Trigger Finger Open Release: Effective and Definitive Treatment Option

Mehran khan,[1] Aadil Ameen,[1] Saeed Akhter,[1] Ashfaq Ahmed,[2]* Rizwan Akram,[2] Shahzad Javed,[2] Amer Aziz [2]

ABSTRACT

Objective — *To find out recurrence rate, pain relief and self satisfaction after open release of trigger finger.*

Study design — *Descriptive case series.*

Place & Duration of study — *Orthopedic Surgery Department Government Teaching Hospital Shahdara and Ghurki Trust Teaching Hospital, from December 2014 to December 2016.*

Methodology — *Patients with trigger fingers were included in the study. All the patients underwent open release and followed up for a minimal period of 6 months. At follow up residual triggering and recurrence were noted. Pain relief was assessed by using VAS, and self satisfaction reporting.*

Results — *There were 93 patients with mean age of 45.14 year. This included 16 males (17.2 %) and 77 females (82.8%). Dominant hand was involved in 61 (65.6%) patients. Thumb was most frequently involved (49.5 %), followed by middle and ring fingers (17.2 % each). According to Quinnell classification, 79 (84.9%) patients were in grade 3 and 14 (15.1%) in grade 4. Pain was relieved completely in 70 (75.3%) patients. No recurrence was noted at 6 months follow-up. Of the total, 82 (88.8%) patients were fully satisfied with the outcome.*

Conclusion — *Open release, an old way of treating trigger digits, laed to quick pain relief, high satisfaction rate, and no recurrence at 6 months follow up.*

Key words — *Trigger digit, Trigger finger, Trigger thumb, Quinnell classification.*

INTRODUCTION:

Trigger finger or trigger digit (TD), also known as stenosing tenosynovitis, is a fairly common presentation that an orthopedic surgeon deals with. The prevalence of TD is estimated to be 2.2%, with highest prevalence in middle aged women.[1] Trigger finger term was first coined by French physician Alphonse Notta in 1850.[2] Patients suffering from this condition present with pain, feeling of hard nodule, and entrapment of a digit in flexion due to stenosis of the first annular pulley (A1).[3,4]

A1 pulley histology of trigger patients shows fibrocartilagenous metaplasia and degenerative changes.[5,6] Term tenosynovitis, though suggests inflammation of the tendon sheath, is actually a misnomer. There are no gross inflammatory changes within the synovial sheath.[4] Etiology of trigger digit is not known. The frequency of TD is reported more in patients with diabetes mellitus, rheumatoid arthritis etc.

Number of treatment options are available for TD.[7] With use of drugs like NSAIDs and steroids variable relief of symptoms has been reported.[3,4,8] Several surgical techniques have been used to address this condition and include percutaneous apponeurotomy with steroid injection to open release of A1 pulley.[9,10] Surgical release of A1 pulley is the definitive

[1] Department of Orthopedics, Government Teaching Hospital Shahdara, Lahore.

[2] Department of Orthopedics & Spine Surgery, Ghurki Trust Teaching Hospital, Lahore

Correspondence:
Dr. Ashfaq Ahmed [1]*
Department of Orthopedics & Spine Surgery
Ghurki Trust Teaching Hospital, Lahore
Email: ashfaqjadoon40@yahoo.com

treatment of trigger digit. It has a lowest recurrence rate.[11-13] The purpose of this study was to determine demographic profile, stage at the time of presentation and outcome of open release in terms of pain relief, relieve of triggering, recurrence and level of satisfaction in patients with TD.

METHODOLOGY:

This was a descriptive case series conducted at the Departments of Orthopedics Government Teaching Hospital, Shahdra and Ghurki Trust Teaching Hospital Lahore, from December 2014 to December 2016. Approval was taken from both the hospitals' ethical committees. All the patients coming to OPD with trigger digit were included. Patients were divided into 4 groups according to Quinnell classification for trigger digit.[14]

All the patients with grade 2,3 and 4 trigger fingers, without any previous treatment and symptoms for more than 3 months duration were included. Patients were treated on day care basis. To determine the location of A1 pulley and to avoid the injury to neurovascular structures, landmarks were identified according to Wilhelmi et al technique.[15] First generation technique cephalosporin was given intravenously half an hour before surgery. Procedure was done under local anesthesia. Stenosing A1 pulley was incised longitudinally from proximal to distal while avoiding any injury to flexor tendons. Peroperative assessment for any residual triggering was done by performing active flexion and extension of the digit. Active flexion extension exercises were allowed as per patient tolerance. Patients were called for follow up at 1 month, 3 months and 6 months for evaluation in terms of relief of triggering, pain at movement, recurrence, and satisfaction level of the patient. Data was entered in SPSS version 20 and descriptive statistics were used to present the results.

RESULTS:

In this series 93 patients with trigger digits were included. Mean age of the patients was 45.14 year (varies from 28 year to 67 year). Most of the patients were females (n=77 - 82.8%). Dominant hand was involved in 61 (65.6%) patients. Thumb was the most frequently involved (n=46 - 49.5 %) as shown in table I. According to Quinnell classification 79 (84.9%) patients were of grade 3, type.

Table I: Demographic Characteristics of Study Participants

Variable	Variable Description	Value
Mean age(year)		45.14 + 9.049
Gender	Male / Female	16/77 (17.2% / 82.8%)
Hand Dominance	Yes / No	61/32 (65.6% / 34.4%)
Digit involved	Thumb	46 (49.5%)
	Index	8 (8.6%)
	Middle	16 (17.2%)
	Ring	16 (17.2%)
	Little	7 (7.5%)
Grade of Triggering	Grade 3	79 (84.9%)
	Grade 4	14 (15.1%)

Table II: Surgical Outcome

Variable	Variable Description	Value
Mean Duration of surgery (Minutes)		4.82 + 0.30
Relief of Pain	Yes / No	70/23 (75.3% / 24.7%)
Relief of Triggering	Yes / No	93/0 (100% / 0%)
Patients' Satisfaction	Fully satisfied	82 (88.2%)
	Satisfied	11 (11.8%)
Recurrence at 6 months	Yes / No	0/93 (100% / 0%)
Complications	Yes / No	2/91 (2.2% / 97.8%)

Mean operative time was 4.82 minutes with (varied from 4.50 minutes to 5.20 minutes). There was complete relief of pain in 70 (75.3%) patients. No patient had recurrence of triggering at 6 months follow up. Of the total, 82 (88.8%) patients were fully satisfied. Only 2 patients had wound dehiscence that settled with topical antibiotics and dressings (table II).

DISCUSSION:

Open release of trigger digits is in practice for many years. Recently popular treatment options have overshadowed the open release of trigger fingers. In our study after open release we have found higher percentages of patient satisfaction, lowest rate of residual triggering and recurrence. Gilberts et al had studied long-term results of percutaneous and open surgery for trigger fingers and thumbs and found that 16% of the patients were having pain and 17% stiffness after percutaneous release as compared to open release which was 8%.[16]

Guleret al, in their study found 5.7% frequency of digital nerve injury in percutaneous release of thumb and advocated the open release. Infection rate in this study was 3.85% which is comparable to our study.[13] Similarly Lin et al, in their study found that the percutaneous release method did not have a better long-term satisfaction rate than the open release approach, although percutaneous release has a better short-term satisfaction rate.[17] Manjunatha compared percutaneous release with open release. He observed residual triggering in 11.63% and digital nerve injury in 16.28% after percutaneous release whereas in open surgical group there was no residual triggering though digital nerve injury noticed in 7.14%.[18] In our study no residual triggering was found.

Vedat Uruc et al in their study found residual triggering in 6% patients which ultimately needed open surgical release.[19] This supports the open release as definitive, reliable and satisfactory treatment option for the trigger digit. There are few limitations in our study. Our study was non comparative. There were no patients in grade 1 and 2. Moreover our follow up was for only 6 months. Further studies are needed to document long-term outcome.

CONCLUSIONS:

With open release of TD patients' reported highest rates of satisfaction. There was marked improvement in pain with no recurrence at 6 months follow up.

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Author's Contributions:

Mehran khan.	Data Collection
Aadil Ameen	Data collection
Saeed Akhter	Data analysis
Ashfaq Ahmed	Article writing
Rizwan Akram	Article review
Shahzad Javed	Supervision of data collection and analysis
Amer Aziz	Final approval of manuscript

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