

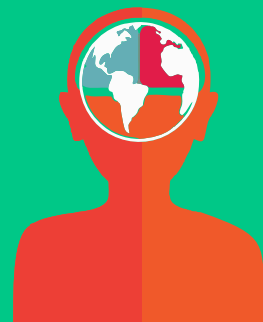
# ONCODAILY MEDICAL JOURNAL

*abstract*

## **Shunt Revision in Tumor-Related Hydrocephalus in Pediatric Patients**

**Zuhaa Rehman, Farrukh Javeed**

DOI: 10.69690/ODMJ-018-0425-5322



6th Pakistan Pediatric Neuro-Oncology Symposium, Pakistan, 2025

*abstract*



## Shunt Revision in Tumor-Related Hydrocephalus in Pediatric Patients

**Authors:** Zuhaa Rehman<sup>1</sup>, Farrukh Javeed<sup>1</sup>

**Affiliation:** <sup>1</sup> Department of Neurosurgery, Jinnah Postgraduate Medical Centre, Karachi, Pakistan.

**DOI:** [10.69690/ODMJ-018-0425-5322](https://doi.org/10.69690/ODMJ-018-0425-5322)

**Introduction:** Tumor-related hydrocephalus (HCP) is a common manifestation in pediatric brain tumors, frequently managed with a Ventriculo-peritoneal (VP) shunt. This study aims to identify the rate and predictors of shunt revision and functional outcomes in our cohort.

**Methodology:** This retrospective, monocentric study was undertaken, including the pediatric patients from the age of 0-16 years with a diagnosis of intracranial tumor and hydrocephalus, who underwent shunt placement at our center. Demographics, tumor and shunt characteristics, and revision outcomes were analyzed using univariate and multivariate logistic regression.

**Results:** Among 48 pediatric patients with tumor-related hydrocephalus who underwent VP shunt placement, 33.3% (16) required revision. The cohort had a mean age of  $8.5 \pm 3.4$  years; 54.2% were male. Posterior fossa tumors were most

common (66.7%), with medulloblastoma (27.1%) and ependymoma (18.8%) as leading tumor types. At baseline, 50% of children had moderate hydrocephalus; all received fixed-pressure VP shunts. Logistic regression identified that inadequate initial shunt placement was significantly associated with revision (OR = 0.064, 95% CI: 0.012–0.341,  $p = 0.001$ ), indicating a 94% reduction in risk with proper placement. Valve type also significantly predicted revision (OR = 17.3, 95% CI: 1.31–228.7,  $p = 0.030$ ). Tumor location, tumor type, hydrocephalus severity (Evans Index), and timing of shunt placement were not predictive. CSF picture significantly influenced the choice of revision procedure ( $p = 0.027$ ), with infected cases undergoing external ventricular drainage followed by delayed shunt replacement. No significant improvement in ventricular size was observed post-revision ( $p = 0.119$ ). Functional outcomes varied, with only 50% achieving good recovery. Neurodevelopmental delay was strongly associated

with poor outcome ( $p = 0.003$ ).

**Conclusions:** The findings underscore that optimal initial shunt placement and appropriate valve selection are crucial in minimizing revision risk.

**Conflict of Interest:** None

**Funding:** None

**Disclosure statement:** None

**License:** This article is published under the terms of the Creative Commons Attribution 4.0 International License (CC BY 4.0).

© Zuhaa Rehman, 2025. This license permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.