Middle cranial fossa arachnoid cyst

- Efficacy and safety of endoscopic fenestration for treating giant middle cranial fossa arachnoid cysts in pediatrics
- Subdural hygroma due to traumatic rupture of a middle cranial fossa arachnoid cyst that has transformed into a chronic subdural hematoma after burr hole operation: A case report
- Arachnoid Cysts
- Nonadjustable state of programmable shunt valve: obstruction of middle cranial fossa arachnoid cyst-peritoneal shunt
- A Case of Subdural Hygroma due to a Ruptured Arachnoid Cyst in the Middle Cranial Fossa That Improved after Long-term Subdural Drainage: A Case Report and Review of the Literature
- Spontaneous Rupture of a Parietal Arachnoid Cyst Causing an Intracystic Hemorrhage and a Subacute Subdural Hematoma
- Early clinico-radiological outcomes following neuroendoscopic cysto-cisternostomy for middle cranial fossa arachnoid cysts: a prospective cohort study with illustrative cases
- Middle fossa arachnoid cyst fenestration for ruptured cysts associated with subdural collections: paediatric neurosurgery tertiary unit experience

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Most arachnoid cysts are supratentorial in location and 50-65% occur in the middle cranial fossa. Arachnoid cysts can also occur less frequently in the suprasellar and quadrigeminal cisterns, cerebral convexity, cerebellopontine angle, and cisterna magna.

A **Middle Cranial Fossa Arachnoid Cyst** is not necessarily the same as a **Sylvian Fissure Arachnoid Cyst**, but they are closely related.

Middle Cranial Fossa Arachnoid Cyst: - This term refers to an arachnoid cyst located in the middle cranial fossa, which is a general anatomical region in the skull base housing structures like the temporal lobe. - These cysts can vary in size and may extend into adjacent areas like the Sylvian fissure.

Sylvian Fissure Arachnoid Cyst: - This is a more specific subtype of arachnoid cyst located in the **Sylvian fissure**, a prominent groove separating the frontal and temporal lobes. - Most Sylvian fissure arachnoid cysts are considered a subset of middle cranial fossa arachnoid cysts, as the Sylvian fissure is part of the middle cranial fossa.

Key Differences: 1. **Terminology**:

1. “Middle cranial fossa arachnoid cyst” is a broader term that includes cysts located anywhere in the middle cranial fossa.
2. “Sylvian fissure arachnoid cyst” specifies the cyst’s location within the Sylvian fissure.

2. **Classification**:

1. Sylvian fissure arachnoid cysts are typically classified into specific types (e.g., Galassi Classification) based on size and communication with the subarachnoid space.

3. **Clinical Implications**:

1. Sylvian fissure cysts can be asymptomatic or cause symptoms depending on their size and effect on adjacent brain structures, like compression of the temporal lobe or displacement of nearby vessels.
2. Middle cranial fossa cysts outside the Sylvian fissure can also have diverse presentations depending on their exact location.

In summary, while most Sylvian fissure arachnoid cysts are middle cranial fossa arachnoid cysts, not all middle cranial fossa arachnoid cysts are Sylvian fissure arachnoid cysts. The distinction lies in the specific location and characteristics of the cyst.

Case reports

A case report aims to explore the cause of pressure adjustment dysfunction in a programmable shunt valve in a middle cranial fossa arachnoid cyst-peritoneal shunt patient and to underscore this dysfunction as an indicator of shunt valve obstruction.

A child with a ruptured giant arachnoid cyst in the left middle cranial fossa presented with acute intracranial hypertension following head trauma. The cystoperitoneal shunt for intracranial arachnoid cyst surgery rapidly alleviated symptoms, including headaches, vomiting, and left cranial nerve palsy, stabilizing the clinical condition. However, between 20 and 24 months after the initial shunt surgery, the patient developed intermittent shunt dysfunction, experiencing recurrent headaches and vomiting, during which the programmable valve's pressure setting had become fixed and was no longer adjustable. A second surgery was then performed to remove the existing shunt, excise the fibrotic cyst wall, fenestrate the basal cistern, and establish temporary subdural drainage. During this operation, extensive fibrosis of the cyst wall in the subdural space was discovered, forming a tough and hypertrophic fibrotic membrane that encased the cerebral hemispheres. This fibrotic material nearly filled the shunt valve chamber, causing valve obstruction and immobilizing the pressure control rod, resulting in pressure adjustment dysfunction. As the patient could not maintain stability without continuous drainage, a third surgery was ultimately necessary to place a subdural-peritoneal shunt. Five years of follow-up revealed no significant clinical symptoms, and the patient has maintained a normal life.

Shunt obstruction is an underestimated cause of cerebrospinal fluid shunt malfunction, with no current definitive method for early diagnosis. Fibrotic deposition is a primary mechanism underlying shunt valve obstruction. Pressure adjustment dysfunction in a programmable shunt valve serves as a reliable indicator of shunt valve obstruction. Further research should prioritize the treatment and prevention of shunt valve obstructions to improve outcomes in neurosurgical practice [1)].

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Cao H, Guo G, Wu W, Cheng Z. Nonadjustable state of programmable shunt valve: obstruction of middle cranial fossa arachnoid cyst-peritoneal shunt. Chin Neurosurg J. 2024 Dec 26;10(1):34. doi: 10.1186/s41016-024-00386-z. PMID: 39726045.