Original Article

Efficacy of Local Corticosteroid Therapy in Adult Trigger Finger Deformity at a Tertiary Care Hospital Setting

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Objective: Trigger Finger also called Stenosing Flexor Tenosynovitis is common hand pathology in adulthood. Efficacy of local corticosteroid injection was investigated in adult trigger finger deformity

Methods: Seventy females and 40 males injected with 1cc local corticosteroid at the level of A1 pulley were followed for a period of 6 months and consequent symptomatic relief was classified as good, moderate and bad.

Results: Out of a total of 110 patients, 70 females and 40 males, 40 patients had triggering in thumb, 26 patients in index finger, 22 patients in middle finger, 13 patients in ring and 9 patients had triggering deformity in little finger. All had pain and triggering in the involved digit proximal to metacarpophalangeal joint. 81 patients were observed to have no more triggering and pain while 15 patients had pain without triggering and 14 patients had both triggering and pain at the end of 1st month. At 3 months the number of patients who had no pain and no triggering remained the same whereas 3 patients had additional symptoms of triggering apart from pain thus increasing the number to 17. At the end of 6 months duration 11 patients demonstrated no response to treatment and were advised surgical intervention for definite cure.

Conclusions: Injection of local corticosteroid drug mixture in treatment of trigger finger deformity is an easy, cheap and effective method and trial should be given once before definitive treatment that is surgery.

Keywords: corticosteroid, trigger finger, tertiary care hospital,

Introduction

Trigger finger is 4th leading cause of referral in hand surgery facilities.[1] The life time incidence of trigger finger is 28:100000 per year or a lifetime risk of 2.6% in the general population, but it increases to 10% in the diabetic population.[2,3] The mean age of onset of trigger finger is 58 years and women have a tendency of 2-6 times as compared to men.[4] Patients with trigger finger have discomfort while flexing the digits and restriction of movement upon extending them. Without treatment, there may be a gradual worsening of symptoms to severe pain and locking of digits in flexion.[5]

The primary goal of treatment is to alleviate discomfort during finger movements. Steroid injection is a conservative first line intervention for trigger finger according to guidelines. Surgical intervention is recommended if conservative intervention fails to relieve the symptoms.[6] In our study, we aim to investigate efficacy of local corticosteroid therapy in adult trigger finger deformity so that we be able to counsel patients precisely regarding the risk of symptom recurrence after a corticosteroid injection. As the triggering is believed to occur due to a mismatch between the A1 pulley and flexor tendons the following protocol was followed for accurate placement of corticosteroid within the tendon sheath.

The A1 pulley overlies the metacarpal neck and it marks the proximal border of the flexor tendon sheath. This border is roughly in line with the distal palmar crease in the index, middle, ring and little finger. In the thumb proximal crease was used as a surface marker for injection.

The needle was inserted on the distal palmar crease through the skin to the bone over the finger involved and then withdrawn 1cm so that the tip was now in the flexor tendon. The patient was asked to slowly flex and extend the digit. If the needle moved with the movement of digit this confirmed that the needle was in the tendon.

Then the needle was withdrawn about 1mm until it did not move with the movement of the digit anymore this time it was in the gap between the tendon and the A1 pulley. With gentle pressure the tip of the needle was passed into the flexor sheath.

Methods

Between July 2015 and June 2016, new patients diagnosed with one or more trigger fingers at Outpatient Department, Plastic Surgery Unit Services Hospital Lahore were included in this institutional review board approved, prospective study. Patients previously treated for trigger finger, pregnant women, patients younger than 18years, having multiple triggering fingers or degenerative joint disease were excluded from this study. In total 122 patients fulfilled out eligibility criteria. 12 declined participation. This resulted in a final sample of 110 patients. In total informed consent was obtained from 70(64%) women and 40(36%) men. The mean age was 58years (SD 11years).A mixture of triamcinolone, 1% lidocaine, 0.5% bupivacaine was used in a ratio of 2:1:1.1cc of this mixture was injected using insulin syringe beneath the A1 pulley of the patients deploying the previously described technique. In the post procedure period patients were advised to move their fingers actively as required. Outpatient follow up was conducted over a minimum period of six months. The patients were prospectively assessed after one month, three months and six months after which they were discharged from the study. We defined treatment failure after there had been no symptomatic relief despite repeated injections during 6 months time period. The results were classified as good, moderate and bad as in the study of Anderson. On follow up, if patient had relief from triggering the procedure was considered effective. If the patient had no symptomatic relief they were advised a 2nd steroid injection followed by another six week appointment. After the 2nd injection if the symptoms were not relieved they were offered the 3rd and final injection. If the 3rd injection also failed the patient were offered the surgical release of A1 pulley.

Results

Out of a total of 110 patients, 70 females (mean age 48 years), 40 males (mean age 53 years) comprised the study. 40 patients had triggering in thumb, 26 patients in index finger, 22 patients in middle finger, 13 patients in ring and 9 patients had triggering deformity in little finger. All had pain and triggering in the involved digit proximal to metacarpophalangeal joint. At 1 month after the injection 81 patients (56 Female, 25 Male) were observed to have no more triggering and pain while 15 patients (10 Female, 5 Male) had pain without triggering and 14 patients(4 Female,10 Male) had

Table-1: Distribution of the deformity.

Thumb	Index	Middle	Middle	Ring
40	26	22	13	09

Table-2: Findings of clinical examination on 1st month.

No pain-no triggering (Good)	Pain without triggering (Moderate)	Pain and Triggering (Bad)
81(25 Male,56 Female)	15(5 Male,10 Female)	14(10 Male, 4 Female)

Table-3: Findings of clinical examination on 3rd month.

No pain-no triggering (Good)	Pain without triggering (Moderate)	Pain and Triggering (Bad)
81(25 Male,56 Female)	12 (4 Male, 8 Female)	17 (11 Male, 6 Female)

Table-4: Findings of clinical examination on 6th month.

No pain-no triggering (Good)	Pain without triggering (Moderate)	Pain and Triggering (Bad)
81(25 Male,56 Female)	18 (7 Male, 11 Female)	11 (8 Male, 3 Female)

Table-5: Statistical analysis of response to treatment at 1st month (t-test).

		Frequency	Present	Valid Percent	Cumulative Percent
Valid	None	14	12.7	12.7	12.7
	Moderate	15	13.7	13.7	13.7
	Good	81	73.6	73.6	100
	Total	110	100	100	

Table-6: Statistical analysis of response to treatment at 3rd month (t-test).

		Frequency	Present	Valid Percent	Cumulative Percent
Valid	None	17	15.5	15.5	15.5
	Moderate	12	10.9	10.9	26.4
	Good	81	73.6	73.6	100
	Total	110	100	100	

Table-6: Statistical analysis of response to treatment at 6th month (t-test).

		Frequency	Present	Valid Percent	Cumulative Percent
Valid	None	11	10	10	10
	Moderate	18	16.4	16.4	26.4
	Good	81	73.6	73.6	100
	Total	110	100	100	

both triggering and pain at the end of 1st month. At 3 months the number of patients who had no pain and no triggering remained the same whereas 3 patients had additional symptoms of triggering apart from pain thus increasing the number to 17(6 Female, 11 Male). At the end of 6 months duration 11 patients (3 Female, 8 Male) demonstrated no response to treatment and were advised surgical intervention for definite cure. Patients with pain but no triggering were given oral anti-inflammatory drugs and advised physical therapy. The t-test was used for statistical analysis. It revealed that the positive effects of the treatment were statistically significant (p=0.01). While the difference between the 1st, 3rd and 6th month results were statistically insignificant, (p=0.28) (Tables 1 to 7).

Discussion

Trigger finger is defined as a finger that displays snapping or uneven movement during flexion and extension.[7] The etiology of trigger finger deformity is not clear. Corticosteroid injection is the definitive treatment for the newly diagnosed trigger finger.[8] Response to the initial corticosteroid injection is well studied with the percentage of symptom free patients gradually declining over first year post injection. In some studies a success rate up to 80% was reported after a single corticosteroid injection.[9] Griggs et al reported 50% relief of symptoms by local injection treatment in trigger finger deformity. They also further stated that results were more successful in non diabetic patients. Murphy et al reported good results in 64% of participants after single dose of corticosteroid compared with 20% results in placebo group. Steroid injection was their favorite non operative treatment modality. The study by Anderson et al has 61% good results with 12% bad results in their study. Peters et al reported that the combination of corticosteroid and local anesthetic yielded better results compared with use of either modality. Similarly Cyriac et al declared steroid injections to be effective and safe in trigger finger deformity with an efficacy lasting 1 year. A recent study based in Peshawar had an efficacy of 72% with no complications.[10]

All the injections were performed by a single doctor in our study under kind supervision of our Head of Department. Fortunately we did not face any complication, but many complications have been reported in the literature due to inappropriate injection. Kazuki et al reported no complication after local steroid injection of 100 patients and concluded that extra synovial placement of injection was an effective and safe method for treatment of trigger finger deformity. Diabetic patients have propensity for some fearful complications. Wangg et al reported that single dose of steroid can cause symptomatic hyperglycemia in early post injection period. Many studies have stated that local steroid injections seems to have diminishing efficacy as the difference between the 1st,3rd and 6th month results were statistically insignificant. Published literature suggested that repeat injections for trigger finger offer some benefit but are less effective than initial injections.

Several limitations are inherent to this study design. First follow up period was short i.e. 6 months. Secondly we had not taken into account the severity of disease and outcome based on severity. Lastly different factors that affect the outcome such as nature of job were overlooked. Albeit all the confounders and reservations we can safely conclude that administration of corticosteroid injection does have a role as first line treatment in patients with trigger finger and a trial of injection should be given before any surgical intervention undertake to cure the disease.

Conclusion

The study demonstrates that corticosteroid injection therapy is an accessible, cheap and easy to administer treatment option for trigger finger deformity and it should be used before undertaking surgical option for definitive treatment.

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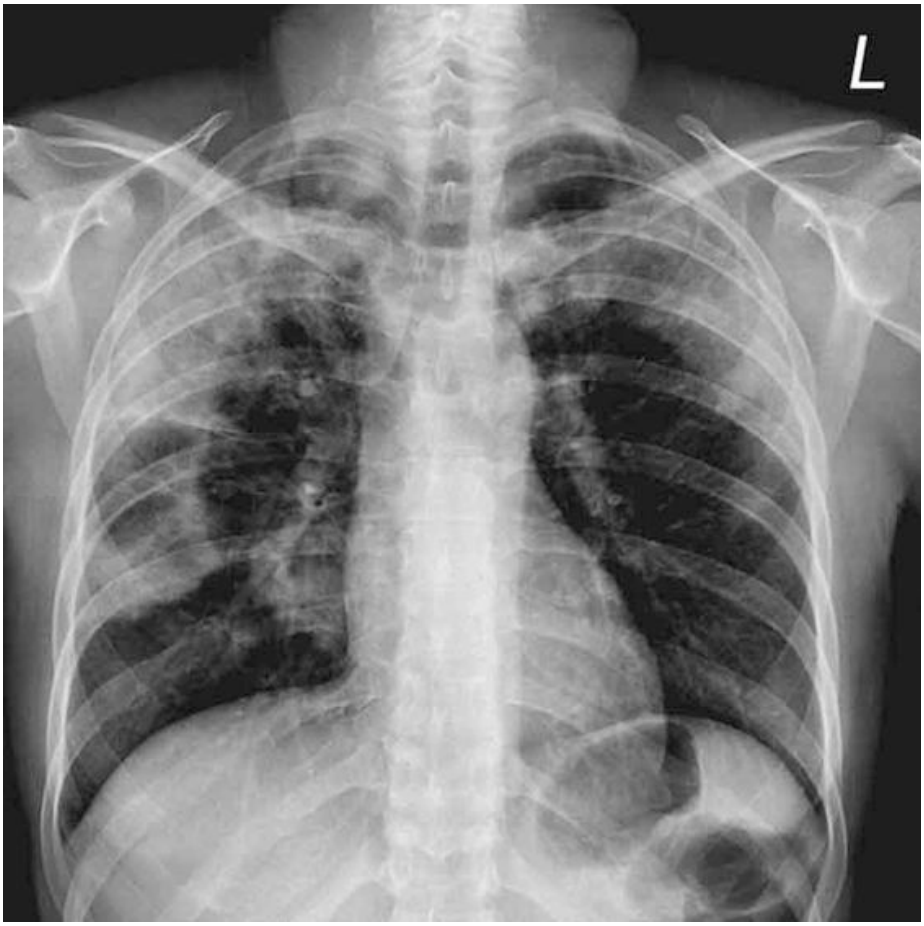
Picture Quiz

Questions

1- What does the chest radiograph show?
2- What is the differential diagnosis?
3- Which further investigations would you perform?



See answer on page # 49