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Case Report: A 19-year-old male patient presented to our outpatient clinics due to symptoms of CTS. The patient had a history of hand injury with window glass. The patient was examined both in emergency department and then in family health center. In examination with palpation and X-ray graphics an undetected foreign body was found.

Conclusion: The current report presents a case of an undetected foreign body that resulted in acute carpal tunnel syndrome, and which could be the subject of a medical malpractice lawsuit.

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CASE REPORT

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Keywords: Carpal tunnel syndrome, Foreign body, Malpractice, Median nerve

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INTRODUCTION

Carpal tunnel syndrome (CTS) is a trap neuropathy in which the median nerve is compressed as it travels through the carpal tunnel. Sir James Paget first described the condition in 1865 [1]. Clinically, the condition presents as pain, numbness, burning, tingling and stinging pain in the thumb and index finger as well as the radial aspect of the middle and ring fingers [2]. Obesity, rheumatoid arthritis, steroid use, pregnancy, female gender, diabetes mellitus, acromegaly, hyperparathyroidism, patent median artery have been reported as risk factors in its etiology [3–5]. Uncommon causes, such as benign and malignant tumors, anatomic variations, vascular insufficiency, trauma, and foreign body have also been reported in literature [6–8]. However, the condition is most frequently idiopathic [6]. In addition to high treatment costs and loss of labor, CTS can also cause permanent disability [9]. Acute carpal tunnel syndrome (ACTS) is different from classic CTS. ACTS is more rare entity according to CTS and mostly occurs after upper extremity traumas [10]. In literature, very rare cases of ACTS have been reported in association with unnoticed foreign body that remained in the median nerve following hand trauma [6, 7]. The current report presents a case of a penetrating foreign body that caused ACTS without causing median nerve injury.

Hakan Tekin¹, Ömer Faruk Koçak², Şafak Aktar³

Affiliations: ¹MD, Van Regional Training and Research Hospital, Plastic Reconstructive and Aesthetic Surgery Department; ²MD, Yüzüncü Yıl University, Plastic Reconstructive and Aesthetic Surgery Department; ³MD, Malatya State Hospital, Plastic Reconstructive and Aesthetic Surgery Department.

Corresponding Author: Hakan Tekin, Van Regional Training and Research Hospital, Plastic Reconstructive and Aesthetic, Surgery Clinic, Edremit, Van, Turkey; Ph: +90 506 306 1019; E-mail: h.tekin@yahoo.com

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CASE REPORT

A 19-year-old male patient presented to our outpatient clinics due to pain, burning, numbness, and tingling in the right thumb and index finger and a feeling of solid mass in the palms for the previous three weeks. During an argument with friends and the illicit use of drugs, the patient had hit a window with his hand.

Following the incident, the patient was taken to the emergency room where his hand movements had been examined. All finger movements were found to be normal and the patient denied any numbness in his fingers. A small skin incision on his wrist sutured, antibiotics and analgesics were prescribed and the patient was discharged from the hospital. The patient's complaint started 6–7 days after the injury and he presented to the family physician. After obtaining the patient's history, the family physician has referred the patients to our outpatient clinics with the pre-diagnosis of CTS. The patient did not undergo a radiological evaluation either in the emergency room or the family health center. On physical examination, there was a 1.5-cm long immature scar on the proximal crease on the volar aspect of the wrist. There was tenderness and pain on palpation of the palm. A hard, mobile object on the palm surface at the level of the proximal crease was palpated (Figure 1). An X-ray examination disclosed a semi-opaque foreign body (Figure 2). The patient was operated under regional nerve block. A glass fragment measuring 6.5 x1.5 cm was located beneath the flexor retinaculum and passing over the median nerve, which had compressed and flattened (Figures 3 and 4) the median nerve. The fragment was removed without any damage to the median nerve. No complications occurred in post-operation period. The patient's complaint diminished over a two weeks period. After three weeks, the patient dropped out from follow-up.

DISCUSSION

Carpal tunnel syndrome is a progressive neuropathy often characterized by a chronic course with the gradual loss of hand functions [11]. In the case of acute ACTS occurring within a short period of time, as little as a couple of days, mass lesions, foreign body or hematoma, which mechanically compresses the median nerve, should be suspected [12]. In particular, a history of trauma and previous surgery should be questioned. Although classic CTS develops in weeks or months the ACTS develops more rapidly and symptoms occur within days [13]. In ACTS, pressure in the carpal tunnel elevates due to mass effect, but in CTS there is a chronic inflammatory process rather than acute mass effect [14]. Classic CTS is not-common in young patient [11]. In this case, the patient's complaints were started 6–7 days after injury. The young patient who is a drug abuser, waited for spontaneous resolution of symptoms. For diagnosis of post-traumatic

Figure 1: Localization of foreign body by palpation.

Figure 2: Foreign body on X-ray.

Figure 3: The glass piece in carpal tunnel.

Figure 4: Formation of fibrosis. Median nerve was just under the thin fibrotic tissue.

ACTS, examination with palpation and radiological investigation are needed. This case was considered as ACTS due to history of hand trauma, patient's age and rapid onset of symptoms. ACTS must be treated rapidly to avoid any motor dysfunction [10].

Hand injuries comprise the most frequent cases presenting to the emergency rooms and most are associated with foreign body penetration [15]. Even though finger movement, circulation, and sensation are found normal on physical examination, manual examination (palpation) and a radiological evaluation must definitely be performed. Standard physical examination may miss up to 38% of foreign bodies [16]. Thus, the appropriate radiological imaging method must be made if any suspicion of an impaled foreign body persists. A simple X-ray examination is the first option for radiopaque objects [17]. However, ultrasonography may be the first choice for investigating non-radiolucent objects and computed tomography scan may be the first choice for complex injuries [18]. It should be kept in mind that foreign bodies left in the hand and the resulting complications are one of the major causes of malpractice lawsuits [19, 20]. This foreign body that remained undetected in the carpal tunnel and resulted in CTS is the largest foreign body reported to date in literature.

CONCLUSION

The aim of this case report is to highlight the fact that foreign bodies penetrating the hand may be missed on a classical physical examination, particularly in substance abusers, and these objects may result in permanent consequences in the long-term. We suggest that performing a thorough manual examination, as well as obtaining an X-ray, would prevent such an undesired malpractice, and one that could be the subject of lawsuits for physicians in the emergency room.

Author Contributions

Hakan Tekin – Substantial contributions to conception and design, Acquisition of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Ömer Faruk Koçak – Substantial contributions to conception and design, Analysis and interpretation of data, Drafting the article, Final approval of the version to be published

Şafak Aktar – Substantial contributions to conception and design, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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