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Cerebellar mutism syndrome following posterior fossa tumor surgery in children – a retrospective single center study

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Abstract

Objective: Cerebellar mutism syndrome (CMS) is a well-known complication following posterior fossa tumor surgery in pediatric patients. We evaluated the incidence of CMS in our institute and analyzed association with multiple risk factors, such as tumor entity, surgical approach, and hydrocephalus.

Methods: All pediatric patients who received an intra-axial tumor resection in the posterior fossa between January 2010 and March 2021 were included for retrospective analysis. Various data points, including demographic, tumor-associated, clinical, radiological, surgery associated, complications and follow-up data were collected and statistically evaluated for association with CMS.

Results: 63 surgeries in 60 patients were included with a median age of 8 years. Pilocytic astrocytoma was mostly represented by 50%, followed by medulloblastoma in 28%, and ependymomas in 10%. Complete resection was achieved in 67% versus subtotal in 23%, and partial resection in 10%. Telovelar approach was the most used in 43 % compared to transvermian in 8%. 10 children (17%) developed CMS and showed marked improvement but with residual deficits. Significant risk factors were transvermian approach (p=0.03), vermian splitting whenever added to other approach (p=0.002), initial presentation with acute hydrocephalus (p=0.02), and remaining hydrocephalus after tumor surgery (p=0.004).

Conclusion: Our CMS rate compares to those described in literature. Despite the limitations of our study as a retrospective one, we found CMS was not only associated with a transvermian approach, but also occurs after using a telovelar approach, however to a lesser extent. Acute hydrocephalus at initial presentation necessitating urgent management was significantly associated with higher incidence of CMS.