

# Thalamus-2

Date: 10-05-2025

Dr. Yerra Vishnu Akhil Raj Kumar

Senior Resident, AIIMS Bibinagar

MBBS- AIIMS Patna

Bio-Design Fellow- IIT Hyderabad

MD Physiology- AIIMS Raipur

# Contents

- Functions of thalamus
- Case scenarios

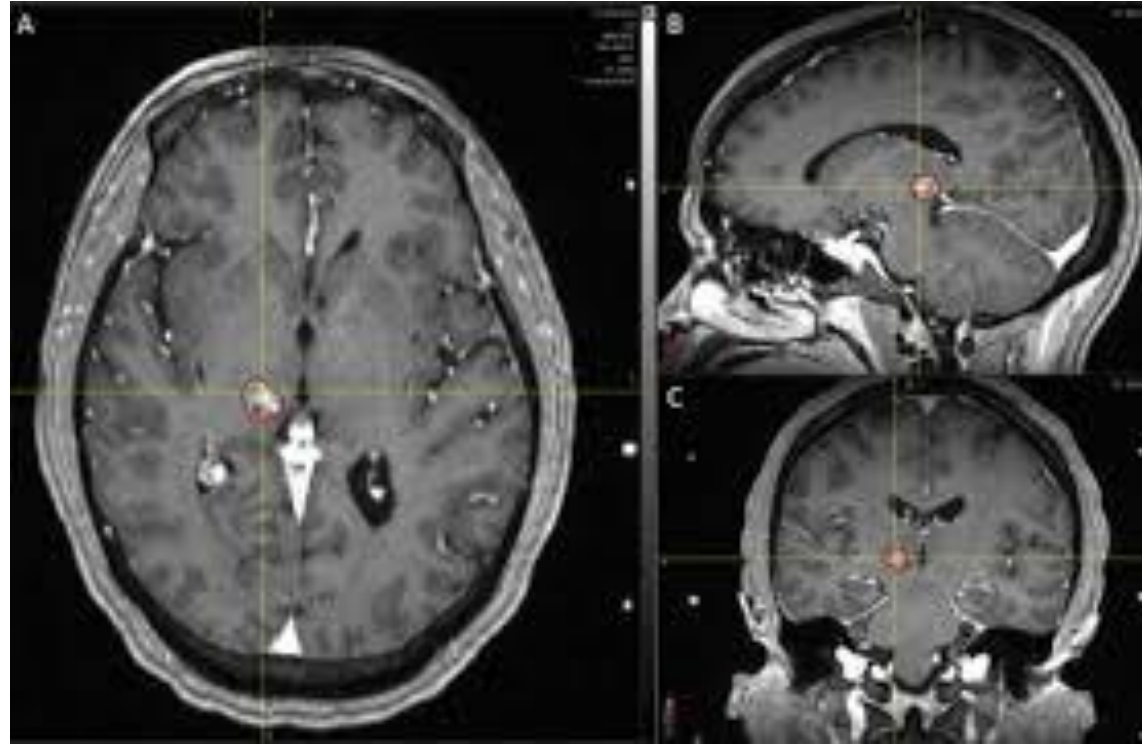
# Functions of Thalamus

- Sensory Relay Centre
- Center for Integration of Sensory Impulses
- Crude Centre for Perception of Sensations
- Centre for Integration of motor functions
- Role in arousal and alertness reaction
- Role in emotional aspect of behaviour
- Role in language
- Role in synchronization of Electroencephalogram
- Centre for integration of visceral and somatic function.
- Centre for sexual sensations
- Centre for reflex activity

# Case Scenarios Discussion

*A 65-year-old woman presents with chronic, burning pain on the right side of her face and body. The pain started weeks after a minor stroke. She also has sensory loss for touch and proprioception.*

- Why does the pain appear weeks later?
- Why is pain present but crude touch or temperature perception still partially intact?
- Which cortical area processes this sensory information?



*A 55-year-old man has sudden loss of all sensation (touch, pain, temperature, vibration) on the left side of the body. There are no motor symptoms. CT shows a small lacunar infarct in the right thalamus.*

- Why are motor functions spared?
- Which nuclei and tracts are affected?
- What differentiates thalamic sensory loss from parietal cortical lesion?



*A patient with an infarct in the posterior cerebral artery territory presents with a right homonymous hemianopia (loss of right visual fields in both eyes). No ocular or optic nerve pathology found.*

- Trace the visual pathway.
- How would the deficit differ if the lesion was in the optic tract instead of LGN?
- What is macular sparing, and where does it occur?

*A young adult with a midbrain tumor shows difficulty in localizing sound and processing speech in noisy environments, though basic hearing is intact.*

- Differentiate peripheral and central hearing loss.
- What is the function of MGN?
- Which tests can differentiate cochlear vs central auditory dysfunction?

*A 70-year-old male with a history of thalamic stroke now complains of fragmented sleep, reduced deep sleep, and loss of circadian rhythm.*

- How does thalamus regulate sleep-wake cycles?
- What are sleep spindles and which EEG waves are generated by the thalamus?
- Why does this patient lack proper deep sleep?

Thank You