

# Lesions

- 1<sup>st</sup> lesion:

- Occurs in the skin and if there are skin burns then all the receptors in the burn area will be damaged.
- also due to : total scar, skin damage and ulceration.

- 2<sup>nd</sup> lesion:

- It is a sensory neuropathy and also a common condition if the sensory fibers are damaged.
- It can be to one nerve (mononeuropathy ) or more than that (polyneuropathy).
- Causes:
  - Leprosy.
  - Diabetes mellitus.
  - Nephropathy.
- All of these conditions will cause demyelination or segmentation of the myeline sheath especially in  $\beta$ -sensory neurons.
- Such condition are called: Wallerian degeneration, and can be called Wallerian degeneration and regeneration if it happens in peripheral nerves.
- If these conditions occur in the CNS it is always called Wallerian degeneration and regeneration never occurs there.



- 3<sup>rd</sup> lesion:

- In the posterior column of the spinal cord, there are 2 tracts ascending upward which are called: Tracts of Gracilis & Tracts of Cuneatus.
- They only senses such as: Touch pressure, vibration, sense of position, sense of passive movement, 2 point discrimination (sensing of 2 points with small distance between each other).
- ✓ Pain is not transmitted by the posterior column.

N.B: Stereognosis: is the ability to identify the shape, size & texture of things without seeing them.

- Reflexes: Are automatic responses to sensory stimulation that don't need to be analyzed by the brain (i.e. Receptors → Afferent fibers → Spinal cord → Efferent fibers → effector organ)
- If there is a lesion in a dorsal root ganglion then it is called radiculopathy and reflex is also lost along with the loss of posterior column sensation
- If there is a lesion in the posterior column , then only the sensations will be lost only but the reflexes are present.(manly the reflex are also lost )

- **Thalamic Syndrome :**

- It is caused by loss of blood supply to one or both sides of the thalamus .
- It will cause loss of sensation (hemianesthesia )& extreme pain the **other side of the body** .



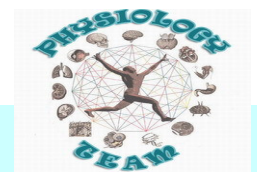
- **Internal capsule :**
- Internal capsule present between thalamus & caudate nucleus medially , basal ganglia & lentiform nucleus laterally .
- from the cerebral hemisphere all Motor fiber send sensory pass throw internal capsule .
  - Two thirds of the posterior limb of the internal capsule carry the motor fiber.
  - One third of the posterior limb of the internal capsule is sensory .
- ✓ So if damage occur in the internal capsule there will be loss of sensation & Paralysis in the **opposite side** .( hemianesthesia & hemiplegia in opposite side)

- **Mid brain :**

- If damaged there will be loss of sensation in the **face ( same side )** And half of the **body (opposite side)**. Called (cross hemianesthetic)

## Parietal lobe lesions

- Its divided by the intra parietal sulcus.
- Postcentral gyrus is the main sensory area in this lobe.
- When tracing the lateral sulcus , the area at the end of it is called the Supramarginal gyrus.
- At the end of supramarginal gyrus , the angular gyrus can be found a level below it.
  - ✓ Angular gyrus functions in nomenclature (naming objects and persons e.g. pen, Mohammed)



- Parietal lobe have different functions according to which lobe is dominant or not.
- N.B: Sensory inattention: is the loss of the patient's sensation on the affected side of the body when tested on both sides at the same time (e.g. if you put a pinprick on both sides of the body of a patient simultaneously, the patient will not perceive the prick on the affected side of the lesion. If the pins are placed sequentially, then the patient still retains normal sensation on both sides). It is a major Indicator for parietal lobe disease.
- also if damaged there will be loss of exact localization , stereognosis & 2 point dissemination .

