Cavernous hemangioma of the optic nerve

Case report

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A case of cavernous hemangioma of the optic nerve of a 24-year-old pregnant woman is reported. The visual disturbance with subacute onset was thought to be related to the delivery of a child. The lesion was totally removed through the subfrontal approach, resulting in satisfactory recovery of visual symptoms. Cavernous hemangioma involving the optic nerve and chiasm is extremely rare. Only two similar cases have been reported previously.

KEY WORDS • cavernous hemangioma • optic nerve

In recent years, intracranial cavernous hemangiomas have been detected more frequently by means of computerized tomography (CT). Although many of these lesions have been reported in intracerebral or extradural locations, a cavernous hemangioma arising in the optic nerve and chiasm is very rare. To our knowledge only two such cases have been reported previously at this location. An additional case with a cavernous hemangioma of the optic nerve is reported; the lesion led to visual impairment of subacute onset after the patient was delivered of a baby.

Case Report

This 24-year-old woman was delivered of her second child on August 7, 1985. The delivery was normal and she was discharged on August 15. A few days later she noticed blurred vision while watching television and reading newspapers. She visited an ophthalmologist, who identified bilateral diminished visual acuity and inferior nasal quadrantanopsia of the right optic field. A CT scan showed a suprasellar high-density mass. The patient was referred to our department and admitted on September 3, 1985.

Examination. The patient's general condition and neurological examination were normal. Visual acuity was 16/20 in the right eye and 18/20 in the left eye. An inferior nasal quadrantanopsia of the right optic field was demonstrated by Goldmann's perimetry testing (Fig. 1). The optic discs and eye movements were normal on both sides.

Skull x-ray films showed no abnormality in any structure including the sellar region. Plain CT scans on admission demonstrated a suprasellar high-density mass about 1 cm in diameter, which enhanced slightly on administration of contrast medium (Fig. 2). A bilateral carotid angiogram showed no abnormality. Routine examinations of blood and serum were normal. Serum levels of pituitary hormones including follicle-stimulating hormone, luteinizing hormone, growth hormone, thyroid-stimulating hormone, prolactin, and adrenocorticotropic hormone were within the normal range.

Operation. On September 24, 1985, a right frontal craniotomy was performed and the lesion was approached subfrontally. The right optic nerve was distorted by a lobulated subpial vascular mass which extended from the right lateral superior side of the optic nerve to the optic chiasm (Fig. 3). A yellowish pigmentation was found around the mass. On resecting the vascular mass from the optic nerve and chiasm, the lamina terminalis was partially incised to accomplish total removal of the tumor.

Postoperative Course. Postoperatively, the patient's visual acuity did not change on the testing scale, but improved subjectively. The inferior nasal quadrantanopsia of the right eye has remained unchanged. The patient was discharged on October 16, 1985.

Pathological Examination. On macroscopic examination the tumor was considered to be a cavernous hemangioma. Histologically, it consisted of venous
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**LEFT**

**RIGHT**

**Fig. 1.** Goldmann's perimetry test demonstrating inferior nasal quadrantanopsia of the right eye.

**Fig. 2.** Preoperative computerized tomography scans. *Left:* Plain scan showing the suprasellar high-density mass. *Right:* Scan obtained after infusion of contrast medium showing slight enhancement.

**Fig. 3.** Operative photograph showing a subpial multilobulated red-blue mass on the right optic nerve (large arrow). The chiasm is also involved (small arrow).

channels of various sizes without intervening neural tissue (Fig. 4). Some venous lumina were occluded by organizing thrombi. Calcification was not seen. The histological diagnosis was cavernous hemangioma.

**Discussion**

Intracranial cavernous hemangiomas have been considered rare, but in recent years they have been found more often because of CT scanning. The cerebrum, pons, and basal ganglia are frequently involved. Cavernous hemangioma may occur anywhere in the central nervous system or peripheral nerves, but involvement of the visual system is extremely rare. Only two cases have been reported previously.

Usually the clinical symptoms of cavernous hemangioma are acute or subacute; the initial symptoms are commonly epileptic seizure, acute headache, and subarachnoid or intracerebral hemorrhage. The onset of symptoms of cavernous hemangiomas involving the optic nerve, chiasm, and optic tract was insidious in the case of Manz, et al., and visual disturbance was acutely aggravated in the case described by Mohr, et al. In our case, two characteristic points may be stressed. The mechanisms involved in this case may be as follows. Venous congestion due to increased abdominal pressure during labor made the tumor enlarge and caused intratumoral bleeding which resulted in visual impairment.
At surgery, hemosiderin pigment was found around the tumor. Rupture of arteriovenous malformations and aneurysms causing intracranial hemorrhage is a well known consequence of pregnancy.2;6 Meningiomas and prolactinomas may expand in pregnancy.1;10 Acute visual disturbance related to delivery has not been reported.

In the two previously reported cases of cavernous hemangioma involving the visual system only biopsy was performed. In our case total removal of the tumor was performed easily, resulting in slight improvement of the visual symptoms. According to Voigt and Yasargil,11 operative treatment is preferable if technically possible in any case of cerebral cavernous hemangioma in order to avoid the risk of intracranial hemorrhage. Cavernous hemangioma is well circumscribed and, according to Rubinstein,1 the neighboring brain is usually the site of some degree of reactive fibrillary gliosis. Rengachary and Kalyan-Raman10 reported that dissection of a cortical or subcortical cavernous hemangioma is surprisingly easy, with minimal or no bleeding. The present case emphasizes that a cavernous hemangioma, even if located in the optic nerve, chiasm, or tract, can be totally resected without further impairment of visual function.