Congenital Arteriovenous Fistula Involving the Occipital Artery and Lateral Venous Sinus

Case Report

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Intracranial fistulas in which the arterial component originates extracranially are relatively rare; the few cases reported have been of both traumatic and congenital origins.1-7 We are reporting a case in which the origin was congenital.

Case Report

The patient, a 47-year-old white woman, was hospitalized complaining of a swishing and throbbing noise in the left ear, corresponding with the heart beat. The symptoms were of several months' duration, without history of trauma.

Examination. The ear showed no abnormalities, but a loud bruit could be heard in the left temporo-occipital region behind the ear, corresponding with the heart beat. The bruit disappeared on compression of the left carotid artery. Bilateral carotid arteriograms revealed arteriovenous communication between the left occipital artery and the lateral venous sinus (Fig. 1). The internal jugular vein was clearly visualized 1.5 seconds after injection of the contrast medium (Fig. 2).

Operation. The internal and external carotid arteries in the neck were explored under local anesthesia. Noise in the ear persisted after clamping of the internal carotid artery, but disappeared when the external carotid was clamped. Although it was apparent that the only feeding vessel was the external carotid artery, selective external and internal arteriograms were performed to exclude any communication between the fistula and the branches of internal carotid artery. The fistula was formed by the occipital artery and lateral venous sinus; the internal carotid arteriogram showed no communication with the fistula (Fig. 3). The external carotid artery was ligated at its origin from the occipital artery.

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FIG. 1. Arteriograms, anteroposterior (left) and lateral (right) views, showing fistula (arrows). Lower arrow (right) points to occipital artery.
bifurcation, eliminating the noise in the patient's ear.

No bruit was heard behind the ear when we examined the patient after the operation. Two years after surgery the patient continues to be asymptomatic; there still is no bruit.

Summary

We have reported a case of congenital arteriovenous communication between the occipital artery and lateral venous sinus. The patient's symptoms were relieved by ligation of the external carotid artery. Although some consider primary extirpation of the fistula a necessity, we elected to ligate the external carotid artery. This is an acceptable procedure for treatment of arteriovenous fistulas in cases where the arterial supply is exclusively from the external carotid artery.

We have demonstrated the value of selective angiography in determining the arterial supply of the fistula.

References