Intraventricular tumor

Intraventricular tumor are rare and arise from periventricular structures such as the walls of the ventricular system, the septum pellucidum, and the choroid plexus. Many tumor types arise from, or can bulge into the ventricular system, although there are certain lesions that are relatively restricted to ventricles. A number of factors assist in defining the differential diagnosis, both radiological and clinical, including where the lesion is positioned within the ventricle as well as age and any associated conditions.

Pediatric Intraventricular Tumor

Pediatric Intraventricular Tumor

Fourth ventricle tumor

see Fourth ventricle tumor.

Third ventricle tumor

see Third ventricle tumor.

Neoplasms of the ventricular wall and septum pellucidum.

Ependymoma

Subependymoma

Central neurocytoma

Subependymal giant cell astrocytoma

Neoplasms of the choroid plexus.

see choroid plexus tumors

choroid plexus papilloma

choroid plexus carcinoma

Others Intraventricular hemangiopericytoma

Intraventricular meningioma

Intraventricular metastases

Intraventricular oligodendroglioma

pilocytic astrocytoma

Intraventricular glioblastoma

Intraventricular CNS lymphoma

Primary B cell lymphomas should always be included in the list of differential diagnosis of intraventricular tumors [1)]

medulloblastoma

primitive neuroectodermal tumour

sarcoma

intraventricular teratoma

Non-neoplastic lesions

colloid cysts

neurocysticercosis

intracranial hydatid cyst

Intraventricular Tuberculoma

See also

syndrome of the trigone

Lateral ventricle tumor

Lateral ventricle tumor

Diagnosis

Intraventricular tumor diagnosis

Differential diagnosis

Intraventricular tumor Differential diagnosis

Treatment

The deep location and eloquent surroundings of the ventricular system within the brain have historically posed significant and often formidable challenges for the optimal resection of tumors in these locations.

The evolution and advances in microsurgical techniques and neuroanatomic knowledge have led to a general paradigm shift from transcerebral trajectories to transcisternal corridor strategies. The essence of microsurgery of the ventricular system has evolved around the concept of circumnavigating eloquent cortical and white matter structures to achieve minimally invasive access and resection while optimizing functional and cognitive outcomes [2)].

Intraventricular tumors are ideal indications for neuroendoscopic surgery. They often cause cerebrospinal fluid (CSF) pathway obstruction, resulting in ventricular dilation, which provides sufficient space for maneuvering with the endoscope.

The general principle of the endoscopic removal of intraventricular tumors is interruption of the blood supply to the tumor and subsequent tumor debulking. In general, a piecemeal resection is performed; however, in some tumors, it is possible to detach the lesion from the surrounding brain tissue and remove it in toto. In unilateral hydrocephalus caused by obstruction of one foramen of Monro, the burr hole is placed more laterally to get good access to the foramen for biopsy and to the septum for septostomy. When the tumor arises in the anterior part of the third ventricle, the burr hole is made at the coronal suture. When the tumor is located in the posterior part, the entry point is selected more anteriorly in order to pass the foramen of Monro in a straight line. In pineal region tumors, which cause occlusive hydrocephalus due to aqueductal compression, third ventriculostomy as well as tumor biopsy are required [3)].

The endoscopic approach should be tailored according to localization of the lesion and ventricular size. The complete excision of intraventricular lesions is often impossible with the endoscope, but biopsies allow diagnoses to be obtained in almost all cases [4)].

Endoscopic surgery

In select patients, complete endoscopic removal of solid intraventricular brain tumors is possible and safe. Factors that influence the ability of a surgeon to perform a complete endoscopic resection include tumor size, composition, and vascularity. The procedure requires careful patient selection, the use of refined endoscopic instrumentation, and a disciplined surgical technique [5)].

see Endoscopic surgery for intraventricular tumor

Recommended Literature

[6)].

[1)]

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