

JULY 2008
QUESTION 08

Describe the clinical findings you would expect to see in a patient who underwent acute hemi-section of the spinal cord at the upper thoracic level.

Brown Sequard syndrome

usually caused by trauma (stabbing or gunshot)
tumours and vascular insults may also precipitate this condition
rarely is it a perfect hemi-section
clinical findings are dependent on the nerve fibres travelling through the lesion and the level

Grey matter (dorsal and ventral horn)

there is damage to the nerve bodies that synapse within the cord
At level of the injury
ipsilateral loss of sensation, pain, temperature, vibration, proprioception and motor

Ascending pathways

spinothalamic pathway
crosses to contralateral side after synapsing in the dorsal horn
symptoms loss of pain and temperature inferior to the injury contralateral
dorsal columns
crosses to contralateral side above the lesion
symptoms loss of vibration, fine touch and proprioception inferior to injury ipsilateral

Descending pathways

corticospinal
crosses in the pyramids
symptoms loss of motor control inferior to the injury ipsilateral side
usually manifests as a flaccid paralysis with areflexia
over period of weeks becomes hyper-reflexic and a spastic paralysis develops
rubrospinal, vestibulospinal, reticulospinal cross in the extrapyramids (except lateral vestibulospinal)
symptoms fine tuning of corticospinal, postural control, gait
therefore redundant due to loss of corticospinal

Autonomic nervous system (more variable due to multiple inputs, symptoms dependent on severity of injury)

parasympathetic lost from sacrum ipsilateral
sympathetic lost from near level of injury ipsilateral
high thoracic injuries and above may lead to autonomic dysreflexia

Notes

Following acute injury there is usually a period of spinal shock (flaccid paralysis) on the ipsilateral side
This develops into a spastic paralysis over a period of weeks
High thoracic injuries and above may develop autonomic dysreflexia