Case Reports

Traumatic Carotico-Cavernous Fistula Combined with Persisting Primitive Hypoglossal Artery

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Persisting embryonic vessels of the head and neck generally are rare anomalies, and usually they are of no clinical consequences. In our case of a traumatic carotico-cavernous fistula an accidentally discovered hypoglossal artery became very important for surgical treatment.

Case Report

G.Z., a 25-year-old white male, was injured in a motorcycle accident. In an unconscious state he was admitted to a general hospital, and a mild hemorrhage from the left ear was noticed. After almost 1 day of unconsciousness he became restless for 2 days. Later on he vomited several times and when he awoke he complained of severe headaches.

The physical and neurologic findings were normal. Roentgenograms of the skull revealed no fracture. Shortly thereafter, a mild protrusion of the right eyeball occurred, and in the following days the protrusion increased more and more. Also the patient started having a hissing sound in his head, synchronous with the rate of his pulse. Thirteen days after the accident the patient was transferred to the Ophthalmic Hospital of the Würzburg University for further observation.

Examination there revealed a severe hematoma of the right eyelids, which could not be closed over the protruded eyeball. The palpebral fissure could be closed up to 3 mm., and opened for about 5 mm. There was a marked chemosis, and the swollen conjunctiva overlapped the margin of the lower lid (Fig. 1). A small fistula was seen in the nasal part of the overlapping conjunctival flap, and a mild hemorrhagic discharge was noticed twice from that fistula. There was a protrusion of the right eyeball, measuring 14 mm., as compared to the left eye. No movements of the right eye were possible. The right pupil was dilated slightly and did not react to light. There was no lesion or opacity of the cornea, of the aqueous chamber, or of the crystalline lens, and there was no irritation of the iris. In the vitreous body there was some mild turbidity. The eye-grounds appeared normal. The visual acuity was diminished in the right eye (5/25), and normal in the left eye (5/4). The visual field, tested with hand perimeter and color squares of 2.0 cm.², proved to be normal on both sides.

In spite of an absent visible pulsation of the eye, a carotico-cavernous fistula was diagnosed, and the patient was transferred to the Neurosurgical Division of the Würzburg University, 36 days after the accident.

Examination. There was slight weakness of the lower portion of the face on the left, but there were no other abnormalities. The patient continued having a hissing sound in his head. A pulse-synchronous aneurysmal murmur was heard distinctly in the temporal areas, more on the right than on the left. The electroencephalogram was interpreted as abnormal, with increasingly occurring slow waves in the right frontopolar region.

Carotid angiograms were performed on both sides. Eight films were taken in each angiography, 4 in lateral, and 4 in sagittal view. In either projection the first frame was taken 0.8 sec., the second 1.6 sec., the third 3.8 sec., and the last 5.6 sec. after the start of injection. In this manner we usually obtain an early arterial, a late arterial, a capillary and a venous phase.

The right-sided angiogram revealed in the arterial phases a fleck of contrast material, the size of a fingernail, in the area below the carotid siphon, the region of the cavernous sinus. Even in the early arterial phase tortuous veins of different sizes were recognized clearly in the right orbit, more on the right than on the left. The electroencephalogram was interpreted as abnormal, with increasingly occurring slow waves in the right frontopolar region.

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Fig. 2. Halfaxial sagittal angiogram of carotid artery.

Fig. 3. Angiogram during operation. Carotid artery closed by clamp.