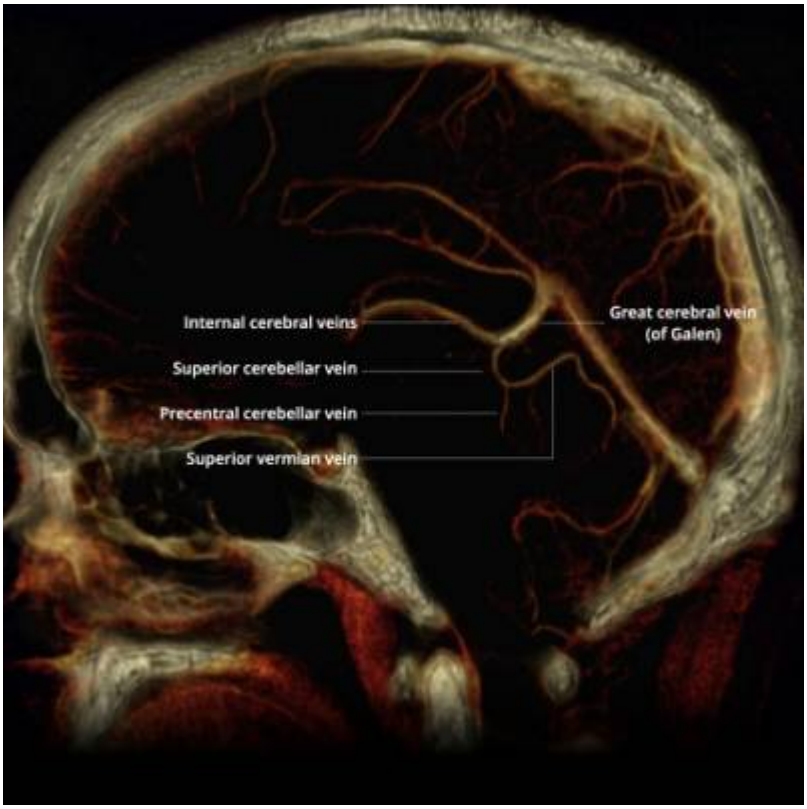
Precentral cerebellar vein



see Cerebellomesencephalic vein.

One of the most reliable venous structures is the precentral cerebellar vein.

The Precentral cerebellar vein and superior vermian vein enter the vein of Galen from below and are fused in almost half of all studied patients, creating a third vessel by the name of the superior cerebellar vein [1)]

In vertebral angiography of good quality it is almost always visualized and its position is relatively constant in normal circumstances. It originates within the precentral cerebellar fissure, bounded by the central lobule of the cerebellum above and the lingula and anterior medullar vellum below.

The vein is either paired or consists of several small parallel veins which run forward within the precentral cerebellar fissure, parallel to thc roof of the fourth ventricle [2)].

The cerebellomesencephalic vein was frequently sacrificed in surgery approached via the supracerebellar infratentorial approach for resecting pineal region tumor, which resulted in potential risk of neurological deficit. Preserving the cerebellomesencephalic vein in supracerebellar infratentorial approach could enhance the safety and effectiveness of this natural corridor surgery. The advent of neuroendoscopy and its application in the supracerebellar infratentorial approach

improves the probability of preserving the cerebellomesencephalic vein.

To identify the probability and safety of preserving the cerebellomesencephalic vein in supracerebellar infratentorial approach.

The clinical data of patients who underwent pineal region tumor resecting through purely endoscopic supracerebellar infratentorial approach were retrospectively analyzed, focusing on the surgical techniques and clinical outcomes.

Eight patients were included in the study. The cerebellomesencephalic vein was preserved intact in all patients. Total tumor removal was achieved in seven of eight patients with pineal region tumor. In one patient with double tumors in the pineal region and roof of the third ventricle, the tumor in the pineal region was resected completely, followed by subsequent chemotherapy combined with radiotherapy, after which the other tumor disappeared totally. All patients recovered normally with uneventful postoperative outcomes.

The advantage of close observation and panoramic view provided by neuroendoscopy combined with meticulous manipulation improved the ability to preserve the cerebellomesencephalic vein in resecting pineal region tumor via the supracerebellar infratentorial approach. The neuroendoscopic technique enhances the safety and efficacy of supracerebellar infratentorial approach [3].

1)
Krogager ME, Jespersen B, Mathiesen TI, Benndorf G. Three underdogs among galenic veins: anatomical analysis and literature review of surgical relevant veins in the quadrigeminal cistern. Neurosurg Rev. 2022 Aug 10. doi: 10.1007/s10143-022-01842-z. Epub ahead of print. PMID: 35947231.
2)
Hopkins LN, Bakay L. Precentral cerebellar vein in cystic astrocytomas of the vermis. J Neurol Neurosurg Psychiatry. 1975 Aug;38(8):816-8. PubMed PMID: 1185201; PubMed Central PMCID: PMC492078.
3)
Gu Y, Wu Q, Xie T, Wu S, Hu F, Yu Y, Sun C, Li C, Zhang B, Zhan L, Zhou Q, Zhu W, Zhang X. The purely endoscopic supracerebellar infratentorial approach for resecting pineal region tumors with preservation of cerebellomesencephalic vein: technical note and preliminary clinical outcomes. World Neurosurg. 2019 Apr 24. pii: S1878-8750(19)31141-6. doi: 10.1016/j.wneu.2019.04.146. [Epub ahead of print] PubMed PMID: 31028986.