



Physiotherapy Rehabilitation in Arthroscopic Rotator Cuff Repair Patient- A Case Report

Anushri Patil ^{a≡}, Swapna Jawade ^{a*⊕} and Neha Chitale ^{a#}

^a Department of Musculoskeletal Physiotherapy, Ravi Nair College of Physiotherapy, Datta Meghe Institute of Medical Sciences, Sawangi, Wardha, India.

Authors' contributions

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

Article Information

DOI: 10.9734/JPRI/2021/v33i59A34342

Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/77004>

Case Study

Received 20 September 2021

Accepted 26 November 2021

Published 17 December 2021

ABSTRACT

Rotator cuff pathology is usual, and the ailment's natural history suggests that tears enlarge with age. Rotator cuff tears are a familiar origin of pain and ailment in the shoulder. The research on treatment of rotator cuff tears is mixed. The aim of this review is to evaluate the evidence regarding the effectiveness of physiotherapy in lowering pain and enhance shoulder function in patients with symptomatic rotator cuff tears. Rotator cuff injuries are typically followed by a gradual onset of pain, but they can also be the result of an acute injury. Chronicity, underlying anatomic and physical factors, age, and the presence and severity of tendon tears all influence how rotator cuff conditions are managed. Conservative care, such as physical therapy, is typically used as the first line of defence, but surgical repair may be required later on. Rotator cuff (RC) tears can range from partial to full thickness tears of a single tendon to massive cuff tears. Rotator cuff tearing can be caused by glenohumeral trauma as well as pathological process. As a result, Treatment necessitates a diligent diagnosis as well as a distinguished approach that considers morphological and patient-specific effects. The therapeutic approach is determined by the patient's pathogenicity, tear morphology, clinical symptoms, and functional demands. The current case is about an 51 year old male who was admitted to the hospital with tear injury to right shoulder due to fall from truck muscle strength and range of motion were main focus of physiotherapy intervention. The prime goal of this case study was to assess the patient's response to physiotherapy for reinforcement and functional task.

[≡] BPT Student;

[⊕] Associate Professor;

[#] Residen;

*Corresponding author: E-mail: drswapnasj@gmail.com;

Keywords: Rotator cuff tear; supraspinatus; asymptomatic tear; rehabilitation.

1. INTRODUCTION

The shoulder joint is a ball and socket joint, which means that it sacrifices stability for mobility. According to one description, the glenoid is a shallow rim similar to a golf like ball on a tee or a football on a dinner plate [1,2]. The therapeutic approach is determined by the patient's pathogenicity, tear morphology, clinical symptoms, and functional demands [3]. The rotator cuff is a group of 4 muscles that originate in the scapula and insert on the superior humeral head to provide firmness [4]. The subscapularis is an internal rotator that connects to the humerus's lesser tubercle. The supraspinatus muscles attach to the greater tubercle of the humerus and act as an abductor for the first 30 degrees of abduction. The infraspinatus is a slightly inferior external rotator to the supraspinatus that inserts onto the greater tubercle. The teres minor inserts inferior to the infraspinatus on the greater tuberosity and acts as an external rotator. Furthermore, they all serve as glenohumeral stabilizer. Rotator cuff injuries can range from mild strains to tendonitis, partial tears, and complete tears. Age has a massive effect. Injuries scale from 9.7 percent among those under the age of 20 to 62 percent among those over the age of 80. As people age and encounter unilateral pain, a tear in the rotator cuff of the opposing shoulder is also possible. In a study contrasting individuals with unilateral shoulder discomfort, the average age of a patient without a cuff rupture was 48.7 years. After the age of 66, the likelihood of bilateral rips increases by 50%. Furthermore, age was associated to the presence and type of tear, but not tear size [5].

Rotator cuff tears were found in 20.7 percent of the patients, and the incidence of occurrence increased with age. Rotator cuff tears were discovered in 36% of patients with present symptoms. Rotator cuff tears were most frequently linked with elderly patients, males, affected the commanding arm, and the one who are in heavy labour, had a history of trauma, showed less active forward elevation and weak muscle strength in abduction and external rotation, and were positive for impingement sign in the general population. In a logistic regression analysis, a past of trauma, dominant arm, and

age were discovered to be risk factors for rotator cuff tears [4]. The three most common rotator cuff repair techniques are traditional open repair, arthroscopic repair, and mini-open repair. Finally, all patients are prescribed physiotherapy management for relaxation, strength improvement, and overall fulfilment [6].

1.1 Patient Information

In this case, we have a male aged 51 year old factory manager resident of wardha, presented to Acharya VinobaBhave Rural hospital with incidence of fall from moving truck and complaint of pain and difficulty to do overhead abduction of right shoulder.

Patient was apparently alright till the fall. When while working he fell from truck around 7pm sustaining injury to right shoulder, it was followed by pain which was so severe that he was unable to move his shoulder, it was aggravated by movements and relief on immobilization. Patient was taken to a local hospital where he was given some medication but no relief. No history of vomiting. no history of seizures. No history of ENT bleed. Later he came to Acharya VinobaBhave rural hospital for further management and was advised physiotherapy.

1.2 Clinical Findings

The patient was examined at same level with both shoulder in supine lying position, upon inspection, the patient find it difficult to do all the movements of affected side while the there was normal range of motion found on unaffected side.

Overlying skin was found to be normal. No swelling seen, no scar, sinus and dilated veins. shoulder contour maintained.

No obvious bony deformity seen, no local rise of temperature, no bony tenderness elicited, speed test and drop arm test were found positive.

Active elbow and wrist movement were seen and radial artery was palpable.

Table 1. Range of motion [pre operative]

JT	Left side	Right side
FLEXION	0-110*	0-90*
EXTENSION	110-0*	90-0*
ABDUCTION	0-140*	0-100*
ADDUCTION	140-0*	100-0*

Table 2. Range of motion (post- operative)

Joint	Left side	Right side	Limitation
FLEXION	0-110*	0-30*	Unable to perform fully due to pain
EXTENSION	110-0*	30-0*	Unable to perform fully due to pain
ABDUCTION	0-140*	0-25*	Unable to perform fully due to pain
ADDUCTION	140-0*	25-0*	Unable to perform fully due to pain

Table 3. Manual muscle testing strength

Muscle	Right	Left
	Shoulder	
Flexion	NA	3*
Extension	NA	3*
Abduction	NA	3*
Adduction	NA	3*
	Elbow	
Flexion	3*	3*
Extension	3*	3*
	Wrist	
Flexion	3*	3*
Extension	3*	3*



Fig. 1. Pre-operative x-ray of affected shoulder Fig. 2. Post-operative x-ray of affected shoulder



Fig. 3. Post-operative stage

1.3 Timeline

1.3.1 Therapeutic management

Phase (week wise)	Therapeutic exercise
Phase I: Immediate postoperative phase (Week 1-2)	
Precaution	No active ROM of Shoulder joint. Avoid activities of daily living. No lifting of heavy objects. Avoid prone and side lying on the affected side
To reduce inflammation	Cryotherapy application for 8 to 10 minutes
To reduce pain and tenderness	Application of ice pack for 8 – 10 minute Thermotherapy, two times a day.
To maintain range of motion	Active elbow and wrist ROM exercises, 10 repetitions x 2 Isotonic exercises – hand pumps
Phase II: (week 2-6)	
To reduce inflammation and pain	Cryotherapy continued for 8 to 10 min
To improve ROM	Range of motion exercises for Shoulder flexion and extension initiated in this phase Isometric exercise for deltoid muscle (10 repetition with 5 sec hold)
To improve strength endurance and functional activities	Closed Chain exercises for shoulder (10 repetition 3 sets) Strengthening of uninvolved extremities. Proprioceptive training exercises for shoulder using swiss ball on wall support was given
Phase III: Intermediate phase (6-8 week)	
To improve ROM and muscle strength, endurance and functional activities	Active range of motion of shoulder flexion, extension, Abduction, adduction and internal, external rotation (10 repetition 3 sets) Wall push ups were initiated in this phase (10 reps 2 times)

2. DISCUSSION

In this case report, a case of 51 year old male with rotator cuff tear is been discussed and repair arthroscopically managed. The primary goal was to prevent secondary complication and range of motion and strength of shoulder muscles [7].

Following RC repair, postoperative rehabilitation starts with close interaction between the surgeon, his or her medical staff, the patient, and the physical therapy team. To establish rehabilitation guidelines, evaluation of surgical findings is needed. This communication continues throughout the rehabilitation procedure and is crucial to a successful outcome. Following the establishment of post-operative restrictions, a traditional or moderate rehabilitation protocol is preferred and customised based on surgical findings. The conservative protocol is recognised by a retard in initiating and/or limiting passive range of motion [8]. Restriction periods of 2–4 weeks are common. The focus is to decrease tension on the repaired tissues in order to promote early tissue healing. The moderate protocol commences passive range of motion on postoperative day 1 while continuing tolerable pain levels.

3. CONCLUSION

Rotator cuff injuries are common origin of shoulder pain. Early identification plays a major role in management. Management options include conservative management, Open repair or arthroscopic repair. Physiotherapy plays an important role in management of rotator cuff repair.

CONSENT

As per international standard or university standard, patient's consent has been collected and preserved by the authors.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Ryösä A, Laimi K, Äärimaa V, Lehtimäki K, Kukkonen J, Saltychev M. Surgery or conservative treatment for rotator cuff tear: a meta-analysis. *Disabil Rehabil.* 2017;39(14):1357–63.
2. VanBaak K, Aerni G. Shoulder Conditions: Rotator Cuff Injuries and Bursitis. *FP Essent.* 2020;491:11–6.
3. Böhm E, Gleich J, Siebenbürger G, Böcker W, Ockert B. [Rotator cuff tear : Indications and pathology-specific reconstructive procedures]. *Unfallchirurg.* 2021;124(2): 108–16.
4. May T, Garmel GM. Rotator Cuff Injury. In: *StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021. [Cited 2021 Oct 18]. Available: <http://www.ncbi.nlm.nih.gov/books/NBK547664/>*
5. Prevalence and risk factors of a rotator cuff tear in the general population - PubMed [Internet]. [Cited 2021 Oct 18]. Available: <https://pubmed.ncbi.nlm.nih.gov/19540777/>
6. Rotator Cuff Tears: Surgical Treatment Options - OrthoInfo - AAOS [Internet]. [Cited 2021 Oct 19]. Available: <https://orthoinfo.aaos.org/en/treatment/rotator-cuff-tears-surgical-treatment-options/>
7. May T, Garmel GM. Rotator Cuff Injury. In: *StatPearls [Internet]. Treasure Island (FL): Stat Pearls Publishing; 2021. [Cited 2021 Oct 18]. Available: <http://www.ncbi.nlm.nih.gov/books/NBK547664/>*
8. Minagawa H, Yamamoto N, Abe H, Fukuda M, Seki N, Kikuchi K, et al. Prevalence of symptomatic and asymptomatic rotator cuff tears in the general population: From mass-screening in one village. *J Orthop.* 2013;10(1):8–12.

© 2021 Patil et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:

The peer review history for this paper can be accessed here:
<https://www.sdiarticle5.com/review-history/77004>