Cerebellum

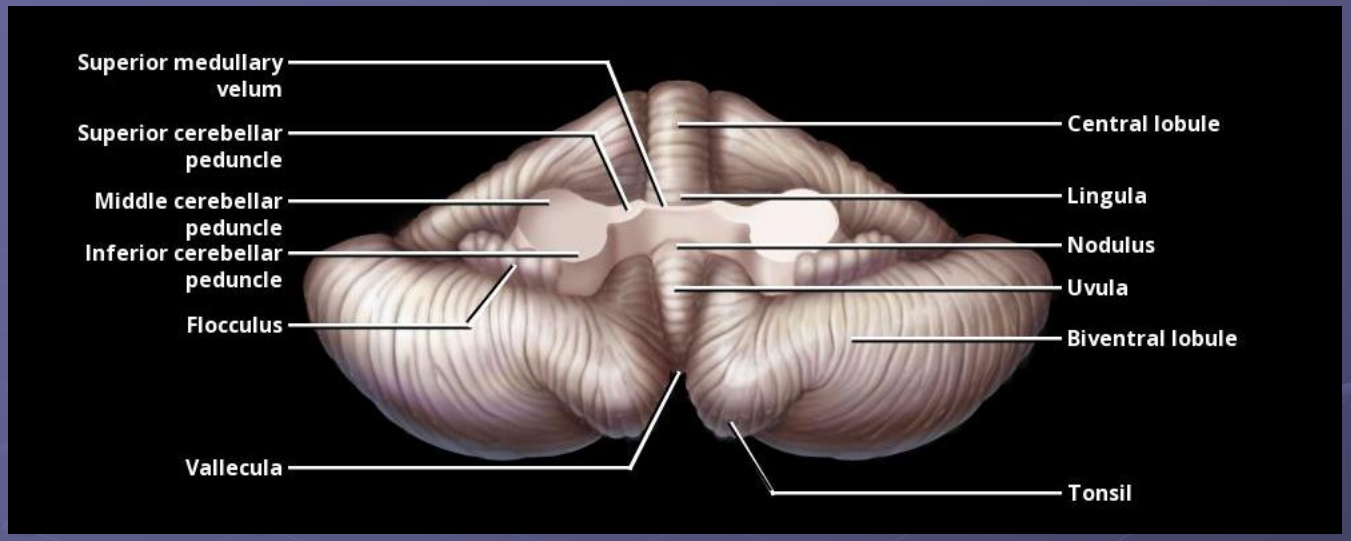
- Bilobed posterior fossa structure
  - 2 hemispheres & midline vermis
  - 3 surfaces
  - Divided into lobes & lobules by transverse fissures
  - Connected to brainstem by 3 paired peduncles
  - Cortical gray matter, central white matter, & 4 paired deep gray nuclei

Peduncles

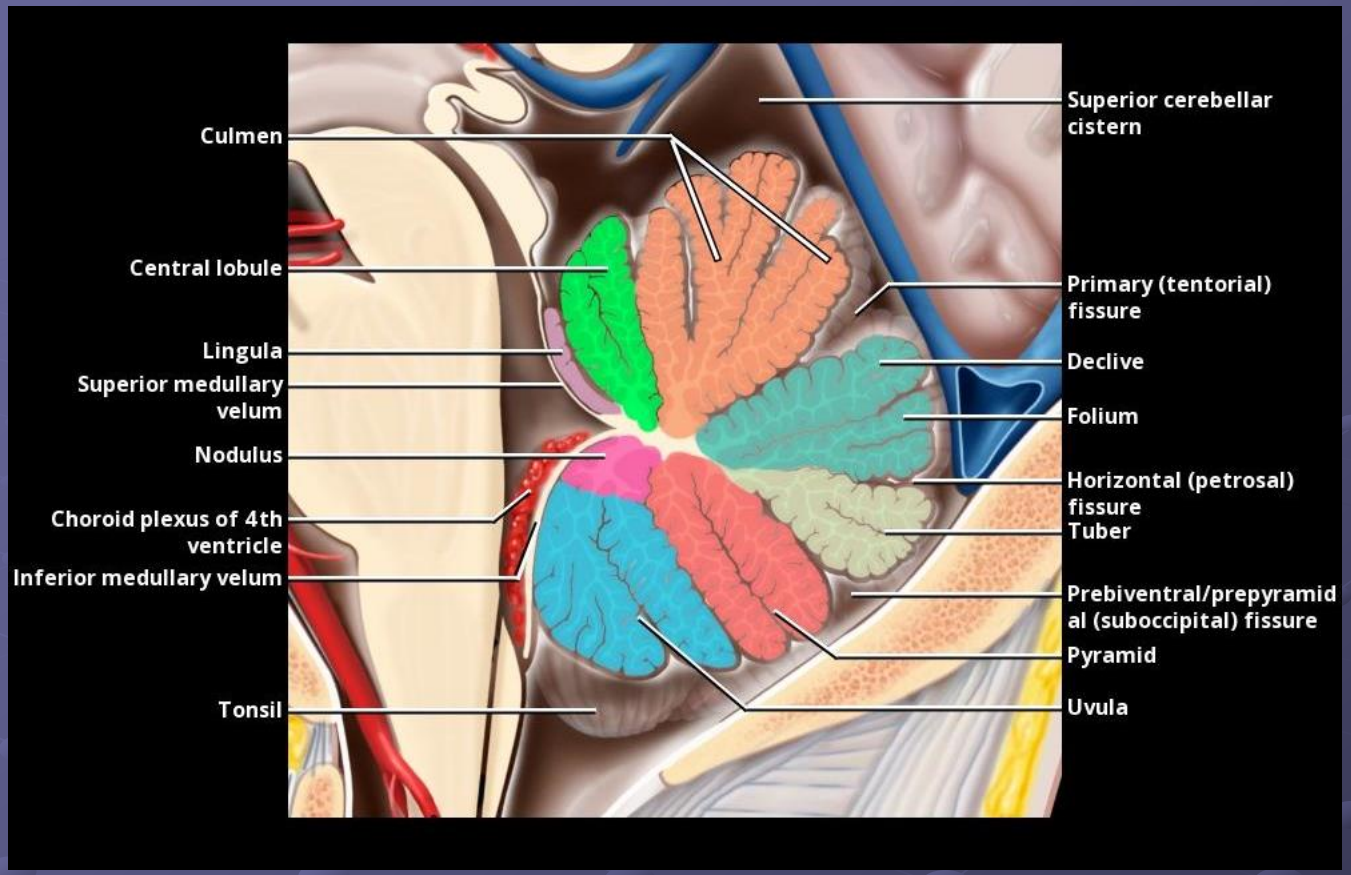
- **Superior cerebellar peduncle (brachium conjunctivum)**
  - Connects to cerebrum via midbrain
  - Contains efferent fiber systems extending to red nucleus & thalamus
- **Middle cerebellar peduncle (brachium pontis)**
  - Connects to pons
  - Contains fiber mass originating from pontine nuclei & represents continuation of corticopontine tracts
- **Inferior cerebellar peduncle (restiform body)**
  - Connects to medulla
  - Contains spinocerebellar tracts & connections to vestibular nuclei

Vermis

- **Vermis**: Superior & inferior, separated by horizontal (petrosal) fissure
  - Superior vermis: Lingula (anterior), central lobule, culmen, declive, folium (posterior) lobules
  - Inferior vermis: Tuber (posterior), pyramid, uvula, nodule (anterior) lobules

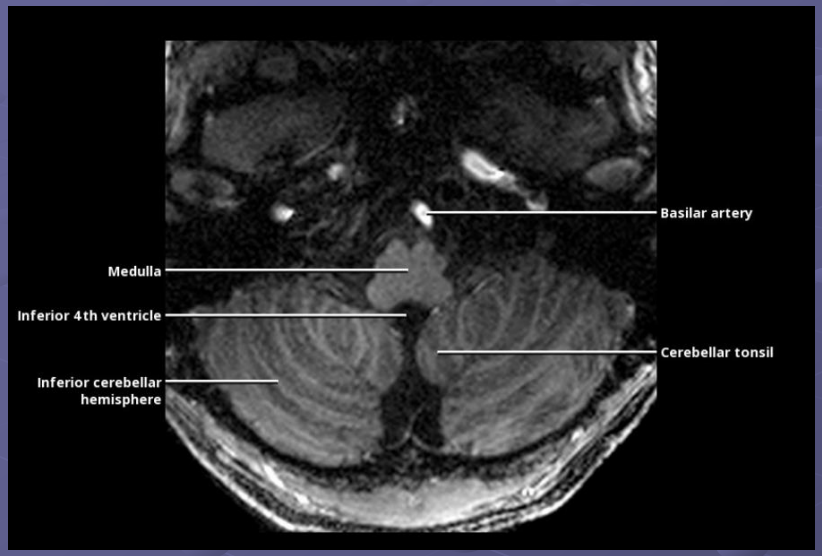


- Middle cerebellar peduncle is largest & contains corticopontine tracts from pons.
- Superior cerebellar peduncle contains fibers from red nucleus & thalamus.
- Inferior cerebellar peduncle contains spinocerebellar tracts & connections to vestibular nuclei.
- Cerebellum is divided into 2 large lateral hemispheres united by a midline vermis.

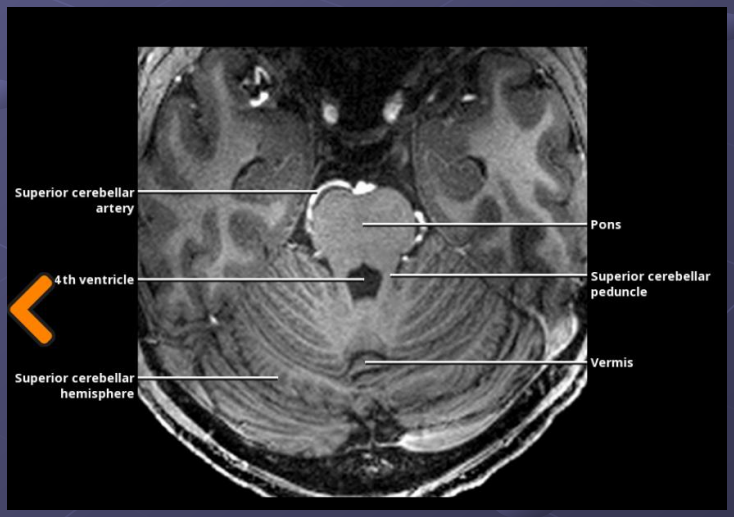


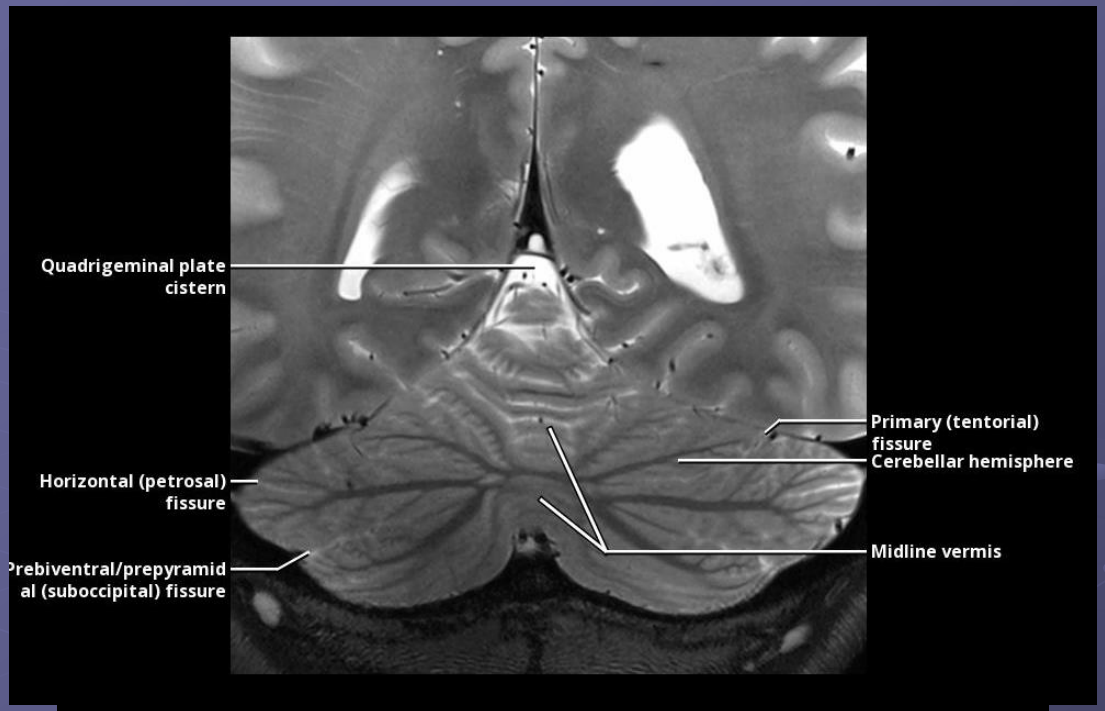
Lingula (purple), central lobule (green), culmen (orange), declive & folium (petrol blue), tuber (gray), pyramid (red), uvula (cyan), & nodulus (magenta). Primary (tentorial) fissure separates culmen from declive (simple)

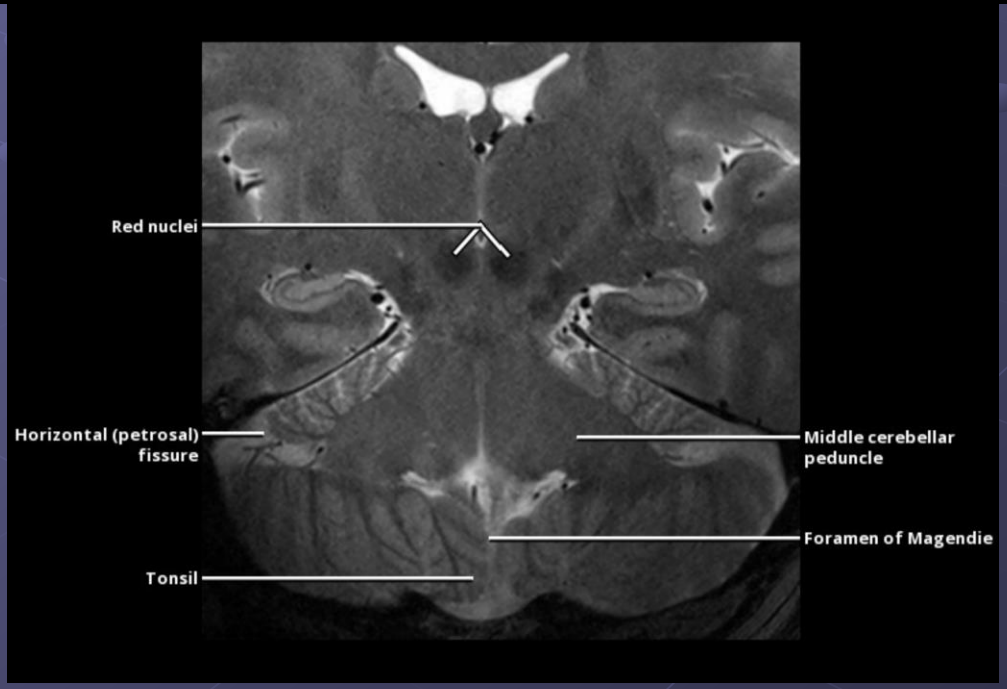
Horizontal (petrosal) fissure separates folium from tuber, dividing vermis into superior & inferior parts. Prebiventral/prepyramidal (suboccipital) fissure separates tuber from pyramid.


Basilar artery
Medulla
Inferior 4th ventricle
Cerebellar tonsil
Inferior cerebellar hemisphere

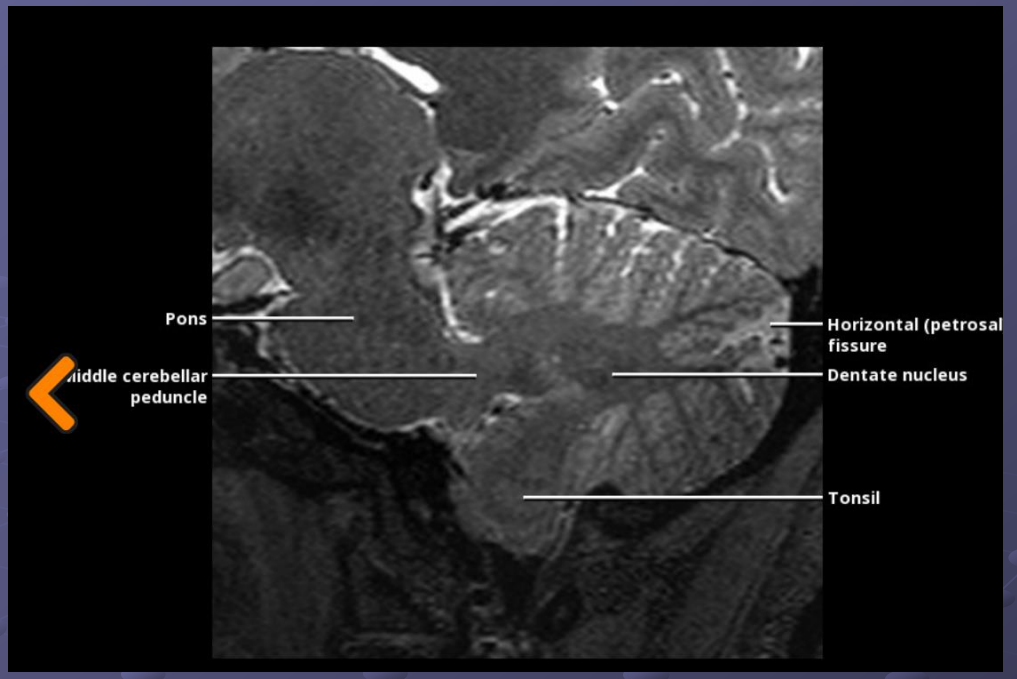

Pons
Middle cerebellar peduncle
Nodulus
Vermis
Cerebellar hemisphere

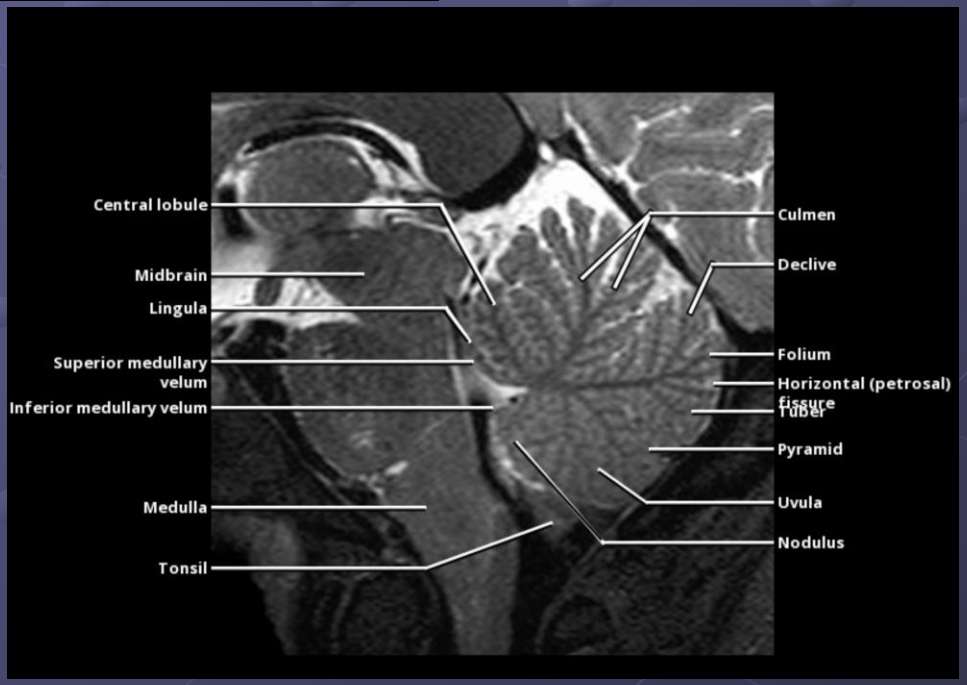

Superior cerebellar artery
Pons
4th ventricle
Superior cerebellar peduncle
Vermis
Superior cerebellar hemisphere


Quadrigeminal plate cistern
Primary (tentorial) fissure
Cerebellar hemisphere
Horizontal (petrosal) fissure
Midline vermis
Prebiventral/prepyramidal (suboccipital) fissure


Red nuclei
Horizontal (petrosal) fissure
Middle cerebellar peduncle
Foramen of Magendie
Tonsil


Tentorium cerebelli
Superior cerebellar hemisphere
Horizontal (petrosal) fissure
Cerebellar white matter
Inferior cerebellar hemisphere


Pons
Middle cerebellar peduncle
Horizontal (petrosal fissure
Dentate nucleus
Tonsil


Central lobule
Midbrain
Lingula
Superior medullary velum
Inferior medullary velum
Medulla
Tonsil
Culmen
Declive
Folium
Horizontal (petrosal) fissure
Tuber
Pyramid
Uvula
Nodulus