



Learning Objectives for Undergraduate Rotations in Neurosurgery Year 3 Clerkship

- List the components of the Glasgow Coma Scale and demonstrate its use in assessing a patient's level of consciousness
- Identify the mechanisms and clinical signs of uncal (transtentorial) herniation
- Explain the clinical effects of an acute rise in intracranial pressure (ICP), with emphasis on changes in respiratory pattern, pulse, BP, level of consciousness and brainstem reflexes.
- Describe the acute management of a closed head injury and list the main medical treatments for suspected raised ICP
- Identify the CT scan appearance of epidural, intra-cerebral and acute and chronic subdural hematomas
- Recognize the clinical signs of a basal skull fracture of the anterior fossa and of the petrous temporal bone and describe the natural history of a CSF leak due to each.
- Describe the characteristic symptoms and signs of a spontaneous subarachnoid (SAH) or intra-cerebral (ICH) hemorrhage
- List the common causes of SAH and ICH
- Describe appropriate investigations to undertake when suspecting a SAH
- Explain the pathophysiologic mechanisms that lead to common clinical presentations of brain tumours, including raised ICP, focal neurological deficits, seizures and intra-cerebral hemorrhage
- List the "Red Flag Features" of a headache that both suggest a more serious cause and mandate urgent investigation and treatment.
- List the common primary and secondary (metastatic) brain tumors in adults
- Describe the precautions necessary to prevent or limit further cord injury in a patient with a suspected spine injury
- List the key clinical features in a trauma patient that help to distinguish hypotension due to traumatic blood loss from hypotension caused by an acute SCI
- List the features on history and physical that suggest irritation and/or compression of a cervical or lumbar nerve root (radiculopathy) and how they differ from spinal cord compression (myelopathy)
- Outline the signs and symptoms of acute compression of the cauda equina and describe its management
- Recognize the "Red Flag Features" of back pain that suggest the presence of a potentially serious pathology and therefore require urgent investigation and treatment.
- List the features on history and physical that distinguishes neurogenic from vascular claudication
- Describe pathological changes that cause degenerative changes in the spine (spondylosis) to produce compression of the spinal cord, cauda equina and/or nerve roots.
- Identify common tumors (primary and secondary) that involve the spine and the mechanisms by which they can cause spinal cord or cauda equina compression (ie pathologic fracture, epidural tumour spread, spinal instability)