

# Physiotherapy after Arthroscopic Repair of Supraspinatus Tendinitis

Dr.S.S.Subramanian

M.P.T (Orthopaedics), M.S (Education), M. Phil (Education), Ph.D (Physiotherapy). The Principal, Sree Balaji College Of physiotherapy, Chennai – 100. Affiliated To (Bharath) University, BIHER Chennai – 73.

DOI: 10.29322/IJSRP.8.3.2018.p7511

<http://dx.doi.org/10.29322/IJSRP.8.3.2018.p7511>

**Abstract-** Shoulder joint influences on daily activities along with degenerative changes of structures around it, Painful arm following Supraspinatus tendinitis restricts self care and increases dependency. **Aims & Objectives** of this research was to evaluate the efficacy of exercises therapy post arthroscopic repair of Supraspinatus **Materials & Methodology:** 63 year old female was treated in Chennai with exercise therapy following arthroscopic repair of supraspinatus (Left) from 20.07.2017 to 01.10.2017 with thrice a week frequency **Results:** Pre and post shoulder functional index were recorded and analyzed statistically  $P<.001$  **Conclusion:** Exercises play a vital role in post arthroscopic repair of shoulder muscles and follow up is more important

**Keywords:** Arthroscopy, Tendinopathy, Proprioceptive Techniques, Kinematic Exercises, Shoulder Impingement Syndrome

## I. INTRODUCTION

Shoulder dysfunction is the second most common musculoskeletal problem seen in physiotherapy (Vanderwint et al 2007) and affects 16 to 21% of the population (Kujipers et al 2006) and its prevalence in persons of 65 years and older is 34% (Lin et al 2011). The direct cost for the treatment of shoulder dysfunction in the United States exceeds \$7 billion annually (Meislin et al 2005).

- Patients with clinical signs of subacromial impingement and rotator cuff tendinopathy are common (Oster et al 2005) where shoulder pain and functional restrictions, mostly during overhead activities were recorded (Lewis et al 2001)
- Physiotherapists often rely solely on clinical signs and symptoms to establish a diagnosis and to determine the focus of treatment (Linsell et al 2000)
- Diagnosis of shoulder pain is too broad to provide sufficient information to develop specific protocols in daily practice (Green et al 2003)
- Surgical intervention by arthroscopic, aims to release the contracted tissue to improve movement and relieve pain (Omari & Bunker 2001)
- People with pain in the neck and shoulder region are often disabled to the point where they cannot live a normal life, as the pain may also influence the persons work capacity, financial and social situation (Ingwersen et al 2015) and shoulder pain is the 3<sup>rd</sup> most common musculoskeletal

disorder and the lifetime prevalence is estimated between 7 and 10% (Luime et al 2004)

- Subacromial impingement syndrome which accounts for 33% of shoulder related healthcare (Feleus et al 2007) includes a cluster of symptoms rather than a single pathology, with complaints of arm, neck and shoulder as disorders that include the rotator cuff syndrome, tendonitis of the muscle infraspinatus, supraspinatus subscapularis and bursitis in the shoulder area (Huisetede et al 2007)
- Patients with subscapularis tendinitis present with shoulder pain with moment and pain during night, limiting their activities of daily living (Mckendry et al 1982)
- Supraspinatus muscle is of the greatest practical importance in the rotator cuff as it stabilizes the shoulder, externally rotates and helps to abduct the arm by initiating the abduction of the humerus (Ellis & Mahadevan 2010)
- ST (Supraspinatus Tendinitis) is a common cause of pain in the shoulder (Fu et al 1991) and a disability condition with more prevalence after middle age (Chard et al 1988) as they become degenerated most often as a result of repetitive stress (Sommerich et al 1993) and its treatment involves physical therapy, NSAID, ice treatment (Allen et al 1998)corticoid injections (Lousis Hasan et al 2014) and surgical intervention if there is no improvement after 3-6 months of conservative treatment (AOS 2014), where calcium deposit resection with subacromial decompression performed under arthroscopic method (Starr et al 2001) with an aim for pain relief and increased range of motion (Aclement et al 2012)

**Aims & Objectives** of this original case presentation was to evaluate physiotherapy post arthroscopic repair of supraspinatus tendinitis

## II. MATERIALS & METHODOLOGY

**Background information:**

**H/O**

Pain of sudden onset with inability to lift left hand overhead was diagnosed with calcified tendinitis of left shoulder and treated with arthroscopic repair of left Supraspinatus on 16.06.2017

**C/O**

Pain and difficulty in lifting left hand above head

Normotensive, non diabetic, vegetarian is attending the center since 20.06.2017 for further rehabilitation

**O/E**

- Capsular tightness
- Anteverted scapula (Left)
- Mild wasting of deltoid, triceps
- Movements of left elbow, wrist and hand full
- Cervical spine has presented with obliterated cervical lordosis and movements less stronger and resisted from mid range
- Active ROM of left shoulder was with restricted medial and lateral rotation

Abduction 0<sup>0</sup>-15<sup>0</sup> Flexion 0<sup>0</sup>-30<sup>0</sup>, Lateral Rotation - 0<sup>0</sup>-5<sup>0</sup>

**Provisional Diagnosis:**

Post operative left shoulder stiffness, weakness of shoulder and scapular muscles

**Treatment Adopted Includes**

- Cervical, scapular and shoulder strengthening exercises
- Mobilization of left shoulder
- Open and closed kinematic exercises to left shoulder
- Irradiation hold relax technique using PNF
- Home programme with rubber bands, hand hold exercise ball

**III. RESULTS**

**Her present conditions as on 01.10.2017**

- Pain: has come down on active movements and for daily activities from VAS scale of 8 to 2
- ROM: With mild end range restrictions shoulder movements were full and pain free
- ADL: She has started using the left arm for daily activities such as cooking, dressing, toileting, bathing and other self care means.
- Motor Power of left deltoid, triceps, scapular muscles have adequately improved compared with uninjured side.

The subject’s pain threshold was good, with every session progression was explained, she was continuing home exercises along with therapy by the author, pre and post shoulder function index were recorded and analyzed

Table of Results of pre and post S.F index post arthroscopic repair of supraspinatus tendinitis with exercises using student ‘t’ test

Test	Score	SD	SE	[1] t	[2] P
Shoulder Function Index	Pre	57	25	[3] 3.08	[4] <.001
	Post	12		[5]	[6] more

**IV. DISCUSSION**

The key points for presenting this subject with rehabilitation of post operative supraspinatus repair were as below:

- a. Combine various exercise techniques such as open and closed kinematic exercises
- b. Use of physioball to strengthen muscles
- c. Adoption of Proprioceptive techniques to mobilize joints and to improve motor power
- d. Combined strengthening of cervical, shoulder scapular and elbow muscles to promote functional activities
- e. Encourage daily routines from cooking cutting vegetables, dressing, toileting etc as and when with recovery stage

1. Patient should be treated conservatively prior to undergoing surgery as exercise therapy seemed to cause less costs than surgery (Brox etal 1993) and moderate evidence suggests equal effectiveness of physiotherapist led exercise and surgery (Haahr etal 2005)
2. Bang and Deyle etal 2000 have with moderate evidence that manual therapy, home exercises regular rechecking, including adjacent joints in the treatment with significant improvement in pain and functional activities
3. Dickens etal 2005 in a six months study among 85 subjects with shoulder impingement syndrome with (n=45) subjects were treated by physiotherapy including passive manual joint mobilization, home based strengthening exercises for rotator cuff, strapping, advice on posture, while 11 of these 45 subjects refused to under go surgery, where as control group (n=40) subjects who under went surgery with post surgery follow up of six months, subjects treated with physiotherapy had more functional improvements than those treated with surgery
4. Brox etal 1993 among 1252 subjects with SIS were assigned in 3 groups, Group I were treated with subacromian decompression with arthroscopy followed by physiotherapy, 2<sup>nd</sup> ground had placebo with LASER (Control Group) therapy and the 3<sup>rd</sup> group were treated with physiotherapy, shoulder functioning at 6 months were same among group I and III
5. Haahr etal 2005, using arthroscopic surgical subacromial decompression among 84 patients versus treated conservatively in a 8 year follow up have recorded similar results on shoulder pain and disability score. Thus moderate to strong evidence that surgery is not effective than physiotherapist led exercises in the shoulder in a 6 months – 8 year follow up as supported by systematic review (MMuscPhty etal 2009)
6. Cheng etal 2011 have reported with level 4 evidence in a 2 year follow up among 309

patients post arthroscopic rotator cuff repair with health related quality of life using SF 36

7. In twenty sessions (10 weeks) of exercises combined with hydro collar application 90% of strength and movements of left shoulder was achieved
8. Pain tolerance and subjects exercise capacity also played a role for this early recovery

## V. CONCLUSION

Shoulder joint plays a vital role with daily functional activities, especially geriatric subject following injury, restoration of their abilities to be independent for their daily living, where physiotherapy using various techniques ensures early recovery as evidenced with scientific means in this study findings subject post arthroscopic repair, can be extended on larger sample size with follow up of longer duration.

## REFERENCES

- [1] van der Windt DAM, Kuijpers T, Jellema P, van der Heijden GJMG, Bouter LM. Do psychological factors predict outcome in both low-back pain and shoulder pain? *Annals of the Rheumatic Diseases*. 2007;66:313–319.
- [2] Kuipers. Proton pump inhibitors and gastric neoplasia. [www.gutjnl.com](http://www.gutjnl.com). Accepted for publication 9 May 2006
- [3] Lin FR, Ferrucci L. Hearing loss and falls among older adults in the United States. *Arch Intern Med*. 2011
- [4] Meislin RJ, Sperling JW, Stitik TP. Persistent shoulder pain: epidemiology, pathophysiology, and diagnosis. *Am J Orthop*. 2005;34(12 suppl):5–9.
- [5] Ostor AJ, Richards CA, Prevost AT, Speed CA, et al. Diagnosis and relation to general health of shoulder disorders presenting to primary care. *Rheumatology (Oxford)*. 2005;44:800 – 805
- [6] Lewis JS, Green AS, Dekel S. The aetiology of subacromial impingement syndrome. *Physiotherapy*. 2001;87:458–469.
- [7] Linsell L, Dawson J, Zondervan K, Rose P, Randall T, Fitzpatrick R, Carr A. Prevalence and incidence of adults consulting for shoulder conditions in UK primary care; patterns of diagnosis and referral. *Rheumatology*. 2006;45:215–221.
- [8] Green SE, Buchbinder R, Hetrick S. Physiotherapy interventions for shoulder pain. *The Cochrane Database of Systematic Reviews*, Issue 2 Art No: CD004258 2003a.
- [9] Omari A, Bunker TD. Open surgical release for frozen shoulder: surgical findings and results of the release. *J Shoulder Elbow Surg*. 2001;10(4):353–357.
- [10] Ingwersen, Robin Christensen, Lilli Sørensen, Hans RI Jørgensen, Steen Lund Jensen, Sten Rasmussen, Karen Søgaard and Birgit Juul-Kristensen. Progressive high-load strength training compared with general low-load exercises in patients with rotator cuff tendinopathy: study protocol for a randomised controlled trial *Ingwersen et al. Trials (2015) 16:27. Biomed central*, PP: 1-11.
- [11] Luime JJ, Hendriksen IJM, Burdorf A, Verhagen AP, Miedema HS, Verhaar JAN. Prevalence and incidence of shoulder pain in the general population; a systematic review. *Scandinavian Journal of Rheumatology*. 2004;33:73–81.
- [12] Feleus A, van Dalen T, Bierma-Zeinstra SMA, Bernsen RMD, Verhaar JAN, Koes BW, Miedema HS. Kinesiophobia in patients with non-traumatic arm, neck and shoulder complaints: a prospective cohort study in general practice. *BMC Musculoskeletal Disorders*. 2007;8:117.
- [13] Huisstede BM, Miedema HS, Verhagen AP, Koes BW, Verhaar JA. Multidisciplinary consensus on the terminology and classification of

complaints of the arm, neck and/or shoulder. *Occup Environ Med*. 2007 May;64(5):313-9. Epub 2006 Oct 16.

- [14] McKendry RJR, Uthoff HK, et al. : Calcifying tendinitis of the shoulder: prognostic value of clinical, histologic, and radiologic features in 57 surgically treated cases. *J Rheumatol* 80: 75-80, 1982.
- [15] Ellis, H., Mahadevan V. (2010). *Clinical anatomy – Applied anatomy for students and junior doctors* (twelfth edition). Oxford: Wiley-Blackwell.
- [16] Fu F.H., Harner C.D., Klein A.H. (1991). Shoulder impingement syndrome: a critical review. *Clin. Orthop.*;269:162-73.
- [17] Chard M.D., Sattelle L.M., Hazlerman B.L. (1988). The long-term outcome of rotator cuff tendinitis – a review study. *Br. J. Rheumatol* 1988, 27:385-389.
- [18] Sommerich C.M., McGlothlin J.D., Marras W.S. (1993). Occupational risk factors associated with soft tissue disorders of the shoulder: a review of recent investigations in the literature. *Ergonomics* 36:697-717.
- [19] Allen E. Fongemie, M.D., Daniel D. Buss, M.D., and Sharon J. Rolnick, Ph. D., (1998) Management of shoulder impingement syndrome and rotator cuff tears., Minneapolis, Minnesota., *Am Fam Physician*. 15:57(4):667-674
- [20] Louise Hasan, Aleisha Hill, Claire Maconochie. Supraspinatus tendinopathy. Site: <http://supraspinatustendinopathy.synthesite.com/references.php> (consulted on April 14, 2014).
- [21] AOS. Rotator cuff and shoulder conditioning program. [http://orthoinfo.aaos.org/PDFs/Rehab\\_Shoulder\\_5.pdf](http://orthoinfo.aaos.org/PDFs/Rehab_Shoulder_5.pdf) (consulted on April 14, 2014).
- [22] Starr M, Kang H. Recognition and management of common forms tendinitis and bursitis. *The Canadian Journal of CME*. 2001; 155-163
- [23] Clement, Yuan X Nie and Julie M McBirnie. Management of degenerative rotator cuff tears: a review and treatment strategy. *Clement et al. Sports Medicine, Arthroscopy, Rehabilitation, Therapy & Technology* 2012, 4:48, PP:1-5.
- [24] Brox JI, Brevik JI, Ljunggren AE, Staff PH. Arthroscopic surgery compared with supervised exercises in patients with rotator cuff disease (stage II impingement syndrome). *BMJ* 1993; 307: 899–903.
- [25] Haahr JP, Ostergaard S, Dalsgaard J, Norup K, Frost P, Lausen S, et al. Exercise versus arthroscopic decompression in patients with subacromial impingement: a randomised, controlled study in 90 cases with a one year follow up. *Ann Rheum Dis* 2005; 64: 760–764.
- [26] Bang MD, Deyle GD. Comparison of supervised exercise with and without manual physical therapy for patients with shoulder impingement syndrome. *J Orthop Sports Phys Ther* 2000; 30: 126–137.
- [27] Dickens VA, Williams JL, Bahmra MS. Role of physiotherapy in the treatment of subacromial impingement syndrome: a prospective study. *Physiotherapy* 2005; 91: 159–164.
- [28] MMuscPhty, Ulrike G. Tautenhahn, MPhty(Manip), Rob A. de Bie, J. Bart Staal, and Caroline H. G. Bastiaenen. Effects of Physiotherapy In Patients With Shoulder Impingement Syndrome: A Systematic Review Of The Literature. *J Rehabil Med* 2009; 41: 870–880
- [29] Cheng G, Saleh MN, Marcher C, Vasey S, Mayer B, Aivado M, Arning M, Stone NL, Bussel JB. Eltrombopag for management of chronic immune thrombocytopenia (RAISE): a 6-month, randomised, phase 3 study. *Lancet*. 2011 Jan 29;377(9763):393-402. doi: 10.1016/S0140-6736(10)60959-2. Epub 2010 Aug 23.

## AUTHORS

**First Author** – Dr.S.S.Subramanian, M.P.T (Orthopaedics), M.S (Education), M. Phil (Education), Ph.D (Physiotherapy). Principal, Sree Balaji College Of physiotherapy, Chennai – 100. Affiliated To (Bharath) University, BIHER Chennai – 73. Email Id: subramanian.sbc@bharathuniv.ac.in, ubramanian.podhigai1968@gmail.com, Phone: 99400 47137

