International Journal of Health Sciences and Research
Vol.13; Issue: 1; January 2023
Website: www.ijhsr.org
Case Report *ISSN: 2249-9571*

De Quervain's Tenosynovitis in Postpartum Woman: A Case Report

Alpi Garg[1], Shivpriya Sharma[2]

[1]BPT Intern, Physiotherapy, School of Allied Health Sciences, Sharda University, Greater Noida
[2]Assistant Professor, Physiotherapy, School of Allied Health Sciences, Sharda University, Greater Noida

Corresponding Author: Shivpriya Sharma

DOI: https://doi.org/10.52403/ijhsr.20230113

ABSTRACT

Objective And Clinical Feature: A 34 year old female presented with the chief complaint of left side wrist and thumb pain at the base of styloid of radius while lifting baby and twisting movements. Patient reported that her pain started 4 month ago that increases gradually during post partum months. Her NPRS scoring was 7/10 when she reported to physiotherapy OPD which affected her activities of daily living.
Intervention And Outcome: The combination of conservative treatment including Movement with Mobilization, Ultrasound and patient education. Outcome measures including NPRS and DASH. Patient symptoms resolved in 3 weeks and follow up reported no recurrence of wrist pain.
Result: The patient has shown marked improvement in pain. Range of motion and DASH score from 42 to 7 which signifies good condition of patient after intervention.

Keywords: Movement with Mobilization, DeQuervain's Tenosynovitis, Post Partum, Ultrasound.

INTRODUCTION

De Quervain's condition is a stenosing tenosynovitis of the first extensor compartment which includes the inflammation of the extensor pollicis brevis [EPB] and abductor pollicis longus [APL] tendons. Fritz de Quervain's first described this condition in 1895 as a pain in the wrist. Females are six to ten times more likely to be affected by this disease than males. [1] The abductor pollicis longus and extensor pollicis brevis tendons are located in the first of the five dorsal wrist compartments, which is separated from the others by a synovial sheath. These tendons are susceptible to entrapment because they pass through a 2 cm long fibrous tunnel that goes over the radial styloid and under the transverse fibers of the extensor retinaculum. [2] The APL and EPB tendon are repeatedly and continuously strained as they pass underneath an extensor retinaculum that is enlarged and inflamed, which is the etiology of this condition. [3] Texting tenosynovitis, BlackBerry thumb, washerwoman's sprain, gamers' thumb, mommy's thumb, WhatsAppitis, and radial styloid tenosynovitis are the various other names of de Quervain's tenosynovitis which involve repeated thumb pinching and wrist movements. Anatomical variation, stressful work, trauma, drug such as fluoroquinolone were considered as the factor responsible for de Quervain's tenosynovitis which is often associated with pregnancy (extending to several months postpartum). It is also overuse injury associated with fly fishing, golfing, piano playing and carrying a child in the arm for prolonged periods [4]. There are anti-inflammatory drugs, corticosteroid injections as an approach to conservatively manage the de Quervain's condition. Thumb splint, therapeutic ultrasonography, ice and heat packs, therapeutic massage and

movement with mobilization are the physical therapy approaches for De Quervain's tenosynovitis.

MOVEMENT WITH MOBILIZATION

Brian Mulligan in 1984 described the mobilization with movement as a manual therapy technique for treating joint pain, stiffness, and dysfunction.[5] Using either the patient's active participation or the therapist's passive participation, this treatment involves the continuous application of a manual maneuver that applies "gliding" force to a joint with contemporaneous movement of the joint that occurs naturally (osteo-kinematically). [6]. during application, discomfort should always be minimized or eliminated, and pain-free function should be reinstated. [7].

THERAPEUTIC ULTRASOUND

In 1917, Langevin noticed the first biological impacts of US in fish. [8]. after applying US at 300 kHz to rats, Wood and Loomis observed that the animal's erythrocytes had lysed and their motility had diminished. [9] The use of Therapeutic ultrasound to treat painful muscular spasms in violinists was first demonstrated in 1947, and this led to a large number of applications in medicine and research as well as study into the mechanisms of accomplishment.[10]

CASE REPORT

A 34 year old right hand dominant gravida1 Para 1 female, 5 months postpartum and actively breast feeding present with the chief complaint of pain on grasping and lifting the objects with left hand since 4 months. She has no history of previous symptoms, hand trauma or surgeries. Initially she visited to orthopaedician for her pain and she was recommended NSAIDs for 2 months but after discontinuing the medicine her pain gradually got escalated then she visited orthopaedician again where she was recommended for the physiotherapy.

PHYSICAL EXAMINATION

- **PAIN DESCRIPTION:** She complains of stiffness and excruciating agony across the radial side of her left wrist; with an NPRS of 7on 10. The pursuits that exasperated her discomfort include abduction, adduction and opposition of thumb. The relieving factors are medications. No proximal upper extremity or cervical discomfort was reported by the patient.
- **INSPECTION:** swelling was present over the left wrist and the first dorsal tunnel on the left was evident with grade 2 tenderness at the snuff box and at the base of 1st metacarpal.
- **SPECIAL TEST:** The American surgeon Harry Finkelstein (1865–1939), who described the Finkelstein test in 1930 to determine whether DQT is present in patients with wrist pain. By holding the patient's thumb, the procedure is carried out by turning the hand in an ulnar direction. Sharp discomfort along the distal radius is thought to increase the likelihood of DQT.

  Finkelstein test was positive on left wrist.

  Eichhoff's test was positive as she experienced pain over the tendon of the abductor pollicis longus and extensor pollicis brevis.

TREATMENT

RANGE OF MOTION:

JOINT MOTION	PRE-INTERVENTION RIGHT	PRE-INTERVENTION LEFT	POST INTERVENTION LEFT
Wrist flexion	0-80	0-43	0-72
Wrist extension	0-70	0-40	0-65
Wrist radial deviation	0-20	0-8	0-18
Wrist ulnar deviation	0-30	0-20	0-26
1st carpometacarpal palmar abduction	0-70	30-45	0-65
1st carpometacarpal palmar adduction	70-0	70-40	70-0

PARAMETERS	NPRS SCORE			
	AT BASELINE	1ST WEEK	2ND WEEK	3RD WEEK
PAIN	7	6	4	2

PARAMETER	SCORE	INTERPRETATION
PRE INTERVENTION	42	POOR
POST INTERVENTION	7	GOOD

SCORE DISABILITY LEVEL: 0-5 EXCELLENT; 6-15 GOOD; 15-35 satisfactory ;> 35 poor

Goals of Treatment

1) SHORT TERM
- To Reduce pain
- To Reduce swelling
- To Increase range of motion

2) LONG TERM
- To maintain range of motion
- Bring back to activities of daily living

MANAGEMENT OF FIRST WEEK

1) **First session -** Therapist has given the manipulation of capitate.
- ❖ Radial gliding of the carpals together with vigorous thumb movement and increasing wrist weight bearing [3 SET OF TEN REPETITION] Fig 1.
- ❖ FIRST CARPOMETACARPAL[CMC] JOINT MWM: 3 repetition; 1 set [Fig 2]
- ❖ Preservation of the elastic support that the patient brought with her to the session.
- ❖ After this US is applied for 8 minutes.{frequency 3MHZ,intensity-1.8 W/cm^2}[Fig 3]

2) **Second session -** Therapist has given concentric an eccentric tendon glide exercise for extensor pollicis brevis and abductor pollicis longus.[2 SET OF 10 REPITITION]
- ❖ FIRST CMC JOINT MWM : 10 repetition; 3 set
- ❖ Continuation of elastic support
- ❖ After this US is applied for 8 minutes.
- ❖ After first week NPRS was 6/10

MANAGEMENT OF SECOND WEEK

3) **Third session -** Movement with mobilization
- ❖ Eccentric and concentric tendon gliding was performed by therapist for the EPB and APL {3 SET OF 10 REPS}
- ❖ Medial glide of the carpals were given [3 sets of 10 repetition] fig 4
- ❖ FIRST CMC JOINT MWM: 10 repetition, 3 set
- ❖ After this US is applied for 6 minutes.[Frequency 3MHZ;intensity 1.4W/cm^2]

4) **Fourth Session -** Therapist asked the patient to perform the active assisted exercise for the abductor pollicis longus and rest continued the same treatment.
- ❖ After this US is applied for 6 minutes.
- ❖ After second week patient NPRS was 4/10

MANAGEMENT OF THIRD WEEK

5) **Fifth Session-** Movement with Mobilization
- ❖ Added trapezoidal ulnar glide and active radial abduction {2 set of 10 repetition}
- ❖ Additionally, transverse friction massage education was given.
- ❖ US is applied for 6 minutes.[Frequency 3MHZ; intensity 1.2W/cm^2]

6) Sixth Session-
- ❖ Continuation of exercise program along with US for 4 minutes.
- ❖ After this NPRS was 2/10

Figure 1: Radial glide of the carpals

Figure 2: First CMC joint MWM

Figure 3 : US Application

Figure 4 : Medial gide of carpals

DISCUSSION

Trauma to hand and thumb predisposes serious challenges since most patient use it frequently in their daily life. There are various approachable interventions that manage the condition conservatively such as mulligan technique, ultrasound, spica taping, stretching exercises etc.

In one of the research conducted by Kochar and Dogra in 2002 A quasi-randomized clinical trials, reported that Movement with mobilization combined with Ultrasound therapy is beneficial for lateral epicondylalgia than ultrasound therapy alone. [11]

A similar case study reported by Backstorm for hand and thumb pain also revealed that MWM, with prolonged radial glide of the proximal row of carpal bones lead to painless complete thumb and wrist mobility. There was a 25% improvement in PVAS after the treatment session, which included three sets of ten repetitions and author accredited much of the success in the outcome of MWM. [12]

In the present case study, the treating therapist applied movement with mobilization along with U.S, as it is beneficial to treat soft tissue injuries. It was also evidenced by one of the journal that The use of Mulligan's mobilization-with-movement (MWM) treatment methods is gaining popularity for treating musculoskeletal conditions, many of which are known to be challenging to treat and for which manual therapy is not typically used (for example, complicated De Quervain's, lateral epicondylalgia.[13] so therapist applied the same technique and follow up was done after every week After every session therapist applied ultrasound therapy over the inflamed tendon as it was supported by one of the finding which demonstrated that US enhanced muscle

regeneration and cell proliferation following skeletal muscle and ligament injuries (ultimate load, stiffness, and energy absorption). And it also encouraged tendon-bone junction healing by enhancing tissue performance.[14] Therapist had given carpometacarpal glide which was supported by Karen Maloney Backstrom study in the year 2002 that is Mobilization with movement as an adjunct intervention in a patient with complicated de Quervain's tenosynovitis which demonstrated that an efficient and successful physical therapy method was involving Movement With Mobilization with active mobility of the wrist and 1st carpometacarpal joint.

A promising improvement was noted in the range of motion and pain on Numeric pain rating scale {TABLE 1 AND 2}. Measurement was done using goniometer for pre and post intervention of the left wrist. There was a marked improvement in quality of life, tenderness and swelling.

CONCLUSION

In this case study movement with mobilization and ultrasound enhances the quality of life of patient. After 6 sessions, 2 days in a week for 3 week, patient showed remarkable improvement in pain, range of motion and tenderness.

Declaration by Authors

Ethical Approval: Not Applicable

Acknowledgement: I would like to express my special thanks of gratitude to my guide for her able guidance and support in completing my case report.

Source of Funding: None

Conflict of Interest: The authors declare no conflict of interest.

REFERENCES

1. Reada B, Alshaebi N, Almaghrabi K, Alshuaibi A, Abulnaja A, Alzahrani K. Prevalence and Awareness Evaluation of De Quervain's Tenosynovitis among Students in the Kingdom of Saudi Arabia.
2. Satteson E, Tannan SC. De Quervain Tenosynovitis. 2022 Sep 19. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan–. PMID: 28723034.
3. Goel R, Abzug JM. de Quervain's tenosynovitis: a review of the rehabilitative options. Hand. 2015 Mar; 10(1):1-5.
4. Nainwal, Deepak & Arunmozhi, R. (2020). A Literature Review On De-Quervains Tenosynovitis. International Journal of Advanced Research. 8. 824-835. 10.21474/IJAR01/11345.
5. Ughreja RA, Shukla YU. Mulligans Mobilisation With Movement (MWM) Relieves Pain And Improves Functional Status In Osteoarthritis Knee. Int J Physio [Internet].2017Apr.8[cited2022Nov.22]; 4(2):1328.Availablefrom:https://www.ijphy.org/index.php/journal/article/view/291
6. Yang JL, Chang CW, Chen SY, Wang SF, Lin JJ. Mobilization techniques in subjects with frozen shoulder syndrome: randomized multiple-treatment trial. Phys Ther. 2007 Oct; 87(10):1307-15. doi: 10.2522/ptj.20060295. Epub 2007 Aug 7. PMID: 17684085.
7. Rao RV, Balthillaya G, Prabhu A, Kamath A. Immediate effects of Maitland mobilization versus Mulligan Mobilization with Movement in Osteoarthritis knee- A Randomized Crossover trial. J Bodyw Mov Ther. 2018 Jul; 22(3):572-579. doi: 10.1016/j.jbmt.2017.09.017. Epub 2017 Sep 28. PMID: 30100279.
8. Lewiner J. Paul Langevin and the birth of ultrasonics. Jpn J Appl Phys. 1991; 30:30-35
9. Wood RW, Loomis AL. The physical and biological effects of high-frequency sound-waves of great intensity. Philos Mag. 2009; 22:417-436.
10. Bakas E. Therapeutic ultrasound. In: Physical Medicine and Rehabilitation: Thermotheapy-Cryotherapy. Siokis Medical Publications; 1998.
11. Kochar, Moneet & Dogra, Ankit. (2002). Effectiveness of a Specific Physiotherapy Regimen on Patients with Tennis Elbow. Physiotherapy. 88. 333-341. 10.1016/S0031-9406(05)60746-8.
12. Backstrom KM. Mobilization with movement as an adjunct intervention in a patient with complicated de Quervain's tenosynovitis: a case report. J Orthop Sports Phys Ther. 2002 Mar; 32(3):86-94; discussion 94-7. doi:

10.2519/jospt.2002.32.3.86. PMID: 12168742.
13. Vicenzino B, Paungmali A, Teys P. Mulligan's mobilization-with-movement, positional faults and pain relief: current concepts from a critical review of literature. Man Ther. 2007 May; 12(2):98-108. doi: 10.1016/j.math.2006.07.012. Epub 2006 Sep 7. PMID: 16959529.
14. Papadopoulos ES, Mani R. The Role of Ultrasound Therapy in the Management of Musculoskeletal Soft Tissue Pain. Int J Low Extrem Wounds. 2020 Dec; 19(4):350-358. doi: 10.1177/1534734620948343. Epub 2020 Aug 28. PMID: 32856521.

How to cite this article: Alpi Garg, Shivpriya Sharma. De Quervain's tenosynovitis in postpartum woman: a case report. *Int J Health Sci Res.* 2023; 13(1):97-102. DOI: *https://doi.org/10.52403/ijhsr.20230113*

******