

Anatomical variation of the superior cerebellar artery: a case study

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Abstract

During routine dissection in the laboratory was observed the presence of a variation of the superior cerebellar artery in a brain of a young adult male. This artery belongs to the vertebral-basilar system and is branch of the basilar artery, prior to its bifurcation giving rise to the posterior cerebral arteries. This variation is clinically important due to cerebellar infarctions that affect a significant portion of the population, and records of this type of variation become important especially for the few records that are found in literature.

Keywords: infarcts, superior cerebellar artery, variation anatomic.

1 Introduction

The concept of anatomic variation is to be an event that deviates from the normal pattern without any functional impairment to individuals (DANGELO and FATTINI, 2004). Numerous studies have reported the existence of anatomical variations resulting in a greater care for those who teach anatomy, as well as for radiologists and surgeons from various specialties (NAGABHOOSHANA, VOLLALA, RODRIGUES et al., 2008). Among the several variations described in the literature, those concerning the irrigation of the nervous system, whether in the internal carotid circuit or in the vertebral-basilar system, or detached not only by the diversity of variations but also by the importance of their understanding, saw that in surgical procedures, invasive or not, to know the disposition of the arteries and their territories of irrigation are extremely important. The vertebral-basilar system composed by the vertebral arteries originating from the subclavian arteries and ascends cranially through the transverse foramina, to anastomosis happen at bulbopontine sulcus. In normal individuals, on average of 20% of intracranial blood stream is derived from this circuit. The basilar artery (BA) run on the ventral pontine surface, where is already found branches to the cerebellum, such as the anterior inferior cerebellar artery (AICA) and the superior cerebellar artery (SCA) and paramedially penetrate branches to the pontine structures (Figure 1). Usually, the same disorder which folds the anterior circulation (internal carotid) are those that cause infraction in posterior circulation (vertebral-basilar), in slightly similar proportions (MARTIN, 1998). Reports of isolated infarctions in the territory of superior cerebellar arteries irrigation are rare (CAPLAN, 1986), and often are not radially apparent. With the magnetic resonance imaging (MRI) advent, cerebellar lesions can be diagnosed, outlining small infarcts in this organ. The cerebellar infarcts as defined according to the arterial areas of irrigation, which may be inferior cerebellar artery, anterior inferior cerebellar and superior cerebellar and even non-territorial infarcts, wich are those with diameters less than 2.0 cm. Currently the superior cerebellar artery has

been attracting the attention of neurosurgeons, radiologists and anatomists because of the variations in its origin. In this article, we described the presence of a variation of the left superior cerebellar artery in the brain of a corpse of an adult male. Just few studies describe this type of variation, what makes it essential to its account in order to simulate great care in investigating this type of event.

2 Case report

The brain of an adult male corpse was used in this report. During the dissection routine in the laboratory, observed at the origin point of the superior cerebellar artery a second superior cerebellar artery, in this case variant (Figure 2), according to a certain extent the same way of that normal, being not observed the same variation in the contralateral point.

3 Discussion

Infarcts in the superior cerebellar artery irrigation territory are most commonly diagnosed clinically, radiologically and postmortem than infarcts in posterior inferior cerebellar artery (CAPLAN, 1986; HINSHAW, THOMPSON, HASSO et al., 1980). The commitments of related territories irrigation artery usually entails limb ataxia as dominating feature along with dysarthria, ataxia, vertigo and vomiting (CHAVES, CAPLAN, CHUNG et al., 1994; BOGOUSLAVSKY, MAEDER, REGLI et al., 1994; BARTH, BOGOUSLAVSKY and REGLI, 1993). The pontine tegmentum may also be affected causing contralateral spinothalamic sensory loss. (AMARENCO and HAUW, 1990a). Large infarcts may produce mass effect and obstructive hydrocephalus leading to the need of surgery. Most of these attacks are accompanied by impairments in neighboring regions such as the midbrain, the thalamus and irrigation areas of the posterior cerebral artery in 75% of cases (AMARENCO and HAUW, 1990b). Lesion in the territory

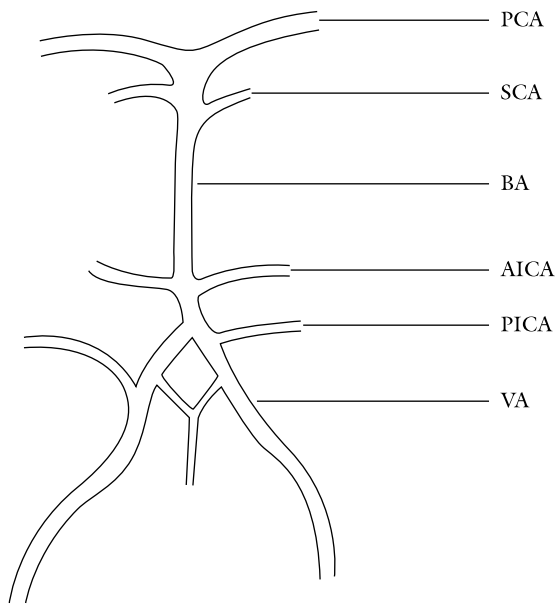


Figure 1. The components of brain posterior circulation (Adapted of Martin, 1998).

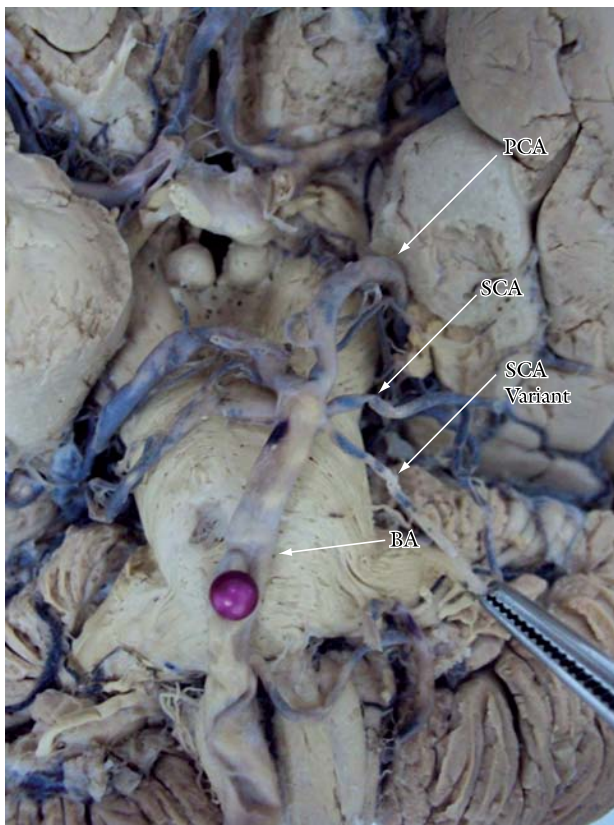


Figure 2. Photography of the components of the posterior circulation the brain with anatomical variation of the superior cerebellar artery.

of this artery may also trigger a neurobehavioral syndrome, called cerebellar cognitive affective syndrome (CCAS), characterized by spatial cognitive deficits, visual memory, language, personality and behavioral changes (MARIËN, BAILLIEUX, DE SMET et al., 2009).

Thus, in the superior cerebellar artery variations reports are important because once this variation type is identified; one can understand the functions of blood supply in some patients who have some kind of obstruction, which will not cause impairment of the irrigated area by the existence of a variant artery.

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Received August 16, 2010
Accepted November 15, 2010