Original Article

A Study of Clinical Profile of the Patients of Congenital Hydrocephalus at Tertiary health care center

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Abstract

Introduction: Hydrocephalus remains one of the devastating and prevalent treatable forms of neurologic injury. Hydrocephalus is one of the most common forms of secondary neurologic injury. **Material and methods:** The present study had been conducted at Bombay hospital and Medical Research Center at marine lines, Bombay from august 2001 to October 2003. The study comprises 30 patients of congenital hydrocephalus which were not treated previously were admitted in pediatric and neurosurgery department. In the present study detailed clinical history, through physical and neurological examination were carried out in addition to routine investigations like CSF analysis, CT scan and MRI. **Result:** Majority of the hydrocephalus patients were from the Age group from 0-3 months-80% followed by 3-6 months; >6 months- 6.6% ; One day neonates (ANC) -6.6%. Majority of the Patients were Male i.e. 66.6 % followed by Female 33.4%. The most common etiology found was Congenital Aqueductal stenosis (CAS) -73.3%; Meningomyelocele (MMC)-10%; Aneurysm of vein of galen (AVG)-6.6%; Arnoldchiari type II-3.3%; Encephalocele-3.3%;X-linked hydrocephalus(XL)-3.3%. The most common symptoms found was Failure to thrive -93.3 %followed by Increase in head circumference-93.3%; Vomiting-33.3%; Swelling on back-16.6%; Seizure-6.6%; Altered sensorium6.6%; Weakness of lower limb-3.3%. The most common clinical signs observed was large AF (Anterior Fontanels) i.e. 83.3% followed by Delayed milestone in 80%;Sunset sign in 66.6%;Trans-illumination test positive in 20% of the Patients. **Conclusion:** Congenital hydrocephalus is more common in males than females. The commonest cause of congenital hydrocephalus is congenital aqueductal stenosis. The most commonest symptoms are;Increase in head circumference, Failure to thrive**,** Sunset sign.

Key words: Congenital Hydrocephalus**,**Congenital Aqueductal stenosis (CAS), Meningomyelocele (MMC), Aneurysm of vein of Galen (AVG).

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INTRODUCTION

Hydrocephalus remains one of the devastating and prevalent treatable forms of neurologic injury. Hydrocephalus is one of the most common forms of secondary neurologic injury. Unfortunately treatment has changed little in four decade and remains problematic. Incomplete and fragile.Hydrocephalus becomes a chronic disease of childhood. Historically because this association with congenital anomaly spinabifida and intraventricularhemorrhage hydrocephalus has been considered in domain of pediatric neurosurgeon. The present study consisting of congenital hydrocephalus including 30 cases of congenital hydrocephalus who had not undergone any treatment previously. The study mainly includes etiology of congenital hydrocephalus, clinical symptoms and management of hydrocephalus and the complication of shunt. In the last four decades we

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have shown that out treatment allows the hydrocephalus patient to survive in coming are we will peruse a higher level of function and lower complication rate. Technologic advance in recent years such as modern neuroscopy "adjusting values and possibility of telemetric flow and pressure monitoring", promise of improve method of hydrocephalus treatment, to use the new technology and achieve a significant improvement in hydrocephalus care. However our understanding of CSF dynamic and brain pathology will need to expand beyond basic assumption of last century.

MATERIAL AND METHODS

The present study had been conducted at Bombay hospital and medical research center at marine lines. Bombay from august 2001 to October 2003. The study comprises 30 patients of congenital hydrocephalus which were not treated previously admitted in paediatrics and neurosurgery department. In the present study detailed clinical history, through physical and neurological examination were carried out in addition to routine investigations like CSF analysis, CT scan and MRI. Follow up was done for 6 months following surgery.

OBSERVATION

Table 1: Age distribution in congenital hydrocephalus

	No. of cases	%
ANC	2	6.6
0-3 months	24	80
3-6 months	2	6.6
>6 months	2	6.6

Table 2: Sex distribution

	No. of cases	
Male	20	66.6
Female	10	33.3

Table 3: Etiology in congenital hydrocephalus

	No. of cases	%
Congenital aqueductal stenosis (cas)	22	73.3
Meningomyelocele (MMC)	3	10
Arnoldchiari type II	1	3.3
Aneurysm of vein of galen (AVG)	2	6.6
Encephalocele	1	3.3
X liked hydrocephalus(XL)	1	3.3

Table 4: Symptoms in congenital hydrocephalus

	No. of cases	%
Failure to thrive	28	93.3
Increase in head circumference	28	93.3
Vomiting	10	33.3
Weakness of lower limb	1	3.3
Swelling on back	5	16.6
Seizure	2	6.6
Altered sensorium	2	6.6

Table 5: Clinical signs in congenital hydrocephalus

	No. of cases	%
Sunset sign	20	66.6
Transillumination	6	20
Delayed milestone	24	80
Large AF	25	83.3

Table 6: Investigation in case congenital hydrocephalus

	No. of cases	%
X-ray skull	20	5
USG skull	6	5
CT brain	25	25
MRI brain	10	10
MR angiography	2	2

Table 7: Treatment of congenital hydrocephalus

	No. of cases	%
VP shunt	25	83.3
Intra-aneurysmal coiling	1	3.3
Excision of meningomyelocele with VP shunt	2	6.6
SubocSuboccipitalcraniectomy+upper cervical laminectomy (scucl)	1	3.3
Nontreated	2	6.6

Table 8: Complications in vp shunt

	No. of cases	%
Shunt infection	10	35.7
Shunt block	10	35.7
Transanal migration	1	3.5
Intestinal perforation(i.per)	1	3.5
None	6	21.4

DISCUSSION

The present study is a study of 30 cases of congenital hydrocephalus in Bombay hospital who had not undergone treatment previously.Table 1 shows age distribution in a case of congenital hydrocephalus. Out of 30 cases only 2 were detected antenatally and 24 cases presented at 0-3 months of age. 2 cases presented at 3-6 months of age and 2 cases are detected more than 6 months of age.Table 2 shows a sex distribution in a case of congenital hydrocephalus which is found that congenital hydrocephalus is more common in male than female. The male to female ratio is 2:1Table 3 shows etiological factors in congenital hydrocephalus. Out of 30 cases 22 cases are due to congenital aqueductal stenosis. This matches with the study of milhorat in 1972 who found aqueductal stenosis is responsible for 80% cases of congenital hydrocephalus. Out of 30 cases 2 cases are due to aneurysm of vein of gallen. 1 case is found as encephalocele and 1 case is x-linked hydrocephalus.Table 4 shows clinical presentation of hydrocephalus. Most of cases presents with increase in head circumference. Out of 30 cases, 28 cases presents with increase in head circumference. This matches with the study of mc lauren in 1969 who found the commonest clinical presentation in

congenital hydrocephalus is increase in head circumference. In this study 10 cases presented with vomiting, 5 cases presented with swelling on the back, 2 cases presented with seizures and 2 cases presented with atteredsensorium.Table 5 shows the clinical signs in congenital hydrocephalus in which it is found that sunset sign is a commonest sign in congenital hydrocephalus. Transillumination is positive only when there is severe dilatation of ventricles. In this study 6 cases shows transillumination positive. Delayed milestones is very common in congenital hydrocephalus out of 30 cases, 24 cases shows delayed milestones. Out of 30 cases, 25 cases shows large AF and separation of sutures.Table 6 shows investigation in a case of congenital hydrocephalus. Investigation depends upon the cause of hydrocephalus but CT and MRI are the investigation of choice. In a case of vein of galen MR angiography is a investigation of choice. The USG is also sensitive but it doesn't rule out structural anomalies of brain.Table 7 shows treatment in a case of congenital hydrocephalus. The treatment depends upon causes of hydrocephalus but vp shunt is the treatment of choice. This matches with the study of oedaku and adeloya from Nigeria. Out of 30 cases, 25 cases are treated by vp shunt. One case of Arnold-chiari had undergone suboccipitalcraniectomy + upper cervical laminectomy. One case has undergone intraaneurysmal coiling.2 cases had received excision of meningomylocele with vp shunt. 2 cases had not taken treatment.Table 8 shows complications of vp shunt. Out of 28 cases who had received the vp shunt as treatment, 10 cases shows shunt block, 10 cases shows shunt infection, 1 cases shows intestinal perforation, 1 case shows transanal migration. 6 cases done well without any complications.In a follow up study of 6 months, it is found that the signs of raised ICT like vomiting, sign and level of consciousness has improved in all cases.In the study it is also found that not a single mother received folic acid inpreconceptional period. So it is very essential for each and every mother to receive folic acid in preconceptional period for prevention of congenital hydrocephalus.

CONCLUSION

Congenital hydrocephalus is more common in males than females.The commonest cause of congenital hydrocephalus is congenital aqueductal stenosis.

The most commonest symptoms are

a. Increase in head circumference
b. Failure to thrive
c. Sunset sign

CT and MRI are the investigation of choice. The drawback of USG is it doesn't rule out structural anomalies.Vp shunt is the treatment of choice.Shunt block and infection are the commonest complication of VP shunt.

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