



Successful Management of Frozen Shoulder Using Mobilization Techniques, Muscle Energy Technique, and Ultrasound Therapy: A Case Report

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Abstract

Background: Adhesive capsulitis (frozen shoulder) is a common cause of shoulder pain and stiffness that can significantly limit daily activities. Physiotherapy remains the mainstay of conservative management.

Case Presentation: A 52-year-old female presented with severe pain and progressive restriction of motion in her right shoulder for 4 months. The patient was diagnosed with adhesive capsulitis (Stage II—frozen stage).

Intervention: The physiotherapy program included a combination of joint mobilization techniques (Maitland and Mulligan), muscle energy technique (MET), and adjunctive ultrasound therapy for pain relief and tissue extensibility. Sessions were conducted five times per week for six weeks.

Outcome: Significant improvement was observed in pain (VAS score reduced from 8/10 to 2/10) and range of motion (flexion from 80° to 160°, abduction from 70° to 150°, external rotation from 20° to 60°). The Shoulder Pain and Disability Index (SPADI) improved from 78% to 18%.

Conclusion: A structured physiotherapy program combining mobilization techniques, MET, and ultrasound therapy can effectively reduce pain and restore function in patients with frozen shoulder.

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Introduction

Adhesive capsulitis, commonly known as frozen shoulder, is a self-limiting but functionally debilitating condition

characterized by progressive pain and loss of both active and passive glenohumeral motion. It affects approximately 2–5% of the general population, with a higher prevalence among middle-aged women and



individuals with diabetes mellitus. Conservative physiotherapy remains the cornerstone of management. Techniques such as joint mobilization, muscle energy techniques (MET), and adjunctive modalities like ultrasound have been shown to enhance mobility and decrease pain. This case report presents the successful outcome of a patient with adhesive capsulitis treated with a multimodal physiotherapy approach

Case Presentation

A 52-year-old female, right-hand dominant, presented to the physiotherapy outpatient department with right shoulder pain and stiffness for 4 months. She reported difficulty in combing hair, dressing, and reaching overhead. There was no history of trauma. She was non-diabetic and normotensive.

On examination:

Pain (VAS): 8/10 during activity, 5/10 at rest

Active ROM (Right Shoulder):

Flexion: 80°

Abduction: 70°

External rotation: 20°

Internal rotation: 30°

Passive ROM: Restriction in all directions with firm end-feel

SPADI Score: 78%

Diagnosis: Adhesive Capsulitis (Stage II—Frozen Stage)

Physiotherapy Intervention

A 6-week structured treatment program was administered, five sessions per week, each lasting 45–60 minutes.

1. Joint Mobilization

Maitland's Mobilization (Grades II–IV):

Posterior glide for internal rotation

Inferior glide for abduction

Anterior glide for external rotation

Mulligan's Mobilization with Movement (MWM):
Glenohumeral lateral glide with active flexion and abduction

Applied within pain-free range

2. Muscle Energy Technique (MET)

Contract-relax technique applied to shoulder flexors, extensors, internal and external rotators.

5–6 repetitions per muscle group with 5-second isometric contraction and 10-second relaxation phase.

3. Ultrasound Therapy

Frequency: 1 MHz (deep tissue penetration)

Intensity: 1.2 W/cm², continuous mode

Duration: 8 minutes over anterior and posterior shoulder joint capsule before mobilization to increase tissue extensibility.

4. Home Exercise Program

Pendulum exercises

Active-assisted range of motion with a stick

Shoulder wall slides and towel stretch

Outcome

At the end of 6 weeks:

Parameter	Baseline	After 6 Weeks
Pain (VAS)	8/10	2/10
Flexion	80°	160°
Abduction	70°	150°
External Rotation	20°	60°
Internal Rotation	30°	50°
SPADI	78%	18%

The patient regained near-normal shoulder function and reported being able to perform all daily activities without discomfort.

Discussion

This case demonstrates the efficacy of combining joint mobilization, MET, and ultrasound therapy for treating adhesive capsulitis.

Mobilization techniques (Maitland & Mulligan) improve capsular extensibility, restore accessory motion, and reduce pain by stimulating mechanoreceptors.

MET enhances muscle flexibility and joint range through post-isometric relaxation and reciprocal inhibition mechanisms.

Ultrasound therapy promotes deep heating, reducing viscoelastic stiffness of the capsule and improving stretch tolerance.

The integration of these techniques produced synergistic effects, contributing to a faster and more sustained recovery compared to single-modality treatment.

Conclusion

A combination of joint mobilization techniques, muscle energy technique, and ultrasound therapy can be an effective conservative approach for managing adhesive capsulitis. This case highlights the importance of multimodal physiotherapy in improving pain, mobility, and function in frozen shoulder patients.

Patient Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying data.

Conflicts of Interest

The author declares no conflict of interest.

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