

Role of Ventriculoperitoneal Shunt in Post-Tuberculous Meningitic Hydrocephalous

Pages with reference to book, From 37 To 38

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Abstract

Thirty-two patients with post-tuberculous meningitic hydrocephalous were admitted. Thirty were subjected to ventriculoperitoneal shunt. Diagnosis was based on CSF analysis and CT scan, Five patients at a Glasgow Coma Score of 3-7 underwent an external ventricular drainage as an initial procedure followed by shunt in 3 patients when condition improved, 17 patients who were conscious at the time of admission made good recovery as compared to 13 patients with altered consciousness who either died (5 patients), or were disabled (8 patients) even after surgery. A mortality of 22% was noted. An early detection and referral is desired to improve the prognosis (JPMA 45: 37, 1995).

Introduction

Hydrocephalus is a common complication of tuberculous meningitis (TBM) which may be communicating type or obstructive type. This is due to gelatinous exudate in the basal cistern, obstructing the flow at the level of aqueduct or fourth ventricle. This causes increase in the intracranial pressure and associated infarction which leads to damage to certain parts of the brain¹. Hydrocephalous if treated early by shunting the cerebrospinal fluid to atrium or peritoneum has a good prognosis². Patients who become unconscious may not have a good outcome even after shunt procedure. This study presents our experience of ventriculoperitoneal shunt in post-tuberculous meningitic hydrocephalous with a follow-up of two years.

Patients and Methods

Thirty-two patients (21 males, 11 females) with TBM hydrocephalous were referred to the neurosurgery ward. The ages of the patients ranged from 19 months to 25 years (mean 12.5 years). Initial presenting symptoms were fever and headache in all cases, 10 (31%) had history of fits and 13 (41%) had altered level of consciousness out of which 2 (15.6%) were deeply comatose at GCS of 3-7. Diagnosis of TBM was based on history, examination and CSF analysis which showed high protein, slightly low sugar and high cell count predominantly lymphocytes (40-80%). AFB was not seen in the CSF which may be due to small amount of fluid obtained at lumbar puncture³. CT scan diagnosis of post TBM hydrocephalous was established before referral. Of the patients with infarct 1 had bilateral lesions, 2 patients had a ring like lesion (tuberculoma) in the temporal region and posterior fossa respectively and 1 had a chest lesion consistent with tuberculosis. Two patients died before any intervention was done. Remaining 30 patients were subjected to surgery without waiting for the normalization of the CSF picture. Similarly a temperature of 100 °F was not a contra-indication for surgery after excluding any other cause of fever. External ventricular drainage was established as a temporary measure. Two patients died while in other three shunt was inserted after they had improved. Ventriculoperitoneal shunt was passed in all cases. In 1 patient shunt was revised after a period of 18 months due to blockage. Anti-tuberculous drugs were continued in all these patients after shunt surgery for a period of 12 months. Anti-convulsants were given to those with history of fits while steroids were tapered off within 2 weeks after surgery.

Results

Thirty patients with post-TBM hydrocephalous underwent ventriculoperitoneal shunt. Thirteen (43%) had altered sensorium before surgery while 17 (57%) were conscious. Those patients who were conscious recovered and the neurological deficit improved gradually. Of 13 patients with poor consciousness 5 (38%) died and 8(61%) who recovered were severely disabled. These patients had initial neurological deficit (1 patient) associated infarct (2 patients), tuberculoma (2 patients) or gross hydrocephalous (3 patients). A mortality of 22% was noted over a follow-up of 6 months to 2 years. Patients who were referred before alteration of consciousness and had good diet, nursing care and physiotherapy post-operatively made good recovery.

Discussion

Tuberculous meningitis is usually not diagnosed early due to its insidious onset and symptoms. It leads to hydrocephalus which is diagnosed even later because of lack of facilities like CT scan in general hospitals. Patients are referred late to the neurosurgical unit and are in a critical condition with general debility and low resistance. As soon as hydrocephalous is diagnosed shunt procedure/ventricular drainage has to be done which is the only life saving procedure. A mortality of 22% was noted in this study in a follow-up period of 2 years. Palur⁴ has reported a mortality of 100% in deeply comatose patients in a 13 year follow-up and Bhagwati⁵ 43% in a 15 months follow-up. Low mortality in this study may be due to early detection and better diagnostic facilities. A longer follow-up is necessary to evaluate the true outcome. Early detection and referral is desired to reduce the morbidity and mortality.

References

1. Traub, M., Colchester, A.C.F., Kingsley, D.E. et al. Tuberculosis of the central nervous system. *Q. J. Med.* (New series), 1984;53:81-100.
2. Rosenbium, M.L. Granulomatous lesions: Tuberculosis, Leprosy, Sarcoidosis: In: Wilkins, R.H. and Rengachazy, S.S. "Neurosurgery". New York, McGraw Hill Book Company, 1985, pp. 1980-82.
3. Abright, R.E., Graham, C.B., Christenson, R.H. et al. Issues in cerebro-spinal fluid management. Acid-fast bacillus smear and culture. *Am. J. Clin. Pathol.*, 1991;95:418-23.
4. Palur, R., Rajshekhar, V., Chandy, M.J. et al. Shunt surgery for hydrocephalus in tuberculous meningitis: A long term follow up study, *J. Neurosurg.*, 1991 ;74:64-69.
5. Bhagwati, S.N. Ventriculo-atrial shunt in tuberculous meningitis with hydrocephalus. *J. Neurosurg.*, 1971 ;35:309-13.