Bilateral giant carotid-ophthalmic aneurysms

Case report

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The authors describe a patient with bilateral giant aneurysms of the internal carotid artery in the region of the ophthalmic artery. This case illustrates the feasibility of successful intracranial surgical treatment for this unusual combination.

Key Words: aneurysms, bilateral giant intracranial carotid artery, internal ophthalmic artery, craniotomy

Bilateral giant aneurysms of the internal carotid artery in the region of the ophthalmic artery have not, to our knowledge, been previously reported. The term "giant" has been applied to aneurysms with a diameter of 2.5 cm or greater,1 to conform with the largest size group in the Cooperative Study.2 Both the aneurysms of our patient fell into this category. We are reporting this case to demonstrate the feasibility of successful intracranial surgery of this formidable combination of large aneurysms.

Case Report

On December 30, 1971, a 39-year-old woman was referred to the Eye Clinic of the Shands Teaching Hospital because of progressive loss of vision for 3 months. She could only count fingers at 2 feet with her left eye and she had visual acuity of 20/30 in the right eye, a temporal hemianopsia in the left eye, a superior temporal quadrantanopsia in the right eye, and pallor of the left optic disc. On February 3, 1972, she was admitted to the Neurological Service following a diagnosis of mass lesion in the chiasmatic region. A preliminary work-up revealed no abnormality other than the ophthalmological syndrome; brain-scan findings indicated a midline mass in the suprasellar region, probably neoplasm.1,6

Angiography demonstrated an aneurysm that measured 26 × 20 × 19 mm arising from the right internal carotid artery at or near the region of the ophthalmic artery, and another slightly larger aneurysm (27 × 20 × 25 mm) arising from the left internal carotid artery in a region identical to that on the right (Fig. 1). The left carotid injection was made by catheterization of the aortic arch via the right femoral artery; immediately afterward, the patient developed severe aphasia and right hemiplegia, which decreased considerably during the following days.

On March 27, 1972, she was admitted to the Neurosurgical Service. Her ophthalmological syndrome had progressed and she could no longer count fingers at all with her
Fig. 1. Anteroposterior (upper), lateral (center), and oblique (lower) views of the carotid arteriograms (left column shows the right aneurysm and right column the left). Each aneurysm arises from its respective internal carotid artery at or near the origin of the ophthalmic artery. Both aneurysmal sacs project dorsomedially and abut at the midline. The oblique views document best the stretching and displacement of both supraclinoid carotid arteries and of the anterior cerebral arteries, and the anatomical relationship of these four vessels to the aneurysms.
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left eye; she had a temporal hemianopsia of the right eye and atrophy of the left optic disc.

Operation. On April 4, 1972, through a bifrontal craniotomy, the aneurysms and the optic nerves were exposed. The latter showed marked upward displacement, and were severely flattened and elongated by the underlying aneurysms. These changes were more marked on the left optic nerve, which was more angulated and pinched at the edge of the anterior clinoid process (Fig. 2). First, on the right, the aneurysmal neck was identified, dissected free, and found to arise from the superomedial aspect of the internal carotid artery, just distal to the origin of the ophthalmic artery. Under controlled hypotension, the necks of both aneurysms were ligated with long metallic clips and totally occluded; the sacs were punctured and completely collapsed by aspiration. Blood pressure was restored to presurgical levels and the operative site observed under direct vision for over 30 minutes. The diameters of the internal carotid arteries had been preserved and both optic nerves and chiasma had been thoroughly decompressed.

Postoperative Course. Apart from a postoperative increase of her aphasia and right hemiparesis, the patient had an uncomplicated recovery. She was discharged on the eleventh day after surgery. Her speech difficulties and right hemiparesis were improved, and 1 month after discharge were better than at the time of surgery. The visual acuity and fields in the right eye had become normal, but she remained blind in the left eye. This visual status has persisted unchanged over the 2 years of postoperative follow-up. The residual speech difficulties and awkwardness in the use of her right hand have become nearly imperceptible.

Skull films taken at the time of surgery, immediately afterward, and at subsequent follow-up examinations have demonstrated no change from the original position of the metallic clips. The brain scan performed 7 months after surgery revealed no abnormal concentrations of the radionuclide in the suprasellar region.

Discussion

Our patient had become blind in the left eye and had a progressive visual loss in the right eye with impending blindness due to bilateral giant carotid-ophthalmic aneurysms. Since we considered the status of the left eye irreversible, our goal was to preserve and hopefully improve vision in the right eye.

A bifrontal craniotomy, similar to that used by Pool and Potts for the anterior communicating artery, would permit the best access to both aneurysms through a single surgical field. In this case this approach proved to be quite adequate.

The patient refused postoperative angiography and the assessment of the correctness and effectiveness of the surgical therapy in this case rests on: 1) observation and appraisal of the operative performance; 2) serial postsurgical skull films; and 3) evaluation of changes in visual parameters, neurological status, and brain scans in the postoperative follow-up period.

References


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This paper was presented at the twenty-sixth annual meeting of the Neurosurgical Society of America, Southampton, Bermuda, June 10-15, 1973.

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