SOME COMPLICATIONS OF VERTEBRAL ANGIOGRAPHY

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As the use of cerebral angiography has become widespread, there are increasing numbers of case reports of complications. These are most valuable in trying to set standards for selection of patients for this diagnostic procedure. The similar stories from the 3 cases reported here are intended for this purpose.

CASE REPORTS

Case 1. H.W., 48 years old, a doctor’s mother, had “migraine” attacks for several years beginning at the age of 28. The severe left-sided headaches were preceded by blurred vision and numbness in the right hand. Six months prior to entry in St. Luke’s Hospital, there was return of severe left frontal headache following blurred vision; the pain lasted 6 to 12 hours, and recurred every week or two. Two weeks prior to admission, there was numbness and tingling of the right hand. A few days later, the usual headache began, but the blurred vision persisted when the headache disappeared.

Examination. On admission on Nov. 27, 1948 there was a complete right homonymous hemianopsia (without macular sparing). Right biceps and knee reflexes were slightly increased. Ankle reflexes were equal. There was no other neurological disturbance. Findings on lumbar puncture were normal. Roentgenograms of the skull showed a midline pineal calcification. B.P. was 144/98.

Angiography. Because of the possibility of aneurysm, left carotid and left vertebral angiograms were done with 35 per cent Diodrast (iodopyracet) under general anesthesia. Unfortunately, the total quantity of Diodrast was not noted.

Course. The patient was returned to her room in good condition, with B.P. 128/90. Two hours later, at 4:30 P.M., she was still unconscious; B.P. was 186/110, and pulse was irregular in quality and at a rate of 84 per min. At 8:00 P.M. she moaned and moved her arm occasionally. At 3:00 the next morning, the pulse rate was 100, respiratory rate 30, and B.P. 172/112. At 5:00 P.M., the B.P. suddenly dropped from 164/112 to 110/38; pulse 100, respiration 40. At 5:27 she was turned on her back; pulse 80, respiration 20 and very shallow. Two minutes later, she stopped breathing. There was a poor pulse at 70 per min. In spite of oxygen, coramine and artificial respiration, she died.

The left carotid angiograms were normal. The vertebral angiogram (Fig. 1) shows a number of filling defects in the vertebral and basilar arteries typical of arteriosclerosis. Marked resistance to flow because of arteriosclerosis could explain the discontinuities in the posterior cerebral circulation.

Autopsy (Dr. Edwin Hirsch, Department of Pathology, St. Luke’s Hospital).
There was an old liquefied infarct of the calcarine area of the cerebrum. There were marked atheromatous changes in the basilar vessels. The left vertebral artery was occluded for 0.8 cm. by an old atheromatous plaque in the distal 1 cm. before its junction with the right vertebral artery.

Histologic study confirmed the ancient nature of the softening and there was hyalinization of small vessels in this area.

Fig.1. Case 1. There are small irregularities of filling of the vertebral artery. The distal end of the basilar artery is spotted with dye. There is marked discontinuity of dye between the beginning of the posterior cerebral arteries and the venous filling in the occipital and posterior cerebellar regions, indicating slowed circulation.

Case 2 (Research and Educational Hospital No. 405-635). L.M.B., aged 69, had onset of generalized epileptic seizures, midfrontal headaches, and disturbances of memory 1 year before hospitalization on Aug. 12, 1953.

Examination. The patient was an obese woman who was occasionally confused. B.P. was 186/136 mm. Hg. Retinal arterioles were “silver-wired.” There was a grossly evident left homonymous hemianopsia and depression of visual acuity (unable to count fingers at 6 feet). The deep tendon reflexes in the left leg were increased and a Babinski sign was elicited on this side. Blood count and urinalysis were normal. Spinal puncture yielded clear fluid with 51 mg. protein, under normal pressure. X-rays of the skull were normal but chest films showed a mediastinal widening suggesting neoplasm. Metastatic intracranial neoplasms were suspected.

Angiography. An intravenous test dose of Diodrast 35 per cent was well tolerated so the patient was anesthetized and intubated. The right vertebral artery was injected with three 10 cc. portions of Diodrast, and when no mass lesions were seen, a single 10 cc. injection was made into the right carotid artery. No mass lesion was