Original Research Paper

Volume - 13 | Issue - 05 | May - 2023 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Orthopaedics

TO DETERMINE EFFECTIVENESS OF SURGICAL RELEASE IN MANAGEMENT OF DE QUERVAIN'S TENOSYNOVITIS

Dr Atanu Kayal — M.S. Orthopaedics, Senior resident, at Rampurhat Government Medical College and Hospital, Birbhum.

Dr Sudip Chandra Mondal — M.S. Orthopaedics, Senior resident, at Rampurhat Government Medical College and Hospital, Birbhum.

Dr Suman Misra* — DNB. Orthopaedics, Assistant Professor at Rampurhat Government Medical College and Hospital, Birbhum *Corresponding Author

ABSTRACT **Introduction:** De Quervain tenosynovitis is first described by Fritz de Quervain, in 1895. It involves tendon entrapment of the first dorsal compartment of the wrist and thickening of the tendon sheaths of first dorsal compartment the abductor pollicis longus and extensor pollicis brevis, where the tendons pass through the fibro-osseous tunnel located along the radial styloid at the distal wrist. Pain is exacerbated by thumb movement and radial or ulnar deviation of the wrist. The prevalence of de Quervain tenosynovitis is about 0.5% in men and 1.3% in women with peak prevalence in their fourth and fifth decades of life respectively. **Materials and Methods:** The present study was a prospective study. This Study was conducted from December 2021 to December 2022 at Department of Rampurhat Government Medical College and Hospital, West Bengal, India. **Result:** In the total of 20 patients were included, out of which 16 patients are female and 4 patients are male. **Conclusion:** Surgical release has excellent outcome; splinting and local steroid injection can be an alternative treatment option for DQ disease especially in patients with low grade disease.

KEYWORDS : De Quervain's tenosynovitis, Surgical treatment and Longitudinal incision.

INTRODUCTION

De Quervain tenosynovitis is first described by Fritz de Quervain, in 1895. It involves tendon entrapment of the first dorsal compartment of the wrist and thickening of the tendon sheaths of first dorsal compartment the abductor pollicis longus and extensor pollicis brevis, where the tendons pass through the fibro-osseous tunnel located along the radial styloid at the distal wrist. Pain is exacerbated by thumb movement and radial or ulnar deviation of the wrist. [1], [2]. The prevalence of de Quervain tenosynovitis is about 0.5% in men and 1.3% in women with peak prevalence in their fourth and fifth decades of life respectively. Bilateral involvement is may reported in new mothers 4 to 6 weeks after delivery and spontaneous resolution typically occurs once lifting of the child is less frequent.[3,4]. The histopathology does not demonstrate any inflammation but it shows myxoid degeneration with disorganized collagen and increased cellular matrix in patients referred for surgery [5]. Physical examination of de Quervain's tenosynovitis shows swelling and tenderness in the region of the first dorsal compartment. Finkelstein's test, which involves thumb MP joint flexion within a closed fist combined with passive wrist ulnar deviation, that result in a painful response over the radial styloid process of affected hand. Conservative treatment which including rest with ice compression a splint and usg guided injection of steroid within the common extensor tendon sheath of first dorsal compartment are most widely been used.

MATERIALS AND METHODS

Study site: Department of Rampurhat Government Medical College and Hospital, West Bengal, India.

Study population: Sample size 20.

Study design: Observation Study.

Period of study: December 2021 to December 2022

Inclusion criteria

The following criteria were included in the study.

1. Physiologically active adults between 30 and 55years were involved.
2. Patients having pain around radial styloid at wrist.
3. Patients having positive Finkelstein's test.

Exclusion criteria

1. People of age below 30 years old and above 55 years old.
2. Patients with history of Rheumatoid arthritis.
3. Patients with previous history of wrist pathology.
4. Immunocompromised and pregnancy patients were excluded from study.

Surgical Technique

All operation done under tourniquet control and brachial block; longitudinal incision made over first dorsal compartment of 3 to 4 cm length. Radial nerve sensory branch identified and protected, common sheath of APL and EPB was identified and partially resected. Tendons of APL and EPB identified and explored for anatomical variation, if septum was present then it was excised. Partial resection of extensor ligament done of 2.5 cm. Tourniquet deflated and hemostasis established, skin closure done with 3-0 Ethilon. Movements encouraged as soon as possible. No splint was uses postoperatively. Stich removal done after 2 weeks**.**

RESULT AND DISCUSSION

The present study was a P prospective study. This Study was conducted from December 2021 to December 2022 at Department of Rampurhat Government Medical College and Hospital, West Bengal, India.

The actual etiology of this condition is still under investigation. However, it has been attributed to either a repetitive microtraumas caused by repetitive wrist and thumb extension or to a major trauma to the APL and EPB tendons. As a result, the synovial lining will undergo a myxomatous degeneration and fibrosis that will result in the thickening of the tendon sheath. This chronic thickening will eventually entrap the APL and EPB tendons producing pain and disability. Eichoff maneuver and Finkelstein's test are the two clinical diagnostic maneuvers of De Quervain's tenosynovitis [6].

It is prevalent in adults belonging to 30 and 50 years old. Women are affected six to ten times more frequently than men [7]. Patients who received corticosteroid injection for the treatment of DQ disease were statistically significantly more likely to have full resolution of their symptoms during the follow-up period and the corticosteroid group also had statistically significantly decrease pain and activity limitation at first follow-up post than their counterparts who received thumb spica splint. At 24 weeks of follow up 82.71% of patients had significant pain relief in injection group and 65.31% of patients in splinting group. In cases of patient refusing local corticosteroid injection, splints can be used as an alternative mode of treatment. There is no chance of complications like, infection, tendon rupture, hypopigmentation if we use splints. In a study done by Carlton A. Richie III, DO, and William W. Briner, Jr, MD there was an 83% cure rate with injection alone. This rate was much higher than any other therapeutic modality (61% for injection and splint, 14% for splint alone, 0% for rest or nonsteroidal anti-inflammatory drugs). In another study done by Cyriac Peters-Veluthamaningal, Jan C Winters, Klaas H Groenier and Betty Meyboom-de Jong it was found that, one or two local injections of 1 ml triamcinolone acetonide 10 mg/ml is an effective method of treatment provided by general practitioners for de

Quervain's tenosynovitis with respect to short term outcomes when compared to placebo injection. The short-term effects were maintained for most of the outcome measures during the follow-up period of 12 months, but this was based on outcomes of the cohort of steroid responders and thus long-term effectiveness is less clear . In a study done by Alfred F. Tallia, M.D., M.P.H., and Dennis A. Cardone, D.O., C.A.Q.S.M. University of Medicine and Dentistry of New Jersey–Robert Wood Johnson Medical School, New Brunswick, New Jersey it was found that, pain associated with de Quervain's tenosynovitis is treated effectively by therapeutic injection [8]. In a prospective study done in Bangalore Medical College and Research Institute from august 2012 to march 2014 by D Shivanna, D Manjunath, L Holagundi, M Kumar HV out of 60, forty-five patients (75 were symptom-free %) after the 1st injection at two weeks, fifteen patients who showed no improvement were given second injection two weeks after the first. At six weeks 58 (97%) patients were symptom free and fully satisfied with the results [9].

In another study done in Portland treated fifty-six cases of de Quervain's tenosynovitis (in 55 patients) with a “long acting” corticosteroid, methylprednisolone acetate, and followed prospectively over a 4-year period. Approximately 90% of these patients were effectively managed either with a single injection (58%) or with multiple injections (33%) of this compound [10].

If symptoms fail to improve after 3 months with all conservative management including one corticosteroid injection, Surgery is performed in our study, by regional anesthesia (Brachial block) and under a tourniquet control to limit intraoperative bleeding and allow for ease of identification of important anatomic structures. A simple postoperative dressing is frequently utilized with no need for complex wound care.

Patients are advised to begin early use for activities of daily living and other light activities. Once sutures are removed, usually by two weeks, patients are allowed to normal activities. Surgical complications are infrequent but do occur. In our study local soft tissue infection and superficial transient radial nerve palsy occur in one case. Wound infection and delayed wound healing occur one case each and typically managed with non-operative interventions including oral antibiotics and local wound care, respectively.

The superficial radial nerve overlying the first dorsal compartment can be injured due to sharp transection and traction injury or compression related to scarring. In our study the totals of 20 patients were included, out of which 16 patients are female and 4 patients are male. significant improvement ware seen in all cases with improved mean VAS score 8.5 preoperative to post-operative mean VAS score was 1,62 after 1 week and mean post-operative VAS score after 6 weeks 1.52 with significant p value (P< 0.05) and preoperative mean DASH score was 73.39 and post-operative 6 months mean DASH score was 15.22, which also statistically significant.

CONCLUSION

Although the success rate was higher with conservative method by physiotherapy, rest, corticosteroid injection and thumb spica splinting can be considered as an alternative option for treatment of De Quervain's tenosynovitis especially in patients with low grade disease. splinting can be used as an effective mode of treatment in uncontrolled diabetes and medically unfit patients for surgery. The present study demonstrates surgical release of de Quervain's tenosynovitis effectively relieve pain and improves joint range of motion for the patients who are resistant to conservative treatment.

	MALE	FEMALE
GENDER	4 (20 %)	16 (80%)

	RIGHT	LEFT
SIDE OF DQ OPERATED	8 (40%)	12 (60%)

	PREOPERATIVE	POSTOPERATIVE 2 WEEKS	POST OPERATIVE 6 WEEKS
VAS SCORE (MEAN)	8.5 (SD 2.24)	1.62 (SD 2.14)	1.52 (SD 1.16)

	PREOPERATIVE	POST OPERATIVE AT 6 MONTHS
DASH SCORE (MEAN)	73.39 (SD 13.27)	15.22(SD 18.28)

SERIAL NUMBERS (20 total patients)	POSTOPERATIVE COMPLICATIONS	NUMBER OF PATIENTS	PERCENTAGES
1	Transient lesion of superficial radial nerve	1	5
2	Superficial wound infection	1	5
3	Delayed wound healing	1	5

REFERENCES

1. Skef S, Ie K, Sauereisen S, Shelesky G, Haugh A. Treatments for de Quervain Tenosynovitis. Am Fam Physician. 2018 Jun 15;97(12): Online. [PubMed]
2. Ippolito JA, Hauser S, Patel J, Vosbikian M, Ahmed I. Nonsurgical Treatment of De Quervain Tenosynovitis: A Prospective Randomized Trial. Hand (N Y). 2020 Mar;15(2):215-219. [PMC free article] [PubMed]
3. Shuaib W, Mohiuddin Z, Swain FR, Khosa F. Differentiating common causes of radial wrist pain. JAAPA. 2014 Sep;27(9):34-6. [PubMed]
4. Stahl S, Vida D, Meisner C, Stahl AS, Schaller HE, Held M. Work related etiology of de Quervain's tenosynovitis: a case-control study with prospectively collected data. BMC Musculoskeletal Disorder. 2015 May 28; 16:126. [PMC free article] [PubMed]
5. Clarke MT, Lyall HA, Grant JW, Matthewson MH. The histopathology of de Quervain's disease. The Journal of Hand Surgery: British and European. 1998; 23:732.
6. Stahl S, Vida D, Meisner C, Stahl AS, Schaller HE, et al. (2015) Work related etiology of de Quervain's tenosynovitis: a case-control study with prospectively collected data. BMC Musculo Skelet Disord 28(16): 126
7. Rettig A. wrist and hand overuse syndromes. Clinics in Sports Medicine. 2001; 20(3):591-611
8. Zinberg E, Palmer A, Coren A, Levinsohn E. The tripleinjection wrist arthrogram. The Journal of Hand Surgery. 1988; 13(6):803-809.
9. Jianmongkol S, Kosuwon W, Thammaroj T. Intra-tendon sheath injection for trigger finger: The randomized controlled trial. Hand Surgery. 2007; 12(02):79-82..
10. Anderson B, Manthey R, Brouns M. Treatment of de Quervain's tenosynovitis with corticosteroids. A prospective study of the response to local injection. Arthritis & Rheumatism. 1991; 34(7):793-798.