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RESEARCH ARTICLE

FUNCTIONAL OUTCOME OF DE-QUERVIAN TENOSYNOVITIS MANAGED BY SURGICAL RELEASE

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Abstract

Background And Objective: This study was conducted to evaluate the functional outcomes of treating de Quervain's tenosynovitis through surgical release of the 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. Throughout the study, approximately 40 cases of de Quervain's tenosynovitis were treated using the surgical release technique, and the patients were evaluated and followed up for an average 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 tenosynovitiscan be a treatment choice especially for chronic cases, with near-normal functional outcome.

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Introduction:-

In 1895, Fritz de Quervain was the first to describe tenosynovitis affecting the tendons of the first extensor compartment, specifically the 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].

DeQuervain'sdiseaseis alsoknownas 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, de Quervain's tenosynovitis is characterized by pain and swelling over the radial styloid process, a positive Finkelstein test, and sometimes a palpable thickening of the tendon sheaths, along with painful wrist and thumb movements. The diagnosis is typically made clinically, and treatment ranges from conservative measures such as nonsteroidal anti-inflammatory drugs (NSAIDs) and splinting to steroid injections into the tendon sheath (which are often effective in the early stages of the condition). In cases that do not respond to conservative treatment or steroid injections, surgical decompression of the first extensor compartment may be considered.

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The primary reason for a failed surgical decompression is an insufficient or incomplete release, typically resulting from the various anatomical variations found in the first extensor compartment of normal individuals.

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

Methodology:-

Sourceofthedata:

Adultsbetweentheagegroupof18to80yearswithde-Quervain'stenosynovitisadmittedtoDr.PinnamaneniSiddhartha Instituteofmedical sciences,ChinnaAvutapallifor aperiodof 25months.

40 Patientsweretreatedwithsurgicalreleaseof1stextensorcompartmentunderLocalanaesthesia. Patientswerefollowed forupto2monthsto assess the functional outcome resultsaccordingtoModifiedMAYOwristscore [2]. The parameters observed includePain,Functionalstatus,Rangeofmotion,Gripstrength. Thissystemwasbasedon100points.Theresultswereconsideredexcellent,good,fair,andpoordependinguponthecomponents .

Surgical technique:
Thesurgicalsitewasscrubbed,painted,anddraped.AsingleLongitudinalskinincisionapproximately2cminlengthwasmadeo n theradialstyloid.Subcutaneoustissuewasdissected.The first compartment synovialsheathandtendonswereidentified.Synovial sheathwas released,andcompartmenttendonswerefree-up,checked the movementsofthumb.Thewoundcloserwasdonewithmattress sutures.Thewristwasimmobilizedinthethumbspica brace.

Results:-

Thefollowingobservationsweremadefromthedatacollectedduringourstudy.

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:-

This study examined a total of 40 patients, with the disease being more prevalent in individuals in their fourth and fifth decades of life. A similar age distribution pattern was observed by Harvey (1990) [3] and LB Lane (2001) [4].

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

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

The condition was slightly more common in the right side than the left, which aligns with the findings of Harvey (1990) [3] and Christopher Zingas (1998) [7]. Sincethe dominanthandwasinvolvedinmajorityofcasesit supportsthefactthatworkrelatedactivitywithdominanthandcanplayanetiologicalroleinthedevelopmentofthiscondition.

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, we observed intraoperatively that in 6 out of 40 wrists (15%), the abductor pollicis longus (APL) was represented by more than one tendon. Other studies likeBryanKeon-Cohen[8](79%)andW.T.Jackson [9](57%) reported multiple tendons in their study. Of the 40 wrists that were operated on, 6 had two slips of APL, while 34 had one slip of APL. In most studies, the extensor pollicis brevis (EPB) is found to have a single tendon in the first extensor

compartment (Kean-Cohen [8], 95%). In our study, intraoperatively, we observed that the EPB was 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 accumulation within the sheath were observed in 38 out of 40 cases of de Quervain's disease (95%). Greater synovial thickening and fluid were noted in acute cases, with a decrease in these findings as the duration of symptoms increased.

In our study, all 40 cases were operated on using a longitudinal incision. Bryan Keon-Cohen [8] and Abrisham et al. [10] concluded that a longitudinal incision is more effective than a transverse incision in the surgical treatment of de Quervain's disease.

Inthisstudy, 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.

Therewereonly2complications,1infection and1 delayed wound healing inwhichbothpatientswerediabetics. This was consistent with findings from other studies. Altay et al. [11] reported 94% excellent or good outcomes following surgical treatment, with only two complications: infection and delayed wound healing.

Conclusion:-

De Quervain's disease predominantly affects females, with the highest incidence occurring in the 4th and 5th decades of life. The dominant hand is more often involved, and the condition is commonly observed in individuals whose work involves frequent ulnar deviation of the wrist.

The most common anatomical pattern observed was the presence of two abductor pollicis longus tendons and one extensor pollicis brevis tendon within the same compartment.

Morefluidwithinthesheathisseeninacutecasesanditdecreaseswithan increaseinthe durationofsymptomswheremorefibroticchangesare seen.Acutecasesrespondwelltoconservativemanagementandchronic persistentcasesmostlyneedsurgicaldecompression.

The results of our study indicated that most patients experienced complete relief from de Quervain's tenosynovitis with minimal complications. However, the follow-up period was limited. Despite these limitations, simple surgical release proved to be an excellent treatment option for de Quervain's tenosynovitis.

Summary:

Nonsurgical management remains the primary treatment for de Quervain’s tenosynovitis, involving rest, thumb spica splinting, and corticosteroid injections. If nonsurgical methods do not provide lasting relief, open surgical release of the first dorsal compartment along with the identification of accessory compartments and protection of the radial sensory nerve can yield excellent results. Although steroid injections are often the first-line treatment for de Quervain’s tenosynovitis, their potential complications should not be overlooked. Surgical release is considered the gold standard, offering prompt and complete symptomatic relief with a low risk of recurrence.

Limitations:

1. It is an observation study.
2. Oursamplesizeissmall.
3. Meanfollow-upperiodissmall
4. No comparative group

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