

OLGU SUNUMU**CASE REPORT****ANTERİOR KOROİDAL ARTER ANEVİZMASI İLE PERSİSTENT PRİMİTİF TRİGEMİNAL ARTER BİRLİKTELİĞİ: VAKA SUNUMU****Özerk OKUTAN, Kağan TUN, İhsan SOLAROĞLU, Etem BEŞKONAKLI****Ankara Numune Education and Research Hospital, Department of Neurosurgery, Ankara****ÖZET**

Persistan trigeminal arter (PPTA) erişkinlerde en sık rastlanılan persistan karotid ve vertebrobasilar sistem anastomozudur. Bu patoloji, serebral anevrizmalar gibi diğer damarsal patolojilerle birlikte olabilir. Bu vakada, PPTA ile birlikte olan rüptüre anterior koroidal arter anevrizması sunulmuştur.

Anahtar Sözcükler: Anevrizma, persistan primitif trigeminal arter, subaraknoid kanama

PERSISTENT PRIMITIVE TRIGEMINAL ARTERY ASSOCIATED WITH ANTERIOR CHOROIDAL ARTERY ANEURYSM: A CASE ILLUSTRATION

Persistent primitive trigeminal artery (PPTA) is the most common persistent carotid and vertebrobasilar system anastomosis in adults. This pathology may be associated with other vascular abnormalities such as cerebral aneurysms. A case of ruptured anterior choroidal artery aneurysm associated with a PPTA is presented.

Key Words: Aneurysm, persistent primitive trigeminal artery, subarachnoid hemorrhage

INTRODUCTION

The persistent primitive trigeminal artery (PPTA) is the vessel most frequently observed to persist into adult life because it is the most important anastomotic vessel of the presegmental arteries and also the last to disappear. PPTA has been reported as an occasional findings that can be demonstrated in about 0.1 to 0.6 % of all cerebral angiographies (1, 2). Commonly, it is associated with cerebral aneurysms, cerebral arteriovenous malformations, and cranial nerve compression syndroms (2-4). In several studies, a high prevalence of saccular cerebral aneurysms was reported to be associated with PPTA and the prevalence of aneurysms in patients with PPTA is estimated to be 3 to 32% (4, 5). The common aneurysm locations in PPTA are internal carotid artery bifurcation, middle cerebral artery, anterior communicating artery, and posterior communicating artery (3).

In this study, we report a case of subarachnoid hemorrhage in a patient with choroidal artery aneurysm associated with PPTA discovered with angiography.

CASE REPORT

A 42-year-old man was hospitalized after a sudden onset of headache, vomiting and deterioration of consciousness. Considerable medical history of the patient was for hypertension. Neurological examination of patient revealed no

focal deficit and his consciousness was stupor. Computerized tomography scan of the head showed subarachnoid hemorrhage on the left sylvian fissure (Figure 1). The four-vessel digital subtraction angiography showed a saccular aneurysm that originating from left anterior choroidal artery and a PPTA between the left internal carotid artery and the basilar artery (Figure 2). The patient underwent surgery on post-bleeding day 5, aneurysm neck was repaired by applying a surgical clip. The patient was discharged from hospital on postoperative day 6.

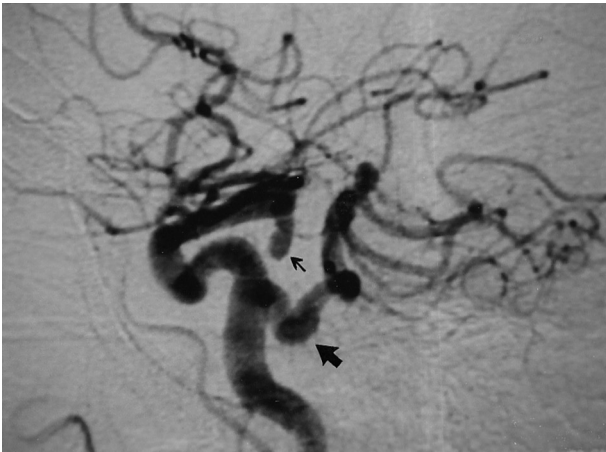
DISCUSSION

Although there are various embryological persistent arteries, the PPTA is the most common persistent carotid and vertebrobasilar system anastomosis. PPTA was first reported at the time of autopsy by Quain in 1844 (6, 7). Padgett systematized the embryological development of the cranial arteries in the human embryo and showed the anastomotic channels that provide blood supply of the hindbrain from the carotid artery during the formation of the cerebral circulation (8). As the author pointed out, in the 3 mm. human embryo, vascular channels, known as the trigeminal arteries, connected the cavernous portion of the internal carotid artery with the paired vessels that later formed the basilar artery. The trigeminal artery was usually obliterated by the 14 mm. embryonic stage as the posterior

Figure 1. Axial computed tomography scan shows subarachnoid hemorrhage on the left Sylvian fissure.



Figure 2. Digital subtraction angiography shows a persistent trigeminal artery (bold arrow) and left anterior choroidal artery aneurysm (arrow).



communicating artery and basilar artery began to function (2, 6, 9).

The PPTA was the first to shown by Sutton in an angiography (2, 3). PPTA has been reported as an occasional findings that can be demonstrated in about 0.1 to 0.6 % of all cerebral angiograms (1, 2). Since the first angiographic demonstration of the PPTA, many cases have been reported isolated or in association with other congenital vascular abnormalities, such as hypoplasia of cerebral arteries, arteriovenous malformations, carotid-cavernous fistulas, or cerebral aneurysms (2-4).

Although some authors reported that there is no increased prevalence of intracranial aneurysms in patients with PPTA (4), many cases have been reported cerebral aneurysms associated with Türk Serebrovasküler Hastalıklar Dergisi 2003, 9;3; 93-95

PPTA in the literature (3, 4). Paulo et al suggested the PPTA represents an dependent risk factor for the development of cerebral aneurysms. They hypothesized that an unusual development of the cerebral arteries as the main etiological factor in congenital cerebral aneurysms (2). On the other hand, Cloft et al reported the prevalence of intracranial aneurysms in patients with PPTA is no greater then the prevalence of intracranial aneurysms in the general population. They suggested that in nearly all patients with PPTA, diagnosis is made using cerebral angiography (4). So, these patients obtain some degree of angiographic screening for intracranial aneurysm and these radiological investigation might increase the prevalence of cerebral aneurysms. Interestingly, Cloft et al calculated the prevalence of aneurysms in patients with PPTA as 12%, which is estimated as 19% in normal population (4).

In our case, presence of subarachnoid hemorrhage on computed tomography at admission was the indication of digital subtraction angiography. Left anterior choroidal artery aneurysm that associated with PPTA was detected. PPTA may be coincide with cerebral aneurysm in our case as argued Cloft et al (4). Futher investigations are needed to explain the relationship between PPTA and development of cerebral aneurysms.

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