Aneurysm of the Posterior Inferior Cerebellar Artery Filling the Fourth Ventricle*

Case Report

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Aneurysms of the posterior intracranial circulation once were postmortem curiosities. Those most frequently reported were aneurysms with S-shaped elongations resulting from atheromatous changes, as first noted by Morgagni in 1769.9 The second most common were the saccular or congenital aneurysms described by Cruveilhier (1829–85).2 In 1899, McDonald and Korb7 reviewed 1,135 cases of intracranial aneurysm, 251 (22 per cent) of which were found in the vertebrobasilar system. The same percentage was noted by Richardson and Hyland in 1941.11 In 1944, Dandy8 listed 21 aneurysms of the vertebrobasilar system, which constituted 15.8 percent of his total of 139 intracranial aneurysms. The reported incidence of aneurysms found in the posterior fossa is now accepted at about 10 per cent.1.4

Successful operative intervention in cases of aneurysm of the posterior fossa is rarely accomplished. The first such favorable result was noted by Schwartz in 1948,10 who described an aneurysm apparently arising from the origin of the internal auditory artery. Since 1948, 12 cases of successful operation on aneurysms of the posterior inferior cerebellar artery have been reported.1.4—6.8.10.12

The largest series was that of 28 aneurysms of the vertebrobasilar system recorded by Höök and his associates9 in 1963. Twelve patients were treated surgically; 8 of them were still living, 2 died of other causes, and 2 had recurrent subarachnoid hemorrhage. Three of the 12 had an aneurysm of the posterior inferior cerebellar artery, and all 3 patients returned to full-time work.

The following patient presented the classical picture of a tumor of the posterior fossa.

Case Report

A 41-year-old, right-handed woman was admitted to the North Carolina Baptist Hospital on January 22, 1964.

History. She gave a 2-year history of hypertension and daily morning headache, which was characteristically occipital and accompanied by cervical pain, with episodic vomiting. Three months before admission her visual acuity decreased and her gait became unsteady; the staggering was characterized by falling to the left side. The decrease in visual acuity, headache and unsteadiness progressed. Two weeks before admission she became dysphagic.

Examination. She was admitted to a local hospital where a lumbar puncture was performed, revealing a cerebrospinal fluid pressure of 560 mm. of spinal fluid and a 4 plus positive reaction on the Pandy test.

Physical examination revealed an alert woman, complaining of occipital and cervical pain. Her blood pressure was 200/134 and the pulse rate was 80. Visual acuity was 20/400 in each eye, and there was a right central scotoma. Funduscopic examination disclosed bilateral papilledema with hemorrhages and exudates. Bilateral nystagmus was present on lateral gaze, and the corneal reflexes were depressed bilaterally. Hearing was normal. Sensation to pin-prick, light touch, and vibration was normal. She performed rapid alternating responses and the finger-to-nose test with great difficulty. The heel-to-knee test was performed normally.

Roentgenogram of the skull and echo-encephalogram were negative. A Hg193 brain scan reportedly revealed a 2 by 2 cm. abnormality in the posterior fossa, just to the right of the midline.

Operation. On January 24, 1964, ventriculography was carried out; the ventricular fluid pressure was greater than 600 mm. of spinal fluid. The films disclosed a symmetrical obstructive hydrocephalus, with dilatation of the lateral ventricular system and no filling of the fourth ventricle. Following ventriculography, the posterior fossa was explored. A large aneurysmal mass completely filled the fourth ventricle; a normal sized right posterior inferior cerebellar artery entered its caudal end. The aneurysm (Fig. 1) was freed from the brain stem, and with gradual traction it was delivered in toto. It was completely clotted, laminated, and covered with a pseudomembrane (Fig. 2). The entire mass measured approximately 7 to 8 cm. in length and each end was about 3 or 3.5 to 4 cm. wide (Fig. 3).

During manipulation of the brain stem, respiration ceased and the blood pressure rose to 280 mm. Hg systolic. A catheter was passed through the aqueduct of Sylvius; fluid was easily removed from the third ventricle, relaxing the intracranial pressure, after which the patient's condition improved greatly.

The postoperative course was protracted and difficult. On January 26, 1964, she became apneic and a tracheostomy was required. Following this she gradually improved. The papilledema decreased. She was discharged 43 days after admission to be followed as an outpatient.

She has continued to improve, without nystagmus or papilledema, although she still has some unsteadiness on finger-to-nose testing and is moderately ataxic. Her
Fig. 1. Artist’s sketch showing the mass superimposed on a ventriculogram to demonstrate its relationship to the structures of the brain.

Fig. 2. Entire mass removed from the 4th ventricle.

Fig. 3. Cross-section of the aneurysm showing pseudomembrane and laminated clot.