



STUDY OF RESULT OF FROZEN SHOULDER SYNDROME TREATED WITH INTRAARTICULAR STEROIDS

Orthopaedics

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ABSTRACT

OBJECTIVE: Adhesive capsulitis or frozen shoulder is a common condition that presents with pain and progressive limitation of both active and passive shoulder movements. In this study, we investigate the efficacy of intraarticular steroid injection in case of frozen shoulder.

Material & Methods: Study is done on 32 patients of frozen shoulder attended Orthopedic OPD at Jhalawar Medical college, Jhalawar from July 2018 to June 2019. Intra-articular injection of steroid (methyl prednisolone acetate 80 mg) given & results analyzed.

RESULTS: Patient follow up done every 2 weeks after giving Intraarticular steroid & advised to exercise of shoulder. Improvement in shoulder pain & movement of shoulder analyzed & recorded up to 12–24 weeks.

CONCLUSION: Intraarticular injection for frozen shoulder is good, safe & efficient method. For better result corticosteroid injection is given in the early stages when pain is the predominant presentation.

KEYWORDS

range of motion (ROM)

INTRODUCTION

Adhesive capsulitis or frozen shoulder is a common condition that presents with pain and progressive limitation of both active and passive shoulder movements. The term frozen shoulder as first used by Codman 1934 who described the common features as a pain of gradual onset, which is felt near the insertion of the deltoid, inability to sleep on the affected side, painful restriction of elevation and external rotation and a normal radiological appearance.[1] Neviaser [2] 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 sub synovial layer of the capsule. The American Shoulder and Elbow Surgeons (ASES) defines adhesive capsulitis as “a condition of uncertain etiology characterized by significant restriction of both active and passive shoulder motion that occurs in the absence of a known intrinsic shoulder disorder”.(3,4).

Frozen shoulder can be classified as primary or secondary. Primary idiopathic frozen shoulder is often associated with other diseases and conditions, such as diabetes mellitus, and may be the first presentation of a diabetic patient. (5) Patients with systemic diseases such as thyroid diseases(6,7) and Parkinson's disease(8) are at higher risk. Secondary adhesive capsulitis can occur after shoulder injuries or immobilization (e.g. rotator cuff tendon tear, subacromial impingement, biceps tenosynovitis and calcific tendonitis). The term 'adhesive capsulitis' should be used only to classify idiopathic frozen shoulder and not the secondary forms of stiffness.

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.2,9 Individuals between age 40 and 70 are more commonly affected. Approximately 70% of patients are women.9 The disease occurs simultaneously or sequentially bilaterally in 20–30% cases.

Frozen shoulder often progresses in three stages: the freezing (painful), frozen (adhesive) and thawing phases.

1. Freezing stage, which lasts about 2–9 months, there is a gradual onset of diffuse, severe shoulder pain that typically worsens at night.
2. Frozen stage, can last for 4–12 months, Pain begins to subside. it is characterized by progressive loss of glenohumeral flexion, abduction, internal rotation and external rotation.
3. Thawing stage, the patient experiences a gradual return of range of motion that takes about 5–26 months to complete. (10,11)

Although adhesive capsulitis is often self-limiting, usually resolving in 1–3 years, (12) it can persist, presenting symptoms that are commonly mild; pain is the most common complaint. (13,14)

The goals of treatment are to relieve pain, restore movement and regain shoulder function. Common treatment options include nonsteroidal anti-inflammatory drugs (NSAIDs), corticosteroid injections and physical therapy, with more invasive treatments like capsular distension, manipulation under anesthesia and arthroscopic capsular release being considered when conservative treatments fail.

In this study we want to know the result of intraarticular steroid injection in case of frozen shoulder.

AIM & OBJECTIVES:

In this study, we investigate the efficacy of intraarticular steroid injection in case of frozen shoulder of stage 1st & 2nd.

INCLUSION CRITERIA:

1. Age: 40–80 years
2. Stage 1st & Stage 2nd of Frozen shoulder

EXCLUSION CRITERIA:

1. Age: <40 years & >80 years
2. Stage 3rd Frozen shoulder
3. Patients with diabetes mellitus
4. Patient with multiple medical comorbidities or with impaired immune system
5. History of shoulder trauma within last 6 months

MATERIAL & METHODS:

Study is done on 32 patients of idiopathic adhesive capsulitis (Frozen Shoulder) attended ortho OPD at Jhalawar Medical college, Jhalawar from July 2018 to June 2019, after their consent. The diagnosis of adhesive capsulitis was based on history and clinical examination. Rotator cuff pathologies was eliminated based on physical findings, including normal strength and lack of impingement signs. Exclusion of Glenohumeral osteoarthritis and neoplasm were done by radiographs. Pain related to the acromioclavicular joint or biceps was ruled out based on lack of tenderness with palpation of these structures.

The injection of corticosteroid and local anesthesia was used both to confirm the diagnosis of stage and therapeutic treatment. The patients were instructed in simple pendulum exercises and reexamined 15 min following the injection to evaluate pain, determine passive glenohumeral range of motion (ROM), and define the stage of adhesive capsulitis. If the patient had significant improvement in pain

and normalization of motion within 30 min after the injection, this confirmed the diagnosis of stage 1 adhesive capsulitis. If the patient had a significant improvement in pain with partial improvement in ROM, a diagnosis of stage 2 adhesive capsulitis was made.

Procedure: Informed consent taken for procedure as well as for research study. Patient was asked about allergies. In this procedure position of patient in sitting posture while doctor stands behind patient. In sterile condition painting & draping done of affected shoulder. Palpation of posterolateral corner of acromion process & coracoid process done. Injection site was decided as 2 cm down & 1 cm medial to postero-lateral corner of acromion process & directed towards coracoid process of scapula anteriorly which is palpated during inserting needle. If the needle hits bone it was redirected (glenoid: move lateral; humerus: move medial). Aspiration was done to ensure not in a vessel. Inject preparation (prednisolone 80 mg + 2ml 2% lignocaine) into joint. Dressing of injection site done.

Anti-inflammatory medication was recommended and patients were referred for physiotherapy for exercises of affected shoulder. Follow up done 2nd week, 4th week, 6th week, 8week, 12th week, & assessment of shoulder pain & ROM done.

RESULTS:

In our study total 32 patients were registered of the 40 to 80 years age. Average age of study group was 55 years. In Age group 40 – 80 years 20 female & 12 male(table-1). Female to male ratio is 1.67: 1

In 32 patients, 2 patients not came for follow up. Out of 30 patients(table-2), 6 patients (20%) show improvement of shoulder movement(figure-1) within 2 weeks ,12 patient (40%) show improvement in 4 weeks, 5 (17%) patient show improvement in 6 weeks, 3 (10%) patient show improvement in 8 weeks, 2 (6.5%) patient show improvement in 12 weeks, 2 (6.5%) patient didn't show marked improvement till 24weeks.

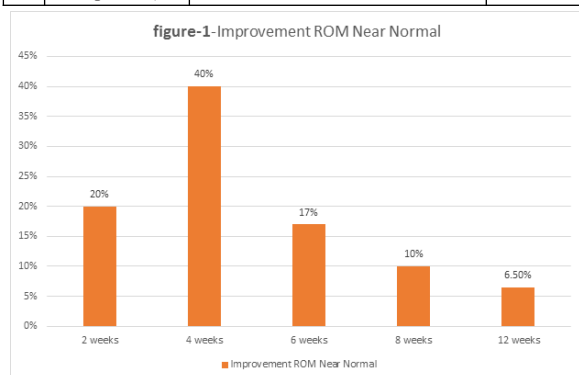
Success rate of intraarticular steroid in frozen shoulder stage 1st & stage 2nd is 93.5%. Average Time after intraarticular injection for Improvement in ROM with relieve pain is 5 weeks.

Table-1-sex ratio

Sex	Patients	Percentage
Male	12	37%
Female	20	63%

Table 2 Result of Intra-articular Steroid Injection

S.N.	Follow up	Improvement ROM Near Normal	Percentage
1	2 weeks	6	20%
2	4 weeks	12	40%
3	6 weeks	5	17%
4	8 weeks	3	10%
5	12 weeks	2	6.5%
6	24 weeks	0	0
	Total	28	93.5%
6	>24 weeks (not improved)	2	6.5%



Case illustration-62 year old female with left frozen shoulder with restricted movement ,after intraarticular injection movement improved as shown in (figure2a,2b,3a,3b).

ROM Pre Intra-articular Injection(figure2a,2b)

Figure-2a

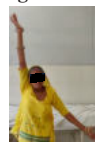


Figure-2b



ROM 4 Weeks After Intraarticular Steroid Injection (figure 3a,3b)

Figure-3a



Figure-3b



DISCUSSION:

The shoulder is a very complex joint that is crucial to many activities of daily living. Adhesive capsulitis is a common problem, characterized by decrease in range of motion and pain. The intra-articular corticosteroid injection alone or in combination with physical therapy is most commonly used to treat adhesive capsulitis.[15]

Steroid injection therapy has been advised in adhesive capsulitis based on the belief that inflammation plays an important role in the pathogenesis.[16] Cytokines have been implicated recently in the inflammation and fibrosis described in adhesive capsulitis. Cytokines are involved in the initiation and termination of repair processes in multiple musculoskeletal tissues, and their sustained production has been shown to result in tissue fibrosis. We hypothesized in this study that early treatment with intra-articular corticosteroid provides a chemical ablation of the synovitis, thus limiting the subsequent development of fibrosis and shortening the natural history of the disease. The self-limiting nature of adhesive capsulitis also supports the role of the synovium in initiation and regulation of the fibrotic process in the capsule. With resolution of the synovitis and termination of capsular scar formation, capsular remodeling and recovery of ROM occurs. This hypothesis is supported by the orthopaedic and rheumatologic literature [17].

In our study 28 patients out of 30 shows improvement in ROM of Frozen Shoulder comparable to normal shoulder.

CONCLUSION:

In our study of intraarticular injection in frozen shoulder in stage 1st & stage 2nd is effective & safe method. Average time to gain ROM comparable to contralateral normal shoulder is 5 weeks post steroid (prednisolone 80 mg) injection. Success rate in our study was 93.5% within 12 weeks.

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