

Analysis of 200 Cases of Hydrocephalus Managed at DHQ Teaching Hospital Sahiwal

MUHAMMAD ASIF,¹ AATIKA YOUNUS²

Department of Neurosurgery, ¹Sahiwal Medical College, ²DHQ Teaching Hospital, Sahiwal

ABSTRACT

Objective: Hydrocephalus is a common disease in children management and complications were standard in this study.

Study Design: Prospective study.

Results: 200 consecutive patients of all age groups and with all types of hydrocephalus were included. This study showed that 70% of patients with hydrocephalus were of congenital variety and 30% were of acquired variety. The incidence of associated congenital anomalies in congenital hydrocephalus was 50% and amongst them spinal dysraphism was on the top i.e. 40%. In patients with acquired hydrocephalus, the majority of patients (20%) were post meningitic, 5% with brain tumors and 3% were post-traumatic. Postoperative complications were also noted.

Complications: Common complications were infections (10%), shunt obstruction (24%) and intracranial hemorrhage (0.5%).

Conclusion: We conclude that hydrocephalus is the commonest problem amongst the pediatric neurosurgical patients. Seventy percent of patients were of congenital variety while 30% of acquired variety. Amongst the neoplastic group, 80% patients had posterior fossa tumors causing obstructive hydrocephalus. 24% patients developed shunt obstruction and 10% had shunt infection.

Key words: Hydrocephalus, Congenital, Acquired, Anomalies, Spinal Dysraphism.

INTRODUCTION

Hydrocephalus is defined as excessive accumulation of cerebrospinal fluid (CSF) within the cranial cavity and ventricular system. This can lead to raised intracranial pressure (ICP) and because of this, patient develops symptoms and signs of raised ICP.

Hydrocephalus may be congenital or acquired. Congenital hydrocephalus occurs in approximately one per thousand live births. The cause is not known in the majority of cases. The most common pathological finding in congenital hydrocephalus is aqueductal stenosis. Congenital atresia of the foramen of Luschka and Magendie may or may not be associated with Dandy walker cyst. Sometimes congenital cyst, tumors or vascular malformation may be associated with hydrocephalus.¹⁻³

The acquired hydrocephalus may be caused by brain tumors, brain infections, subarachnoid hemorrhage and head injury. Postoperative complications fall into four main groups; Obstruction, infection, intracranial hematoma and miscellaneous.

MATERIAL AND METHODS

In this study 200 patients with hydrocephalus who were admitted in neurosurgery department of DHQ teaching hospital Sahiwal, were included and the study period extended from January 2007 to December 2014. The criteria for assessment of these patients included the detailed history, clinical examination, cranial ultrasound and CT scan brain. In selective cases CSF examination was also done in post-infective

and post-traumatic cases for cell count, glucose and protein levels.

RESULTS

In this study of 200 patients with hydrocephalus, 140 patients were of congenital variety and remaining 60 patients were of acquired variety. The overall incidence of etiological factors has been shown in table 1.

Table 1: Etiology of Hydrocephalus.

Aetiology	Number of Cases	Percentage
Congenital	140	70
Post meningitis	40	20
Brain tumors	10	5
Post traumatic	6	3
SAH	2	1
Unknown	2	1
Total	200	

On further analysis of 140 cases of congenital Hydrocephalus, 50% of these patients had associated congenital anomalies amongst which 40% was spinal dysraphism.

Among the patients with acquired hydrocephalus, 40 patients (20%) had history of fever and meningitis. In the neoplastic group of 10 patients, (5%) 8 patients had posterior fossa tumors and 2 patients had cranio-pharyngioma.

As far as postoperative complications are concerned, 48 patients (24%) had shunt obstructions, 20 patients (10%) got infection, one patient (0.5%) developed intracerebral hemorrhage and one patient (0.5%) had subdural hematoma after shunt surgery as shown in table 2.

Table 2: Shunt Complications.

Complication	No. of Patients	Percentage
Obstruction	48	24%
Infection	20	10%
Intracerebral Hemorrhage	1	0.5%
Subdural hematoma	1	0.5%

DISCUSSION

Determination of underlying cause and its proper treatment should be the aim in the management of these patients. In this study, 70% of patients were of congenital variety while in a study by Manzoor,⁴ 55% of the patients were of congenital variety and in a study by Elawad,⁵ it was 73.7%. Post-meningitic cases in our study were 20% while in a study by Manzoor⁴ it was 25% of patients and in study by Elawad⁵ it was 11.9%. In the neoplastic group, 80% of patients had posterior fossa tumors while 20% patients had cranio-pharyngioma. In a study by Taylor W.A.S. et al⁶ hydrocephalus was present in 81% of cases with posterior fossa tumors. Tumors within the fourth ventricle and cerebellar hemisphere had high incidence (96%) of hydrocephalus. In a study by Rizwan,⁷ hydrocephalus was present in 84% of cases of posterior fossa tumors and in a study by Manzoor,⁴ it was 88.9%.

Some rare cases of hydrocephalus have also been reported. A giant posterior communicating artery aneurysm presented as third ventricular mass, confirmed by cerebral angiography, causes obstructive hydrocephalus.⁸ Hirano H et al⁹ have reported a case of villous hypertrophy of choroid plexus of the lateral ventricles as a cause of hydrocephalus which required resection of the choroid plexus for its management. In another study by Mezzadri J.J.M et al,¹⁰ the association of obstructive hydrocephalus with spontaneous cerebellar hemorrhage has been analyzed. Obstructive hydrocephalus was present in 64% of these cases and outcome depends upon early & efficient treatment of hydrocephalus.

As regards associated anomalies in congenital hydrocephalus, spinal dysraphism was noted in 40% of patients. In study by Mansoor¹¹ spinal dysraphism was present in 17% of patients and in a study by Manzoor⁴ it was 30.9%.

In this study, 24% of patients developed obstruction and 10% got infection after surgery. In a study by Manzoor,¹² post operative obstruction rate was 18% and shunt infection was 6% only. In our study one child had intracranial hemorrhage after surgery and one child developed subdural collection.

CONCLUSION

We conclude that hydrocephalus is the commonest problem amongst the pediatric neurosurgical patients. Seventy percent of patients were of congenital variety while 30% of acquired variety. Amongst the neoplastic group, 80% patients had posterior fossa tumors caus-

ing obstructive hydrocephalus. 24% patients developed shunt obstruction and 10% had shunt infection.

*Address for Correspondence:
Dr. Muhammad Asif
Assistant Professor Neurosurgery
Sahiwal Medical College, Sahiwal
Email: drasif2003@gmail.com*

REFERENCES

1. James He: hydrocephalus in infancy and childhood. American family physician, 1992; 45: 733-42.
2. Milhorat TH: Hydrocephalus: pathophysiology and clinical features. In wilkins R.H. and Rengachary (Editors) Neurosurgery. McGraw Hill Book Company (USA) 1995: pp2135-9.
3. Chapman P.H.: Hydrocephalus in childhood. In youmans J.R. (Editor): Neurological surgery, Vol 2, 3rd ed. W.B. Saunders company (USA), 1990: 1236-67.
4. Manzoor; study of 100 cases of hydrocephalus managed at LGH Lahore. Annals of KEMC. July to Sep. 1998; Vol. 4, Issue 3: pp56-7.
5. Elawad M.E: Infantile hydrocephalus in the south-western region of Saudi Arabia. Annals of tropical paediatrics, 1992; 12: 335-8.
6. Taylor W.A.S., Todd N.V. and Leightol S.E.J: CSF drainage in patients with posterior fossa tumors. Acta Neurochirurgica. 1992; 117: 1-6.
7. Rizwan: infratentorial tumors in adults, Dissertation, 1994: p98.
8. Smith KA, Kraus GE; Giant posterior communicating artery aneurysm presenting as third ventricle mass with obstructive hydrocephalus. Neurosurgery, 1994; 81: 299-303.
9. Hirano H., Hirahare K., Asakura T. et al. Hydrocephalus due to villous hypertrophy of the choroid plexus in the lateral ventricles. J Neurosurg. 1994; 80: 321-3.
10. Mezzadrij J.M., Otero J.M. and Ottino C.A. Management of fifty spontaneous cerebellar haemorrhages. Acta Neurochirurgica. 1993; 122: 39-44.
11. Mansoor: surgical treatment of congenital hydrocephalus (thesis), Punjab university Lahore, 1992: pp 8,41,89, 96-98.
12. Manzoor; the role of surgery in the management of hydrocephalus; Annals of KEMC, April to June, 1998; Vol. 4, Issue 2: pp50-2.

AUTHORS DATA

Name	Post	Institution	E-mail	Role of Authors
Dr. Muhammad Asif	Assistant Professor	Department of Neurosurgery, Sahiwal Medical College, Sahiwal	drasif2003@gmail.com	Paper Writing and Literature Search
Dr. Aatika Younus		Department of Neurosurgery, DHQ Teaching Hospital, Sahiwal		Data Collection

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