ISSN: 2091-2749 (Print)
2091-2757 (Online)

Outcome of surgical decompression in resistant de Quervain tenosynovitis

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ABSTRACT

Introductions: De Quervain tenosynovitis is a common cause of functional impairment. Steroid injection has good result but significant numbers of cases develop resistance requiring surgical decompression. This study assesses the outcome of surgery.

Methods: Symptomatic de Quervaint tenosynovitis cases resistant to conservative treatment that underwent surgical decompression and postoperative thumb immobilization using thumb spica splint cast during four and half years were analyzed. They were followed for at least three months for clinical and functional outcome. Patient demography, visual analogue score (VAS) and complications were analyzed descriptively.

Results: There were 34 cases of de Quervaint tenosynovitis, mean age 42±16 years, and female 88.2%. Treatment was successful in all cases. The mean VAS score reduced to 0.5 from 6.82, p-value <0.01. Complication occurred in one case.

Conclusions: Surgical decompression of de Quervain tenosynovitis was safe and effective in cases resistant to conservative treatment.

Keywords: corticosteroid injection CSI, resistant de Quervain tenosynovitis, surgical decompression, thumb spica splint cast

INTRODUCTIONS

De Quervain's tenosynovitis was first recognized in 1895 by Fritz De Quervain as a stenosing tenosynovitis of the abductor pollicis longus (APL) and the extensor pollicis brevis (EPB).[1,2] The repeated activity of the wrist with abducted and extended thumb is the cause for the development of the lesion.[3] Prevalence of this condition is found in 1.2% of general population, with age more than 40 years, female and black race being the risk factors.[4,5]

The conservative nonsurgical treatment, include rest, massage, diathermy, casting, oral analgesics, and local steroid injection.[2,6,7] Intralesional corticosteroid injection (CSI) is an effective form of treatment commonly practiced nowadays.

Surgical intervention is definitive therapy for De Quervain's tenosynovitis if all other treatment methods fail and is more likely to be satisfactory for patients with a long duration of symptoms.[8,9] This is associated with variable outcome and wide intraoperative variation in anatomical structure.

In this review, we aim to assess the outcome of decompression surgery in patients' resistant to conservative managements.

METHODS

Patients with de Quervain's tenosynovitis presenting over a period of five and half years (June 2013 to February 2017) who underwent surgical release in Kaski Model Hospital, Pokhara, Nepal, were evaluated retrospectively. Patients between the age of 20 to 80 years with duration of symptoms for more than three months who were resistant to other forms of treatment and visual analogue scale (VAS) score for pain more than five at the time of presentation were included in the study.

The patients with chronic disease and co-morbidities like diabetes and arthritis of the joints of hands, and previous history of surgical procedure for same condition or same site were excluded.

After taking written consent from the patients, surgery was done under local anesthesia. Transverse incision was given at the level of maximum tenderness (1.5 cm proximal to the tip of radial styloid process in most of the cases) and the compartment reached through blunt dissection protecting superficial sensory branch of radial nerve. Decompression was done by incising the extensor retinaculum of first dorsal compartment of wrist along the line of APL and EPB tendon leaving the volar flap intact. Both the tendons were identified and complete decompression confirmed using atraumatic passive tendon movement. Postoperatively after closing the skin, thumb was immobilized using thumb spica splint and suture was taken out on 14th postoperative day. The patient was asked to continue the normal activity as tolerated; and followed at two, six and 12 weeks for movement and VAS score.

Treatment was considered successful if patient had no pain or tenderness with negative Finkelstein test.

Statistical analysis was done using the SPSS version 21.0. The p-value less than 0.05 was taken as statistically significant.

RESULTS

Thirty-four patients underwent decompression surgery. The average age was 42±16 years, 12 (35.3%) in 20 to 30 years age group (Figure 1). Female were 30 (88.2%), (Table 1). Left hand was involved in 20 (58.8%) and mean duration of symptoms was 152±56 days. Treatment was successful in all cases.

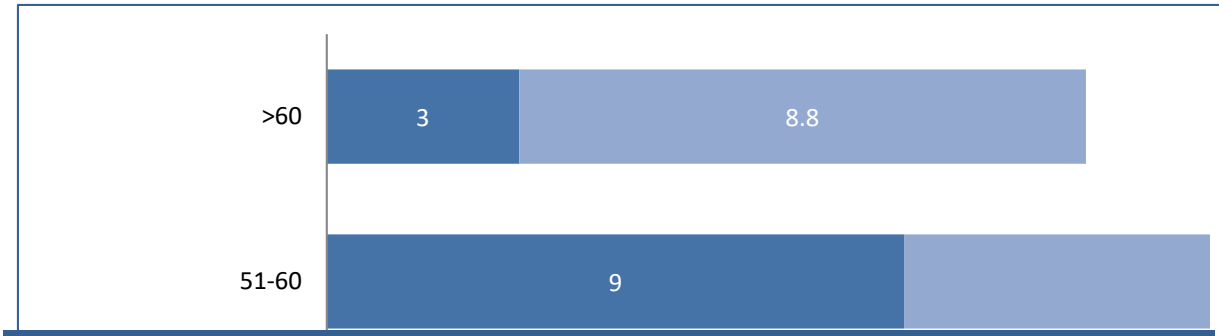

Figure 1. Age distribution of patients of resistant de Quervain tenosynovitis

Table 1. Sex distribution of de Quervain tenosynovitis in different studies

Study Characteristics	Women's Wrist	Men's Wrist
Weiss et al.[13] 1994	80	13
Harvey et al.[14] 1990	70	12
Anderson et al.[15] 1991	50	5
Witt et al.[16] 1991	64	19
McKenzie.[17] 1972	25	5
Zingas et al.[18] 1998	12	7
Christie.[19] 1955	16	4
Mardani-Kivi et al.[20] 2014	47	12
Our Study	**30**	**4**

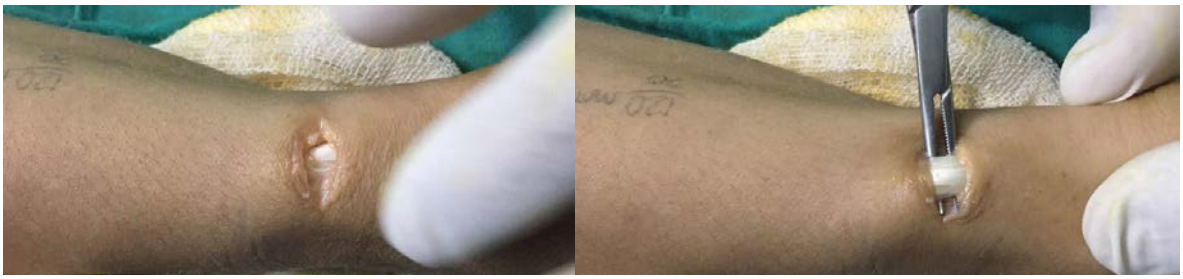

Figure 2. Peroperative images showing incision and decompressed tendons in de Quervain tenosynovitis

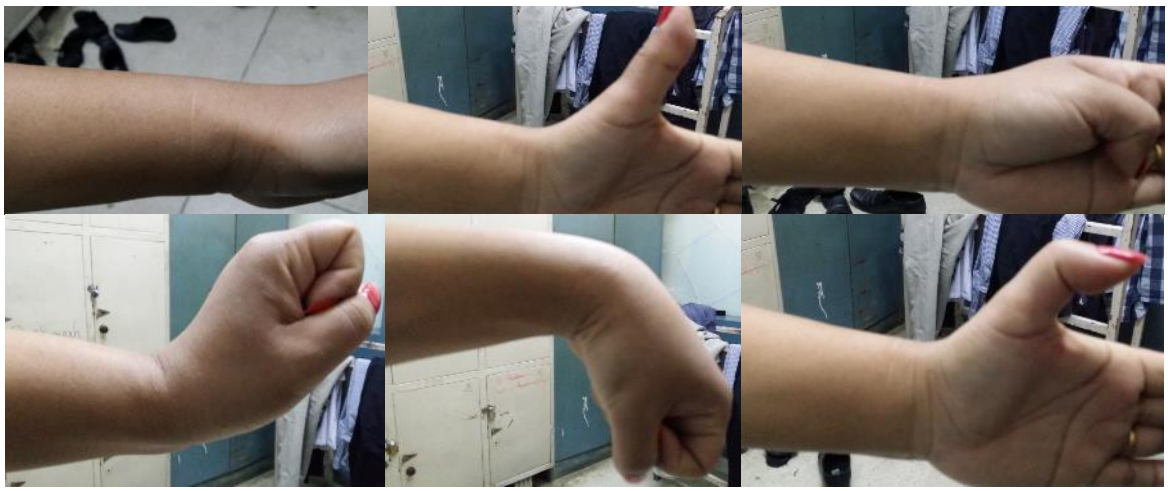

Figure 3. Scar and functional results of a 32 year lady, 5 years after decompression of de Quervain tenosynovitis

The mean VAS score before surgery was 6.82±0.17, and after surgery 0.5±0.14 at six weeks (p =<0.01) and 0.12±0.07 at 12 weeks (p =<0.01).

Anatomical variation was found in 20 cases, 16 (47%) had septation of first compartment and 4 (11.8%) had multiple APL slips.

One (2.9%) patient developed paresthesia along the distribution of radial sensory branch. It resolved completely after four months.

DISCUSSIONS

In our study female were 30 (88.2%) significantly higher than male. Similar findings is reported in others series, (Table 1). More cases in women could reflect both biological predispositions (hormonal effect) and overexposure to biomechanical repetitive work-related constraints (gender effect).

At the early years of 20th century, surgical release of first dorsal compartment were mostly used.[10,11] Surgery is reserved for those with intense chronic pain unresponsive to conservative treatment.[12]

Mean age group in our study was 42±16 years. Age greater than 40 has been reported as a risk factor.[5] Mean duration of symptom in our study was 152±56 days. The longer duration before presentation could be due to the inclusion criteria of resistant cases only and lack of availability of health facilities.

Our study shows more involvement of left wrist, 20 (58.8%), in contrast to other studies.[20,12] One possibility could be our patients were more left handed.

In the final follow-up visit, the treatment was successful in all patients (100%). The study by Lamichhane N. et al., unpublished research thesis, Maharajgunj Medical Campus, Institute of Medicine, Tribhuvan University, Kathmandu, Nepal, reported a success rate of 89.7% (35 out of 39 patients) in patient who received CSI plus thumb spica cast (TSC) compared to 50% (18 out of 36 patients) in case of patients who received CSI. Our result was similar to the most of the study done with surgical decompression.[9,21] Reduction in VAS score was significantly better than other techniques of treatment like SCI or SCI with TSC application.[20]

We found septation in 47% and multiple APL slips in 11.8% of our 34 cases. In contrast, the cadaveric study reports anatomical variation of multiple septation of APL in 57.6% and septation of first dorsal compartment in 47% in 66 cases.[22] This indicates that the failure of treatment with corticosteroid injection may contribute to this anatomical variation and ultrasound guided injection may result in less number of resistant cases.

We had 2.9% (1 out of 34 cases) complications of temporary neuropraxia. Complications like fat necrosis, subcutaneous atrophy, and skin depigmentation has been reported in 5-10% of CSI and 9% recurrence of de Quervain's tenosynovitis, radial sensory nerve injury, and severe scar tenderness after surgery.[8] Like in our cases, transverse incision in surgical decompression is associated with lower complications rate.

Some of the limitation of our study could be absence of a control group. Bigger sample size through multi-center enrolment and longer follow up could provide better insight in long term result of surgical treatment.

CONCLUSIONS

Surgical release of de Quervain's tenosynovitis in resistant cases was safe and effective in all 34 cases at 12 weeks follow up. We had one transient local paresthesia.

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