Tentorial Section for Decompression of the Brain Stem and a Large Basilar Aneurysm
Case Report

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WHEREAS intracranial aneurysms usually become symptomatic by rupture and subarachnoid hemorrhage, vertebrobasilar aneurysms occasionally present symptoms suggesting a tumor.1,2,4-12 Such large aneurysms often are not amenable to safe surgical removal. The following is a description of a massive, premesencephalic, thrombosed aneurysm of the basilar artery that caused severe brain stem compression, which was successfully relieved by section of the tentorium.

Case Report

On January 14, 1967, a 44-year-old accountant was transferred to the VA Hospital with a 2-year history of progressive right-sided headache, double vision, and difficulty with speech, swallowing, and walking.

In the autumn of 1964 at another hospital, a brain scan, carotid angiography, and pneumoencephalography had been performed to evaluate progressive headache occurring mainly behind the right eye. These tests were normal. There was also a history of psychiatric therapy for apparent paranoid schizophrenic tendencies. In January, 1965, a right retrograde brachial cerebral angiogram, done because of right third nerve paresis, showed an apparent collection of contrast material about 6 mm in diameter at the cephalic end of the basilar artery. This was interpreted as an aneurysm arising from the right side of the basilar artery between the origins of the superior cerebellar and posterior cerebral arteries. The basilar artery was displaced 1 cm to the left, and the posterior cerebral artery (P-1 segment) 1 cm upward. The patient returned to work; his headaches and double vision receded.

In July, 1966, the same symptoms returned along with difficulty with speech, swallowing, and walking. In December, 1966, a left retrograde brachial cerebral angiogram showed marked elevation (2 cm) of the P-1 and P-2 segments of the posterior cerebral artery (Fig. 1), no aneurysmal filling, and leftward displacement (1.5 cm) of the basilar and posterior cerebral arteries. The patient had deteriorated neurologically, physically, and mentally.

Examination. On admission to the VA Hospital, the following signs were noted: complete right third and fourth nerve palsy, severe dysphagia and dysarthria, poor respiratory excursion, and spastic quadriplegia. A diagnosis of interpunduncular tumor was made. On January 14, 1967, a limited ventriculogram demonstrated ventricles only slightly larger than those shown on the original air study.

First Operation. On the same day we performed a right temporal craniotomy using the approach described by Drake.3 Because the patient was in such poor condition, only a tentorial section was done to allow decom-

![Fig. 1. Left retrograde brachial cerebral angiogram, translateral view. Arrows point to the right posterior cerebral artery (P-1 and P-2 segments).](image-url)
pression of the tumor and brain stem. A small part of the green dome of a cyst-like tumor with the fourth nerve stretched over it could be seen between the tentorial edge and midbrain. At the end of the procedure, a tracheostomy was performed.

First Postoperative Course. During the ensuing week the patient made a dramatic recovery. His ability to eat and speak returned to normal, his headaches disappeared, he became ambulatory, and all signs of spasticity gradually cleared. Right retrograde brachial cerebral angiography showed no change in the vascular pattern except that the basilar artery was displaced 1 cm more posteriorly away from the clivus (Fig. 2) compared to the previous angiogram. We interpreted this as the result of the tentorial section which had thus allowed backward movement of the brain stem.

Second Operation. Because the diagnosis was still uncertain (either thrombosed aneurysm or neoplasm) and the treatment undecided (x-ray therapy or possible excision of this mass which had expanded so rapidly), we elected to reexplore the same area. On February 8, with the patient now in excellent physical condition, the lesion was approached through the same incision. Interestingly, the mass actually had partially delivered itself through the zone of the original tentorial section so that much more of it was visible (Fig. 3). Needle aspiration of the mass was negative. The tumor capsule was incised, and about half of its contents, which appeared to be old clotted blood, were removed. The gross and histological appearance of the wall of the mass was that of an aneurysm.

Second Postoperative Course. The patient made an uneventful recovery, and after evaluation by the Psychiatry Service, returned home in good condition. The oculomotor activity has markedly improved during the past few months.

Comment

The initial operation was done only to allow the brain stem to move back from the large mass pushing it against the tentorial edge. In patients who are in poor metabolic and physical condition, such relatively limited surgery may permit temporary recovery of functions and allow time for improvement of the patient's condition so that future excision...
Fig. 3. Right lateral view of the aneurysm (large upper right arrow) at the second operation, oriented in the same manner as Fig. 1 and 2 (with the anterior direction on the observer's right). Turn upside down for surgeon's view. The temporal lobe is retracted superiorly and medially (crossed by both large arrows). The large double-crossed arrow shows the pons displaced backward. The small arrows line the cut in the anterior edge of the tentorium with the two crossed small arrows pointing to the aneurysm and the two uncrossed small arrows pointing to the superior surface of the cerebellum.

of a tumor in the region of the tentorial notch may be carried out. An added benefit in this case was the partial delivery of the tumor into a more favorable position of exposure during the waiting period. This tumor proved to be a thrombosed aneurysm, and tentorial section without tumor excision became the definitive procedure. It was feared that the patient's symptoms may have been due to occlusion of perforating vessels by thrombosis of the aneurysm. Nevertheless, the possibility of brain stem pressure and injury by entrapment between the tentorial edge and the aneurysm existed and justified the surgery.

Summary
We have reported the successful two-stage surgical treatment of pressure on the brain stem caused by a large, thrombosed aneurysm of the basilar artery and relieved by tentorial section.

References
7. Richardson, J. C., and Hyland, H. Intr-


