

## **Frozen Shoulder (Adhesive Capsulitis) Literary Review and a Prospective Case Study with Panchakarma Therapy**

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### **Abstract**

Frozen shoulder is a clinical syndrome of pain and severely decreased joint motion caused by thickening and contraction of the joint capsule. The peak incidence is between middle aged and is higher in women than men. In *Ayurved*, the symptoms, etiopathogenesis resembles with *Apabahuka*. It is a disease characterized by morbid *vata dosha* localizing around the shoulder joint and thereby causing loss or dryness of *shleshaka kapha* as well as constricts the *siras* at this site leads to loss of movements of the arm. *Ayurvedic* classics explain the treatment as *Navan Nasya*, *Snehapana*, *Swedana* and *Shamanaushadhi*. The purpose of this case study is to review the literature of frozen shoulder and to determine that the *Panchakarma* therapy is an effective and safe treatment option that can enhance the speed and degree of recovery, minimal risk and high patient acceptance in preference to other methods of treatment of frozen shoulder. Treatment includes *Skandha Basti* with *Mahavishagarbha Taila* for 20 minutes followed by *Patrapottali Pinda Swedan* and a *Nasya* of *Mashadi Taila* in dose of 8 drops for seven days. Along with this oral medication of *Parijata Guggulu* tablets in the dose of 1 gm three times a day was given for one month. Despite the limitations of this case study, it demonstrates that the *panchakarma* therapy may be an effective option in the treatment of frozen shoulder.

### **Keywords**

Ahesive capsulitis, *Apabahuka*, Frozen shoulder, *Panchakarma* therapy



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## INTRODUCTION

Frozen shoulder is a common, painful and debilitating condition that can last for months or years affecting up to 5% of the population<sup>1</sup>. Frozen shoulder is a descriptive term used to indicate a clinical syndrome where the patient has a restricted range of passive and active glenohumeral motion without abnormalities of the joint surface, fracture, or dislocation<sup>2</sup>. It affects the glenohumeral joint, possibly involving a non-specific chronic inflammatory reaction, mainly of the subsynovial tissue, resulting in capsular and synovial thickening<sup>3</sup>. A conspicuous absence of synovial fluid in the glenohumeral joint and scar tissue formation in the fibrous capsule, surrounding the shoulder joint causing it to tight thickened and contracted capsule, so limiting shoulder movements. A thickening and contraction of the capsule adherent to the humeral head termed as adhesive capsulitis<sup>4</sup>. Frozen shoulder is characterized by pain, stiffness and limitation of active and passive shoulder movements which adversely affect the entire upper extremity. Pain may cause pronounced sleep disturbance. Restriction of the range of motion is usually more marked with external rotation, but with lesser loss of

abduction and internal rotation<sup>5</sup>. Frozen shoulder is most common in middle aged individuals and is usually self limiting, but the duration and severity may vary greatly<sup>6</sup>. Risk factors include female sex, older age, shoulder trauma, surgery, diabetes, cardiovascular and thyroid disease<sup>7</sup>.

**Clinical Presentation:** Three stages of frozen shoulder have been described in the literature: painful phase, stiffness or frozen phase, and recovery or thawing phase, with the average length of symptoms lasting 30 months<sup>8</sup>.

**1. The painful phase:** The duration and severity is variable and reported to last for 2 to 9 months. The nature of pain is gradual onset, diffuses at first, difficult to localize it, then continues over a period of weeks to months and becomes worse at night. There is often no history of precipitating event. As the shoulder is kept immobile the pain and discomfort lessens.

**2. The stiffening phase (Frozen):** The first stage is usually followed by a gradual progressive loss of motion, which can last from 4 to 12 months. The average range of motion is 98° of abduction, 117° of flexion, 33° external rotation and 18° of internal rotation with the shoulder abducted to 90

degree<sup>9</sup>. It is the longest stage out of the three stages. The pain becomes dull with occasional sharp at the extreme of motion.

**3. The thawing phase:** The final stage is the gradual regaining of the motion or 'thawing' rate of which is variable in weeks or months. Without specific treatment shoulder movement is regained gradually.

**Radiological Examination:** Radiographs are usually normal but may show minor osteoporotic or degenerative changes of capsule. Degenerative changes in the neck are common<sup>10</sup>. **Arthrography:** It shows shrinking of the joint capsule with reduced capacity to accommodate contrast medium<sup>11</sup>.

#### **Treatment:**

Initial treatment is aimed at reducing inflammation and increasing the range of movement. For the initial stage analgesic and anti-inflammatory drugs are commonly used<sup>12</sup>. Mobilizing therapies such as massage, heat application, ultrasound, interferential treatment, osteopathic, chiropractic techniques, stretching and isometric exercise therapy are routinely prescribed for restoration of mobility<sup>13</sup>. Intra-articular corticosteroid injection, suprascapular nerve block has also been strongly advocated<sup>14</sup>. Radiotherapy, sympathetic ganglion block<sup>15</sup>, manipulation

under anaesthesia, distension arthrography, arthroscopic surgery and oral steroids has been suggested<sup>16</sup>.

### **AYURVEDIC CONCEPT**

*Apabahuka* is a disease characterized by morbid *vata dosha* localizing around the shoulder joint and thereby causing loss or dryness of *shleshaka kapha* as well as constricts the *siras* at this site leads to loss of movements of the arm. *Apabahuka* is coined in *Sushruta samhita* for the first time. In *nidan sthana* the *samprapti* and *rupa* of *apabahuka* are elaborated. *Raktamokshana* and *Ruksha sweda* are cited as treatment of choice for *Apabahuka*<sup>17</sup>. In *Charak samhita Bahushirsagata vata* is mentioned in the *chikitsa sthana*<sup>18</sup>. *Astanga Hridaya* and *Astanga sangraha* elaborated the full account of the illness *Apabahuka*<sup>19</sup>. In *Kashyapa, Bhela, Harita samhita vata vyadhi* is explained but the *Apabahuka* is missing. In *Madhukosha teeka* it is mentioned that, *Amsa shosha* is produced by *dhatukshaya*, i.e. *shuddha vatajanya* and *Apabahuka* is *vatakapha janya*<sup>20</sup>. *Apabahuka* is mentioned as one among the eighty types of *vata nanatmaja vikaras* by both *Sharangadhara* and *Bhavmishra*<sup>21</sup>. *Arundutta* and *Dalhana* both have commented on *samprapti, lakshana* and

treatment of *Apabahuka* in their works.

outcomes for patient with frozen shoulder. The

Assessment parameters	Extent / Position	Points
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Descriptions of different formulations are mentioned in *Chakradatta* and *Baishajya ratnavali*. The cause of *Apabahuka* is not separately enlisted; it may be *bahya hetu* – causing injury to the vital parts of the shoulder joint and *abhyantara hetu* – indulging in the etiological factors that aggravate *vata* leading to the vitiation of *vata*, which in turn leads to pain and loss of movements of the arm. *Kapha* plays a vital role in case of *margavarodha Apabahuka*. The pathogenesis leads to the development of *kaphavruta vatajanya Apabahuka*. Impairment of *bahupraspanda* is one of the cardinal features in *Apabahuka* and this affects activities of the shoulder joint. *Ayurvedic* classics explain the treatment as *Navan Nasya*, *Snehapana Swedana* and *Shamanaushadhi*. *Sushruta* advises *Vatavyadhi chikitsa* except *Siravyadha* and *Brumhana nasya* is indicated by *Vagbhata* for *Apabahuka*.

## CASE STUDY

The purpose of this case study is to describe a *Phanchakarma* therapy program and long-term

zed information from the historical and physical examination to establish an individualized plan of care for the patient. In this study a variety of measures to assess outcomes from multiple dimensions including clinical assessment, pain score and the range of shoulder movements were utilized. The subjective and objective parameters were assessed by means of interrogation and by ascertaining the signs and symptoms before and after the treatment.

**Instrumentation:** Patients asked to state whether the intensity of pain was mild, moderate or severe. The range of shoulder movements was measured by the constant shoulder assessment scale<sup>22</sup>.

### Patient description and historical examination findings:

**Case:** This 61-year-old male suffered from worsening right shoulder pain extending to the arm and neck. The initial onset of symptoms started with a fall with right arm stretched. The pain was intermittent, deep ache and sharp in the right shoulder.

Scoring for pain (maximum=15)	None	15
	Mild	10
	Moderate	5
	Severe	0
Scoring for activities of daily living (maximum=20)	<i>Activity level</i>	
	Full work	4
	Full recreation/sport	4
	Unaffected sleep	2
	<i>Positioning</i>	
	Up to the waist	2
	Up to the xiphoid	4
	Up to the neck	6
	Up to the top of the head	8
	Above the head	10
Scoring for forward and lateral elevation (maximum=20, 10 for each)	<i>Elevation (in degrees)</i>	
	0-30	0
	31-60	2
	61-90	4
	91-120	6
	121-150	8
Scoring for external rotation (maximum=10)	151-180	10
	Hand behind head with elbow held forward	2
	Hand behind head with elbow held backward	2
	Hand on top of the head with elbow held forward	2
	Hand on top of the head with elbow held backward	2
Scoring for internal rotation (maximum=10)	Full elevation from on top of head	2
	Dorsum of hand to lateral thigh	0
	Dorsum of hand to buttock	2
	Dorsum of hand to lumbosacral junction	4
	Dorsum of hand to waist (L3 vertebra)	6
	Dorsum of hand to T12 vertebra	8
Power (amount of weight that can be lifted in the scapular plane)	Dorsum of hand to interscapular region (T7 vertebra)	10
	Up to 25 lb (11.4 kg) (1 for each lb [0.5 kg] lifted) 0-25	
<b>Total</b>		<b>100</b>

This patient had not exercised regularly and reported a very sedentary lifestyle with at least 6 to 8 hours of sitting per day. The pain in the right shoulder aggravated from last 4 months with sleep disturbance due to night pain and inability to lie on the affected shoulder. All active and passive movements were restricted, with a reduction in external rotation by at least 50%.

Intra-articular corticosteroid injection was administered 6 months prior to the frozen phase. The patient was referred to physiotherapist for physical exercise and for restoration of mobility. Standard radiographs demonstrated a reduction in glenohumeral joint space and minimal osteoporotic changes. General health issues included hypertension, three year history of vertigo and positive smoking history. Past family medical history was non-contributory.

#### **Examination of the Shoulder Joint:**

##### **Inspection:**

Discolouration – absent

Muscle wasting – absent

Deformity – absent

Swelling – at right shoulder joint

##### **Palpation:**

Tenderness - at supra spinatous tendon of right shoulder region.

Temperature - increased at right shoulder region

Crepitus - present

#### **Tests:**

1. Drop arm Test: Positive
2. Apley's scratch test: Positive
3. Coracoid pain test: Positive

#### **Investigations**

TLC: 9,100/cumm

DC: N 67 %, L 28 %, B 0 %, E 3 %, M 2%

ESR: 11 mm after one hour.

Blood Sugar level: FBS 84 gms/dl PP 108 gms/dl.

X ray Shoulder joint (AP & Lateral view) - glenohumeral joint space reduced, minimal osteoporotic changes seen.

#### **PANCHAKARMA THERAPY INTERVENTION**

The patient received seven sessions of *Panchakarma* therapy intervention. Treatment includes *Skandha Basti* with *Mahavishagarbha Taila* for 20 minutes followed by *Patrapottali Pinda Swedan* and a *Nasya* of *Mashadi Taila* in dose of 8 drops for seven days. Along with this oral medication of *Parijata Guggulu* tablets<sup>23</sup> in the dose of 1 gm three times a day was given for one month.

**Outcome:** There was significant improvement in overall functional status after one month treatment with *Panchakarma* therapy. There was no need to take any analgesic medicine during the treatment. Clinical assessments were made from the interrogation and gradation of scoring pattern. Initially before starting the treatment the constant shoulder assessment

scores measured at baseline was 15, after seven days 36 and after commencement of one month treatment it was 69. At seven days of therapy, there was 21% improvement in shoulder function and this relative improvement was sustained at the one month assessment i.e. 54%. The therapy showed improvement in shoulder pain, joint stiffness and the activity of daily living. There was no side effect observed during the treatment as well as after the completion of treatment.

## DISCUSSION

Frozen shoulder is a syndrome caused by inflammation of the joint capsule that leads to thickening, contraction and formation of adhesions. Similarly, *Apabahuka* is a disease characterized by morbid *vata dosha* localizing around the shoulder joint and thereby causing loss or dryness of *shleshaka kapha* as well as constricts the *siras* at this site leads to loss of movements of the arm. *Skanda basti* is special type of *snehan karma* which corrects the *shuska dhatus* that are the root cause for the *vata* vitiation and imparts strengths to the joint. It nourishes the *shleshaka kapha*, stimulates the sensory nerve endings which relaxes the muscles and related structures of shoulder joint therefore

relieving the pain. *Patrapottali swedan* enhance local microcirculation, by increasing the diameter and blood flow velocity of peripheral arterioles, delivering higher level of oxygen and nutrients to the injured cells. It stimulates the initiation of abduction as well as the depression and stabilization functions of the rotator cuff. The ingredients of *Mahavishagarbha taila* and *partrapottali sweda* are *ushna*, *vata-kaphahara guna*, which also help in relieving symptoms of pain and stiffness in *Apabahuka*. It reduce inflammation, by promoting release of vascular and immunomodulatory factors. The *Nasya* of *Mashadi taila* easily pass through the blood brain barrier provides nourishment to the nervous systems and alleviates the vitiated *Vata dosha* by *vataghna* and *brumhana* properties. *Parijata guggulu* possesses *Shothara*, *vedanasthapana*, *nadibalya* and *rasayan* properties. The constant shoulder assessment is easy to use, taking only a few minutes to perform. It is reliable and valid in the overall assessment of shoulder function. The use of therapy helps to elongate collagen fibers, improve fibroblast proliferation and promote normal collagen alignment<sup>24</sup>.

## CONCLUSION

This small case study demonstrates that patient with frozen shoulder can make significant gains in disability, symptoms and function in relatively short periods of time. Our intention, however, is to serve as a demonstration of the positive outcomes that are possible through the use of a focused, impairment-specific *panchakarma* therapy management as mentioned in classical *Ayurvedic* text. This study determines the treatment which enhances the speed of recovery, minimal risk associated with *panchakarma* and high patient acceptance in preference to other methods of treatment. This study provides additional data on the potential role of *panchakarma* therapy in the treatment of frozen shoulder, particularly for those patients not responding well to conventional therapy. Despite the limitations of this case study researcher conclude that the *panchakarma* therapy may be an effective option in the treatment of frozen shoulder.



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