Delayed Traumatic Intracerebral Hemorrhage: For How Many Hours Should Patients with Mild Head Trauma be Observed?

Gecikmiş Travmatik İntraserebral Kanama: Hafif Kafa Travmalı Hastalar Kaç Saat İzlenmeli?

İntraserebral Kanama / Intracerebral Hemorrhage

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Özet

Gecikmiş travmatik intraserebral hematom (GTİH) kafa travmasının nadir görülen bir komplikasyondur. GTİH'un oluşum mekanizması tam olarak bilinmemektedir. Biz burada hafif kafa travmalı bir olguda gelişen GTİH olgusu rapor ettik. 25 yaşındaki erkek hasta futbol maçı yaparken düşmüştü. Başvuru anında baş ağrısı ve baş dönmesi vardı. Acil serviste yaklaşık 12 saat boyunca gözlem altında tutuldu. Kafa travmasından 26 saat, bulantı, kusma ve baş ağrısı şikayetleri ile tekrar hastanemize başvurdu. Kontrol beyin bilgisayarlı tomografi çekildi ve frontal bölgede travmatik intraserebral hematom tespit edildi. Sonuç olarak GTİH fatal olabilir. Yakın gözlem ve tekrarlayan BBT komplikasyonları ve mortaliteyi azaltabilir.

Anahtar Kelimeler

İntraserebral Kanama; Kafa Travması; Gözlem

Abstract

Delayed traumatic intracerebral hematoma is a rare complication of head injury. The etiopatogenesis of DTIH is not precisely known. We herein report a case of delayed traumatic intracerebral hematoma, with mild HT. This 25-year-old male fell down while playing in a footbal match. He had headache and vertigo. He was kept under observation for about 12 hours at the emergency department. At the 26th hour after the HT incident, he presented to our hospital again with the complaints of nausea, vomiting and headache. A control brain computed tomography was performed and a traumatic intracerebral hematoma was determined in the frontal region. As a result, DTIH may be fatal. Close observation and repeat CBT scanning may reduce complications and mortality.

Keywords

Intracerebral Hemorrhage; Head Trauma; Observation

DOI: 10.4328/JCAM.3841 Received: 17.08.2015 Accepted: 16.09.2015 Printed: 01.10.2015 J Clin Anal Med 2015;6(suppl 5): 707-9
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Introduction

Head trauma (HT) is one of the most important public health problems. The incidence of minor HT has been reported to range from 130 to 200 cases per 100,000 people per year, although the estimates have been as high as 500 cases per 100,000 people per year [1]. Traumatic intracerebellar hematoma accounts for 0.6-0.82 % of all head traumas [2]. Patients with HT are evaluated in different groups according to their Glasgow Coma Scale (GCS) score. GCS of 13-15 indicates mild HT, 9-12 indicates moderate HT and 3-8, severe HT [3].

Delayed traumatic intracerebral hemorrhage (DTIH) is rare and is shown by brain computed tomography (BCT), where the hematoma develops several hours after the trauma [2]. Its condition and etiopatogenesis are still controversial and there is no standardization in terms of incidence, classification and treatment [2,4]. The first case of DTIH was described in 1891 by Bollinger. The author said that areas of softening developed in the cerebrum and medulla after head trauma. In later years, another author emphasized that vascular spasm acted a role in the etiology of DTIH [4].

In patients with DTIH, early diagnosis and treatment are very important to decrease mortality and morbidity. Therefore, a control BCT should be performed 4-8 hours after trauma in patients with severe head trauma, coagulation disorders, cranial fracture and patients over the age of fifty [4]. Observation for at least 6-24 hours in patients with minor HT can be suggested. Furthermore, a control BCT should be obtained before discharging these patients [5]. Here, we report a case of delayed traumatic intracerebral hematoma, with mild HT.

Case Report

A 25-year-old male fell down while playing in a footbal match. He had headache and vertigo. Upon admission to the hospital, his arterial blood pressure was 130/80 mm Hg, his respiratory rate was 20/min, temperature was 36°C and his O2 saturation level was 98%. His heart rate was 82/min during auscultation, and the other system examinations revealed normal results. He had no history of chronic illness , and no drug or alcohol use. His Glasgow Coma Scale (GCS) score was 15 (E-4, V-5, M-6). His pupils were isochoric and the light reflex was bilaterally positive during his physical examination. No focal finding, no evidence of meningeal irritation or pathologic reflex was noted. On admission, an initial BCT scan was performed revealing normal findings (Figure 1). He was kept under observation for about 12 hours at the emergency department and discharged from the hospital with normal neurological examination signs, normal signs of second BCT (Figure 2) and without complaints. He had no history of abnormally high systemic blood pressure occurring during the observation period. Clinically, no attacks of vertigo or nausea and focal neurological sign occurred. However, at the 26th hour after the HT incident, he presented to our hospital again with the complaints of nausea, vomiting and headache. GCS was 15. A control BCT was performed and a traumatic intracerebral hematoma was determined in the frontal region (Figure 3). He was transferred to the neurosurgery clinic and he was discharged from the hospital without any sequela on the seventh day of his hospital stay.



Figure 1. An initial BCT scan normal findings



Figure 2. Normal neurological examination signs, normal signs of second BCT (About 12 hours at the emergency department)

Discussion

DTIH is a rare complication of head injury [2]. The etiopatogenesis of DTIH is not precisely known. However, the possible pathogenic mechanisms may include impairment of autoregulation, necrosis, structural abnormalities of the vessel walls after injury, traumatic aneurysm, metabolic changes at the cellular level, vasospasm, venous congestion as a result of increased intracranial pressure and coagulopathy at the region of trauma [4].

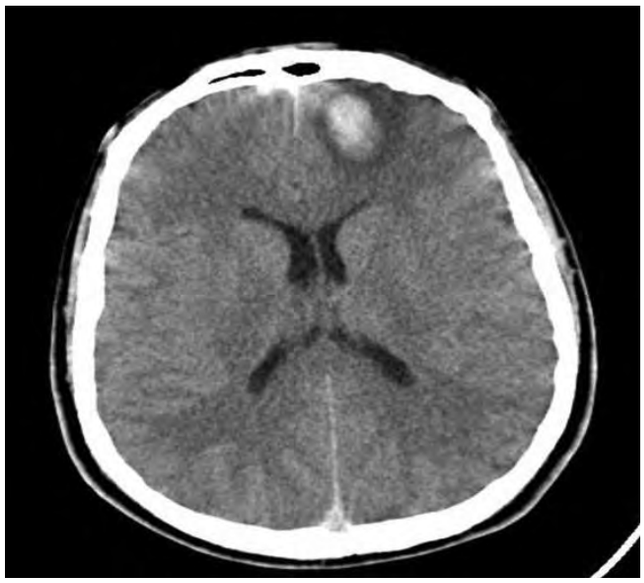


Figure 3. A traumatic intracerebral hematoma was determined in the frontal region

BCT and MRI (Magnetic resonance imaging) is useful in diagnosing intracerebral hematomas. BCT has been particularly helpful at the emergency department in increasing the diagnosed patients population [4,6]. Fukamachi et al. reported that DTIH developed within 48 hours in 50 % of patients in whom CBT was normal or when there was a minimal hyperdense lesion within the first 6 hours [6]. Nagata et al. said that DTIH occured in 54.5 % of patients who had normally appearing areas on the initial BCT [2].

Kaplan et al. stated that DTIH is commonly demonstrated within the first post-traumatic 10 days, particularly in the first 3 days [7]. Nagata et al. said that the time of occurrence of DTIH ranged from 4 hours to 4 days, with a mean of 31.5 hours [2]. In the literature, it has been stated that DTIH usually occurs within 72 hours after HT [4] . In a pediatric patient group with 397 patients, Hamilton et al. reported the rate of DTIH as % 4.3 [1]. However, Nagata et al. [2] reported an average age of 25.5 and reported no gender predominance. In our study, the was 28 years of age and ICH was established 26 hours after the HT event.

Nagata et al. [2] stated that DTIH was usually found in the posterior fossa and that its prognosis was known as unfavorable. However, in another study, it reported that the most common locations for DTIH were the frontal and the temporal lobes [4]. Kaplan et al. [7] said that DTIH was located in the occipitoparietal region by a countercoup mechanism. In our case, the intracerebral hemorrhage was located in the frontal region and he was discharged on the seventh day of hospitalization. Fortunately, our patient completely recovered.

In a study, While the clinical appearance is initially stable in these patients, a suddenly decreased GCS, increased focal neurological sign or focal seizures can ocur [4]. In Kutlay's study, neurological examination was normal in 50% of cases with DTIH [4]. In our study, the patient's clinical situation was stable and his neurological examination was normal. We performed CBT initially and 12 hours after admission. He had normal CBT findings. However, he presented again to our emergency department 26 hours after the HT event and an intracerebral hematoma was determined.

The use of emergency CBT is still controversial in patients with mild HT [8]. In previous studies, it has been reported that the rates of detection of abnormal signs on the CBT varied in patients with mild HT [8]. Furthermore, mortality and neurosurgical intervention are rare in mild HT. Nevertheless, Kreitzer et al. reported that patients with mild HT demonstrated a low rate of adverse outcomes when observed for 6-24 hours [5].

Our case had a favorable outcome without surgery, but DTIH may be fatal. Close observation and repeat CBT scanning render more favorable results. Therefore, patients with mild HT should undergo close observation and they should be given advice regarding HT after discharge. Furthermore, the observation period may be extended and an outpatient control should be proposed within three days for patients with mild HT.

Conflict of interest; The authors further declare that we have no financial arrangement as product in the case report, sources of funding, institutional affiliations, and any possible financial or personal conflicts of interest.

Competing interests

The authors declare that they have no competing interests.

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How to cite this article:

Karadas S, Gonullu H, Gulsen I, Baltacıoglu H. Delayed Traumatic Intracerebral Hemorrhage: For How Many Hours Should Patients with Mild Head Trauma be Observed? J Clin Anal Med 2015;6(suppl 5): 707-9.