Case Report and Technical Note

Syncope Associated with Persistent Hypoglossal Artery

Case Report*

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With the wider clinical utilization of cerebral angiography, two factors are becoming increasingly apparent. The first is the recognition that many intracranial vascular syndromes actually are caused by impairment of the circulation at an extracranial site. The second is the necessity for the clinical angiographer to be able to recognize and identify certain embryological variants of the circulatory supply to the brain, and to be aware of the clinical syndromes produced thereby.

There are three embryological vessels joining the carotid and basilar systems that normally involute at a very early stage of development. The first is the acoustic (or otic) artery. Conclusive evidence of its persistence into adult life, either angiographically or by postmortem examination, has not as yet been published. The second is the primitive trigeminal artery. Its persistence in the region of the clivus and cavernous sinus has been reported extensively. The third is persistence of the primitive hypoglossal artery. In this condition, the vertebral artery angiographically arises from the common carotid artery in the neck and passes into the cranium, not via the foramen magnum, but rather through the more lateral condylid foramen. Prior to this report, persistence of the hypoglossal artery had not been noted to be associated with signs of

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Figs. 1 and 2. Right carotid angiogram. (Left) Anteroposterior projection. There is bilateral filling of the anterior cerebral arteries.
(Right) Lateral projection. Bifurcation of the common carotid artery is at the level of C4, and there is normal filling of both the internal and external carotid arteries.
cerebrovascular insufficiency, but in the following case, repeated attacks of syncope, starting in childhood and associated with rotational movements of the neck, may well have had their genesis in transient occlusion of the anomalous persistent hypoglossal artery.

Case Report

A 47-year-old active-duty chief torpedoman had been bothered by vertigo and syncope, associated with rotational movements of the neck, for many years. He recalled his first attack of syncope occurred as a boy of 10, following extreme rotation of his neck from side to side. He had also noted pain in the posterior cervical area with radiation into both retroauricular areas in the preceding several months.

On physical examination, neither light pressure nor massage of either carotid-sinus area would elicit vertigo or syncope, but firm pressure (applied but once) in the area of the carotid bifurcation on either side was followed immediately by "greying out," lasting 10–15 sec.

Right carotid angiography (Figs. 1 and 2) revealed a perfectly normal right carotid system. Left common carotid angiography, however, (Figs. 3 and 4), with the needle placed low in the carotid artery (at the level of C6), revealed persistence of the primitive hypoglossal artery. This vessel arose from the common carotid artery at the level of C2, entered the cranium through the condylar foramen and then angiographically opacified a normal system of the basilar-posterior cerebral artery.

The patient was returned to duty without specific surgical treatment, and advised to avoid sudden rotational movements of the neck.

Summary

A case of persistence of the primitive hypoglossal artery, diagnosed angiographically, and associated clinically with episodes of syncope following rotational movements of the neck, is presented.

References

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