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EDİTÖRE MEKTUP / LETTER TO THE EDITOR

Unilateral sensorineural hearing loss associated with dolicoectasia of vertebral artery

Vertebral arter dolikoektazi ile ilişkili tek taraflı sensorinöral işitme kaybı

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Dear Editor,

Unilateral sensorineural hearing loss (SNHL) has many etiologies including vascular sources. Advances in imaging techniques allowed us to visualize the vascular causes of these pathologies. The contributing factors that influence neurovascular compression have been discussed and categorized by several authors[1,2]. Different patterns of vascular abnormalities causing neurovascular compression are previously demonstrated. These abnormal vascular patterns are usually dolichoechtasia, aneurism, arteriovenous malformations and thrombosis. However, only unilateral sensorineural hearing loss associated vertebral artery dolichoechtasia without signs of brainstem or cerebellar dysfunction is rare[1,3].

A 32 years old man had a four months history of unilateral hearing loss was admitted to our clinic. The family and the patient's medical history were unremarkable. On the neurological examination we have found no neurological deficit except for mild hearing loss on his left ear. Audiograms showed 40 db hearing loss on unilaterally on the left side. The brainstem auditory response appeared to be normal. Magnetic resonance imaging (MRI) studies revealed compression of brainstem on left cerebellopontin angle by a vascular structure. On T2- weighted axial (Figure 1, 2) and coronal (Figure 3) sections trough brainstem showed evident elongation of vertebral artery and compression of eighth cranial nerve as it exits from brainstem. Subsequently performed Magnetic resonance angiography (Figure 4, 5) demonstrated abnormal tortious and dislocated vertebral artery. The patient refused surgical intervention of the vertebral arterial dolichoectasia for his hearing loss.

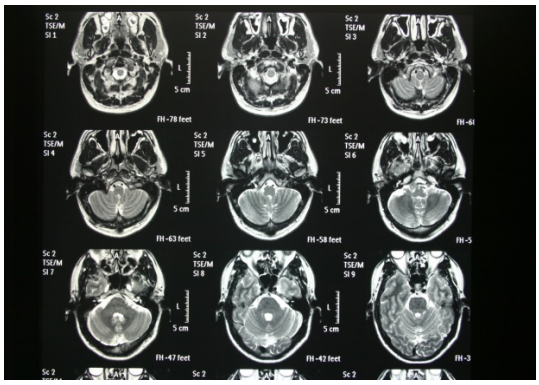

Figure 1. MRI on T2- weighted axial section ,compression of brainstem on left cerebellopontin angle by a vascular structure.(Multiple Images).

Cranial nerve compression seems to be caused commonly in tumors and bone anomalies of cerebellopontin angle; vascular anomalies of the cerebellopontin angle are unusual compared to tumors and other reasons of irritation of trigeminal, facial or vestibulocohlear nerves. Vascular loops and other vascular anomalies in the cerebellopontin angle may cause compression at the root entry and exit zones of the cranial nerves V, VII and VIII; these pathologies are called as "vascular loop

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syndromes". Wide spread view of the mechanism of vascular caused unilateral sensorineural hearing loss is generated by ischemic deficit or mechanical compression of the vestibulocohlear nerve4. Advances in imaging studies enabled us to demonstrate compression of eighth cranial nerve. Isolated compression of vestibulocohlear nerve by a vascular loop from vertebral dolichoechtasia is a rare pathology which were published a few case reports as cochlear vertebral entrapment syndrome in the literature[5,6]. Here we presented this rare pathology; unilateral hearing loss caused by mechanical compression of dolichoectasia and loop of vertebral artery which diagnosed on the basis of imaging studies. Magnetic resonance imaging may be diagnostic, and magnetic resonance angiography/magnetic resonance venography have added to the ability of magnetic resonance to image vascular abnormalities. However high-quality selective angiography is still gold standard to demonstrate detailed vascular anatomy[7].

Our patient strongly refused surgical treatment for vertebral arterial dolichoectasia. Microvascular decompression is the most preferred treatment for cranial nerve decompression syndromes but there are still controversies about these processes.

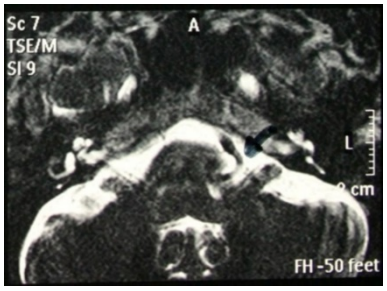

Figure 2. MRI on T2- weighted axial section ,compression of brainstem on left cerebellopontin angle by a vascular structure.

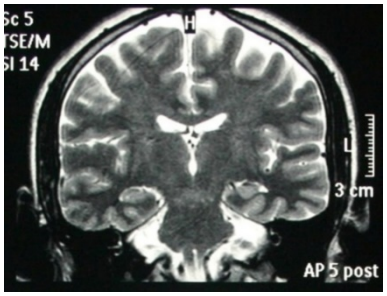

Figure 3: MRI on T2-weighted coronal sections, elongation of vertebral artery and compression of eighth cranial nerve as it exits from brainstem.

Although most of the senior authors described its safety and effectiveness[8,9], there are published analyses of operative complications of neurovascular decompression techniques[10]. Although cranial nerve compression syndromes were well described before, vascular anomalies causing unilateral sensorineural hearing loss without any sign of brainstem dysfunction is a rare pathology.

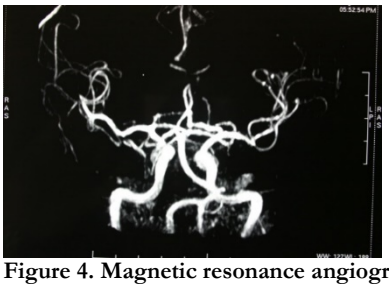

Figure 4. Magnetic resonance angiography (AP 1), demonstrated abnormal tortious and dislocated vertebral artery.

Figure 5. Magnetic resonance angiography (AP 2), demonstrated abnormal tortious and dislocated vertebral artery.

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