

A case study on Physiotherapy intervention for periarthritis shoulder along with diabetes mellitus

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Abstract

A patient with periarthritis in the shoulder and diabetes mellitus is shown; she had restricted abduction, external, and internal rotation in both the active and passive ranges. To rule out supraspinatus tears, use an MRI. Physical evaluation exams verified the diagnosis of adhesive capsulitis in the shoulder. He had successful treatment from a combination of physical therapy techniques, such as ultrasonography, therapeutic exercises, transcutaneous electrical stimulation, and shoulder girdle mobilizations. All of the ranges showed notable improvement at 3, 6, and 9 weeks into the treatment.

Keywords: periarthritis shoulder, Adhesive capsulitis, diabetes mellitus, therapeutic exercises, shoulder girdle mobilization.

Introduction

Shoulder joint discomfort and stiffness are symptoms of periarthritis shoulder. Both passive and active range of motion is lost, and moving the shoulder hurts so much. Although they can affect day-to-day activities, the discomfort and stiffness usually get better with time. A medical examination and history can be used to diagnose it. The etiology of shoulder periarthritis remains unclear. The disorder may arise spontaneously (primary or idiopathic) or secondarily (after a shoulder injury or surgery). Diabetes mellitus, stroke, long illness, connective tissue diseases, thyroid disease, and heart disease are risk factors for periarthritis shoulder. It is more prevalent in women and those between the ages of 40 and 65.¹

One typical consequence of diabetes mellitus [DM] is periarthritis of the shoulder.² Even in agony, patients with adhesive capsulitis can typically carry out their everyday activities throughout the initial phase of the condition. Many sufferers have trouble sleeping in addition to being unable to lie on their sore shoulder. The second phase is characterised by a reduction in discomfort, restricted range of motion, and an inability to execute activities of daily living, occupational tasks, and personal care by the patient.³ Adhesive capsulitis has been reported to occur in three phases: the first lasts two to eight months, the second lasts nine to fourteen months, and the third lasts fifteen to twenty-four months.⁴ Ninety percent of periarthritis shoulder patients respond well to conservative therapy.⁵

Therapeutic exercises and manual therapy methods make up physiotherapy management. Relieving pain and influencing scar tissue are the goals. Vasodilatation brought on by therapeutic ultrasound eliminates metabolites from affected tissues and eases spasming in the muscles⁶. Since electrical nerve stimulation stimulates nerve fibres and the gate control theory of pain, TENS is an efficient pain reliever⁷. Periarthritis shoulder is also treated with passive range of motion exercises in addition to active aided range of motion [AAROM] activities.

The majority of cases of periarthritis shoulder can be treated in a primary care environment. It is recommended that clinicians begin treatment by educating the patient. Patients' anxieties are frequently eased, cooperation is increased, and frustration is decreased when the natural history of the problem is explained. Recognizing that complete range of motion might not ever be regained is also advised. Nonsteroidal anti-inflammatory medications (NSAIDs), intra-articular injections of glucocorticoids, oral glucocorticoids, and/or physical therapy are common conservative therapies for frozen shoulder⁸. However, a lot of practitioners find that their options are restricted to writing prescriptions for drugs that reduce inflammation and pain.

The initial line of treatment for adhesive capsulitis is a variety of home exercises and physical therapy techniques. It has been demonstrated that physical therapy can restore functional motion and relieve discomfort⁹. It has been demonstrated that NSAIDs work better when combined with physical therapy than when taken by alone¹⁰. In a similar vein, several trials on intra-articular corticosteroids combined with physical therapy produced superior results than those on intra-articular corticosteroids by themselves^{11 12}.

The physical treatment outlined above for primary idiopathic periarthritis shoulder may be helpful in recommending exercises that can be performed at home to improve shoulder range of motion. Nevertheless, when choosing a physical treatment plan for frozen shoulder, it is crucial to take the patient's symptoms and disease stage into account. Table I enumerates the salient characteristics of every phase.

FREEZING PHASE

Patients who are in the freezing period, when pain is frequently at its worst, would benefit from learning pain-relieving strategies. These exercises comprise passive supine forward elevation, passive external rotation, and active aided range of motion in extension, horizontal adduction, and internal rotation. They also include mild shoulder mobilisation movements within the tolerated range. Before beginning these exercises, you can use an ice or heat pack as a pain reliever. It has been demonstrated that stretching and moist heat application enhances muscular extensibility. Analgesics may also be helpful for some patients prior to physical therapy.

Patients should start with range-of-motion activities that last only a brief period of time—one to five seconds—and that are primarily pain-free. Three stretching exercises that are frequently done and are especially helpful for patients in this painful stage are shown in Fig. 2. Exercises using a pendulum can be performed in circular, flexion, or abduction motion. In addition, patients may attempt scapular or neck muscle releases, as well as pulley exercises, if tolerated. Stretching aggressively beyond the pain threshold can exacerbate periarthritis in the shoulder and lead to worse outcomes, especially in the early stages of the condition. Additionally, research suggests that patients should refrain from adopting a forward shoulder stance since it may impair their ability to glenohumeral flex and abduct.

FROZEN PHASE

A heat or ice pack can be applied to ease pain prior to starting workouts during the frozen phase, just like during the freezing phase. Tolerated limits apply to the continuation of at-home

workout. Maintaining stretching routines for the muscles in the back of the shoulder and the chest is very important. To prevent exacerbating discomfort and inflammation, it is also advised to perform rotational movements before to elevation exercises, including as external rotation stretch. Strengthening exercises are added at this point to keep the muscles strong. Exercises known as isometric or static contractions don't involve joint movement, so you can perform them without worrying that your shoulder pain will become worse.

Strengthening activities that can be done at home are shown in Exercises for scapular retraction help to strengthen the scapular muscles and gently stretch the chest muscles. Within the range of motion that is possible, isometric shoulder external rotation can also be utilized for flexion or abduction. However, caution should still be exercised when initiating forceful exercises, as this could exacerbate capsular synovitis and result in pain.

THAWING PHASE

The patient's range of motion gradually returns throughout the thawing process. It is imperative to restore full range of motion and strength to the shoulder as soon as possible to return it to normal. After a few months of limited movement, the shoulder becomes much weaker, which is why strengthening activities are crucial? Within tolerated bounds, the patient is able to execute more mobility exercises and stretches than during the frozen period. Workouts for strengthening the muscles can also advance from static or isometric contractions to resistance band workouts and, finally, free weights or weight machines. Exercises for the deltoid and chest muscles, posture, and rotator cuff can all be incorporated into the treatment plan.

CASE REPRESENTATION

This 48-year-old guy has a history of hypertension, diabetes mellitus, and rotator cuff tendonitis. He has been experiencing excruciating pain for the past six months. Additionally, he underwent three consecutive months of intra-articular injections in his left shoulder joint. A degenerative alteration in the acromioclavicular joint caused impingement over the supra-spinatous tendon, leading its fibres to weaken, and mild edema suggesting a partial thickness tear were found on an MRI without contrast and an X-ray of the left shoulder joint. In the left shoulder joint, age-related arthritic alterations were also observed. Utilizing the drop arm test, Apply's scratch test, Hawkins and Neer's impingement tests, a musculoskeletal examination was carried out. The drop arm test was negative, but the Apply's scratch, Hawkins, and Near impingement tests were positive. Using goniometry, the shoulder joint's range was determined following

Left Shoulder Range of Motion

Shoulder Movement	Base Range	Line	After 3 weeks	After 6 weeks	After 9 weeks
Flexion	60		110	130	160
Extension	20		40	48	58
Abduction	40		68	90	150
Medial rotation	15		26	42	80
Lateral Rotation	10		22	40	60

Following an 8-week period, the patient received treatment with therapeutic ultrasound, SWD, TENS, and shoulder mobilisation grades 1 and 2. After nine weeks, goniometry was reassessed using additional exercises such as Codman's, finger ladder, and shoulder wheel exercises. Medial and lateral rotations were administered following treatment along the shoulder isometrics, shoulder mobilisation, scapular mobilisation, and shoulder wheel with two sets of 15 repetitions in flexion. On the first day of treatment, the patient was given a proper home workout regimen that began with three sets of fifteen repetitions for shoulder isometrics and four sets of fifteen repetitions for finger ladders.

Patient Intervention

Intervention	Therapeutic Exercise	Joint mobilization	Soft tissue mobilization	UST/TENS
1-3 weeks	PROM AAROM	GRADE 1-2	Yes	Yes
4-6 weeks	AAROM	GRADE 1-2	As needed	Yes
7-9 weeks	AROM	GRADE 2-3	As needed	No

DISCUSSION

For the patient with frozen shoulder, soft tissue mobilisation combined with a home exercise programme was beneficial. In this instance of periarthritis shoulder, the patient was able to resume his prior work and ADLs after nine weeks. It has been demonstrated that using therapeutic ultrasound to treat frozen shoulder reduces discomfort¹³. In a different trial, TENS and ultrasound were both useful treatments for periarthritis shoulder discomfort⁹. The patient suffers greatly from reduced shoulder range of motion and functional limitations. According to this study, periarthritis shoulder can be managed by a qualified physiotherapist. To regain full range of motion in a periarthritis shoulder, there are numerous barriers and a lengthy procedure involved.

With a mix of modalities, shoulder girdle mobilisation, and therapeutic exercises, the case demonstrated improvement in the periarthritis shoulder. A successful outcome was achieved by the patient's combined efforts in physiotherapy and at home.

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