

PATIENTS' SATISFACTION OF SURGERY FOR RESISTANT CASES OF DE QUERVAIN'S DISEASE

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Abstract

Background: De Quervain's disease or stenosing tenosynovitis of the first dorsal compartment of the wrist is a common wrist pathology. Pain results from resisted gliding of the abductor pollicis longus and the extensor pollicis brevis tendons in the fibro-osseous canal. Management of resistant cases of de Quervain's disease by surgical decompression yield satisfactory outcomes.

Materials and Method: This prospective study was conducted in the department of orthopaedic surgery BSMMU, Dhaka between the periods of January 2009 to October 2011. 45 patients with 50 de Quervain's disease who did not respond to conservative treatment were operated under local anesthesia with tourniquet control. Follow up period was 3 months to 3 years.

Results: Most of our patients were female 42 (93.33%), housewife 27 patients involving 30 hands (60%) with mean age of 38.60 years, ranging from 22-64 years. Right sided involvement was 28 (56%), left sided involvement was 12 (24%) and both sided involvement was 5 patients involving 10(20%) hands. Pain at the radial side of the wrist in 50 (100%), swelling 30 (60%) and restricted thumb movement in 50 (100%) were the predominant symptoms. 01(02%) patient/hand developed chronic tenosynovitis, 01(02%) patient/hand developed infection followed by hypertrophic scar and 3(6%) patients/hands developed temporary loss of sensation along the distribution of superficial branch of the radial nerve. . There was no recurrence in the follow-up period. Satisfactory result was found in 48 (96%) operated hand.

Conclusion: Surgical release of tendons of the first compartment of wrist is an easy, safe, effective, economic and acceptable procedure for patients with resistant cases of de Quervain's tenosynovitis .

Key words: Patient Satisfaction, de Quervain's disease, resistant cases, surgery.

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Introduction:

De Quervain's disease is a condition brought on by irritation or swelling of the tendons found along the thumb side of the wrist¹. The irritation causes the compartment (lining) around the tendon to swell, changing the shape of the compartment; this makes it difficult for the tendons to move as they should. The swelling can cause pain and tenderness along the thumb side of the wrist, usually noticed when forming a fist, grasping or gripping things, or turning the wrist. The pain is usually

described by patients as a very sharp, stabbing pain. It is not subtle. Although many physicians call this "tendonitis" (which means an inflammatory condition of the tendons), actually inflammation is not a key component of the problem².

The two tendons concerned are the tendons of the extensor pollicis brevis and abductor pollicis longus muscles. These two muscles, which run side by side, have almost the same function: the movement of the thumb away from the

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hand in the plane of the hand, so called radial abduction (as opposed to movement of the thumb away from the hand, out of the plane of the hand (palmar abduction)). The tendons run, as do all of the tendons passing the wrist, in synovial sheaths, which contain them and allow them to exercise their function whatever the position of the wrist. Evaluation of histological specimens shows a thickening and myxoid degeneration consistent with a chronic degenerative process³. The pathology is identical in de Quervain seen in new mothers⁴. de Quervain's is more common in women; the speculative rationale for this is that women have a greater angle of the styloid process of the radius². The cause of de Quervain's disease is not known. In medical terms, it remains idiopathic. Some claim that this diagnosis should be included among overuse injuries and that repetitive movements of the thumb are a contributing factor, but there are no scientific data that support a link between hand use and de Quervain's disease⁶.

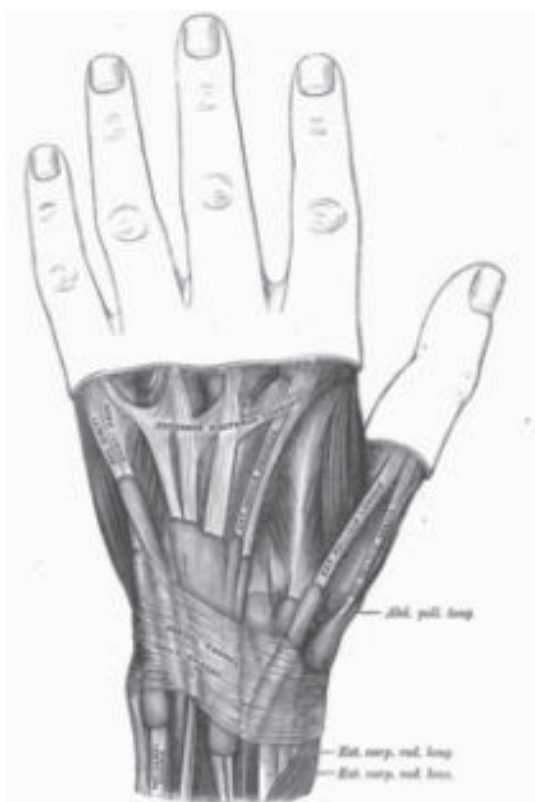


Fig.-1: Arrangement extensor tendon of the left wrist.

Symptoms are pain, tenderness, and swelling over the thumb side of the wrist, and difficulty gripping. Finkelstein's test^{5,6} is used to diagnose de Quervain syndrome in people who have wrist pain. To perform the test, the examining physician grasps the thumb and the hand is ulnar deviated sharply, as shown in the image. If sharp pain occurs along the distal radius (top of forearm, about an inch below the wrist; see image), deQuervain's syndrome is likely.



Fig.-2: Finkelstein's test.

The management of de Quervain's disease is determined more by convention than scientific data. From the original description of the illness in 1895 until the first description of corticosteroid injection by Jarrod Ismond in 1955⁷, it appears that the only treatment offered was surgery [7,8,9]. Since approximately 1972 the prevailing opinion has been that of McKenzie (1972) who suggested that corticosteroid injection was the first line of treatment and surgery should be reserved for unsuccessful injections¹⁰. However, data regarding the efficacy of corticosteroid injection is sparse and uncontrolled (Oxford Level of Evidence 4) and it is not clear that there is a benefit over the natural history of the illness. A structured review published in 2003 identified only 35 publications that addressed De Quervain's on Medline, only 7 of which presented data regarding corticosteroid

injection, and none of which were controlled studies¹¹.

Retrospective studies all report success rates for corticosteroid injection greater than 70%, but the one prospective cohort study noted a success rate of only 58% and many of those patients took 12 to 18 months until symptom resolution¹². While the authors of that study ascribed the failure of corticosteroid injection to anatomical variations, it has not been clearly established that corticosteroid injection is better than placebo or that a symptom course of 12 to 18 months is any better than the natural course of the illness.

Another commonly used criterion for failure of non-operative treatment is election of operative treatment, but the decision to operate is complex and biased by the beliefs and emotions of the surgeon and the patient. Use of an elective event such as surgery to define success makes data regarding nonoperative treatment difficult to interpret. For instance, in one of the two investigations in which a substantial number of patients were treated without injection (splints and anti-inflammatory medication alone were used), a remarkable 45 of 93 (48%) of patients in all non-operative treatment groups had surgery¹³. This may simply reflect frustration on the part of both the patient and the surgeon with the prolonged symptom course associated with the disease. It may appear to both patient and surgeon that, after many months of symptoms, the illness will never resolve. The data of Lane and colleagues¹⁴ indicating that non-operative treatment is successful only in mild cases is similarly marred by the lack of patients randomly assigned to alternative treatments and the use in many patients of a decision for surgery as a failure criterion.

Most tendinoses are self-limiting and the same is likely to be true of de Quervain's although further study is needed. One retrospective series documented resolution in 90% of patients within 1 year¹⁵. Palliative treatments include a splint that immobilized the wrist and

the thumb to the interphalangeal joint and anti-inflammatory medication or acetaminophen.

Surgery (in which the sheath of the first dorsal compartment is opened longitudinally) is documented to provide relief in most patients¹³. The most important risk is to the radial sensory nerve.

Physical/Occupational Therapy often focuses on lifting mechanics even though there is no evidence that activity modification can alter the course of the illness⁶. Therapists can help fashion a splint that provides relief of symptoms by immobilizing the wrist and thumb. Splints have not been demonstrated to change the course of the illness.

Materials and Method:

This prospective study was conducted in the department of Orthopaedic surgery BSMMU, Dhaka between the periods of January 2009 to October 2011. 50 patients with de Quervain's disease who did not respond to conservative treatment were operated under local anesthesia with pneumatic tourniquet control. Follow up period was 3 months to 3 years.

Results:

Most of our patients were female 42 (93.33%), housewife 27 involved 30 hands (60%) with mean age of 38.60 years, ranging from 22-64 years. Right sided involvement was 28 (56%), left sided involvement was 12 (24%) and both sided involvement was 10 (20%). Pain at the radial side of the wrist in 50 (100%), swelling 30 (60%) and restricted thumb movement in 50 (100%) were the predominant symptoms. 2 (4%) patients developed chronic tenosynovitis, 1 (2%) patient developed infection followed by hypertrophic scar and 3(6%) patients developed temporary loss of sensation along the distribution of superficial branch of the radial nerve. . There was no recurrence in the follow-up period. Satisfactory result was found in 48 patients (96%).

Statistics:

Table-I

Age, Sex and side of involvement of de Quervain's tenosynovitis.

Age group (in years)	Total pt (N =45 100%)	Female (n=42, 93.33%)	Male (n=3, 06.67%)	Total hand 50 (100%)		
				Bilateral 5pt, 10 hands(20%)	Right 28(56%)	Left 12 (24%)
22-31	07 (15.56%)	06	01	02 (04%)	03(06%)	03(06%)
32-41	19 (42.22%)	18	01	04 (12%)	12(24%)	04(08%)
42-51	11 (24.44%)	10	01	02 (04%)	07(14%)	03(06%)
52-64	08 (17.78%)	08	00	02 (02%)	06(12%)	02(04%)

Mean Age ± SD (Range) = 36.60±8.6 (22-64)

Sex, Female: Male = 14: 01

Side of involvement, Right: Left =2:1

Table-II

Occupation of the patients

Name of the occupation	Total no 45 of patients	No of hands 50(100%)
Housewife	27	30 (60%)
Garments worker	07	08(16%)
House hold worker	05	06(12%)
Computer operator	03	03(06%)
Others	03	03(06%)

Table-III

Distribution of Symptoms and Signs

Symptoms and Signs	Frequency (Percent)
Pain	50 (100 %)
Swelling	30 (60%)
Restricted movement of thumb	49 (98%)
Finkelstein's test	50 (100%)

Table-III

Distribution of study subjects according to disability

Disability	Frequency (Frequency)
Unable to wash clothes	50(100%)
Difficulty in wrenching clothes	48(96%)
Difficulty in holding the object	46(92%)
Difficulty in Combing hair	21(42%)
Difficulty in Use key board	04(08%)

Table-V

Previous treatment history

Form of treatment	Frequency	Percent
NSAID	50	100
Rest and splinting	10	20
Ultrasound therapy	15	30
Steroid injection	45	90

Table-VI

Associated medical condition (n=50 hand)

Associated medical condition	Frequency	Percent
Idiopathic (Not associated with other diseases)	34	68
Rheumatoid arthritis	6	12
Hypothyroidism	3	06
Obesity	2	04
Diabetes mellitus	5	10

Table-VII

Complication

Complication	Frequency (n=50)	Percent (100%)
Radial sensory nerve injury		
-neuropraxia	03	06
-axontmesis	00	00
-neurotmesis	00	00
Chronic tenosynovitis	01	02
Superficial wound infection	01	02
Hypertrophic scar	01	02
Recurrent disease	00	00

Table-VIII

Comparison of pre operative and post operative pain measured on Visual Analogue Scale⁶.

Visual analogue scale (0-10 cm)	Pain before treatment	Pain after treatment	P value*
Mean± SD	4.82 ± 0.92	0.12 ± 0.42	0.001
(Range)	(4.00-7.00)	(0.00-2.00)	

*Paired t test was done to measure the level of significance. Here p =0.001(<0.005) is highly significant.

Table-IX

Comparison of pre operative and post operative thumb movement⁶.

Movement of the thumb	Before treatment	After treatment	p value*
Abduction(in degree)	15.00 ± 3.12	56.94 ± 6.44	0.001
Maximal thumb flexion** (distance in mm)	32.52 ± 2.52	20.62 ± 1.12	0.001

*Paired t test was done to measure the level of significance. Here p=0.001 which is highly significant.

**values indicate distances between thumb tip and ulnar border of distal palmar crease.

Table-X

Comparison of Finkelstein’s test before and after treatment¹⁶

Finkelstein’s test	Before treatment	After treatment
Positive	50 (100%)	01 (02%)
Negative	00 (00%)	49 (98%)

Table-XI

Overall outcome

Result	Total No. of patients (n=50)	Percent (100%)
Satisfaction	48	96
Dissatisfaction	02	04

P value=0.001

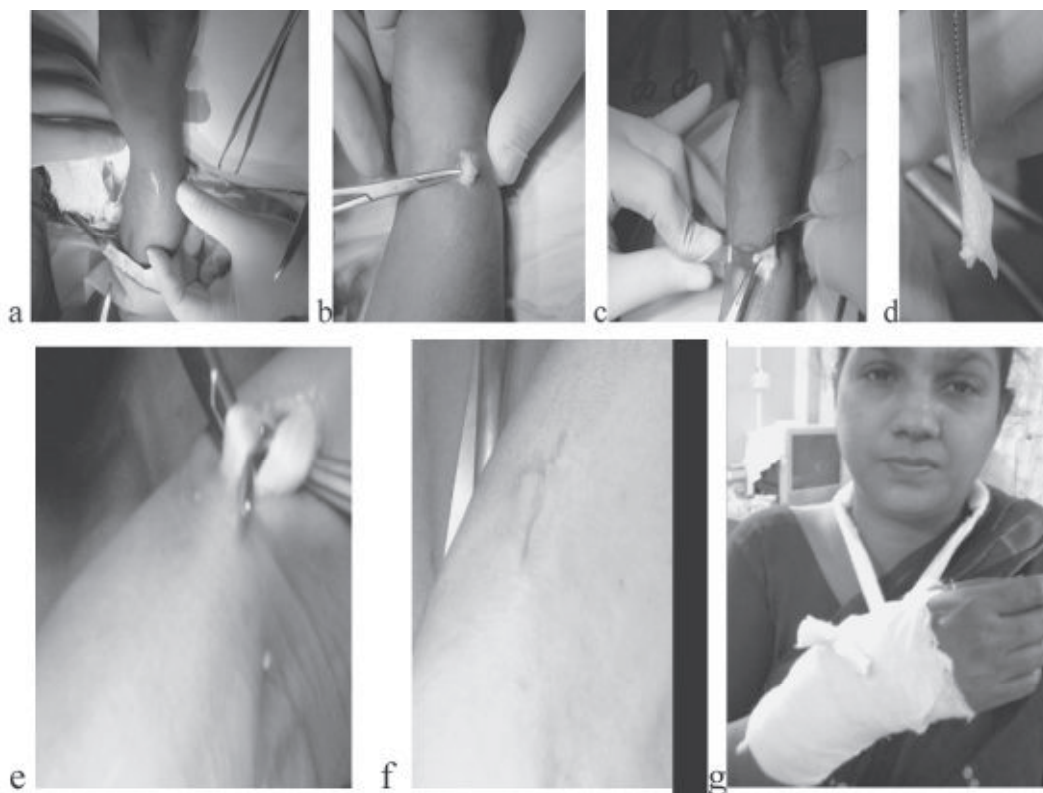
Z proportion test was done to measure the level of significance.

Satisfaction was significantly higher (p=0.001) than dissatisfaction.

Preoperative Photograph



a- painful swelling at the radial side of the wrist. b- Finkelstein’s test positive



Peroperative: a-incision mark, b- superficial br. of radial nerve, c&d- thickened tendon sheath, e-extensor pollicis brevis and abductor pollicis longus tendon, f- after closer, g- dressing with elevation of the hand (Rt).



Final follow up at 3 months.

Discussion:

This study was carried out on 45 patients (50 hands) with resistant cases of de Quervain's tenosynovitis treated by surgical decompression. Age ranges between 22-64 years. Mean \pm SD = 36.60 \pm 8.6 years. Average age of

different series was 38 years¹, 47.5 years⁶, 48 years⁷. As the disease is more common between 30-50 years³, our study also showed 35 (77.78%) patients were presented in 26-50 years age group, reason could be during this period individual carries out greatest physical effort⁷. Male female ratio was 1:14, it corresponds with the study of Zarin (2003), Ta (1999), Timothy (1953)⁹. Affection in female was significantly higher than male⁷.

In this series 60% patients were housewife, 16% patients were garments worker, 12% patients were household worker and 06% patients were computer operator. This disease was significantly higher in the housewife, the probable cause would be the repeated use of thumb and ulnar deviation of wrist leading to chronic trauma and increased friction to the tendon sheath becomes thickened⁹. Out of 50 hands, 10% patients had diabetes mellitus, 6% patients had hypothyroidism, 6% patient had rheumatoid arthritis and 4% patients were

suffering from obesity but 68% of cases no cause was identified.¹⁰

In our study 06% cases had developed neuropraxia of the superficial branch of radial nerve for transient period¹⁵ and 02% of cases developed wound infection, lead to hypertrophic scar but one (02%) cases developed chronic synovitis, where post operative persistent pain, tenderness, swelling were present and Finkelstein's test was also positive. That patient was improved after re exploration. On the basis of Forget N et al criteria⁶ pre operative and post operative mean pain score was 4.82 (range 4 to 7) and 0.12 (range 0.00 to 2.00) and p value was 0.001 which was highly significant. Post operative thumb movement also significantly (p=0.001) improved in comparison with pre operative thumb movement⁶.

A cure for de Quervain's disease has been described by many investigators as the resolving of symptoms without complication or recurrent disease on follow-up evaluation^[1,3,6,15,16]. Finkelstein and Lapidus and Fenton reported the cure rate by surgery to be 92% and 91% respectively^[3,15,16]. Our results closely agree with these observations. In our series, 96% of all patients who had surgery for de Quervain's tenosynovitis were cured, with no long-term complication or recurrent disease on follow-up evaluation. Excluding recurrent disease, we found the operative complication rate to be 04% for de Quervain's release. While steroid injection is still recommended as the initial therapy for de Quervain's tenosynovitis, the findings of this study indicate that surgery is still a safe and effective treatment for de Quervain's disease^[15,16].

Conclusion

Surgical release of tendons of the first compartment of wrist is an easy, safe, effective, economic and acceptable procedure even for patients with resistant cases of de Quervain's tenosynovitis.

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