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Radioisotope Cisternographic Study on Intracranial Arachnoid Cysts

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The dynamics of the CSF circulation in six cases of intracranial arachnoid cysts was examined by radioisotope cisternography using 0.5 to 1.0 mCi of $^{16}$Yb DTPA or 50 to 100 microCi of $^{131}$I HSA injected into the lumbar subarachnoid space. Serial scintigrams were obtained with rectilineal scintillation scanner at 2, 4, 6, 24 and 48 hours after injection.

The communication between the cavity of arachnoid cyst and subarachnoid space was recognized in all cases. The cysts were best visualized at 24 hours in most cases. Four patterns of the entry and stasis of radioisotope in cysts were observed as follows:
1) rapid filling of RI into the cyst and delayed clearance,
2) both rapid filling and clearance,
3) slow filling and delayed clearance,
4) no filling.

RI Cisternographic Findings in Microcephalic Infants with Persistent Chronic Subdural Hematoma


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In our clinic, linear craniectomy or expanding craniectomy has been performed to the infants with secondary craniostenosis or microcephalus and radioisotope cisternography has been studied on these patients.

Recently the persistent chronic subdural hematoma is found by subdural investigation at surgery and proved by histological study to have the growing of connective tissue and deposition of hemosiderin in it's capsule.

The characteristic findings in radioisotope cisternogram of 10 cases with such hematoma are summarized in comparison with those of 13 cases without hematoma as follows.
1) Higher incidence of abnormal filling in basal cisterns (block; 20%, dilatation: 40%, asymmetry: 50%).
2) Poor convexity filling noted as Negative type (Messert).
3) Reversion of asymmetry in convexity filling, 50% in unilateral hematoma, 67% in bilateral hematoma.
4) Delayed C.S.F. circulation, delayed convexity clearance.
5) Ventricular reflux (70%).

These findings indicates the evidence of disturbance in C.S.F. dynamics due to such old hematoma and following brain atrophy in our series.

Although the chronic subdural hematoma has been well known as a category which developed the increase in their head size by increased intracranial pressure and abnormal C.S.F. dynamics.
Even in the microcephalic infants, persistent chronic subdural hematoma is found and the use of radioisotope cisternography is presented for the evaluation of disturbed C.S.F. dynamics in these patients.

Clinical Observation of R. I. Cisternography and C-T Scanning on Communicating Hydrocephalus

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111In D.T.P.A.-Cisternography and C-T Scanning were Applied on 23 Cases of Communicating Hydrocephalus.

In D.T.P.A.-Cisternography on 4 cases of Normal Pressure Hydrocephalus after lumbalpunction of 1 mCi in D.T.P.A., R.I. reflexes into the Ventricle within 3 hrs.

It also stayed in the Ventricle for 24 hrs or 48 hrs, and did not flow into the subarachnoidal Space. C-T image of these Cases showed remarkable Ventricle enlargement.

R.I.-Cisternography on the other 9 Cases of communicating Hydrocephalus, R.I. refluxed into the Ventricle once, but it streamed to the cerebral convexities afterward. C-T image on these Cases showed moderate Ventricle enlargement.

111In R.I.-Cisternography on 3 Cases of cerebralatrophy, reflux of R.I. into the Ventricle was not observed, but it’s concentration in the parasagittalarea was delayed. In C-T image of these 3 Cases, marked atrophy and Ventricle enlargement were seen.

In 2 Cases of porencephalus, findings of both C-T Scanning and R.I.-Cisternography were agreed.

Diagnostic Value of Radionuclide Cisternography and CT Cisternography

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278 radionuclide cisternograms were obtained in neurosurgical diseases, such as communicating hydrocephalus after SAH, skull base tumor, developmental anomaly, CSF rhinorrhea, subdural hematoma, spinal lesion et al., these 6 years. Combined examination of radionuclide (169Yb-DTPA) cisternography with CT cisternography was performed on 28 patients, who were devided 3 groups which were altered CSF dynamics, skull base tumors and developmental anomaly. CT cisternography using the water-soluble contrast medium metrizamide is superior to the radionuclide cisterno-ography in detecting detailed morphological changes of CSF spaces, especially in detecting the skull base tumors. In studying of CSF dynamics radionuclide scan and CT scan show almost the same findings of the CSF flow. Radionuclide cisternography is useful to get a general information of CSF flow, laterality of convexity flow and the site of cisternal block. Concerning to the absorption of CSF, it is suspected that these two methods can not always show the same findings. Radionuclide cisternography is useful in catching the general image of various intracranial anomalies.