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Research Article | Araştırma Makalesi

RETROSPECTIVE EVALUATION OF PATIENTS WHO RECEIVED SURGERY AS THE FIRST OPTION IN THE TREATMENT OF GREEN TYPE 3-4 TRIGGER FINGER

GREEN TİP 3-4 TETİK PARMAK TEDAVİSİNDE İLK SEÇENEK OLARAK CERRAHİ TEDAVİ UYGULANAN HASTALARIN RETROSPEKTİF DEĞERLENDİRİLMESİ

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ABSTRACT

Objective: To evaluate the clinical and functional outcomes of the patients with trigger finger patients who are treated by open surgery method without applying conservative treatment modalities.

Methods: Open A1 pulley surgical release under local anesthesia was applied to 67 trigger finger patients (45 female, 22 male, mean age 53,82, range 11-81). The mean follow-up was 38,37 months (range 4-76 months). As assosiated pathologies, there were type 2 DM in 14 and chronic renal failure in 1 patients.

Results: In 67 patients pain and triggering were found to be treated by open surgical A1 pulley release. No recurrence seen in triggering nodularity. Postoperatively there were no significant neurovascular complications noted.

Conclusion: As similar to literature, we believe that in the treatment of trigger finger with open surgery method is a safe and effective method and also supplies fast return to daily life. We think that the surgery may be the first choice in selected cases.

Keywords: Trigger finger, stenosing tenosynovitis, A1 pulley, hand surgery

ÖZ

Amaç: Konservatif tedavi önerilen fakat hasta uyumsuzluğu nedeniyle konservatif tedavi uygulanmadan açık cerrahi teknik uygulanan tetik parmaklı hastaların klinik ve fonksiyonel sonuçlarını değerlendirmektir.

Yöntem: Tetik parmak tanılı 67 hastanın (45 kadın, 22 erkek; ort. yaş 53,82; dağılım 11-81) parmağına açık insizyonla A1 pulley gevşetme cerrahi tedavisi uygulandı. Hastalar ortalama 38,37 ay (dağılım 4-76 ay) izlendi. İlave patolojiler bakımından, 14 hastada tip 2 Diabetes Mellitus (DM) ve 2 hastada kronik böbrek yetmezliği bulunmaktaydı

Bulgular: Açık cerrahi ile A1 pulley gevşetme uygulanan 67 parmaktaki ağrı ve takılmanın tamamen geçtiği görüldü. Hiçbir hastada tetiklenme veya nodül oluşumu tekrarlamadı. Olgularda postoperatif nörovasküler komplikasyona rastlanılmadı.

Sonuç: Literatüre benzer olarak tetik parmağın tedavisinde açık cerrahi ile elde edilen gevşetmelerin güvenli, etkili ve günlük yaşama dönmeyi hızlandıran bir yöntem olduğu kanısındayız. Cerrahinin seçili vakalarda ilk tercih olabileceğini düşünmekteyiz.

Anahtar Kelimeler: Tetik parmak, stenozan tenosinovit, A1 pulley, el cerrahisi

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Introduction

The flexor tendon dysfunction which occurs in association with the tenosynovitis developing under the A1 flexor tendon pulley is called the "Trigger Finger Disease" (stenosing tenosynovitis). It frequently occurs at the age 45 and above, especially in women. Its prevalence corresponds to nearly 3% of the general population. Although its etiology is uncertain, diabetes mellitus, presence of renal disease, collagen tissue diseases, hypothyroidism, history of carpal tunnel syndrome surgery and De Quervain's disease are predisposing factors associated with the trigger finger.[1-4] As a result of the stenosing tenosynovitis at the level of A1 pulley, pain, locking, and loss of function occurs in the affected finger. Furthermore, joint contracture may develop as a result of repetitive forceful finger movements. The disease may impact a single finger or multiple fingers.[5] Initial treatments include local and systemic anti-inflammatory agents, local anesthetic and steroid injections, hot-cold applications, splinting and paraffin baths. Generally, the surgical therapy option is applied in subjects where such implementations fail.
In our study, we evaluated the clinical and functional results of trigger finger patients who underwent open surgical techniques without the administration of conservative therapy due to patient non-compliance.

Methods

Sixty-seven patients, who applied to the Orthopedics and Traumatology polyclinic of Izmit SEKA State Hospital of Kocaeli (Turkey) between June 2012 - June 2018, suffered from painful nodules due to triggering and were diagnosed with trigger finger, underwent A1 pulley mini open surgery under wide awake local anesthesia (mixture of 2 cc prilocaine and 1 cc isotonic 0.9% sodium chloride) without tourniquet hemostasis (WALANT) and without administration of a conservative treatment due to patient non-compliance. A transverse incision was made over the A1 pulley for the 1st finger, while a longitudinal incision was applied on the other fingers. All patients underwent a perioperative active movement control. Active and passive flexion-extension exercises were initiated on the 3rd post-operative day.
The patients' time return to daily activities, pulp-to-palm distance (PPD), elimination of pain and locking in the fingers, extension restriction, surgery site scar, development of reflex sympathetic dystrophy and deformity, nodule formation in the incision site and development of infections were evaluated in the clinical evaluation.
Written informed consent was obtained from patients or their legal caregivers. All procedures were performed following the ethical standards specified in the Declaration of Helsinki (2008). The study was approved by İnstutional Review Board of Kocaeli University Ethics Committee (year 2024, No: E-80418770-020-591348).

Results

Forty-five patients were female patients, while 22 were male patients and the average age was 53.82 years (age distribution varied between 11-81 years). The patients were followed up for 38.37 months on average (at a distribution of 4-76 months). Among the trigger fingers, 33 (49.2%) were in the thumb, 10 (14.9%) were in the second finger, 9 (13.4%) were in the third finger, 10 (14.9%) were in the fourth finger and 5 (7.45%) were in the fifth finger. 58 patients (86.5%) were grade 3 and 9 patients (13.5%) were grade 4 according to Green's classification. In terms of comorbidities, 14 (20.8%) patients had type 2 diabetes mellitus (DM) and 2 (0.29%) patient had chronic renal failure.
No active or passive movement restriction developed in the subjects. The PPD values of the patients were below 1 cm (good result). Trigger and nodule formation did not occur again in any patient. No neurovascular damage or spontane flexor tendon rupture were observed in the patients. Eighteen patients (26.8%) continued to suffer from pain until the end of the 2nd month and these complaints disappeared in the follow-ups. No reflex sympathetic dystrophy developed in any patient. Superficial infection developed in 1 diabetic patient (0.14%) and it improved in the 3rd week with the 1st generation cephalosporin treatment administered daily with medical dressing. Scar sensitivity was observed in the scar site in 4 patients (0.59%). NSAID medical treatment was initiated along with massage therapy. These sensitivities disappeared in the 3rd month in 1 patient and in the 4th month in 3 patients.

Table 1. Results of the trigger patients. (P= patients)

Total	67 p
Age (average)	53,82
Age (range)	11-81
Gender	45 Female, 22 male
Grade of patient (Green's Classification)	Grade 3- 58 p Grade 4- 9 p
Affected fingers **1 F** **2 F** **3 F** **4 F** **5 F**	 33 p (49.2%) 10 p (14.9%) 9 p (13.4%) 10 p (14.9%) 5 p (7.45%)
Related diseases	DM (14 p) (20.8%) Cr. Renal Failure (2 p) (0.29%)
Early complications	Pain (18 p) (26.8%) Superficial infection (1 p) (0.14%) Scar sensitivity (4 p) (0.59%)

Discussion

Surgical and relaxation of A1 pulley at the metacarpal head is recommended in the surgical treatment of trigger fingers.[4] The conventional surgical method involves the open release of A1 pulley achieved via longitudinal or

palmar transverse incision performed by giving importance to interphalangeal and palmar creases, with a success rate of approximately 97%.[1] Complications such as infections, scar development and neurovascular wounding may occur in open surgery.[6,7] It is observed that percutaneous release has been standing out recently.[8,9] There are trials indicating that this is a preferable method as it is safe , effective and is easily applied, has a low cost and has a minimum complication risk if performed carefully.[10,11] However, they reported that a section of nearly 15% could remain unreleased at the pulley distal in percutaneous releases.[12] In a study conducted by Yalçınkaya et al., it was demonstrated that open surgery was successful but that the recurrence rates were higher in patients with systemic diseases (especially diabetes mellitus).[13]

There are studies showing that, despite open surgical release, triggering may persist due to tendons hooking on the transverse fibers of palmar aponeurosis or failure to achieve a full release.[1] It may be verified whether locking continues by active flexion and extension movements of the finger prior to wound closure as a superiority of the surgeries performed under local anesthesia compared to those conducted under general anesthesia. Furthermore, it was reported that the complication rates in open surgeries performed under general anesthesia or sedation were higher.[14] All patients in our series were operated under local anesthesia and all patients underwent a perioperative active movement control.

The role of therapeutic steroid injections in the treatment of trigger finger is still debatable. There are publications which report that steroid injection is a preferable therapeutic option with acceptable side effects in the first phase of treatment especially in non-diabetic patients.[1,4,13,14] The efficacy of single-dose steroid injection is reported to vary between 35-60%, while there is literature reporting that the success rate rises to 82% with additional injections.[1,4,13,14] Moreover, single-dose injection was demonstrated to be more successful in female patients in whom trigger finger was observed for the first time.[16] However, in the study conducted by Ng WKY et al., it was necessary to wait for at least 80 days before surgery following steroid injection to reduce infection risk.[17]

In addition to patients who undergo steroid injection, the infection risk following A1 pulley open surgery increases in smokers, co-administration of epinephrine with lidocaine for local anesthesia (epinephrine-related), elderly patients and in the use of antibiotics prior to surgery.[17] There are studies indicating that the risk will increase in diabetic patients, while there are also studies which show that the risk does not change.[18] Superficial infection was observed in 1 diabetic patient (1.4%) in our patient group, but as this percentage was insignificant, we may state that there is no difference between diabetics and nondiabetics.

In conclusion, full visibility of all anatomic structures, starting with A1 pulley in trigger finger subjects who underwent open surgery, ensures minimum neurovascular complications. Generally, although surgical treatment is recommended in subjects who cannot achieve a response following conservative treatment in the literature, open surgery may be considered primarily as an effective and safe method especially in patients with locking complaint and suffering from severe pain (Green's Classification grade 3 or 4) due to high postoperative patient satisfaction.[19] Making the patient do finger movements at an early phase following surgery minimizes scar development and enables the patient to return to his/her daily activities at an earlier phase. It should be remembered that the infection risk will increase in subjects with concomitant systemic diseases starting with diabetes mellitus and in surgeries performed at an early phase following steroid injection.

Compliance with Ethical Standards

The study was approved by İnstutional Review Board of Kocaeli University Ethics Committee (year 2024, No: E-80418770-020-591348).

Conflict of Interest

The authors have indicated they have no potential conflicts of interest to disclose.

Author Contribution

ÜG, ÖS: Designed the study and reviewed the manuscript; ÜG: Collected data, carried out the analyses and drafted the initial manuscript.

All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

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