nm/ CASE REPORT

ARACHNOID CYST OF THE POSTERIOR FOSSA DEMONSTRATED BY ISOTOPE CISTERNOGRAPHY

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A case is presented with typical clinical features of a posterior fossa lesion. The correct diagnosis of arachnoid cyst was made by isotope cisternography and confirmed at surgery.

Benign monolocular arachnoid cysts of the posterior fossa are rare (*1*); although filling of such cysts with isotope cisternography would be expected, a documented case has not been reported (*2*).

Isotope cisternography was first described by DiChiro, et al (*3*) in 1964 as a means of studying the cerebrospinal fluid circulation. Harbert, et al (*2*) have recently reviewed the value of this procedure in demonstrating posterior fossa abnormalities. The following case report is presented to demonstrate the value of cisternography in the diagnosis of an unusual posterior fossa lesion.

CASE REPORT

The patient is a 41-year-old white female who was admitted to the University of Michigan Medical Center on November 9, 1971, because of occipital headaches and episodes of syncope of 1½ years duration. There was no past history to suggest an inflammatory reaction in the subarachnoid space or head trauma. She was well until July 1970, when she began to experience occipital headaches of fluctuating severity which were present most of the time, day and night. She also had intermittent episodes of vertigo and recurrent syncope. There was an episode during which she was unable to move her left upper and lower extremities, but these symptoms improved after 2 weeks. In July 1971 she had a syncopal attack and was taken to a hospital unconscious. Similar episodes occurred approximately once monthly until the time of her admission to University Hospital. Her vision became progressively worse. In August 1971 she was admitted to another hospital because of continuing headache, dizziness, and tinnitus. On the morning following a left brachial arteriogram she awoke with blindness in the left eye. Although improvement was noted she continued to have severely impaired visual acuity.

Examination revealed a visual acuity of 20/800 in the left eye and 20/200 in the right eye. There was a large central visual field defect on the left. Funduscopic examination showed a subhyaloid hemorrhage on the left; there was no papilledema. Pinprick hypalgesia and mild hemiparesis of the entire left side was recorded. The remainder of the physical examination was unremarkable.

Skull x-rays showed a radiolucent area in the occipital bone. Electroencephalogram revealed paroxysmal discharges in the frontal regions without definite lateralization. A four-view rectilinear brain scan, performed with 15 mCi $^{99m}TcO_4^-$, was normal and did not show asymmetry of radionuclide distribution in the posterior fossae or superior displacement of the torcular herophili and lateral sinuses. These abnormalities have been reported in children with Dandy-Walker cysts and congenital arachnoid cysts of the posterior fossa (*4,5*).

Following the injection of 100 μCi of high specific activity ^{131}I-human serum albumin (IHSA) into the lumbar subarachnoid space, scintiphoto views of head were performed on the Pho/Gamma III scintillation camera. Anterior and left lateral views were taken at 2, 6, and 24 hr after the injection. Figure 1 shows the results of these studies. An abnormal midline accumulation of radionuclide was seen in the region of the posterior fossa. This abnormality persisted for the duration of the study and radionuclide was seen in the region of the superior

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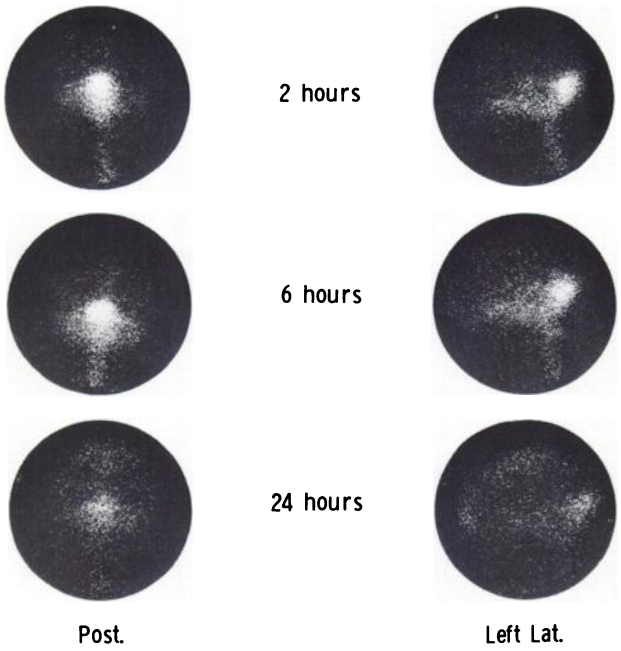

FIG. 1. Cisternogram following lumbar injection of IHSA showing filling of arachnoid cyst.

sagittal sinus, as expected, by 24 hr. On the basis of this study it was suggested that the patient had an arachnoid cyst in the posterior fossa.

On December 7, 1971, an occipital craniectomy and laminectomy of C-1 and C-2 was carried out with drainage of 40 cc of cerebrospinal fluid from the posterior fossa cyst and excision of the cyst wall. The bone overlying the cyst was noted to be very thin. Subarachnoid communication was established over the surface of the cerebellum and through the tentorial notch. Histologic examination revealed an arachnoid cyst wall.

The patient made an uneventful postoperative recovery, and she was subjectively improved in that her headaches and dizzy spells had lessened in intensity and in frequency. When seen on February 22, 1972, her visual acuity was 20/40 in the left eye and 20/30 in the right eye and visual fields were intact.

DISCUSSION

This case emphasizes the value of cisternography in the diagnosis of posterior fossa lesions. It demonstrates the filling of an arachnoid cyst of the posterior fossa with IHSA injected into the lumbar subarachnoid space. Although Dandy-Walker cysts (*6*) and congenital arachnoid cysts (*7*) in children have been demonstrated in this manner, there are no reports of arachnoid cysts in adults detected by isotope cisternography. In this age group communication between the posterior fossa cyst and the subarachnoid space strongly suggested an arachnoid cyst. The etiology of these lesions remains controversial. It has been suggested that they are secondary to trauma (*8*) and inflammation (*9*). The present case supports the belief of Trowbridge, et al (*1*) that these abnormalities are congenital.

The advantage of cisternography in these cases is the low morbidity associated with the procedure.

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