

An Integrated Physical Therapy Using Spencer's Technique and 4-Point Scapular Correction Technique in the Rehabilitation of a Patient with Frozen Shoulder and Scapular Dyskinesis: A Case Report

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Abstract: Frozen shoulder is an inflammatory condition of the joint capsule, which causes stiffness and pain. It affects quality of life and interferes with functional activities. Patient-specific treatment protocols provide better results than standard physiotherapy protocols. In this case report we present the case of a 43-year-old woman who is a homemaker by occupation with a right-sided frozen shoulder and, occasionally, scapular dyskinesia for the past six months. She had complaints of stiffness, limited mobility, and chronic shoulder pain. A functional evaluation and scapular motion observation were part of it. Outcome measures like the goniometric range of motion evaluation and the numeric pain rating scale (NPRS) were used to track progress. It was followed through with a full rehab regime, including the Spencer's method, general physiotherapy care, and the four-point scapular correction technique. Pain, ROM, and function showed significant improvement in the patient over four weeks.

Keywords: Case report, Frozen Shoulder, Scapular Dyskinesia

1. Introduction

Frozen shoulder, or adhesive capsulitis, is a chronic inflammatory condition marked by progressive pain and restricted range of motion in the shoulder joint^{1,2}. It typically advances through three overlapping phases: freezing, frozen, and thawing—often lasting up to 15 months. While the exact etiology is unknown, individuals between 40 and 60 years old are more commonly affected, with a higher prevalence in diabetics.

Scapular dyskinesia is characterized by abnormal scapular motion or positioning; it frequently coexists with shoulder pathologies, including frozen shoulder³. It alters the normal shoulder mechanics, resulting in continuous dysfunction and pain. There are various treatment strategies ranging from medications to surgical interventions, but physiotherapy remains the first choice for conservative management.

Mobilization techniques, such as the Spencer technique and scapular correction strategies, have shown durable outcomes in restoring mobility and reducing symptoms⁴. However, very limited literature exists on the treatment of adhesive capsulitis and scapular dyskinesia simultaneously. This case study examines the integration of Spencer's technique with four-point scapular correction in the management of frozen shoulder.

2. Case Presentation

A 43-year-old female came to physiotherapy OPD with the complaint of right shoulder pain (anterior, posterior and lateral aspect) and difficulty in shoulder movements for the past 6 months. The patient was in a high sitting position during the examination. Physical examination revealed normal vital signs. Including no temperature variations, a pulse rate of 78 beats/minute, and a respiratory rate of 24 breaths/minute, and a blood pressure of 115/70 mmHg. Grade I tenderness was present at the right shoulder joint on the posterolateral aspect. The patient was unable to tie her hair and had difficulty in doing overhead activities, which suggests that the shoulder discomfort was affecting her daily activities. Pain and stiffness were present with passive and active movement. Active shoulder range of motion, pain at rest, and activity were assessed using VAS. There was marked scapular dyskinesia during motion of the shoulder joint in the scapular plane. Shoulder shrug sign and Apley's scratch test was found positive.

Motion	AROM		PROM	
	L	R (affected)	L	R (affected)
Flexion	175	90	180	100
Extension	40	30	50	30
Abduction	165	90	180	100
Internal Rotation	65	50	75	50
External Rotation	80	20	90	20

3. Treatment

The primary goal of rehabilitation in the initial phase was to maintain the available range and decrease the pain. From week 1, mobilization of the glenohumeral joint, Spencer's

technique, the 4-point correction technique of the scapula, isometric exercises, and cryotherapy were given. In the second week, Spencer's technique was continued. In the third week, Spencer's technique was continued along with isotonic exercises for circumduction on the shoulder wheel, shoulder wand exercises, and shoulder pulley exercises.

Timeline	Intervention	Dosage
0-1 weeks	Moist heat therapy using a hot pack with contra contra-planar method	15 minutes
	Grade II anterior and posterior glide of humeral head	1 set of 30 repetitions
	Spencer's technique	2 sets of 30 repetitions with a rest of 1 minute between sets
	Shoulder isometric exercises	1 set of 10 repetitions
	4-point scapular correction technique	2 sets of 10 repetitions
1-2 weeks	Spencer's technique progression was done by increasing the repetitions	3 sets of 30 repetitions with a rest of 1 minute between sets
	Shoulder isometric exercises progression	2 sets of 10 repetitions with a rest of 1 minute between sets
3-4 weeks	Shoulder wheel exercise	1 set of 10 repetitions in clockwise and anticlockwise directions
	Shoulder wand exercise	1 set of 10 repetitions for all movements of the shoulder joint
	Shoulder pulley exercise	1 set of 10 repetitions
	Finger ladder exercise	3 sets of 10 repetitions going up and down

Outcomes for the right shoulder	Day 1	Week 1	Week 2	Week 3	Week 4
Range of motion					
Flexion	0 – 90°	0 – 120°	0 – 150°	0 – 150°	0 – 165°
Extension	0 – 30°	0 – 40°	0 – 50°	0 – 50°	0 – 50°
Abduction	0 – 90°	0 – 100°	0 – 130°	0 – 140°	0 – 150°
Internal rotation	0 – 50°	0 – 50°	0 – 60°	0 – 70°	0 – 70°
External rotation	0 – 20°	0 – 25°	0 – 35°	0 – 50°	0 – 55°
Pain					
At rest	5/10	5/10	5/10	2/10	2/10
On Activity	10/10	10/10	8/10	7/10	5/10



4. Discussion

In this case report, we have used the Spencer technique as a therapeutic intervention for a patient diagnosed with adhesive capsulitis, commonly referred to as frozen shoulder. The main focus of this study was to evaluate the effectiveness of this technique in reducing pain and stiffness while assessing its viability in preventing deterioration, which is a major concern in these patients.

Adhesive capsulitis is characterized by progressive pain and restricted active and passive range of motion (ROM) of the glenohumeral joint, mainly due to fibrosis, synovial inflammation, and contracture of the joint capsule ⁵.

Analgesics, corticosteroid injections, and physiotherapy, with an emphasis on shoulder mobilization exercises, are considered standard management for frozen shoulder. Though intra-articular corticosteroid injections provide temporary pain relief and reduce inflammation, physiotherapy plays a pivotal role in the prevention and long-term management of the condition. Regular implementation of controlled movements can prevent primary capsulitis, while in secondary adhesive capsulitis, advanced and cautious mobilization towards the extremes of ROM is essential. This not only facilitates pain relief but also prevents the progression of adhesive capsulitis.

The main goals of the treatment are to reduce pain, enhance the flexibility of the shoulder capsule, strengthen periarticular

muscles, and restore functional shoulder mobility. Various physiotherapeutic interventions, such as superficial heating (hot packs) and gentle passive movements, help in the reduction of pain and extensibility of the joint capsule. Strength training via isometric exercises and resistance exercise further supports the recovery of the patient. Functional tools such as the shoulder wand, pulleys, wheels, and finger ladders are used to enhance joint mobility and ROM.

Cryotherapy plays a vital role in the management of adhesive capsulitis. It helps in reducing pain, inflammation, and muscle spasm by decreasing the metabolic activity in the affected tissues. Application of cold packs or ice massage for 10–15 minutes before mobilization can be a reliable tool for both pain relief and improving treatment compliance, as it helps in reducing post-treatment soreness.

In adhesive capsulitis, periarticular adhesions and collagen cross-linking within the joint capsule are formed, resulting from decreased glycosaminoglycans (GAG), thus causing restriction of motion of the shoulder joint. Joint mobilization techniques, such as the Spencer technique, aid in breaking these cross-links, hence improving joint motion. Additionally, joint mobilization also helps in improving synovial fluid dynamics and improves the flexibility of the capsule, further restoring the movement.

The Spencer technique is a structured, seven-step mobilization sequence aimed at improving ROM, reducing pain, and restoring normal joint biomechanics⁶. The seven steps include

- 1) Shoulder extension with elbow flexion.
- 2) Shoulder flexion with elbow extension.
- 3) Circumduction with compression.
- 4) Circumduction with distraction.
- 5) Shoulder abduction and internal rotation with elbow flexion.
- 6) Shoulder adduction and external rotation with elbow flexion.
- 7) Stretching of periarticular structures and pumping of fluids with the arm extended.

This technique stretches the joint capsule and soft tissues effectively, helps in improving the lymphatic drainage, and restores the osteokinematic and arthrokinematic motion⁷. Spencer's technique aids in improving joint lubrication, circulation, and structural nutrition, thus resetting the neural reflexes, and optimizing pain-free shoulder movement. Mobilization helps reduce pain by triggering certain nerve and muscle responses. It activates pressure-sensitive receptors (Type II), blocks pain-sensing nerves (Type IV), stimulates the Golgi tendon organs, which sense tension, and causes the muscles to relax automatically through reflexes.

Along with joint mobilization, it is important to correct scapular movement problems for complete recovery. The 4-point scapular correction technique plays a key role in improving how the shoulder blade moves and sits—something that is often affected in frozen shoulder. This method focuses on:

- 1) Scapular elevation.
- 2) Scapular protraction.

- 3) Outward rotation.
- 4) Scapular winging.

The patient is made to sit on a chair. The left hand of the therapist is placed on the spine of the scapula, and the right hand is placed on the medial one-third of the clavicle. Now the therapist performs inferior glide, medial glide, and rotatory glide in the inferior direction to correct the scapular elevation, protraction, and outward rotation, respectively. At last compression is applied in both directions to correct the scapular winging. Now this glide is maintained as the patient performs shoulder movements in the scaption plane up to the pain-free range. The compression is reduced as the patient crosses 90° of movement to facilitate normal scapulohumeral rhythm.⁸

By correcting scapular biomechanics, this method enhances glenohumeral stability, reduces compensatory movement patterns, and facilitates improved neuromuscular control of the shoulder complex^{3,5}. Adding scapular correction to joint mobilization helps the shoulder move better and prevents other problems from developing. Using the Spencer technique along with scapular correction and other physiotherapy treatments gives a complete approach to treating frozen shoulder. This combined method not only brings back range of motion but also supports long-term recovery, reduces the chance of stiffness coming back, and keeps the shoulder healthy.

5. Conclusion

The integration of the Spencer technique and the 4-point scapular correction technique portrays a comprehensive approach in managing adhesive capsulitis. These interventions work collectively to reduce pain, enhance joint mobility, and restore normal shoulder biomechanics. Cryotherapy aids in reducing pain and inflammation. Joint mobilization techniques improve synovial fluid dynamics and break the adhesions. Scapular correction technique confirms the proper movement patterns, preventing compensatory mechanisms. This multipronged strategy minimizes the risk of stiffness relapse, offering a sustainable solution for patients with frozen shoulder and helping in achieving functional mobility. Early and consistent physiotherapy remains crucial for optimal outcomes.

Conflict of Interest

No conflict of interest

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