ORIGINAL ARTICLE

Outcome of local steroid injection in de Quervain`s Tenosynovitis

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Abstract:
Objective: To assess the outcome of local steroid injection in de-Quervain`s tenosynovitis in our patients.
Study design: Descriptive study
Setting and duration: Orthopaedic Departments, MTI Lady Reading Hospital, Peshawar and MTI Khyber Teaching Hospital, Peshawar, KPK, Pakistan from January 2015 to June 2016.
Material and methods: 30 patients with de Quervain`s tenosynovitis were included in the study. Each patient was injected with combination of steroid(1ml of 40mg of methylprednisolone acetate) and local anaesthetic(1ml of 2 % plain lignocaine)into the 1st dorsal compartment of the wrist. Pre-treatment and post-treatment assessment was done at 4 weeks, 8 weeks and 12 weeks using visual analogue score. Patients with little improvement (VAS score >5) at 4 weeks was given second injection.
Results: A total of thirty (30) patients were enrolled in the study. 25(25, 83.3%) patients were female and five (5,16.7%) were male. Mean age of the patients was 41.20±7.43 SD. In 23(76.6%) patients right wrist was involved while in 7(24.4 %) of patients left wrist was involved. 5 patients (16.66%) having VAS >5 received second injection at 4 weeks. Mean pre-treatment VAS was 91.47±3.48 SD (95% CI 90.17 T0 92.77) and mean post treatment VAS was 14.13±11.98 SD (95% CI 9.66 TO 18.61). Treatment was successful in >80% of patients with VAS < 2 at 12 weeks follow up. 2 patients with poor results were referred for surgery. Temporary pain at injection site occurred in 6(20%) of patients.
Conclusion: Local steroid injection is the effective treatment in de Quervain`s tenosynovitis not responding to rest and oral/topical analgesics for 6 weeks.

Keywords: de Quervain`s Tenosynovitis, steroid (methylprednisolone acetate) injection, 2 % plain lignocaine

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Introduction:
De Quervain's tenosynovitis is a stenosing tenosynovitis of the first dorsal compartment of the wrist probably caused by thickening of the ligamentous structures covering the tendons of the abductor pollicis longus and extensor pollicis brevis resulting in their impaired gliding.[1] De Quervain, a Swiss physician, was the first to describe this condition in 1895.[2] It is six to ten times more common in females than in males and occurs typically in adults 30 to 50 years.[3] The precise etiology of De Quervain's tenosynovitis is suggested to be an acute trauma or an extreme, un-accustomed/new exercise. However, more commonly it may be the result of repeated micro-trauma.[4,5] The prevalence of the disease is also increasing gradually with the new occupational and professional demands.[6]

The diagnosis is made by history and physical examination.[7] Patients usually complain of pain at the radial styloid and on palpation there is tenderness and crepitations at the radial styloid. Finkelstein's test (pain with deviating the wrist to the ulnar side, while making fist with thumb inside) is typically positive.[8]

Table-1: Table1Visual Analog Score (VAS 0 -100)

Very low or low	mild	moderate	high	Very high
0 - 20	20 - 40	40 - 60	60 - 80	80 - 100

Table-2: Outcome at Final Follow up (12 weeks)

No of patients	VAS(post treatment VAS 0 -100	outcome
n=20	0-10	excellent
n=5	11-20	good
n=3	21-30	fair
n=2	>30	poor

Treatment modalities like rest, massage, cold and heat applications, diathermy and counter irritants are suggested to be ineffective in this condition.[7] The most effective modality of treatment is non-surgical consisting of local corticosteroid injections, bracing, physical therapy and thumb spica cast.[9] The exact mechanism of action of corticosteroids is unknown although it is often attributed to their anti-inflammatory effects.[10] Since de Quervain's tenosynovitis can lead to marked disability and absence from work due to impaired functioning of the hand, local corticosteroid injection has been suggested to be easy, safe and effective modality of treatment.[11] In resistant cases, surgery is performed to release of the first dorsal compartment of the wrist.[9] Surgery has been associated with higher costs and sometimes-surgical complications.[12]

This study is designed to assess the efficacy of local corticosteroid injection in the treatment of De Quervain's tenosynovitis in our patients.

Material and Methods:

A total of thirty (30) patients with de quervains tenosynovitis were included in the study from January 2015 to June 2016 at Outpatient Department (OPD), Medical Teaching Institute, Lady Reading Hospital and Medical Teaching Institute, Khyber Teaching Hospital, Peshawar KPK Pakistan.

The Inclusion criteria was patient of either gender having>6 weeks duration of pain or tenderness at radial styloid of the wrist and positive finkelsteins test. Patients not responding to rest and oral/topical NSAIDs.

Exclusion criteria: Patients having pregnancy, rheumatoid arthritis, history of acute trauma, history of previous steroid injection and surgery were excluded from the study.

All patients were informed about the procedure and written informed consent was taken. Detailed history, physical examination and x-ray wrist AP and lateral views were performed for all patients. Using 100mm VAS, pre-treatment score was calculated for every patient with 0 score indicating no pain and score 10 having maximum pain. All patient were injected with combination of steroid (methylprednisolone 40mg 1ml) and local anaesthetic (1ml of 2% plain lignocaine) under aseptic technique. All patients were kept in observation for an hour after the injection. Patients were advised not to do strenuous activities and to use oral NSAIDs for pain. Monthly follow up was done for three months and VAS score was calculated at every follow up. Patients having VAS >5 at 4 weeks were given second steriod injections. Treatment was considered successful if VAS score decreased to 20mm or less at final follow up at 3 month.

Results:

A total of thirty (30) patients were enrolled in the study. Twenty five (25, 83.3%) patients were female and five (5, 16.7%) were male. Mean age of the patients was 41.20±7.43 SD. Age range was 28 to 54 years with 95% confidence interval of 38.43 to 43.97. In 23(76.6%) patients right wrist was involved while in 7(24.4%) of patients left wrist was involved. Mean pre-treatment VAS was 91.47±3.48 SD (95% CI 90.17 to 92.77) and mean post-treatment VAS was 14.13±11.98 SD (95% CI 9.66 TO 18.61) at the final follow up. Five Patients (16.66%) received 2nd injection at 4weeks (VAS >5). No patient was lost to follow up. 20 patients had excellent results with complete resolution of symptoms, 5 patients had good results with pain on aggressive hand work, 3 patients had fair results with pain on mild activity and 2 patients poor results with pain on just range of movements of hand (table 2). Overall, complications developed in 6 patients (20%), all being temporary pain at injec-

tion site which resolved over 5 to 12 days. There were no complications of nerve injury, tendon rupture or infection in our study.

Discussion:

This study was conducted to assess the efficacy of local steroid injection in de Quervain`s tenosynovitis in our patients. Twenty five (25, 83.3%) patients were female and five (5, 16.7%) were male. Mean age of the patients was 41.20±7.43 SD. This was comparable to study done by Mehdinasab SA[13] who reported 86.3% female patients, although with mean age of 32.6 years 13.25 patients had VAS score <20mm at final follow up with success rate of 83.33%. This outcome is comparable to studies by Velothamaningaland Mehdinasab. They found success rate of 78% and 86.5%.[1,13] Kitti et al showed success rate of 67% with steroid injection.[14] Richi and Briner showed 83% success with steroid injection in their systemic review.[10] We have failure rate was 16.66% where Mehdinasab reported 13.5% failure rate.[13] There could be many reasons for this failure. First we have injected steroid at a single point of maximal tenderness. Studies have shown that separate compartments exist for tendons of extensor pollicis brevis and abductor pollicislongus.[15,16] Second, multiple sites (two or more) injections have been shown to be associated with higher success rate.[17,18] However multiple site injections are associated with more discomfort to the patients. Third, Ultrasounded guided injection of steroid showed better results (93.75%).[19] In our study, complications developed in 6 patients (20%), all being-temporary pain at injection site which resolved over 8 to 14 days. There were no complications of skin discoloration, nerve injury, tendon rupture or infection in our study. One study reported 40% incidence of temporary pain at injection site.[13] This difference could be due to addition of 1ml of 2% lignocaine in our study while the cited study had used only steriod without anaesthetic. It is recommended to inform all the patients of possible complications before starting treatment especially temporary injection site tenderness and skin discoloration.[20,21]

However there were some limitations of our study. Sample size was small and there was a short follow up. Larger study with a longer follow up is required to more precisely know the outcome of steroid injection for de Quervains tenosynovitis.

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Role and contribution of authors:

Dr Afsar Khan, conception and design, collection and assembly of data

Dr Naji Ullah, analysis, interpretation of data and drafting of article

Dr Zahid Safi, Statistical expertise

Dr Tauseef Raza: Final approval of the article

Conclusion:

Local steroid injection is easy and simple procedure and is effective treatment for de Quervains tenosynovitis not responding to rest and oral/topical NSAIDs.

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