

Case Report

Ayurvedic management of supraspinatus tendon tear: a case report

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ABSTRACT

The two main causes of rotator-cuff injuries are trauma and degeneration. Modern medical sciences recommend operative reconstruction surgery for ruptured injuries of the rotator cuff. But the outcome of surgery often leads to restrictions on movement. In this case, supraspinatus tendon tears with degenerative causes were satisfactorily managed with ayurvedic conservative management alone. A 68-year-old patient was admitted to the Kayachikitsa inpatient department of Vaidyaratnam ayurveda college, Ollur, on September 21, 2023, with right shoulder pain and restricted shoulder movements. In an MRI, the case was diagnosed as a partial tear of the anterior fibres of the supraspinatus tendon of the rotator cuff with sub-coracoid bursitis of the right shoulder joint. On examination of the right shoulder joint, all shoulder movements were restricted due to pain. Hawkins's impingement test, Neer's test, and the painful arc test were found to be positive. She underwent a treatment protocol of Vatavyadhi Chikitsa incorporated with Bhagna Chikitsa. Internal and external medications, along with Upanaham, Abhyanga, Thaila pichu, bandage, and active shoulder exercises, were the treatments followed in this case. After the treatment, patient got relief from pain (VAS scale: 7 to 4) and considerable improvement in range of motion (ROM) for the right shoulder joint. This case study highlighted that within one month, the chronic rotator cuff injury got partial functional restoration (SPADI-56 to 30) by conservative ayurvedic management.

Keywords: Ayurveda, Bhagna Chikitsa, Chronic rotator cuff injury, Vatavyadhi Chikitsa, Case report

INTRODUCTION

Shoulder pain is a common musculoskeletal complaint in the general population. Rotator cuff problems are among the most common causes of shoulder pain seen in primary care practices. The prevalence of shoulder pain in the elderly has been estimated to range from 21% to 27%, and the prevalence of rotator cuff tears increases with advanced age and mostly affects the dominant arm.¹ The supraspinatus muscle is located on the back of the shoulder, forming part of the rotator cuff. The rotator cuff consists of Supraspinatus, Infraspinatus, Subscapularis, and Teres minor.² Aetiology of supraspinatus tears consists of acute tear and degenerative tear. Supraspinatus tears are normally present as partial or full-thickness tears. It can be asymptomatic or symptomatic. In modern orthopaedics, the management of

supraspinatus tendon tears is either by the conservative method or by the operative method.³ Rotator cuff tear due to trauma can be correlated with Amsasandhi vislishtam and Amsamarmaabhigata.⁴ In this case, repeated minor trauma and degeneration resulted in a chronic tendon tear. In the chronic stage of rotator cuff injury, functional mobility and muscle strength can be achieved by the Ayurvedic treatment protocol of Vatavyadhi Chikitsa incorporated with Bhagna chikitsa. In this study, a 68-year-old female patient with a chronic rotator cuff injury was managed conservatively and got partial functional restoration of the shoulder joint within one month. This case study may be useful in determining the future scope of a conservative Ayurvedic treatment protocol for symptomatic relief and successful restoration of joint mobility in partial tendon tear cases.

CASE REPORT

A 68-year-old female patient visited Kayachikitsa OPD (OP no. 47367) at Vaidyaratnam ayurveda college, Ollur, Thrissur, on September 21, 2023, presenting with complaints of inability to raise her right arm and uneasiness in movements. She had pain in her neck and right shoulder joint for six months. The pain was shooting in nature and gradual in onset. She didn't notice any recent trauma or strenuous activities related to the shoulder. It was aggravated by lying on the shoulder and reaching and lifting with the right arm.

Treatment history

Previous treatment received included medications (Aceclofenac, amitriptyline, diclofenac, and calcium supplements) and topical application of diclofenac sodium gel, along with physiotherapy (hot packs and range of motion exercises including pulleys, wheels, and ladders). Pain was temporarily relieved by these medications. She was on medication for hypertension (telmiget 40 mg; 1-0-0) and thyroid dysfunction (thyroxin 25 mg; 1-0-0). In May 2023, she consulted an allopathic doctor for the same condition at the time of onset (6 months ago) at Puthukkad Taluk hospital and took 2 weeks of Ayurvedic internal medication.

General examination

An altered gait with minimal arm swing on the right side and an antalgic posture with the right shoulder in a slightly elevated and adducted posture to minimise pain and muscle spasm were noticed. As for vitals, the pulse rate was 80/min, the respiratory rate was 16/min, and the blood pressure was 130/90 mm Hg.

Systemic examination

Respiratory system examination, gastro-intestinal examination, cardiovascular examination, and central nervous system examination did not uncover any abnormalities.

Locomotor system examination

On examination of the cervical spine, mild swelling was present over the nape of the neck, and on palpation, there

was no warmth, tenderness grade 1, and flexion and lateral bending (on right shoulder) were possible with pain. While abducting the right shoulder, there was a hunching of the shoulder. On inspection, it showed elevated right shoulder due to muscle spasm, tenderness grade 2 over the right upper shoulder, and lateral aspect of the upper arm. On examination of the right shoulder joint and muscles, there was grade 2 tenderness over the right supraspinatus and grade 3 tenderness over the root of the right deltoid muscle (at the bicipital groove), and there was no sensory loss over the right upper limb. There was visible muscle wasting over the upper back (supraspinatus muscle) and upper arm (deltoid). On inspection and palpation of the left shoulder joint (Table 1 and 2), no abnormalities were detected and all movements were possible on the left shoulder. Examination of range of movements and special tests for diagnosis of the right shoulder were done (Table 3). After a careful initial assessment, she was admitted to the IP department. Due to lack of relief of pain, advised for an MRI and found a large mid substance partial tear of the anterior fibres of the supraspinatus tendon and sub-coracoid bursitis. The treatment was planned and executed according to the condition, and there was considerable improvement in the restricted range of motion and the pain on discharge.

Table 1: Inspection of right shoulder joint.

Symmetry	Not maintained
Shape	Wasting present over the scapular region
Position of scapula	Elevated on right side due to muscle spasm
Winging of scapula	Absent
Swelling	Present on right suprascapular area and lateral aspect of upper arm

Table 2: Palpation of shoulder joint.

Variables	Right shoulder	Left shoulder
Swelling	Present	Absent
Temperature	Absent	Absent
Tenderness	Tenderness-grade 3 at site of bicipital groove	Absent
Crepitus	Grating sensation	Present

Table 3: ROM shoulder joint.

Variables	Active ROM		Passive ROM		Special tests on right shoulder
	Right	Left	Right	Left	Painful arc test +ve (at 40°)
Flexion	60°	180°	120° with pain	180°	Drop arm test can't be elicited due to pain
Extension	30°	45°	30°	45°	Empty can test can't be elicited due to pain
Abduction	60°	180°	120° with pain	180°	Hawkin's test positive
Adduction	45°	45°	45°	45°	Neer's test positive
External rotation	45°	80°	45°	80°	
Internal rotation	30°	60°	45°	60°	

Diagnostic assessment

MRI of right shoulder joint-on 11/10/2023 (Figure 1)

Large mid-substance partial tear of the anterior fibres of the supraspinatus tendon; tendinosis of the rest of the tendon. It is a full-thickness tear of width 14mm and mild retraction of fibres (3 to 4 mm). A large septated cystic collection in the sub-coracoid recess, bursitis, and moderate joint effusion were noted. Mild fluid in the sub-deltoid and sub-coracoid recesses.

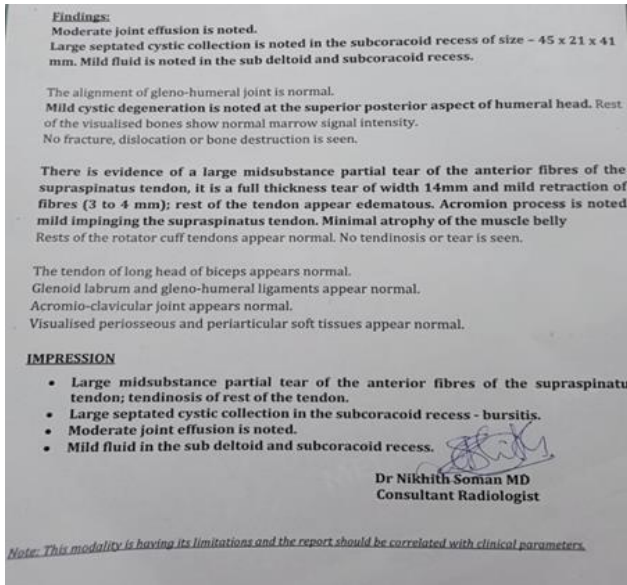


Figure 1: MRI of right shoulder joint.

X-ray cervical spine-on 14/06/2023 (Figure 2)

Degenerative changes are visible and osteophytes present with sclerosed margins of vertebrae.

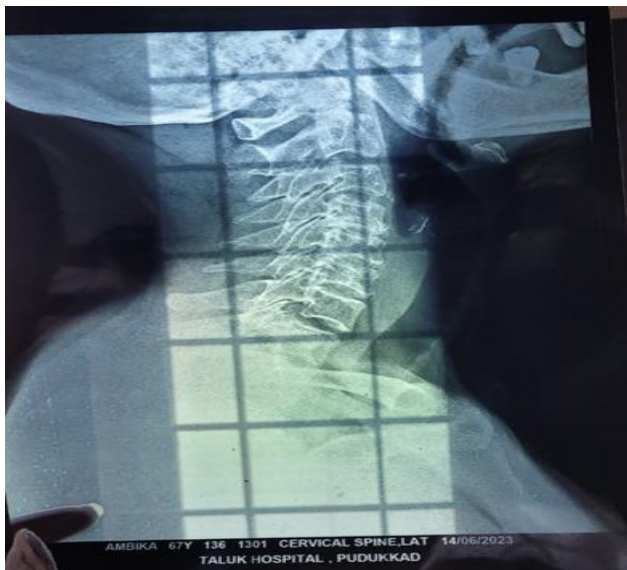


Figure 2: X-ray cervical spine.

Ayurvedic diagnostic assessment

Dasavidha pareeksha

Prakriti assessed using Ayusoft tool was Vatha Kapha. Doshas vitiated are vyana vayu, sleshaka kapha, avalambaka kapha.

Dushyas affected are rasa, mamsa, meda, and asthi with kandara snayu vitiation. rasavaha srotas (angamarda, gourava), medovaha srotas (elevated lipid profile), asthivaha srotas (soushiryam, asthisoolam) and mamsavaha srotas (mamsasosham) are affected.

Assessment tools

Visual analogue scale (VAS scale), shoulder pain and disability index (SPADI), magnetic resonance imaging-right shoulder joint, changes in range of motion of right shoulder joint-before treatment-after treatment (BT-AT).^{5,6}

Diagnostic challenges

The patient was unable to undergo an magnetic resonance imaging prior to treatment due to financial issues, which delayed the final diagnosis.

Diagnosis

Amsa marma abhightham (supraspinatus tendon tear-partial tear-grade 3).⁷

Therapeutic intervention

Treatment plan

The goals of treatment were to relieve the pain, to increase the rotation of motion, to reduce the muscle spasm and restore general muscle strength.

Physiotherapy administered to regain the functional ability and prevent further damage by educating the patient.

Vatavyadhi Chikitsa incorporated with Bhagna Chikitsa was done (Table 4 and 5)

Deepanam (dhatu level agnimandya), vedanasamanam, sophaghna (antiinflammatory), snehana-swedana (lubrication) and the dhatuposhana (nourishment).

Observations

There is improvement in restricted range of motion (Table 6) and reduction in pain and partial functional restoration of the right shoulder joint (Visual analogue scale-7 to 4 and the shoulder pain and disability index -56 to 30).

Table 4: Therapeutic intervention-internal medications.

Date	Medicine	Dose	Time of administration	Remarks
21/09/2023-15/10/2023	Amruthotharam kashyam	60 ml bd	Before food	
	Dhanwantharam gulika	1-0-1	Alongwith kashayam	
	Balarishtam + ashwagandharishtam	30 ml bd	After food	
02/10/2023	Dasamoolakatuthrayam kashyam	Frequently		Due to occurrence of cough
16/10/2023-21/10/2023	Gugguluthikthakam kashayam	60 ml bd	Before food	
	Lakshadi guggulu gulika	1-0-1	Alongwith kashayam	
	Gandhathaialm	10 drops with milk	After food	
	Balarishtam + ashwagandharishtam	30 ml bd	After food	
	Dasamoolakatuthrayam kashyam	Frequently		

Table 5: Therapeutic intervention-external medications.

Date	Procedure	Medicine	Remarks
22/09/2023-28/09/2023	Choorana pinda swedam	Kolakulathadi choornam in dhanyamlam steam	Swelling and pain over nape of neck reduced
29/09/2023-08/10/2023	Jambeera pinda swedam	Madhuyashtyadi thailam, head oil-Nimbamruthadi erandam + Kachooradi choornam	
29/09/2023-21/10/2023	Mathravasthi	Madhuyashtyadi mezhukupakam-50 ml	
06/10/2023-21/10/2023	Marsha nasyam	Anuthailam-7 drops	
08/10/2023	Medicinal pad with murivenna-E/A over head		Pain due to fall from cot hitting lateral part of head-relieved within 2 days
29/09/2023-11/10/2023	Physiotherapy		
11/10/2023	MRI-Right shoulder-large midsubstance partial tear of the anterior fibres of the supraspinatus tendon-local therapeutic interventions focussing on right shoulder joint was incorporated		
13/10/2023-16/10/2023	Upanaham-right shoulder	Kottamchukkadi choornam + kottamchukkadi thailam	Advised to apply murivenna after upanaha were removed
17/10/2023-21/10/2023	Pichu and Swasthika bandage on right shoulder joint	Murivenna	Followed by external application of karpooradi thailam after removal of bandage
21/10/2023	Patient was discharged		

Table 6: Changes in ROM-BT-AT and special tests.

Variables	AROM		PROM		Special tests
	Before treatment	After treatment	Before treatment	After treatment	Painful arc test positive (at 70°)
Flexion	60°	120° with pain	90°	180° with pain	Drop arm test positive
Extension	30°	40°	30°	30°	Empty can test positive
Abduction	60°	120° with pain	60°	180° with pain	Hawkins test negative
Adduction	45°	45°	45°	45°	Neer’s test positive
External rotation	45°	60°	45°	60°	
Internal rotation	30°	60° with pain	45°	60°	

DISCUSSION

In this case, degeneration due to old age combined with repeated minor trauma associated with heavy activities

may be the cause of the rotator cuff injury. The treatment protocol of Bhagna followed by Vatavyadhi was followed in this case of chronic rotator cuff injury.⁸ In this case study, the patient got satisfactory symptomatic

relief and functional improvement through one month of Ayurvedic conservative management, and she was continuing the Ayurvedic internal medicines and active exercises of the shoulder joint to regain complete functional restoration of her affected right shoulder joint.

The scientific rationale for the probable mode of action of internal medication

Amruthotharam kashayam reduces shoulder joint effusion through its anti-inflammatory action. Kaisora guggulu also aids in anti-inflammatory and analgesic action, thus increasing the mobility of the shoulder joint in the rotator cuff injury. Lakshadi guggulu, which is mentioned in Bhagnadhikara, is known for its analgesic properties. Dasamoolahareethaki lehyam is beneficial for chronic inflammatory conditions associated with swelling. Gandha thailam, which is indicated as Sada pathyam bhagnanam sarvakarmasu and Greevaskandhorasam vridhiramunai vopajaya, enhances the muscle strength in rotator cuff injuries. Thus, the combination of these internal medicines helps to decrease inflammation and pain and to repair and restore the functional mobility of the shoulder joint.⁹

The scientific rationale for the probable mode of action of external medication

Nasyam is specifically indicated in Urdhwakaya Bhaga. Marsa nasyam with Anuthailam, by its Vatasamana and Brmhana properties, increases shoulder joint mobility and muscle strength in chronic rotator cuff injury.¹⁰ Murivenna is powerful analgesic oil extensively used for traumatic and inflammatory conditions. The drugs of Murivenna have Sandhaneeya property.¹¹ Pichu with Murivenna helps with the rotator cuff injury, and Upanaham with Kottamchukkadi Choornam helps to alleviate the inflammation and joint pain. Snigdha sweda kriyas in the form of Jambheera pinda sweda and Patra potala sweda increase blood flow, thus easing down the inflammation, and stimulation of the sympathetic nervous system for vasodilation, which leads to revascularization of tendons around the shoulder joint, speeds up the healing process.¹² Active shoulder exercises help to restore muscle strength and mobility in shoulder joint.¹³

Limitations

This is a single-case report; still, more studies are expected to prove it scientifically. The patient was unable to undergo an MRI prior to treatment due to financial issues, which delayed the final diagnosis. MRI report was not taken after treatment due to financial inconvenience.

Strength

This case report paved an effective way of ayurvedic management for chronic rotator cuff injury. Vatavyadhi Chikitsa, incorporated with Bhagna Chikitsa, has a beneficial effect on chronic rotator cuff injuries.

CONCLUSION

The present case of chronic rotator cuff injury in the elderly was successfully rehabilitated and improved in the functional ability of the shoulder joint by the conservative Ayurvedic treatment protocol of Bhagna and Vatavyadhi. Ayurvedic management with active exercises can play a vital role in the effective management of rotator cuff injuries for functional restoration.

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