VENTRICULO-PLEURAL ANASTOMOSIS

IN TREATMENT OF MIDLINE OBSTRUCTIONAL NEOPLASMS

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The accepted approach to the treatment of posterior third ventricle tumors, obstructive brain stem gliomas and certain inoperable posterior fossa neoplasms has been a combination of operative therapy planned to relieve the secondary hydrocephalus followed by x-ray therapy directed towards the underlying neoplasm. While the ultimate outcome of these inoperable cases is determined by the sensitivity of the lesion to roentgen therapy, the earlier course is completely dependent on the efficacy of the "by-passing" procedure. Ventriculocisternostomies have been widely and successfully employed in the relief of this type of obstructive hydrocephalus; at times subtemporal decompression has also been advocated. We have occasionally employed ventriculocisternostomy in conjunction with splitting the tentorial ring when we felt that there was blocking of the cerebrospinal fluid pathways at that site as well as at the aqueduct of Sylvius.

In 1952, when we presented the technique of ventriculo-suprahepatic anastomosis in the treatment of primary hydrocephalus, we also mentioned the use of ventriculo-pleural shunt in similar conditions. We are still studying these methods in the treatment of hydrocephalus but feel that a longer follow-up period is desirable before reporting on our results. Ventriculo-pleural anastomosis, however, is a relatively simple and easily performed procedure so that its use in the treatment of secondary hydrocephalus complicating midline cerebral neoplasms seemed worth a trial.

The following is a brief report of 6 consecutive cases of obstructive hydrocephalus secondary to neoplasms in which ventriculo-pleural anastomosis proved successful in relieving the increased intracranial pressure for at least the limited period of time required in these instances.

OPERATIVE TECHNIQUE

Under intratracheal anesthesia, the right occipitoparietal burr hole used for ventriculography is reopened and a #10 rubber catheter or a plastic tube of similar diameter is inserted into the ventricle. Three or four holes have previously been placed in the terminal 3 cm. of the tubing. After firmly suturing the tube to the periosteum at the burr hole, the other end of the tube is carried through a subcutaneous tunnel along the posterior aspect of the neck and right upper thorax to the region of the 4th or 5th intercostal space. In this region, through a 2 to 3 inch incision, the pleura is exposed, and when all is in readiness a small stab is made in the parietal pleura. Tubing with three holes in the terminal 3 cm. is then passed into the
pleural cavity for a distance of 6 to 8 cm. The lung is re-expanded and all incisions are closed in the usual manner. It is usually necessary to make a small incision at the base of the neck in order to facilitate passing the tube through this region. Postoperatively the head is kept at all times at least at a 30° elevation in order to insure a constant flow of fluid through the shunt.

CASE REPORTS


A 4-year-old boy was admitted with a history of rapidly developing blindness associated with severe papilledema, nausea and vomiting.

Ventriculography on Oct. 10, 1952 demonstrated an anterior 3rd ventricle tumor which on craniotomy proved to be an astrocytoma.

Postoperatively it was obvious that the patient still had ventricular obstruction, and on Oct. 17, 1952, after several days of ventricular drainage, a right ventriculo-pleural anastomosis was carried out.

He has received several courses of x-ray therapy. There has been no change in the preoperative blindness, the fundi now showing marked atrophy. However there has been no recurrence of the signs or symptoms of increased intracranial pressure and the child is able to attend a school for the blind.

Case 2. M.T. Posterior 3rd ventricle tumor. Signs of progression of tumor without recurrence of increased pressure 6 months after V-P anastomosis.

A 13-year-old girl was admitted with a 4-month history of headache, unsteadiness, involuntary movements of the right arm, nausea and vomiting. Examination showed severe papilledema associated with almost complete blindness, a right dysmetria, bilateral Babinski sign, and extreme drowsiness.

On May 25, 1953 a ventriculogram demonstrated a posterior 3rd ventricle tumor, and a lamina terminalis and third ventriculostomy were performed.

After several days it became obvious that the patient was still suffering from increased intracranial pressure so that on June 3, 1953 a right ventriculo-pleural anastomosis was carried out.

Since this procedure the patient has had no signs of increased intracranial pressure; she has, however, showed definite evidence of further tumor growth in spite of x-ray therapy.

Case 3. A.S. Brain stem tumor. Relief of increased intracranial pressure for 6 months.

A 43-year-old housewife was admitted with a history of progressive numbness of the left side of the face and a right hemiparesis of 10 months’ duration. Pneumoencephalography revealed a picture typical of a brain stem tumor. The patient was started on x-ray therapy but after several weeks signs of acute ventricular obstruction developed.

A ventriculo-pleural anastomosis was carried out on June 10, 1953, with immediate subsidence of all signs of increased pressure.

During a 6-month follow-up period no new findings have developed.

Case 4. A.A. Large 3rd ventricle tumor. Relief of increased pressure for 7 months.

A 66-year-old woman was admitted with a 2-month story of headaches, confusion, and poor visual acuity. The patient was obtunded and disoriented. The fundi