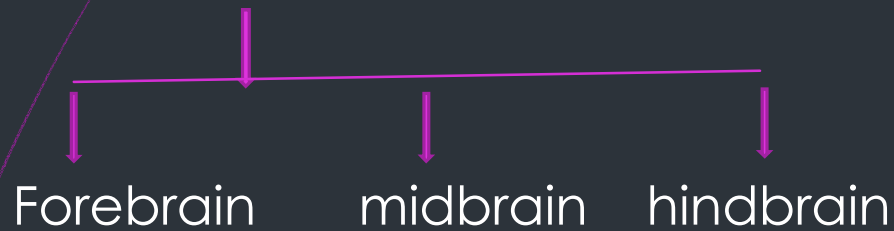


Cerebellum : Latin=little brain

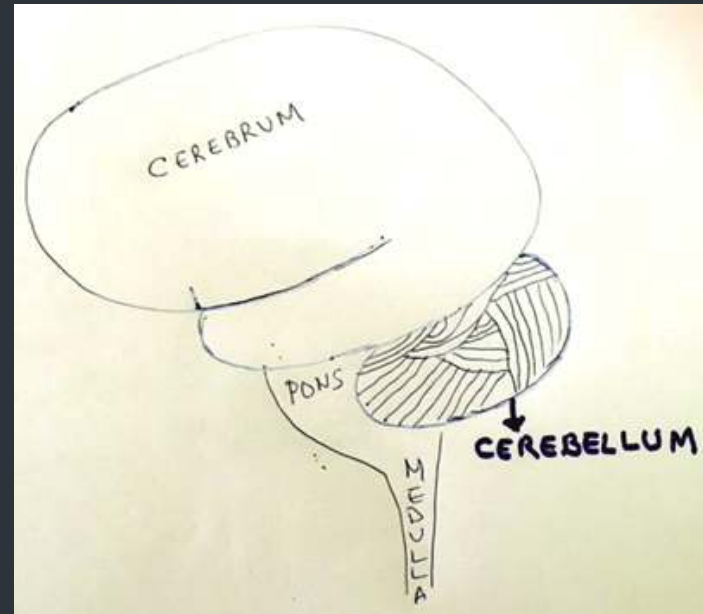
-parts of brain:

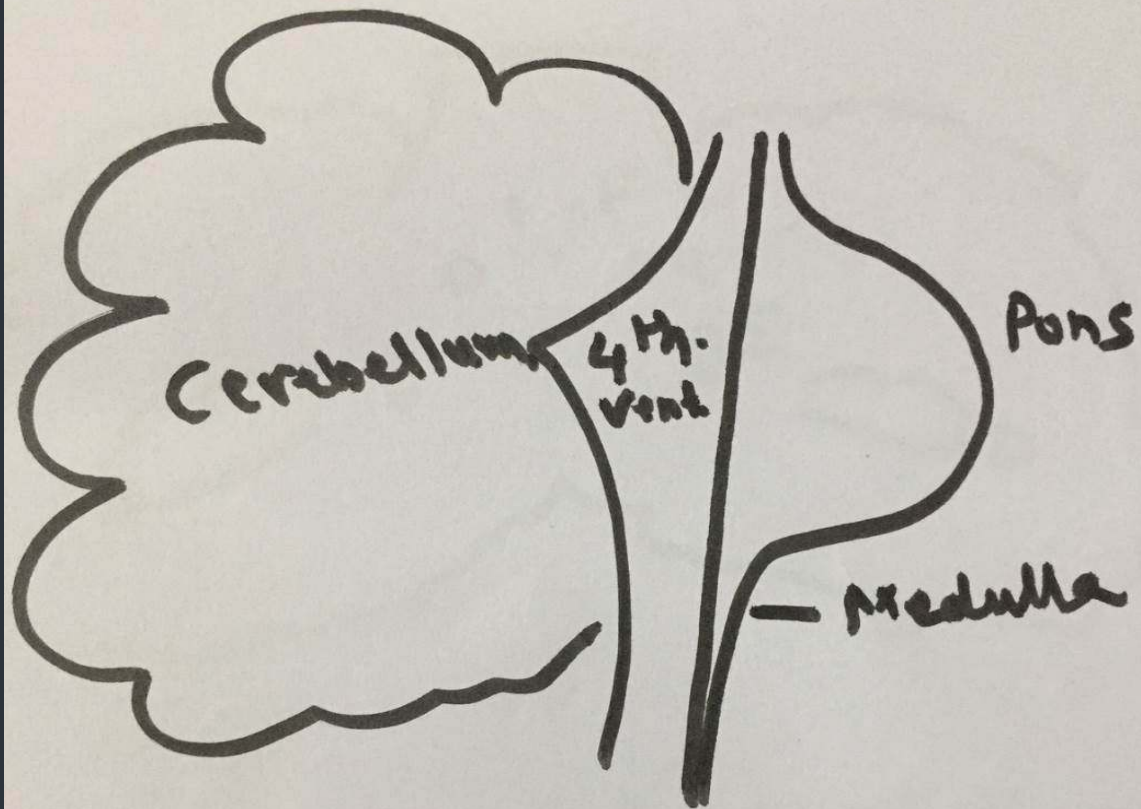


-cerebellum is the largest part of hind brain

-location: posterior cranial fossa

-cerebellar peduncles







Gross anatomy

- cortical grey matter
- medullary core
- 4 pairs of deep cerebellar nuclei
- cortex : folia or folds seperated by fissures
- medulla : arbour vitae cerebelli=tree of life

Anatomical subdivisions

- 2 large BILATERAL HEMISPHERES
- a median worm like VERMIS
- posterolateral fissure divides cerebellum into:
 - flocculo-nodular lobe
 - corpus cerebelli : divided by V-shaped primary fissure into:-
 - anterior lobe
 - posterior lobe

Parts of cerebellum

► VERMIS

Lal Chand Could Die For
Terylin Pant Un-Necessarily

- Lingula
- Culmen
- Central lobule
- Declive
- Folium
- Tuber
- Pyramid
- Uvula
- Nodule

► HEMISHERE

All Qualities Should Serve
Sufficiently By trying Further

- Ala
- Quadrangular lobule
- Simple lobule
- superior semilunar lobule
- inferior semilunar lobule
- biventral lobule
- tonsil
- floccules

MORPHOLOGICAL SUBDIVISIONS : TRANSVERSE SUBDIVISIONS

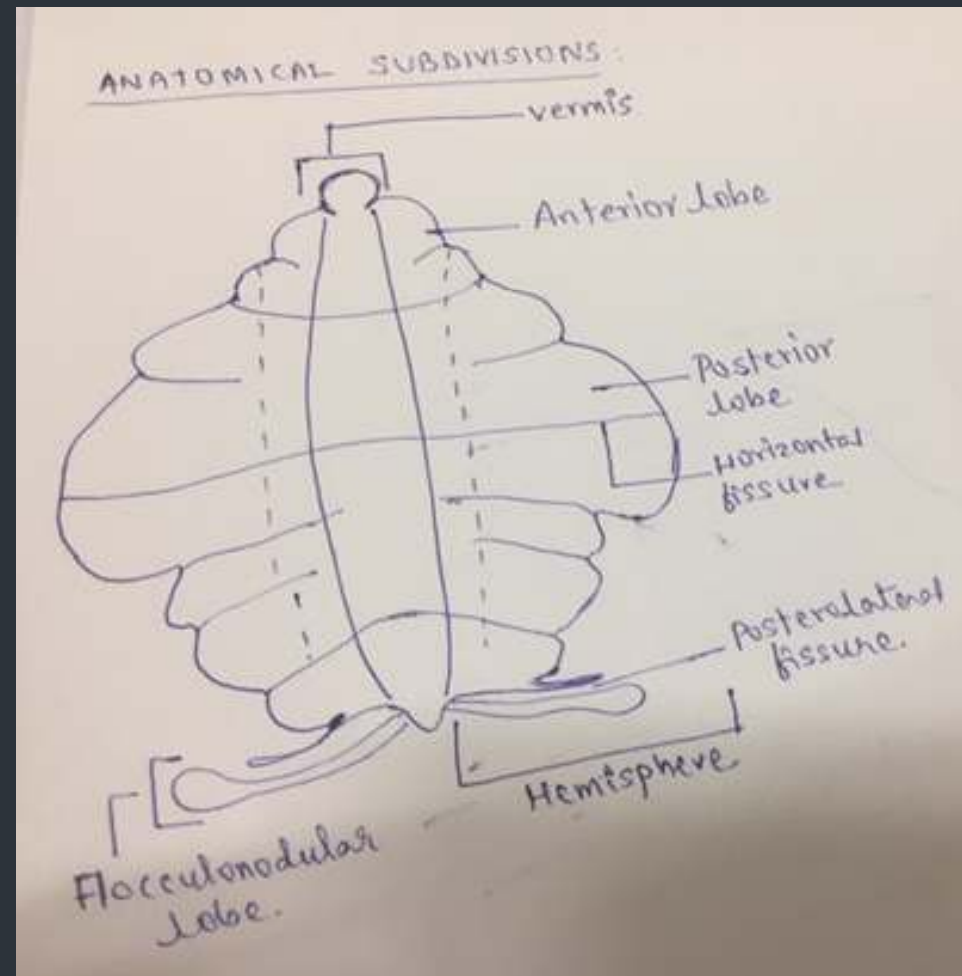
-on phylogenetic criteria:

- 1) Archi-cerebellum: vestibular cerebellum
- 2) Palleo-cerebellum: spinal cerebellum
- 3) Neo-cerebellum: cerebro-pontine cerebellum

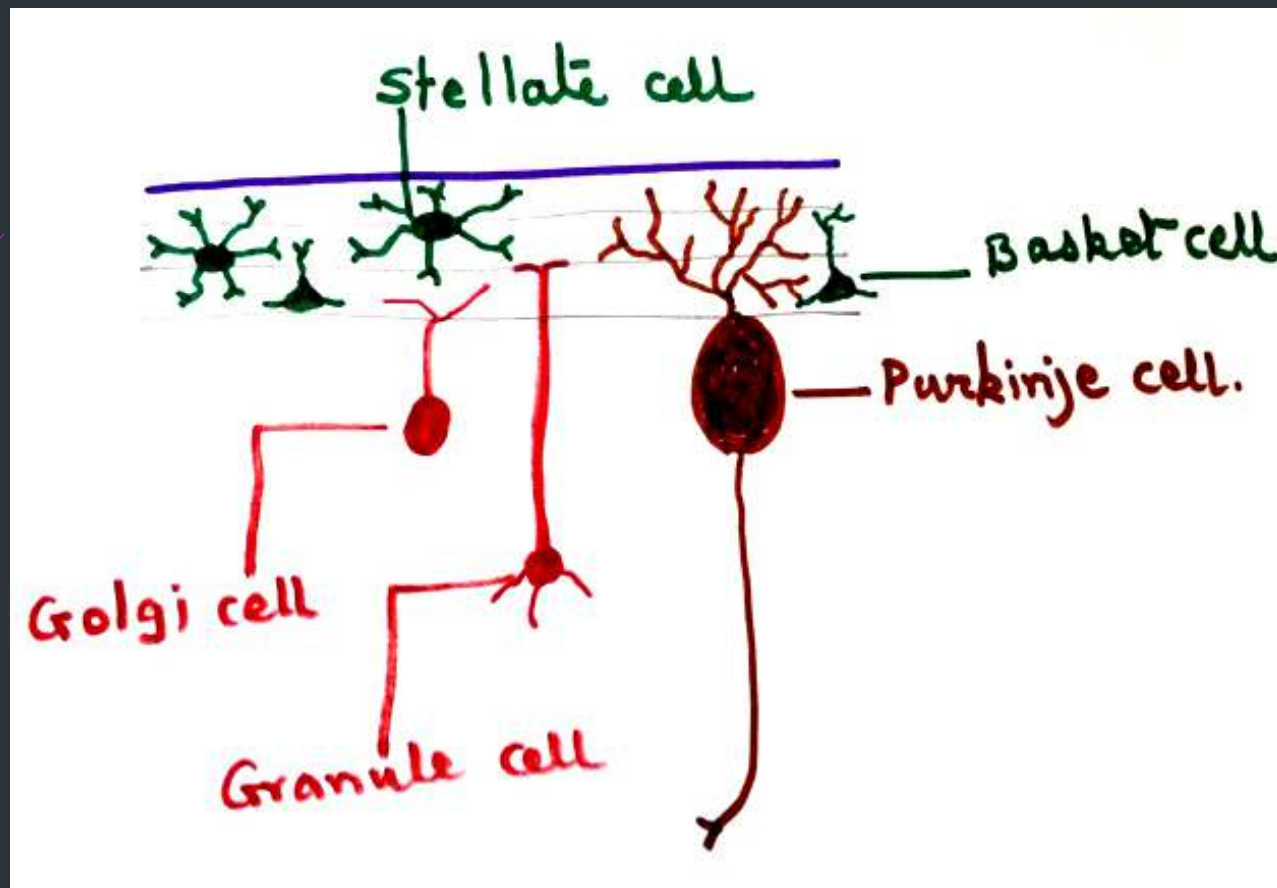
Functional subdivisions(longitudinal)

-corpus cerebelli is subdivided longitudinally into 3 zones:

- 1)vermal
- 2)paravermal
- 3)a hemisphere



Cytoarchitecture of cerebellum



Deep cerebellar nuclei

-4 pairs of deep cerebellar nuclei :from medial to lateral side:

-nucleus fastigii:roof nucleus

-nucleus globosus:

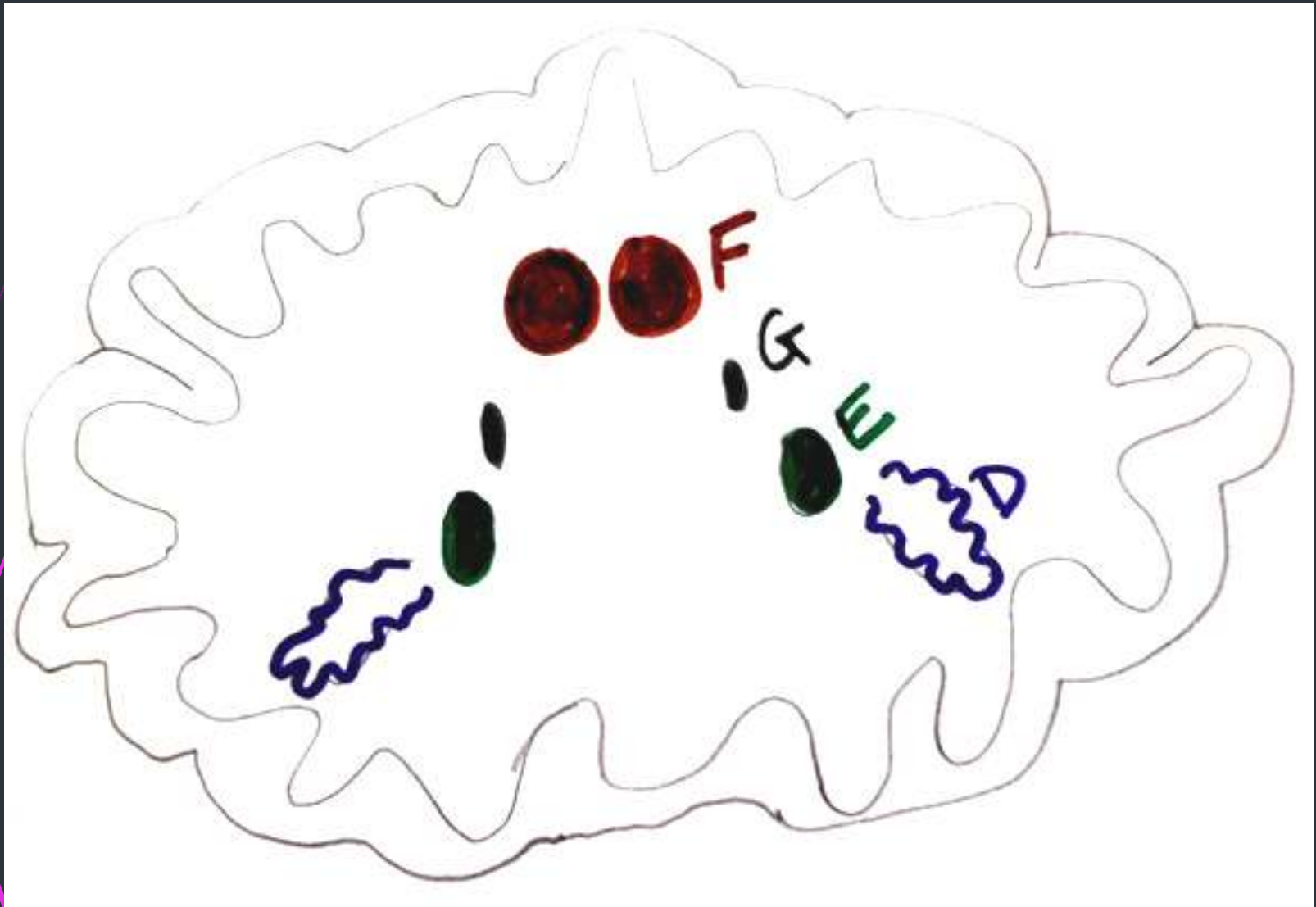
-nucleus emboliformis:

-nucleus dentatus:

-inputs: climbing and mossy fibers
axons of purkinje cells

-output : red nucleus,thalamus,midbrain,reticular formation

Cerebellar nuclei



Cerebellar connections

-inferior, middle and superior cerebellar peduncles

Inferior cerebellar peduncle	Middle cerebellar peduncle	Superior cerebellar peduncle
Afferent: Posterior spinocerebellar	Pontocerebellar	Anterior spinocerebellar
Cuneocerebellar Olivocerebellar Parolivocerebellar		Rostral spinocerebellar Tectocerebellar
Efferent: Cerebellovestibular		Dentatorubral and Dentatothalamic
Cerebelloreticular		Cerebello-olivary
Cerebelloolivary		Cerebelloreticular

Comparator function of the cerebellum

- plays a key role in accomplishing a smooth and coordinated movements by means of its comparator function
- role in learning of motor skills
- maintaining equilibrium, posture, muscle tone, skillful movements
- head ganglion of the proprioceptive system
- the cerebellum receives sensations at unconscious level
- cerebellar control on movements is ipsilateral.....two decussations in the output channels: dentato-rubro-thalamic fibers and rubro-spinal and cortico-spinal tracts



:Dysfunctions:

- cerebellar lesions due to trauma, vascular occlusion, tumors etc. produce a number of signs and symptoms together constitute the cerebellar syndrome
- Archicerebellar syndrome
- paleocerebellar syndrome
- neocerebellar syndrome

Neo-cerebellar syndrome: lateral cerebellar syndrome

1) **Hypotonia** : pendular knee jerk, flail joints

2) **Asynergia** : -ataxia :Romberg's sign

- dysdiadochokinesis

- dysmetria: past pointing, finger-nose test
knee-heel test

-decomposition of movements: act breaks up into isolated movements resembling the movements of puppet.

-rebound phenomenon

-dysarthria

-nystagmus

3) **Intention tremor**



Archicerebellar syndrome

-appears when flocculonodular lobe is affected

-medulloblastoma:tumor affecting children

-s/s : disturbance **of equilibrium**

a wide base gait

sways from side to side

unable to maintain upright posture

hydrocephalus

Palleocerebellar syndrome

- anterior or middle cerebellar
- observed in excessive intake of alcohol or in malnutrition
- ataxia of gait : **hypotonia asthenia**
- individual movements of leg muscles** are much affected