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FUNCTIONAL OUTCOME OF DE-QUERVIAN TENOSYNOVITIS MANAGED BY SURGICAL RELEASE

ABSTRACT

BACKGROUND AND OBJECTIVE: This study was done to observe the functional outcomes of de-Quervains tenosynovitis treated by Surgical release of first extensor compartment. **METHODS:** This is an observational study involving Adults with de-Quervain's tenosynovitis admitted to Dr. Pinnamaneni Siddhartha Institute of Medical Sciences & Research Foundation, Chinna Avutapalli, Gannavaram in the period of 25 months. During this study period, about 40 cases of de-Quervain's tenosynovitis were treated with Surgical release technique and were evaluated and followed for a mean period of 2 months. **RESULTS:** In this study, most of the patients were middle aged females, involving first extensor compartment of wrist. Excellent results were found in 9 cases (22.5%) and Good 31(77.5%) according to Modified MAYO wrist score. **INTERPRETATION AND CONCLUSION:** In conclusion, surgical release for De-Quervain tenosynovitis can be a treatment choice especially for chronic cases, with near-normal functional outcome.

KEYWORDS: Abductor pollicis longus, Extensor pollicics brevis, de-Quervains tenosynovitis, Finkelstein test.

Introduction:

Fritz de Quervain, 1895 first described tenosynovitis of the first extensor compartment tendons of abductor pollicis longus and extensor pollicis brevis and he considered overuse of muscles as an important aetiological factor and surgical decompression as a very rewarding treatment option [1].

De Quervain's disease is also known as BlackBerry thumb/Gamer's thumb/Washerwoman's sprain/Radial styloid tenosynovitis/De Quervain's syndrome/De Quervain's tenosynovitis/De Quervain's stenosing tenosynovitis, /Mother's Wrist or Mommy Thumb.

Clinically it is characterized by pain and swelling over the Radial styloid process, a positive Finkelstein test, accompanied sometimes by a palpable thickening of the tendon sheaths and painful wrist and thumb movements. The diagnosis is usually clinical, and the treatment varies from conservative management in the form of Nonsteroidal anti-inflammatory drugs and splint, to steroid injection in the sheath (usually helpful in the early stages of disease i.e., tenosynovitis) to surgical decompression of the first extensor compartment (in cases which do not respond to conservative management or steroid injection).

The most common cause of a failed surgical decompression is inadequate and incomplete release which again is due to myriad of variations present in first extensor compartment of normal individuals.

METHODOLOGY

Source of the data:

Adults between the age group of 18 to 80 years with de-Quervain's tenosynovitis admitted to Dr. Pinnamaneni Siddhartha Institute of medical sciences, Chinna Avutapalli for a period of 25months.

40 Patients were treated with surgical release of 1st extensor compartment under Local anaesthesia. Patients were followed for up to 2 months to assess the functional outcome results according to Modified MAYO wrist score [2]. The parameters observed include Pain, Functional status, Range of motion, Grip strength. This system was based on 100 points. The results were considered excellent, good, fair, and poor depending upon the components.

Surgical technique:

The surgical site was scrubbed, painted, and draped. A single Longitudinal skin incision approximately 2 cm in length was made on the radial styloid. Subcutaneous tissue was dissected. The first compartment synovial sheath and tendons were identified. Synovial sheath was released, and compartment tendons were free-up, checked the movements of thumb. The wound closer was done with mattress sutures. The wrist was immobilized in the thumb spica brace.

Modified MAYO wrist score [2]

Parameters	N
Pain (25 points)	
No pain	25
Mild occasional	20
Moderate tolerable	15
Severe to intolerable	0
Functional status (25 points)	
Return to regular employment	25
Restricted employment	20
Able to work, unemployment	15
Unable to work because of pain	0
Range of motion (25 points) percentage of normal	
100	25
75-99	15
50-74	10
25-49	5
0-24	0
Dorsiflexion-plantar flexion arcs if only injured hand reported	
120^0 or more	25
91^0-119^0	15
61^0-91^0	10
31^0-60^0	5
0-30^0	0
Grip strength (25 points) percentage if normal	
100	25
75-99	15
50-74	10
25-49	5
0-24	0

Excellent: 90-100 points, good: 80-89 points, fair: 65-79 points, poor <65 points

Results:

The following observations were made from the data collected during our study.

AGE DISTRIBUTION:

Age in years	No of patients	Percentage
18-25	1	2.5%
26-50	22	55%
51-70	16	40%
71-80	1	2.5%

SEX DISTRIBUTION:

Sex	No of patients	Percentage
Male	9	22.2%
Female	31	77.5%

FUNCTIONAL OUTCOME GRADES:

Functional outcome grades	Preoperative		Postoperative	
	No of patients	Percentage	No of patients	Percentage
Excellent	-	-	9	22.5%
Good	-	-	31	77.5%
Fair	15	37.5%	-	0%
Poor	25	62.5%	-	0%

Image 1: Showing Superficial Radial Nerve.

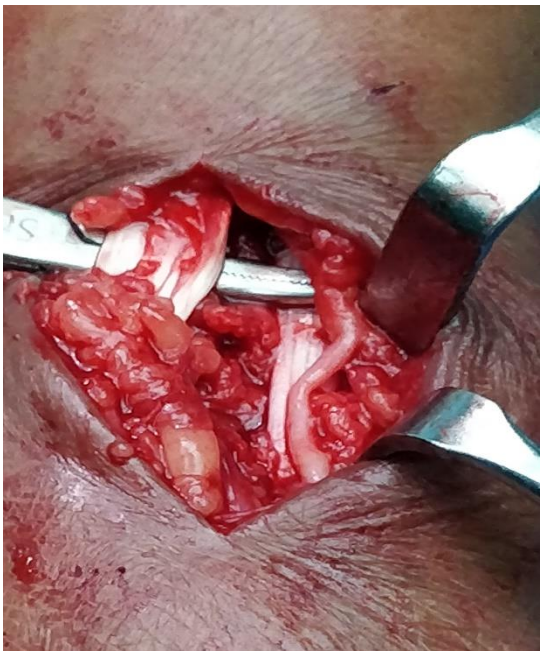

Image 2: Tendons Of First Extensor Compartment Of Wrist along with Superficial Radial Nerve.

DISCUSSION:

A total of 40 patients were examined in this study. The disease was found to be more common in the fourth and fifth decade of life. A similar pattern of age distribution was noted by Harvey [3] (1990) and LB Lane [4] (2001).

According to Lapidus [5] (1972), Harvey [3] (1990), Kay [6] (2000), Lane [4] (2001), the disease was more common in females. In our study there were 31 females out of total 40 patients and is comparable with the above-mentioned studies.

S.NO	Authors	% Females
1.	Lapidus	89.74%
2.	Harvey	85.36%
3.	Lane	82%
4.	Present study	77.5%

Slight predominantly Right affected than the left, which is in accordance with the findings of Harvey [3] (1990) and Christopher Zingas [7] (1998). Since the dominant hand was involved in majority of cases it supports the fact that work related activity with dominant hand can play an etiological role in the development of this condition.

S.NO	Authors	% right side affected	% left side affected
1.	Harvey	61.64%	38.25%
2.	Zingas	57.89%	42.10%
3.	Present study	52.5%	47.5%

In our study intra operatively we found that in 6 out of 40 wrists APL was represented by more than 1 tendon (15%). Other studies like Bryan Keon-Cohen [8] (79%) and W.T. Jackson [9] (57%) reported multiple tendons in their study. Out of 40 wrists which were operated 6 had 2 slips of APL and 34 had 1 slip of APL. In most of the studies EPB has been found to have 1 tendon in the first extensor compartment (Kean- Cohen [8] 95%). In our study intra operatively we found EPB to be represented by a single slip.

S.NO	Authors	Multiple tendons of APL
1.	Bryan Keon-Cohen	79%
2.	W.T.Jackson	57%
3.	Present study	15%

Synovial sheath thickening and fluid within the sheath was seen in 38 out of 40 cases of de Quervain's disease (95%). More synovial thickening and fluid were seen in acute cases and this decreased with an increase in duration of symptoms.

In our study we have operated all 40cases through longitudinal incision only. Bryan Keon-Cohen [8] and Abrisham et al. [10] concluded that longitudinal incision in surgical treatment of DeQuervian disease is better than transverse incision.

In this study, preoperatively 15 patients had scores of 65-79 (FAIR) and 25 patients had a score of <65 (POOR). Postoperatively, 9 patients had scores of 90-100 (EXCELLENT) and 31 patients showed GOOD results with scores of 80-89.

There were only 2 complications, 1 infection and 1 delayed wound healing in which both patients were diabetics. This was very similar to other studies. Altay, et al. [11] showed 94% excellent or good result after surgical treatment and had only 2 complications i.e. infection and delayed wound healing.

CONCLUSION:

De Quervain's disease commonly affects females, and the incidence is highest in 4th & 5th decade of life. The Dominant hand is more frequently involved, and it is commonly seen in people whose work requires frequent ulnar deviation of the wrist.

Most common anatomical pattern seen was of 2 Abductor pollicis longus tendon and 1 Extensor pollicis brevis tendon in the same compartment.

More fluid within the sheath is seen in acute cases and it decreases with an increase in the duration of symptoms where more fibrotic changes are seen. Acute cases respond well to conservative management and chronic persistent cases mostly need surgical decompression.

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. Despite those limitations, simple surgical release in de Quervain's tenosynovitis proved to be a very good treatment option.

SUMMARY:

Nonsurgical management is the mainstay of treatment, consisting of rest, thumb spica splinting, and corticosteroid injection. When nonsurgical management fails to provide sustained relief, open surgical release of the first dorsal compartment, with identification of accessory compartments and protection of the radial sensory nerve, may be performed with excellent results. Though steroid injection has been preferred as first-line treatment in the treatment of De Quervain's tenosynovitis, its complications should not be underestimated. Surgical release is the gold standard treatment which allows early and complete symptomatic relief with low recurrence.

LIMITATIONS:

- It is an observation study.
- Our sample size is small.
- Mean follow-up period is small

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