

AN UNUSUAL PENETRATING FACIOCRANIAL INJURY CAUSED BY A KNIFE: A Case Report

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- ✓ Penetrating head and neck trauma in children causes uncommon and potentially life threatening injuries. Penetrating trauma to the head in children is a challenging problem for both the initial evaluating physicians and the surgeons. We reported a patient who had fallen from a tree during cutting vegetables and sustained a penetrating faciocranial injury caused by his knife.

Clinical examination showed a knife which had entered his face in the right preauricular, pre temporomandibular joint below zygomatic arc. His left bulbus oculi was exoftalmic and a complet ptosis was present. He was fully conscious. There was complet left visual loss. The other neurologic, ophtalmic and systemic physical evaluations were normal. The Glasgow Coma scale was 14.

X-Rays showed that the knife entered the right side of the face in the maxillary sinus below the right orbit and crossed the midline at the sfenoid sinus. It passed through the left optic nerve and stopped anterior of the inferior temporal lobe. The knife did not leave the skull. The circle of Willis, the carotids, brain and the brain stem were intact and there was no sign of bleeding in the brain tissue. Left optic nerve was divided and bulbus oculi was exoftalmic. The regular shape of the knife was shown in the cranium.

In the operating room, under general anaesthesia via oral tracheal intubation, the knife was extracted by tapping the clamp seized the knife with a surgical hammer via the entry wound. The patient was extubated and monitored in intensive care unit under sedation in 24 hours.

Key words: Penetrating head trauma, stab injury, knife.

- ✓ **Bıçak ile Olağandışı Bir Delici Yüz-Baş Yaralanması Olgu Bildirimi**

Çocuklarda delici baş ve boyun yaralanmaları nedenleri nadirdir ve ekseriya hayatı tehdit eden yaralanmalardır. Çocuklarda delici kafa travması hem ilk müdahalede bulunan hekimler, hemde cerrahlar için cesaret gerektiren bir sorundur.

Biz bu yazıda, ağaçtan meyve keserken düşen ve kendi bıçağı ile delici baş-yüz yaralanması geçiren bir hasta sunmaktayız.

Klinik muayene sonucunda, bıçağın hastanın yüzüne; sağ kulak önü, zigomatik arkın altından çene ekleminin önünden girdiği saptandı. Sol göz küresi exoftalmikti ve tam göz kapağı düşüklüğü mevcuttu. Bilinci tam açıktı. Sol tarafta tam görme kaybı vardı. Diğer nörolojik, oftalmik ve sistemik fizik muayene bulguları normaldi. Glasgow koma değerlendirmesi 14'dü.

Röntgenogramlara göre, bıçak, yüzün sağ tarafına, sağ orbitanın altından maksiller sinüs içerisine girmekte ve sfenoid sinüsden orta hattı geçmektedir. Bıçak, optik sinirden geçerek, alt temporal lobun ön kısmında durmuştur. Kafatasını terketmemekte dir. Willis dolaşımı, karotisler, beyin ve beyin sapı sağlamdır ve beyin dokusu içerisinde kanama belirtisi yoktur. Sol optik sinir kesilmiş ve göz küresi exoftalmiktir. Bıçağın düzgün yapısı, kranium içerisinde görülmektedir.

Bıçak, ameliyathanede oral-trakeal yoldan verilen genel anestezi altında, klemlenerek ve cerrahi çekiç ile klembe vurularak, giriş yerinden dışarıya çıkartıldı. Hasta ekstübe edildi ve sedasyon altında yoğun bakım servisinde 24 saat takip edildi.

Anahtar kelimeler: Delici baş yaralanması, bıçak yaralanması, bıçak

INTRODUCTION

Penetrating injuries of the cranium and the face are common occurrences in war but less common in civilian life. Usually they are caused by metallic fragments, biological tissue fragments, toys or pencils, etc⁽¹⁻⁴⁾.

The majority of war injuries are high-velocity penetration wounds with their inherent complications, while most of the civilian injuries are the low-velocity type.

Penetrating head injuries are usually characterized by a relatively high velocity penetration of metal objects. These injuries cause massive destruction of facial and cranial tissues which are particularly occurrences in war. Most of the penetrating head injuries occurring in civilian life are caused by low velocity foreign bodies acting as missiles. Many children and young adults have been injured by innocent objects, such as toys, scissors, nails, fishing harpoons and construction materials^(1,5-10). These types of injuries can lead to some intracranial pathologies such as hematoma, meningitis and neurological deficit and the risk of vascular, ocular, neurologic, and aerodigestive injuries are especially high^(3,4). The neurological deficit is dependent on the location of the injury and can be variable^(4,11-13). It may be non-existent in some cases^(8,11). And sometimes delayed neurological complications can occur after a long time^(12,14). In our patient no complication developed during 2 years of follow-up.

We encountered a patient who sustained a penetrating faciocranial injury. The examination and treatment of the patient are illustrated by photographs, x-rays and serial computed tomography scanning.

CASE REPORT

A 15 year old boy had fallen from a tree during cutting vegetables with a knife in his

hand and the knife had penetrated his faciocranial region. He was brought to the university hospital emergency room 2 hours after he had fallen.

We were able to elicit the full history of the injury from the patient and parents in the emergency room.

Clinical examination showed a knife which had entered his face in the right preauricular, pre temporomandibular joint below zygomatic arc. His left bulbus oculi was exoftalmic and a complete ptosis was present. He was fully conscious. There was complete left visual loss. The other neurologic, ophthalmic and systemic physical evaluations were normal. The Glasgow Coma scale was 14 (Figure 1).

He was examined and prepared for the operation in the emergency room. After sedation and analgesia were provided by intravenous narcotics, the x-rays and CT scanning was taken. The trajectory and the relationship of the knife was demonstrated. The knife entered the right side of the face in the maxillary sinus below the right orbit and crossed the midline at the sphenoid sinus. It passed through the left optic nerve and stopped anterior of the inferior temporal lobe. The knife did not leave the skull. The circle of Willis, the carotids, brain and the brain stem were intact and there was no sign of bleeding in the brain tissue. Left optic nerve was divided and bulbus oculi was exoftalmic. The regular shape of the knife was shown in the cranium (Figure 2-4).

The most suitable technique to remove the knife without giving any more harm to the near by tissues was planned. In order to do this, in the operating room, under general anaesthesia via oral tracheal intubation, the knife was extracted by tapping the clamp seized the knife with a surgical hammer (Figure 5, 6) The patient was extubated and monitored in intensive care unit under



Figure 1. Preoperative view of faciocranial stab wound

sedation in 24 hours. 24 hours follow-up CT scans did not demonstrate an additional pathology such as hematoma, laceration, etc. in the cranium. The patient was left the hospital after 5 days. During the course of the hospital stay he received seftriaxone (Rocephine) 1 g/day and phenytoin sodium

(Epdantoin) 300 mg/day that was continued for a further 1 years.

DISCUSSION

Our patient arrived fully conscious and was discharged with no apperent neurological deficit, probably because the location of the



Figure 2. Preoperative lateral X-ray of knife causing faciocranial stab wound

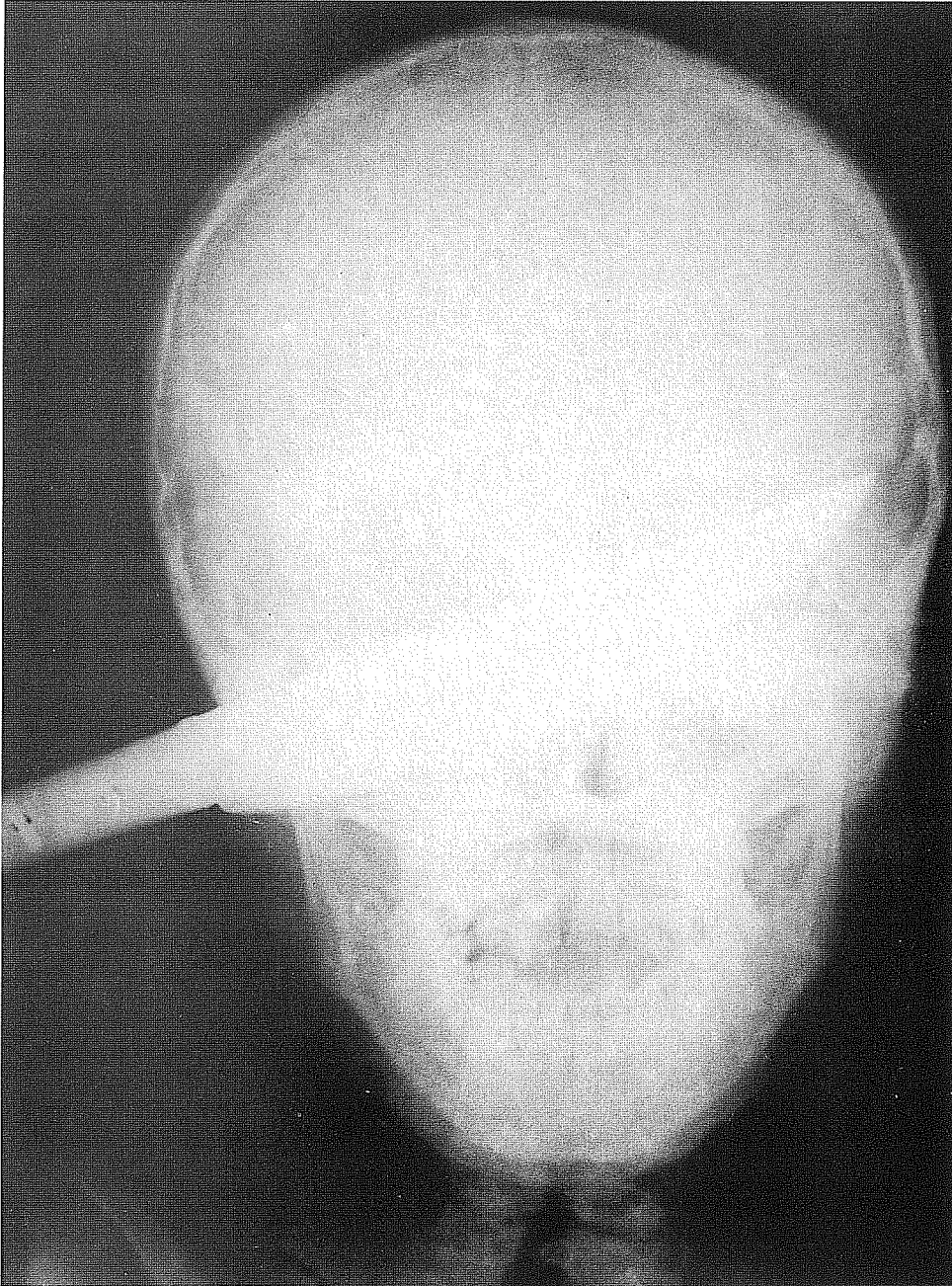


Figure 3. Preoperative PA X-ray of knife causing faciocranial stab wound



Figure 4. Preoperative serial CT scans of Faciocranial stab wound

brain injury was in the inferior portion of the left temporal lobe. The use of CT scan was most advantageous in demonstrating the trajectory of the knife before its extraction and in verifying the lack of haematoma immediately after the procedure^(11,12).

We reviewed the literature but we did not find a similar report about intracranial knife injury which causes merely an optic nerve laseration without associated injury in children.

One of the most important issues in

treating penetrating injuries is to remove the penetrating object without damaging the nearby tissues further. Removing the penetrating object in the bone is very difficult, because of the hardness of the bone tissue. We decided the most suitable technique to remove the knife without giving any more harm to the nearby tissues. To apply this technique, the knife was extracted via the entry wound by tapping the clamp seized the knife with a surgical hammer. We couldn't find such a technique mentioned in

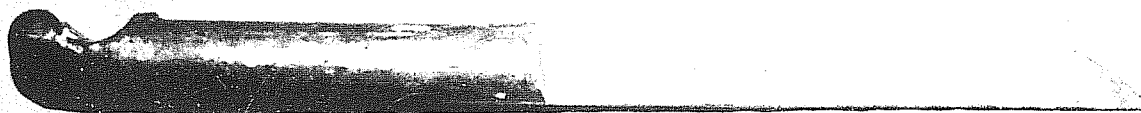


Figure 5. The knife causing faciocranial stab wound

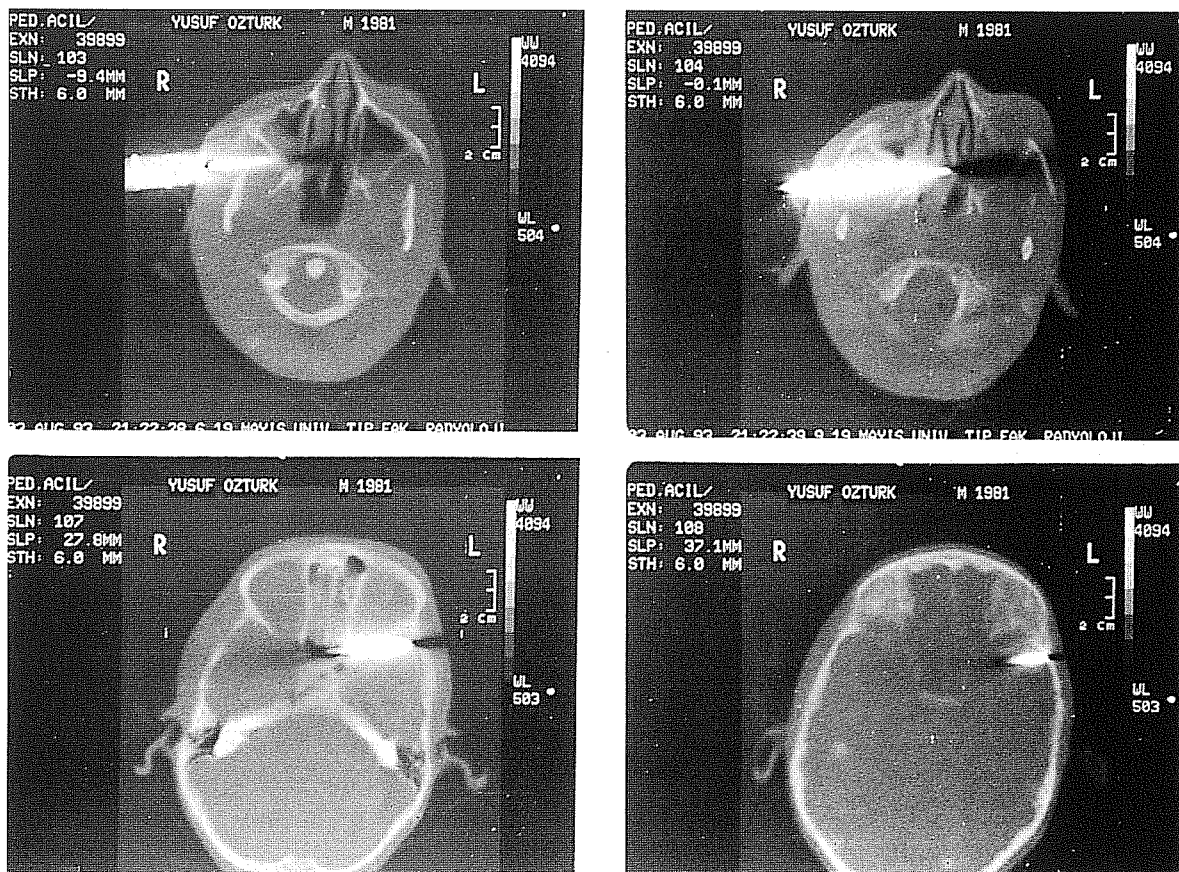


Figure 6. Postoperative axial CT of the faciocranial stab wound
Arrow denotes the trajectory of the penetrating faciocranial injury

the literature for these type of injuries.

A multidisciplinary team approach helped to expedite the treatment rendered to the patient. The child was sedatized in the CT room and anaesthetized in the operating room and we were able to extract the knife without any iatrogenic damage by tapping the clamp seized the knife with a surgical hammer.

Geliş tarihi: 30.05.1997

Yayına kabul tarihi: 10.06.1997

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