Ependymal cyst

- Optimizing outcomes in intracranial ependymoma: a contemporary review
- Patterns, clinical presentations, and time to diagnosis in pediatric central nervous system tumors: insights from a pediatric neuro-oncology tumor board team at a tertiary referral hospital in Ethiopia
- Extra-neural metastases of recurrent myxopapillary ependymoma: A patient case and literature review
- A white matter-centered approach to investigate recurrence pathways in high-grade gliomas: a single-center retrospective study
- Non-Neoplastic Lesions of the Ependyma: A Neuropathological Overview
- Three cases of pituicytoma with a review of the literature and insight into a rare variant of ependymal pituicytoma
- Molecular characterization of benign intracranial glioependymal and arachnoid cysts suggest heterogeneous mechanisms of action
- Oncocytic pituicytoma in a patient with Cushing's disease: a case report and narrative literature review

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Ependymal cysts are rare benign neuroepithelial cysts lined by ependymal cells. Most are small and asymptomatic and only cause symptoms if large.

A glioependymal cyst and an ependymal cyst are the same things. They are both terms used to describe a cyst that originates from ependymal cells, which are specialized cells that line the ventricles of the brain and the central canal of the spinal cord. These cysts are typically benign and can occur in various locations within the central nervous system. The terms “glioependymal cyst” and “ependymal cyst” are used interchangeably to refer to this type of cyst.

On the other hand, a neuroglial cyst, also referred to as a glial cyst or an astroglial cyst, is a type of cyst that contains a fluid-filled cavity lined by glial cells, which are supportive cells of the nervous system. Neuroglial cysts can occur in various locations within the brain or spinal cord, and their size and symptoms can vary depending on the specific location and characteristics of the cyst.

While both types of cysts involve glial cells and can occur in the central nervous system, glioependymal cysts specifically involve ependymal cells, whereas neuroglial cysts can involve different types of glial cells such as astrocytes. Therefore, they are distinct entities with some differences in their origin and characteristics.

On imaging, these cysts are essentially indistinguishable from other intraventricular simple cysts (e.g. intraventricular arachnoid cysts).

Epidemiology

They typically present in young adults. There may be a slight male predilection. Patients are often in their 30s at the time of presentation.

Pathology

It is thought to arise from sequestration of developing neuroectoderm during embryogenesis. They are thin-walled and contain clear serous fluid secreted by the lining ependyma.

They are most commonly located deep in the parenchyma, although intraventricular, periventricular and subarachnoid space cysts have also been reported.

Ependymal cysts have been postulated to be the entity responsible for the interhemispheric cysts with the Dandy Walker malformations and agenesis of the corpus callosum.

Markers

GFAP and S100 markers are often positive due to its neuroepithelial lining.

Radiographic features

On imaging, they are well-defined, thin-walled and do not contrast enhance.

CT

Typically periventricular in location. The cyst is isoattenuating to CSF.

MRI

Follows CSF signal on all sequences and does not demonstrate diffusion restriction. Occasionally the cyst may be hyperintense to CSF if there is a high protein content. No contrast enhancement.

Treatment and prognosis

Asymptomatic cysts may be monitored. In surgically resected cases recurrence is extremely rare and the prognosis is excellent.

Large cysts in vulnerable locations may cause obstructive hydrocephalus

Differential diagnosis

if parenchymal consider

perivascular cyst

neurocysticercosis

porencephalic cyst

if intraventricular consider

intraventricular arachnoid cyst

asymmetrical ventricles

choroid plexus cyst: shows restricted diffusion

subarachnoid space

arachnoid cyst

epidermoid cyst

Noncommunicating interhemispheric cysts, such as interhemispheric arachnoid cyst or ependymal cyst, with callosal agenesis are also in the second category. A careful review of embryologic development is essential for understanding these midline cysts and for making a more accurate radiologic diagnosis [1)].

Lateral ventricular ependymal cyst

Lateral ventricular ependymal cyst

Ependymal cyst endoscopic fenestration

Ependymal cyst endoscopic fenestration

1)
Utsunomiya H, Yamashita S, Takano K, Ueda Y, Fujii A. Midline cystic malformations of the brain: imaging diagnosis and classification based on embryologic analysis. Radiat Med. 2006 Jul;24(6):471-81. Review. PubMed PMID: 16958432.