

Symposium II. Radioisotopic Diagnosis in Surgery

The Use of Cerebrospinal Space-Scintigram in Head Injury, Brachial Plexus Injury, Etc.

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We have made cerebrospinal space scintigram on 137 patients during the past 3 years (1968 to 1971). RISA and $^{169}\text{Yb-D.T.P.A.}$ have been used as nuclides. 100 to $200\mu\text{Ci}$ of RISA or 0.5-1mCi of $^{169}\text{Yb-D.T.P.A.}$ have been used for infusion by puncture of lumbar vertebra. RISA was infused directly into the ventricle in some cases. In myeloscanning, the scanning was made in the upward direction from the bottom more than an hour after the infusion of RISA by puncture of lumbar vertebra. In cisternography for e.g., diagnosing normal pressure hydrocephalus (N.P.H.), the scanning of the head was made in two directions 3, 6, and 24 hours after the infusion of RISA by puncture of lumbar vertebra or sometimes 48 and 72 hours after the infusion. Ventriculography and cisternography have been made on 59 cases, including 35 cases with head injury (9 cases with N.P.H.). Other patients comprised 9 cases with cerebral tumor, 6 with cerebral aneurysm and arteriovenous malformation (3 with N.P.H.), 5 with cerebromalacia (3 with N.P.H.), and 2 with rhinorrhea of cerebrospinal fluid. Myeloscanning

has been made on 78 cases, comprising 9 cases with traumatic paraplegia, 16 with brachial plexus injury, and 23 with lumbago and intervertebral hernia. The myeloscintigram revealed that blocking existed in the spinal space corresponding to the fracture of vertebrae in almost all cases with paraplegia. Root avulsion was found in 9 of 16 cases with brachial plexus injury. A narrow spinal duct was found in two, and hernia in 8 of 10 cases operated on for lumbago and intervertebral hernia. Based on the actual usage cited in the foregoing, cerebrospinal space scintigram may be utilized in surgery for the following purposes: (1) diagnosis of hydrocephalus that occurs following head injury, (2) diagnosis of porencephalus, (3) cerebrospinal fluid rhinorrhea, (4) assessment of the effect of shunting, (5) demonstration of root avulsion, (6) detection of the status of spinal space in cases with spinal injury (paraplegia), (9) diagnosis of intervertebral hernia. No marked side effects have been encountered at all in the cerebrospinal space scintigram made on 137 patients in 173 cases.