Posterior fossa tumor

- Neuropsychological outcome in pediatric brain tumor survivors treated with proton radiation prior to age 4 years
- Robust molecular subgrouping and reference-free aneuploidy detection in medulloblastoma using low-depth whole genome bisulfite sequencing
- Delivery of LOXL1-AS1-siRNAs using targeting peptide-engineered extracellular vesicles with focused ultrasound to suppress medulloblastoma metastasis
- Independent Prognostic Factors of Survival in Elderly Patients Undergoing Surgery for Non-small Cell Lung Cancer Brain Metastases: Assessing Surgical Eligibility
- Association of Cerebellar Peduncle Morphometry with Hypertrophic Olivary Degeneration: A Pilot Case-Control Study
- Volumetric predictors for shunt-dependency in pediatric posterior fossa tumors
- Lymphoid enhancer-binding factor 1 (LEF1): a reliable immunohistochemical predictive marker for WNT-activated medulloblastoma
- Leptomeningeal hemangioblastoma: illustrative case

Posterior fossa tumor has a very different differential in an adult as opposed to a child.

Epidemiology

Posterior fossa tumor epidemiology.

Classification

Posterior fossa tumor classification.

Clinical features

see Posterior fossa syndrome.

Diagnosis

see Posterior fossa tumor diagnosis.

Differential diagnosis

see Posterior fossa tumor differential diagnosis.

Treatment

see Posterior fossa tumor treatment.

Complications

Posterior fossa tumor complications.

Case series

Posterior fossa tumor case series.

Case report from the HGUA

A 12-year-old adolescent was admitted to the Pediatric Intensive Care Unit (UCIP) following a seizure. A CT scan of the head revealed the presence of a mass in the fourth ventricle with internal calcifications and secondary obstructive hydrocephalus.

Clinical Presentation: The patient presented with a history of a seizure, and further imaging studies were conducted to investigate the cause. An MRI of the posterior fossa was performed.

MRI Findings: The MRI of the posterior fossa revealed a mildly hyperintense lesion in the fourth ventricle on T2-weighted images. The lesion exhibited multiple areas of signal voids, indicative of abundant vascularization, as well as peripheral microcysts and some gross calcifications inside it. The dimensions of the lesion were measured as 3 x 3.7 x 4.5 cm (anterior-posterior x transverse x craniocaudal). The solid portion of the lesion showed mild diffusion restriction and did not exhibit enhancement after the administration of intravenous contrast. The lesion contacted the posterior aspect of the vermis and cerebellar tonsils, without a clear separation plane between them. It displaced the brainstem anteriorly but without infiltrating it. The lesion extended laterally into both lateral recesses of Luschka and caudally into the cisterna magna, completely obliterating it and causing obstructive hydrocephalus. There was an increase in ventricular size (Evans index of 0.3) and significant transependymal edema, indicating associated intracranial hypertension. Additionally, linear hyperintensities were noted on T2-weighted images in the folia of the superior vermis and anterior lobule, without diffusion restriction or contrast enhancement, suggestive of edema foci.

Spinal and Vertebral Findings: The vertebral bodies showed normal morphology, alignment, and signal intensity. There were no identifiable abnormalities in the posterior vertebral elements. The spinal cord appeared normal without morphological or signal intensity changes.

Final Diagnosis: The MRI findings are consistent with a high-grade tumor located in the fourth ventricle, completely obliterating the cisterna magna and causing obstructive hydrocephalus and associated intracranial hypertension. The lesion extends into the lateral recesses and foramen magnum, but its appearance is not typical of an ependymoma. Due to the patient's age and behavior of the lesion, medulloblastoma of group III-IV cannot be ruled out. Other high-grade tumors cannot be ruled out as well.

Management and Further Evaluation: Given the radiological findings, the patient needs further evaluation and management by a multidisciplinary team, including neurosurgeons, oncologists, and neuropathologists. A biopsy or surgical resection might be required to establish a definitive diagnosis and determine the appropriate treatment plan. The tumor's high-grade nature and its location in the fourth ventricle make it crucial to proceed with prompt and comprehensive management to address the obstructive hydrocephalus and reduce intracranial pressure, followed by a histological evaluation to guide targeted therapies. The patient's age and overall health will also be considered in determining the optimal treatment approach.

References