

Immediate Effect of Relative Motion Splint on a Patient with Extensor Tendon Snapping: A Case Report

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Abstract

Extensor tendon dislocations (ETD) can also occur spontaneously and often cause deviation of the extensor tendons at the metacarpophalangeal (MCP) joint head. Mostly, patients complain of snapping, discomfort, and difficulty in activities of daily living (ADL). In addition, it is stated in the literature that pseudotriggering can also be seen. In our case, there was spontaneous ETD with multiple finger involvement and trigger in the third finger. In this case we applied the relative motion splint (RMS). Our case who applied to our clinic with complaints of difficulty in ADL, triggering and snapping, and did not want to undergo surgery, and we saw that the symptoms of snapping and triggering disappeared when RMS was applied. Additionally, we thought that our patient, whose triggering in the third finger disappeared with trigger finger injection, was accompanied by normal trigger finger pathology, not pseudotriggering. As a result, we think that RMS can be used in patients who do not want to undergo surgery or who have ETD as a conservative treatment before surgery and that it does not cause any complications.

Keywords: Extensor Tendon Dislocation; Snapping; Relative Motion; Trigger Finger

Introduction

Extrinsic tendons of the hand are important controllers for hand grasping [1]. Especially extensor tendons are important for releasing objects that affects activities of daily living [2]. ETD are typically the result of issues with the stabilisers of the extensor digitorum communis (EDC) tendon. The primary stabiliser of the EDC is the sagittal band (SB), while the secondary stabilisers are the junctions of the intertendinous fascia and tendons. These stabilisers are responsible for centralising the EDC tendon over the metacarpophalangeal joint head. ETD have several causes, including trauma, congenital factors, spontaneous causes and degenerative conditions. Congenital and spontaneous ETD is extremely rare and usually occurs in children or young adults. Patients typically present with pain, oedema and difficulty in activities of daily living (ADL) that require strength and snapping during active

flexion [3]. While some treatment options, such as splinting, taping and surgery etc. have been explored in the context of ETD, a consensus on the most effective approach has yet to emerge. Surgical methods remain the mainstay of treatment, but these procedures are often challenging and may lead to complications. Taping, on the other hand, has limitations in terms of compliance with the ADL and requires repeated application. Splints are low-cost and non-invasive applications that provide anatomical smoothness [4]. Splinting has been shown to be an effective intervention in the healing of SB in acute traumatic conditions. However, its efficacy may diminish as the condition progresses to a chronic state [5,6]. Despite the existence of a few studies reporting spontaneous ETD, we have yet to encounter a study in which this phenomenon has occurred in more than one finger, accompanied by trigger finger. Consequently, we present a case in which we successfully treated a patient with ETD in the 2nd-4th fingers and trigger finger in the 3rd finger using RMS.



Figure 1: Extensor tendon snapping

Case Presentation

A 21-year-old university student female patient was admitted to our clinic with the complaints of extensor snapping when making a fist for about 1.5 years and difficulty in ADL, discomfort and triggering in the 3rd finger (Figure1). Her flexibility tests were normal. The patient's complaints were in her

left hand and her dominant hand was right. She stated that he did not have much difficulty because he did not have a dominant hand. However, if he had a dominant hand, he would undoubtedly experience significant ADL issues. Upon further questioning, the patient stated that he did not recall any trauma, that the symptoms had developed suddenly, and that his previous doctors had recommended surgery. However, she

was not keen on pursuing this option, citing the potential difficulty of the surgeries. Our patient, who was not amenable to surgery, expressed a clear need for a solution that would allow her to use her hand comfortably. We performed RMS in which the 3rd finger was placed in relative extension compared to the other fingers and both the snapping in the 2nd-4th fingers and the triggering complaint in the 3rd finger disappeared (Figure 2). The complaints disappeared as long as the splint was worn. The patient, who used the RMS 3 months' time, stated that she used her hand more comfortably

in the ADL in which her complaints disappeared, also said that no complications developed but she still had difficulty in some ADL requiring fine motor skills due to the presence of the splint. When we asked her about her level of satisfaction with splint treatment, she stated that she could rate it as 4 on a 5-point Likert scale. The patient was again examined by a different surgeon and trigger finger cortisone injection was performed in the 3rd finger and when the patient came to our clinic again, the triggering in the 3rd finger had disappeared but the snapping of the extensor tendons continued.



Figure 2: Relative motion splint

Discussion

Spontaneous ETD can often be caused by joint capsule laxity or atrophy of sagittal fibrils [7]. ETD can lead to misdiagnosis and wrong interventions. Although there are treatment studies for ETD, their number is low and there is no consensus regarding treatment yet. Çırpar et al. reported that in their case report study, the patient had triggering in the 3rd finger in addition to extensor snapping, and although he underwent pulley loosening surgery twice, he did not benefit and the symptoms disappeared with reconstructive surgery on the extensor tendon stabilisers and there were no complications [3]. Similarly, our patient had multiple finger extensor tendon skipping and triggering in the 3rd finger and we thought that this triggering was a false triggering as reported by Çırpar et al. However, when our patient benefited from the injection and the extensor skipping continued, we thought

that trigger finger may develop in addition to ETD. In their study by Özçelik et al., taping was applied to 3 patients with spontaneous ETD. However, they were reported that taping required repetition and made adaptation to activities of daily living (ADL) difficult [5]. The RMS we used in our study serves the same purpose as taping, but we think that RMS is more practical than taping because it can be easily removed and put on by the patient and is long-lasting and does not require repetition like taping. However, RMS also made ADL adaptation difficult for the patient.

In studies that applied surgery as a treatment method to patients with ETD, it was reported that the surgeries were successful and had no complications [3,5]. However, surgery for ETD is challenging and the results may not always be satisfactory, especially in chronic ETD, as SB atrophy may occur. According to the 5-point Likert result, where 1 point means I

am not at all satisfied and 5 points mean I am very satisfied, we can say that our patient who gave 4 points is at the highest level of satisfaction with the splint [8]. Both orthotic approaches and surgical approaches give more positive results in patients in the acute phase [5,7,9]. In their study by Peelman et al., splinting was applied to 24 atraumatic patients and 100% of those in the acute phase, 67% of those in the subacute phase and 57% of those in the chronic phase resolved. Although splint contributes to the healing of the sagittal band in acute injuries, it can also be a treatment method that can be tried before recommending surgery in chronic cases [6]. The limitations of our study include the fact that the patient met with many different surgeons and that we did not have any communication with the surgeons.

Patient Perspective

I was complaining about the snapping in my hand, discomfort and the triggering in my 3rd finger, and it was affecting the ADL. I was upset when the surgeons told me that I had to have surgery and that it was a difficult surgery, otherwise I would have to live like this, but I am glad that my complaints improved to a level I can accept with the help of both splint and injections.

Informed Consent

Verbal and written informed consent forms were obtained from the patient.

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