

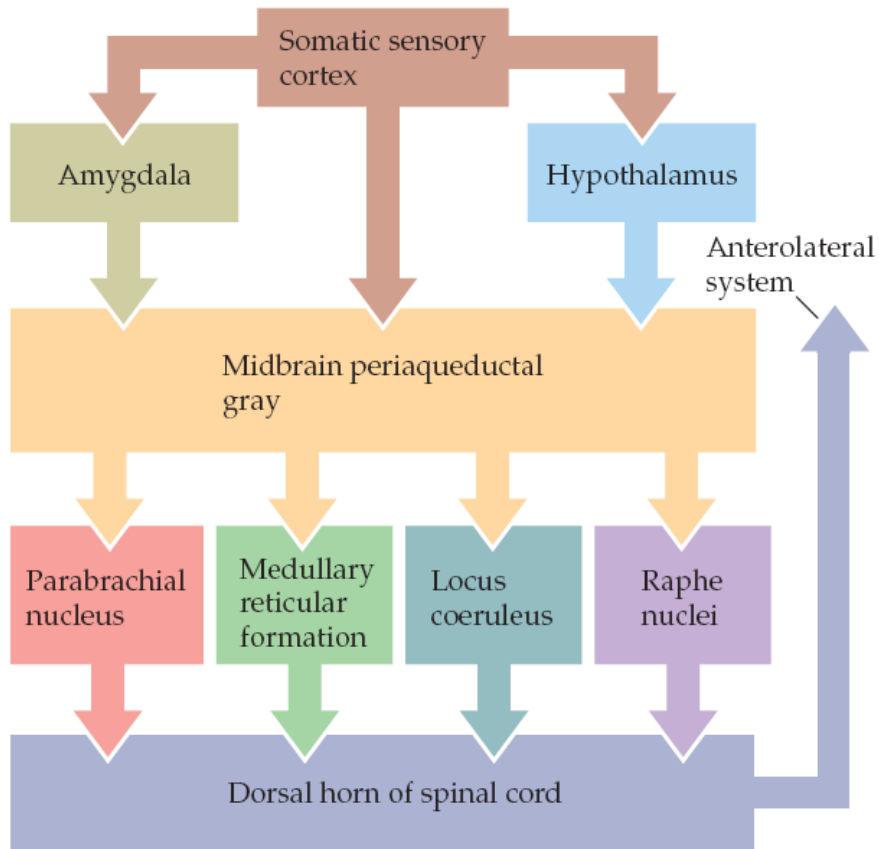
DESCENDING CONTROL

- **Studies in animals and man show anti-nociception and analgesia from stimulation or opioid administration to many supraspinal centres**
- **CORTEX**
 - **via corticospinal efferents**
 - **terminations in superficial laminae**
 - **may be inhibitory *or* excitatory and influence non-noxious stimuli as well**
- **HYPOTHALAMUS**
 - **many afferents and efferents - including NTS, PAG, LC, parabrachial nuclei, raphe nuclei**
 - **widespread reciprocal innervation**
 - **direct projection to lamina I**
 - **may be bulbospinal relay for descending inhibition**

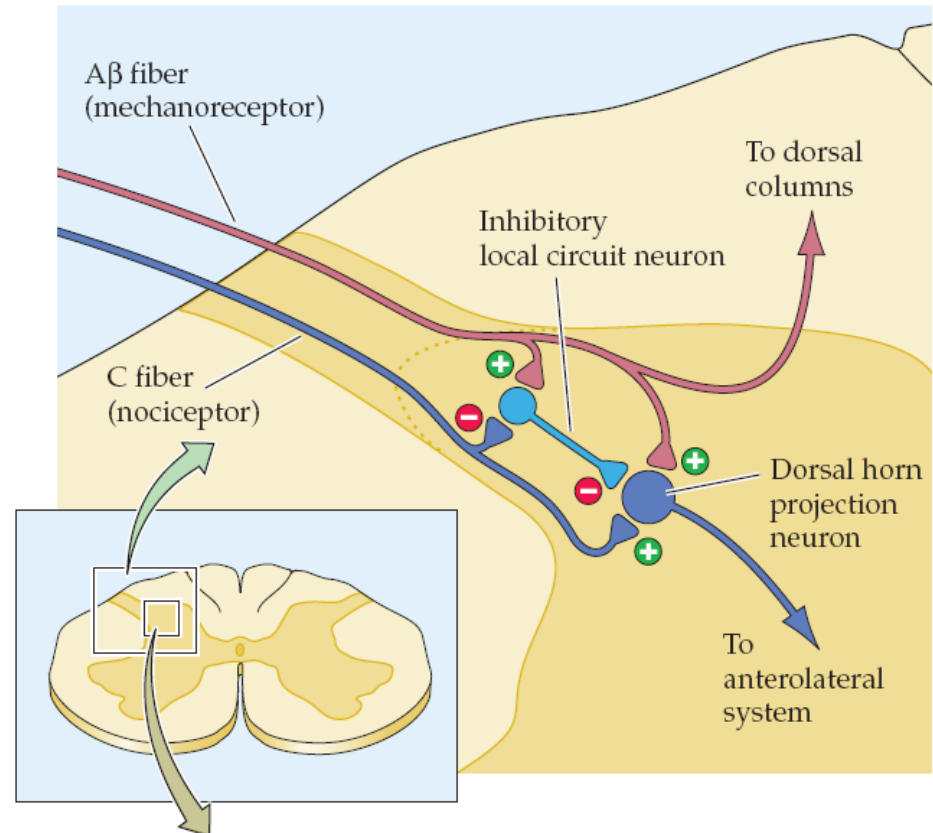
MID BRAIN

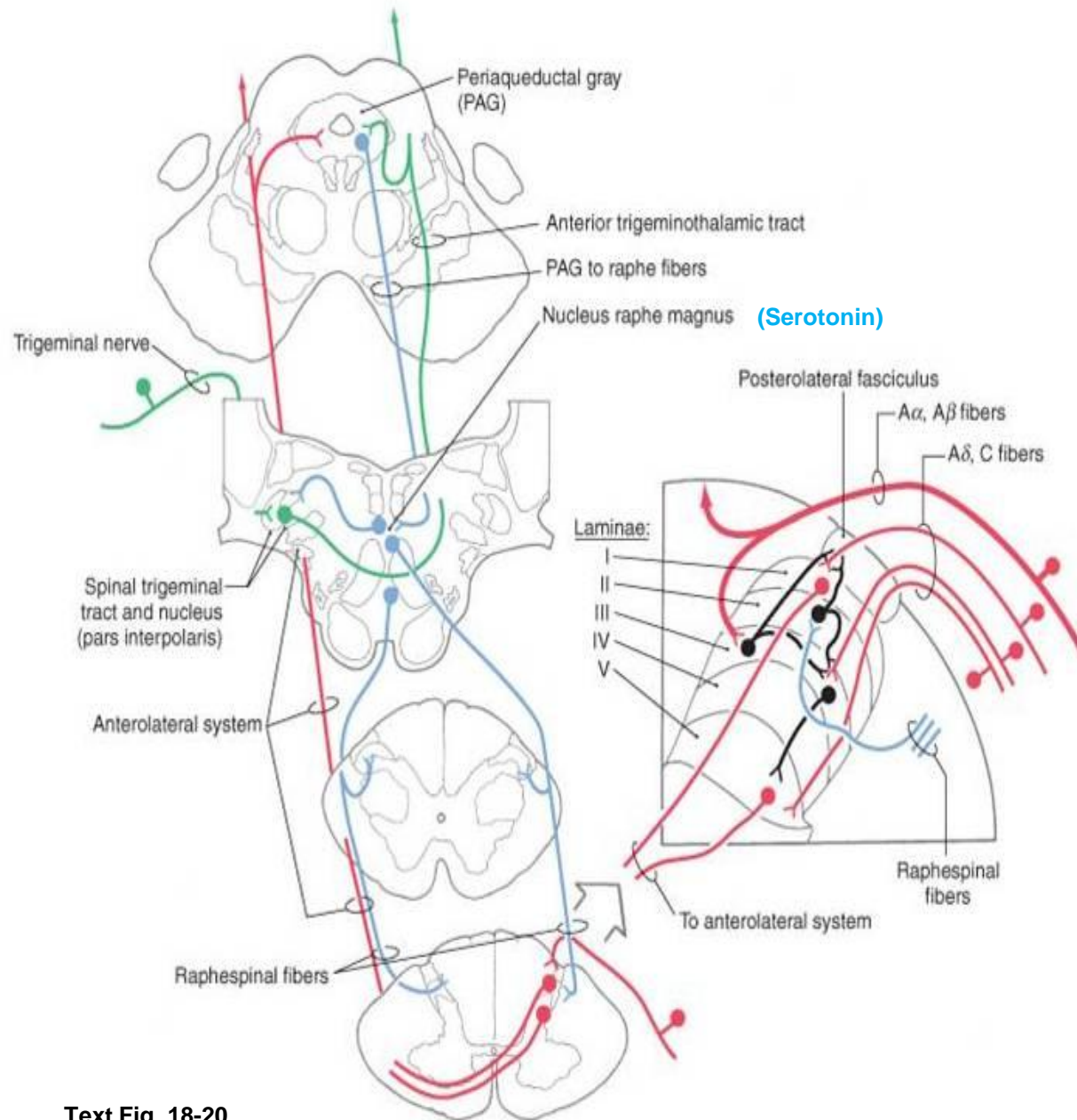
- **PERIAQUECDUCTAL GRAY (PAG)**
 - surrounds cerebral aqueduct
 - extensive afferent and efferent projections
 - morphine and electrical stimulation produce potent antinociception
 - PAG descending inhibition is via NRM
 - EAA are neurotransmitters there
- **LOCUS COERULEUS (LC)**
 - noradrenergic containing neurones
 - adjacent to 4th ventricle
 - diffusely innervates CNS at all levels
 - descending NAD fibres inhibit dorsal horn nociceptive activity and spinal nociceptive reflexes

(A)

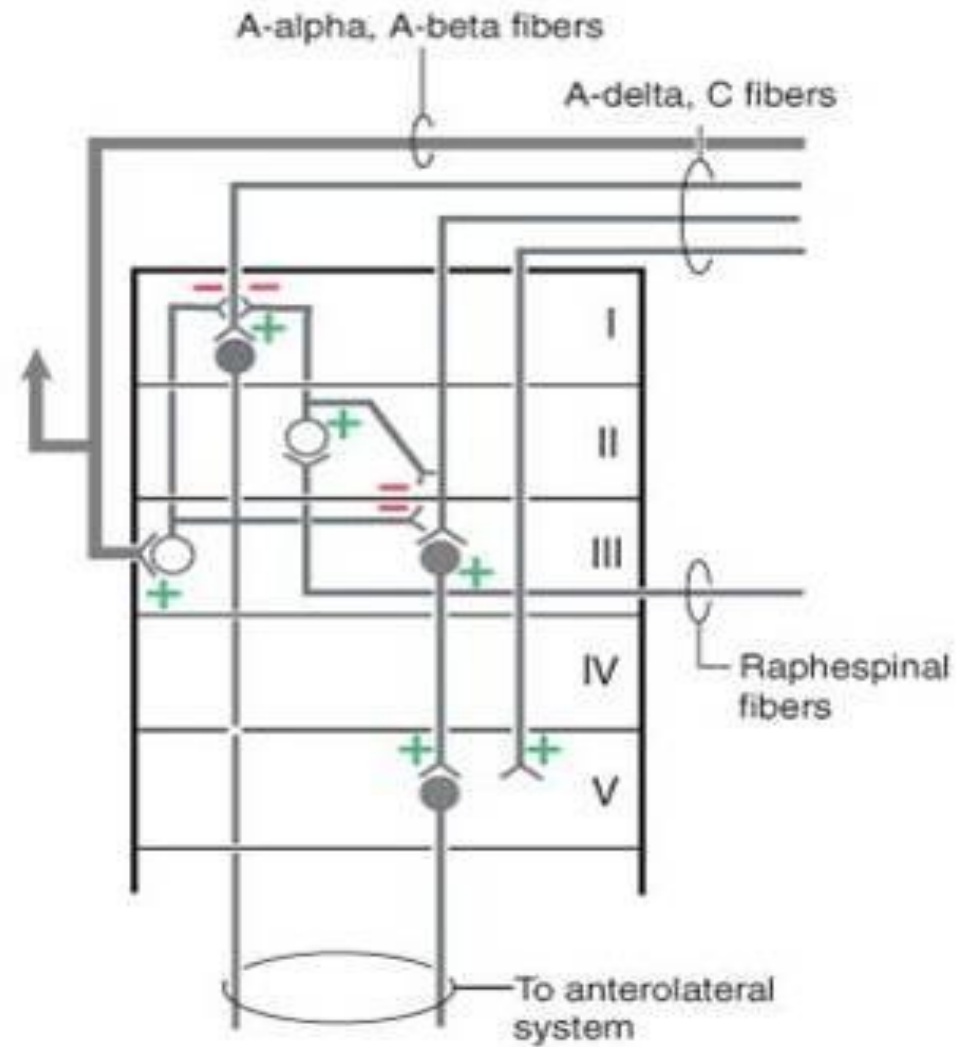


(B)



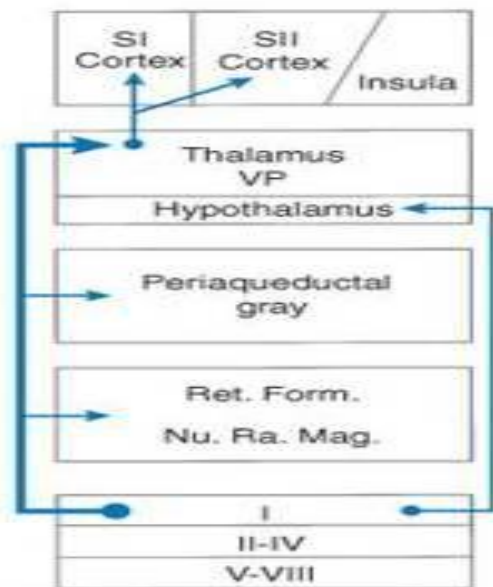


Text Fig. 18-20

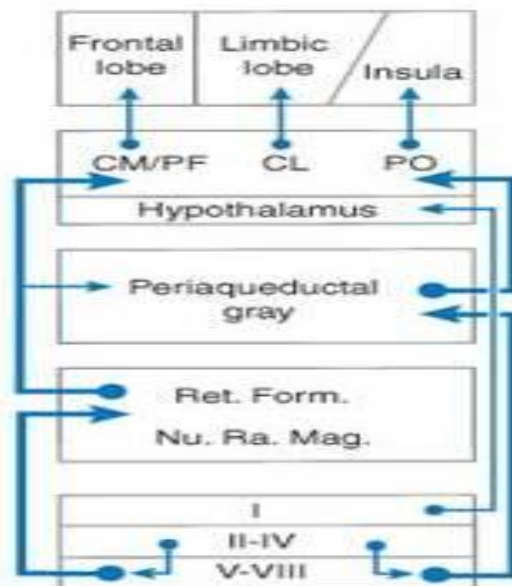
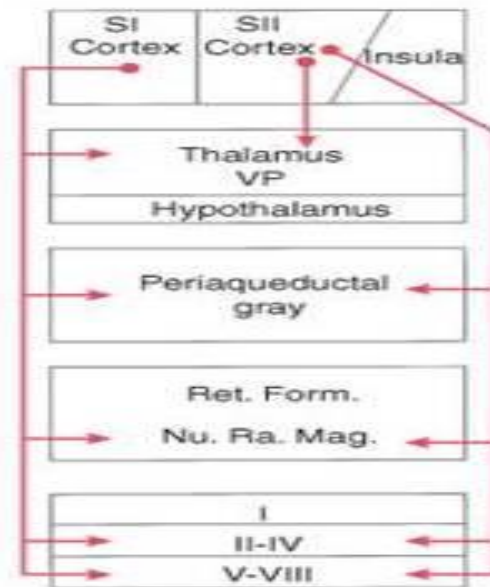


— = inhibitory
 + = excitatory

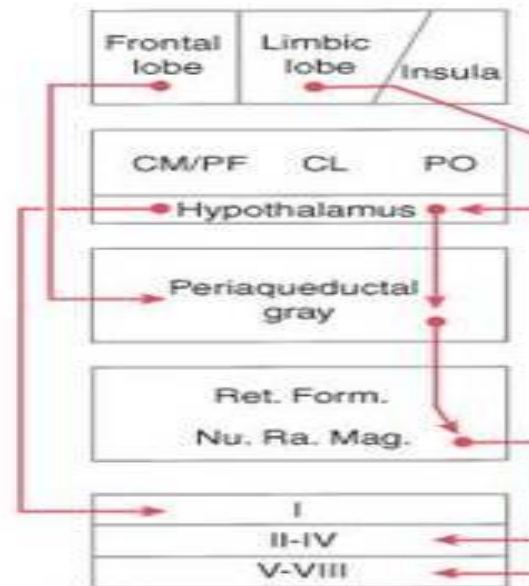
Text Fig. 18-21



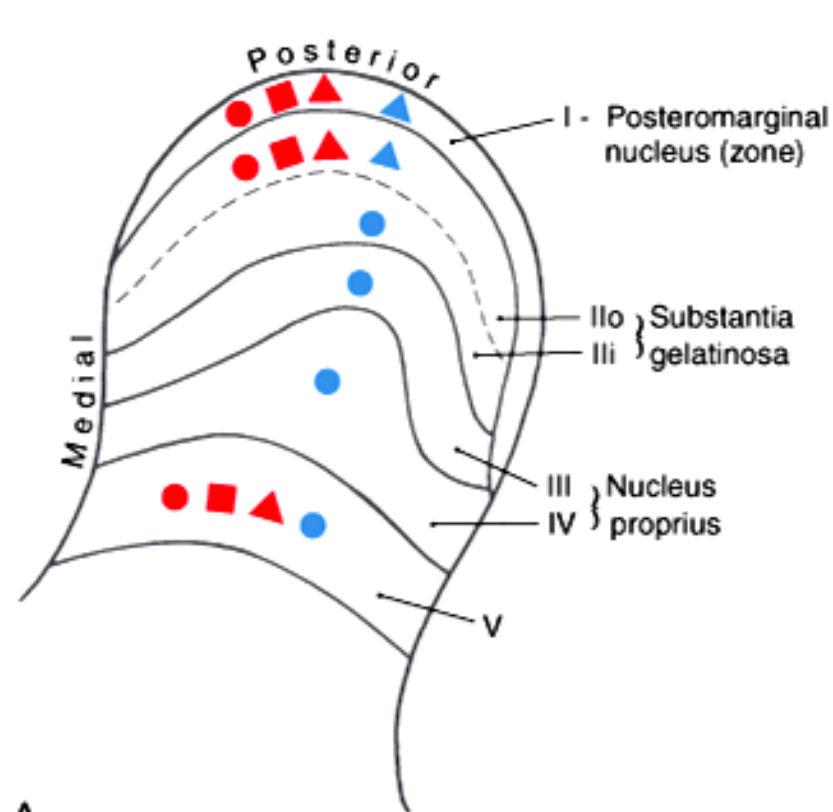
A



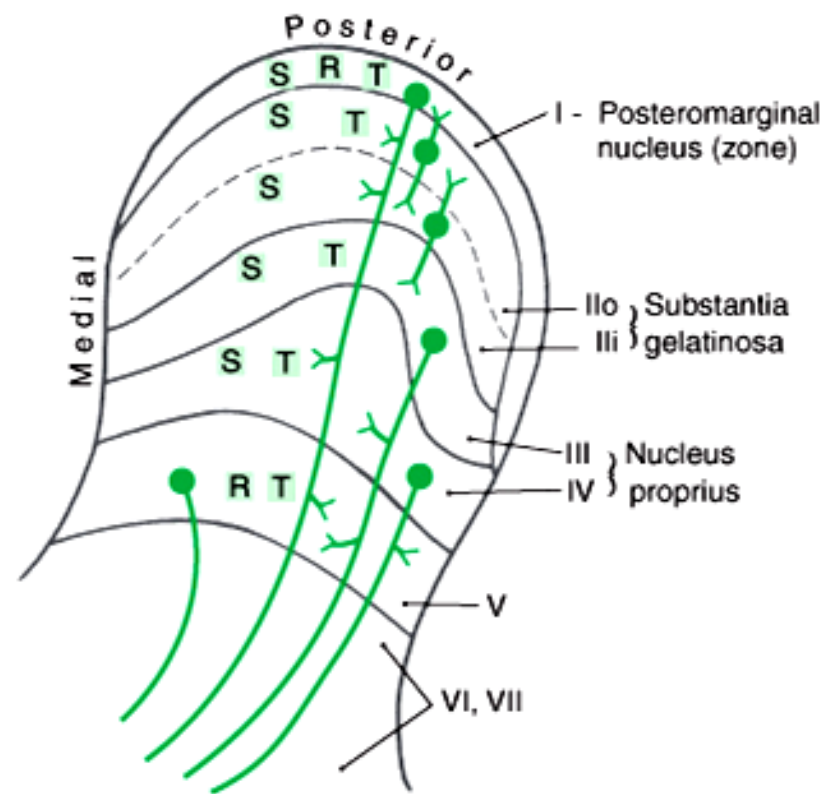
B



Text Fig. 18-19



A



B

Text Fig. 18-7

deafferentation pain

posterior root entry zone) procedure

deafferentation pain

anterolateral cordotomy

Vs

posterior root entry zone) procedure

Spinocervicothalamic pathway

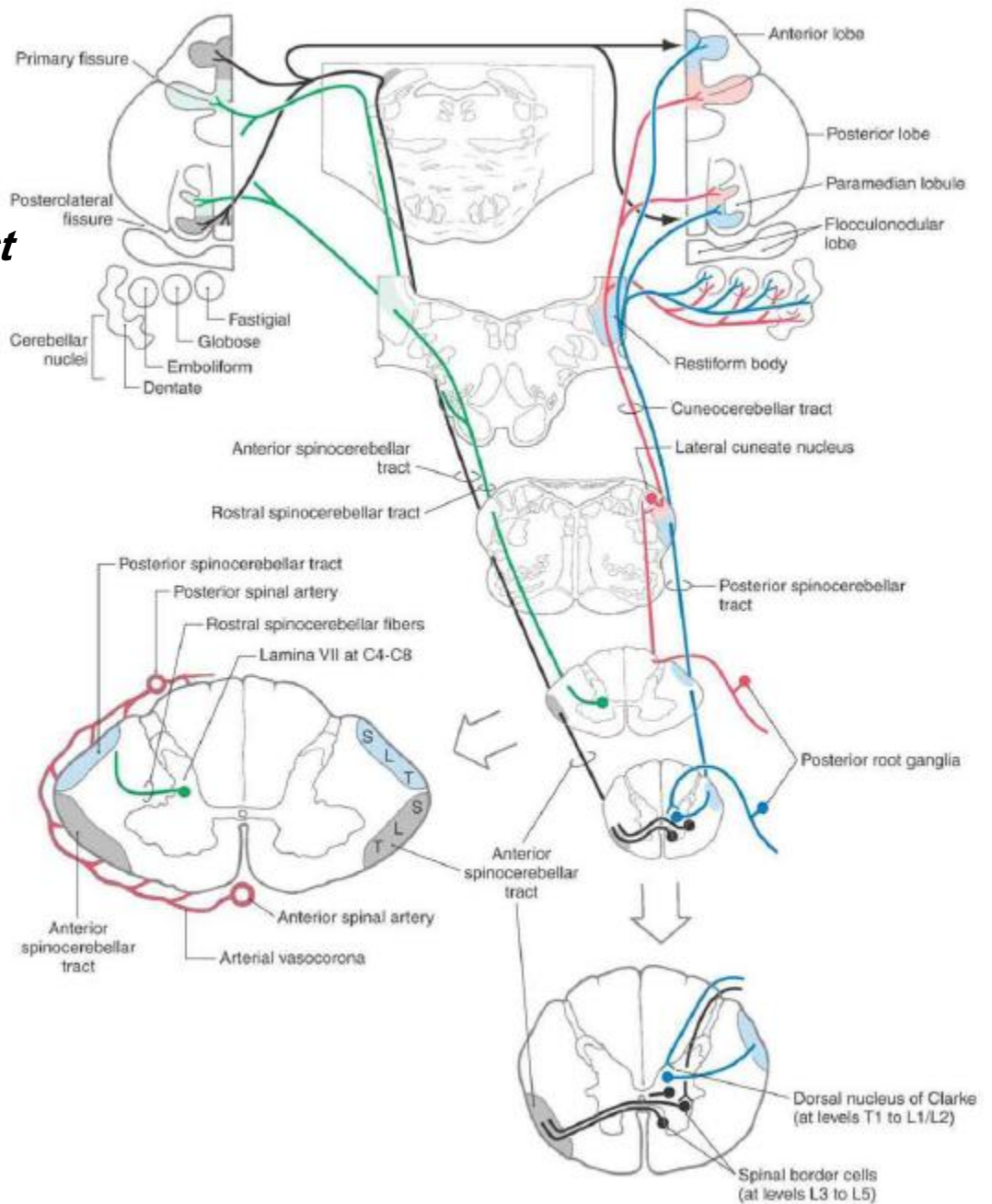
Sensory pathways to the cerebellum

Posterior Spinocerebellar Tract

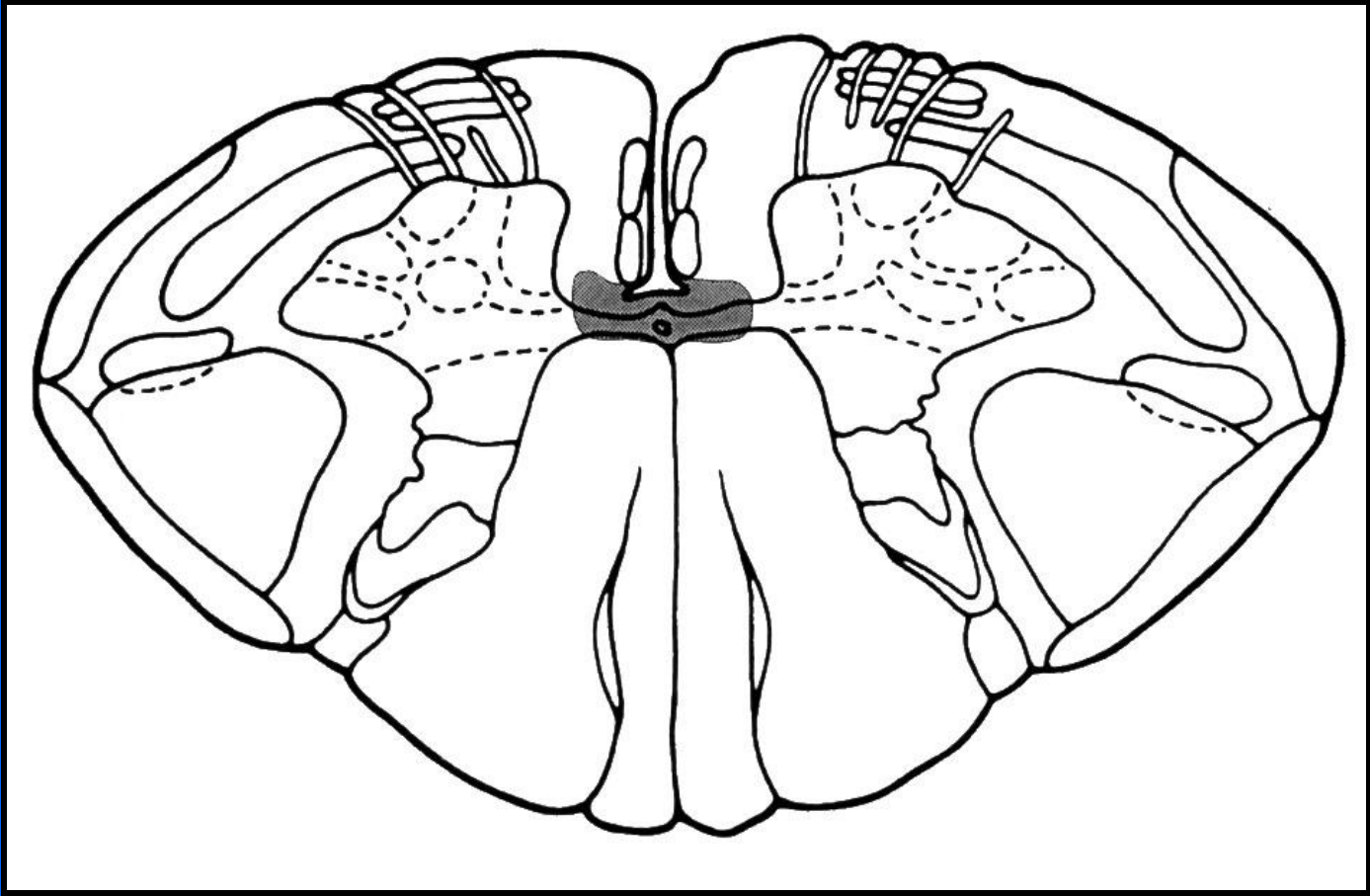
Cuneocerebellar Tract

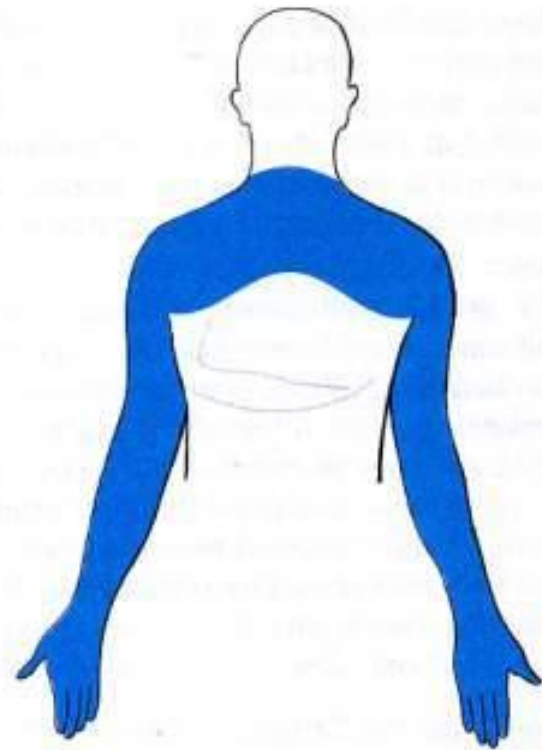
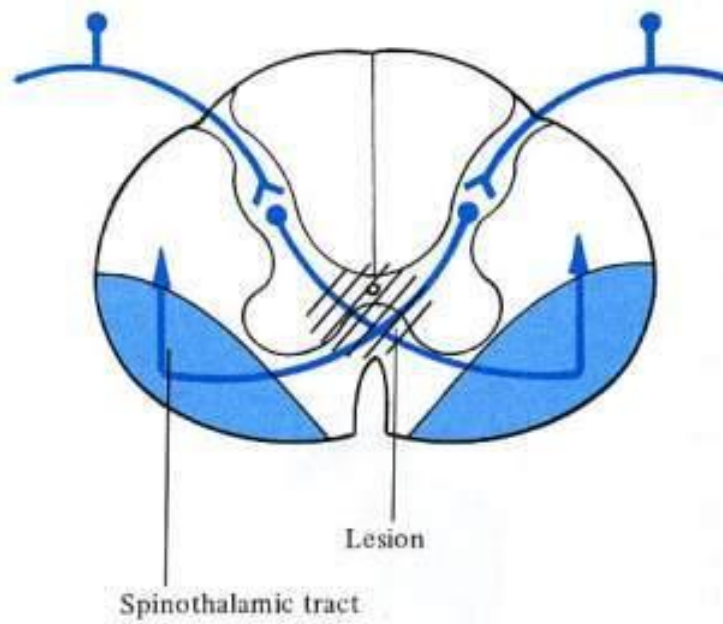
Anterior Spinocerebellar Tract

Rostral Spinocerebellar Tract



Case Study





Syringomyelia

