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OUTCOMES OF INTRASHEATH STERIOD INJECTION FOR TREATMENT OF DE QUERVAIN'S TENOSYNOVITIS

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ABSTRACT

Introduction: De Quervain's tenosynovitis is a stenosing tenosynovitis of the first dorsal compartment of the wrist. Various modalities of treatment include splinting, local corticosteroid injection and surgical decompression. In this prospective study the effectiveness of local corticosteroid injections for de Quervain's tenosynovitis was assessed. **Materials and methodology:** Forty five patients were included in the study. All patients included in this study showed no improvement with oral analgesics. Pain and tenderness was recorded as per the VAS scale before the procedure. A mixture of 1 ml (10mg) of triamcinolone acetonide and 1 ml of 1% lidocaine hydrochloride was injected in first dorsal compartment of involved wrist. Patients were followed up every monthly for 6 months and assessment was done for reduction of pain and tenderness by measuring the VAS score and doing Finkelsteins test. **Results:** Out of Forty five patients 23 patients had improvement in symptoms and negative Finkelsteins test at the end of two months. The remaining 22 patients were again given steroid injection at the end of 2 months and 18 patients showed complete relief of symptoms and had negative Finkelsteins test. Remaining 4 patients did not show any clinical improvement and were taken for surgical release. **Conclusion:** We conclude that one or two local steroid injections in the first dorsal compartment leads to significant improvement in patients with de Quervain's tenosynovitis.

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INTRODUCTION

Fritz de Quervain's, a Swiss physician, is given credit for first describing this condition (De Quervain, 2005). De Quervain's tenosynovitis is a stenosing tenosynovitis of the first dorsal compartment of the wrist. It is caused by impaired gliding of the tendons of the abductor pollicis longus (APL) and extensor pollicis brevis (EPB) muscles (Moore, 1997). This is most probably caused by thickening of the extensor retinaculum (the thickened part of the general tendon sheath that holds the tendons of the extensor muscles in place) of the wrist. The pathophysiology of de Quervain's disease does not involve inflammation and on histopathological examination mainly degenerative changes such as myxoid degeneration, fibrocartilagenous metaplasia and deposition of mucopolysaccharide are seen (Clarke *et al.*, 1998). The diagnosis is mainly clinical, Symptoms consist of pain at the radial styloid and on physical examination there might be swelling at the radial styloid with tenderness and crepitations on palpation.

Finkelstein's test (deviation of the wrist to the ulnar side, while grasping the thumb, results in pain) is in typical cases positive (Palmer *et al.*, 2000). It was associated with considerable impact on daily activities and health seeking behaviour. Both nonoperative and operative methods have been used for the treatment of De Quervain's tenosynovitis. Non surgical management involving bracing, physical therapy, and thumb spica cast. Local steroid injection has shown good promise, the effectiveness of injection therapy is often attributed to anti-inflammatory effects of corticosteroids. In resistant cases, surgery is performed to release the first dorsal compartment of the wrist (Ilyas *et al.*, 2007). Surgery (dividing or excising a strip of the covering sheet of tendon) has been reported to be curative in 91% of patients, but it has been associated with higher costs and sometimes-surgical complications (Ta *et al.*, 1999). Objective of this study is therefore to assess outcome of local corticosteroid injections for de Quervain's tenosynovitis

MATERIALS AND METHODS

This is a prospective study being conducted in NHL Medical College, VS General hospital between December 2016 till

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December 2018. Fourty five patients were included in this study. Patients included in this study include those with failed treatment with oral and local NSAIDs for atleast 6 weeks, patients which on physical examination showed tenderness in and around the radial styloid (first dorsal compartment of wrist and patients with positive Finkelstein test. Patients excluded from the study include patients with age less than 18 years, evidence of diseases like rheumatoid arthritis, gout, diabetes mellitus, and pregnancy and previous history of trauma and steroid injection in the region. The severity of pain was noted on Visual Analogue Scale, (VAS 0-10), with 0 no pain, 1 to 3 as mild, 4 to 6 as moderate and 7 to 10 as severe pain. Under aseptic conditions, the affected tendon sheath was injected with a combination of 40 mg (1 ml) of triamcilone (and 1 ml of 2% plain lignocaine HCL at one point along the line of the tendon, just proximal or distal to the styloid, at the site of maximum tenderness.

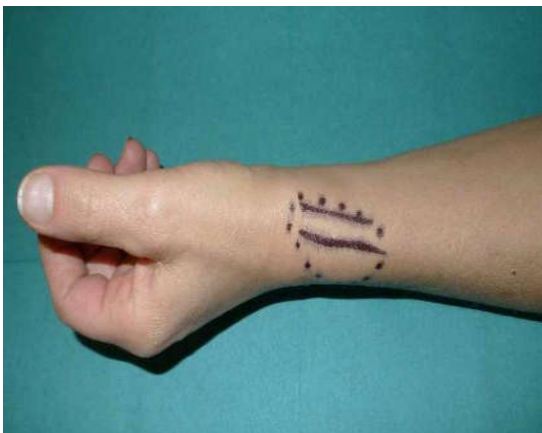


Figure 1.landmarks for injection



Figure no 2: Palpating the tendons



Figure 3. Injection of triamcilone

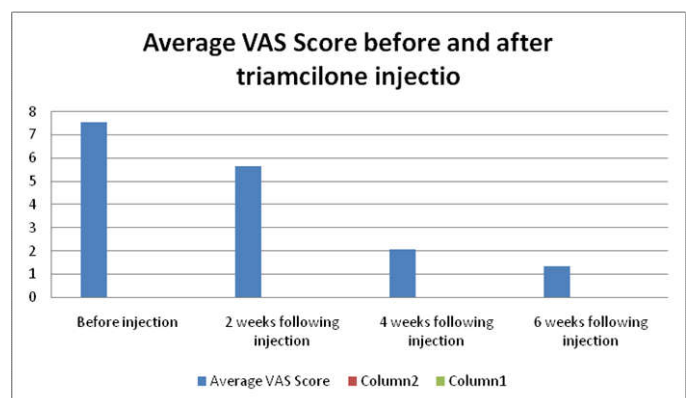
The identical protocol was repeated for all forty five patients. For early clinical response each patient examined two weeks after the injection, and then followed for 24 weeks. Treatment efficacy was measured by assessing reduction in severity of pain and tenderness on the radial side of wrist and negative Finkelstein test. Patients with unsatisfactory improvement (VAS 6-7) at 2nd week were injected again. No more than two injections were given to any patient. Skin pigmentation and atrophy is noted at injection site.

RESULTS

Out of a total of 45 patients, 25 (55.5%) were female and 20 (44%) were male. The mean age of the patients included in this study was 34 ± 3.23 years. Out of 45 patients 31 patients had left sided involvement and 14 patients had right sided involvement. The mean duration from the start of the symptoms to the start of study was 6 weeks ± 0.76 weeks. Before the injectable triamcilone was given all the patients included in the study were assessed by Visual analogue score(VAS).Out of fourty five patients 32 patients were included in severe pain category and had VAS score between 8-10, and remaining 13 patients were included in moderate pain category and had VAS score between 4-6. 2 weeks after injection triamcilone was given 39 patients were completely free of symptoms and had negative filkenstein test. Remaining six patients were again given triamcilone injection at the end of 2 weeks who did not show any sign of improvement. Patients were assessed every 2 weeks and at the end of 6 weeks 43 patients showed complete clinical improvement and negative filkensteins test (Table no 1, Graph 1). Two patinets who were resistant to steroid injection were taken for surgical release.

Table 1.

Duartion	Average VAS Score
Before injection	7.56
2 weeweeks after injection	5.64
4 weeks after injection	2.08
6 weeks after injection	1.33



Graph 1. showing decrease in VAS Score following triamcilone injection

DISCUSSION

On the basis of the results obtained from the above conducted study good results have been obtained from the use of local triamcilone injection than the use of oral steroids and splint age in dequervains tenosynovitis and we also have references of other international studies conducted which shows effective outcomes of local steroid injection for stenosing tenosynovitis.

Richie and Eriner (Richie *et al.*, 2003) conducted studies comparing the results of steroid injection versus splint age and oral NSAIDS showing local injection of triamcilonone produces 61% reduction in symptoms versus only 14% reduction obtained by thumb spica or splintage and 0% relief with oral Nsaids. Takuya Sawaizumi (Takuya Sawaizumi *et al.*, 2007) conducted study for the injectable triamcilonone in dequervains tenosynovitis and reported 94% success rate with drastic reduction in clinical symptoms. Peters-Veluthamaningal (Peters-Veluthamaningal *et al.*, 2009) compared single steroid injection with splinting with thumb spica in 18 pregnant or lactating ladies. The patients were randomized in two groups of 9 patients each. They reported that all the patients in steroid group had complete pain relief within one week on intervention, while no patient in spica group had relief. No complications were detected. As per the study conducted by D shivanna (Shivanna *et al.*, 2014). At six weeks 58 (97%) patients were symptom free and fully satisfied with the results and they found no recurrence in these patients after 1 year of follow-up. In our study, 86 % of patients were symptom free two weeks after intervention, 89% after four weeks and 95% were free of symptoms at six weeks after intervention. It has been reported that triamcinolone is a lyophobic steroid and its absorption by the tissues is slower than other steroids and it remains in the sheath for long time. It is believed that anti inflammatory effects of this drug persist for two to four weeks (Quinnel, 1980) As the effect of this drug persist for 4-6 weeks there are no recurrences after steroid injection even at 24 weeks of follow up. Adverse effect of localsteroid injection was seen in this study which include pain at site of injection (Goldfarb *et al.*, 2007) in 10 patients which recovered within weeks and skin hypopigmentation (Witt *et al.*, 1991) was seen in 2 patients and skin atrophy in one patient. Hence all the patients included in the study were explained about the above mentioned side effects. However, we feel that with a larger case series, a longer follow up and refinement of the procedure, a fair conclusion can be drawn with regard intra-sheath steroid.

Conclusion

In this study effectiveness of intra-sheath corticosteroid injections for de Quervain's tenosynovitis was assessed and it was found that treatment of de Quervain's tenosynovitis with methylprednisolone injection rapidly controls the signs and symptoms. We conclude that one or two local steroid injections in the first dorsal compartment leads to early improvement in patients with de Quervain's tenosynovitis

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