

PHYSIOTHERAPY MANAGEMENT IN THE CASE OF IDIOPATHIC ADHESIVE CAPSULITIS

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ABSTRACT

The glenohumeral (GH) joint's range of motion is gradually restricted in both active and passive forms of adhesive capsulitis (AC), also referred to as frozen shoulder. The condition is characterized by a painful start. The ailment may heal entirely or virtually entirely on its own over a variable period. Frozen shoulder comes in two varieties: main and secondary. Frozen shoulder that is primarily idiopathic is often associated with various diseases and conditions and may be the first sign of diabetes mellitus. Frozen shoulder primarily affects individuals between the ages of 40 and 60, with women being more susceptible to the condition than men. A frozen shoulder is indicated by the shoulder capsule being thicker, tighter, and stiffer. Tissue clumps known as adhesions develop. The initial line of treatment for adhesive capsulitis is a variety of home exercises and physical therapy techniques. Physical therapy has been shown to alleviate discomfort and restore functional motion. It has been shown that using NSAIDs in addition to physical therapy has a greater effect than taking them alone. Pain was reduced, range of motion was increased, and daily living tasks were improved with the use of physical therapy.

Keywords: - Adhesive capsulitis, Physiotherapy, Rehabilitation.

INTRODUCTION

The definition of frozen shoulder, often referred to as adhesive capsulitis, is described as "a condition of uncertain aetiology, characterised by significant restriction of both active and passive shoulder motion that occurs in the absence of a known intrinsic shoulder disorder". Almost total loss of shoulder external rotation, both passive and active, and intense discomfort that often gets worse at night are the most common symptoms of a frozen shoulder. Subtle shoulder stiffness is another. During the patient's clinical examination or radiographic scan, no noteworthy findings are typically made that could explain the pain or lack of motion. (1) According to research, frozen shoulder affects two to five percent of the world's population. Individuals with diabetes and thyroid gland diseases, especially hypothyroidism, may have a higher prevalence of 10 to 38%. With the exception of older patients with secondary traumatic frozen shoulder, most occurrences of frozen shoulder include individuals between the ages of 40 and 60.

(2) The long natural history of true frozen shoulder usually results in resolution. This article discusses the diagnosis of frozen shoulder and how to differentiate it from other shoulder diseases that cause pain. We also examine the efficacy of conservative and operational management, as well as the most recent etiological hypotheses. We looked over the most recent research and literature on the subject. (3)

PATHOGENESIS OF ADHESIVE CAPSULITIS

Patients with adhesive capsulitis may exhibit different characteristics at different stages of the illness. It is well-recognized that fibrosis and inflammation are both involved in adhesive capsulitis. There are distinct stages to the disorder's progression: an inflammatory phase at first, a fibrotic phase characterized by increasing stiffness and limited range of motion (ROM), and a thawing or regression phase where shoulder mobility gradually improves. The length of each step changes according to the individual. (4)

The patient experiences a gradual onset of pain in the deltoid muscle during the first stage. The shoulder hurts all day and night, getting worse when you try to move it. It might also hurt while it's not being utilized. You should have noticed a slight decrease in movement and a decrease in shoulder usage as a result of the soreness. Raising your arms or reaching behind your back will make your pain more apparent while lifting your arm away from your body will make your movement loss more apparent. Signs of synovitis without adhesions or contractures are present within the joint. A joint capsule indicates the presence of normal capsular tissue, hypervascular, hypertrophic inflammation of the synovial membrane, and atypical inflammatory cells.

During the freezing stage usually occurs after the symptoms have persisted for three to nine months. During this time, pain and stiffness continue to limit the range of motion, and nighttime pain will have intensified along with a progressive loss of shoulder movement. the patient is conscious of joint stiffness. The articulative function of the shoulder joint is less effective, and arthroscopy reveals thickening of the synovial membrane and adhesion to adjacent soft tissues. The ache turns into a chronic condition that gets worse at night. The patient now has trouble rotating the joint or moving it forward or away from the body. The tissues develop perivascular and sub-synovial scars as a result of hypertrophic, hypervascular synovitis.

In the second stage, between nine and fourteen months, there are still problems at this point, and the range of motion has significantly decreased. A significant degree of pain is experienced in the early stages of this stage, and the agony lessens as the frozen period comes to a close. When the shoulder is moved to the limit of its range of motion, pain may then only manifest. hypercellular collagenous tissue, particularly at the front of the capsule, the swelling and adherent connective tissues by this point prevent the joint from functioning.

In the third stage, thawing Usually, after twelve to fifteen months of symptoms, there is less discomfort overall, especially at night. Although somewhat restricted, the range of motion is gradually returning to what it was before the beginning. (5,6)

CASE PRESENTATION

A 42-year-old male came to physiotherapy OPD with a complaint of pain at the right shoulder joint for three months with difficulty in shoulder movements and restrictions associated with pain. The patient has had a history of diabetes for 10 years, no history of trauma or fall also no history of hypertension. A general examination and certain specialized tests, such as the Empty Can Test, were performed upon admission to the hospital to check for lesions in the supraspinatus tendon and muscle. The subscapularis muscle is isolated and tested for tears or dysfunction using the belly- press test. both were run, and both tested positive. Further multiplanar and multi-echo Magnetic resonance of the shoulder were performed. Magnetic resonance imaging revealed diffuse oedema in the supraspinatus, infraspinatus, teres minor muscles, and anterolateral fibers of the deltoid muscle. Supraspinatus tendinosis, no evidence of tear noted. Bicipital tenosynovitis Acromioclavicular joint arthropathy were the findings. post 2 days of the hospital stay arthroscopic capsular release was done under general anesthesia. Since then, patient has been having pain and a limited range of motion.

CLINICAL FINDINGS

The patient is cooperative, and oriented. the patient was observed in high-sitting during the examination. The patient had normal vitals and was afebrile. On palpation over the right shoulder, the patient had tenderness grade 2 at the anterolateral aspect of the shoulder joint. The range of motion was significantly reduced with a reduced arm swing on the right side. Pain was persistent on passive movements and active movements were difficult to perform. The numerical pain rating scale revealed 7/10 on movement and 4/10 on rest. The Shoulder Pain and Disability

Index (SPADI) scale measures pain and disability of the shoulder was taken in the initial assessment of 65% affected state.

COMPONENT	RIGHT (AFFECTED)	LEFT
FLEXION	95	175
EXTENSION	20	45
ABDUCTION	40	160
ADDUCTION	20	30
MEDIAL ROTATION	20	75
LATERAL ROTATION	15	80

TABLE NO 1. Pre-Rehabilitation Shoulder Range of Motion

TREATMENT

The stage and symptom presentation of the shoulder determines the course of physiotherapy management. Pain management, patient education, and mild stretching exercises are all part of early intervention. To keep the shoulder range of motion within a pain-free window, these workouts include targeted shoulder mobilization exercises. Later phases of physiotherapy intervention may include posture exercises, strengthening exercises, and pain relief methods in addition to more stretching activities. Acupuncture, heat, ultrasound, shockwave therapy, and manual therapy are a few examples of pain management methods. It is also recommended to follow a home exercise regimen to keep shoulder strength and mobility throughout the different stages.

WEEK 0 - 1

The first phase, the painful phase should be centered on pain relief. Avoid engaging in any painful activities during this time. Compared to intense physical treatment, those who engaged in simple, pain-free exercise have outcomes better. Range-of-motion exercises of modest intensity and brief duration can modify joint receptor input, lessen pain, and lessen muscle guarding in patients with high excitability. the main goals are pain management and ruling out other possible reasons for your frozen shoulder. This painful inflammatory phase can be helped by very moderate shoulder mobilization, muscle releases, and kinesiology taping for pain reduction. It has been demonstrated that applying a TENS machine can increase the range of motion while reducing pain. Before or during therapy, modalities like hot packs might be used. Moist heat reduces muscle viscosity and neuromuscular-mediated relaxation, which when combined with stretching, can aid to enhance muscle extensibility and range of motion. Range of motion exercises such as the patient was given Codman's exercises, which entailed having the affected arm hanging down and the trunk flexed from the waist with an uninvolved hand supporting them. The patient was also instructed to rock their body in a circular motion without tensing their shoulder muscles. The arm was moved in both clockwise and anticlockwise directions, as well as side to side and back and forth.

WEEK 2

Previous Codman exercise with an increase in the repetition with Shoulder shrugs, which require the patient to raise their shoulders straight and maintain them there for five seconds before returning them to a neutral posture, was one of the scapular setting exercises prescribed. The patient was instructed to perform shoulder retraction, which involves pulling their shoulder blades in towards one another. They were to hold this position for five seconds before returning to neutral.

Exercises with a wand such as shoulder flexion, extension, and internal-external rotation were performed with 20 reps 3 sets. When the patient was standing with their right shoulder abducted and instructed to raise their arm to increase their abduction range of motion, a finger ladder exercise was administered. Shoulder wheel exercises then followed.

WEEK 3

Continuation of previous exercises further Shoulder joint distractions in a loose pack position helped move the patient more freely and even helped to feel less discomfort. Anterolateral force perpendicular to the glenoid fossa will be produced by the hand of the therapist, which is positioned in the axilla. For treatment, the therapist can continue the mobilization or use oscillations. The arthrokinematics shoulder flexion and internal rotation are made easier by posterior glenohumeral glides. Force Direction With a posterolateral force in line with the glenoid fossa's plane, the therapist releases the patient.

When flexion approaches 90 degrees, the glenohumeral joint's posterior glide can be advanced to enhance either horizontal adduction or posterior gliding.

Force Direction By pressing the elbow down the humerus's long axis, the glide is applied to the bone in the posterior direction. The arthrokinematics shoulder motions of extension and external rotation are made easier by anterior glenohumeral glides.

Force Direction The therapist applies an anteromedial force that aligns with the glenoid fossa's plane. Grade 2 was performed 5 repetition, 2 sets were delivered to the patient

WEEK 4

Mobilization grade 3 was performed along with resistance band exercises were such as biceps curls, triceps pull, abduction adduction, shoulder flexion-extension with bands was performed.

	PRE-REHAB	PRE-REHAB	POST REHAB	POST REHAB
COMPONENT	RIGHT (AFFECTED)	LEFT	RIGHT (AFFECTED)	LEFT
FLEXION	95	175	140	180
EXTENSION	20	45	35	50
ABDUCTION	40	160	125	170
ADDUCTION	20	30	30	35
MEDIAL ROTATION	20	75	55	80
LATERAL ROTATION	15	80	50	80

TABLE NO 2. Post Rehabilitation Shoulder Range of Motion

OUTCOME AND FOLLOW-UP

The numerical pain rating scale revealed 2/10 on movement and 0/10 on rest. The Shoulder Pain and Disability Index (SPADI) scale measures pain and disability of the shoulder taken after the completion of the 4-week protocol the percentage was 15% affected.

DISCUSSION

The study, conducted by Hafsa Gul Khattak, Hafsa Arshad, and KI Anwar et al., sought to compare the efficacy of traditional physiotherapy and muscular energy technique (MET) in treating patients with adhesive capsulitis of the shoulder. Compared to traditional physiotherapy, MET was found to dramatically reduce pain, enhance functional capacity, and increase range of motion after 4 weeks of treatment. Both the experimental and control groups showed notable improvements in terms of pain, disability, and range of motion (ROM). The two groups did, however, differ significantly, with the patients receiving muscular energy technique (MET) demonstrating higher improvements. According to the study's findings, MET is a useful substitute for traditional physical therapy in the management of adhesive capsulitis, offering superior results in terms of pain alleviation and functional. (7)

At El, Deepak Raghav and Amit Nandan Dhar Dwivedi et al. Examining the kinetic chain approach's efficacy in treating primary adhesive capsulitis of the shoulder was the goal of the study. In patients with adhesive capsulitis, the kinetic chain technique plus traditional physiotherapy was found to be more effective than either treatment alone in lowering discomfort, increasing range of motion, and improving functional ability. In the case of adhesive capsulitis conventional physiotherapy associated with the kinetic chain technique was found to be more effective than either treatment alone in lowering discomfort, increasing range of motion, and boosting activities of daily living. (8)

The primary goal of the study, conducted at Nilay Comuk Balci, et al. was to assess how well proprioceptive neuromuscular facilitation (PNF), in conjunction with scapular stabilization exercises, reduced discomfort, improved range of motion (ROM), and improved function in a patient suffering from adhesive capsulitis. The patient with adhesive capsulitis improved in discomfort, range of motion (ROM), and function after receiving proprioceptive neuromuscular facilitation (PNF) and scapular stabilization exercises, according to the study. The 50-year-old male patient in the case study had 12 physical therapy sessions spread over three weeks for the treatment of adhesive capsulitis. The treatment comprised exercises including the lawnmower exercise, scapular clock exercise, and shoulder sling exercise. SPADI, ROM measurements, and pain assessments were among the outcome measures. The actions had the desired effective improvement observed in improving range of motion, and also in reduction of pain (9)

CONCLUSION

Conclusion states, post-physiotherapy treatment for adhesive capsulitis has demonstrated significant improvements in decreasing pain, improving range of motion, and enhancing overall shoulder function. The targeted exercises, manual therapies, and patient education employed during physiotherapy sessions have proven to be benefitted in addressing the underlying causes of adhesive capsulitis. Patients who adhere to the prescribed home exercise program and follow-up care are more likely to experience sustained relief and continued progress. The patient was taught an approach to self-management, incorporating regular stretching and strengthening exercises into their daily routine to prevent the recurrence of symptoms.

Moreover, the collaborative efforts between patients and physiotherapists played a pivotal role in achieving optimal outcomes. As physiotherapy focuses not only on physical rehabilitation but also on empowering individuals with knowledge and tools for self-care, it fosters a holistic approach to long-term shoulder health. While the patient responded to treatment very well, the positive outcomes were observed that underscore the significance of physical therapy in the comprehensive treatment of adhesive capsulitis.

Continued research and advancements in rehabilitation strategies will further contribute to refining treatment protocols and enhancing the quality of life for patients affected by this condition.

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