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CASE REPORT **OLGU SUNUMU**

A TRIGEMINAL NEURALGIA CASE CAUSED BY BASILAR ARTERY ANEURSYM

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ABSTRACT

Trigeminal neuralgia secondary to vertebrobasilar dolichoectasia and basilar artery aneurysmis is rare. An 85-year-old male patient who takes Carbamazepine for trigeminal neuralgia was presented to the hospital with complaints of speech disorder and weakness on the left side. On cranial imaging, diffusion restriction in the right half of the pons, vertebrobasilar dolicoectasis and fusiform aneurysmatic dilatation in the basilar artery were observed. After the anti-agregan treatment, the patient whose endovascular and surgical treatment was not considered, was discharged (modified Rankin Score-mRS=0). The patient is followed up with Acetylsalicylic acid 100 mg/day and Carbamazepine 400 mg/day drug treatment without any problems.
Keywords: Trigeminal neuralgia, aneurysm, carbamezepine.

BAZİLER ARTER ANEVRİZMASININ NEDEN OLDUĞU TRİGEMİNAL NEVRALJİ OLGUSU

ÖZ

Vertebrobaziler dolikotoektazi ve baziler arter anevrizmasına sekonder trigeminal nevralji nadirdir. 85 yaşında, trigeminal nevralji nedeniyle Karbamazepin kullanan erkek hasta, konuşma bozukluğu ve sol tarafında kuvvetsizlik şikayeti ile geldi. Kranial görüntülemelerinde pons sağ yarısında difüzyon kısıtlaması, vertebrobaziler dolikoektazi ve baziller arterde fusiform anevrizmatik dilatasyon izlendi. Antiagregan tedavi sonrasında endovasküler tedavi ve cerrahi tedavi düşünülmeyen hasta taburcu edildi (modified Rankin Score-mRS=0). Asetil salisilik asit 100 mg/gün ve Karbamezepin 400 mg/gün tedavisi ile hasta sorunsuz bir şekilde takip edilmektedir.
Anahtar Sözcükler: Trigeminal nevralji, anevrizma, karbamazepin.

INTRODUCTION

Trigeminal neuralgia (TN) is an rare disease characterized by paroxysmal hemifacial pain affecting the trigeminal nerve distribution. Recurrent pains that hit the face, unilateral, sudden onset and end similar to electric shock are typical symptoms. Pain is usually triggered by innocuous stimuli such as eating, drinking water, touching, talking, or washing the face (1). Although trigeminal neuralgia is a painful and incapacitating condition, it is also curable. It is usually associated with compression of the trigeminal nerve root within a few millimeters of the pons entrance site. The source of this compression is 80-90% due to an abnormal arc in the adjacent artery or vein. Compression is usually associated with the superior cerebellar artery or the anterior inferior cerebellar artery. With an overall frequency of around 1%, direct compression with vertebrobasilar dolichoectasia (VBD) is a less prevalent cause of TN (2,3). Cranial imaging (preferably magnetic resonance-MRI, computed tomography - CT in intolerable, unique, or critical

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situations) is sufficient to identify the structural lesion that is the cause of TN (4). The first-line treatment in patients with trigeminal neuralgia is the pharmacological approach. Surgical treatment, on the other hand, can be undertaken in resistant cases.

CASE REPORT

An 85-year-old male patient was brought to our emergency department at the 6th hour with complaints of slurred speech, slippage in the mouth and weakness on the left side. The patient was sent to the neurology service because he was not suited for intravenous thrombolytic treatment. He had a history of coronary artery disease, hypertension, and trigeminal neuralgia. He was using Carbamazepine 200 mg 2x1 Peroral (PO) and Valsartan 80 mg 1x1 PO. In his neurological examination, he was conscious, cooperative, oriented; his speech was slightly dysarthric, his left nasolabial groove was faint, and he had left hemiparesis (upper 4/5, lower 3/5). On laboratory examination, no features were found. In the diffusion MRI examination, diffusion restriction was observed in the right half of the pons (Figure 1). CT-MR-cranial imaging and neck MRI angiography examinations also revealed dolichoectasia of the vertebrobasilar arteries and fusiform aneurysmatic enlargement of the basilar artery (Figure 2). The bilateral common carotid artery and proximal and distal parts of internal carotid artery arterial flow, contours, and vessel widths of these arteries were normal. Both vertebral arteries were evaluated as normal. The right vertebral artery V4 segment calibration was mildly thin in the Brain-Neck CT angiography, and the basilar artery was evaluated in favor of fusiform aneurysmatic dilatation with dolichoectasia while the appearance reaching a diameter of 11.5 mm in its widest part was noted in the axial images (Figure 3). Flow could not be selected in several areas of the dilatation. Echocardiography revealed a left ventricular ejection fraction of 55%, left atrium diameter of 38 mm, senile calcific degeneration, and mild mitral regurgitation in the aortic and mitral valve. Electrocardiography (ECG) was in normal sinus rhythm. Atrial fibrillation was not detected in the rhythm Holter test. The patient was started on Clopidogrel 75 mg/day 1x1 PO and Enoxaparin sodium 6000 anti - Xa IU / 0.6 ml 2x1 subcutaneously. No surgical or endovascular intervention was considered for the patient, who was evaluated together with neurosurgery and radiology departments. After clinical follow-up, he was discharged with Clopidogrel 75 mg/day 1x1 PO, Acetylsalicylic Acid (ASA) 100 mg/day 1x1 PO treatments. In his last neurological examination before discharge, he was conscious, cooperatively oriented, mildly dysarthric, and had left hemiparesis (-5/5). In the third-month follow-up neurological examination of the patient, there was no neurologic deficit (mRS=0). Clopidogrel was discontinued and ASA 100 mg/day 1x1 PO was started. He continued to use Carbamazepine 200 mg 2x1 PO for trigeminal neuralgia, for which he had seen a significant benefit. The patient's signed consent to the case report was acquired.

DISCUSSION AND CONCLUSION

According to the International Headache Society 2018 classification system, TN is divided into three subtypes: classical, secondary, and idiopathic. Classical TN is used for reasons of vascular compression, secondary TN is used for structural defects (tumors located in the posterior fossa, brainstem infarction, and multiple sclerosis plaques in the brainstem), and idiopathic TN is used for reasons that can be demonstrated by neither electrophysiological tests nor MR imaging (1). Our case was fitting the classical TN definition.

The etiology of trigeminal neuralgia is mainly associated with vascular compression of the ipsilateral trigeminal nerve. The mechanism of the resulting symptoms appears to be related to demyelination in a limited area around the compression. Demyelinated lesions may generate ectopic impulse generation and possibly cause ephaptic conduction. The occurrence of painful episodes with mild tactile stimulation of facial trigger zones might be explained by ephaptic cross-conduction between fibers that mediate light touch and those involved in pain generation. Moreover, the change in afferent conduction may disrupt the pain pathways in the spinal cord trigeminal nucleus (2,5).

Vertebrobasilar dolichoectasia is an uncommon disease characterized by marked enlargement, elongation, and tortuosity of the vertebrobasilar arteries. In its etiology, there are congenital (such as Pompe, Fabry, Marfan, Ehlers-Danlos) and infectious (such as syphilis, varicella-

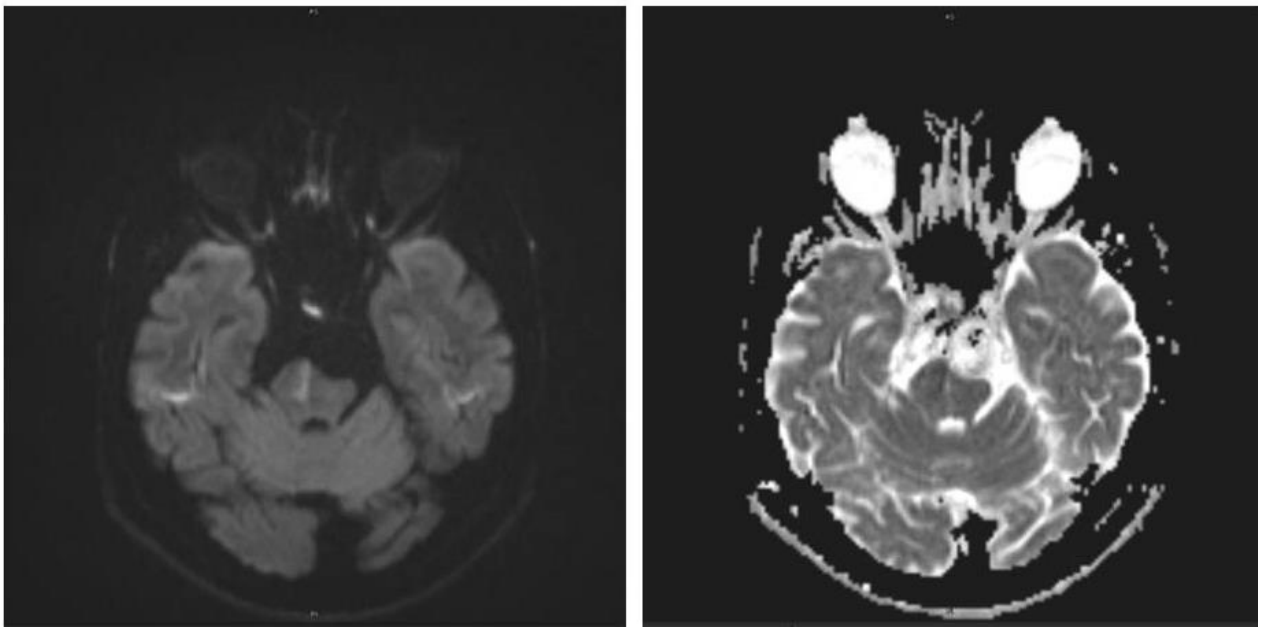

Figure 1. Cranial MRI (DWI-ADC).

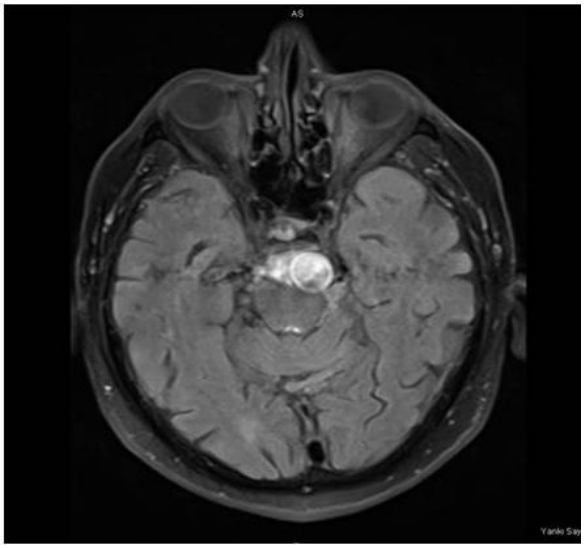

Figure 2. T2 axial tirm dark fluid-cranial MRI.

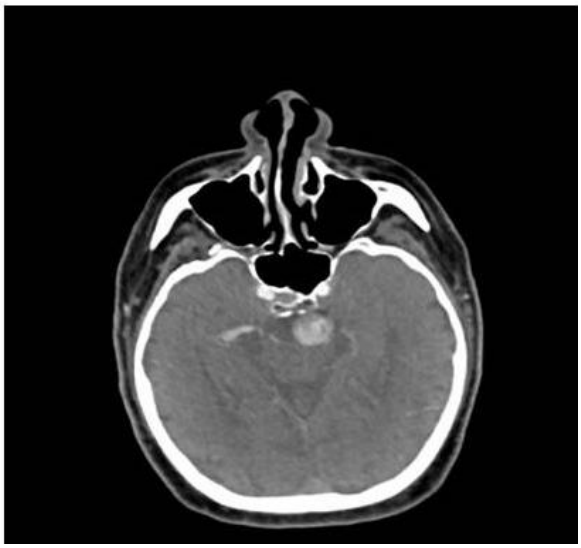

Figure 3. CTA imaging.

zoster) causes, particularly hypertension-related atherosclerosis (6). Our case was a hypertension patient who had been using antihypertensive agents for many years.

In individuals with both classical and idiopathic TN, it is the preferred pharmacological therapy. In individuals who have failed to respond to medical treatment, surgery may be considered. Carbamazepine is the most effective drug in the treatment of classical TN. Side effects may be avoided by using a gradual titration with low dosages at the beginning. High dosages were not employed in our case because a low dose was sufficient. No surgical or endovascular intervention was considered for the patient, who was evaluated together with neurosurgery and radiology departments. Drugs such as oxcarbazepine, gabapentin, pregabalin, lamotrigine, baclofen, phenytoin, clonazepam, valproate, mexiletine, and topiramate constitute

other options that can be preferred in pharmacological treatment (7). Wang et al. reported a 72-year-old male patient with paroxysmal, severe, electric shock-like pain lasting for five years. This patient's pain was triggered after washing his face and brushing his teeth with cold water, much like our patient's. Unlike our case, however, this patient underwent microvascular decompression while not benefiting from medicinal therapy. The patient's pain went away entirely after the operation, but it reappeared five months later. After that, there was partial relief after medical (Carbamazepine 600 mg/day, Gabapentin 900 mg/day) treatment. Then, cerebral angiography was performed, and the aneurysm was embolized following basilar dissection. When it was observed that his complaints disappeared six months after this treatment, the drugs he used were also discontinued (8). Aside from microvascular decompression, endovascular flow diversion stents can also be used in the treatment of VBD. Cohen et al. reported a 51-year-old man whose megadolico ectatic vertebrobasilar artery aneurysm was disabling with increased mass effect. The endovascular treatment of this case included the insertion of a flow diversion stent. After this treatment, the mass effect of the aneurysm has decreased, and the patient's neurological findings have improved (9).

Vertebrobasilar dolichoectasia may appear with other findings besides TN, such as headache, ischemic stroke, bleeding, cranial nerve involvement, and hydrocephalus. Ischemic stroke is the most common clinical manifestation of VBD. It is also the most prevalent cause of VBD-related deaths. The localization is mostly the brain stem (6). In a study by Chen et al., the risk of recurrence in patients with ischemic stroke with VBD was investigated. During the follow-up, 22 (19.1%) patients were found to have a recurrence of ischemic stroke. Hypertension was found in 20 (90.9%) of the patients with recurrence, diabetes mellitus in 12 (54.5%), and ischemic heart disease in 5 (22.7%) (10). On diffusion MRI, we found diffusion restriction in the right half of the pons in our case. The patient was discharged with complete remission after his clinical results improved rapidly during his stay.

To summarize, TN is a treatable condition, although it is characterized by debilitating, severe pain episodes. Due to the nature of the pain, the diagnosis can be made very easily. Secondary causes must be differentiated by using imaging methods. Although medical treatment is often sufficient, microvascular decompression or endovascular treatment targeting the cause should be considered in resistant cases.

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Ethics

Informed Consent: The authors declared that informed consent form was signed by the patient.

Informed Consent: Copyright Transfer Form: Copyright Transfer Form was signed by the authors.

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