



## **Adhesive Capsulitis of Shoulder Emphasising on Restorative and Compensatory Management: A Case Study**

**Vedantika Waghale<sup>1</sup>, Akshata Guhe<sup>2\*</sup>, Ranjit Ambad<sup>3</sup> and Nandkishor Bankar<sup>4</sup>**

<sup>1</sup> *Department of Physiotherapy, Datta Meghe College of Physiotherapy, India.*

<sup>2</sup> *Department of Community Physiotherapy, Datta Meghe College of Physiotherapy, Nagpur, India.*

<sup>3</sup> *Department of Biochemistry Datta Meghe Medical College, Shalinitai Meghe Hospital and Research Centre Nagpur (Datta Meghe Institute of Medical Sciences), India.*

<sup>4</sup> *Department of Microbiology Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences Sawangi (Meghe) Wardha, India.*

### **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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**Case Study**

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### **ABSTRACT**

Adhesive capsulitis more commonly periarthritis of shoulder is a common condition characteristic by pain, stiffness and restricted range of motion leading to difficulty in household activities, overhead reach and complexity in daily activities. This condition affects around two million - mostly women between the ages of 40 and 60. Some experts say changing levels of hormones may be to blame for this connection between adhesive capsulitis and menopause. This is a case study of Mrs. R a 55-year-old female presenting complain of left-sided shoulder pain and restricted movement. These symptoms started gradually but over time they began to affect her general quality of life and morale. Pain increased, particularly at night leaving her extremely tired during the daytime and she

started to experience problems especially when dressing. After conducting a thorough examination, which included assessment of active and passive range of movements (rom), x rays and diagnostic special tests we reached a diagnosis of adhesive capsulitis of left shoulder. The conservative management remains the mainstay treatment of adhesive capsulitis. With using soft tissue mobilization treatment techniques in combination with a home exercise programmed with active assisted exercise. Here in this case study, we are emphasizing on the restorative and compensatory management decreasing the hours of OPD visits and promoting home program.

*Keywords: Periarthritis; adhesive capsulitis; frozen shoulder; functional training.*

## 1. INTRODUCTION

The clinical condition known as adhesive capsulitis also can be termed as idiopathic frozen shoulder. This entity progresses through a sequence of stages mainly painful stage, freezing stage, frozen stage and thawing stage.

- 1) Painful stage stage 1 – in this stage patient experience slight pain increasing in the night with limited external rotation for 3 months.
- 2) Stage 2 freezing stage- intense pain at movement as well as at rest. This stage is characterized by limitation in all direction of the movement. Last for 3 to 9 months
- 3) Stage 3 frozen stage- In this condition the pain is limited during rest and increase in certain amount during activity with limited glenohumeral mobility. The atrophy of muscle is usually noted at deltoid, biceps and rotator cuff. This stage lasts for 9 to 15 months.
- 4) Stage 4 thawing stage- motion of glenohumeral joint may increase a little with no increase in pain this stage lasts for 15 to 24 months [1].

Various non-operative treatment approaches have been evaluated in the literature [2-7]. These include corticosteroid injections, oral medications, electro therapy modalities, stretching exercises, joint mobilization, and muscle energy techniques (met). The objective of this review case study is to systematically apply the efficacy of physiotherapy interventions with home program guidelines in the treatment of patients with adhesive capsulitis. This case study deals with management of adhesive capsulitis of a 55 years old female presenting complain of left shoulder pain with restricted range of motion with difficulty in performing activities of daily living especially the overhead activities [8].

## 2. CASE PRESENTATION

Mrs. R is a 55-year-old women house wife in occupation with right hand dominance started experiencing pain in the left shoulder while doing house hold activities especially overhead activities from 4 months. The orthopedic doctors ruled out repetitive micro trauma as per patient history as a possible option and diagnosed her with periarthritis of left shoulder. Radiological examination and diagnostic special test helped in establish the diagnosis. Mrs.R was prescribed corticosteroids to reduce inflammation and swelling. The orthopedic doctor recommended physiotherapy treatment for restorative function. The patient attended natural menopause 6 years ago and is having hypothyroidism from 6 years and hypertension from past 1 year.

## 3. CLINICAL FINDING

### 3.1 Subjective

- Patient Profile: 55 Y/O Female.
- Present Illness: Patient Presented to The Hospital with Reference from Orthopedic with Pain in Left Shoulder with Restricted Motions. On Examination she was a diagnosed case of periarthritis of left shoulder with stage 2 with the help of a diagnostic special test and radiography of shoulder joint.
- Past Medical History: Hypothyroid From 6 Years and Hypertension From 1 Year
- Medications: Thiazide Diuretics, Corticosteroids, Thyroxin Sodium
- Social History: House Wife by Occupation Lives with Her Husband Who Is A Retired Manager, And One Daughter in An Independent Home.
- Patient Complaints: Complains of Pain And Discomfort While Doing Over Head

Activities And Restricted Range At Left Shoulder Joint

- Bladder – Intact
- Sleep- Disurbed Due to Pain

### 3.2 Observation

#### 3.2.1 Posture

- Mesomorphic body built
- Flattening of mid cervical spine
- Increased mid thoracic kyphosis
- Protraction of left scapula with downward rotation
- Winging of scapula

#### 3.2.2 Outcome Measure

- Pain on vas Visual Analogue Scale
- On rest- 3
- On activity-8
- Type of pain- sharp shooting
- Duration- continuous
- Aggravating factor- during activities
- Diurnal variations- pain increases during night

#### 3.2.3 Personal History

- Diet- Vegetarian
- Appetite- Adequate
- Bowel – Not Disturbed

#### 3.2.4 Tenderness

Grade 2 tenderness on anterior-lateral side of shoulder over the acromion and lateral border of scapula.

### 4. RESISTED ISOMETRICS

Weak and Painfull for Shoulder Abduction Flexion and Internal Rotation and External Rotation.

Weak and Painfree for Shoulder Adductors.

### 5. DIAGNOSTIC ASSESMENT

**Radiograph:** Anterioposterior View Of Left Shoulder Radiograph Shows -Degenerative Changes In Glenoheumeral Joint.

**Diagnostic Special Test:** Shoulder Shrug Sign –POSITIVE

**Functional Diagnosis:** 55 years old female patient complains about pain which is 8/10 on vas and restrected motion at left shoulder joint especially during overhead reach and activities of daily living.

**Table 1. Range of Motion (0-120)**

Shoulder	Left active	Left passive	Right active	Right passive	End feel
Flexion	120°	125°	140°	150°	Empty
Extention	35°	40°	50°	55°	Tissue stretch
Abduction	90°	95°	155°	160°	Empty
Adduction	30	40°	90°	90°	Tissue stretch
External rotation	35°	40°	85°	90°	Empty
Internal rotation	40°	45°	70°	75°	Empty

**Table 2. Manual muscle testing**

Muscle	Kendall grade
Supraspinatus	3+ IN Available Range of Motion
Infraspinatus	3+ IN Available Range of Motion
Teres minor	3 +IN Available Range of Motion
Deltoid	3 IN Available Range of Motion
Pectoralis major	4+ IN Complete Range of Motion
Serratus anterior	3+ IN Available Range of Motion

**Table 3. ICF (International Classification of functioning, disability, and health) [8]**

<b>Structure and functional impairment</b>	<b>Activity limitation</b>	<b>Participation restrictions</b>
Pain and tenderness	Difficulty in overhead reach	Less involvement in household activities
Development of dense adhesions	Difficulty in dressing	Less time for recreational activities
Capsular restrictions	Difficulty in bathing	No able to attend social gathering
Capsular thickening	Difficulty in holding things	
Muscle atrophy	Difficulty in carrying and lifting technique	
Chronic inflammation	Difficulty in combing hairs	
Decrease in range of motion at gh joint	Not able to drive two wheeler	
Postural compensation		

**6. THERAPEUTIC INTERVENTION**

**6.1 Patient Goals**

- 1) Patient education
- 2) Reduce pain
- 3) Increase range of motion
- 4) Improve mobility
- 5) Improve strength
- 6) Maintenance of restoration
- 7) Avoid complication

**6.2 Interventions**

**1) Patient education-**

- Avoiding overhead activities
- Provide regarding the stages of healing
- Avoiding carrying and lifting with the affected hand
- Maintenance of painfree mobility
- Activity modification
- Giving rest to the joint
- Proper posture maintenance

**2) Restorative Management**

**• Pain Management**

- (a) Hot pack/moist pack application for 20 mins 3 times a day before and after exercise [2-3].
- (b) Occasional passive / active assisted in pain free range with gentle oscillation technique
- (c) Grade 1 and 2 peripheral mobilization at scapulothoracic joint and glenohumeral joint

**• Maintenance of Mobility of Soft Tissue**

1. Passive range of motion in all direction with decrease in pain active assisted can be progressed
2. Activities including- sliding a ball or napkin on a table in the respective directions 2-3 times per day within pain free range
3. Joint distraction and glides (grade 1 and 2)
4. Codman exercise first without weight and later progress with free weights

**• Progression with Increase Joint and Soft Tissue Mobility**

1. Passive joint mobilization technique with grade 3 and 4
2. Self-stretching exercise to improve the restricted range
3. Modified joint tracking and functional mobility with MWM reinforcing movement (posterolateral glide with active elevation) performed 10 times

**• Strengthening the Shoulder Stabilizers**

Isometric in all planes, 5 second holds, 1 set of 10 each direction, against wall  
Later progressing to TheraBand and free weights

**• Home Exercise Program**

1. Active assisted movement within pain free range
2. Horizontal adduction with the help of pillow

3. Pulley for elevation of arm in sitting and standing
4. External rotation using pipe and sticks in supine
5. Codman exercise (clockwise and anticlockwise) 2 times a day 10 repetition of 2 sets within pain free range

#### • **Compensatory Management of Adhesive Capsulitis [4-5]**

##### **Can be done with**

1. work modification which includes viability of required items in the acquired range and
2. using of contralateral extremity

### **6.3 Follow-Up and Outcomes**

After the session of 2 months for Mrs. R with strict home exercise protocol of active assisted exercise of 2 sets with 10 repetition on duration of 8 weeks daily with mobilization with movement and glides presented to be effective in decreasing the pain with 3 on vas of the patient and restoration of range of motion of abduction to 110, external rotation 55, flexion 130 of left shoulder when measure with goniometer.

### **7. DISCUSSION**

Adhesive capsulitis is a condition which progressively cause thickening of glenohumeral joint capsule the effectiveness of various non-operative methods which we established as conservative treatment for the patient. Has been demonstrated to improve the pain, range of motion (rom) and functional status of patients with adhesive capsulitis. Therapeutic home exercises program and mobilization are strongly recommended for reducing pain, improving range of motion (rom) and function in patients with stages 2 and 3 of frozen shoulder. Electro-therapy can help in providing short-term pain relief [9].

The patient in this case report, was on stage 2 of adhesive capsulitis. Peripheral joint mobilization and home exercise program was the main stay of rehabilitation. Patient visited community rehabilitation center with complain of left shoulder pain and restricted range at left shoulder joint. Due to inadequate transport facility could not able to visit the opd daily after the 10 days continuous program so the patient

was suggested for home exercises for continue 3 weeks daily with 2 set of 10 repetitions and 3 days in a week visit in the opd [10-14].

### **8. CONCLUSION**

Compensatory management and home program with duration of 8 weeks 2 sets of 10 repetition daily was effective session program. The patient was satisfied with the treatment due to decrease in pain, increased range of motion and efficiency in doing work with home exercise and compensatory management.

### **ETHICAL APPROVAL**

Ethical clearance taken from institutional ethics committee

### **CONSENT**

As per international standard or university standard, patient's written consent has been collected and preserved by the author(s).

### **COMPETING INTERESTS**

Authors have declared that no competing interests exist.

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