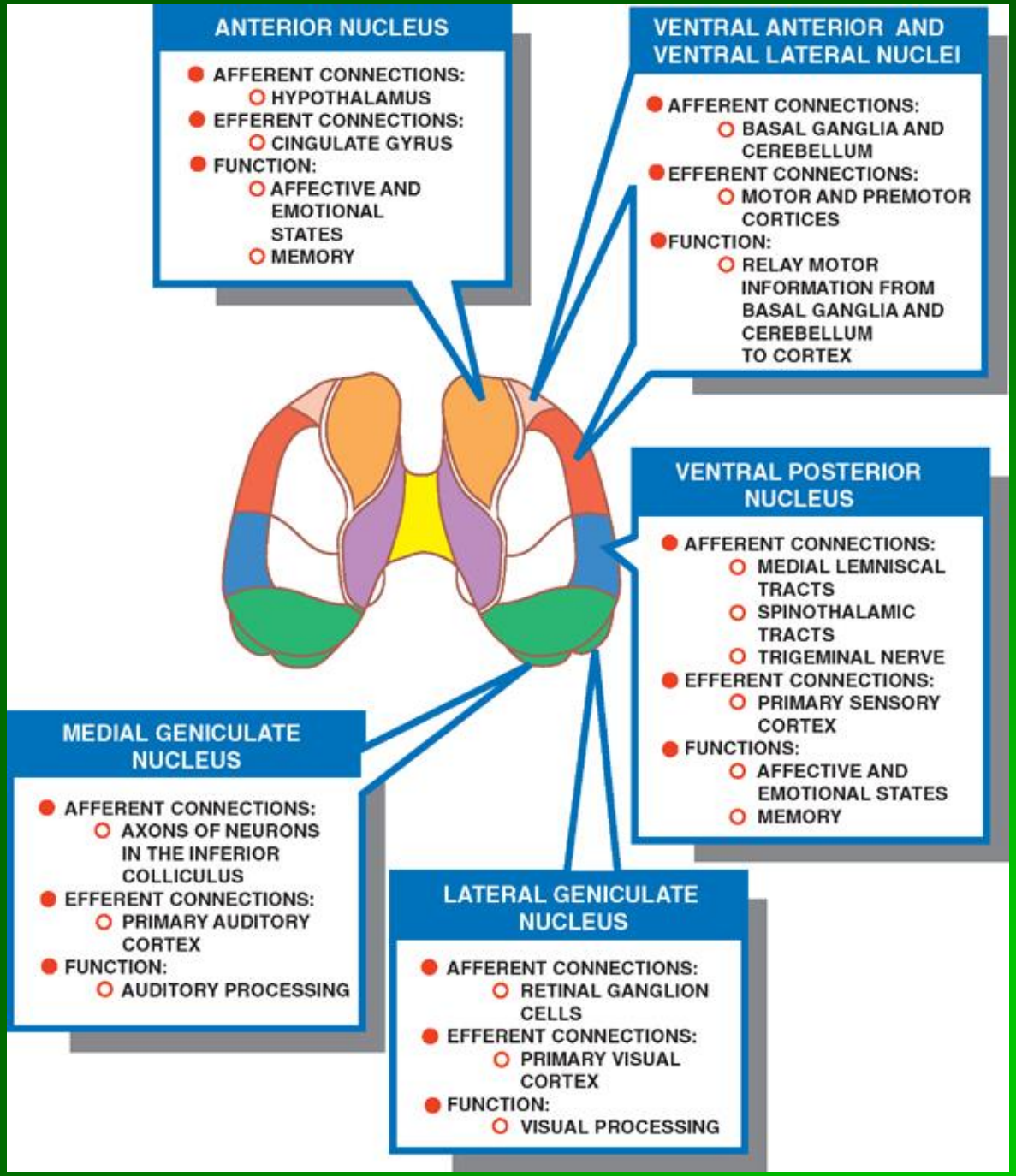
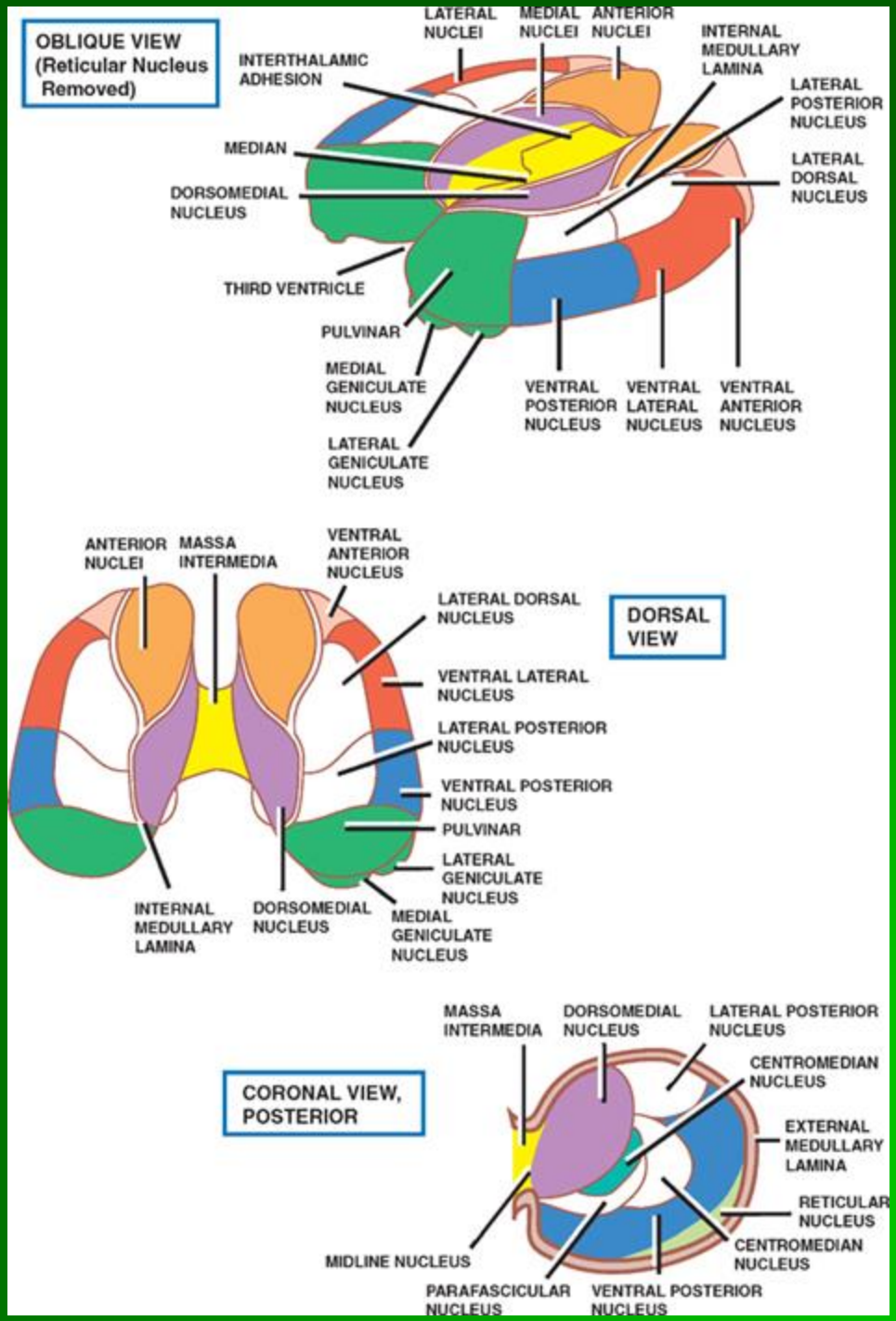
Thalamus

- Thalamus is a dense network of nuclei & tracts connected to almost everything in the brain.
- Almost any symptom can be correlated to it.
- All major sensory pathways, except olfactory, relay in the thalamus before ascending to the cortex.
- It is so tightly packed, like a crowded city, every tiny variations in location can change symptoms by affecting different, neighboring nuclei & tracts.
- While they're all in the thalamus, they're in very different locations w/different symptoms
- You can actually tell your clinician WHERE exactly they are & what the SYMPTOMS might be

Thalamus

- Important connections with the extrapyramidal motor system, the consciousness system, the visual system, and the limbic system. Therefore,
- Lesions in the thalamus result in sensory and motor disturbances, as well as disturbances in alertness, vision, and behavior.

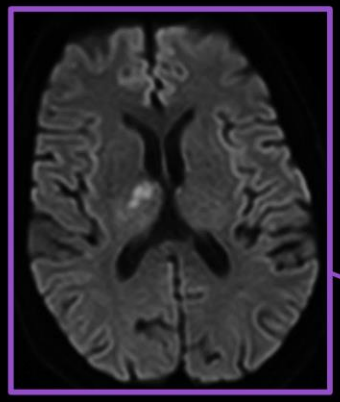

ANTERIOR NUCLEUS
AFFERENT CONNECTIONS:
HYPOTHALAMUS
EFFERENT CONNECTIONS:
CINGULATE GYRUS
FUNCTION:
AFFECTIVE AND EMOTIONAL STATES
MEMORY
VENTRAL ANTERIOR AND VENTRAL LATERAL NUCLEI
AFFERENT CONNECTIONS:
BASAL GANGLIA AND CEREBELLUM
EFFERENT CONNECTIONS:
MOTOR AND PREMOTOR CORTICES
FUNCTION:
RELAY MOTOR INFORMATION FROM BASAL GANGLIA AND CEREBELLUM TO CORTEX
VENTRAL POSTERIOR NUCLEUS
AFFERENT CONNECTIONS:
MEDIAL LEMNISCAL TRACTS
SPINOTHALAMIC TRACTS
TRIGEMINAL NERVE
EFFERENT CONNECTIONS:
PRIMARY SENSORY CORTEX
FUNCTIONS:
AFFECTIVE AND EMOTIONAL STATES
MEMORY
MEDIAL GENICULATE NUCLEUS
AFFERENT CONNECTIONS:
AXONS OF NEURONS IN THE INFERIOR COLLICULUS
EFFERENT CONNECTIONS:
PRIMARY AUDITORY CORTEX
FUNCTION:
AUDITORY PROCESSING
LATERAL GENICULATE NUCLEUS
AFFERENT CONNECTIONS:
RETINAL GANGLION CELLS
EFFERENT CONNECTIONS:
PRIMARY VISUAL CORTEX
FUNCTION:
VISUAL PROCESSING


OBLIQUE VIEW
(Reticular Nucleus Removed)
LATERAL NUCLEI
MEDIAL NUCLEI
ANTERIOR NUCLEI
INTERNAL MEDULLARY LAMINA
INTERTHALAMIC ADHESION
LATERAL POSTERIOR NUCLEUS
MEDIAN
LATERAL DORSAL NUCLEUS
DORSOMEDIAL NUCLEUS
THIRD VENTRICLE
PULVINAR
MEDIAL GENICULATE NUCLEUS
VENTRAL POSTERIOR NUCLEUS
VENTRAL LATERAL NUCLEUS
VENTRAL ANTERIOR NUCLEUS
LATERAL GENICULATE NUCLEUS
ANTERIOR NUCLEI
MASSA INTERMEDIA
VENTRAL ANTERIOR NUCLEUS
LATERAL DORSAL NUCLEUS
DORSAL VIEW
VENTRAL LATERAL NUCLEUS
LATERAL POSTERIOR NUCLEUS
VENTRAL POSTERIOR NUCLEUS
PULVINAR
LATERAL GENICULATE NUCLEUS
INTERNAL MEDULLARY LAMINA
DORSOMEDIAL NUCLEUS
MEDIAL GENICULATE NUCLEUS
CORONAL VIEW, POSTERIOR
MASSA INTERMEDIA
DORSOMEDIAL NUCLEUS
LATERAL POSTERIOR NUCLEUS
CENTROMEDIAN NUCLEUS
EXTERNAL MEDULLARY LAMINA
RETICULAR NUCLEUS
CENTROMEDIAN NUCLEUS
MIDLINE NUCLEUS
PARAFASCICULAR NUCLEUS
VENTRAL POSTERIOR NUCLEUS

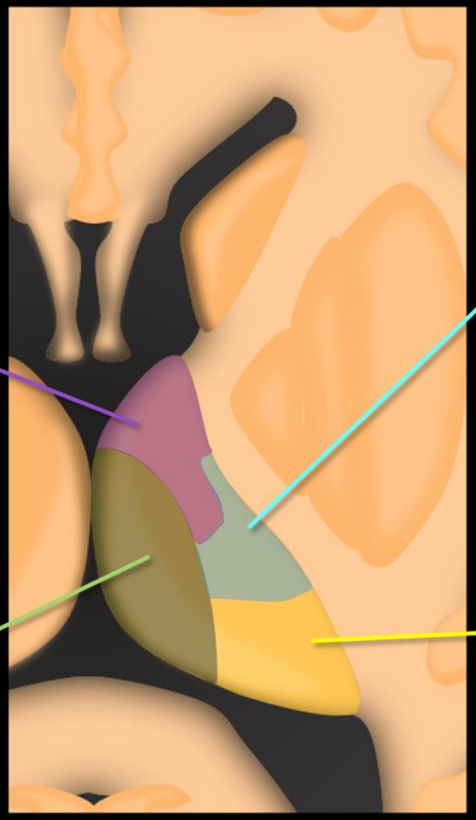
Thalamus

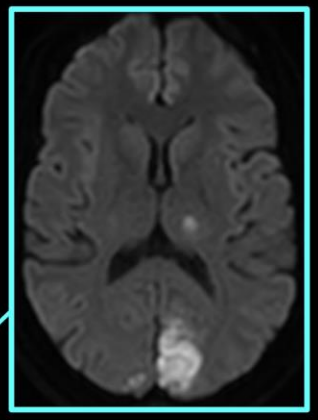
- Infarcts reflect the four main thalamic vascular territories:
  - Tuberothalamic anteriorly,
  - Paramedian medially
  - thalamogeniculate laterally
  - Posterior choroidal posteriorly.
- Each has a different syndrome associated w/them. So how do you remember these territories?

These reflect the 4 vascular territories



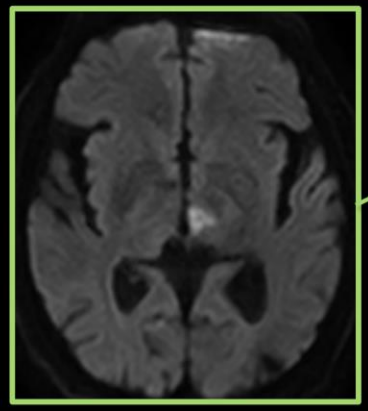
Tubero-thalamic

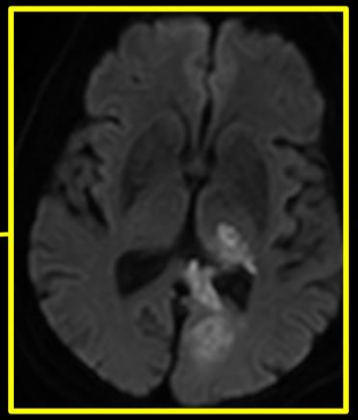




Thalamo-geniculate

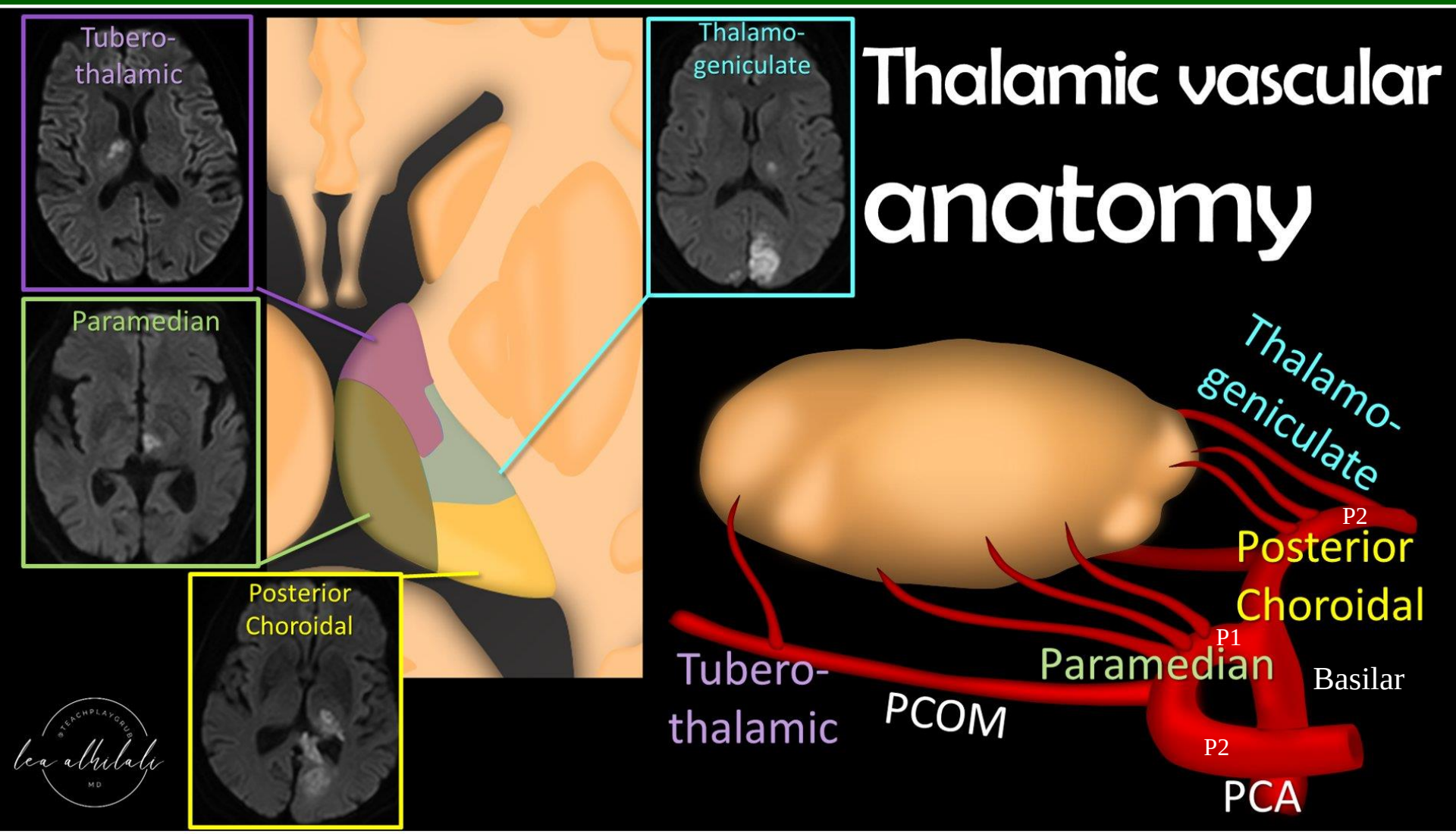
Para-median

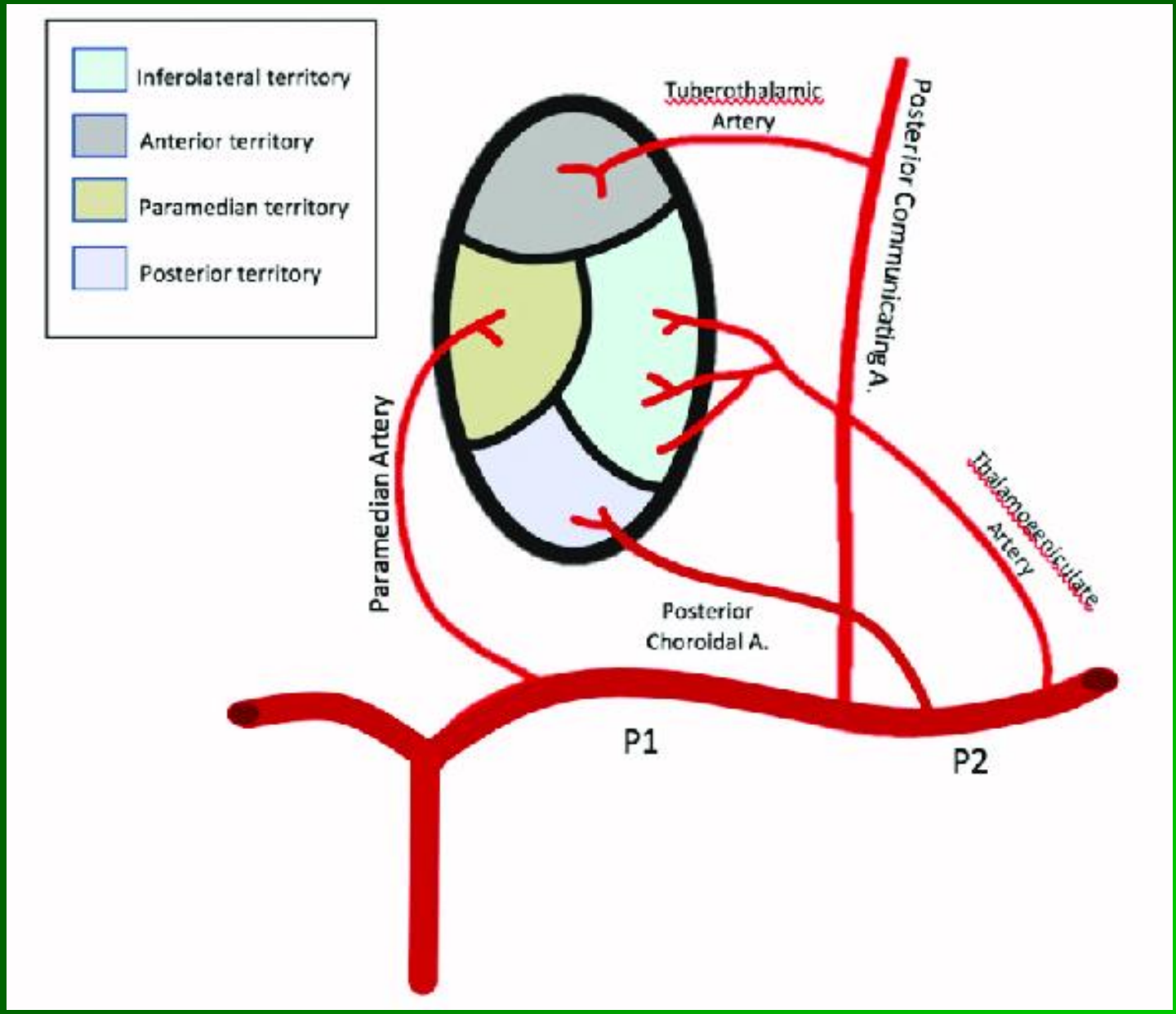




Posterior Choroidal

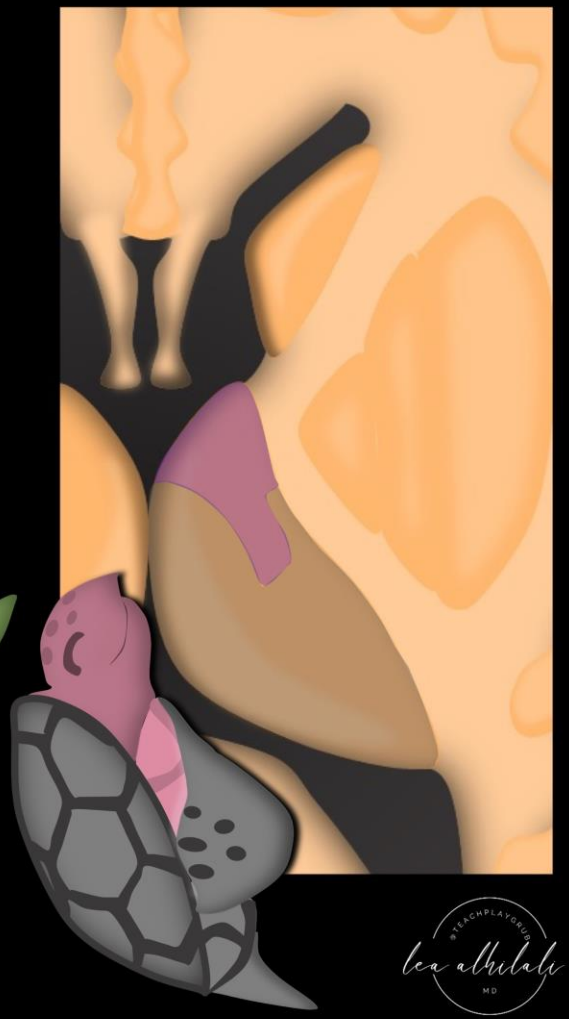
@TEACHPLAYGROUP
lea alhilali
MD


Tubero-thalamic
Paramedian
Posterior Choroidal
Thalamo-geniculate
Thalamic vascular anatomy
Thalamo-geniculate
P2
Posterior Choroidal
P1
Paramedian
Basilar
Tubero-thalamic
PCOM
P2
PCA
TEACHPLAYGROUND
lea alhilali
MD


Inferolateral territory
Anterior territory
Paramedian territory
Posterior territory
Tuberothalamic Artery
Posterior Communicating A.
Paramedian Artery
Thalamoperforate Artery
Posterior Choroidal A.
P1
P2

Tuberothalamic =

abulic, apathetic, slovenly

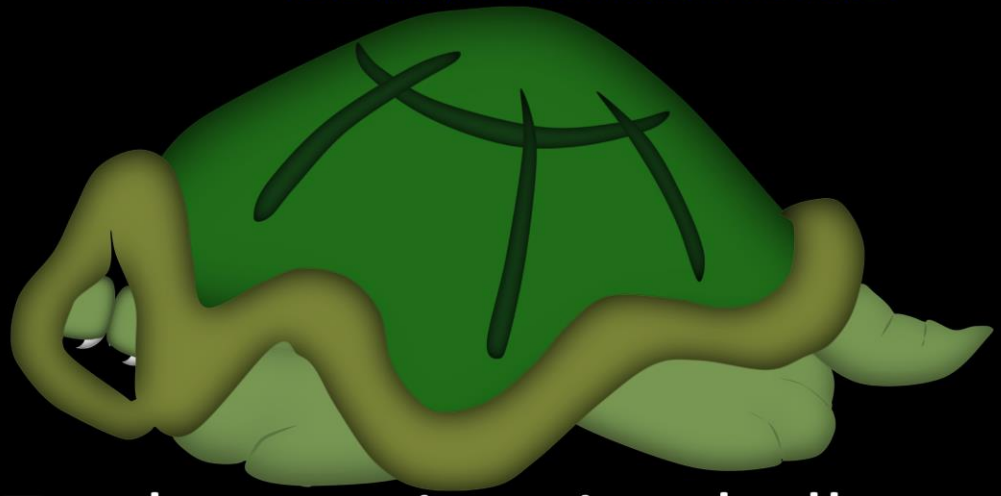


Like the expression on the head of a turtle

#TEACHPLAYDRUG
lea alhilali
MD

Paramedian =

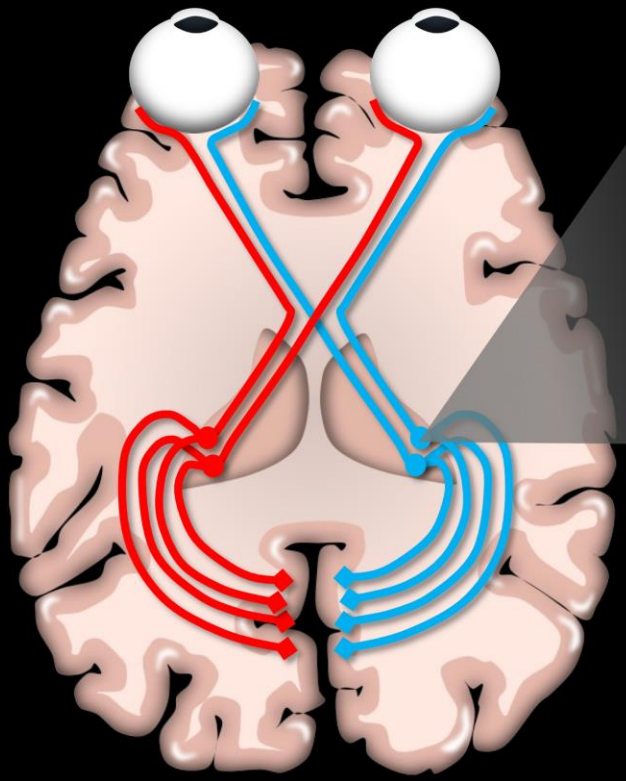
hypersomnolence, decreased consciousness

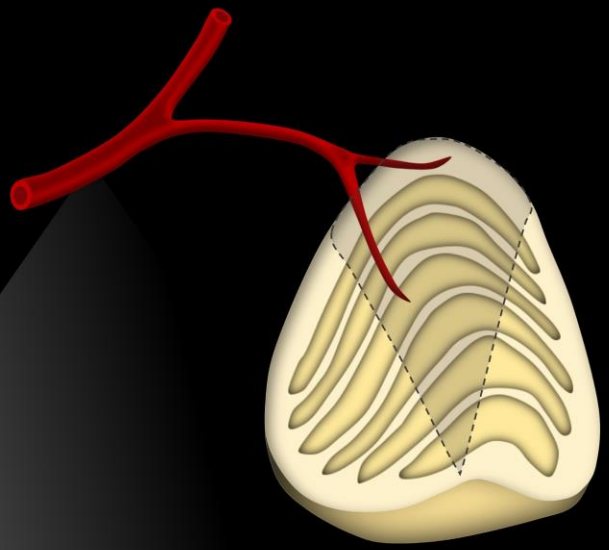


Turtle goes into its shell to sleep & disappear

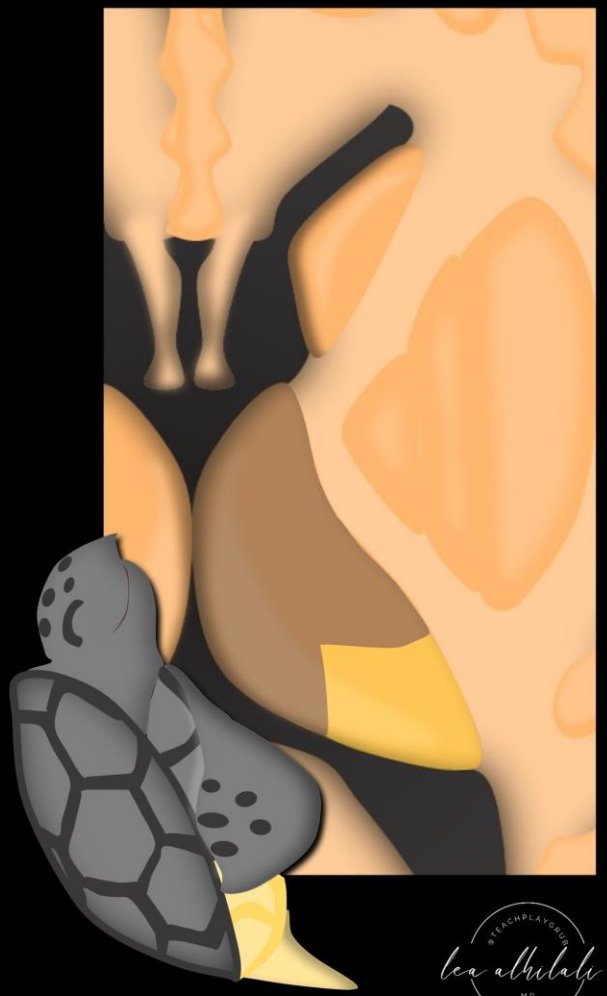
#TEACHPLATYPUS
lea alhilali
MD

Posterior choroidal = turtle tail

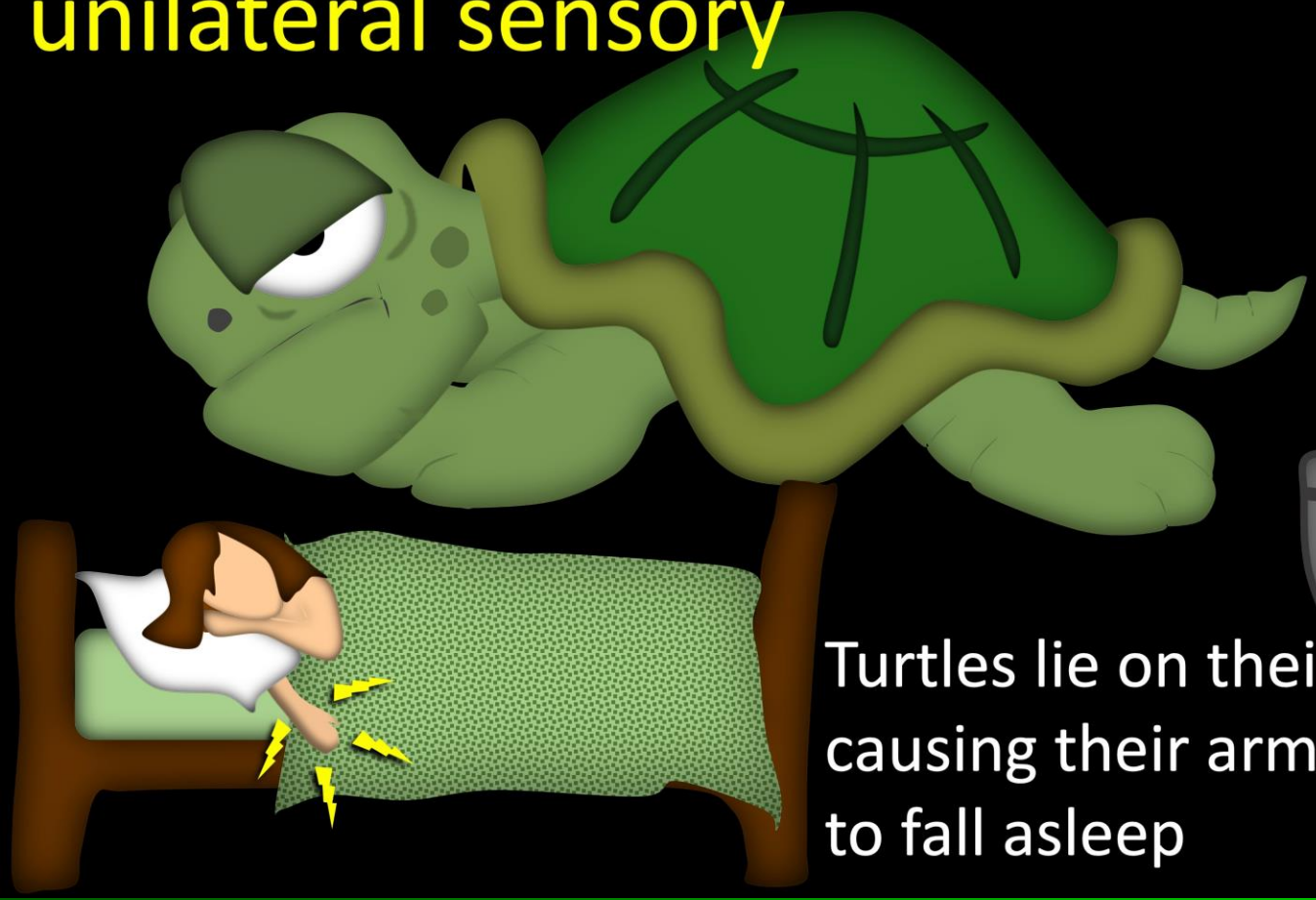




Posterior choroidal only supplies part of the lateral geniculate



Thalamogeniculate=
unilateral sensory



Turtles lie on their
causing their arm
to fall asleep

#TEACHPLAYGROUP
lea alhilali
MD