



Outcome of surgical resection of de quervain's stenosing tenosynovitis

Abstract

Introduction: It is thought that repetitive and forceful manual work with wrist deviated to ulnar wards and thumb abducted and extended may lead to de Quervain's tenosynovitis. There is a lot of treatment option both operative and non-operative for this condition. However, surgical decompression is considered when conservatives measures failed after tried for 3-6 months. But there are some complications such as neural adhesion or neuroma formation, subluxation of the volar tendon, scar hypertrophy, radial sensory nerve injury, reflex sympathetic dystrophy, infection, etc.

Materials and Methods: The study was an interventional type of prospective study done at Kurmitola General Hospital from September 2017 to July 2019. A total of 31 patients of de Quervain's tenosynovitis were included in the study precisely following inclusion and exclusion criteria. Among them, 2 patients could not be followed-up.

Results: Two (6.9%) patients had not improved after 1 year of follow-up. Rest 27 (93.1%) cases were cured as there were insignificant pain or tenderness, below 4 VAS score and negative Finkelstein test. Preoperative VAS score was reduced from 8.1 ± 1.29 to 1.41 ± 2.23 at 1 month, 1.24 ± 2.15 at 6 months, and 1.10 ± 2.26 at 12-month follow-up. Functional outcomes measured using Quick DASH were also reduced significantly. Preoperative Quick DASH score was 75.39 ± 14.27 which was reduced to 16.85 ± 18.26 at 1 month, 13.56 ± 20.42 at 6 months and 15.05 ± 22.24 at 12-month follow-up. One patient developed an infection and cured with an antibiotic. Two patients had tendon subluxation after the operation where 1 cured and others had some problems. No other complication noted.

Conclusion: The findings in our study showed that most of the patients were completely relieved from de Quervain's tenosynovitis with very few complications. However, there was a limited follow-up. The surgical procedure was also time-consuming as done at OT with proper aseptic precaution. Despite those limitations, simple surgical resection in de Quervain's tenosynovitis showed a very good treatment option.s.

Keywords: de quervain's tenosynovitis, Visual Analogue Scale (VAS), Finkelstein test, quick dash

Introduction

The tenosynovitis is a stenosing tenosynovitis of the Abductor Pollicis Longus (APL) and Extensor Pollicis Brevis (EPB) in the first dorsal compartment of the wrist [1]. It was first described by a Swiss physician Fritz de Quervain in 1895 [2,3]. But still, its aetiology and pathology remain unclear. It is thought that repetitive and forceful manual work with wrist deviated to ulnarwards and thumb abducted and extended may cause micro-tears which may lead to collagen disorientation, myxoid degeneration, accumulation of mucopolysaccharides and thickening of the extensor retinaculum [4-7]. The thickening causes impingement between

the first dorsal compartment and tendons which leads to pain and impaired wrist movement. It is also common in pregnancy [8].

Patient with de Quervain's disease presents with pain over the radial styloid process which may radiate to thumb, forearm, or shoulder. On physical examination swelling, tenderness and crepitation may be found. Pain on thumb abducted with clenched fist and wrist ulnar deviation (Finkelstein test) suggests de Quervain's tenosynovitis [9].

There are many treatment options both operative and non-operative for this condition. Non-operative options are rest, analgesics, exercise, splinting, etc. [10]. Corticosteroid

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injection in the first dorsal compartment is a good treatment option [4,7]. However, surgical decompression is considered when conservative measures failed after tried for 3-6 months [11].

The presence of supernumerary and multiple septa within tendons may cause non-operative treatment failure [12,13]. In such a case release of 1st extensor compartment may be effective [14]. But there are some complications such as neural adhesion or neuroma formation, subluxation of the volar tendon, scar hypertrophy, radial sensory nerve injury, reflex sympathetic dystrophy, infection, etc. [14,15]. Presence of aberrant tendon within a separate compartment and other diseases like intersection syndrome, arthritis, proximal nerve compression syndrome may cause surgical failure [15].

The aim of the study to evaluate the results of simple surgical release in patients of de Quervain's tenosynovitis. Very few studies are available on the surgical outcome for the disease.

Material and Method

The study was an interventional type of prospective study done at Kurmitola General Hospital from September 2017 to July 2019. A total of 31 patients of de Quervain's tenosynovitis was included in the study precisely following inclusion and exclusion criteria. Among them, 2 patients could not be followed-up.

■ Inclusion criteria

- Pain and tenderness in the first dorsal compartment
- Finkelstein test positive
- Conservative treatment with or without corticosteroid injection tried for 3-6 months

■ Exclusion criteria

- Below 20 years of age
- Presence of pregnancy and other diseases like RA, gout, DM, infection or skin disease

■ Ethics

Ethical clearance was taken and all the patients were informed about the possible outcomes, details of surgery, and complications. Then written informed consent was taken from each of them.

■ Surgical technique

The skin was infiltrated with 2% lidocaine HCl and then painting and draping were done. A pneumatic tourniquet was applied after Eschmarch bandage. An oblique incision over the extensor brevis tendon was done. The dermis was dissected avoiding the sensory branches. The retinaculum over the first extensor compartment tendons was exposed dissecting the subcutaneous fat. The tendons were specifically identified proximal to stenosing dorsal ligament and sheath. The compartment was opened on its dorso-ulnar side. With the thumb, adducted and wrist flexed the two tendons were lifted from the groove. The tendons were released and the presence of any aberrant tendon and separate compartment were searched. After the closure of skin, a small pressure dressing was applied [15].

■ Study design

All the 29 patients were followed-up after 1 month, 6 months and 12 months. On every follow-up presence of any pain and tenderness over the radial styloid process and results of Finkelstein's test were recorded. Visual Analogue Scale (VAS) score was used for pain and considered significant if above 3. The functional outcome was measured using the Quick DASH. Other data e.g. age, sex, dominant and affected hand were also measured. Occupations were divided into a housewife, hard worker light worker and other.

Results

A total of 29 patients with de Quervain's tenosynovitis were undergone surgical treatment. Among them, the mean age was 45.10 ± 10.14 years whereas age range was 26-62 years. Twenty-one (72.4%) patients were female and the rest 8 (27.6%) were male. The occupations of patients were hard workers 37.9%, housewife 41.4%, lightworker 17.2%, and others 3.4%. Most (86.2%) of the patients were dominant on the right side. The right hand was affected in 75.9% cases and left in 24.1% cases. Out of 29 patients, 5 (17.24%) cases had developed de Quervain's tenosynovitis in non-dominant hand **TABLE 1.**

Two (6.9%) patients had not improved after 1 year of follow-up Rest 27 (93.1%) cases were cured as there was insignificant pain or tenderness, below 4 VAS score and negative

TABLE 1. Secondary outcomes.

VAS	Quick dash		
Preoperative	Mean	8.1	75.39
	SD	1.29	14.27
At 1 Month	Mean	1.41	16.85
	SD	2.23	18.26
At 6 Month	Mean	1.24	13.56
	SD	2.15	20.42
At 12 Month	Mean	1.1	15.05
	SD	2.26	22.24

Finkelstein test. Preoperative VAS score was reduced from 8.1 ± 1.29 to 1.41 ± 2.23 at 1 month, 1.24 ± 2.15 at 6 months, and 1.10 ± 2.26 at 12-month follow-up. Functional outcomes measured using Quick DASH were also reduced significantly. Preoperative Quick DASH score was 75.39 ± 14.27 which was reduced to 16.85 ± 18.26 at 1 month, 13.56 ± 20.42 at 6 months and 15.05 ± 22.24 at 12-month follow-up.

One patient developed an infection and cured with an antibiotic. Two patients had tendon subluxation after the operation, where 1 cured and others had some problems. No other complication noted.

Discussion

In our study of 29 patients, 93.1% of patients were cured and only 6.9% didn't. There were only 3 complications, 1 infection and 2 tendon subluxations. This was very similar to other studies. Altay, et al. [16] showed 94% excellent or good result after surgical treatment and had only 2 complications i.e. infection and delayed wound healing.

Garcon, et al. [17] treated de Quervain's tenosynovitis with surgical release and found complete resolution in 85% cases. There was no complication. Scheller, et al. [1] found that all the patients were completely relieved from signs and symptoms after surgery. However, they showed 6 complications in 94 patients. Belsole [18] showed 36 complications in 19 patients following the first compartment release. Among the complications, 8 cases were tendon subluxation, 8 nerve lesions and 7 were incomplete decompression. Van der Wijk, et al. [19] reported good medium-term results and no subluxation in 45 patients following first compartment pulley enlargement plasty. Scheller, et al. [1] reported no subluxation in 94 patients treated by simple decompression and partial resection of the dorsal carpal retinaculum up to 3 mm.

Mellor and Ferris [20] reported 10 complications of which 6 were sensory branch lesions of the radial nerve. Harvey, et al. [21] showed 6 complications including 3 transient neurologic deficits.

Conclusion

The findings in our study showed that most of the patients were completely relieved from de Quervain's tenosynovitis with very few complications. However, there was a limited follow-up. The surgical procedure was also time-consuming as done at OT with proper aseptic precaution. Despite those limitations, simple surgical release in de Quervain's tenosynovitis showed a very good treatment option.

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