TREATMENT OF CONGENITAL HYDROCEPHALUS

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ABSTRACT

Objective: Excessive accumulation of CSF in brain resulting in increase ICP is called hydrocephalus. The conclusions is common in developing countries. To stream line the treatment policies we conducted this study in Lady Reading Hospital, Peshawar.

Material and Methods: Fifty patients of congenital hydrocephalus were studied. 48% were male and 52% were females. Ages were from 09 days to 13 months. Cases had communicating type of hydrocephalus and 20% obstructive hydrocephalus. Eighty percent patients were diagnosed with the help of skull ultrasound and computerized tomography scan. In all cases ventriculoperitoneal shunting were performed. This study was conducted for period of two years.

Results: All cases had good outcome and no mortality. Shunt obstruction and infections were the main complications.

Conclusion: Ventriculoperitoneal shunting is the treatment of choice in hydrocephalus.

Key words: Hydrocephalus, Ventriculoperitoneal shunting.

INTRODUCTION

Vesalius first defined hydrocephalus in 1761[1]. Hydrocephalus is the enlargement of cerebrospinal (CSF) fluid containing spaces i.e. ventricles, subarachenoid spaces, accumulation of excessive amount of CSF and increase in CSF pressure. Hydrocephalus leads to enlargement of head size in younger children, separation of skull bone sutures, widening of fontanellae, thining of the skull bones, prominence of scalp veins and general symptoms of increase intracranial pressure (ICP), Ultrasound (U/S), CT scan showed enlargement of ventricular system, thinning of brain mantle, and obliteration of basal cistern[2].

MATERIAL AND METHODS

This series includes 50 cases of hydrocephalus. All these patients were treated in

the department of Neurosurgery Lady Reading Hospital, Peshawar

In all patients ventriculoperitoneal (VP) shunts were put in. Different types and various pressure shunts were used. This study was conducted for a period of two years from 1st January 2001 to 31 December 2002. Those patients who were not followed were excluded from the study. All the patients received antibiotics and symptomatic treatment pre and postoperatively.

Infected cases were not shunted initially. They were given antibiotics and in 02 cases external ventricular drain (EVD) were put in and when CSF was cleared then shunted.

RESULTS

Males were 24 (48%) and female 26(52%). Ages were from 09 days to 13 months. Below 06 months of age were 42 (84%) and above 06 months were 08 cases. In all 50 cases ventriculoperitoneal shunting was done. Signs and symptoms of increase ICP were relieved and conditions of the patients stabilized. In all cases outcome was excellent and no mortality occurred. Different types of complications occurred. Shunt infections were noted in 14% of cases, shunt blockage in 16%. In one case fits was observed postoperatively.

In all cases ventriculoperitoneal (VP) shunting was performed. All cases had congenital hydrocephalus.

DISCUSSION

Hydrocephalus was first defined by Vesalius in 1761 and first shunt was put in by Mickulicz in 1893. Kausch in 1908 did first VP Shunt by using a small ruber cather. Spitz and Nulsen in 1952 used Siliastic valve regulatory system[1] Males were 24 (48%) and female 26(52%).

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Ages were from 09 days to 13 months. Below 06 months of age were 42 (84%) and above 06 months were 08 cases. Hydrocephalus can be classified on the basis of aetiologies, CSF pressure, morphology, obstruction and non-obstruction, active and arrested. From surgical point of view site of CSF obstruction and ventricular size is very important. In our series communicating type of hydrocephalus were noted in 80% of cases and obstructive in only 10(20%) patients[1,2,3].

Nowadays endoscopic third ventriculostomy and shunting operations are the treatment of choice. In all our patients was performed (50) 100% VP shunting. Endoscopic third ventriculostomy procedure is the first choice of treatment for obstructive type of hydrocephalus[4,5,6,7].

Different aetiologies lead to hydrocephalus[8,9]. In our series all had congenital hydrocephalus. Nervous systems infections (meningitis, brain abscess) can leads to hydrocephalus. In case of post infections hydrocephalus vasculitis leads to increased CSF production initially and then supervenes arachonoiditis and brain gliosis which leads to decrease CSF absorption, resulting in ventricular systems dilatation, excessive CSF accumulation and increase in CSF pressure. Subarachoid. Haemorrhages usually causes communicating hydrocephalus. When foramen of Magendi and Luschka were blocked dilatation of all four ventricles were noted which is called Dandy-Walker cyst.

Congenital hydrocephalus may be communicating and obstructive. In majority of cases it occurs due to blockage of aqueduct of sylvius[9].

In case of CNS congenital malformations like different types of meningoceles, encephaloceles, arachnoid cysts or other space occupying lesions causes obstruc-tion of CSF flow or decrease in CSF absorption.

Different types of complications of shunting also occurs like infections, subdural haematoma or CSF collection, shunt blockage, hypo or hyper drainage. They are treated accordingly. Main complications of

shunting operations in our series were infections in 18% and shunt block in 20% of cases[11,12,13,14,15]. While it is 16% in other series [8,9,10]. It may be higher in our series due to younger age of the patients.

Over all outcome was excellent in all cases and no mortality occurred from shunting operations.

Shunting prevents further destruction of the neuronal tissue of the brain and the head size in children remains with in the normal limits.

Some times shunting procedure is performed as a first step operation in treating congenital malformations of CNS associated with hydrocephalus.

CONCLUSIONS

Ventriculoperitoneal(VP) shunting is the first choice of treatment in case of abnormalities in the ultimate CSF production, circulation and absorption due to one or another reasons. Endoscopic third ventriculostomy can not treat communicating hydrocephalus when there is decrease in CSF absoption due to chronic changes of arachnoiditis. Infants are more prone to develop shunt complications in terms of infections, shunt malfunction, hyper drainage of CSF and skin erosion by shut tube.

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