

## ROTATOR CUFF TENDON INJURY - AN AYURVEDA MANAGEMENT WITH JALOUKAVACARANA

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## ABSTRACT

Most shoulder pain is related to muscle or tendon strain. Chronic pain is often triggered by prior injuries, especially if original injury was severe or was not allowed to heal completely. Shoulder injury can cause weakness, tenderness and loss of full joint mobility. More common and less traumatic causes include lifting, reaching and pulling movements that strain the muscles and tendons or sprain ligaments surrounding the shoulder joint. Injury may or may not be realized during the activity. Various conditions like shoulder joint impingement, frozen shoulder, and rotator cuff tendinitis have resembling symptoms under the umbrella of disease *Avabahuka* described in Ayurveda. Leech application was carried out in first stage where there is reduced vascular supply. Here a case report of a female aged 31years old, who had an acute on chronic rotator cuff strain from strenuous activity underwent three sittings of *Jaloukavacarana*.

**Keywords:** Rotator cuff tendon injury, *Avabahuka*, *Jaloukavacarana*.

## INTRODUCTION

Disorder of rotator accounts for almost 50% of major shoulder injuries but are sometimes difficult to diagnose.<sup>1</sup> This is sometimes referred as the '*rotator cuff syndrome*'. Patients with rotator cuff tendinitis have

pain and weakness on active abduction and those with a severe tear of the cuff are unable to initiate abduction. They may be able to hold the arm abducted once it has been raised by the examiner. If there is weakness with

some movements but not with others, then one must rule out a partial or complete tendon rupture. The clinical examination must include number of provocative tests to determine the source of patient's symptoms.<sup>2</sup> The average thickness of the normal tendon of the rotator cuff is 10-12 mm<sup>3</sup>. Partial thickness tear occurs within the tendon and do not communicate with the sub acromial bursa or the glenohumeral joint. The incidence of partial tears is unclear, because most, especially intratendinous lesions, can only be identified by operations, and MRI may demonstrate partial tears in asymptomatic individuals.<sup>3</sup> The natural history and progression of rotator cuff disease from simple tendinitis

to partial- and full-thickness rotator cuff tears remain poorly understood and are an area of considerable debate.<sup>4</sup>

**CASE REPORT**

A 31-year-old female visited Shalya Tantra OPD with left shoulder pain and restricted movements. She had a history of fall with hyperflexed abducted shoulder in washroom two days back. She was taking internal medication previously for recurrent shoulder joint pain. There was no other associated systemic illness. On detailed examination no associated neurological deficits were seen. The findings are given in table 1 and table 2.

**Table 1:**

ROM	Goniometric assessment
Abduction	40° (Goniometric assessment)
Adduction	Complete
Flexion	60°
Extension	Painful
External rotation on abduction	Painful
Internal rotation on abduction	Possible
Medial rotation	Painful
Lateral rotation	Possible

The condition was provisionally diagnosed on examination as acute rotator cuff tendon injury. An x ray was taken which revealed no bone injury.

**Table 2:**

VAS for pain	9
Drop arm sign	Positive
Empty can sign	Positive

The patient was given a figure-of-eight shoulder bandage (*Swastika bandhana*) and pouch arm sling for immobilisation from the OP level along with internal medications and *Murivenna pichu* (cotton pad with

medicated oil). After a week she got an MRI done and re-visited for IP management. The MRI revealed a small full thickness tear of distal fibres of supraspinatus tendon. (Table 3)

**Table 3:**

MRI Impression
Small full thickness tear of distal fibers of supraspinatus tendon.
Mild degenerative changes in form of erosions are noted involving greater and lesser tubercle.
Mild subscapularis tendinosis is seen.
Fluid is seen in the sub acromial bursa.
Mild joint effusion is seen.
Coracohumeral interval is only 5 mm.

**TREATMENT**

**Table 4:**

<b>OP MANAGEMENT</b>	Shoulder bandage with <i>Alepana</i> (medicated mask) <i>Murivenna pichu</i> <i>Laksha guggulu</i> 1tid	Pain VAS-9 ROM – painful active abduction 20
<b>IP MANAGEMENT</b>		
Day 1	<b>Jaloukavacarana (leech therapy)</b> Immobilization * <i>Murivenna pichu</i>	Pain VAS - 7 ROM – painful active abduction 40°
Day 2,3,4	Immobilization <i>Murivenna pichu</i> <i>Nagaradi lepam</i>	Pain VAS - 6
Day 5	<b>Jaloukavacarana</b> Immobilization	Pain VAS - 3
Day 6,7	Immobilization <i>Murivenna pichu</i> <i>Nagaradi lepam</i>	Pain VAS -3
Day 8	<b>Jaloukavacarana</b> Partial immobilization**	Pain VAS -2 ROM – painful active abduction 90°
Day 9 - 14	<i>Upanaham</i> (medicated bandage) with <i>Upanaha choornam</i> and <i>Vatahara patra</i> Partial immobilization	Pain VAS – 1 ROM – Painful active abduction 110° on 14 <sup>th</sup> day
Day 15- 21	<i>Shastika shaali lepam</i> Partial immobilization	Pain VAS – 0 ROM – Painless active abduction 120° on 21 <sup>st</sup> day
Day 22 - 27	Static exercises	ROM– Painless active abduction 140 ° on 27 <sup>th</sup> day
Day 28- 60th	Kinetic exercises	ROM – Painless active abduction on 160 ° on 35 <sup>th</sup> day



Before treatment



After treatment

## DISCUSSION

Rotator cuff tear is one of the most commonly seen injuries among workers. The degeneration during old age leading to trivial micro trauma can be considered as a factor that leads to the cuff injury. In the present case, the patient gives a history of recurrent shoulder pain with no limitation in movement of the shoulder joint. A triggering factor of fall lead to the tear of rotator cuff which was weakened previously by degeneration. As the clinical examination and MRI findings revealed that there is small full thickness tear of supraspinatus, severe pain and vascular changes can be expected within the fibres of the cuff. Repetitive micro trauma is an important factor in rotator cuff tendon injury. Tissue irritability, or sensitivity, is the result of these responses and is typically divided into three overlapping stages of inflammation, repair and maturation/ remodelling. One of the reasons for this pain is the exudative and inflammatory changes that take place after the acute injury. This can be explained as *Vransopha* formed after an *Abhighata*. The immediate *Dushti* of *Rakta* and *Pitta* can be reduced by *Alepana* and *Bandhana*. The *Chikitsa Siddhanta* of *Bhagna* is adopted here. *Alepana* is the immediate management in case of any *Sandhimoksha* or *Bhagna*. Susrutacharya has explained that *alepana* heals *Ugra vrana* and *Shopha* when done with appropriate *Aushada*.<sup>5</sup> Immobilisation (*Bandhana*) is the management after *Alepana* in *Vranasopha*. With this we can achieve pain reduction. They reduce further damage of the tissue and limit exudate formation that is a cause for stiffness post traumatically.<sup>6</sup> In *Sashti upakrama* of *Vrana chikitsa*, *Rakta visravana* is indicated in *achira sopha* for the removal of *Vedana*, *Paaka*.<sup>7</sup> When explaining about *Raktamokshana*, Susrutacharya has explained that the *Rakta dushti* in *Pragaada desha* is removed by *Jaloukavacarana*. From the previous studies, it can be explained that the various biologically active substances in the saliva of leeches like hirudin, antithrombin, antitrypsin, antichymotrypsin and so on., help increase microvascularisation through *Jaloukavacarana*. It has the ability of vasodilatation.<sup>8</sup> Also, hirudin can reduce synovial inflammation in arthritic patients.<sup>9</sup> In

case of Supraspinatus tear there are chances of complication due to non-healing or poor healing of ruptured tendon because of less blood supply to the critical zone in supraspinatus tendon. Professor Charles Lent, leading biologists of the US said that Leeches are useful in removing the blood from areas where tissue has been transplanted or attached. When blood is accumulated, tissue may die before it heals. Applying of leeches to the area once or twice a day for a week gives the time for the growth of capillaries and thus restores blood circulation.<sup>10</sup> Biological active substances present in saliva of medicinal leeches can restore blood circulation in the field of inflammation. They help in improving circulation of an organ and provide capillary tissue exchange and, in improving immune protection and regeneration of tissue. The therapeutic effect is not only by letting of blood but also by the secretions which the leech emits into the circulatory system of the patient.<sup>11</sup> Here, when the shoulder joint was evaluated, it showed an improved AROM (active range of movement) from 40° to 90° within 7 days of conservative management. Though repair of supraspinatus tendon was suggested by orthopaedic surgeon, it was not required, and the patient achieved good range of movement after the treatment.

In a supraspinatus tendon tear, there are chances of poor healing because of 'critical zone' in the tendon due to reduced blood supply. If the blood supply is maintained the ruptured tendon may get repaired by itself faster and better. When leeches are applied near to this 'critical zone', due to the presence of antithrombin, antitrypsin and antichymotripsin in the saliva of leech there is improved blood supply as well as reduced inflammation at the rupture site.<sup>12</sup> The collection of exudates into the capsule around the shoulder joint may lead to stiffness leading to frozen shoulder. *Lepam* and *Upanaham* were given to prevent this condition. After three weeks, passive exercises were advised as the pain was reduced. These exercises were useful in preventing disuse atrophy. The loss of muscle strength can be the main reason for reduced movement of the joint. Once the inflammatory stage is passed with considerable reduction in pain from a VAS 9 to VAS 2, *Vatahara chikitsa* is adopted to give the muscles good strength.

The condition can now be correlated to *Apabahuka*, a type of *Vatavyadhi*. *Apabahuka* can be considered as any pathology leading to the loss of movement of *baahu*.<sup>13</sup> Two types of *Apabahuka* are explained; *v=Vataja* and *Vatakaphaja*. These may be considered as the two stages of the shoulder impingement syndrome i.e., stage of stiffness and stage of pain. Here the limitation of movement was seen immediately after trauma (*Amsa marmabhigata*) which lead to *Stabdha baahuta*.

### **Marmabhighataja Apabahuka**

*Amsa Marmabhigata*



*Vata Prakopa*



Affliction to *Mamsa Sira snayu Asthi*



*Sankocha Bahu Chesta hara*



**APABAHUKA**

From this *Abhighata*, *Sadhyo vrana* is inflicted in the tendon fibres of *bahu*. The initial *Sheeta chikitsa* in *Sadyo vrana* has to be adopted here. Even though *Marmabhigata* is of *Agantuka* in nature, in later phases, they result in imbalance of *Tridoshas* for which the treatments according to the *Lakshana* has to be given. As *Amsa* is a *Snayu marma*, classified as *Vaikalyakara marma*, the injury to this *Marma* should not be neglected as it may cause *Vikalangata* by *Bahupraspanditaharatwa*. A minimum complication of the *Marmabhigata* is *Stabdha baahuta*, which is the *lakshana* of *Apabahuka*, so such line of treatment is adopted to prevent *Dhatu kshaya* which leads to *ASmsa sossa* (muscle atrophy). Disuse muscle atrophy can be seen if proper rehabilitation is not adopted. The static exercise, followed by isometric and then dynamic exercises are given, especially to the rotator cuffs. Strengthening the other muscles of the upper limb like pectoralis major, latissimus dorsi, deltoid, biceps brachii, and coracobrachialis gives good mobility to the joint and also prevents further injury to the joint. Passive exercises are valuable for maintaining mobility of the joint. Exercises make stronger ligaments, ten-

dons and muscles as well as they improve fluid dynamics and maintain the nutrition in joints. Initially, the range is probably very small. Stretching at this stage is contraindicated. Decreased pain, swelling and muscle guarding are conducive to provide passive exercises. All these improved the healing process of ruptured tendon and thereby restored its original strength up to the fair extent and achieved a good outcome with conservative management.

### **CONCLUSION**

Every traumatic injury in a joint is considered as *Marmabhigataja vrana* and is treated accordingly. The treatment protocol is to minimise further damage and restore the functional mobility. Partial or incomplete rotator cuff tears can be repaired by natural healing process where there is a continuity in the fibres. Return to pre traumatic range of movement is done by strengthening the other intact surrounding muscles. By adopting *Vrana chikitsa*, *Bhagna chikitsa* and *Vatavyadhi chikitsa* in an integrated manner, the best possible results were achieved in this case.

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