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Prevalence of De Quervain's Tenosynovitis in Male Hairdressers of Southern Pune

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ABSTRACT

Aim: To study the prevalence of De Quervain's Tenosynovitis in Male Hairdressers of Southern Pune.

Objectives: To diagnose the De Quervain's Tenosynovitis in Male Hairdressers by using Finkelstein Test.

Methodology: 296 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 de Quervain's Tenosynovitis. The data was collected and was statistically analyzed.

Statistics & Results: 51.35% of the total population assessed had De Quervain's Tenosynovitis on Dominant side and 1% had De Quervain's Tenosynovitis on Non-Dominant side. It was also found that 14% of Hairdressers were having pain on Activity, 12.99% of Hairdressers were having pain on Rest and 72% of Hairdressers were having No pain on Activity and Rest.

Conclusions: The study concluded that there 51.35% prevalence of De Quervain's Tenosynovitis in Hairdressers because of their working pattern.

Clinical Implications: 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.

Keywords: De Quervain's Tenosynovitis, Hairdressers, Finkelstein Test, Cumulative Trauma Disorders.

INTRODUCTION

De Quervain's tenosynovitis is a disease in which there is pain and swelling over the radial styloid process. There is inflammation of common sheath of abductor policis longus and extensor pollicis brevis tendons[1]. The origin of abductor policis longus is ulna, radius, interosseous membrane and the action of it is abduction and extension of thumb, the origin of extensor pollicis brevis is radius and interosseous membrane and the action of extensor pollicis brevis is extension of the thumb. There is tenderness over radial styloid process[2].

Pain is aggravated by adducting the thumb across the palm and forcing ulnar deviation and on asking the patient to perform radial deviation against resistance. There may be palpable thickening of the sheath. The pain radiates proximal or distal from the first dorsal wrist compartment[1,2].

The confirmation of De Quervain's Tenosynovitis is done by positive findings on Finkelstein test[3]. In this test, the patient is asked to place his thumb in the palm of the and flex the digits around the thumb, if there is pain and tenderness over the first dorsal wrist compartment then the test is positive[3].

De Quervain's tenosynovitis is a disease known for resulting from repetitive trauma due to chronic overuse, which is common cause of hand pain[4].

When force is applied repeatedly over a prolonged period to the muscle group, joint or tendon, cumulative forces may cause soft-tissue microtears and trauma[6]. The resulting injury and inflammtion response may lead to tendon and synovial disorders, muscle tears, ligamentous disorders, degenerative joint diseas, bursitis or nerve entrapment[6].

Chronic upper limb musculoskeletal disorders, also known as repetitive strain injuries or cumulative trauma disorders, create them 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 occurance[4]. Work related musculoskeletal disorders have been attributed to jobs that are repetitive, forceful or require awkward postures[4].

If two or more risk factors are present at the same time, the combination of risk factors markedly increases the potential for development of musculoskeletal disorders[6]. For most patients, however, the development of CTDs is progressive and occurs slowly over many weeks or months, hairdressers who does repetitive tasks develop de Quervain's tenosynovitis while operating the scissors when doing cutting and shaping of hairs often do not experince their symptoms until they have worked with the equipment for several months or years[6].

Chronic tendinitis and tenosynovitis of the upper extremity are common types of CTDs. If a patient presents with localized pain on active or passive motion of a tendon through the tendon sheath, a diagnosis of tenosynovitis can be confirmed if palpation on the sheath aggravates the pain[6]. If the tendon or tendon sheath is not close to the skin surface, however, palpation may not be feasible, making diagnosis more difficult. Chronic tenosynovitis may lead to tendon swelling and a pinching in the tendon sheath[5,6].

If work related actions that cause or aggravate the illness can be identified, the suggestions for job modifications may become a crucial part of the therapeutic plan. Finally if injuries are diagnosed as resulting from the normal performance of work related tasks, the employee is often entitled to workers compensation benefits, which may cover costs of health care lost time indemnity payments, disability benefits, and rehabilitation expanses[6] .

Cumulative trauma disorders due to performance of repetitive tasks account for more than 50% of all occupational illness in the world[6,7]. Employees affected by these disorders frequently experience substantial pain and funtional impairment that may require a change in occupation. For the employer, these injuries result in loss of productivity and increases costs in the form of higher medical expenses and disability payments for injured workers[6]. Successful treatment of work related repetitive tissue injuries depends on early diagnosis and appropriate therapy. Prevention requires identifying sites and tasks that place employees at risk of injury and supporting efforts to develop safer work environments[6,7].

NEED OF THE STUDY

De Quervain's Tenosynovitis is associated with occupation which includes overuse of wrist and thumb. It is also associated with repetitive trauma. Hairdressers work involves monotonous highly repetitive tasks like cutting, holding, assembly of hairs, grasping the scissors and machines as well and finishing and various other activities that involves long hours of work in different abnormal postures and movements. As the hairdressers can also get musculoskeletal disorders due to bad posture if the chair or dressing tables are not at height of the hairdresser. This can make the overuse of tendons and worsen the condition.

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 occupation and are major causes of lost time from work, disability and increased health care costs.

As the Hairdressers work involves more movement of thumb while using scissors or other machines, so hairdressers are more prone to get the De Quervain's Tenosynovitis.

AIM AND OBJECTIVES

AIM: To study the prevalence of De Quervain's Tenosynovitis in Male Hairdressers of Southern Pune.

OBJECTIVES: To diagnose the De Quervain's Tenosynovitis in Male Hairdressers by using Finkelstein Test.

MATERIALS & METHODS

STUDY DESIGN

Type of study: Observational Study
Duration of study: 6 Months
Area: Southern Pune Region.

SAMPLING DESIGN

Sample size: 296
Sample population: Male Hairdressers.
Sampling: Convenient Sampling

SELECTION CRITERIA

INCLUSION CRITERIA: Individuals willing to participate and having Age group of 30-45 years, and having minimum 8-9 years of experience.

EXCLUSION CRITERIA: Individuals having any recent trauma and surgery of Hand, Fractures and dislocations of Hand or any skin infections and impairment of Hand.

PROCEDURE

296 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. NPRS was taken from the subjects. Then 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 De Quervain's Tenosynovitis. The data was collected and was statistically analyzed.

RESULT

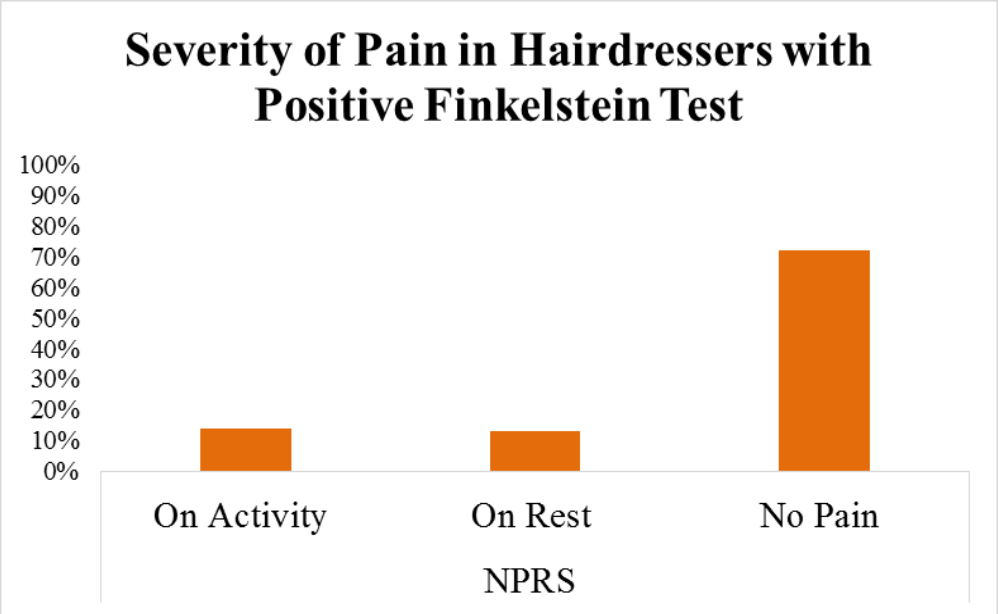
The study was conducted where Finkelstein Test was performed to diagnose the De Quervain's Tenosynovitis among 296 male Hairdressers in southern pune region. In total 296 Male Hairdressers participated in this study. The response rate was 100 % .

A group of 296 Male Hairdressers were included in the study with age group of 30 - 45 years and with minimum 8-9 years of experience.

TABLE 1: Shows the Numeric Pain Rating Scale of the Participants.

NPRS	On Activity	14%
	On Rest	12.99%
	No Pain	72%

GRAPH 1:

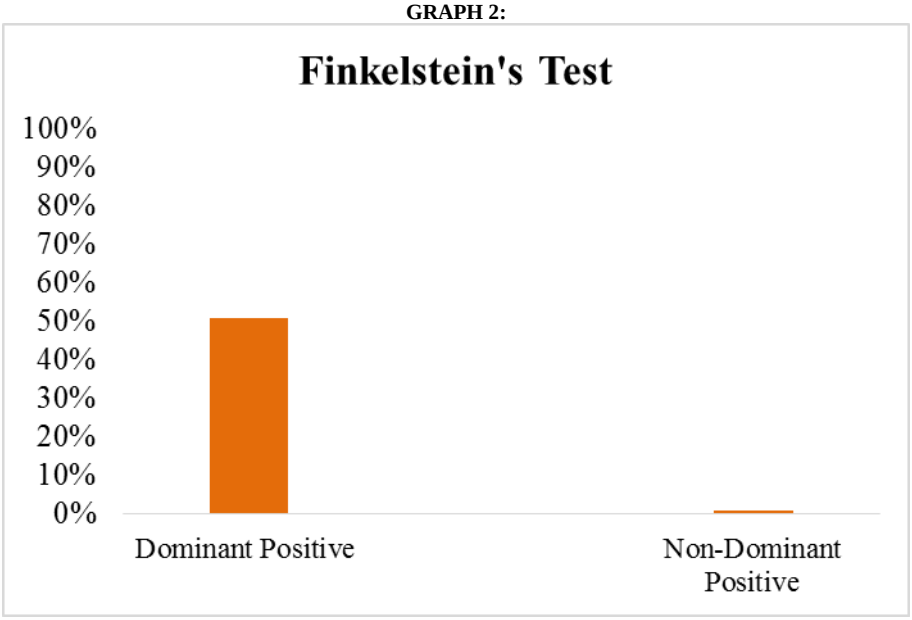


Interpretation: The above table and graph interpret the Numeric Pain Rating Scale of the Hairdressers. In which 14% of participants have pain on Activity. 12.99% of participants have pain on Rest and 72% of Participants have No pain on Activity and Rest.

TABLE 2: Result of the Finkelstein Test of Dominant and Non-Dominant Side.

Dominant Positive	Non - Dominant Positive
51.35%	1%

GRAPH 2:



Interpretation: The above table and graph interpret that among 296 participants 51.35% of Participants are Dominant Positive whereas 1% are Positive for Non-Dominant side.

DISCUSSION

The study aimed to diagnose the prevalence De Quervain's Tenosynovitis in Male Hairdressers of southern pune. The main purpose of this study was to diagnose the De

Quervain's Tenosynovitis. The prevalence was studied using the Finkelstein test, which is an active test commonly used to detect presence of De Quervain'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 51.35% of the total population had overall positive result i.e. 51.35% of the total population had positive test of dominant side. And 1% of population had positive test for non-dominant side. Thus it was concluded that there is significant prevalence of De Quervain's Tenosynovitis in Male Hairdressers.

The Finkelstein Test is used in the diagnosis of De Quervain's syndrome. This fact implies a Tenovaginitis and Tenosynovitis of Extensor Pollicis Brevis and Abductor Pollicis Longus[2,4].

As hairdressing is the leading occupation and is done by using hand in which overuse of wrist, thumb and fingers takes place which causes pain swelling over radial styloid process. Inflammation can cause reduction in workability of hairdressers and impact on daily living activities[9].

Inclusion criteria was Male Hairdressers. Age group of 30 to 45 years and minimum 8-9 years of Experience. Exclusion criteria was Any recent trauma and surgery of Hand, Fractures and dislocations of Hand, Any skin infection or impairments of Hand.

The study was conducted with 296 subjects in and around Pune Region. Subjects were selected according to the inclusion and exclusion criteria. Male subjects were included for the study. Subjects were explained about the procedure of the study. Written consent was taken from them and they were also asked if they suffered any other musculoskeletal problems.

Then they were assessed with Finkelstein test and Numeric Pain Rating Scale (NPRS) scale, survey was done according to the results obtained and hence the conclusion was given.

The above study concluded that among 296 subjects. 51.35% subjects were Positive for the De Quervain's Tenosynovitis for dominant side and 1% subjects were positive for Non Dominant Side.

Due to long daily working hours of Hairdressers they are at high risk of developing Work related Musculoskeletal Disorders (WMSDs) [10,12].

A study conducted by David M. Rempel et al [12] suggests that Injuries such as these result from small, but additive tissue damage sustained through performance of repetitive tasks, and are known collectively as cumulative trauma disorders (CTDs). They may also be referred to as overuse syndromes, regional musculoskeletal disorders, repetitive strain injuries or repetitive motion disorders[12].

Also the Numeric Pain Ratings were taken from the subjects, In which 14% of subjects were having pain on Activity. 12.99% of subjects were having pain on Rest and 72% of subjects were having No pain on Activity and Rest.

In De Quervain's Tenosynovitis there is formation of fibrocartilage in response to the increased stress over the tendon sheaths which results in thickening and myxoid degeneration of the tendon sheaths due to overuse of the tissues which further results in Pain and Inflammation[13].

According to David M. Rempel et al[12] and Ranney D et al[11] it is proven that, When force is applied repeatedly over a prolonged period to the same muscle group, tendon or joint, cumulative forces may cause soft-tissue trauma and microtears. The resulting injury and inflammatory response may lead to synovial and tendon disorders, muscle tears, ligamentous disorders, degenerative joint disease and it may cause pain[11].

As per the previous studies it has been seen that personal and work related factors were associated with de Quervain's tenosynovitis in working population in which there is bending and twisting movement of wrist takes place[14]. So in male Hairdressers de Quervain's tenosynovitis can cause due to repetitive thumb movement and bending

movement.

Even this study helped to create awareness amongst Hairdressers about the De Quervain's tenosynovitis and its risk factors that might cause pain which would eventually affect their work.

And benefit for betterment of them and help them to prevent further problems or injuries to surrounding structures.

In this study we came to know that males are also primarily affected by this condition.

De Quervain's tenosynovitis was also found statistically significant in present study.

It was shown that 51.35% subjects are having De Quervain's tenosynovitis on dominant side and 1% subjects are having De Quervain's tenosynovitis on non-dominant side.

A forementioned study has demonstrated that Even though the test is affirmative, there is no compulsion to experience the pain by the subjects[9,13].

CONCLUSION

As per the statistical analysis study showed the Prevalence of 51.35% on Dominant Side & 1% for Non-Dominant Side.

Declaration by Authors

Ethical Approval: Approved

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

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