

Efficacy of Intra Sheath Corticosteroid Injection in Treatment of De Quervain Disease

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Abstract

Objective: To determine the efficacy of intra-sheath corticosteroid injection in the treatment of De Quervain disease in patients presenting to Pakistan Atomic Energy Commission Hospital Islamabad.

Methods: A total of 110 patients of both genders with De Quervain disease were included in the study. Injections were performed a maximum of three times, with an interval of 2 weeks between injections. Patients were called for follow-up 3 months after the last injection and efficacy was noted.

Results: The age range in this study was from 30 to 70 years with a mean age of 49.354 ± 6.37 years, a mean duration of complaints of 9.336 ± 2.71 weeks and a mean baseline VAS score was 6.290 ± 1.16 . The right-hand side was more involved (81.8%) than the left-hand (18.2%). Efficacy was observed in 80% of patients.

Conclusion: In summary, local steroid injections directly into the tendon sheath are a very efficient way to reduce the inflammation linked to De Quervain's illness; this method works far better than other therapies such as topical lotions, braces, and oral NSAIDs. This highlights the significant advantages that local steroid injections have over conventional pain management techniques, making them a desirable and effective therapeutic choice for individuals coping with the difficulties associated with De Quervain's disease.

MeSH Keywords: stenosing tenosynovitis, NSAIDs, De Quervain's.

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1. Introduction

De Quervain tenosynovitis is a typical condition portrayed by the capture and bothering of ligaments in the principal dorsal compartment of the wrist. It principally influences the abductor pollicis longus and extensor pollicis brevis ligaments, prompting the thickening of the ligament sheath. Pain, swelling, difficulty performing thumb movements and wrist deviations are frequent signs of this condition. It is caused by a combination of factors, including overuse of the tendons, repetitive thumb and wrist motions, and anatomical variations. The thickening of the ligament sheath is brought about by myxoid degeneration, sinewy tissue stores, and expanded vascularity, as opposed to intense synovial irritation. The trademark side effect of De Quervain tenosynovitis is torment exacerbated by thumb development and outspread or ulnar deviation of the wrist. Exercises, for example, grasping, lifting, and curving may escalate the inconvenience.^{33,420} individuals with De Quervain tenosynovitis as their main diagnosis were found between 2007 and 2017. In comparison to men, women made up 77.5% (25,908) of the total and had a 2.6-fold higher diagnosis rate. In comparison to White patients, Black patients had a higher diagnosis rate. The largest

occurrence was shown to be among Black and White women (relative risks were 3.4 and 2.3, respectively, when compared to White males).

The conclusion of De Quervain tenosynovitis is ordinarily made in light of clinical show and actual assessment. The Finkelstein test, which includes latently pushing the thumb toward the ulnar side while settling the wrist, can inspire torment along the impacted ligaments. Imaging concentrates, for example, ultrasound or attractive reverberation imaging (X-ray) might be utilized to affirm the determination or preclude other potential reasons for wrist torment.

Moderate treatment approaches are many times the underlying administration system for De Quervain tenosynovitis. Rest, thumb and wrist immobilization, ice, and nonsteroidal anti-inflammatory drugs (NSAIDs) can all help reduce pain and inflammation. Splinting and physical therapy can help reduce symptoms and increase range of motion.

When conservative treatments for De Quervain tenosynovitis don't work, corticosteroid injections are a good way to get rid of the inflammation and pain that come with the condition. Careful mediation is considered for stubborn cases or people with a huge loss of capability. By delivering corticosteroid medication directly into the affected tendon sheath,



these injections reduce inflammation and improve symptoms by targeting the inflammatory processes. Corticosteroid injections can effectively reduce pain and swelling, allowing patients to regain mobility and functionality by focusing on the underlying inflammatory cycles. They offer restricted treatment definitively where it is required, permitting people to continue day-to-day exercises with decreased torment and further developed hand capability. To ensure the comfort of the patient, corticosteroid injections are administered under local anaesthesia and require only a brief period. In general, corticosteroid infusions act as a significant non-careful treatment choice for people with De Quervain tenosynovitis, giving designated mitigating impacts and improving hand capacity. Understanding the hidden pathology and fitting treatment decisions can incredibly further develop the board and patient results. The purpose of conducting a study to assess the efficacy of intra-sheath corticosteroid injection in the treatment of De Quervain tenosynovitis is warranted due to the lack of consensus, the need for evidence-based practice, the potential as an alternative to surgery, the focus on patient-centred outcomes, and the potential cost-effectiveness of this intervention. Such research will contribute to improving the management and outcomes for patients with De Quervain tenosynovitis.

2. Materials & Methods

The WHO sample size calculator was used to determine the sample size of 110, with a 95% confidence interval, a 7% margin of error, and an anticipated efficacy of 83.33% for the treatment of De Quervain. The study enrolled 110 eligible patients from the Department of Orthopedics at Pakistan Atomic Energy Commission Hospital in Islamabad aged between 30 and 70 years, of both genders, with a diagnosis of De Quervain disease for over one month. Exclusion criteria included rheumatoid arthritis, diabetes mellitus, gout, chronic renal failure and recent steroid use. Informed consent was obtained from each patient, and injections were administered using a standardized technique with a corticosteroid -lidocaine mixture of 1 ml (10 mg) of triamcinolone acetonide and 1 ml of 2% lidocaine hydrochloride injections performed a maximum of three times, with an interval of 2 weeks between injections. Follow-up appointments were conducted three months after the initial injection to evaluate treatment efficacy. Data analysis was conducted using the statistical analysis program SPSS (version 23). Qualitative

variables such as gender, side of hand, and efficacy were analyzed by calculating frequencies and percentages. Quantitative variables including age, duration of complaints, and baseline Visual Analog Scale (VAS) score were presented as mean \pm standard deviation (SD). The efficacy of the treatment was stratified based on age, gender, duration of complaints, and baseline VAS score. A post-stratification chi-square test was applied, considering $p \leq 0.05$ as the threshold for statistical significance.

3. Results

The age range in this study was from 30 to 70 years with a mean time of 49.354 ± 6.37 years, mean length of grievances 9.336 ± 2.71 weeks and Mean standard VAS score was 6.290 ± 1.16 as displayed in Table 1.

Table 1: Mean \pm SD of patients according to age, duration of complaints and baseline VAS score.

n=110	
Demographics	Mean \pm SD
Age(years)	49.354 \pm 6.37
Duration of complaints (weeks)	9.336 \pm 2.71
Baseline VAS score	6.290 \pm 1.16

Viability was seen in 80% of patients as displayed in Table 2.

Table 2: Frequency and %age of patients according to Efficacy

n=110		
Efficacy	Frequency	Percentage
Yes	88	80%
No	22	20%
Total	110	100%

Table 3: Stratification of Efficacy concerning gender

Gender	Efficacy		p-value
	Yes	No	
Male	70(79.5%)	18(20.5%)	0.812
Female	18(81.8%)	4(18.2%)	
Total	88(80%)	22(20%)	

Table 4: Stratification of Efficacy concerning baseline VAS score

Baseline VASscore	Efficacy		p-value
	Yes	No	
4-6	67(100%)	0(0%)	0.000
>6	21(48.8%)	22(51.2%)	
Total	88(80%)	22(20%)	

4. Discussion

De Quervain tenosynovitis is characterized by pain and tenderness on the outspread side of the wrist, accompanied by central enlargement and discomfort when moving the thumb and wrist. Thumb flexion/expansion and widespread ulnar wrist deviation worsen the disease. Although it is commonly referred to as tenosynovitis, histological evidence indicates that it is more accurately described as tendinopathy due to the thickening of the ligament sheath rather than aggravation. The board and appropriate analysis entail recognizing these glaring components for effective therapy. De Quervain tenosynovitis is usually treated with a mix of conservative therapy and, in certain situations, surgery. Conservative measures include using ice to minimize inflammation and resting the injured hand and wrist, avoiding activities that exacerbate symptoms. It is frequently advised to use wrist braces or splints to limit thumb and wrist motion, offer support, and lessen tension on the injured tendons. Pain and inflammation can be controlled with the prescription of nonsteroidal anti-inflammatory medications (NSAIDs). A key role is played by physical therapy, which uses targeted exercises to strengthen surrounding muscles, increase general flexibility, and improve thumb and wrist function. Although its usage is balanced against potential adverse effects, corticosteroid injections into the tendon sheath may be used to decrease inflammation and alleviate discomfort.

Surgery could be suggested if conservative methods are shown to be inadequate. Pressure can be released and symptoms can be improved by surgically releasing the afflicted tendon compartment. Exercises for rehabilitation after surgery are essential for regaining strength and function. Patients should speak with medical specialists to decide the best course of action based on the severity of their ailment. Individualized treatment strategies are crucial. According to Dimitris Challoumas MD, Rohan Ramasubbu et al Corticosteroid injections (CSI) combined with a brief thumb spica immobilization phase showed notable advantages in the analysis of randomized controlled trials. When CSI used ultrasonographic guiding, the results were better than with conventional techniques. For De Quervain tenosynovitis, we advise CSI combined with thumb spica immobilization as the first line of therapy. Surgery should only be considered in situations when nonsurgical measures have failed. For more conclusive

data, future studies should examine chronicity, investigate the effectiveness of NSAIDs, and carry out high-caliber trials to assess ultrasonographic-guided CSI and other surgical techniques, Betul Basar MD, Ahmet Aybar MD et al said diabetic patients performed worse than their non-diabetic counterparts at the 12-month follow-up, despite considerable improvements in pain, functioning, and Finkelstein test findings. Thumb splints based on the forearm, which work well in situations without diabetes, had no beneficial effects on individuals with diabetes when corticosteroids were administered. Therefore, it was determined that diabetic individuals did not require the use of a thumb splint based on the forearm following a corticosteroid injection.

100% success rate was stated by Avci et al.¹⁵ In a 2007 study, Takuya Sawaizumi reported a 94% success rate with local injections of trimethoprim for individuals suffering from De Quervain's illness. He concluded that 90% of patients reported complete satisfaction, 26% reported relapse, and 32% reported problems.

In 2012, McDermott JD et al. reported that 36 out of 37 wrists, or 97%, showed no signs of problems after a 6-week follow-up. However, 14% of wrists experienced a symptom recurrence. In contrast, two of the patients in our study experienced a recurrence of their symptoms, which were alleviated by administering another injection of triamcinolone acetonide.

Over 67 patients, Mohsin Mardani Kivi et al. carried out a prospective study. All patients, with and without thumb spica casts, had steroid injections, and it was found that the combination of the injection and cast was more effective than just an injection. They assumed this investigation that steroid injection is preferable to NSAID alone, casting alone, or NSAID plus casting. While 83% of individuals in our study experienced good results with corticosteroid injection alone, they observed successful results in 76% of patients with 80 corticosteroid injections.

With just one steroid injection, Muhammad Akram et al. reported total pain alleviation in 80% of patients. Eight individuals had localized depigmentation, although our analysis showed no such consequence.

Corticosteroid injections are a highly successful treatment for De Quervain's illness, offering considerable pain relief and favourable outcomes in the majority of patients, according to the findings of several research. However, several studies have shown that there are variations in the incidence of complications and

recurrence, highlighting the significance of a thorough evaluation and customized therapy for every patient

5. Conclusion

In summary, focused treatment such as local steroid infusion into the tendon sheath is necessary to successfully manage the inflammatory process linked to De Quervain's illness. With this strategy, considerable improvement is usually achieved in the first followup. Furthermore, it is more effective in relieving pain than alternative treatments such as splints, topical ointments, and oral NSAIDs. For patients suffering from De Quervain's illness, this approach provides a better treatment result because it targets the underlying inflammation directly.

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Contributions:

Q.M, S.M, S.N, - Conception of study

Q.M, - Experimentation/Study Conduction

Q.M, N.K, - Analysis/Interpretation/Discussion

Q.M, N.K, - Manuscript Writing

S.M, S.N, N.K, - Critical Review

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