Case Reports and Technical Notes

Excision of Thrombosed Vein of Galen Aneurysm in an Infant

Case Report

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Over 50 vein of Galen malformations have now been reported. A few cases have been successfully treated by ligation of feeding vessels.\(^5,8\) To our knowledge, only one case has survived excision of the malformation, and this was in a young adult.\(^11\) This is the first reported case of a completely thrombosed vein of Galen aneurysm in which total excision was successfully accomplished.

Case Report

This male child was born following a 39-week gestation and weighed 5 lbs 15 oz at birth. His development and head circumference were normal when seen in follow-up at age 7 weeks. At age 2 months he had developed some head control but he gradually lost this by age 4 months.

First Admission. On December 19, 1966, at the age of 4 months, the patient was admitted to hospital because of a 3-day illness characterized by irritability, failure to feed, and vomiting. The mother noted that the head appeared to be larger and the fontanel was bulging. Bilateral subdural taps gave no evidence of subdural hematomas. A ventriculogram performed in conjunction with a lumbar pneumoencephalogram showed an aqueductal stenosis. The ventricular cerebrospinal fluid had a protein of 25 mg %. Chest x-ray was normal. There was no evidence of cardiomegaly or cardiac failure. On December 28, a right ventriculostial shunt was carried out. The child ran a low-grade temperature prior to and for a week following the shunt. This cleared spontaneously. The child's symptoms disappeared following the operation and the fontanel became soft.

Second Admission. The child was readmitted 1 month later because of recurrent lethargy, vomiting and loss of appetite associated with increasing tension of the anterior fontanel and mild fever. The head circumference was 17\(\frac{1}{2}\) in., which was \(\frac{1}{2}\) in. less than at the first admission. The shunt was felt to be working normally, and the child was discharged improved without any specific therapy. Again at this admission there was no evidence of cardiac failure and no bruit.

Third Admission. On April 2, 1967, at the age of 7 months, the child was admitted with symptoms of drowsiness, vomiting, and a bulging fontanel. The head circumference was 17\(\frac{3}{4}\) in. There were no bruits. The child did not have head control, had never sat alone and had bilaterally increased knee jerks and sustained ankle clonus. The ventriculoatrial pump was found to be functioning well but plain skull films showed the development of a spherical calcification in the region of the posterior margin of the third ventricle. This had not been present on the films taken 3 months before. The child had a generalized seizure while in hospital and was placed on Dilantin. Ventrivulography was carried out; ethiodan was injected into the right lateral ventricle (Fig. 1). The spherical calcification was 2.2 cm in diameter and compressed the aqueduct from above. The obstruction to the aqueduct was complete and the lateral and third ventricles were enlarged. A left carotid angiogram showed that both pericallosal arteries filled from the left and were displaced upward. The anterior choroidal, posterior communicating and posterior cerebral arteries were all filled (Fig. 2). In the venous phase there was excellent filling of the cortical veins as well as the inferior anastomotic vein, the superior sagittal...
Fig. 1. Positive contrast ventriculogram, anteroposterior (left) and lateral (right) views, showing the spherical mass with a calcified rim situated posteriorly in the midline, obstructing the aqueduct and compressing the suprapineal recess. The shunt tube is visualized, with some positive contrast material seen in the reservoir. The sutures are split.

sinus, the transverse and sigmoid sinuses. Despite several injections, however, the internal cerebral vein, the vein of Galen and straight sinus were never satisfactorily shown, and it was felt there was some obstruction to the deep venous system. The calcified mass in the posterior end of the third ventricle was again seen and did not appear to be an arteriovenous malformation.

Operation. On April 25, 1967, when the child was 8 months old, an occipital craniotomy was carried out. A bioccipital bone flap was raised but the dura was only incised on the left side of the falx and along a line parallel to and just superior to the transverse sinus. One cortical vein passing into the superior sagittal sinus had to be coagulated and cut. Excellent exposure of the lesion was then obtained. The posterosuperior aspect of the mass was contiguous with the falx. Anteriorly and superiorly the corpus callosum was draped over it. Using blunt dissection the entire lesion was surrounded by cottonoid strips and cut off the falx after use of silver clips and coagulation. At its anterior pole the lesion was connected with a confluence of veins including the internal cerebral, basal and superior cerebellar. A few small arteries apparently entered the capsule.

Fig. 2. Cerebral arteriogram, arterial phase, anteroposterior (left) and lateral (right) views. The anterior cerebral arteries are in the midline but are bowed upwards considerably while the posterior occipital branches of the posterior cerebral artery are displaced slightly downwards and posteriorly. The middle cerebral artery is bowed outwards. There is residual ethiodan in the occipital horns. The arterial findings are compatible with a marked obstructive hydrocephalus.