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CASE REPORT / OLGU SUNUMU

An Unfortunate Coexistence, Ischemic Stroke While Driving. How Often? How Deadly? A Case Report

Talihsiz Bir Birliktelik, Direksiyon Başında İskemik İnme. Ne Kadar Sık? Ne Kadar Ölümcül? Bir Olgu Sunumu

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ABSTRACT

Aim: We aimed to present a case brought to our emergency department by 112 teams due to a traffic accident and diagnosed with ischemic stroke as a result of medical evaluation.

Case Report : A 57-year-old male patient was brought to the emergency room by ambulance due to a traffic accident. The Glasgow Coma Scale (GCS) score was calculated 11. The patient with right central facial paralysis had almost complete loss of strength in the right upper and lower extremities. Acute pathology was not detected in non-contrast Computerized tomography (CT). Anjio tomography was reported as the changes that are compatible with the atheroma plaque which creates a moderate luminal narrowing are seen within approximately 5 mm segment at M1 level of the left middle cerebral artery. The patient who was diagnosed with ischemic stroke was consulted to the neurologist, latter interventional radiology consultation was requested for the indication of thrombectomy After successful recanalization, he was admitted to the neurology intensive care unit (ICU). He was discharged with a GCS score of 15, complete decrease in sensory and motor deficits and partial improvement in aphasia 96 hours after his admission to the emergency department. Afterwards, he was called for neurology outpatient clinic.

Conclusion: Stroke and traffic accidents are accepted among the major health problems world wide. Although the health problems associated with traffic accidents are mostly caused by the primary and secondary effects of trauma, the fact that accidents can occur as a result of medical conditions should be kept in mind.

Key words: Ischemic stroke, traffic accidents, unconsciousness

ÖZ

Amaç: Trafik kazası nedeni ile acil servisimize 112 ekiplerince getirilen, tıbbi değerlendirme neticesinde iskemik inme tanısı koyduğumuz bir vakayı sunmayı amaçladık.

Olgu Sunumu: 57 yaşında erkek hasta, trafik kazası nedeniyle ambulansla acil servise getirildi. GKS (glasgow koma skalası) skoru 11 olarak hesaplandı. Sağ santral fasiyal paralizisi olan hastanın sağ üst ve alt ekstremitelerinde neredeyse tamamen güç kaybı vardı. Kontrastsız bilgisayarlı beyin tomografisinde (BT) akut patoloji saptanmadı. Serebral anjio-tomografisinde sol orta serebral arter M1 seviyesinde yaklaşık 5 mm lik segmentte ılımlı lümen daralması oluşturan aterom plağı ile uyumlu olabilecek değişimler izlenmekte idi. İskemik inme tanısı alan hasta nöroloji ile konsülte edildi, trombektomi endikasyonu için girişimsel radyoloji konsültasyonu istendi. Başarılı bir rekanalizasyondan sonra nöroloji yoğun bakım ünitesine (YBÜ) kabul edildi. Acil servise başvurusundan 96 saat sonra Glasgow Koma Skalası (GKS) skoru 15, duyu ve motor defisitlerinde tam düşüş ve afazide kısmi düzelme ile taburcu edildi. Daha sonra nöroloji polikliniğine kontrole çağırıldı.

Sonuç: İnme ve trafik kazaları, dünya çapında önemli sağlık sorunları arasında kabul edilmektedir. Trafik kazaları ile ilişkili sağlık sorunları çoğunlukla travmanın birincil ve ikincil etkilerinden kaynaklansa da, kazaların tıbbi durumlar sonucunda ortaya çıkabileceği akılda tutulmalıdır.

Anahtar kelimeler: İskemik inme, trafik kazaları, şuur bulanıklığı

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Introduction

Stroke and traffic accidents are among the major health problems worldwide. However, a stroke at the wheel and a traffic accident as a result of the related health problem are rare. We aimed of the study to present a case brought to our emergency department by 112 teams due to a traffic accident and diagnosed with ischemic stroke as a result of medical evaluation.

Case Report

A 57-year-old male patient was brought to the emergency room by ambulance due to a traffic accident. The accident was reported to have occurred approximately 30 minutes before the emergency department admission. According to the information obtained from the ambulance crew, it was learned that the injured was a truck driver, there were no other passengers in the vehicle, and that the truck hit the barriers as a result of a unilateral traffic accident. It was reported that the vehicle did not roll over and the incident was not high-energy trauma as a result of the evaluation of the scene by the medical team. It was stated that there was no evidence of alcohol or substance use at the scene. Due to the low Glasgow Coma Scale (GCS) score and lack of relatives on arrival, the personal and family medical history could not be obtained.

In his vital parameters, arterial blood pressure was 129/78 mmHg, fingertip oxygen saturation was 93%, heart rate was 69 beats/minute and blood sugar was 116 mg/dl. Electrocardiography was evaluated as sinus rhythm with normal (1:1) AV conduction, ST segment change was not observed. The GCS score was calculated 11, as motor response was 5, verbal response was 2 and eye response was 4. The patient was aphasic, prone to sleep and eyes were deviated to the left. The patient with right central facial paralysis had almost complete loss of strength in the right upper and lower extremities (2/5). There was no evidence of active bleeding, and bone deformity was not observed. Other systemic examinations were normal. Routine laboratory examination results including complete blood count, venous blood gas, coagulation parameters, liver and kidney function tests, and blood electrolytes were within the normal range. In the patient who was evaluated for the imaging of cranial computed tomography (CT) and latter cranial and cervical CT angiography (CTA), acute pathology was not detected in non-contrast CT. CTA was reported as the changes that are compatible with the atheroma plaque which creates a moderate luminal narrowing are seen within approximately 5 mm segment at M1 level of the left middle cerebral artery (Figure.1). The National Institutes of Health Stroke Scale (NIHSS) score was calculated to 25. CT imaging of thorax, cervical vertebra, thoracic vertebra, lumbal vertebra, pelvis with contrast upper and lower abdomen, was evaluated in the patient considering the possibility of multiple trauma as a result of the failure to fully explain the occurrence mechanism of the accident. No pathology was detected secondary to trauma.

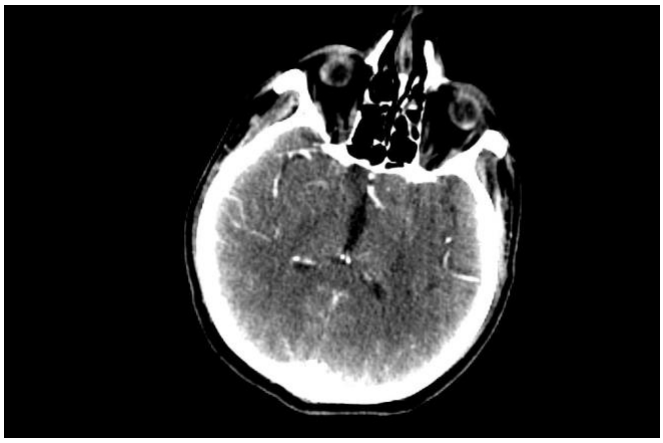

Figure.1 Middle cerebral artery occlusion

The patient who was diagnosed with ischemic stroke was consulted to the neurologist, latter interventional radiology consultation was requested for the indication of thrombectomy. He was evaluated as a candidate for thrombectomy by radiologist, was referred to the stroke center for the intervention. After successful recanalization, he was admitted to the neurology intensive care unit (ICU). NIHSS score was calculated as 9 in the Neurology ICU. In the patient who underwent transthoracic echocardiography in the ICU, normal left ventricular systolic function, stage 1 diastolic dysfunction, ascending aorta diameter 47mm and dilatation in ascending aorta were detected. As a result of the improvement in his clinic, the patient was admitted to the neurology service 48 hours after the emergency room admission. Control physical examination of the patient made by neurologist was noted to the clinical follow-up as consciousness was clear, cooperative, taking triple commands, no motor and sensory deficits, and aphasia improved partially. On the absence of an additional pathology developed and improvement was observed in the clinical condition of the patient whose general condition was stable in the follow-up; he was discharged 96 hours after the emergency room admission with the acetylsalicylic acid 100mg po 1*1, pantoprazole 40mg po 1*1, Benexol-B12 250/250/1mg po 1*1 prescription and recommendations. Afterwards, he was called for neurology outpatient clinic. Written informed consent was obtained from the patient.

Discussion

According to the American Heart Association and American Stroke Association 2019 data, stroke is the fifth leading cause of death in the United States and is the primary cause of disability for adults. Approximately 800,000 people experience new or recurrent strokes every year. 87% of attacks occur as ischemic stroke, 10% intracranial hemorrhage (ICH) and 3% subarachnoid hemorrhage (SAH).

On average, every 40 seconds, a citizen of the United States suffers a stroke. There is a decrease in the frequency of occurrence since 1950s. The first stroke rate per 1000 people is 5.3 in men and 5.1 in women. Stroke risk can be attributed to about 90% modifiable risk factors such as hypertension, obesity, hyperglycemia, liperlipidemia and renal dysfunction. Hypertension is a strong risk factor for both ischemic stroke and intracranial bleeding. Behavioral risk factors such as smoking, sedentary lifestyle and unhealthy diet are also associated with stroke risk by 74% (1).

In our case report, ourpatient's absence of additional disease and relatively low accident severity prevented us from encountering different results. Our patient was able to recover without sequelae with early diagnosis. An 11-year-old boy who did not experience any headache after head injury was diagnosed with ischemic stroke (2).Trauma questioning would be easier especially in patients who are conscious and cooperative. Stroke discrimination that develops before or after trauma is also important.

In the study of Inoue et al., only 2 (16.7%) of 12 patients caused an accident. However, since cases are limited to patients in the rehabilitation center, mild cases that do not apply to the center or fatal cases have been ignored. One of the main causes of traffic accidents is sudden onset diseases that occur at a rate of about 10% while driving (3). In a retrospective study conducted by Inamasu et al. in Japan on 2145 stroke patients who applied to the emergency department, 85 patients (4%) were informed that they had a stroke while driving. 63 patients (74%) were diagnosed with ischemic stroke, 20 patients (23,5%) ICH and 2 (2.5%) patients were diagnosed with SAH. 14 (16%) of the patients who had a stroke while driving caused an accident. The number of patients (23,5%) with altered consciousness is 20(4). Although more studies are needed on the subject, it has not been concluded that driving is an absolute risk factor for ischemic stroke. It can be difficult to determine the exact rate of stroke associated with driving. Other causes likely to increase the likelihood of a stroke and traffic accident should also be considered. However, as the elderly population of the world continues to increase at an unprecedented rate, it is expected that the 4% stroke rate associated with driving will increase(4).

The timely diagnosis of ischemic stroke in our patient led to early treatment and early neurological recovery. Low GCS in patients with multitrauma may not always be associated with trauma.

Although deaths in traffic are mainly secondary to trauma, some deaths occur as a result of a disease suddenly affecting the driver. In the retrospective study in which Buttner et al. evaluated approximately 35 thousand cases over a 15-year period, 0.4% of deaths were detected as sudden natural death at the wheel. The incidence was found to be similar (0.2–1.3%) with other case series investigated. The underlying medical conditions include mainly cardiovascular and cerebrovascular diseases, and rarely seizures and diabetes. A collision occurred in 37% of the cases. The rate of cerebrovascular diseases in the underlying medical conditions was 5.4% (5). There was no known comorbid disease in our patient.

We should also consider ischemic stroke in the first-visit physical examination of trauma patients who may develop many additional pathologies including long-term follow-up rhabdomyolysis (6,7). Rhabdomyolysis clinic was not observed in our patient.

In another study conducted by Tervo et al. on sudden natural death behind the wheel in Finland, the rate of deaths due to the underlying medical conditions was found to be 11%. Although previous studies reveal that only 0.5-3% of driver deaths are due to medical conditions, the rate has similar to 10% in another two-case series in Finland. The difference and increase in rates have been attributed to the fact that the Finnish accident investigation protocol is very strict and that every fatal accident is carefully investigated. In the study, cerebrovascular diseases were 5.5% in the etiology of fatal traffic accidents and were ranked second among the underlying medical conditions (8).

In Australia, Brodie and his colleagues also conducted a study at the wheel with a sudden natural mortality rate of 10.3%. Similar to other studies, cardiovascular diseases were included in the first step of sudden natural deaths; the mortality rate due to cerebrovascular diseases was found to be 7% among the underlying medical conditions (9). It has been seen that there is a need for extensive studies covering the pre-hospital and post-hospital period. We think that our case presentation with good clinical outcomes will contribute to the literature.

Conclusion

Stroke and traffic accidents are accepted among the major health problems world wide. Although the health problems associated with traffic accidents are mostly caused by the primary and secondary effects of trauma, the fact that accidents can occur as a result of medical conditions should be kept in mind.

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Authors' Contribution: UYA, HŞA conceived the case report. FK, SÖ contributed reagents, materials, analysis tools or data. UYA, AA, SEE drafted the manuscript and all authors contributed substantially to its revision. UYA takes the responsibility for the paper as a whole.

Informed Consent Statement: Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review in this journal.

Kaynaklar

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