Scholars Journal of Applied Medical Sciences
Abbreviated Key Title: Sch J App Med Sci
ISSN 2347-954X (Print) | ISSN 2320-6691 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Physical Medicine and Rehabilitation

The Effect of Intralesional Corticosteroid Injection in Management of De Quervain's Disease: A Study of 60 Patients in a Tertiary Care Hospital in Bangladesh

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DOI: 10.36347/sjams.2023.v11i09.002 | **Received:** 11.02.2023 | **Accepted:** 24.03.2023 | **Published:** 03.09.2023

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Abstract **Original Research Article**

***Background*:** The thickening of the extensor retinaculum, which normally keeps the tendon in place in the wrist, can lead to de Quervain's tenosynovitis. The problem can be treated surgically as well as by other means. Injection of corticosteroids is an excellent conservative therapy choice. ***Objective*:** To the effect of intralesional corticosteroid injection in management of De Quervain's disease ***Methods*:** This randomized clinical trial was conducted with 60 adult patients eithermale or female diagnosed as a case of De Quervain's disease (moderate to severe pain) attending outpatient department of Physical Medicine and Rehabilitation in DMCH for six months period. Intra lesional corticosteroid injections were given with 1cc syringe between the synovial sheath and the tendons, during the initial visit. The patients were advised to follow the ADL instructions for the affected hand as much as possible. Outcome was measured by Visual Analogue Scale (VAS) and Patient Rated Wrist Evaluation (PRWE) scale. Every patient was assessed every weekly for 6 weeks. Level of significance was assessed with the help of paired t-test and chi-square test where necessary. ***Results*:** Out of the 60 patients, 36.67% were between the ages of 41 and 45, and 28.33% were between the ages of 46 and 50, with a mean age of 41.775.43 years. The number of men to women was 1:7.6. More than half of the patients (53%) had the disease in their right hand, while 42% had it in their left hand and 5% had it in both. 83.33% of patients who got an intralesional injection of methyl prednisolone acetate felt less pain. ***Conclusion*:** Treatment of de Quervain's tenosynovitis with intravenous triamcinolone is effective without surgery. The right injection technique and long-term monitoring need additional focus.

Keywords: Intralesional Steroid injection, Efficacy, De Quervain's Disease.

INTRODUCTION

The thickened extensor retinaculum that holds the tendon in place in the wrist may be the cause of De Quervain's tenosynovitis. It is a fibrous band that is put into the radius and prevents the dorsal tendons of the hand from acting as a bowstring. Although stenosing tenosynovitis is a term used to describe de Quervain's illness, its microscopic appearance is compatible with degeneration. Mucopolysaccharides build up in a myxoid and fibrocartilaginous form of degeneration [1]. Around 0.5% of men and 1.3% of women in the UK have this condition [2]. De Quervain's tenosynovitis is a musculoskeletal condition brought on by work [3]. Work that requires a lot of repetition and force, wrist deviation, and thumb extension are risk factors [4]. Osteoarthritis affecting the first CMC joint, ganglion, infection Wartenberg disease, intersection disease, etc. are among the differential diagnoses for this condition [5]. Through a thorough history-taking process and clinical examination, the condition can be identified.

The radial styloid process is painful and tender, and it may radiate to the thumb, forearm, or shoulder. Swelling, soreness, and crepitation may be felt during an examination. The Finkelstein's test is done by clenching the fist with the thumb inside and tries to deviate the wrist ulnarward. Pain felt by patient at wrist in case of de Quervain's disease [7].

In the clinical practice of orthopaedics, De Quervain's disease [8] is quite frequently encountered, and the general treatment procedure is as follows: nonsurgical techniques like limiting thumb use, braces, and intra-sheath steroid injections; and, if these processes are ineffective, surgically releasing the tendon sheath of the first dorsal compartment [9, 10]. In reality, however, surgery is frequently done without trying every nonsurgical option first. Triamcinolone acetonide (TC), a long-acting and lyophobic steroid, has been injected intra-sheathly in some recent studies to treat patients with snapping fingers; however, there are no comprehensive studies describing the clinical outcomes of intra- sheath injection in the management of de Quervain's disease [11-13].

OBJECTIVES

- The effect of intralesional corticosteroid injection in management of De Quervain's disease.

MATERIALS AND METHODS

This randomized clinical trial was conducted with 60 adult patients either male or female diagnosed as a case of De Quervain's disease (moderate to severe pain) attending outpatient department of Physical Medicine and Rehabilitation in DMCH for six months period. Intra lesional corticosteroid injections were given with 1cc syringe between the synovial sheath and the tendons, during the initial visit. The patients were advised to follow the ADL instructions for the affected hand as much as possible. Outcome was measured by Visual Analogue Scale (VAS) and Patient Rated Wrist Evaluation (PRWE) scale. Every patient was assessed every weekly for 6 weeks. Level of significance was assessed with the help of paired t-test and chi-square test where necessary.

Inclusion Criteria:

- Age: 31 to 50.
- Both sexes.
- Moderate to sever pain according to VAS score and/or swelling over the radial side of either wrist.
- Difficulty in wrist movements eg, gripping, wringing, twisting etc.
- Positive Finkelstein's test (moderate to sever tenderness).

Exclusion criteria:

- Trauma.
- Fracture around the wrist.
- Deformity.
- Osteoarthritis first carpo metacarpal joint.
- Skin lesions around affected wrist.
- Rheumatoid hand.
- Systemic metabolic disease- Diabetes Mellitus, thyroid disease.
- Chronic inflammatory diseases- Rheumatoid arthritis, Sero negative spondy loarthopathy.
- Previous Intralesional steroid injection around the wrist.
- Any neurological conditions.

Study Procedure

Patient with wrist pain attending the outpatient department of Physical Medicine& Rehabilitation DMCH, were registered as population for the study. A thorough history were taken from the registered patients and clinical examination of the patients were done which includes general examination, musculoskeletal and neurological examination of upper limbs, examination of cervical region and wrist joint to find out the cause of wrist pain. Past history of illness and any systemic diseases were inquired cautiously. Patients were included in the study according to inclusion & exclusion criteria. A detailed idea about the nature of study, purpose of the study and intervention were delivered to each patient. All symptoms and signs of each participant were recorded accordingly and clinical diagnosis was made. Investigations such as complete blood count, random blood sugar, C reactive protein, rheumatoid factor, S. creatinine, thyroid stimulating hormone, X-ray of affected wrist B/V were done. Thus diagnosis of De Quervain's disease was confirmed. Pre-intervention and post intervention pain score & tenderness were evaluated by visual analogue scale (VAS) and tenderness index respectively. Similarly, functional status was assessed by using Patient Rated Wrist Evaluation (PRWE) questionnaire. Written informed consent was taken before entering into trial. The follow up of the patients were done after 2 weeks (1st follow up), after 4 weeks (2nd follow up), and after 6 weeks (3rd follow up). All the data were collected &recorded systematically in the data sheet. The data were entered into statistical software. After data cleaning and verifying the consistency, data analysis were done by SPSS 15 version for windows 10.

Data Processing and Analysis

Data were analyzed and presented in charts and figures by using SPSS (statistical package for the social science) 15.0 version. Level of significance was assessed with the help of paired t-test and chi-square test whether necessary. All results were expressed as means and standard deviations. A p value below 0.05 was considered to indicate statistical significance

RESULT

Sixty patients suffering from De Quervain tenosynovitis were included in this study. Age 31-50 years were included, among which were found to be in 41-45 years age group (33.33%) followed by 23.33% in 46-50 years group, with mean age of 41.77±5.43 years

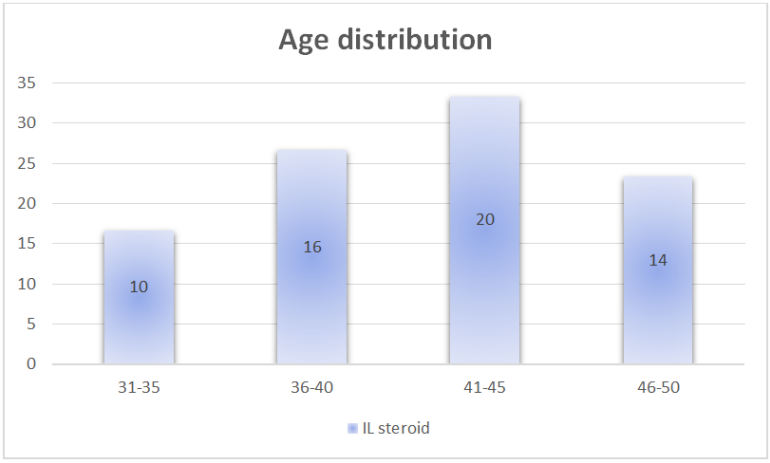

Figure 1: Age distribution of the patients

In this study, 7 males and 53 females were included having male to female ratio of 1:7.6. Figure 2 shows a pie chart of the gender distribution.

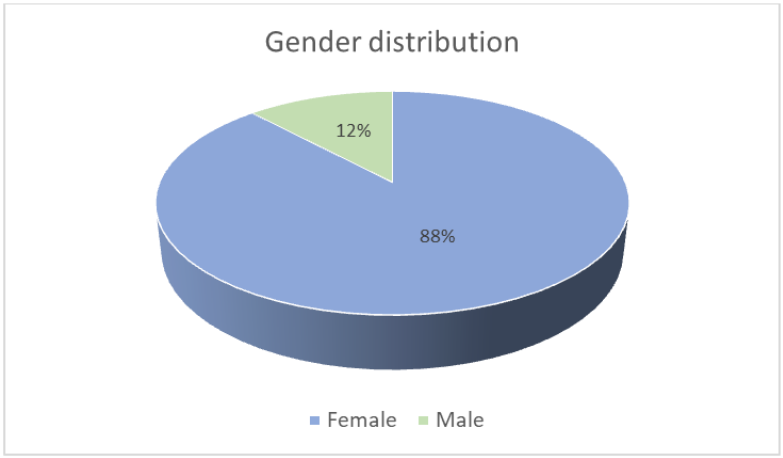

Figure 2: Gender distribution of the patients (n=60)

Following chart shows that more than the half patients (53%) had been suffering in their right hand, 42% in left hand and 5% in both hands.

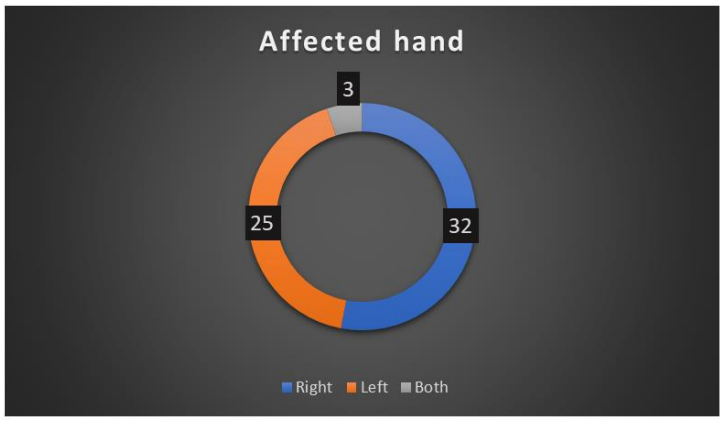

Figure 3: Affected side of the disease (n=60)

Table 1 show that initially the visual analogue scale and Patient Rated Wrist Evaluation (PRWE) scores of IL steroid patients before any intervention.

Table 1: Initial VAS and PRWE scores of study patients (n=60)

Treatment Method		VAS before Rx	Pain score before Rx	PRWE score before Rx	P value
IL steroid	Mean±SD	6.67±1.12	41.73±2.50	83.9±3.57	0.07
	Minimum	5	36	73	
	Maximum	8	45	87	

Visual analogue scale differences show significant mean changes in each of the follow ups of IL steroid patients (0=<0.001) with Intralesional methylprednisolone acetate injection being the superior treatment option that provided pain relief in 83.33% of patients. Table 2 is with the details.

Table 2: Mean VAS differences between successive follow-ups in IL steroid

Follow ups	Changes	Rx type	Mean±SD	P- value
1st follow up after 2 weeks	Mean VAS change	IL steroid	3.97±0.89	<0.001
2nd Follow up after 4 weeks	Mean VAS change	IL steroid	2.98±0.90	<0.001
3rd Follow up after 6 weeks	Mean VAS change	IL steroid	2.52±0.78	<0.001

Following table 3 also shows significance mean difference in pain and function component of PRWE score and total PRWE score between successive follow-ups of IL steroid injection and negative Finkelstein's test (83.33%).

Table 3: Mean pain and PRWE score differences between successive follow-ups in IL steroid

Follow ups	Rx type	Changes	Mean±SD	P- value
1st follow up after 2 weeks	IL steroid	Mean pain score changes	25.12±2.28	<0.001
		Mean PRWE changes	40.43±3.83	
2nd Follow up after 4 weeks	IL steroid	Mean pain score changes	17.13±1.73	<0.001
		Mean PRWE changes	32.93±3.88	
3rd Follow up after 6 weeks	IL steroid	Mean pain score changes	14.73±2.03	<0.001
		Mean PRWE changes	27.13±3.27	

DISCUSSION

In the present study, sixty Finkelstein's test positive De Quervain tenosynovitis patients who were attending the outpatient department of Physical Medicine & Rehabilitation in Dhaka Medical College & Hospital, Dhaka were included between the age 31 to50 years, mean age of whom was 41.77±5.43 years. Highest numbers of patients were between the age of 41 to 50 years, male were 7 and female were 53. Similar study 10 with 60 patents, out of 31 was female and 29 were male, age between 10- 69 years were included among which highest number of patients was found to be in 40-49 years age group (32 patients). A prospective randomized study where they found that steroid injection group showed 88.33% excellent results.

An American study shows the treatment outcomes of 222 limbs from 199 patients were analyzed. Of the 222 patients, 187 patients were female and 35 patients were male. Of the reviewed cases, sufficient relief (ie, treatment success) was reached in 73.4% of the interventions within 2 injections. At the first injection, the median age of the treatment success group was 49.15 years [13].

A recent study [14] from India shows among 100 patients 50 patients were treated with corticosteroid injection and 50 patients in group 2 were treated with splinting, cold compress and topical NSAID. In the study female was 90 and male was 10. The overall success rate was 90% in injection group. Pain was experienced by 20 patients which lasted less than one day post-injection. Skin discolouration at injection site was seen in 3 cases. In another study from Bangladesh [15] shows that among 50 patients, 25patients were treated are thumb splint, NSAID, ADL and ultrasound. In that study female was 44, male were 6; female: male was 7.5:1, Mean age was 41.02 years. After treatment pain score showed significant improvement (p<0.01) in patients (72%) 16%(4) patient were completely recovered.

An Iranian study [16] where 73 patients of De Quervain's disease were seen. Among them female were 64, male were 9; mean age in years were 32.83±8.9 (23-50); right handed 47 patients, left handed 26 patients; success rate 86.5% were found.

A study [17] 67 patents with De Quervain's tenosynovitis were included; mean age 44 ± 13 years; male 12 and female 47; occupation forceful work done by 35 patients; less demanding 16 patients and

unemployed 8 patients; right hand43 patients and left hand 24 patients. The treatment success rate was 69% in corticosteroid injection.

In a study [18] 87 patients were included with steroid and immobilization for 3 weeks, among 19 male and 64 female; right wrist 48 patients, left wrist 39 patients, average age was 45 years, 62% patients had satisfactory and 38% patients had unsatisfactory results.

CONCLUSION

Treatment of de Quervain's tenosynovitis with intravenous triamcinolone is effective without surgery. The right injection technique and long-term monitoring need additional focus.

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