Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 32s (2025)
https://www.jneonatalsurg.com

OPEN ACCESS

Mysterious Dequervain Tenosynovitis in A Knitting Housewife With Pain Neuroscience Education: A Case Report

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Cite this paper as: Krishna Kumar Singh, Nidhi Suresh Sharma, Divya Bante, Preeti Waghmare, Shubhangi Charate, (20yy) Mysterious Dequervain Tenosynovitis in A Knitting Housewife With Pain Neuroscience Education: A Case Report. *Journal of Neonatal Surgery*, 14 (32s), 1493-1499.

ABSTRACT

Introduction: Muscles near the base of the thumb, the abductors pollicis longus (APL) and extensor pollicis brevis (EPB), increase when de Quervain tenosynovitis occurs. This disease is extremely uncomfortable and aggravating. Due to extended ignorance and neglect, the patient often has pain and discomfort that interferes with and limits their ability to perform everyday tasks. In many situations, late finding results in an increase in inflammation.

Case Description: A 56-year-old women reported that her right wrist and thumb ached. On top of that, she says that she feels pain when performing her daily tasks. Prior to the onset of progressive soreness in her right thumb three months ago, she appeared to be doing well. Knitting has been her favourite way for more than a decade. The combination of conservative treatment approach consisted of strengthening with patient education and traditional pain neuroscience education. Outcome measures including NPRS and PRWE, Pain Catastrophization scale, Hamilton depression scale, Finklestine test. Patient symptoms resolved in 8 weeks and follow up reported no recurrence of wrist pain.

Conclusion: In the current case report, PNE was added to the conventional treatment for Dequervain tenosynovitis, and the patient's overall activity level and stress levels improved. PNE increases patient awareness and knowledge of the current situation and helps reduce discomfort and the tendency to categorize it.

Keywords: Dequervain tenosynovitis, PNE, Conservative Physiotherapy

1. INTRODUCTION:

Inflammation or irritation of the tendons surrounding the base of the thumb, usually within the sheath that envelops them, causes de Quervain's Tenosynovitis, a painful illness affecting the thumb side of the wrist 1. In addition to pain and swelling, these issues could render it difficult to move the thumb and wrist2. Particularly while gripping, twisting, or creating a fist, the patient may feel pain close to the thumb3. Surgeon Fritz de Quervain was the first to identify the disease in 18951. The radial side of the wrist has a painful thickening of the abductor pollicis longus and extensor pollicis brevis tendons. Abductor pollicis longus and extensor pollicis brevis tendons are both painfully thickened on the radial side of the wrist. DQT is primarily caused by repetitive thumb and wrist motions from grasping, pinching, typing, using any kind of tool, and direct damage or injury1, 3. Extended thumb and wrist use can cause irritation and soreness in the thumb zone. Females are more likely than males to be affected by DQT, which affects approximately 0.5% of males and 1.3% of females4. Due to their daily schedule, women are typically more affected by these disorders, which are frequently observed in them. Along with symptoms and diagnostic results, such as findings from the finkelistein test, DQT can be diagnosed. Additionally, the dominant and non-dominant hand of those with a positive Finkelstein's sign was to be evaluated5.

Case presentation:

A 56-year-old woman complained of wrist and thumb ache on her right side. She also reports experiencing pain when going about her regular activities. She seemed to be doing fine until three months ago, when she began to gradually feel pain in her right thumb. For the past ten years, she has been knitting. She used to knit for as long as an hour at first, but then she began to knit for six to seven hours. She was in horrific pain after a month. She went to a general practitioner complaining of pain, and the doctor gave her a prescription for some medicine. She experienced a brief relaxation, but as soon as she resumed knitting, the pain s aggravated. She was recommended for the physiotherapy.

EVALUATION OF PAIN ASSESSMENT:

She complains of stiffness and excruciating agony across the radial side of her right wrist pain, 7 out of 10 on the Numerical Pain Rating Scale (NPRS). While exercise the pain decreased, are 5 out of 10 during her rest. The pain, at the right radial thumb with discomfort of abduction, adduction & opposition of thumb. No proximal upper extremity or cervical discomfort was reported by the patient. The right side of the thumb aches while the discomfort has been dull aching for the past six to seven months i.e. (chronic pain). The onset mode is gradual. Her pain, is chronic, has lasted for more than seven weeks. Each day, her condition deteriorates. She has intense discomfort after working nonstop for five to six hours; therefore it is possible to calculate how frequently she experiences pain.

ON INSPECTION:

Her pain is continuous in nature. The severity level 4, indicating that it interferes with her performance during and after particular tasks. Pain is essentially made worse by repetitive movements of the hand, knocking on doors, dusting, cleaning, knitting, and other everyday household tasks. There was swelling over the right wrist, at base of the first metacarpal & the snuff box, which was the first dorsal tunnel on the right hand of the wrist. She only feels better after taking medicine & resting. According to her medical history, she has no prior hospitalizations, illnesses, or injuries. Acknowledging a personal history she had a regular appetite, a regular and continent bowel and bladder, and pain that interfered with her sleep. She is free of addictions of any kind. She used to conduct cleaning duties and knitting as physical activities. Her family is from the lower middle class. She has a normal BMI, is ectomorphic, and her right thumb that feels swampy and spongy, which is synovial.

ON PALPATION:

She had grade 2 tenderness, upon palpation (the patient winces and complains of pain). Her vitals are normal based on a general assessment. The right thumb had irritation, the skin was slightly moist, and there was no crepitus. According to sensory evaluation, neurological, deep, and superficial sensations are all intact.

ON BIOPSYCHOSOCIAL ASSESSMENT: She endured swelling for a long time, which makes the inflammation worse. As well as these may result in serious tendon damage or disruption. Her illness is caused by abnormal repetitive movements of her thumb and wrist in the same pattern over an extended period of time. Overuse of these muscles results in overstretching and on-going strain on the tendons, which causes pain and inflammation.

As a result, she feels less comfortable and has less force in her hands when performing her everyday tasks. She is from a middle-class family, which includes four people who are all supportive for her therapy, who are educated, and aware of her issues. She is also the only one who does housework. She has extremely specific friends with whom she has a pleasant relationship. In addition to keeping her from becoming lonely, her friends help her decompress and inspire her to pursue treatment and well educated and acknowledge about her condition. She has very selective friends and she shares a nice bonding with them.

Her friends keep her from feeling alone, help her cope with stress, and inspire her to pursue treatment. She believes she won't be able to actively participate in any community activities, including cooking, cleaning, dusting, knitting, and other household chores, thus her involvement in the community has decreased. Her personal pain has caused her to spend less time with her family. She struggled with spiritual activities in cultural activities, which is why she lacks her mental piece at a time she is unwilling to engage in those activities because she is worried about how society will see her. The woman is unwilling to engage in those activities because she is worried about how society will see her. She becomes increasingly concerned about her social image as a result of all these concerns. Her psychological perspective on her pain is becoming negative. She believes that she must endure these pains for the rest of her life and is unable to care for her family. She eventually fears that her excruciating pain may cause her to enter a depressed state. Her pain is causing her thoughts to get overpowered, which causes her to overthink everything, which in turn causes anxiety and makes her antisocial. She is aware of her illness and knows approximately it. Sometimes she feels depressed and more emotional than functional due to her suffering. Her ability to make decisions is impacted somewhere.

BIO	PSYCHO ASSESSMENT	SOCIAL ASSESSMENT
INFLAMMATION: She has long suffered swelling which exacerbates inflammation. As well as considering these may result in serious tendon damage. PATHOLOGY: Long-term repeated motions of the thumb and wrist in the same pattern are the pathological aetiology of her illness. These overuse injuries result in chronic tendon strain and excessive muscular stretching, which cause discomfort and inflammation. NOCICEPTION: History of bodily tissue damage throughout the last six to eight weeks; the pain goes away in accordance with the body's normal healing processes.	BEHAVIOURAL: She becomes depressed about her suffering, believing that she must endure it for the rest of her life and that she will not be able to care for her family. She eventually fears that her excruciating pain may cause her to go into a melancholy mood. BELIEFS: Her pain is causing her thoughts to get overpowered, which causes her to overthink every aspect, which in turn causes anxiety and makes her rude. KNOWLEDGE: She is aware of her condition and her pain, and as a result, her beliefs, thoughts, culture, and community are all impacted. EMOTION: As a result of her sadness, she occasionally feels depressed and more sentimental than sensible. Her capacity to make decisions is impacted somewhere.	FAMILY: She is from a middle-class family, which includes four people who are all supportive of her treatments, educated, and aware of her problem. She is also the only one who does housework. FRIENDS: She has a good bond with her friends, although they are quite meticulous. In addition to keeping her from becoming lonely, her friends help her decompress and inspire her to pursue treatment. COMMUNITY: She believes she won't be able to actively participate in any community activities, including cooking, cleaning, dusting, knitting, and other tasks around the house, thus her involvement in the community has decreased. Her personal pain has caused her to spend less time with her family. CULTURALACTIVITIES: She struggled with spiritual activities in cultural activities, which is because she lacks her mental piece. SOCIETY: She is unwilling to engage in those activities because she worries about what society will think of her. She becomes increasingly concerned about how she is perceived by society as a result of all these thoughts.

TABLE: 1.1- BIOPSYCOSOCIAL ASSESSMENT

On motor examination:

Wrist movements	Pre Right side AROM	Post Right side PROM	Pre Left side AROM	Post Left side PROM
Flexion	0-65	0-75	0-75	0-80
Extension	0-58	0-65	0-70	0-75
Radial deviation	0-25	0-30	0-35	0-40
Ulnar deviation	0-35	0-40	0-40	0-45

Supination	0-60	0-65	0-65	0-70
Pronation	0-65	0-70	0-70	0-75

TABLE: 1.2 - WRIST RANGE OF MOTION

The right side's end ranges showed uncomfortable and resisted movement at radial deviation while using active ranges of motion and adding resisted isometric contraction to movements. Also restricted were thumb movements, particularly forcefully abduction and extension.

Manual Muscle Testing examination:

Wrist muscles	Pre Right side	Post right side	Pre Left side	Post Left side
Flexors	-4	5	5	5
Extensor	+ 4	5	5	5
Extensor pollicis longus	+3	4+	5	5
Adductors pollicis brevis	3	4+	5	5
Opponens pollicis	3	4+	5	5

TABLE: 1.4- MMT PRE AND POST ASSESSMENT

Investigation:

Test for diagnosis: The Finkelstein test is a specialist test used to identify the, diagnose & illness. The positive Finkelstein's test result is accompanied by pain, swelling, thickness of the extensor retinaculum, and inflammation in the right thumb. The Hamilton Depression Rating System and the patient-rated wrist evaluation scale used to measure the pre and post outcome measures.

Sr.no	Outcome measures	Pre-treatment	Post-treatment
1.	NPRS	On activity 7/10 On Rest 5/10	0
2.	PRWE	68/100 (Moderate)	31/100 (Mild)
3.	Pain Catastrophization scale	20	4
4.	Hamilton depression scale	11	0

5.	Finklestine test	Right side Positive	Right side negative

Table: 1.5- show the pre and post outcome measures for Dequervain Tenosynovitis

Therapeutic Intervention:

Multiple stages of treatment are usually used for Dequervain; however, in this case, pain neuroscience education has a major impact on the patient. During the patient's eight-week session, all tires received treatment. Intervention targets include aggravating pain, swelling, improving range of motion, strengthening muscles, lowering anxiety and depression, educating patient about pain, and enhancing quality of life. When the patient arrived for the first session, they were wearing an elastic wrist brace that was securely wrapped around their wrist and secured with Velcro. During the course of the one-month treatment, the patient employed this non-restrictive support since she felt that it helped her symptoms little. Use a thumb splint for the entire day in the acute tier, and Cryotherapy for 15 to 20 minutes three or four times a day. Ultrasound treatment: 1 MHZ pulsed at 0.8 to 1.0 w/cm2.For pain, alleviation, using TENS for 20mins continuous mode. Pulling grasping, using cell phones, and knitting are all avoided with activity adjustment. In the sub-acute period, 2-4 days release of soft tissues to the first dorsal compartment is signified as mobilization. The patient was requested to move her thumb into radial abduction-adduction after the therapist performed a manual radial glide of the proximal row of carpals. Following three sets of ten repetitions of mobilization with movement, a hammer curl exercise with a theraband is performed. Mild AROM includes radial and ulnar deviation, wrist flexion and extension, thumb extension, and flexion and abduction. MDT EX: 3 sets of 10 repetitions of the pain-releasing phenomena with ice packs and Cryotherapy for 10 minutes. During the final stage of recovery, pain sessions begin four to six weeks later.

The PNE session includes a description of pain. The definition of pain, the normalization of pain, and motivational therapy. PNE provides information regarding the disease, its causes, and its complications if left untreated during the fourth week. The final week of PNE sessions covers pain correction and common misconceptions about pain and Dequervain. Dos and don'ts were discussed, and motivational videos that alter perceptions of pain and Dequervain were shown during the most recent PNE session. Thumb extension, radial deviation, wrist extension, and opposition are all strengthened with this

Theraband workout. Thumb extension under control: eccentric loading. Functional exercises include grip drills and stimulation lifting light things. APL and EPB stretching. Grades 1 and 2 joint mobilization are performed if stiffness is evident.

PNE Session	Intervention (4th week to 6th week)	Duration	Prognosis
	A description of pain? Suffering and motivational rehabilitation.	30 mins	7 on NPRS
	Describe what Dequervain tenosynovitis is. Causes or consequences if ignored.	30 min	6 on NPRS
	Discussing Dequervain and its causes of the pain cycle in a diagrammatic manner.	30 min	3 on NPRS
	Dispelling the myths about Dequervain and pain. Dequervain cannot be avoided; the more repetitive tasks or over analysing you undertake, the more pain you will experience.	30 min	2 on NPRS
	Acute, sub-acute, and dos and don'ts are covered in motivational videos that alter how people view pain and dequervain.	30 min	0 on NPRS

Table: 2.1 show the Pain neuroscience education for Dequervain Tenosynovitis

2. DISCUSSION

Household commonly suffer wrist and hand injuries, particularly those involving the use of the hands, such as repetitive movement, one of which is DQT. The patient may experience pain near the thumb when doing repetitive wrist movements while holding the thumb, such as gripping, twisting, or making a fist. Repetitive motions like this might cause DQT symptoms like pain, edema, and trouble with hand tasks. In this case, the 56-year-old woman was knitting a lot, and the pain caused her to develop repetitive thumb and wrist movements. The several accessible therapies were conservatively managed with mobilization-based exercise regimens and electro modalities. By immobilizing the thumb and wrist joint, the thumb Spica splint has been shown to help with pain management. According to Ritu Goel et al. (2014), the thumb's Spica is beneficial and reduces tendon pain. We use ultrasound on 0.8-1.0w/cm 2 and Cryotherapy to alleviate pain and inflammation[6]. At a frequency of 1 MHz Similar outcomes are obtained by Sajjan Pal et al. (2018) following the implementation of these protocols, which include TENS for 20 minutes, ultrasound for 6 minutes, and Cryotherapy for 20 minutes [2].

During the sub-acute phase, we provide mobilization for soft tissue release and gentle AROM exercises to restore range of motion and reduce pain. Alon Rabin et al. (2014) found similar results, concluding that as participants repeated movements, either ROM increased or pain decreased, and the MWM was repeated for three sets of ten repetitions. Phase of strengthening; during this phase, thumb extension is controlled by eccentric loading and eccentric tendon glides[7]. The same outcomes were obtained by Alpi Garg et al. (2023) when they used eccentric tendon glides for extension pollicis brevis in two sets of ten repetitions[8].Pain neuroscience education (PNE) educates patients that pain is not a sign of existing tissue damage but rather a brain function product that results from activity from several central and peripheral pathways, creating the appearance of danger. The current study is in accordance with the findings of a randomized trial by Galan-Martin et al. (2019); in both trials, PNE intervention enhanced the results when paired with traditional physiotherapy treatment for persistent musculoskeletal pain. By presenting damage mechanisms, pathologies, and biomechanics in an understandable way, the PNE aids the patient in better understanding their pain[9]. A comprehensive study by Louw, Adriaan (2016), et al. found that PNE had amazing results by helping patients better understand their pain experience, which in turn improves function and reduces disability. In this instance, we informed the patient about the neurobiology of pain and the dequervain alterations[10]. In this case, we essentially view humans as complicated beings that include their environment and embodied brain. We have altered some of the patient's cognitive conceptions. We helped her see her body as dynamic and strong rather than weak and fragile, which altered the way she thought about it. We think that her activity shouldn't be stopped by pain. We helped her realize that pain isn't always a sign of damage.

3. CONCLUSION:

PNE was integrated to the traditional treatment for Dequervain tenosynovitis in the current case report, and the patient's total activity level and stress levels improved. PNE raises patient knowledge and awareness of the current situation. Assist in lowering discomfort and the tendency to Catastrophization it.

Patient Perspective:

After receiving the session, the patient reported that she felt her pain level decreasing daily. By the end of the session, she was pain-free and her knitting skills were improving daily.

Informed Consent:

The author has obtained and kept the patient's signed and informed consent in accordance with university or international standards.

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