SACCULAR ANEURYSMS OF THE POSTERIOR FOSSA*

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Our interest in aneurysms of the posterior fossa has been stimulated recently by 2 cases in which the lesions were diagnosed and successfully treated by operation within a 6-month period. A review of the literature revealed only 2 other patients who had been successfully treated surgically.9,11 Both of these were operated upon without the aid of pre- or postoperative vertebral angiograms. A few additional cases have been reported to us in personal communications9,8 but the number of successfully treated aneurysms of the posterior fossa is still quite limited.

It has been estimated conservatively that at least one-sixth of intracranial aneurysms arise from the basilar-vertebral system and it is, therefore, our conviction that more of these would be diagnosed if they were searched for more diligently. Perhaps the feeling among neurosurgeons that little could be done for aneurysms of the posterior fossa even if they were diagnosed has been the factor deterring a more aggressive search for these aneurysms. It is our belief that vertebral angiography is reasonably safe and that it should be considered more frequently. Schultz10 has recently reported approximately 50 vertebral angiograms, all of which were done without complications.

Fulfilling Dandy's4 prediction, Schwartz,11 in 1948, reported the first successful direct surgical cure of a small sacculated arterial aneurysm in the posterior fossa.5,12 It arose from an abnormal artery in the left cerebellopontine angle and measured about 4 mm. in diameter. The patient had suffered several episodes of subarachnoid hemorrhage with subsequent cranial nerve signs. The aneurysm was trapped between two clips without residual signs.

Rizzoli and Hayes.9 in 1953, reported the second successful case. Their patient was admitted with subarachnoid hemorrhage without localizing signs and failed to respond to conservative therapy. Subsequently, bilateral occipital and temporal burr holes were placed; the findings were negative. Finally a ventriculogram suggested a lesion in the posterior fossa. The patient had dilated ventricles with a shift of the fourth ventricle to the right. An exploration of the posterior fossa demonstrated an aneurysm, 2 cm. by 1 cm. in size, arising from the left posterior inferior cerebellar artery just beneath and anterior to the left cerebellar tonsil. This was trapped and excised. During a stormy postoperative course the patient had bilateral ataxia of the

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arms, weakness of both legs, and confusion, but he slowly improved. At the
time of the report, 5 years after surgery, he was gainfully employed and his
only residual sign was ataxia of the left arm.

In the cases reported here the diagnoses were made by percutaneous
vertebral angiography and we believe they emphasize the necessity of com-
plete cerebral angiography in cases of unexplained subarachnoid hemor-
rhage. The carotid angiograms were done with local anesthesia; however, for
the vertebral angiograms general anesthesia was used. Angiography was
carried out percutaneously using Hypaque Sodium, which we believe to be
the medium of choice.10

CASE REPORTS

Case 1. #222492. K.G., a 48-year-old white male mechanic, was admitted to the
Neurosurgical Service of the Baptist Memorial Hospital on July 18, 1956, complain-
ing of severe headaches, stiffness of the neck, and photophobia. Eleven hours prior
to admission he was awakened from sleep by severe occipital pain radiating into the
parietotemporal region bilaterally. He also noted tingling dysesthesias, weakness of
the left extremities and blurred vision of the left homonymous visual field. This
persisted for about 15 minutes. Subsequently, there developed nausea, vomiting,
stiffness of the neck, drowsiness, and mild disorientation. Previous history revealed
that he had experienced intermittent headaches for about 6 months. For the past
10 years he had had bilateral Dupuytren's contractures which seemed to be pro-
gressive.

Examination. The vital signs were normal. He was slightly confused. He had
signs of meningeal irritation and examination of the optic fundi revealed bilateral
subhyaloid hemorrhages. A lumbar puncture yielded grossly bloody spinal fluid
under a pressure of 300 mm. of water. His bleeding and clotting times were within
the limits of normal.

His condition remained stable and since he did not appear to be in critical con-
dition, bilateral carotid arteriograms were done the following day. These were
normal. Two days after admission right vertebral arteriography was performed. A
saccular aneurysm arising from what was considered to be the right posterior in-
ferior cerebellar artery was demonstrated.

1st Operation. On July 23, 1956, under general anesthesia, a right suboccipital
craniectomy was performed. Exploration of the posterior fossa inferiorly revealed
signs of subarachnoid hemorrhage. Dissection was then carried rostrally and a small
mass of clotted blood was found beneath the arachnoid in the region of the 7th and
8th cranial nerves. An attempt to free up the arachnoid by gentle dissection was
made but sudden brisk bleeding obscured the field. This was controlled by local
pressure and Gelfoam. A silver clip was placed on a vessel presumed to be the an-
terior inferior cerebellar artery, which seemed to be entering the bleeding area. It
was felt inadvisable to continue further operative manipulations and the wound
was closed.

Postoperatively the patient had diplopia caused by paralysis of the right 6th
erve, a transient right peripheral facial paresis and deafness in the right ear. There
were deviation of the uvula to the left, vertigo and ipsilateral ataxia. He was some-
what confused for a few days but rapidly recovered and was discharged 8 days
postoperatively. The only deficit on discharge was vertigo on sudden motion and
deafness on the right.