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Ayurvedic Management of Acute Rotator Cuff Injury- A Case Series

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Abstract: Rotator cuff injuries are the common cause of shoulder pain and disability among general population. Conservative management includes rest, ice application, NSAIDS and corticosteroid injections which focuses on symptomatic relief, while healing is often limited[4]. Ayurveda offers a wide range of treatment modalities which enhances pain relief, improved ROM and functional recovery in acute rotator cuff injuries.[1-3]

- ***Objective:***
  To evaluate the clinical outcomes of Ayurvedic treatment modalities in patients with acute rotator cuff injuries.

- ***Methods:***
  Two patients with acute traumatic rotator cuff tears were managed in the inpatient and outpatient setting with local application of Murivenna, internal medications, sling support, and gradual mobilization. Pain (VAS), functional disability (SPADI), and shoulder range of motion (ROM) were assessed weekly.

- ***Results:***
  Patients showed consistent improvement in pain and function within 3-6 weeks.

- ***Conclusion:***
  Ayurvedic treatment modalities provided significant pain, improved ROM, and functional recovery in acute rotator cuff injuries.

Keywords: *Acute Rotator Cuff Injury, Bhagna, Murivenna, Shoulder Pain, Case Series.*

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I. INTRODUCTION

Ayurveda is among the world's oldest and most structured healthcare systems, with documented roots extending back over 5,000 years. It stands out as perhaps the only medical tradition that places strong emphasis on preventive care-promoting wellness and healthy living through daily routines, seasonal practices, and ethical conduct, known as *Sadvritha*[5]. Though originally developed as a part of the Atharvaveda, Ayurveda eventually emerged as an independent field, growing in significance in response to societal need[6].

Within Ayurveda, *Salyatantra* is the speciality that deals with surgical procedures, trauma care, and injury management. Classical texts, especially the *Sushruta Samhita*, outline conservative treatment methods that still hold clinical relevance today[7]. These protocols can be particularly useful in managing contemporary musculoskeletal injuries such as acute rotator cuff injuries.

Rotator cuff injuries are increasingly common, especially among individuals over the age of 50, with studies indicating that 30-50% of this population may suffer from tendon tears[8]. Such injuries can result in chronic pain, loss of mobility, pseudo-paralysis, and may even lead to osteoarthritis over time, rotator cuff injuries impose a

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significant societal burden – both in terms of medical expenses and economic impact due to work absenteeism and disability-related costs[9,10].

Given the high incidence and the consequences of these injuries, improving treatment outcomes is essential. Effective care can reduce recurrence rates and limit the progression to chronic conditions. The upper limb, being essential for routine tasks and athletic activities alike, underscores the importance of managing these injuries efficiently and comprehensively.

Surgical techniques for treating rotator cuff injuries continue to advance, yet the rate of partial or complete post-surgical failure in restoring shoulder function remains relatively high. This limited success is often attributed to challenges in tendon-to-bone integration, biomechanical imbalances, or insufficient tissue regeneration[11].

Although the shoulder joint offers remarkable mobility, its structural configuration makes it susceptible to instability. The relatively shallow and narrow glenoid cavity provides limited coverage for the humeral head, thereby increasing the likelihood of joint dislocation and related injuries[12]. Conditions like rotator cuff injuries can significantly reduce mobility, causing pain and impairing both social and professional life[13]. Statistics show that shoulder pain affects approximately 14.7 per 1,000 patients annually in primary care, with lifetime prevalence reaching up to 70%[14]. Recovery can be slow, and recurrence is common[15]. The leading causes of shoulder pain are disorders of the rotator cuff, followed by conditions involving the acromioclavicular and gleno-humeral joints[16].

The rotator cuff is composed of a fibrous ring encircling the anatomical neck of the humerus, created by the fusion of the joint capsule with the tendinous insertions of four muscles: the subscapularis, supraspinatus, infraspinatus, and teres minor[17]. Among these, the supraspinatus is particularly significant as it passes beneath the acromion and the coracoacromial ligament, separated from the acromion by a portion of the subdeltoid bursa[18]. Functionally, the rotator cuff acts synergistically with the deltoid muscle to enable rotation and elevation of the shoulder. In doing so, it offsets the deltoid's upward force on the humerus and maintains the humeral head in proper alignment within the glenoid cavity[19]. This coordinated mechanism is especially important for achieving smooth external rotation, a key component of arm elevation.

Rotator cuff injuries are commonly seen in individuals who frequently engaged in repetitive overhead activities, whether through their profession or athletic pursuits, or as a result of acute trauma[20]. In younger individuals, these injuries are typically traumatic in nature, often caused by high-impact events or repetitive microtrauma[21]. In contrast, older individuals are more prone to non-traumatic, degenerative forms of these injuries[22].

Acute rotator cuff injuries can result from incidents such as falling onto an outstretched hand, lifting heavy objects, or sudden forceful pulling[23]. Key symptoms include shoulder or arm pain, particularly during movement, which may radiate toward the upper or lateral arm. Additional symptoms often reported include difficulty in abducting the arm, a feeling of weakness in the shoulder and upper limb, sensations of numbness or tightness around the joint, pain or discomfort when lying on the injured side[24]. Many patients adopt a compensatory posture to avoid moving the injured shoulder. Diagnosis is established through a combination of patient history, clinical examination, and imaging techniques such as X-rays, ultrasonography, and MRI. Management strategies can involve both surgical and conservative approaches[25].

The choice of treatment depends on the severity, duration, and presentation of symptoms. Initial management for all patients typically begins with non-operative methods. Standard conservative care follows the PRICE protocol-Protection, Rest, Ice, Compression, and Elevation, corticosteroid injections, and physiotherapy, are largely focused on symptomatic relief, with limited effect on actual tendon and muscle healing[26]. This often results in delayed recovery, fibrosis, fatty infiltration, or progression to chronic degeneration[27]. *Acarya Susrutha* mentioned 6 types of *Sandhimuktha* in *Su.Sam.Nidanasthana* 15th chapter in which acute rotator cuff injuries can be correlated with *utpishta* or *vislishta* type of *sandhimuktha*[28]. Since rotator cuff injuries affect deep muscles, and tendons, selecting a remedy that actively supports the healing process can be particularly advantageous. Ayurveda provides promising alternatives for musculoskeletal injuries through time-tested formulations[29].

This case series presents two patients with acute rotator cuff injuries managed successfully with Murivenna application and supportive Ayurvedic measures.

II. CASE PRESENTATION

A. Case 1:

A 21 year old male, college student, active football player presented with severe pain in the left shoulder since trauma. The associated complaints are inability to lift the arm above shoulder level, difficulty in overhead activities and self care (wearing clothes, combing hair), pain aggravated at night and disturbed sleep. The patient sustained trauma on 18/05/2025 while playing football in an inter-college tournament. During the game, he was struck forcefully on the left shoulder by a football while attempting to block with his arm extended overhead. He experienced sudden severe pain with a popping sensation, followed by restricted movement. Swelling appeared within hours, he consulted a nearby hospital the same day; X-ray ruled out fracture/dislocation, and he was advised analgesics and rest. As pain persisted and he could not lift his arm, he reported to our OPD on 21/05/2025, where the first bandage with Murivenna was applied.

- *Past History:*

No similar shoulder injuries in the past. No systemic illnesses or prior surgeries.

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➢ *Personal History:*

Active sportsman, non-smoker, non-alcoholic, normal diet and sleep.

➢ *Examination Findings (20/05/2025):*

- Inspection: Swelling over supraspinatus region
- Palpation: Localized tenderness at greater tuberosity of humerus.
- Movements:

✓ Abduction restricted at 30^0 with severe pain.
✓ Flexion restricted at 40^0
✓ External rotation painful

- Pain (VAS): 8/10
- SPADI(%): 82
- Special tests: Drop arm test positive, Neer's impingement painful
- Neurological exam: No deficits.

➢ *Investigations:*

- X-ray (18/05/2025): No fracture/dislocation
- MRI (19/05/2025): Evidence of partial thickness tear at the articular surface near the insertion, measuring approximately 6-8 mm in length and 3 mm in depth, involving anterior fibers. Tendon continuity partially preserved.
- Other rotator cuff tendons are intact, no tear or tendinopathy.

➢ *Provisional Diagnosis:*

Acute traumatic rotator cuff injury (supraspinatus tear) – right shoulder.

Table 1 Provisional Diagnosis

Timeline	On Examination	Symptoms	Treatment
Day 3 (21/05/2025)	Pain (VAS) – 8/10, SPADI% - 82, Abduction – 30^0	Severe pain in the left shoulder. Inability to lift the arm above shoulder level. Pain aggravated at night, disturbing sleep	*Swastika bandha* with Murivenna and arm sling was applied *Punarnavadi kashayam* + *Amruthottaram kashayam* – 90ml BD BF *Laksha guggulu* – 2 BD BF *Gokshurapunarnavadi guggulu* tab – 2 BD AF *Gandha tailam* – 10 drops with warm milk BT
Week 1 (28/05/2025)	Pain (VAS) – 6/10, SPADI% - 68, Abduction - 50^0.	Night pain reduced, sleep better.	Continued Murivenna bandage and internal medicines.
Week 2 (04/06/2025)	Pain (VAS) – 4/10, SPADI% - 56, Abduction – 70^0	Swelling reduced slightly, tenderness persists.	Continued Murivenna bandage and internal medicines
Week 3 (11/06/2025)	Pain (VAS) – 3/10, SPADI% - 42, Abduction – 95^0	Relief of pain and tenderness. Swelling reduced. Night pain reduced.	Continued Murivenna bandage and internal medicines
Week 4 (18/06/2025)	Pain (VAS) – 2/10, SPADI% - 28, Abduction – 120^0	Pain subsided, ROM improved.	Adviced local *pichu* with Murivenna and changed internal medicines to *Mustadi marma kashayam* and *Dhanwantaram kashayam*, instructed to come after 10 days for review. Mild rehabilitation exercise was also adviced.
Week 6 (28/06/2025)	Pain (VAS) – 1/10, SPADI% -18, Abduction - 140^0	No pain and tenderness. ROM almost achieved	Adviced to returned to sports practice with light training.

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Fig 2 Swastika Bandha

B. Case 2:

A 42 year old male, manual worker presented with pain in the right shoulder persisting for 2 months associated with difficulty in lifting the arm overhead. Inability to perform activities such as combing hair, reaching overhead shelves, and wearing clothes. Pain worsens at night and had disturbed sleep. The patient sustained trauma approximately 2 months back while standing on a chair to paint a wall. He lost balance and fell sideways, directly hitting his right shoulder on the edge of a wooden table. He experienced sudden severe pain and swelling, with inability to move the arm. He was immediately taken to a nearby hospital where an X-ray ruled out fracture/dislocation, but significant soft tissue injury was suspected. Conservative management with analgesics and immobilization was started. Despite this, pain and restriction of movements persisted.

The patient was later admitted to inpatient department on 10/03/2025 for further management. He was discharged on 30/04/2025 with significant improvement.

➢ *Past History:*

No previous shoulder injuries. No major systemic illness such as diabetes or hypertension. No history of prior surgery.

➢ *Personal and Social History:*

Manual worker, right-hand dominant. Non-smoker, occasional alcohol consumption. Normal appetite and sleep prior to trauma; sleep disturbed due to pain after injury.

➢ *Examination Findings on Admission (10/03/2025):*

- Local Inspection: Mild swelling and muscle spasm around right shoulder.
- Palpation: Tenderness over supraspinatus insertion and greater tuberosity.
- Movements:

✓ Abduction restricted to 40^0 with severe pain.
✓ Flexion restricted at 50^0
✓ External rotation limited and painful.

- Special tests: Drop arm test positive, painful arc positive, Neer's test painful, Empty can test positive.
- Neurological exam: No motor/sensory deficit

➢ *Investigations:*

- X-ray: No fracture/dislocation
- USG (27/01/2025) – complete tear of supraspinatus tendon (1.4 cm proximal to the insertion-irregular fibres of foot print) with retraction (> 2cm).

➢ *Provisional Diagnosis:*

Acute on chronic rotator cuff injury (supraspinatus tear), right shoulder.

Table 2 Provisional Diagnosis

Timeline	On examination	Symptoms	Treatment
Day 0 (10/03/2025) Day 3 (12/03/2025)	Pain (VAS) – 8/10, SPADI% - 84, Abduction – 40^0	Severe pain, restricted movements, night pain present.	*Dhanyamladhara* for 7 days. *Dhanwantaram kashayam* + *Punarnavadi kashayam* – 90ml BD BF *Laksha guggulu* – 2 BD AF Septillin tab – 1 BD AF *Gandha tailam* – 10 drops with warm milk BT *Pichu* with Murivenna daily
19/03/2025	Pain (VAS) – 6/10, SPADI% - 72, Abduction – 55^0	Swelling reduced, sleep improved slightly.	*Dhanyamladhara* finished. Local *Taila dhara* with Murivenna and *Dhanwantaram taila* for 2 weeks adviced
20/03/2025 -03/04/2025	Pain (VAS) – 4/10, SPADI% - 52, Abduction – 85^0	Physiotherapy started with mild active movements. Could reach head level with discomfort.	*Taila dhara* finished. *Marsha nasyam* with *Dhanwantaram taila* (101A) for one week adviced.
04/04/2025 - 11/04/2025	Pain (VAS) – 3/10, SPADI% - 40, Abduction – 100^0	Strengthening phase initiated. Able to do	*Marsha nasyam* finished.

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		overhead activites with mild pain.	Local *Shashtika lepam* for 7 days adviced.
12/04/2025 – 19/04/2025	Pain (VAS) – 2/10, SPADI% - 32, Abduction – 115^0	No night pain, better daily function.	Local *Shashtika lepam* finished. *Yogavasti* adviced.
20/04/2025 – 28/05/2025		No adverse events noted	*Yogavasti* finished.
30/05/2025	Pain (VAS) – 2/10, SPADI% - 24, Abduction – 120^0	Independent in ADLs, advised home care.	Discharged on 30/05/2025

III. DISCUSSION

Rotator cuff injuries are a leading cause of shoulder pain, particularly following trauma or repetitive overhead activities. Conventional management primarily focuses on symptomatic relief with NSAIDs, corticosteroid injections, physiotherapy, and, in severe cases, surgical repair. However, the outcomes of these approaches remain limited, with a significant proportion of patients experiencing persistent pain, functional disability, or recurrence due to poor tendon-to-bone healing and degenerative changes. This highlights the need for alternative or complementary strategies that address both symptom control and tissue recovery.

The present case series illustrates the efficacy of Ayurvedic management—particularly the use of Murivenna, internal medications, bandaging, and supportive therapies—in acute rotator cuff injuries. In both cases, consistent improvement was observed in pain reduction (VAS), shoulder function (SPADI), and range of motion (ROM) within 4–6 weeks. The outcomes are noteworthy, as the first patient (a young athlete with acute traumatic supraspinatus tear) regained near-complete ROM and returned to sports activity, while the second patient (a middle-aged manual worker with acute-on-chronic tear and tendon retraction) achieved significant pain relief and functional independence despite structural severity.

The therapeutic efficacy of Murivenna can be attributed to its pharmacological properties. The combination of *Tikta*, *Katu*, and *Madhura rasa* predominance exerts *Kapha-Pitta shamana* action, reducing local inflammation, swelling, and pain while promoting microcirculation and healing[30]. Internal medications such as *Laksha guggulu*, *Punarnavadi kashayam*, and *Gandha tailam* support musculoskeletal strength, tissue repair, and systemic balance[31,32]. External therapies like *Dhanyamla dhara*, *taila dhara*, and *shashtika lepam* provided synergistic effects by alleviating pain, reducing stiffness, and facilitating early mobilization[33]. Moreover, gradual physiotherapy integration ensured restoration of ROM and prevention of adhesive capsulitis[34].

Previous studies have reported the analgesic, anti-inflammatory, and wound-healing properties of Murivenna and related formulations, substantiating their role in musculoskeletal trauma[35,36]. The present clinical outcomes align with such findings, suggesting that Ayurvedic management may offer both symptomatic relief and functional recovery in cases where conventional treatments are slow-acting or invasive. Importantly, the non-invasive nature of these interventions and their minimal adverse effects add to their clinical[37].

IV. CONCLUSION

This case series demonstrates that Ayurvedic management using Murivenna bandaging, internal medications, and supportive therapies provided significant pain relief, improved ROM, and functional recovery in acute rotator cuff injuries. The results suggest that Ayurvedic interventions can serve as effective conservative treatment options, particularly in young athletes and manual workers where rapid functional restoration is essential. While encouraging, these findings warrant further validation through larger, multicenter clinical trials with long-term follow-up to confirm efficacy and elucidate underlying mechanisms.

V. SUGGESTIONS FOR FUTURE RESEARCH

- Larger Clinical Trials: Conduct randomized controlled trials (RCTs) with larger sample sizes to validate the efficacy of Ayurvedic management in acute rotator cuff injuries.
- Comparative Studies: Compare Ayurvedic interventions with standard conservative management (NSAIDs, corticosteroid injections, physiotherapy) and surgical outcomes to establish relative effectiveness.
- Long-term Follow-up: Evaluate recurrence rates, tendon healing, and functional outcomes over 6-12 months to determine the sustainability of Ayurvedic treatment results.
- Imaging-based Outcome Assessment: Incorporate follow-up MRI or ultrasound imaging to objectively assess tendon healing and correlate with clinical improvements.
- Biomechanical and Functional Studies: Assess shoulder strength, endurance, and biomechanical parameters post-treatment to provide a more comprehensive evaluation beyond pain and ROM.
- Mechanistic Research: Explore the pharmacological actions of Murivenna and other formulations through laboratory and animal studies to understand their role in tendon healing, anti-inflammatory action, and tissue regeneration.
- Integration with Physiotherapy: Investigate the combined effect of Ayurvedic management and modern physiotherapy protocols for faster recovery and prevention of adhesive capsulitis.
- Quality of Life Assessment: Use standardized tools to assess the impact of Ayurvedic management on overall quality of life, return to work, and sports performance.
- Cost-effectiveness Studies: Analyze the economic benefits of Ayurvedic management compared to surgery

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and conventional therapies, particularly in resource-limited settings.

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