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Original Article

Efficacy of therapeutic ultrasound in De-Quervain's Tenosynovitis

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ABSTRACT

Overuse or repetitive motion can develop De-syndrome, Quervain's which produces pain along the thumb side of the wrist. The thumb tendons get irritated or inflamed as a result of these motions. Activities that involve regular side-to-side extension of the thumb or wrist might trigger De Quervain's tenosynovitis. **Objective:** To assess the efficacy of therapeutic ultrasound in De-Quervain's Tenosynovitis. **Methods:** In this study, forty people were separated into two groups: interventional and control groups, each with 20 people. **Results:** The interventional group's mean age was 37.70 with a standard deviation of 7.921, while the control group's mean age was 36.60 with a standard deviation of 7.816. Out of 20 individuals in the intervention group, 10 were male and 10 were female, whereas in the control group, 11 were male and 9 were female. The interventional group's mean height and weight were 1.642m0.1740 and 75.9515.830, respectively, while the control group's mean height and weight were 1.675m01517 and 75.5013.296. Out of the 20 patients in the interventional group, one was underweight, seven were normal weight, four were overweight, and eight were obese. Eight patients in the control group were of normal weight, seven were overweight, and five were obese. **Conclusions:** It was determined that ultrasonic therapy is useful in treating De-tenosynovitis quervain's when the tendon is inflamed.

INTRODUCTION

Painful tenosynovitis of the main dorsal part of the hand is described as De Quervain's illness [1]. Overuse or an increase in repeated activity are the most common causes, resulting in shear microdamage from repeated slipping of the major dorsal section tendons (abductor policies longus or APL, and extensor pollicis brevis or EPB) [2,3]. Thumb movement and wrist radial and ulnar deviation aggravate the pain [4]. De Quervain tenosynovitis is projected to distress 0.5 out of each hundreds of males and 1.3 out of a hundred of women, with the highest occurrence among people in their 40's and 50's. Two-sided participation is common in fresh moms or teenager care workers, with spontaneous remission occurring once the kid is lifted less frequently [5,6]. Workers and athletes who conduct repetitive activities that require sideways wrist movement while holding the thumb are at a higher risk (eg. hammering, some assembly line jobs, skiing, golf). Changes in [7,8] or fluid retention In certain circumstances, the illness appears out of nowhere [9]. De Quervain's disease is detected clinically built on the patient's past and bodily analysis, while investigative imaging such as an x-ray may be utilised to decree out fractures, inflammation, or additional roots depending on the patient's history and symptoms [10]. The Finkelstein's test, also known as the

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modified Eichoff manoeuvre, is a bodily assessment method used to identify de Quervain syndrome [11]. Once the individual's thumb is detained inside their hand, the tester grips and ulnar diverges the hand to perform the test. De Quervain's syndrome is likely if intense pain develops at the distal radius (top of the forearm, about an inch below the wrist). While a positive Finkelstein's test is commonly used to diagnose de Quervain disease, the manoeuvre can also elicit pain in people who have osteoarthritis in their thumb base. De Quervain's disease has yet to be identified [12]. The evidence for a possible link to occupational risk factors is debatable. There was no evidence of a causal association between occupational characteristics and a systematic examination of putative risk factors described in the literature. Personal and work-related factors were linked to de Quervain's illness in the working population, according to French researchers; wrist bending and motions associated with the twisting or driving of screws were the most significant work-related causes [13]. Corticosteroid injections have been explored in multiple case series and clinical studies, sometimes in combination with other modalities such as NSAIDs and splints, with positive results ranging from 62 percent to 93 percent [14]. In the management of de Quervain's illness, ultrasound enhances treatment outcomes and can be utilized as a diagnostic technique [15]. The success rate of ultrasound-guided injections was higher than previously reported in the literature, and there were no side effects. Manual injections of the M. Extensor Pollicis Brevis with septation are less successful than ultrasound-guided injections [17]. The wrist is splinted in a neutral posture until the skin sutures are removed 15 days after surgery. This will reduce the chances of anterior tendon subluxation [18]. The prognosis for long-term recovery is very good [16]. Nonsurgical treatment of de Quervain tenosynovitis depends mostly on the intake of oral NSAIDs, splint therapy, and NSAIDs injections [19]. De Quervain's tenosynovitis is an overuse disorder in which the hardness of the extensor retinaculum, covers the first dorsal compartment [20]. The objective of de-disease quervain's treatment stands towards alleviating discomfort and oedema while restoring normal function. Medical and surgical treatment options are available for de-disease quervain's management. Ultrasound or another electrical modality will speed up the treatment of de-disease quervain's when combined with thumb restriction with a strap and anti-inflammatory medicines. The purpose of this study was to see if ultrasonic therapy could help with the symptoms of de-tenosynovitis. quervain's

METHODS

This was a controlled study that has been optimised. In the physiotherapy department of Al-Shafi Medical Rehabilitation Complex, randomization was done using an enveloped sealed approach. Individuals with de-tenosynovitis qurvain's were divided into two groups, each with 20 patients. After the summary was approved, the study lasted 3 to 4 months. The advanced study and research committee (ASRC) of the Isra institute of rehabilitation sciences, Isra University Islamabad, approved the project. The study enrolled 40 patients who visited the Al- Shafi Medical Rehabilitation Complex and met the study's inclusion and exclusion criteria. The information was gathered using the tools Hand Assessment Tool (HAT) and Visual Analogue Scale (VAS). Inclusion Criteria included the patients experiencing pain and swelling on the thumb side of their wrists, as well as trouble gripping, and a positive Finkelstein test, patients should be between the ages of 25 and 50, and the patients, both male and female. Exclusion Criteria included patients with cervical neuropathies, patients with a history of radial, ulnar, or other hand fractures, and patients with vascular and systemic disorders.

Intervention/Treatment

Group A	Group B
Interventional Group i.e. Deep friction massages ultrasound and thumb splint. The aim of the exercise protocol was to decreases the symptoms of dequrvain's tenosynovitis	**Control Group** I.e. Ultrasound and thumb splint. The aim of the treatment protocol was to decreases the symptoms of dequrvain's tenosynovitis.

Frequency of Treatment: All physical therapy techniques in both groups were applied 5 times a week for up to 4 weeks

Duration of Interventions

INTERVENTION	GROUP - A	GROUP - B
THUMB SPLINT	24 HOURS	24 HOURS
Deep friction massage	10 Minutes	--------
Ultrasound	5 Minutes	5 Minutes
TOTAL TIME	15 Minutes	5 Minutes

Intensity of Interventions: The intensity of the deep friction massage and ultrasound in the interventional group was 3Mhzs, depending on the current level, with the goal of reducing the symptoms of de-tenosynovitis. quervain's. The therapeutic ultrasound level in the control group was 3Mhzs, with the goal of reducing the symptoms of de-tenosynovitis. quervain's

Data Analysis: The study's findings were reported as frequency, percentages, mean, standard deviation, and p-value. Data was gathered on the first day and at the end of every two weeks for each patient over the four-week intervention period. Because we need to compare the two groups on separate occasions, we employed the Independent sampled t-test. SPSS 21 was used to analyze

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the data.

RESULTS

Table 1 reveals that the current study included 40 participants who were evenly divided into two groups: interventional and control. The interventional group's mean age was 37.707.921, while the control group's mean age was 36.607.816.

Groups		Minimum	Maximum	Mean	Std. Deviation
Interventional Group	Age Of Patient	25	50	37.70	7.921
	Valid N (List Wise)				
Control Group	Age Of Patient	25	49	36.60	7.816
	Valid N (List Wise)				

Table 1: Age Distribution

Groups			Frequency	Percent
Interventional Group	Valid	Moderate Problem	8	34.0
		Severe Problem	10	54].0
		Unable To Do Anything	3	10.0
		Total	21	100.0
Control Group	Valid	Moderate Problem	5	21.0
		Severe Problem	13	63.0
		Unable To Do Anything	3	14.0
		Total	21	100.0

Table 2: Trouble Doing Hand Activities before Therapies

According to the HAND ASSESSMENT TOOL total score after two weeks of therapy, 14 patients in the interventional group had mild problems doing hand tasks and 9 patients had significant problems. 3 patients in the control group had a little trouble with hand tasks, 12 had a moderate problem, and 3 had a severe problem (Table 3).

Groups			Frequency	Percent
Interventional Group	Valid	Mild Problem	14	59.0
		Moderate Problem	9	39.0
		Total	23	100.0
Control Group	Valid	Mild Problem	3	19.0
		Moderate Problem	12	66.0
		Severe Problem	3	14.0
		Total	18	100.0

Table 3: Trouble Doing Hand Activities after Therapies

Table 4 reveals that following treatment, according to the HAND ASSESSMENT TOOL total score, 8 patients in the interventional group had no problems doing hand activities and 10 patients had mild problems. In the control group, 3 patients had no difficulty doing hand tasks, 8 had a mild

Groups			Frequency	Percent
Interventional Group	Valid	No Problem	8	44.0
		Mild Problem	10	56.0
		Total	18	100.0
Control Group	Valid	No Problem	3	10.0
		Mild Problem	8	45.0
		Moderate Problem	9	35.0
		Severe Problem	3	10.0
		Total	23	100.0

Table 4

DISCUSSION

According to the current study, the mean total score of the hand evaluation tool before treatment was 3.750.639 between interventional groups. After two weeks of treatment, the mean score was 2.400.503. Both variables have a P-value of 0.000. After two weeks of treatment, the mean total score of the hand evaluation was 2.400.503, and the mean score after treatment was 1.550.510. Both variables have a P-value of 0.000. Before therapy, the mean total score of the hand evaluation was 3.750.639, and after treatment, the mean total score was 1.550.510. Both variables have a P-value of 0.000. The results demonstrate that the mean total score of the hand evaluation measure before treatment was 3.950.605 in the control groups. After two weeks of treatment, the mean score was 2.950.605. Between the two variables, the P-value was 0.000. The mean total score of the hand evaluation after two weeks of therapy was 2.950.605, and the mean score after treatment was 2.450.826, with a P-value of 0.002 between the two variables. The mean total score of the hand evaluation before treatment was 3.950.605, and the mean score after treatment was 2.450.826, with a P-value of 0.000 between the two variables. Hassan MK did a prospective experimental study to investigate the effectiveness of ultrasonic therapy in the treatment of de'Quervain's disease symptoms. It was carried out between the 30th of January and the 30th of July 2008 in the Dhaka medical college hospital's department of physical medicine and rehabilitation. History and clinical examination verified the diagnosis of de'Quervain's illness (Finkelstein test) [17]. Each patient was evaluated using a pain scale, a visual analogue scale (VAS), and sensitivity and puffiness grading. The average period remained 41.02 years old. The proportion of females to males was 7.5:1. The most common employment of the patients was a housewife (40%) and wringing of clothes (31%) was a triggering cause (62 percent). In 7 of the cases, there was a history of recurrence (14 percent). The majority of the patients experienced pain over time 36. (72 percent). The VAS score in group B improved significantly after treatment (p0.05), with 96 percent (24) in group B and 13 percent in

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group A. (52 percent). VAS scores ranged from 0 to 4. A considerably (p0.01) greater quantity of patients were in the inflammation score after therapy. Thus, set B (72%) associated to set A (44%) afterward management, discomfort total demonstrated substantial enhancement (p0.01) in set B patients (84%) associated to set A (44%) after treatment (24 percent). 16 percent (4) of patients in group A and 32 percent (8) of patients in group B were totally healed (Not at all agony, no soreness and no inflammation) [17]. Students from India's SRM College of Physiotherapy indicated that it was definite that the ultra sound had an effect on the De-tendon quervain's inflamed condition, as well as massage and exercises. It was noticed in the same way as the single case study was [18]. As a result, the findings of past investigations back up our findings.

CONCLUSIONS

It is concluded that ultrasonic therapy is useful in treating De-tenosynovitis quervain's when the tendon is inflamed.

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