Cerebral Ventricles Frontal Horns Coarctation
with Occipital Horns Dilatation

R. Lenti, N. De Vincentis, S. Cordoni, F. Fabiani, C. Pona
Department of Nuclear Medicine, Ospedale Civile "G. Mazzini", Teramo (Italy)
Cerebral Ventricles Frontal Horns Coarctation with Occipital Horns Dilatation

R. Lenti, N. de Vincentis, S. Cordoni, F. Fabiani, C. Pona
Department of Nuclear Medicine, Ospedale Civile "G. Mazzini", Teramo (Italy)

SUMMARY.—We report here on a case of cerebral ventricles frontal horns coarctation with occipital horns dilatation. A similar case has never been reported previously in the literature. Dilatation of the right lateral ventricle more pronounced than for the left ventricle was better evidenced by an emission tomography of the cerebral cisterns rather than by x-ray computerized tomography [J. Nucl. Med. All. Sci., 27:53, 1983].

KEY WORDS: cerebroventricles coarctation; cisternography; emission tomography.

INTRODUCTION

Lateral ventricles occipital horns coarctation appears to be relatively frequent 

1-4, whereas frontal horns coarctation does not. In this paper we report on a patient with frontal horns coarctation, in whom an acute occipital horns dilatation also occurred, caused by cerebrospinal fluid pathway blockade. To our knowledge a similar case has never been reported previously in the literature.

CASE REPORT

Woman 46 years old; normal family and physiological case history. In the past pathological history, only transient events of lost of senses with probable clonial movements of the upper right limb. No other important pathological signs. On the day of admission to the Neurosurgery Department, the patient presented several epileptical seizures, with deviations of the head and eye-sight towards right. Neurological exams showed: comatous status 1-2 (F.M.), and right brachio-cruatal hemiparesis, normal pupils without signs of meningeal irri-

Address reprint requests to: Dr. Narcisa de Vincentis, Rennare di Medicina Nucleare, Ospedale Civile "G. Mazzini", 64100 Teramo (Italy).

Received April 3, 1982; accepted in revised form September 22, 1982.

Fig. 1. — X-ray cranial CT, which shows a significant dilatation of the lateral ventricles occipital horns. Third and fourth ventricles are normal. The frontal horns are just detectable.

The Journal of Nuclear Medicine and Allied Sciences - Vol. 27, No. 1, 1983
show any particular alterations, but a doubtfull report shows a scarce vascularization of the anterior areas. A radioisotopic cisternography was then performed\(^3\) after intrathecal injection of 15 mCi (555 MBq) of \(^{99m}\text{Tc-DTPA}\) in a volume of 2 ml through a lumbar puncture. Serial images with a 128×128 matrix were taken at 1, 2, 6, 24 hours after injection. On the first hours the tracer diffusion was assessed by total-body scans which, since the second hour, showed an endocranial accumulation extended to the infratentorials cisterns. Figures 2A and 2B show the right lateral views obtained two and six hours after administration of the tracer, respectively. Radioisotopic cisternography evidenced a normal diffusion of the radionuclide through the whole cerebro-spinal fluid, with a slight lateral ventricles occipital horns dilatation and a reduced tracer uptake on the frontal horns. At this time (24 hours after administration of the tracer), a tomographic scan was performed using the same computerized gamma-camera single-headed, 37 photomultipliers, 39 cm UFOV, 3 channel SELO-Gamma CAT (SELO, Milan, Italy) equipped with a square hole collimator with a resolving power of 10 mm at 5 cm, and interfaced with a Link-Dyanne computer. Sixty-four lateral views with 64×64 matrix were taken, each for 16 seconds (total scan time about 17 minutes) for a medium count number of 300K for each view.

Compared with conventional radionuclide cisternography, tomography showed the right lateral ventricle more dilatated than the left, and a scarce uptake by the frontal horns (see Figs. 3A, 3B, 3C).

**DISCUSSION**

A single case of monolateral frontal horns coarctation was reported by Sheldon and Oppenheimer\(^1\) diagnosed by ventriculography with bilateral frontal horns coarctation.

Two cases were more recently described by Dietman et al.;\(^4\) these cases were diagnosed by x-ray CT, and checked at autopsy. No one case of frontal horns coarctation with acute hydrocephalus is reported in the literature.

The patient we studied might have had inflammatory phenomena of ependima as the cause of the bilateral coarctation of the frontal horns; the acute dilatation of occipital horns may have been a con-
sequence of sub-total blockage of the two Monro’s foramen.

These conclusions are mainly based on morpho-functional findings obtained by radiocisternography and emission tomography. These observations confirm that Nuclear Medicine tools really supply complementary means of diagnosis, without any undesired complications and untoward effects, and may be used to study the patient with doubtfull symptoms.

The results of our work demonstrate how a tomographic scan, performed without administration of a new radioactive dose, in a relatively short time, even if taken with a 64×64 matrix (which means, not as good resolving power as conventional scintigraphy) may evidence features otherwise not seen, by means of separating the collected data from structures placed on different levels.

REFERENCES