



Travmatik Beyin Hasarı ile Konturlateral Sensorinöral İşitme Kaybı Traumatic Brain Injury with Contralateral Sensorineural Hearing Loss

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ÖZET

Travmatik beyin hasarı (TBH) tüm dünyada ölüm ve sakatlığın en önemli nedenidir. İşitme kaybı için kafa travması ve farklı lezyonları içeren birçok neden vardır. Literatürde kontur kup kafa travması sonrası oluşan konturlateral serebral kontüzyonel hematomla oluşan konturlateral işitme kaybı ile ilgili bir çalışma bulunmamaktadır. Biz kafa travması geçiren ve Glasgow koma skoru (15) olan bir hastayı takdim ettik. Hastanın labirentin hasarı olmaksızın sol sensori-nöral işitme kaybı mevcuttu. Bilgisayarlı tomografi (BT) sağ temporal kemik kırığı ve konturkup kafa travması ile oluşmuş sol temporal parankimal hematomu gösterdi. Bu hastaya medikal tedavi uygulandı ve semptomlarında bir ay sonra düzelme saptandı. TBH nedeniyle oluşan işitme kaybı iyi bilinen bir durumdur. İpsilateral temporal kemik kırığı genellikle sensorinöral işitme kaybı ile ilişkilidir. Literatürde çok az sayıda konturlateral labirentin konküzyonlar ve bir ektradural hematoma edinilmiş konturlateral sağırılığın mekanizması olarak gösterilmiştir. Bizim vakamız TBH ile oluşan konturlateral sağırılığın, temporal kemik kırığının yokluğu ve konturlateral intraserebral kontüzyonel hematoma varlığı ile oluşan nadir bir sunumdur.

Anahtar Kelimeler: İşitme kaybı, kafa travması.

ABSTRACT

Traumatic brain injury (TBI) is major cause of death and disability worldwide. There are a great number of causes for hearing loss which include head trauma and different lesions. There is no study regarding contralateral sensorineural hearing loss following contrecoup head injury with contralateral cerebral contusional hematoma, exist in the literature. We presented a patient who had a Glasgow coma score (GCS) of 15 as suffering from head trauma. The patient had left sensory-neural hearing loss without labyrinthine damage. Computerized tomography (CT) showed right temporal bone fracture and left temporal parenchymal hematoma caused by contra-coup head injury. This patient required medical management and showed remission of symptoms after one month. Hearing loss due to TBI, is a well known entity. Ipsilateral temporal bone fracture is commonly associated with sensorineural hearing loss. A few contralateral labyrinthine concussions and an extradural hematoma are shown as the mechanisms of contralateral profound deafness in the literature. Our case illustrated unusual presentation of contralateral deafness following TBI in the absence of temporal bone fractures and in the presence of contralateral intracerebral contusional hematoma.

Key Words: Hearing loss, head trauma

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INTRODUCTION

Following TBI, hearing loss can occur due to damage to the nerve, endorgan or the conducting elements (1). Transverse fractures of the petrous can damage the anterior portion of the vestibule and the cochlea. This nerve damage generally causes vertigo, nausea, tinnitus and impaired hearing. Hearing loss can be conductive or sensory-neural. Hearing loss is a finding in head injuries especially when associated with temporal bone fractures. Facial palsy often coexists the injury. Hearing loss generally occurs in the ipsilateral side of the injury and rarely on the contralateral side (2). In the literature there are a few cases of contralateral deafness after TBI in the absence of temporal bone fractures. A few contra-coup labyrinthine concussions and an extradural hematoma are described as causes of contralesional deafness (3). Medical literature did not reveal any previously reported cases of contralateral deafness due to temporal contusional hematoma.

CASE REPORT

47-year-old man was transported to our Emergency Department following head assault. After trauma his neurological examination was completely normal except hearing loss in the left side. He had a GCS score of 15. On examination, his vital signs were stable. There was no raccoon eye, Battle’s sign, rhinorrhea or otorrhea noted. There were abrasive wounds on his right temporal region. Neurologic examination of the patient showed total hearing loss on the left side. He had no labyrinthine findings. Otoscopic examination of the patient revealed no pathology. His initial CT revealed petrous fracture on the right temporal bone and left temporal parenchymal hemorrhage caused by contrecoup head injury (Figure 1). The patient underwent audiometric testing. The test showed total sensory-neural hearing loss on the left side and no pathology on the right side (Figure 2). The patient was applied medical therapy including anti-edema and anti-biotic medications. Symptoms of the patient were improved. CT and audiometric test also showed improvement after 1 month (Figure 3, 4).

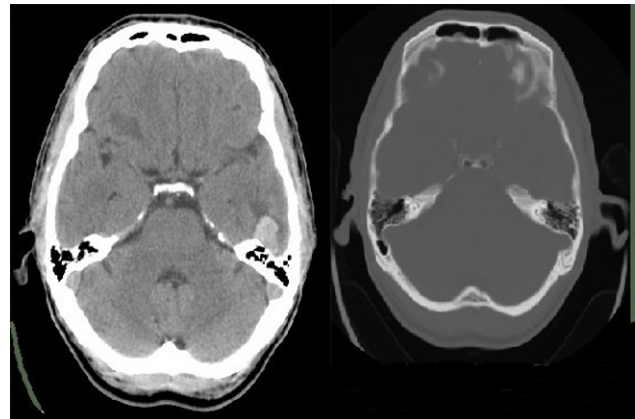


Figure 1: Initial CT of the patient revealed petrous fracture on the right temporal bone and left temporal parenchymal hemorrhage caused by contrecoup head injury.

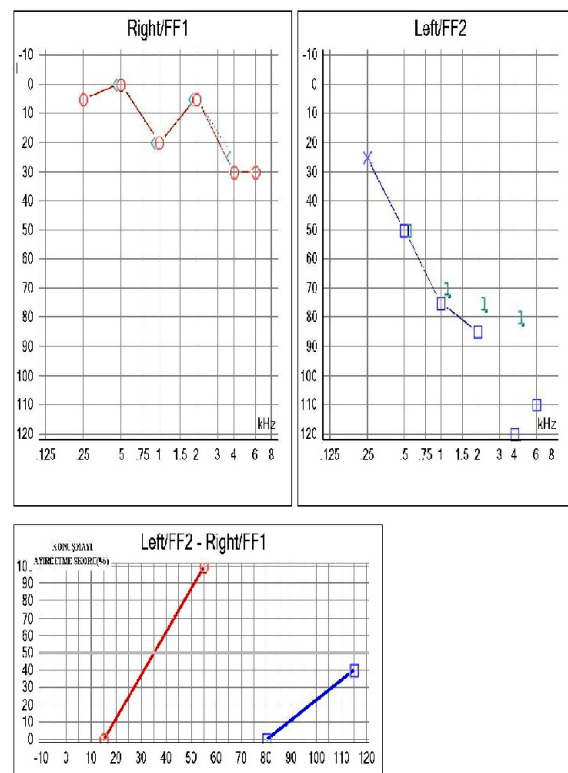


Figure 2: The initial audiometric test showed total sensory-neural hearing loss on the left side and no pathology on the right side.

DISCUSSION

TBI may cause hearing loss due to direct damage to auditory organs. In almost all the cases presented in the literature, there are accompanying ipsilateral temporal bone fractures. There are also accompanying ipsilateral concussions of auditory organs (4,5).

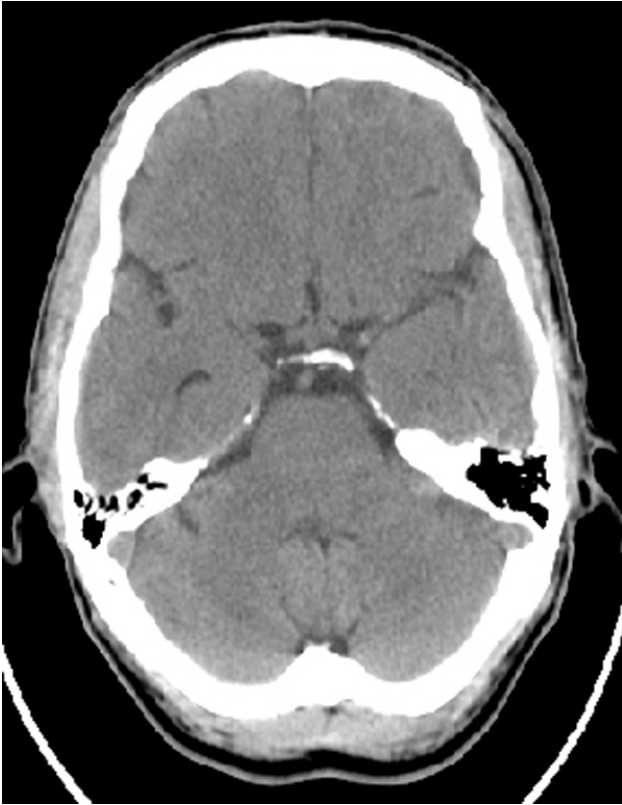


Figure 3: Control CT of the patient revealed absorption of left temporal hematoma.

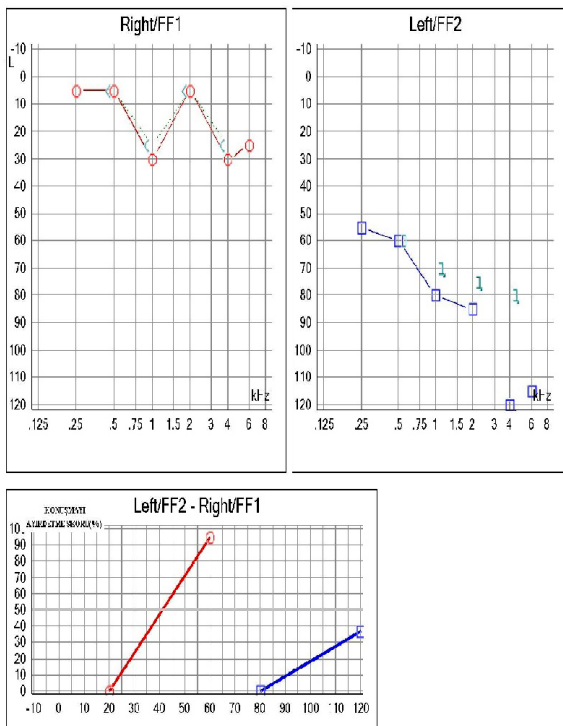


Figure 4: Control audiometric test revealed improvement of hearing on the left side.

A contralateral sensorineural hearing loss secondary to TBI is a rare entity in patients with contra-coup head injuries. The labyrinthine concussion is believed to be the underlying mechanism. In the view of the literature; several labyrinthine concussions and an extradural hematoma were described as causes of contralateral deafness (2,6). In this presented case; contralateral deafness occurred due to intracerebral contusional hematoma after contra-coup head injury. There is no report in the literature like the present report which shows contralateral deafness occurred due to temporal contusional hematoma.

According to the literature in more than half of the patients with deafness due to TBI, there are also multiple cranial nerve damages. 7th nerve palsy often coexists the injury. This may be due to 7th nerve also can be effected by temporal bone fractures (6,7). In the present case there was isolated hearing loss in the contraletaral side of the trauma. There was not temporal bone fracture in the same side.

Labyrinthine concussion with vertigo occurs frequently, even with mild head injury and the absence of a skull fracture (4,5,8). In the present case the patient didn't have labyrinthine symptoms. This may be due to the presence of parenchymal damage in the temporal region.

Deafness can be conductive or sensory-neural. Conductive deafness usually shows signs of recovery. Neural deafness has a worse prognosis, if the initial hearing loss was complete (4,5,8,9). In the present case; although the patient had deafness, he showed good prognosis. There is no other example in the literature but we can say that; prognosis of deafness depends on the severity of temporal parenchymal damage.

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