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**Dr. Prem Kumar K**  
Assistant Professor, Department  
of Orthopaedics, Chettinad  
Hospital and Research Institute,  
Kelambakkam, Tamil Nadu,  
India

**Dr. Arun Viswanath N**  
Assistant Professor, Department  
of Orthopaedics, Panimalar  
Medical College Hospital and  
Research Institute, Chennai,  
Tamil Nadu, India

**Dr. F Abdul Khader**  
Professor, Department of  
Orthopaedics, Shri Sathya Sai  
Medical College and Research  
Institute, Ammapettai,  
Chengalpattu District, Tamil  
Nadu, India

**Corresponding Author:**  
**Dr. Arun Viswanath N**  
Assistant Professor, Department  
of Orthopaedics, Panimalar  
Medical College Hospital and  
Research Institute, Chennai,  
Tamil Nadu, India

## Retrospective study of suprascapular nerve block with closed manipulation and intra articular steroid injection in patients with frozen shoulder

**Dr. Prem Kumar K, Dr. Arun Viswanath N and Dr. F Abdul Khader**

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### Abstract

**Background:** Frozen shoulder syndrome is chronic inflammation of glenohumeral joint capsule commonly known as adhesive capsulitis. This disease characterised by gradually increasing shoulder pain followed by limitation in range of movements. Therapeutic management has no effect on adhesive capsulitis. Recently a combination of suprascapular nerve block (SSNB) with closed manipulation and with intraarticular steroid injection (IA) has shown a best and fruitful treatment which is safe and successful method for the relieving of pain and gain of full range of motion (ROM).

**Aim:** To assess the pain scores and to achieve full range of movements before procedure and after 5 hours, 5 days and 15 days and 1month of the procedure.

**Study Design:** Retrospective study.

**Methods:** Retrospective study of 82 patients (26 male and 56 female) with frozen shoulder, from December 2018 to December 2020. A combination of suprascapular nerve block (SSNB) with closed manipulation and with intra articular steroid injection (IA) were given to the patients. Assessment were done on the severity of pain and range of movements before and after the treatment were noted.

**Results:** All parameters like forward flexion, extension, adduction, abduction, internal rotation, external rotation and circumduction assessed before procedure and after 5 hours, 5 days, 15 days and 1month after procedure were done. Many patients significantly improved. However at 15 days of assessment 8 patients showed mild restriction of all the movements.

**Conclusion:** Combination of suprascapular nerve block with closed manipulation and with intraarticular steroid injection is the best and fruitful treatment for frozen shoulder. Continuous shoulder mobilizing exercise will improve from pain and improve functional outcomes of these patients.

**Keywords:** Frozen shoulder, periarthrits shoulder, suprascapular nerve block, intra articular injection, closed manipulation

### Introduction

Frozen shoulder syndrome is chronic inflammation of glenohumeral joint capsule resulting into thickening and contraction leading to adhesive capsulitis [1]. The onset of disease is characterised by gradually increasing shoulder pain followed by limitation in range of movements. The most common limitation are with flexion, internal rotation resulting into disability of various grades affecting quality of life [2-6]. In frozen shoulder, arthrography shows disfigurement of synovial folds and reducing of the intra synovial space, both these findings are not noted in other shoulder disorders [7]. Approximately 70% of patients are women however affected males show greater disability and delayed recovery [2-6]. Incidence and susceptibility is higher in diabetes with worse functional outcomes [2-6]. The disease usually has three phases, pain, stiffness and recovery. However, the stiffness phase may last from 5-24 months, during which due to severe pain and limited in the movement manipulation and exercise are difficult leading to increase in stiffness and painful which badly affects patient compliance during the rehabilitation. The therapeutic options available are nonsteroidal anti-inflammatory drugs, physiotherapy exercises, and intraarticular steroid injections, manipulation under general anaesthesia or arthroscopic capsular release [8-14]. Intraarticular steroids with local anaesthetic agents have shown some benefit in pain lasting up to 3-6 months [15-19].

Joint mobilization and exercises are most effective interventions for frozen shoulder [20-25]. Suprascapular nerve supplies 70% of sensation to shoulder joint and hence blocking it gives relief from pain and stiffness even in refractory cases [26-32]. Recently a combination of suprascapular nerve block with closed manipulation and with intraarticular steroid injection has shown a best and fruitful treatment which is safe and successful method for the relieving of pain and gain of full range of motion [30-32].

### Aim

To assess the pain scores and to achieve full range of movements before procedure and after 5 hours, 5 days, 15 days and 1 month of the procedure.

### Materials and methods

Retrospective study of 82 patients (26 male and 56 female) with frozen shoulder, from December 2018 to December 2020, Patients were selected based on inclusion criteria. The inclusion criteria were adult patients admitted for frozen shoulder treatment in the wards of orthopaedic department in our hospital, with age ranging between 35 years to 75 years. All patients should have all the required investigations performed such as routine surgical blood investigations at the time of admission. Written documentation of acquired consent for the surgery, post operative management and discharge summary should be present. Follow ups and the outcome after the treatment of the study group should be noted. The exclusion criteria were patients with Coagulopathy disorders, trauma, infection at procedure site, patients with uncontrolled diabetes mellitus and uncontrolled hypertension.

### Procedure

Patients will be shifted to theatre after taking valid informed consent. Severity of pain and range of movements will be examined and noted. All the 2 injections would be performed with 10 MHz linear ultrasound probe (Mindray) in lateral position with affected shoulder in non dependent position. IV line will be cannulated on dependent hand and inj. Fentanyl 2 mcg/kg will be given. To identify suprascapular nerve, the probe will be placed in suprascapular fossa and traced laterally until supraspinatus fossa, suprascapular artery and nerve is visualized. The nerve will be blocked with 8ml of 1% lignocaine with 20 mg of inj. Depomedrol. Closed manipulation were performed at all directions<sup>10</sup> and glenohumeral joint will be visualized posteriorly by the transducer just below and caudal to the spine of scapula. Once the circular head is noted, the needle is advanced from lateral to medial and needle tip is placed between the glenoid labrum and the head. After confirming the position 40 mg of inj, Depomedrol with 4 ml of 1% inj. Lignocaine will be injected. Severity of pain and range of movements will be seen at 5<sup>th</sup> hour. After 5 hrs patients will be discharged from the hospital. Pain and range of movements will be followed up as per proforma. The patients will be reviewed on the 5<sup>th</sup> post op day after 4 consecutive days of physiotherapy (wax bath mobilisation), then after 15 days and 1 month later. Assessment of the pain scores and full range of movements are noted.

### Results

The Retrospective study group of 182 patients consist of 50 male (27.4) and 132 female (72.5). The male to female ratio (1:2.6) with age ranging between 35 years to 75 years with a mean age of (54.2) years. Affected mainly on right shoulder

85%. All parameters like forward flexion, extension, adduction, abduction, internal rotation, external rotation and circumduction assessed before procedure and after 5 hours, 5 days, 15 days and 1 month of procedure were done. Many patients significantly improved. However at 15 days assessment 8 patients showed mild restriction of all the movements, on enquiry these 8 patients had stop doing shoulder mobilisation exercises due to various reasons. On the 1 month assessment all the 8 patients showed significantly improved on daily doing shoulder mobilisation exercises.

### Discussion

Frozen shoulder was first introduced by Codman in 1934, has painful condition that causes gradually increasing shoulder pain followed by limitation in range of movements of shoulder joint.<sup>1</sup>The most common limitation are with flexion, internal rotation resulting into disability of various grades affecting quality of life [2-6].

The study was to assess the pain scores and to achieve full range of movements before treatment and after 5 hours, 5 days and 15 days and 1 month of adult patients admitted for frozen shoulder treatment in the wards of orthopaedic department in a tertiary care hospital. A regime combination of suprascapular nerve block with closed manipulation and with intraarticular steroid injection has shown a best treatment [30-32] in our survey of 182 patients consist of 50 male (27.4) and 132 female (72.5). The male to female ratio (1:2.6) with age ranging between 35 years to 75 years with a mean age of (54.2) years. The study showed female predominance (132 females 72.5%) as compared to males similarly noted in other studies also [2-6] all parameters like forward flexion, extension, adduction, abduction, internal rotation, external rotation and circumduction assessed showed significantly improved. We found that by doing shoulder mobilisation exercises as a daily exercise will maintain continues better quality of life.

### Conclusion

Frozen shoulder is a painful condition that causes gradually increasing shoulder pain followed by limitation in range of movements of shoulder joint [1] Combination of suprascapular nerve block with closed manipulation followed by intraarticular steroid injection is the best and fruitful treatment for frozen shoulder, with regular shoulder mobilizing exercise will guarantee painless and improve functional outcomes of these patients.

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