

- arteries.
- 6) By the compression method, there is no complain and clincial complication in any case.
  - 7) This method precedes usually to the brain scintigraphy in all case.
  - 8) We have compared the findings with or with-

out compression in each case. Conclusionally we have recongized that the compression of bilateral carotid arteries is practically ease and useful in the case of posterior, basilar insufficiency.

### **Radioisotope Cisternography in Cerebral Atrophy**

K. SENDA\*, T. IMAEDA\*\*, T. KATO\*\*, S. ASADA\*\*, M. SHIBAYAMA\*\*,  
H. DOI\*\* and I. MORIUCHI\*\*\*

\**Department of Radiology, Hamamatsu University School of Medicine*

\*\**Department of Radiology, \*\*\*Department of Neuropsychiatry, Gifu University School of Medicine*

The purpose of this study was to compare radioisotope (RI) cisternographic patterns with computed cranial tomographic (CCT) patterns in the patients with cerebral atrophy and to obtain the characteristic pattern of RI cisternography in cerebral atrophy.

RI cisternography were performed on 15 patients, showing such CCT patterns of cerebral atrophy as lesser or moderate degrees of dilatation of the lateral, the third and the fourth ventricles, and moderate or severe degrees of dilatation of the Sylvian fissures and the cerebral sulci.

RI cisternography was done in the standard manner following the lumbar intrathecal administration of  $^{169}\text{Yb}$ - or  $^{111}\text{In}$ -DTPA. And imaging and counting of three projections of the head were simultaneously performed with a scintillation camera in 3, 6, 24 and 48 hours after administration.

RI cisternographic patterns were evaluated with regard to the images of the cerebrospinal fluid pathway and to the mean ratio of 48 hours to 6

hours count rates ( $C_{48}/C_6$ ) corrected by background and physical half life.

RI cisternographic images of 15 patients showed lesser degrees of the lateral ventricular reflux in 12, lesser to severe degrees of dilatation of the Sylvian fissures (cisterns) in 13 and lesser to severe degrees of pooling of the parasagittal convexities in 7 patients.

The degrees of dilatation of the Sylvian fissures and pooling of the parasagittal convexities shown by RI cisternography were considerably correlative to those of the Sylvian fissures and the cerebral sulci shown by CCT respectively. The degrees of the lateral ventricular reflux did not correspond with those of the lateral ventricles.

The mean values and standard deviations of  $C_{48}/C_6$  were  $0.32 \pm 0.14$  in 3 pediatric patients and  $0.45 \pm 0.13$  in 12 adult patients. High values of  $C_{48}/C_6$  in the both pediatric and adult patients were statistically significant, comparing with the values of normal pediatric and adult controls respectively.

### **“Hot Spot in Warm Area” Appearance in Tc-99m HEDP Brain Scan**

K. LEE\*, S. WATANABE\* and T. TANAKA\*\*

\**Department of Radiology, \*\*Department of Neurosurgery, Aomori Prefectural Central Hospital*

Eleven patients with a variety of intracranial neoplasms, including five meningioma, were studied with brain scanning using Tc-99m HEDP

following conventional Tc-99m pertechnetate study. Two convexity meningioma in five represented focally accentuated uptake in an area of

increased activity in Tc-99m HEDP brain scan.

The first case is a 46-year-old woman with right hemiparesis and unconsciousness attack. Her roentgenograms of the skull showed thickening of the left parietal bone. Brain scan 90 min. after i.v. injection of 15 mCi of Tc-99m pertechnetate revealed a large hot area, suggestive of neoplasm such as meningioma, in the left parietal region. Tc-99m HEDP brain scan demonstrated focally accentuated uptake in an area of increased activity in the same region. Surgery confirmed that the hot spot was consistent with the attachment of the tumor and the warm area corresponded to the mass. Histologic diagnosis was meningothelial meningioma.

In the second case, a 27-year-old woman, "hot spot in warm area" appearance was also recognized.

Tc-99m HEDP has a great affinity to the bone lesions. Conversely, this agent has less affinity to the brain tumors than Tc-99m pertechnetate. That enable us to distinguish focal uptake from an area of increased activity.

We believe that convexity meningioma most frequently represent this appearance, but whether or not this appearance is specific in meningioma remains to be established, because other intracranial neoplasms which invade the skull may show similar findings.

It is important for surgeons to recognize the location and size of the attachment of meningioma. With this additional information, they will be able to preform the operation more easily, and by sufficient resection of the attachment, fewer recurrence can be expected.

### **Quantitative Evaluation of the Effect of Potassium Perchlorate Administration on the Uptake of $^{99m}\text{TcO}_4^-$ by Choroid Plexus**

Shinichiro KAWAGUCHI, Masahiro IIO, Hajime MURATA, Kazuo CHIBA, Hideo YAMADA,  
Kengo MATSUI, and Chitose TOBARI  
*Department of Nuclear Medicine and Radiological Sciences, Tokyo  
Metropolitan Geriatric Hospital, Itabashi, Tokyo*

Premedication of perchlorate is routinely performed in order to block the accumulation of  $^{99m}\text{TcO}_4^-$  into choroid plexus during  $^{99m}\text{TcO}_4^-$  brain scan. The optimal dose of perchlorate and optimal interval between perchlorate administration and  $^{99m}\text{TcO}_4^-$  injection were carefully studied in the present study. Two hundred and seventy eight brain scan by  $^{99m}\text{TcO}_4^-$  were evaluated for this purpose during the period from July 1976 to July 1977 in Tokyo Metropolitan Geriatric Hospital. Various doses of potassium (0–600 mg) were orally given and various intervals were taken before  $^{99m}\text{TcO}_4^-$  injection.

The results were as follows: 1) In the brain scan

by  $^{99m}\text{TcO}_4^-$  the visualization of choroid plexus was observed as positive in 82%, suspicious in 14% and negative in 4% when oral premedication of potassium perchlorate was not performed. 2) In order to block the accumulation of  $^{99m}\text{TcO}_4^-$  into choroid plexus more than 200 mg dose of potassium perchlorate was found to be necessary. In the oral dose of 200 mg potassium perchlorate the visualization of choroid plexus was noted positive in 2%, suspicious in 38% and negative in 60%. The optimal time interval between perchlorate administration and  $^{99m}\text{TcO}_4^-$  injection was 60–120 minutes.