

Frontopolar vein

The Frontopolar vein is a bridging vein.

Bridging veins arising from the frontal base (frontobasal bridging veins, FBBVs) can pose obstacles when performing clipping of anterior communicating artery aneurysms via the pterional approach.

Anatomic variations of the frontopolar vein were investigated in 21 cadaver brains to improve the preservation rate of this vein in interhemispheric approach for anterior communicating artery aneurysms.

Although FBBVs can in general be sacrificed without critical complications to achieve an adequate retraction of the frontal lobe, neurosurgeons sometimes encounter postoperative venous infarction or contusion of the retracted frontal lobe, which may be accounted for by the damage to the venous drainage system. Thus, preservation of intracranial veins is desirable to prevent postoperative venous complications, especially when they are prominent.

Most of the frontopolar vein has been considered to drain the outer convex side of the frontal lobe, but in reality, the area of its venous drainage was found to cover a large part of the frontal lobe, including its medial and basal surfaces. This observation suggests that sacrifice of the vein during surgery carries a risk of venous infarction. Therefore, care must be taken to not injure the vein during surgery. The mean distance between the frontopolar vein and the most anterior point of the frontal lobe was 31.1 mm. Although the vein became smaller close to the frontal tip, the mean diameter of the vein was 1.9 mm. Morphologically, approximately two-thirds of the frontopolar veins was found to have a "main trunk." The frontopolar vein can be spared during surgery by using a flexible surgical technique incorporating vein dissection or additional craniotomy ¹⁾.

Bifrontal craniotomy and interhemispherical approach, usually used to remove olfactory groove meningioma, does not allow a view of posterior pole, which is very important in the surgical management of this neoplasm, and, provides for an anatomical sacrifice of frontal bridging veins, not without complications as a result of venous infarction ²⁾.

Mobilization of the sphenoparietal sinus

A 66-year-old female patient was revealed to have multiple unruptured aneurysms at the ACoA, bilateral middle cerebral arteries, and the left internal carotid artery. In the first stage of the operation, clipping of the right middle cerebral artery and ACoA aneurysms was performed via a right pterional approach. Because the ACoA aneurysm was located at a high position and projecting posteriorly, a transsylvian "lateral" trajectory was preferred to a subfrontal "anterior" trajectory. Intraoperatively, her FBBV was revealed to be so prominent that the sacrifice would be harmful. Thus, Hasegawa et al. performed posteriorward displacement of the sphenoparietal sinus extradurally, thereby achieving adequate retraction of the frontal lobe intradurally without sacrificing the FBBV. With this simple technique, the ACoA aneurysm was successfully treated.

This technique is useful for retracting the frontal lobe sufficiently to enable establishment of an appropriate surgical field for a pterional approach to ACoA aneurysms with prominent FBBVs ³⁾.

1)

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2)

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3)

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