

Frequency of De Quervain's Syndrome in Punjab Secretariat Officers

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Highlights:

- ▶ Punjab secretariat officers reported with thumb pain
- ▶ Finkelstein Test was performed
- ▶ Pain is associated with writing but it depends upon the intensity of writing

Abstract:

Throbbing pain in wrist and thumb is due to De Quervain syndrome. Sometimes due to pain, ability of holding objects may be restricted. This syndrome is usually observed in people using wrist and thumb frequently. The symptoms include tenderness, burning sensation on radial side of hand and swelling of thumb.

Objective:

To assess the frequency of De Quervain's syndrome in Punjab secretariat officers.

Methodology:

Study was conducted in civil secretariat officers of Lahore. Sample size of 160 was calculated by epi-tool formula. Self-made questionnaire was used for data collection. Finkelstein test was used to diagnose the De Quervain. Data was analysed in SPSS 20.0

Results:

Finkelstein test was positive in 56% of respondents. The writing capacity of 43/160 (27.6%) respondents was >500 words/day, 60/160 (37.5%) was 500-1000 words, 36/160 (22.5%) was 1000-2000 words, 21/160 (13.12%) was <2000 words/day. 50 out of 160 respondents felt swelling at right thumb due to writing.

Conclusions:

It is concluded that pain was associated with writing but it depended upon the bulk of writing history. Mild writing did not caused any pain but over using of thumb in one day for longer

durations caused pain in some individuals, it varied from moderate to severe depending upon the type and duration of writing.

Keywords:

Frequency, De e Quervain's syndrome, Numbness, Finkelstein Test

Introduction:

Fritz De Quervain was the first in 1895, who defined De Quervain's tenosynovitis as a painful complain of the wrist as stenosing tenosynovitis of thumb abductors around the radiostyloid process¹. De Quervain's syndrome (DQS) is a condition that causes pain and tenderness at the thumb side of the wrist, at the base of the thumb and forearm. Pain is worsened with grasping or extending the thumb.¹ In severe cases, the affected hand may temporarily prevent it, especially its ability to hold objects.² With the new occupational and professional demands the prevalence of this condition is also increasing gradually². The activities which involved the repeated thumb pinching and wrist movement can be the consequence of this painful condition. In the literature search this condition has various synonyms, including De Quervain's disease, first dorsal compartment tenosynovitis, texting tenosynovitis, Blackberry Thumb and Washer Woman's Sprain^{3,4}. This condition mostly occurs in persons whose occupation is related to prolonged writing hours.³ DQS pains are natural and are generally experienced by all the new ones to the exercise. The pain occurs since too much pressure is exerted on certain parts of the body and it handles almost the entire weight of the body. Due to immense stress and strain, the muscles experience a kind of fatigue and open up leading to pain. However, this pain is not permanent and surely goes away within a span of 2 to 3 days, depending upon body

conditions.^{4,5}

De Quervain's Tenosynovitis (DQT) is triggered by a stenosing inflammation of the tendon sheath in the first dorsal compartment of the wrist⁵. The patients may experience the associated symptoms beside the pain is dysesthesias, such as numbness, tingling, burning, and cramping⁶. The most standard finding in (DQT is a positive Finkelstein test⁷.

The literature review reveals the precise etiology of DQT which includes an acute trauma or an extreme, unaccustomed/new exercise. However, more commonly it may be the result of cumulative microtrauma^{3,8}. Thus, adults who use their hands and thumb in repetitive manner are more likely to have De Quervain. The patients who experience progressive pain and some degree of limitation in deeds, some degree of morbidity may be accompanied with the disease. According to the latest Pakistan Telecommunication Authority report of December 2009, a total of 106 billion text messages were sent through the 5 cellular networks in Pakistan in 2009. Considering the positive relationship between the thumb pain and frequent text messaging, research on this disease is insignificant to make people aware of the over usage of cell phones and excessive messaging⁹. Previous studies support the fact that text messaging can strongly be related to DQT. It is also referred as Texting Tenosynovitis¹⁰. Even though De Quervain's tenosynovitis is rapidly intensifying problem faced by the young adults, so far, not enough research has been done to support and aware people regarding it. Research on the association of mobile texting and DQT is scarce in this part of the world and keeping in consideration the popularity of texting among our youth it is justified that a research be conducted to find association between these two entities in young population. Physical therapy can help to overcome a case of DQS with focused rehabilitation exercises. It helps to heal after a case of DQS, and it can also help to avoid them. If DQS pain persist even after a few days, there is a

need to get the assistance of a good physiotherapist.^{10,11} A physiotherapist will help in getting rid of all kinds of body pains in a very natural manner¹².

According to the report of the last secretariat 2009, a total of 10 million files were written in last 5 years that becomes a reason of DQS.¹³ The study conducted in 2013 by Stahl S reported that high experience of writers reduces the percentage of DQS pain and main factors affecting on visiting to the office. 31.2% respondents faced abnormal pain in upper shoulder, which was found that this prevalence was more in less experienced bodybuilders. It is justified to conduct a research on the young population to find a relationship between these two entities and to assess the frequency of de Quervain's syndrome in Punjab secretariat officers.

Methodology:

A cross-sectional study was conducted. Data were collected from the officers of Punjab secretariat of Lahore. Convenient sampling technique was used. Sample size was 160 with 8% precession level. The Office workers writing 2-4 hours daily were included in study and aged between 17-35 years. Persons who had wrist fracture or any injury were excluded. Data were collected from 160 participants through self-structured questionnaire through convenient sampling technique. Graphs were formulated to find out the frequency of DQS.

Results:

71 respondents had no pain, 50 respondents had mild, while 32 with moderate and 7 with severe pain (Table 1). The Finkelstein Test was found to be positive in 55% respondents (Table 2). 160 respondents were included in this study. 31% respondents had mild pain, 20% further respondents had average pain (neither mild nor severe). Rest of the 4% had very high pain (Table 1). 14% respondents reported that they had felt pain. The other 85.6% respondents were not feeling pain (Table 3).

Answers	Frequency (%)
No Pain	70 (45)
Mild Pain	50 (31)
Moderate Pain	33 (20)
Severe Pain	7 (4)
Total	160 (100)

Table 1: Frequency of Pain

Finkelstein test	Frequency (%)
Positive	89 (55)
Negative	89 (45)
Total	160 (100)

Table 2: Finkelstein Test

Answers	Frequency (%)
Yes	23 (14.3)
No	137 (85.6)
Total	160 (100)

Table 3: Patients suffering from Pain

Discussion:

De Quervain's tenosynovitis most commonly arises due to the overuse of the thumb musculature which is characterized by pain that spread over the surface of radial aspect of the wrist and intensified by ulnar deviation of the hand.¹⁴ The prevalence of this condition upturns with new occupational demands such as extended work at computer, an athlete especially who follows a high resistance training that includes lifting weight and using hands for support and maximal exertion. In 2010, a case report of bilateral DQT revealed that the diagnosis linked the patient's condition with excessive routine of the text messaging feature on a cellular telephone.¹⁵

Almost half of the students were frequently writing, out of them 132 (44%) written less than 5000 words per day. Another 96 (32%) did texting between 50-100 texts. Out of 300 students who filled the questionnaire 125 (42%) students were experiencing pain in the thumb/wrist same

was the case described in the present study that number of the texting was highly related to the DQS specially in the young generation as number of the testing increases the intensity of pain was also increased. DQS is fibrous thickening and tenosynovitis of 1 extensor compartment of wrist. In this condition, synovial sheath of both extensor pollicis braves (EPB) abductor pollicis longus (APL) is inflamed.

An extensive community based study performed in United Kingdom displayed that prevalence of DQT was 0.5% in males compared to 1.3% in females¹⁶ In 2007, The New Zealand Medical Journal published an article on texting tenosynovitis where they figured two previous reports of texting tenosynovitis.¹⁷ Other studies have purported these results with patients complaining of decrease in gripping strength, pain in wrist while using thumb and as a consequence dropping objects due to pain or stating a combination of these symptoms.^{18,19}

In the last two decades, lots of progress had been made in the field of information and communication technology (ICT) which had also changed our life styles. Moreover, also easy access too many advanced technologies like computers, laptops, and mobile phones had also increased 19 their use over last ten years. According to mid-year 2010 data, it was found that 20 daily text messages per subscriber were sent in the United States. According to the Pew Research Centre, 82% of US adult's writers and 72% of writing for hours and Based on a Kaiser Family Foundation study²⁰, mobile phone users were seen 69% among 11-14 years old and 85% among 15-18-year olds in last previous studies and prevalence of DQS was found 29.4%. The result of our study concluded that a significant majority of Punjab secretariat officers suffering from DQT because of the overuse of thumb musculature, more than half 55% of them experienced pain over the radial side of the wrist and got a positive Finkelstein test which shows there is a positive relationship between De Quervain's and frequent and prolonged smartphone usage. Finkelstein test found

positive 90 out of 160 respondents. Having a positive result for the Finkelstein test could lead to severe DQT.²¹

Conclusions:

Pain was found to be associated with writing but it depends upon the writing in history. Mild writing did not cause any pain but over writing in a day for long duration caused pain in some individuals, it varied from moderate to severe depending upon the type of writing and duration of writing. Pain varies while performing different task e.g. making fist or opening of finger from fist or performing daily life activities. Most of the daily writers of young age did not feel any pain, while those who felt pain were writing for several years. Pain increased by increasing the writing hours.

References:

- 1- De-Quervain F. Ueber eine form von chronischer tendovaginitis. *Corresp Blatt Schweizer Arzte*. 1895, 25:389-911.
- 2- Foye PM, Cianca JC, Prather H. 3. Cumulative trauma disorders of the upper limb in computer users. *Archives of physical medicine and rehabilitation*. 2002 Mar 1;83:S12-5.
- 3- Foye P, Stitik T. De Quervain Tenosynovitis. *eMedicine [database online] Omaha (NE): eMedicine.com*.
- 4- Souza TA. Differential diagnosis and management for the chiropractor: protocols and algorithms. Jones & Bartlett Publishers; 2009 Oct 7.
- 5- Moore KL, Dalley AF, Agur AM. Clinically oriented anatomy. Lippincott Williams & Wilkins; 2013 Feb 13.
- 6- Berkow R, Fletcher AJ, Bondy PK. *The Merck Manual of Diagnosis and Therapy*. 1992
- 7- Magee DJ. *Orthopedic physical assessment*. Elsevier Health Sciences; 2013 Dec 4.
- 8- Avci S, Yilmaz C, Sayli U. Comparison of nonsurgical treatment measures for de Quervain's disease of pregnancy and lactation. *The Journal of hand surgery*. 2002 Mar 1;27(2):322-4.
- 9- Pakistan Telecommunication Authority Report. [link:pta.gov.pk/media/tqr_dec_09.pdf](http://link.pta.gov.pk/media/tqr_dec_09.pdf); 2009, 24.
- 10- Frontera WR, Silver JK, Rizzo TD. *Essentials of Physical Medicine and Rehabilitation E-Book: Elsevier Health Sciences*; 2014.
- 11- Stahl S, Vida D, Meisner C, Lotter O, Rothenberger J, Schaller H-E, et al., Systematic review and meta-analysis on the work-related cause of de Quervain tenosynovitis: a critical appraisal of its recognition as an occupational disease. *Plastic and Reconstructive Surgery*. 2013; 132(6):1479-91.
- 12- Mattioli S, Violante FS, Bonfiglioli R. Upper-extremity and neck disorders associated with keyboard and mouse use. *Handbook of clinical neurology: Elsevier*; 2015. 427-33.
- 13- Richie III CA, Briner WW. Corticosteroid injection for treatment of de Quervain's tenosynovitis: a pooled quantitative literature evaluation. *The Journal of the American Board of Family Practice*. 2003; 16(2):102-6.
- 14- Ashurst JV, Turco DA, Lieb BE. Tenosynovitis caused by texting: an emerging disease. *The Journal of the American Osteopathic Association*. 2010 May 1;110(5):294-6.
- 15- Walker-Bone K, Palmer K, Reading I, Linaker C, Byng T, Coggon D, Cooper C. The prevalence and impact of soft tissue musculoskeletal disorders of the neck and upper limb in the general population. *Rheumatology*. 2002 Apr 5;41.
- 16- Yoong JK. Mobile phones can be a pain--text messaging tenosynovitis. *Hospital medicine (London, England: 1998)*. 2005 Jun;66(6):370.
- 17- Bruckschwaiger O. Atypical De Quervain's Disease. *Canadian Medical Association Journal*. 1954 Sep;71(3):277.
- 18- Mezei G, Benyi M, Muller A. Mobile phone

ownership and use among school children in three Hungarian cities. *Bioelectromagnetics*. 2007; 28(4): 309-15.

- 19- LaStayo P, Backstrom KM. Mobilization with movement as an adjunct intervention in a patient with complicated de Quervain's tenosynovitis: A case report-Invited commentary. *Journal of Orthopaedic and Sports Physical Therapy*. 2002; 32(3): 94-7.
- 20- Gold J, Driban J, Thomas N, Chakravarty T, Channell V, Komaroff E-g. Postures, typing strategies, and gender differences in mobile device usage: An observational study. *Applied ergonomics*. 2012; 43(2): 408-12.
- 21- Ifeacho SN, Brar R. Stenosing tenosynovitis (trigger finger and trigger thumb). The Royal College of Surgeons of England; 2007.