



Prevalence of De Quervain's Syndrome Among Young Mobile Phone Users

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ABSTRACT

Background: Repetitive movements of thumb lead to repetitive strain injury. Repetitive strain injury causes inflammation and swelling of tendons. The over use of thumb predisposes the users painful thumb

Objective: The objective of study was to evaluate the prevalence of de Quervain's syndrome among mobile users.

Methodology: Total 384 cases of thumb pain age range from 16-30 years of both genders were selected. Patients with thumb fracture and having De quervain's syndrome but not using mobile phone were excluded. Informed consent was taken from each person meeting the inclusion criteria, explaining to them the purpose of the study and ensuring the confidentiality of information. Data was collected by filling the designed questionnaire.

Results: Mean age of patients was 22.43 ± 4.02 years. Out of these 384 patients, 247 (64.32%) were male and 137 (35.58%) were females with male to female ratio of 1.8:1. De Quervain's syndrome was present in 223 (58.07%) while 161 (41.93%) patients had no De Quervain's syndrome.

Conclusion: This study concluded that the prevalence of de Quervain's syndrome among mobile users is relatively high. Moreover, majority of patients affected were young teenagers male.

Keywords: Tenosynovitis, text messaging, teenagers.

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INTRODUCTION

Now a day's young generation is too much addicted to texting. During text messages there is excessive use of thumb. The over use of thumb predisposes the users painful thumb.⁽¹⁾ Repetitive movements of thumb lead to repetitive strain injury. Repetitive strain injury causes inflammation and swelling of tendons. Tendinitis is common in young mobile phone users which manifest as De-Quervain's syndrome.⁽²⁾ De quervain's syndrome/de quervain disease/black berry thumb occurs as a result of tenosynovitis of sheath or tunnel that surrounds the two tendons which control the thumb movement. Black berry thumb is a condition that results from repetitive use of thumbs to press buttons on smart phones or other forms of mobile devices. The name of condition comes from the product of smart phone. But this condition is also known as iphone thumb, smart phone thumb, cell phone thumb,⁽³⁾ android phone thumb but the medical name is De Quervain's syndrome that is coupled with the tendons connected to thumb through wrist.⁽⁴⁾ Most common risk factors of incidence of painful thumb in mobile phone users are: Excessive use of thumb while texting and playing games on mobile phone

and Inappropriate position of thumb, wrist and elbow while using mobile phone.⁽⁵⁾ De-Quervain's Syndrome occurs as a result of the stenosing tenosynovitis of the 1st dorsal compartment of the wrist. This 1st dorsal compartment of the wrist contains the tendons of extensor pollicis brevis and the abductor pollicis longus. Patients with De-Quervain's Syndrome usually present with pain started at the dorsolateral aspect of the wrist which latter on referred towards the thumb and the lateral forearm. This syndrome manages well medically and very rare surgical treatment needed.⁽⁶⁾ De-Quervain syndrome is commonly prevalent in persons who perform repetitive activities with the thumb like mobile use, computer operator etc.⁽⁷⁾ Traditionally, no race predilection has been reported for De-Quervain syndrome. Recently in a study, black race was found as a risk factor for De Quervain syndrome.⁽⁸⁾ Patient will give history of pain which will be localized at the dorso-lateral aspect of the wrist. Finkelstein test: This is the only available test for de-quervain syndrome diagnosis and positive test confirms this condition. This Finkelstein test is performed making the fist of the patient with thumb inside the fingers. Now in this



position if passive ulnar deviation of wrist of patient is made, the patient complains of dorsolateral wrist pain. This test should be performed bilaterally to compare the involved side with the contra-lateral side.⁽⁹⁾

METHODOLOGY

Study Design that was chose for the research was Descriptive, Cross-sectional study. Data was collected from the General population in homes, offices, hospitals, and different universities. Sample Size of 384 mobile phone users was taken. Using of 52% prevalence of thumb pain at 5% of absolute precision 95% of confidence level. Sample Technique was used as Simple random sampling which is a probability sampling technique. We used SRS because each member in population has an equal chance of being selected, and selection was free of bias can be calculated

Inclusion Criteria: All the Male and female mobile phone users having age 16-30. Exclusion Criteria: Patient who are having Thumb fracture. Patient with De quervain disease but not using mobile phone. After approval from the hospital ethical committee, 384 mobile phone users from general population in homes, offices, hospitals, and different universities fulfilling the inclusion/exclusion criteria were selected. Informed consent was taken from each person meeting the inclusion criteria, explaining to them the purpose of the study and ensuring the confidentiality of information. Data was collected by filling the designed questionnaire. Data was analyzed by using SPSS version 16.0 by the researcher. Descriptive statistics was applied to calculate mean and standard deviation of age of patients and duration of symptoms. Frequencies and percentages were calculated for qualitative variables like gender and presence or absence of De Quervain's syndrome. Stratification was done for effect modifiers like age, gender and duration of symptoms and post-stratification chi square was applied to see their effect on frequency. P-value ≤ 0.05 was taken as significant

RESULTS

Mean age of patients was 22.43 ± 4.02 years. Out of these 384 patients, 247 (64.32%) were male and 137 (35.58%) were females with male to female

ratio of 1.8:1. De Quervain's syndrome was present in 223 (58.07%) while 161 (41.93%) patients had no De Quervain's syndrome. This table shows the

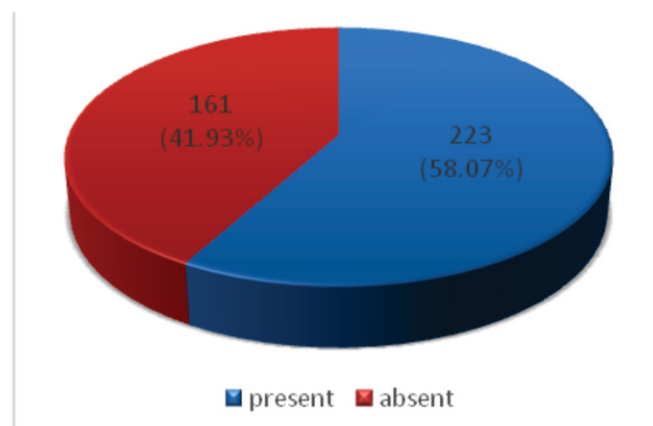


Figure 1: Percentage of patients according to presence or absence of De Quervain's syndrome

De quervain's syndromewas present in 58.0% while it was absent in 41% of the respondents.

Table 1: Stratification of age groups with respect to De Quervain's syndrome

Age (in years)	Frequency	De Quervain's syndrome	
		Present	Absent
16-20	151	89 (58.94%)	62 (51.06%)
21-25	129	83 (64.34%)	46 (35.66%)
26-30	104	51 (49.04%)	53 (50.96%)

stratification of age groups with respect to presence of De Quervain's syndrome. Most of the patients of the de quervain's syndrome were in age group 16-20.

DISCUSSION

De Quervain's syndrome is fibrous thickening and tenosynovitis of 1st extensor compartment of wrist. In this condition, synovial sheath of both extensor



pollicisbrevis (EPB) abductor pollicislongus (APL) is inflamed. There is no research available on the natural history of this condition. The most common cause for this condition found to be repetitive movements of the thumb e.g. thumb based trackballs, and generating text with a cell phone (which has led to some calling this syndrome "Blackberry Thumb") Another cause is theorized to arise from performing repetitive actions with the hands that require sideways movement of the wrist while gripping the thumb (i.e. mousing with some mice).⁽⁵⁾ In the last two decades, lots of progress has been made in the field of information and communication technology (ICT) which has also changed our life styles. Moreover, also easy access to many advanced technologies like computers, laptops, and mobile phones has also increased their use over last ten years.⁽¹⁰⁾ According to mid-year 2010 data, it was found that 20 daily text messages per subscriber were sent in the United States.⁽⁹⁾ According to the Pew Research Center, 82% of US adults are cell phone users and 72% of adult cell phone users send or receive text messages.⁽⁹⁾ Based on a Kaiser Family Foundation study, mobile phone users were seen 69% among 11-14 years old and 85% among 15-18-year olds.⁽¹¹⁾ The syndrome occurs most frequently in individuals who are between 30 and 50 years of age and is significantly more common in women than men.⁽⁶⁾ Our study was conducted to evaluate the prevalence of de Quervain's syndrome among young mobile users. The mean age of patients in our study was 22.43 ± 4.02 years with majority of the patients i.e. 151 (39.33%) were between 16 to 20 years of age. Rossi et al⁽²⁾ in his study reported mean age of 24 years presenting dQD. In our study, 64.32% were male and 35.58% were females with male to female ratio of 1.8:1. The average young person spends over 8 hours per day using electronic media devices. There was a 45 minute increase in device use from 1999 to 2009. A similar trend exists in ages 0-8 and adults.^(11,12) Gold et al⁽¹⁰⁾ evaluated college student's posture while texting and found that 91% had a flexed neck and 90% a non-neutral wrist position while typing. Neck, shoulder, and thumb pain increased with time spent and more frequent internet browsing.⁽¹³⁾

CONCLUSION

This study concluded that the prevalence of de Quervain's syndrome among mobile users was relatively high. Moreover, majority of patients affected were young teenagers male. Prospective or Retrospective/ case control studies should be conducted with relation of duration and pain.

REFERENCES

- 1 Wolf JM, Sturdivant RX, Owens BD. Incidence of de Quervain's tenosynovitis in a young, active population. *The Journal of hand surgery*. 2009;34(1):112-5.
- 2 Rossi C, Cellocchio P, Margaritondo E, Bizzarri F, Costanzo G. De Quervain disease in volleyball players. *The American journal of sports medicine*. 2005;33(3):424-7.
- 3 Rideout VJ, Foehr UG, Roberts DF. Generation M [superscript 2]: Media in the Lives of 8-to 18-Year-Olds. Henry J Kaiser Family Foundation. 2010.
- 4 Moore JS. De Quervain's tenosynovitis: stenosing tenosynovitis of the first dorsal compartment. *Journal of occupational and environmental medicine*. 1997;39(10):990-1002.
- 5 Mezei G, Benyi M, Muller A. Mobile phone ownership and use among school children in three Hungarian cities. *Bioelectromagnetics*. 2007;28(4):309-15.
- 6 LaStayo P. Mobilization with movement as an adjunct intervention in a patient with complicated de Quervain's tenosynovitis: A case report-Commentary. *Jospt, alliance group communications* 810 east 10th st, po box 1897, lawrence, ks 66044-8897 usa; 2002.
- 7 Karim SA. From "Playstation Thumb" to "Cell Phone Thumb": The New Epidemic in Teenagers. *South African Medical Journal*. 2009;99(3):161.8. Joyce A, Keltner BR. For some, thumb pain is BlackBerry's stain. *Washington Post*. 2005:A01.
- 9 Ifeacho SN, Brar R. Stenosing tenosynovitis (trigger finger and trigger thumb). *Annals of The Royal College of Surgeons of England*. 2007;89(3):326.
- 10 Gold J, Driban J, Thomas N, Chakravarty T, Channell V, Komaroff E. Postures, typing strategies, and gender differences in mobile device usage: An observational study. *Applied ergonomics*. 2012;43(2):408-12.
- 11 Dimonte M, Ricchiuto G. Mobile phone and young people. A survey pilot study to explore the controversial aspects of a new social phenomenon. *Minerva pediatrica*. 2006;58(4):357-63.
- 12 Böhler E, Schüz J. Cellular telephone use among primary school children in Germany. *European journal of epidemiology*. 2004;19(11):1043-50.
- 13 Ashurst JV, Turco DA, Lieb BE. Tenosynovitis caused by texting: an emerging disease. *JAOA: Journal of the American Osteopathic Association*. 2010;110(5):294-6.