



RESEARCH ARTICLE

INCIDENCE OF DE QUERVAIN'S TENOSYNOVITIS AMONG EMBROIDERERS IN LUCKNOW .

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ABSTRACT

Aim: To study the prevalence of De-Quervain's Tenosynovitis embroiderer in lucknow. **Objective:** To determine presence of De-Quervain's Tenosynovitis using the Finkelstein test in embroiderer. **Methodology:** 80 subjects were selected according to the inclusion and exclusion criteria. A written informed consent was taken from the subjects in the language best understood by them. The study subjects were explained about the procedure. The test is performed on both the hands. A positive test is indicated by pain over the abductor pollicis longus and extensor pollicis brevis tendons at the wrist and is indicative of a paratendonitis of these two tendons. The data was collected and was statistically analyzed. **Statistics & Results:** 77.5% of the total population assessed had DeQuervain's Tenosynovitis. When assessed the results of both right and left hand it was found that, 72% had DeQuervain's Tenosynovitis in right hand and 28% had in left hand. It was also found that 34% of the test-positive population had bilateral pain. **Conclusions:** The study concluded that the prevalence of DeQuervain's Tenosynovitis is more in embroiderer because of their working pattern. **Clinical Implication:** this study can be used to make people aware and prevent the occurrence or worsening of existing De Quervain's tenosynovitis. People can be given ergonomic advice like taking frequent breaks while working and resting the hand.

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INTRODUCTION

DeQuervain's Tenosynovitis is a painful inflammation of tendons on the side of the wrist at the base of the thumb. These muscles include the extensor pollicis brevis and the abductor pollicis longus. (1) The primary pathologic observation is reactive fibrosis and thickening of the extensor retinaculum where it overlies the first wrist extensor compartment. (1) The pain, which is the main complaint, gets worse with abduction of the thumb, grasping action of the hand and an ulnar deviation of the wrist. (1) It has been proven by previous studies that tailors experience various types of Work- Related Musculoskeletal Disorders, which are a group of painful disorders due to repeated basis or overuse. Out of these, 85% are known to experience some form of hand pain. (2) De-Quervain's Tenosynovitis is a disease known for resulting from repetitive trauma due to chronic overuse, which is a common cause of hand pain. (3) Chronic upper-limb musculoskeletal disorders, also known as repetitive strain injuries or cumulative trauma disorders, create many challenges; to diagnose and treat them, to establish their relationship in activity and in case of work related disorders, to create work environments that minimize their occurrence. Work related musculoskeletal disorders have been attributed to jobs that are repetitive, forceful or require awkward postures.

(4) Diagnosis is usually concluded by a positive Finkelstein's test (which causes a reproduction of pain at the radial styloid), as well as the presence of a tender nodule over a radial styloid. It is a most standard finding. (5) A positive test is indicated by pain over the abductor pollicis longus and extensor pollicis brevis tendons at the wrist and is indicative of a paratendonitis of these two tendons. (5)

NEED FOR THE STUDY

Embroidery involves monotonous, highly repetitive tasks like cutting, assembly, pressing and finishing and various other activities that involve long hours of work in different abnormal postures and movements. Work-related factors reported involve movements with forceful manual exertion and a sustained awkward wrist posture. Work-Related Musculoskeletal Disorders are known to affect workers in a variety of occupations and are major causes of lost time from work, disability and increased health care costs. There have been studies to prove that there are a number of musculoskeletal disorders affecting different areas of the body in embroiderer. However there is lack of studies in literature that have studied the prevalence of De-Quervain's Tenosynovitis in embroiderer and hence this study is been carried out.

AIM AND OBJECTIVE: To study the prevalence of DeQuervain's Tenosynovitis.

OBJECTIVE: To determine presence of De-Quervain's Tenosynovitis in embroiderer using the Finkelstein test.

METHODOLOGY STUDY DESIGN

Type of study: Observational study

Duration of study: 6month Area – Lucknow city.

SAMPLING DESIGN

Sample size: 80

Sample population: Participants who are embroiderer by profession (35-45years).

Sampling: Convenient sampling.

SELECTION CRITERIA INCLUSION CRITERIA: Individuals willing to participate and who have been working as embroiderer for at least 5years for 7-8 hours per day, in the age group of 35- 45years.

EXCLUSION CRITERIA: Participants having history of musculoskeletal or inflammatory disorders of hand or wrist, past history of hand or wrist fractures, tendon injuries or repairs, history of Carpal Tunnel Syndrome and participants with part-time jobs involving extensive work using hand.

Table 1. Prevalence of Positive Finklestein Test

Variables	Categories	n (%)
Finklestein Test	Positive	62(77.5)
	Negative	18 (22.05)
Total		80

PROCEDURE

80 subjects were selected according to the inclusion and exclusion criteria. A written informed consent was taken from the subjects in the language best understood by them. The study subjects were explained about the procedure. The test was performed as follows: -Patient was asked to sit on a chair with forearm supported in mid-prone. Therapist was sitting on lateral side of patient. The patient was asked to make a fist with the thumb inside the fingers. The examiner then stabilized the forearm and deviated the wrist towards ulnar side. The test is performed on both the hands. A positive test is indicated by pain over the abductor pollicis longus and extensor pollicis brevis tendons at the wrist and is indicative of a paratendonitis of these two tendons. The data was collected and was statistically analyzed.

This table shows that only 62 participants have positive test while 18 respondents have negative test

RESULTS

The percentages of population with positive and negative results are as shown in Table. 77.5% of the total population assessed had DeQuervain's Tenosynovitis. When assessed the results of both right and left hand it was found that, 72% had DeQuervain's Tenosynovitis in right hand and 28% had in left hand. It was also found that 34% of the test-positive population had bilateral pain.

DISCUSSION

The current study was conducted to determine the prevalence of DeQuervain's Tenosynovitis in 80 embroiderers in the age group of 35-45. The population was selected according to the inclusion criteria of years of work as a tailor and number of working hours. The prevalence was studied using the Finkelstein test, which is an active test commonly used to detect presence of DeQuervain's Tenosynovitis, wherein the subject makes a fist with the thumb inside the fingers and then deviates the wrist towards the ulnar side. This aggravates the abductor pollicis longus and extensor pollicis brevis tendons. On performance of the test, it was found that 77.5% of the total population had overall positive result i.e. 77.5% of the total population had positive test regardless of side. Within this positive result, 77.5% had DeQuervain's Tenosynovitis in right hand and 28% had in left hand. Thus it was concluded that there is significant prevalence of DeQuervain's Tenosynovitis in embroiderers. The study done by Dwivedi et al suggested that embroiderers suffer most from work-related MSK disorders in the shoulder, neck, wrist and hand. [6] The study conducted by Jamro et al defined work related MSK disorders as over injuries, soft tissue disorders, cumulative trauma disorders, and repetitive strain and motion injuries, and concluded that the main complaints of tailors were pain and muscular weakness due to overuse activities and extreme work hours. [3] DeQuervain's Tenosynovitis is a disease known to be caused due to highly repetitive tasks involving repeated or sustained wrist bending for a prolonged period of time. [1] embroidery is a profession that involves the aforementioned activities which are monotonous and highly repetitive, and most of them comprise of wrist, forearm and hand movements in cutting, assembly, stitching etc. [2] Such strenuous tasks led to MSK disorders in 65.45% of embroiderers assessed by the Nordic Questionnaire scale in the study done by Banerjee et al in 2016 [2].

All of the above evidences support the notion that DeQuervain's Tenosynovitis is a highly relevant and substantial problem faced by embroiderers. It has been observed that hand and forearm related MSK disorders, including DeQuervain's Tenosynovitis, have not had significant association to occupational risk factors. [1] Even Ranney et al, in their study on highly repetitive workers, have observed the occurrence of muscle pain and tenderness in 23% of workers with forearm/hand as the site which had been a previously unreported area. [4] They suggested that DeQuervain's Tenosynovitis was one of the most prevalent conditions of the distal forearm, and that stress on the muscle tissues of these sites should be studied just as much as neck or shoulder problems. [4] Since forearm and hand disorders have long been overlooked to give importance to neck/shoulder disorders, this warranted a need for a study which indicates definitive prevalence of DeQuervain's Tenosynovitis in embroiderers, unilaterally or bilaterally. This study was conducted with the notion that most of the daily activities involved in a embroiderers's occupational hours would constitute of extensive use of forearm, wrist, hand and fingers, and also that DeQuervain's Tenosynovitis is a reactive fibrosis known to be caused by repetitive trauma to the respective tendons involved. Hence, it is very plausible to assume that there is a relationship between the occurrences of DeQuervain's Tenosynovitis and the nature of work that embroiderers perform on a regular basis, regardless of the

severity of the same. This assumption was proved by the 77.5% overall positive result, which clearly establishes the need for a simple treatment protocol that can be easily followed by the tailors, as well as ergonomic advice that not only focuses on posture and long sitting hours, but also on the care for wrist and hand activities and position.

CONCLUSION

From the above study and results, it is concluded that the prevalence of DeQuervain's Tenosynovitis is more in embroiderers because of their working pattern.

Limitations and Suggestions

This study has included a relatively small sample size of 80 subjects; hence future studies can include more test subjects for a more accurate result. Gender specificity was not taken into consideration, which can be studied in future studies if in case DeQuervain's Tenosynovitis is more prevalent in women or men, as the tendon's collagen composition and synthesis differs in both with progressing age. Dominant hand can bring minimal changes when considering bilateral cases, as it is also used for most of other activities. Machine users are at a slight advantage as opposed to embroiderers who have to manually do all the activities. It is rare to find such purely manual workers, and hence it was not put in a separate category, although it does not affect the prevalence. If severity of pain/degree of damage is being studied, the points above can be considered. Clinical Implication As we know now that there is high risk of hand dysfunction because of repetitive movement, force and pressure while sewing, we can use our study prevent occurrence or worsening of existing De Quervain's tenosynovitis. People can be ergonomic advice like taking frequent breaks while working and resting the hand. People already experiencing pain and discomfort can be given braces to immobilize the thumb and wrist.

Ultrasound therapy is known to be beneficial in cases of De Quervain's tenosynovitis. Ice application may help in some cases. Severe cases cannot be managed by physiotherapy; corticosteroid injections and surgery may be suggested in such cases.

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