

Cases for the module (NRS 202)

A-Subdural hematoma

Red in week (4) and discussed in week (5):

A 67-year-old man with a history of hypertension, hyperlipidemia, and diabetes mellitus presented to the Emergency Department with confusion and difficulty navigating his home for one day. Two weeks prior, he had a fall at home, after which he experienced a mild headache but no loss of consciousness. Over the last three days, his headache worsened, and his family observed increased forgetfulness and slower responses. On physical examination, his neurological examination revealed mild weakness in the right upper extremity, hyperreflexia, decreased sensation on the right side, an unsteady gait with a tendency to veer to the right, and mild slurred speech. A CT scan of the head showed shadow over the left cerebral hemisphere with a mild midline shift. The patient was diagnosed with a subdural hematoma and underwent an urgent operation, successfully evacuating the hematoma.

Objectives:

- 1- What is the role of the cerebral hemispheres in motor cortex and how does subdural hematoma on left side effect motor function on right side of the body? (**Anatomy**)
- 2- Discuss the effect of hematoma on nerve cells and fibers (Degeneration)? (**Histology**)
- 3- Explain hyperreflexia and unsteady gait of this patient (**Physiology**)

B- Incomplete spinal cord Injury

Red in week (6) and discussed in week (7) :

A 32 year-old woman was brought to the emergency room by the ambulance after car accident. She reported that immediately after the impact, she felt a sharp pain in her back and noticed weakness in her legs. By the time she arrived at the emergency department, she had lost the ability to move her legs and had numbness from her waist down. The patient was conscious and alert. Her Vital Signs were normal. Neurological examination showed that she unable to move her legs. Also, sensations were intact in upper extremities but Decreased sensation to light touch and pinprick from inguinal regions downwards were noticed. Moreover, areflexia in the lower extremities was observed. Generally, she was Alert, oriented, visibly distressed, lying flat on a backboard with a cervical collar in place. CT Spine Revealed a fracture dislocation at the T10-T12 level with significant spinal canal narrowing. MRI Spine Confirmed the presence of an incomplete spinal cord injury at the L2 level, with compression due to the fracture and dislocation. X-rays of Chest, Abdomen, and Pelvis showed no additional fractures or injuries. The emergency operation was performed immediately under general anesthesia. She had spinal surgery to decompress and stabilize her spine. Post-operatively, she was transferred to a specialized spinal cord injury rehabilitation center. Over the course of several months, she participates in an intensive rehabilitation program. She restores the feeling of the pain in her legs but remains paraplegic. Furthermore, hyperreflexia in her legs was noticed.

Objectives:

1- Mention the corresponding levels between vertebrae and spinal cord?

(Anatomy)

2- Mention Ascending sensory tracts and which one was compressed in this case? **(Histology)**

3- Discuss transverse sections of spinal cord? **(Physiology)**