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The efficacy of local steroid injection versus conservative management in Dequervain's disease: A prospective randomised study

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Abstract
De Quervain's tenosynovitis is a painful condition of the wrist which leads to difficulties in performing activities of daily living. Aim of the study is to examine the effectiveness of steroid injection therapy as compared to splinting and analgesics for treatment of de Quervain's tenosynovitis in adults. In (Group 1) the conservative group, patients were advised a splint and NSAIDS. In (Group 2) steroid group, patients were given injection of triamcinolone mixed with 2% xylocaine into the sheath of the affected tendons, under aseptic conditions. We found that steroid injection group showed 83.33% excellent results compared to only 36.67% in conservative group. We conclude that steroid injection is an effective form of conservative management for de Quervain's disease.

Keywords: de Quervain's tenosynovitis, Wrist pain, Stenosing temovaginitis

Introduction
De Quervain's tenosynovitis is named after Swiss surgeon Fritz de Quervain, who mentioned it in 1895 for the first time and reported a series of five cases in 1912 [3]. The condition De Quervain's disease is referred for the first time in an article which was read at the New England Surgical Society in 1936 at Bridgeport Hospital [5]. In 1989, Hoffmann published first article about the condition in American literature [4]. Considereing forearm deformities, de Quervain's is only second to trigger finger in incidence which is 20 times more common [6].
History and clinical examination are sufficient to diagnose the disease. Presentation is usually pain at the site of radial styloid. In almost all the cases tenderness is elicited at radial side of wrist and local swelling in some cases after clinical examination. In typical cases Finkelstein's test ispositive [7] The Finkelstein's test is performed as the patient clenches the fist with thumb inside and ulnar deviates the hand at the same time. Patient with De Quervain's tenosynovitis feels pain at the affected site [8].
A final consensus could not be reached in the management of the disease. Non-surgical treatment modalities like rest, massage, cold and heat application, diathermy, splints, bracing, physical therapy, thumb spica and local corticosteroids injections have been tried with variable success. Releasing the first dorsal compartment of the wrist surgically is the final resort of treatment [11]. 91% of patients have been found to be cured with surgical management. Higher costs and complications limit the use of surgical procedures [12]. It is in interest of patient to use non-surgical modes before going for surgical release. Efficacy of the intra-sheath injection of triamcinolone acetonide (TC), which is a long-acting and lyophobic steroid has been mentioned in few reports for patients with snapping fingers [2, 8, 10] but very few reports describe the clinical outcomes with the same in de Quervain's disease. We describe the clinical outcomes of intra-sheath injection of TC in the treatment of de Quervain's disease compared to conservative management with splint and oral NSAID.

Objectives
To compare the efficacy of local steroid injection against conservative management with oral NSAID and splint in treating de Quervain's disease.

Methods and Material

Place of study: R L JALAPPA hospital and research center, Tamaka, Kolar.

Nature of study: Prospective comparative study.

Type of Randomization: Every alternative wrist of Dequervain' s disease was selected for a particular treatment.

Overall 60 wrists with the disease were included in the study and randomized into two groups namely "CONSERVATIVE" i.e "Group 1" and "STEROID INJECTION" i.e. "Group 2" according to the treatment they were subjected to.

On physical examination the area around the radial styloid (first dorsal compartment of wrist) was assessed for tenderness and Finkelstein test in all patients. The severity of pain was noted on Visual analogue scale, (VAS 0-10), with zero no pain, one to three as mild, and four to six as moderate and seven to 10 as severe pain.

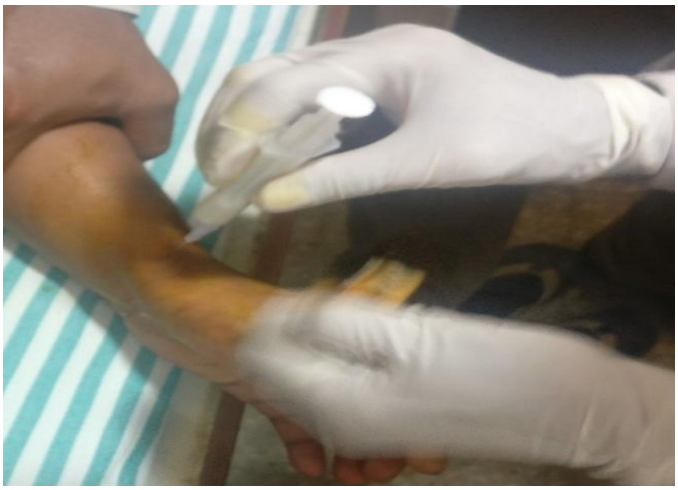
Conservative group patients were prescribed oral tablet Diclofenac (50 mg) and Paracetamol (500 mg) - one tab. twice a day for 3 weeks with thumb abduction splint. Steroid injection group patients were given a dose of 8 mg of triamcinolone mixed with 2% xylocaine. It was injected into the tendon sheath and advised to avoid strenuous activity for 2 days following the procedure.

Conservative (Group- 1)	Steroid Injection (Group 2)
Oral tablet Diclofenac (50 mg) and Paracetamol (500 mg) - twice a day for 3 weeks with thumb abduction splint.	Patients are given a dose of 40 mg of Triamcinolone or Hydrocortisone mixed with 2% Xylocaine into the tendon sheath.

Follow up is done at 1week and 3 weeks following the treatment and patient's pain severity was assessed on the basis of VAS and any complications arising due to the treatment were noted.

Injection Technique-

One ml (40mg) of Triamcinolone acetonide and 1 ml of 2% lignocaine hydrochloride was taken and mixed in 5 cc syringe. The area of tenderness was confirmed before injection. The needle was passed in the first extensor compartment of wrist directing proximally towards the styloid process of radius and parallel to the abductor polices longus and extensor polices bravis tendons. Stretching of the synovial sheath by volume effect was observed.



Results

A total of 60 patients participated in the study, out of which 31 were female and 29 were male patients.

Table 1: Sex distribution

	Males	Females
Group 1	17	13
Group 2	12	18

The disease is found to be common in the age group of 30-40 and 40-50 years. Right side is affected more often than the left, mostly due to the reason that most of the people are right handed and tend to use their right hand more frequently than the left.

7 of the 30 wrists in group I had complete relief of symptoms with splintage and NSAID treatment.

Table 2: Age distribution

Age group (in years)	Group 1	Group 2
10-19	1	0
20-29	1	0
30-39	12	9
40-49	16	16
50-59	0	3
60-69	0	2

The 5 patients with poor to no pain relief subsequently had complete relief of symptoms with a single steroid injection. 15 of the 30 wrists which were treated with steroid injections were relieved with one injection, and the other 2 with two injections. No wrists in this group required surgical treatment. Of the remaining 23 wrists in group I, 11 (36.67%) had excellent, 14 (46.66%) had good and 5 (16.67%) had poor relief of pain as per Visual analogue scale. Fifteen of 30 wrists had complete relief of symptoms with VAS score to be zero. 25 (83.33%) had excellent, 5 (16.67%) had good relief of symptoms.

Table 3: Results

Results	Conservative (Group 1)	Steroid Inj (Group 2)
Excellent	11 (36.67%)	25 (83.33%)
Good	14 (46.66%)	5 (16.67)
Poor	5 (16.67%)	0
Total	30 (100%)	30 (100%)

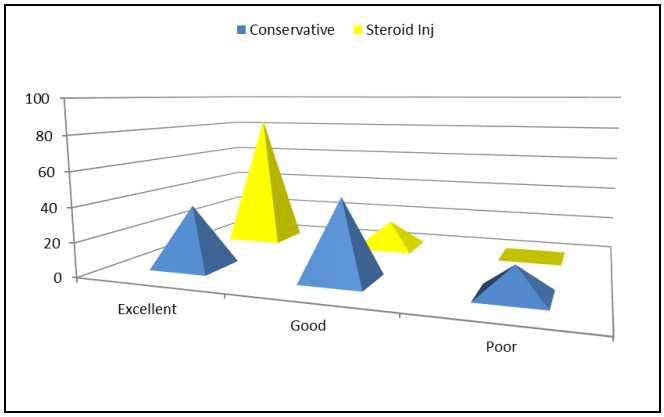


Fig 1: Results

Discussion

In a study conducted by Richie and Eriner [14], they concluded that local steroid injection is effective in 83% of patients while 14% of patients with splints only. None of the patients

who were taking only NSAID's and rest had relief of pain. This is in correlation to our study which showed similar results in group 2 of 83% excellent results and 36% excellent results when splinting is combined with NSAIDS. Injection corticosteroid was found to be the most effective and successful treatment for this disease. In their analysis it was noticed that 327 wrists were injected and followed up for 9.6 months and no tendon rupture was found.

Lane LB, Boretz RS, Stuchin SA [21] in their study of 249 patients observed that 76% of patients were completely relieved of pain while 7% noticed improvement of symptoms. Results were comparable and no complications were noticed.

Avci *et al* claimed 100% success rate.[15] Takuya Sawaizumi, 2007 claimed 94% success rate in their study in which they locally injected Triamcinolone for patients with De Quervain's disease. He concluded 90% of patients were fully satisfied, relapse was seen in 26% of patients, and complications were seen in 32% [16]. McDermott JD *et al*, reported in 2012 that at a follow up of 6 weeks, no complications were noted and 36 of the 37 wrist (97%). However 14% of wrist had recurrence of symptoms [17] This is in contrast to our study where 2 patients had recurrence of symptoms which relieved with another injection of Triamcinolone acetonide.

Mohsin Mardani Kivi *et al* [22] conducted a prospective study over 67 patients. They injected stroid injection to all patients with and without thumb spica cast and noticed that injection and cast combination is better than injection alone. In this study they assumed that steroid inection is better than NSAID alone or casting alone or combination of NSAID and casting. They noticed successful results in 76% of patients with corticosteroid injection where as 83% of patients in our study noticed excellent results with corticosteroid injection alone.

Muhammad Akram *et al* [23] documented complete pain relief in 80% of patients with single steroid injection. They noticed local depigmentation in 8 patients compared to no such complication in our study.

Limitation: The limitation of our study is short term follow up and small sample size

Conclusion

The inflammatory process occurring in DeQuervan’s disease can be very effectively controlled and be cured by local infiltration of the steroid into the tendon sheath. The result can be achieved within one or two weeks and is superior to using any kind of analgesics in the form of oral NSAIDS and local ointments and splints.

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