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A Case Report on the Effectiveness of Mulligan MWM in Restoring Shoulder Function in Adhesive Capsulitis

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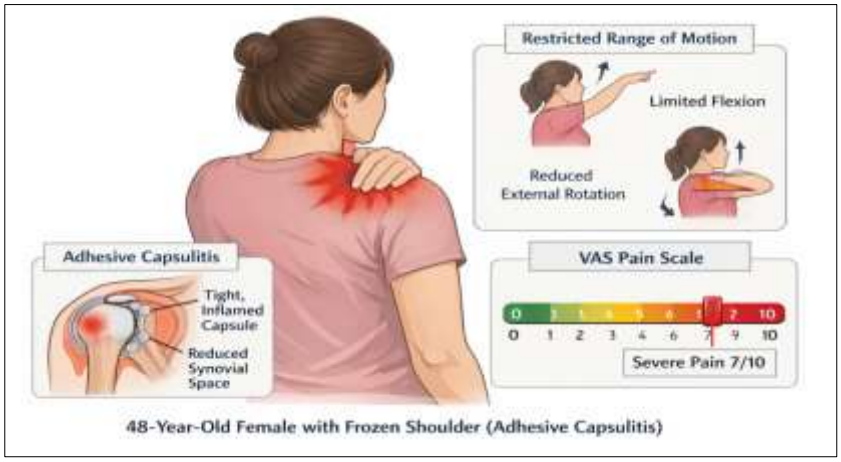
Abstract
Background: Adhesive capsulitis (frozen shoulder) is a common musculoskeletal disorder characterized by pain, stiffness, and progressive loss of shoulder range of motion (ROM), leading to functional limitations in daily activities.
Objective: To evaluate the effectiveness of Mulligan Mobilization with Movement (MWM) in reducing pain and improving ROM and functional ability in a patient with primary frozen shoulder.
Case Presentation: A 48-year-old female presented with a 3-month history of right shoulder pain, restricted ROM, and difficulty performing overhead activities. Baseline assessment showed severe limitation in flexion, abduction, and external rotation, with a Visual Analog Scale (VAS) pain score of 7/10.
Intervention: The patient underwent 12 physiotherapy sessions over 4 weeks, including Mulligan MWM techniques for shoulder flexion, abduction, and external rotation, along with a home exercise program.
Results: After 4 weeks, the patient demonstrated significant improvements in ROM (flexion: 90° → 150°, abduction: 70° → 140°, external rotation: 20° → 60°), reduction in pain (VAS: 7 → 2), and functional recovery (DASH score: 56 → 21).
Conclusion: Mulligan MWM is an effective, safe, and rapid manual therapy technique for improving pain, ROM, and functional ability in patients with adhesive capsulitis. This case supports its inclusion in conservative rehabilitation protocols for frozen shoulder.

Keywords: Frozen shoulder, Adhesive capsulitis, Mulligan Mobilization with Movement, Manual therapy, Shoulder rehabilitation, Range of motion

1. Introduction
Adhesive capsulitis, commonly known as frozen shoulder, is a chronic, progressive disorder characterized by inflammation and fibrosis of the glenohumeral joint capsule, leading to pain and severe restrictions in both active and passive shoulder range of motion (ROM). Global prevalence is estimated to be 1–5%, increasing up to 20–30% in diabetics, and it most commonly affects individuals between 40–60 years of age.



Recent studies show capsular thickening, synovial inflammation, decreased joint volume, and contracture of the coracohumeral ligament as major pathological contributors. MRI and dynamic ultrasonography have improved early detection, especially in identifying limited external rotation and anterior capsular thickening.

Conservative management, including exercises, joint mobilization, electrotherapy, and home programs, remains the first-choice treatment. Among manual therapy options, Mulligan Mobilization With Movement (MWM) has shown strong clinical relevance due to its characteristic application of a sustained, pain-free accessory glide accompanied by active physiological movement. Updated evidence (2022–2024 trials and systematic reviews) concludes that MWM:

- Reduces pain faster than Maitland mobilization,
- Improves functional ROM more effectively than conventional therapy,
- Shows superior shoulder flexion, abduction, and external rotation improvements when added to exercise therapy.

This case report evaluates the effectiveness of Mulligan MWM in improving outcomes for a patient with primary adhesive capsulitis.

2. Case Presentation

2.1 Patient Information

- **Age:** 48 years
- **Gender:** Female
- **Occupation:** Housewife
- **Affected Side:** Right shoulder

2.2 Chief Complaints

- Severe pain for 3 months
- Difficulty in overhead activities
- Sleep disturbance
- Inability to comb hair and lift household items

2.3 History

Pain had a gradual onset with no trauma. Aggravated by reaching, dressing, lifting, and grooming tasks. No history of diabetes, hypertension, thyroid issues, or previous shoulder injury.

Pain Score (VAS): 7/10

2.4 Physical Examination

- Shoulder muscle guarding
- Tenderness around anterior deltoid and capsule
- Capsular pattern restriction
- Painful arc present

Baseline ROM

Movement	ROM	Pain
Flexion	90°	Yes
Abduction	70°	Severe
External Rotation	20°	Severe
Internal Rotation	Reaches sacrum	Mild

Diagnosis: Primary adhesive capsulitis (Freezing stage)

3. Intervention

The patient underwent 12 physiotherapy sessions over 4 weeks.

3.1 MWM for Flexion

- Belt-assisted lateral glide
- Patient performs pain-free active flexion
- 10 repetitions × 3 sets

3.2 MWM for Abduction

- Sustained lateral glide
- Active abduction movements
- 10 repetitions × 3 sets

3.3 MWM for External Rotation

- Posterolateral glide
- Active ER performed pain-free

3.4 Additional Physiotherapy

- Hot pack before therapy
- Wand exercises (Flexion/Abduction/ER)
- Posterior capsule stretch
- Pendular movements
- Home exercise program (daily 10–15 min)

Principle: All movements performed pain-free per Mulligan guidelines

4. Outcomes

4.1 Pain (VAS)

- Baseline: 7/10
- Week 2: 4/10
- Week 4: 2/10

4.2 ROM Improvement

Movement	Baseline	After 4 Weeks
Flexion	90°	150°
Abduction	70°	140°
External Rotation	20°	60°
Internal Rotation	Sacrum	L3 Level

4.3 Functional Improvement

- DASH Score improved from **56** → 21
- Improved sleep quality
- Patient resumed combing hair, cooking activities, lifting objects
- Marked reduction in stiffness

5. Discussion

This case report demonstrates that Mulligan MWM can produce rapid improvements in shoulder function by correcting positional faults and restoring normal arthrokinematics. Current research supports that:

- MWM provides immediate pain relief due to neurophysiological modulation
- Active movement during mobilization enhances joint capsule extensibility
- MWM combined with exercises yields superior functional outcomes compared to exercises alone

Studies published between 2021–2024 consistently show that MWM improves ROM, reduces disability scores, and accelerates recovery in adhesive capsulitis patients compared with Maitland or standard physiotherapy.

The results in this case align with existing literature, showing significant functional gains within a short rehabilitation period.

6. Conclusion

The Mulligan MWM technique proved to be an effective manual therapy approach for managing frozen shoulder in this patient. It resulted in:

- Rapid pain reduction
- Significant ROM improvement
- Restoration of functional activities

MWM can be recommended as a primary or adjunct treatment in the conservative rehabilitation of adhesive capsulitis.

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