The Differential Diagnosis of Intraventricular Masses

Berkowitz, E.¹·Lev, S.¹·Lev, M.²
¹Nassau University Medical Center, East Meadow, NY, ²Massachusetts General Hospital, Boston, MA.

Purpose
To illustrate the broad spectrum of intraventricular masses and to outline a practical approach to formulating a differential diagnosis.

Materials & Methods
We retrospectively reviewed imaging studies (CT, MR imaging/Angiography) performed during the past six years of patients with intraventricular masses. Consideration was given to the age of the patient (pediatric or adult), lesion location (intrinsic or extrinsic) and etiology. Special attention was given to vascular and cystic lesions. We emphasize radiographic mimics and helpful distinguishing features.

Results
Cystic lesions included common entities, such as third ventricular colloid cyst and choroid plexus cysts of the atria, as well as infectious processes, such as neurocysticercosis and hydatid cysts. A wide variety of vascular lesions also may be intraventricular in location, including vascular malformations, like AVMs and cavernous angiomas. We illustrate a rare case of a distal PICA aneurysm presenting as a mass in the fourth ventricle, with intraventricular, but not subarachnoid hemorrhage. In addition, we show a large basilar tip aneurysm mimicking a third ventricular mass. Foramen of Monro/third ventricle lesions include the subependymal giant cell astrocytoma of tuberous sclerosis and germinoma. Extraventricular masses arising from the suprasellar cistern may elevate and compress the third ventricle (e.g., craniopharyngioma and pituitary macroadenoma). Lesions of the hypothalamus and infundibulum (sarcoïd, eosinophilic granuloma, metastases, lymphoma) can involve the anterior floor of the third ventricle. Masses of the lateral ventricles also vary by location (frontal horn, body or atrium) and age group. Extrinsic masses from the corpus callosum extending into the lateral ventricles can usually be distinguished by multiplanar MR. Lesions of the fourth ventricle may arise intrinsically (e.g., ependymoma), as well as anteriorly from the brainstem (e.g., exophytic glioma) or posteriorly from the vermis and cerebellar hemispheres. Midline sagittal MR imaging is invaluable in these cases.

Conclusion
Clinical and radiographic clues, such as patient age and lesion location, can help establish a useful and accurate differential diagnosis of intraventricular masses.

References