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

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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 in not known in the majority of cases. The most common pathological finding in congenital hydrocephalus is aqueductal stenosis. Congenital atresia of the foramin 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.

<table>
<thead>
<tr>
<th>Aetiology</th>
<th>Number of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congenital</td>
<td>140</td>
<td>70</td>
</tr>
<tr>
<td>Post meningitis</td>
<td>40</td>
<td>20</td>
</tr>
<tr>
<td>Brain tumors</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Post traumatic</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>SAH</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Unknown</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td></td>
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</tbody>
</table>

Table 2: Shunt Complications.

<table>
<thead>
<tr>
<th>Complication</th>
<th>No. of Patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obstruction</td>
<td>48</td>
<td>24%</td>
</tr>
<tr>
<td>Infection</td>
<td>20</td>
<td>10%</td>
</tr>
<tr>
<td>Intracerebral Hemorrhage</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>Subdural hematoma</td>
<td>1</td>
<td>0.5%</td>
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</table>

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,5 55% of the patients were of congenital variety and in a study by Elawad,6 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 Elawad 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%.

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.

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.

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REFERENCES

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