REVERSIBILITY OF CEREBRAL VENTRICULAR DILATATION

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Ventriculography and encephalography, combined or separate, are established procedures in the preoperative diagnosis and localization of mass lesions of the brain, but seldom have they been utilized to study the evolution of anatomic changes following operation. In the course of a larger study being carried on at the Hospital of the University of Pennsylvania, we have had occasion to observe, by ventriculography and ventriculo-encephalography, three patients with mass lesions causing an internal hydrocephalus, before and after relief of the hydrocephalus. The significant feature that we wish to emphasize in this report is that dilatation of the lateral ventricles caused by obstructing lesions in the third or fourth ventricle may, in certain instances, be reversible.

REPORT OF CASES

Case 1. O.B., an 18-year-old man, complained of headache and blurring of vision for 3 months and staggering gait for 3 weeks before entering the hospital. On examination, generalized hypotonia and hyporeflexia were evident and there was marked trunkal ataxia. His optic discs were elevated to between 5 and 6 D. The preoperative ventriculographic study is shown in Fig. 1, A and B.

At operation on Aug. 15, 1943, most of a large medulloblastoma of the vermis of the cerebellum was removed. This immediately relieved the obstruction of the fourth ventricle. The postoperative convalescence was uneventful. In January 1944 a full course of roentgen therapy was administered.

Although the patient continued to do well, a second course of roentgen therapy was planned. A second ventriculo-encephalographic study was done on Sept. 19, 1944, 13 months after his original air study (Fig. 1, C and D). The lateral and third ventricles were approximately normal in size. One can compare the appearances before and after operation because the same roentgen technic was employed in both examinations. A filling defect was noted in the fourth ventricle which was thought to be residual neoplasm.

In May 1945 a recurrence of symptoms was noted and the patient died on Oct. 2, 1945.

Case 2. M.W., a 38-year-old woman, had headache and blurring of vision beginning in December 1943. Nausea, vomiting and increasing somnolence began in January 1944. On admission to the University Hospital April 11, 1944, she was disoriented and confused, unable to stand or walk and had a high degree of papilledema bilaterally.

A ventriculographic study (Fig. 2, A and B) was performed on April 12, 1944, and immediately followed by a suboccipital craniectomy. A fairly well demarcated medulloblastoma was removed from the vermis of the cerebellum. The obstruction of the iter was relieved and cerebrospinal fluid was seen to flow freely from it. Her convalescence was uneventful and on July 7, 1944, 3 months after the initial air study, a ventriculo-encephalogram was done preceding radiation therapy. This showed considerable decrease in the size of the ventricles (Fig. 2, C and D).

In November 1944, she noted pain low in the back, radiating down both legs. Otherwise, save for poor vision and mild residual disturbance in walking, she was asymptomatic. An-
Fig. 1. Case 1. (A and B) Ventriculogram of an 18-year-old man who had symptoms of a posterior fossa lesion for 3 months. In the postero-anterior and left lateral horizontal positions, the lateral and 3rd ventricles are dilated to approximately twice their normal volume. The foramina of Monro and the aqueduct of Sylvius also are dilated. The shadow of the 4th ventricle is not visible. (C and D) Ventriculoncephalogram 13 months after operative removal of a cerebellar medulloblastoma, showing little dilatation of the lateral and 3rd ventricles.

other course of x-ray therapy was given in December 1944, which included irradiation over the vertebral column, without improvement of her low back pain. She was again readmitted in March 1945, because of back pain. Spinal fluid manometric studies were entirely normal as was the spinal fluid total protein. Pantopaque myelography was entirely negative. She was discharged, and a firm brace was recommended for her back. She was last seen on June 25, 1945 and her back pain was much relieved.

Case 3. H.R., an 8-year-old boy, was struck on the head 2 months before admission to the University Hospital. He was not unconscious but did complain of generalized headache immediately after the injury. He had occasional headaches for the following month, which subsequently increased in frequency to the point where he complained daily of headache in the morning on awakening. Nausea and vomiting accompanied each bout of morning headache. On admission he had 5 D. of papilledema bilaterally, accompanied by hemorrhages in the left eye. The visual fields were normal but his visual acuity was reduced in each eye to