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Incidental aneurysm of the superior cerebellar and non-visualized posterior inferior cerebellar artery: a diagnostic trap

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Summary. The authors report a case of two aneurysms in the posterior fossa, one of which was first visualized on follow-up arteriography. The mechanism of non-vasualization and re-appearance of the aneurysm is discussed.

Key words: Aneurysm – Posterior fossa – Angiography

Non-visualization and re-appearance of a saccular aneurysm is rarely reported. The authors experienced a case of co-existence of incidental superior cerebellar artery (SCA) aneurysm and posterior inferior cerebellar artery (PICA) aneurysm which, even though responsible for subarachnoid hemorrhage, was not visualized at the beginning.

Case presentation

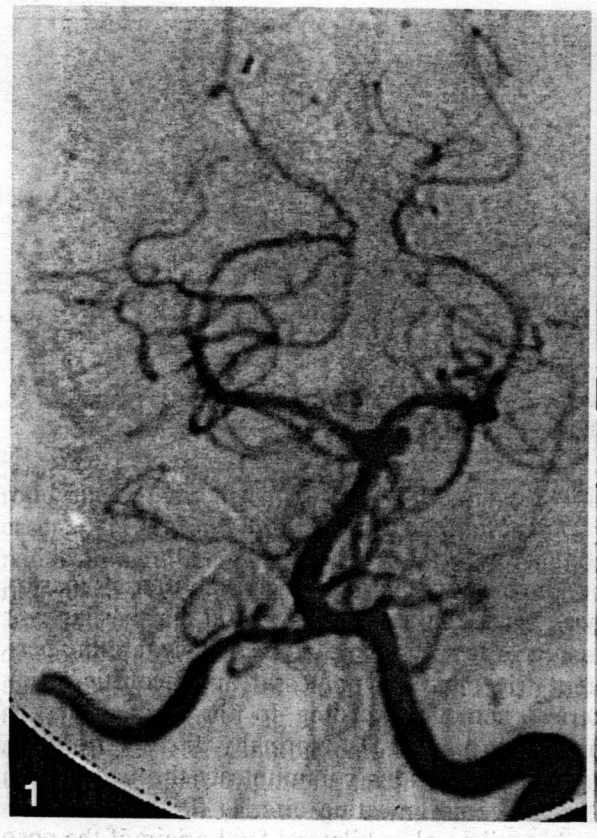
A 49-year-old female was admitted to the University of Maryland Hospital because of severe occipital headache. Brain CT revealed hemorrhage in the fourth ventricle. Bilateral carotid and left vertebral arteriography revealed an aneurysm at the origin of the left superior cerebellar artery, with minimal arterial spasm of the basilar and right vertebral arteries (Fig. 1). Both PICAs were clearly visualized and no evidence of aneurysm was found. Clipping of the SCA aneurysm was performed five days after the angiography. This SCA aneurysm had a thin wall, but no evidence of rupture was noted. Three days after the operation, the patient suddenly complained of excruciating headache. Shortly thereafter she became unconscious and began to show decerebrate posture. CT scan showed evidence of subarachnoid hemorrhage and intraventricular blood. Bilateral carotid and vertebral arteriography was performed. There was no residual aneurysm at the SCA on the left vertebral arteriography. Right vertebral arteriography however showed a previously non-visualized saccular aneurysm at the junction of right PICA and vertebral artery with marked spasm of the basilar and vertebral arteries (Fig. 2). At surgery, a large amount of subarachnoid clot was found around the right PICA aneurysm and successful clipping was performed.

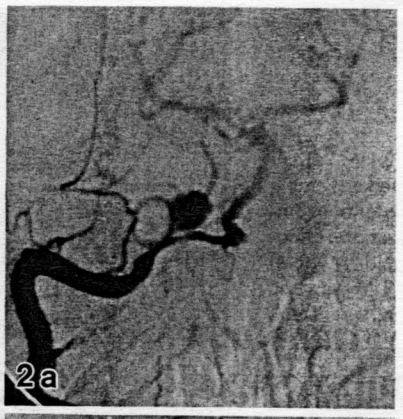
Discussion

It is a well known fact that a certain percentage of all subarachnoid hemorrhages remain without a cause even after a thorough angiographic evaluation. The cooperative study of intracranial aneurysms and subarachnoid hemorrhage found that in a group of 6638 documented cases of subarachnoid hemorrhage, the cause of hemorrhage could not be detected in 477 cases (7.18%). However, an aneurysm or an arteriovenous malformation was subsequently found in 20 patients (4.1% of the negative angiography) [1]. It has been said that with good technique, careful observation and complete four vessel cerebral angiography, a false negative rate of less than 2% can be achieved [2].

Our case is of interest because of the presence of the incidental SCA aneurysm and PICA aneurysm which, even though responsible for the subarachnoid hemorrhage, was not visualized at the beginning. Furthermore the coexistence of a PICA and a SCA aneurysms is rare [3, 5].

Lack of visualization and reappearance of an aneurysm as seen in our case, is rarely documented





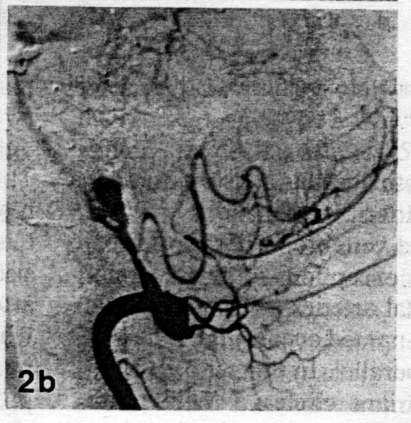


Fig. 1. Left vertebral arteriography with AP projection shows a left SCA with minimal spasm of the basilar artery. Although the right vertebral artery is slightly spastic, bilateral PICAs are well visualized with no evidence of aneurysm

Fig. 2a, b. Postoperative, right vertebral arteriography demonstrates a saccular aneurysm located at the junction of the left PICA and vertebral artery. Spasm of the distal portion of the right vertebral artery is also visualized

in the literature [4, 6]. It is unclear why the first angiography failed to visualize the PICA aneurysm. Considering that spasm of the vertebrobasilar arteries was minimal on the first arteriography, vasospasm is unlikely to be the cause. It can be speculated that clot formed inside the PICA aneurysm temporarily occluded the orifice of the aneurysm.

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