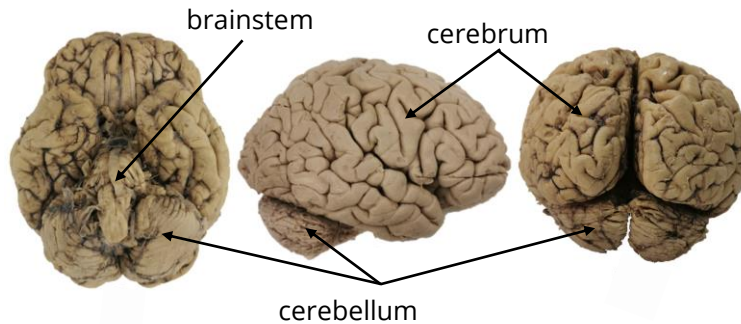


Cerebellum

The cerebellum is located inferior to the cerebrum and dorsal to the brainstem. It consists of cortex, white matter and nuclei.

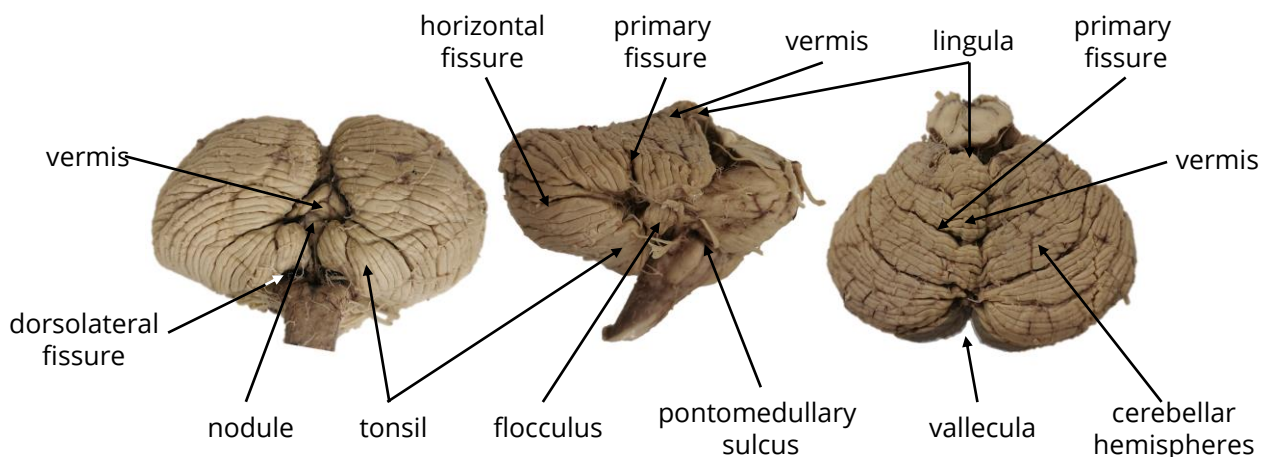


Surfaces of the cerebellum

The cortex of the cerebellum is made of folds called folia and between them deep fissures. The cerebellum is divided into two cerebellar hemispheres and between them the vermis (worm). The superior part of the vermis protrudes beyond the hemispheres and its inferior part is imbedded between them. The most anterior part of the vermis is the lingula (small tongue) and the most posterior part is the nodule (small knot). The space between the hemispheres is the vallecula (valley). In the inferior surface, adjacent to the posterior part of the medulla, find the tonsil. Between each hemisphere and the pontomedullary sulcus find the flocculus (tuft of wool).

There are 3 main fissures that divide the cerebellum:

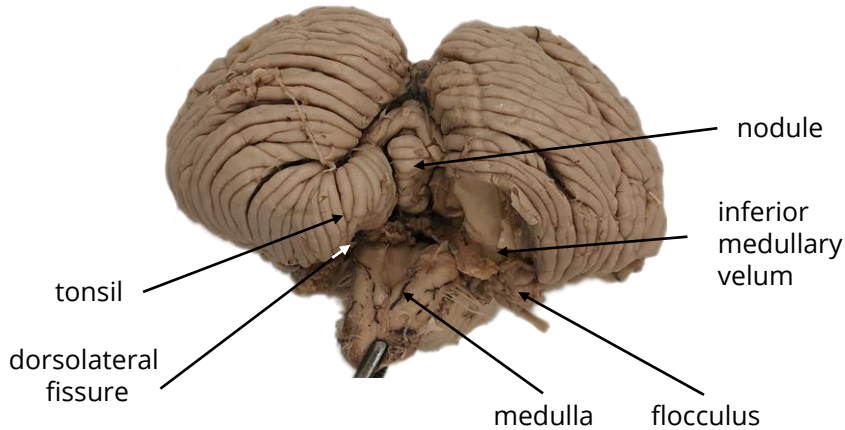
- The primary fissure separates the anterior lobe from the posterior lobe.
- The horizontal fissure separates the superior surface from the inferior surface.
- The dorsolateral fissure separates the posterior lobe from the flocculonodular lobe



The dorsolateral fissure and the flocculonodular lobe

Remove the tonsil and expose the dorsolateral fissure. Retract the medulla and find the inferior medullary velum. It consists of neuroglia and white matter that connects the flocculus and the nodule.

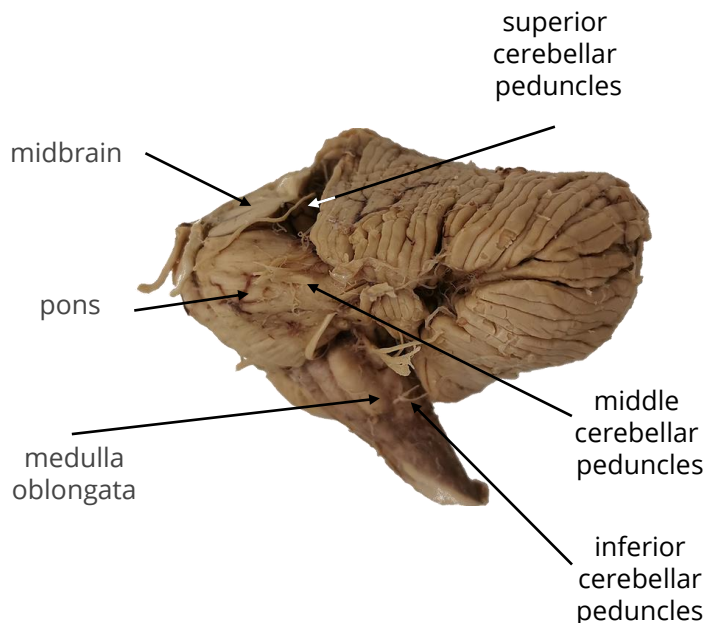
Together, the flocculus, inferior medullary velum and nodule make up the flocculonodular lobe.



The cerebellar peduncles

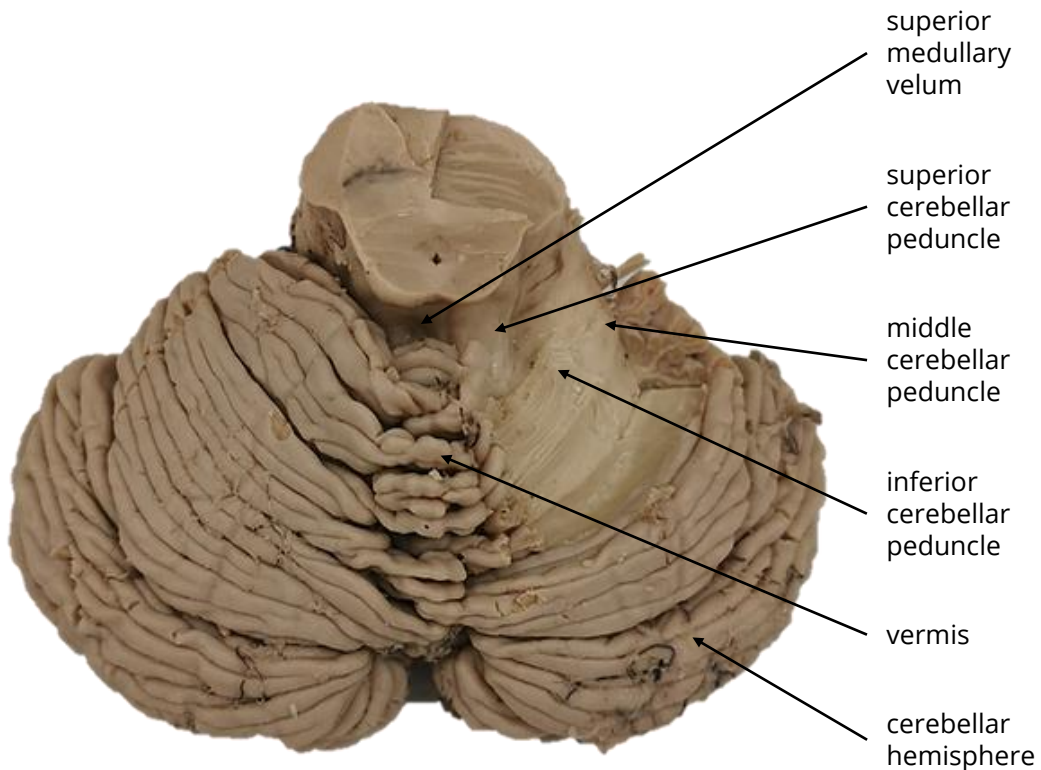
The cerebellum is connected to the brainstem by three pairs of cerebellar peduncles:

- To the midbrain by the superior cerebellar peduncles.
- To the pons by the middle cerebellar peduncles.
- To the medulla oblongata by the inferior cerebellar peduncles.



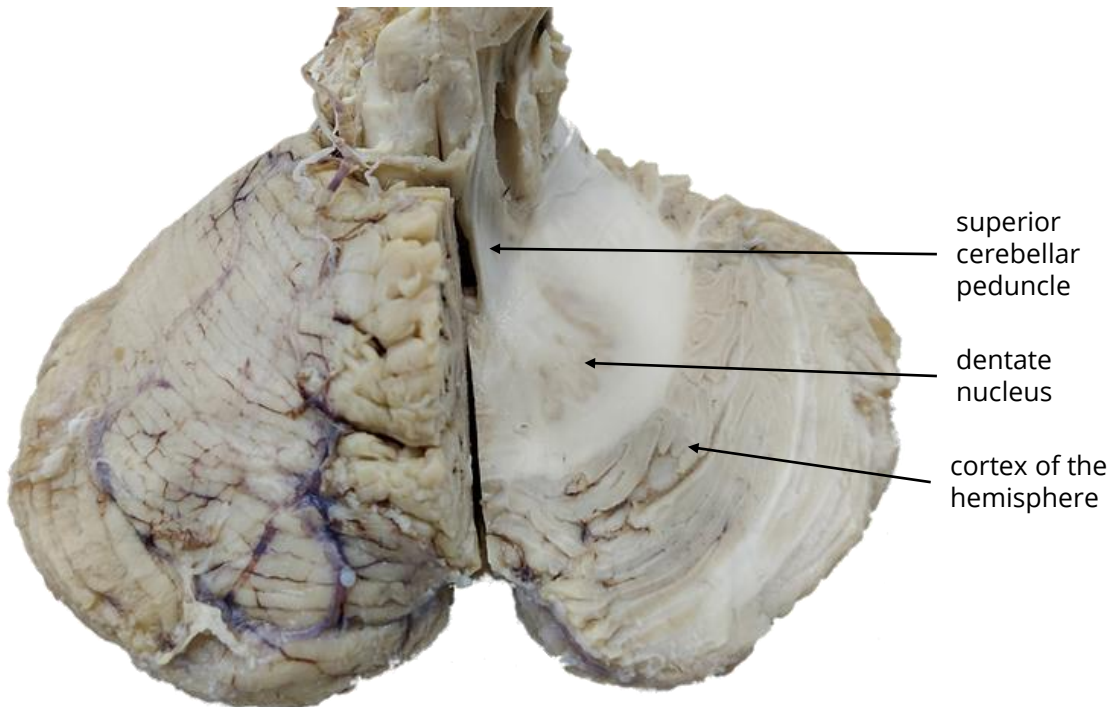
Dissection of the cerebellum

The middle cerebellar peduncle is the most lateral of the cerebellar peduncles. It contains fibers that originate from nuclei in the pons and terminate in the cortex of the cerebellar hemisphere. Remove the cortex from over the middle cerebellar peduncle to reveal the course of the fibers. The superior cerebellar peduncle is the most medial. It contains fibers that originate from subcortical nuclei of the cerebellum and terminate in the thalamus. Between the two superior cerebellar peduncles, find the superior medullary velum. The fibers of the inferior cerebellar peduncle pass between the superior and middle cerebellar peduncles. They originate from nuclei in the medulla and terminate in the vermis and the adjacent cortex, paravermis.



Continue by removing the fibers of the inferior cerebellar peduncle.

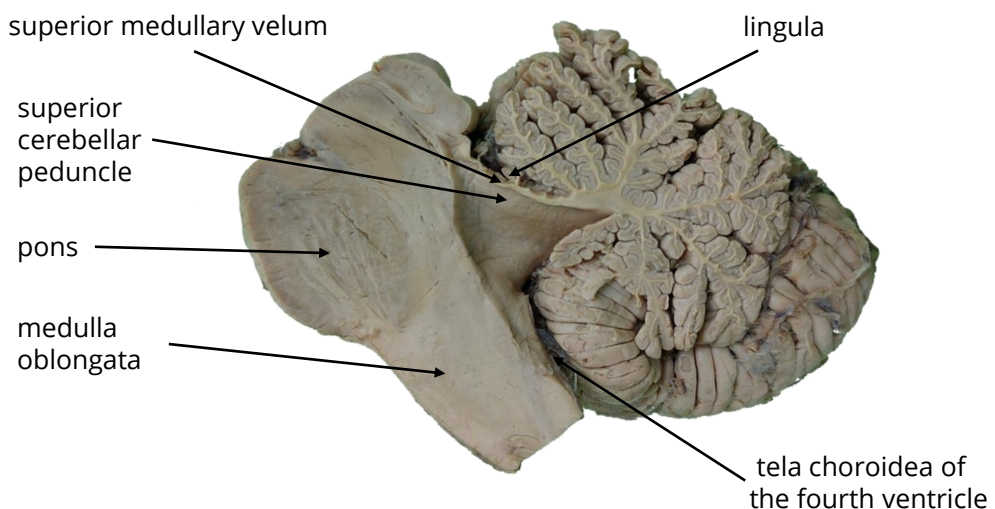
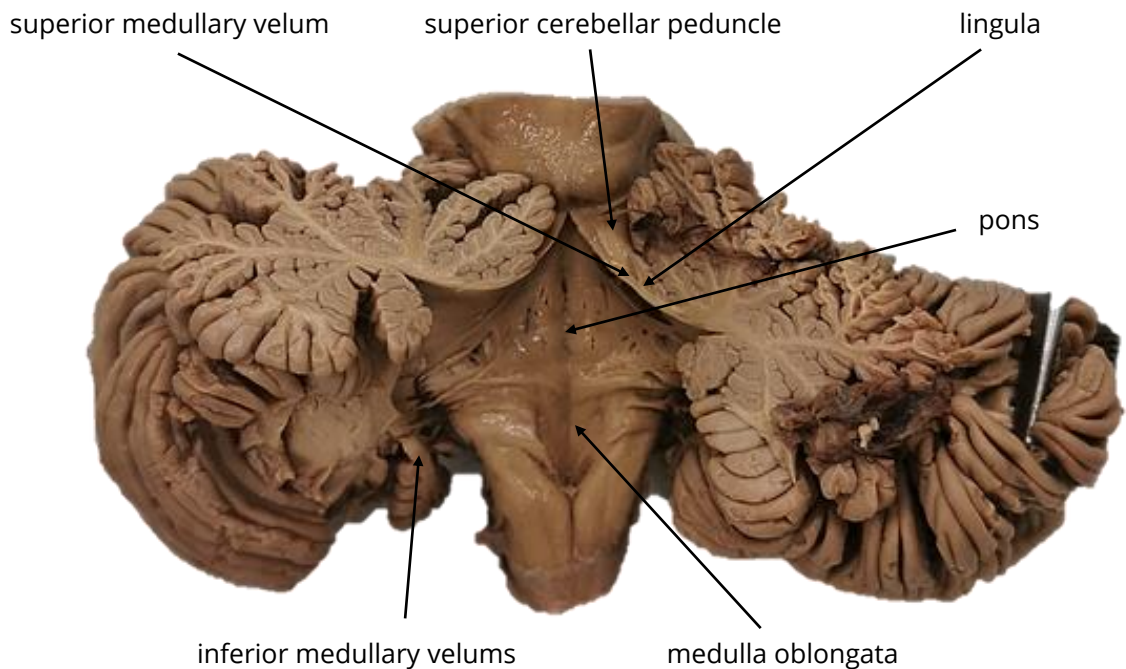
At the center of the hemisphere find the dentate nucleus. It receives fibers from the cortex of the hemisphere and the fibers that leave it form the superior cerebellar peduncle. There are other nuclei in the cerebellum, but they are smaller and difficult to see in this dissection.



The fourth ventricle

Boundaries of the fourth ventricle

Make a midsagittal cut in the vermis, notice its branching treelike pattern (arbor vitae cerebelli). Spread apart the two parts of the cerebellum and examine the structure of the fourth ventricle. The diamond-shaped floor of the fourth ventricle, also called the rhomboid fossa, is made of the dorsal aspects of the pons and medulla oblongata. The rostral part of the roof is made of the superior cerebellar peduncles with the superior medullary velum stretched between them in the middle. Notice the lingula next to it. The caudal part of the roof is made of the inferior medullary velums with the tela choroidea of the fourth ventricle in the middle.



The fourth ventricle

Openings of the fourth ventricle

Rostrally, the fourth ventricle is continuous with the cerebral aqueduct and caudally, with the central canal of the spinal cord. Three apertures (openings) in the fourth ventricle connect the CSF of the ventricular system and the subarachnoid space.

The median aperture is located at the caudal end between the cerebellum and the medulla and it opens into the cerebellomedullary cistern. Two lateral recesses of the fourth ventricle surround the inferior cerebellar peduncle on each side. Their openings, the lateral apertures are located between each flocculus and the pontomedullary sulcus and they open into the pontine cistern.

