and frozen shoulder in patients with precipitant traumatic injuries were designated as secondary. The treatment for idiopathic adhesive capsulitis or frozen shoulder remains controversial. Treatment options described in literature include "benign neglect", supervised physical therapy, nonsteroidal anti-inflammatory medications,

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Visual analogue score (VAS)	At the start of study	At 6 month
0-3	0	34(56.67%)
4-7	23 (38.33%)	14 (23.33%)
8-10	37 (61.67%)	12 (20%)

**Table-1:** Visual analogue score (VAS)

0-8) at final follow-up of 6 months. We achieved statistically significant decrease in VAS pain score with ( $p < .001$ ). At final follow-up 34 (56.67%) patients were completely pain free. Only 12 (20%) patients persisted with severe pain on VAS score. At final follow-up 35 (58.33%) had ROM comparable to contralateral side. 15 (25%) patients regained ROM within 15 degrees of contra-lateral side at final follow-up. 10 (16.67%) patients persisted with severe loss of motion at final follow-up.

## DISCUSSION

There are many methods of treating frozen shoulder with variable results. Dudkiewicz et al<sup>5</sup> (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<sup>6</sup> summarized numerous studies on the use of intra-articular corticosteroid injections and came to conclusion that success rate of the treatment 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.<sup>6</sup> Sharma RK et al<sup>7</sup> treated 32 patients who had frozen shoulder which has not improved with physiotherapy (were treated) by manipulation under general anesthesia or by steroid injection and hydraulic distension under local anaesthesia and recommended distension technique as it was easy to carry out and gave better results than manipulation. Bulgen et al<sup>8</sup> compared results of different methods of treatment in patients with frozen shoulder like treatment with intra-articular steroid injection, ice, physical therapy, benign neglect, he noted that short term results were better in patients with steroid injections, but statistically no significant difference was found in long term follow-up.<sup>8</sup> Singh G.P et al<sup>9</sup> obtained 88% excellent results with hydraulic distension technique; they recommended that patients with frozen shoulder should be treated with hydraulic distension under local anesthesia with steroid. Robert G Marx et al<sup>10</sup> hypothesized that treatment with Intra-articular steroid injection halts the progression of synovitis, thus decreasing the development of fibrosis, in this was natural history of the disease is shortened

## CONCLUSION

Local intra-articular steroid injection effectively improves range of motion and relieves pain in patients with idiopathic adhesive capsulitis.

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