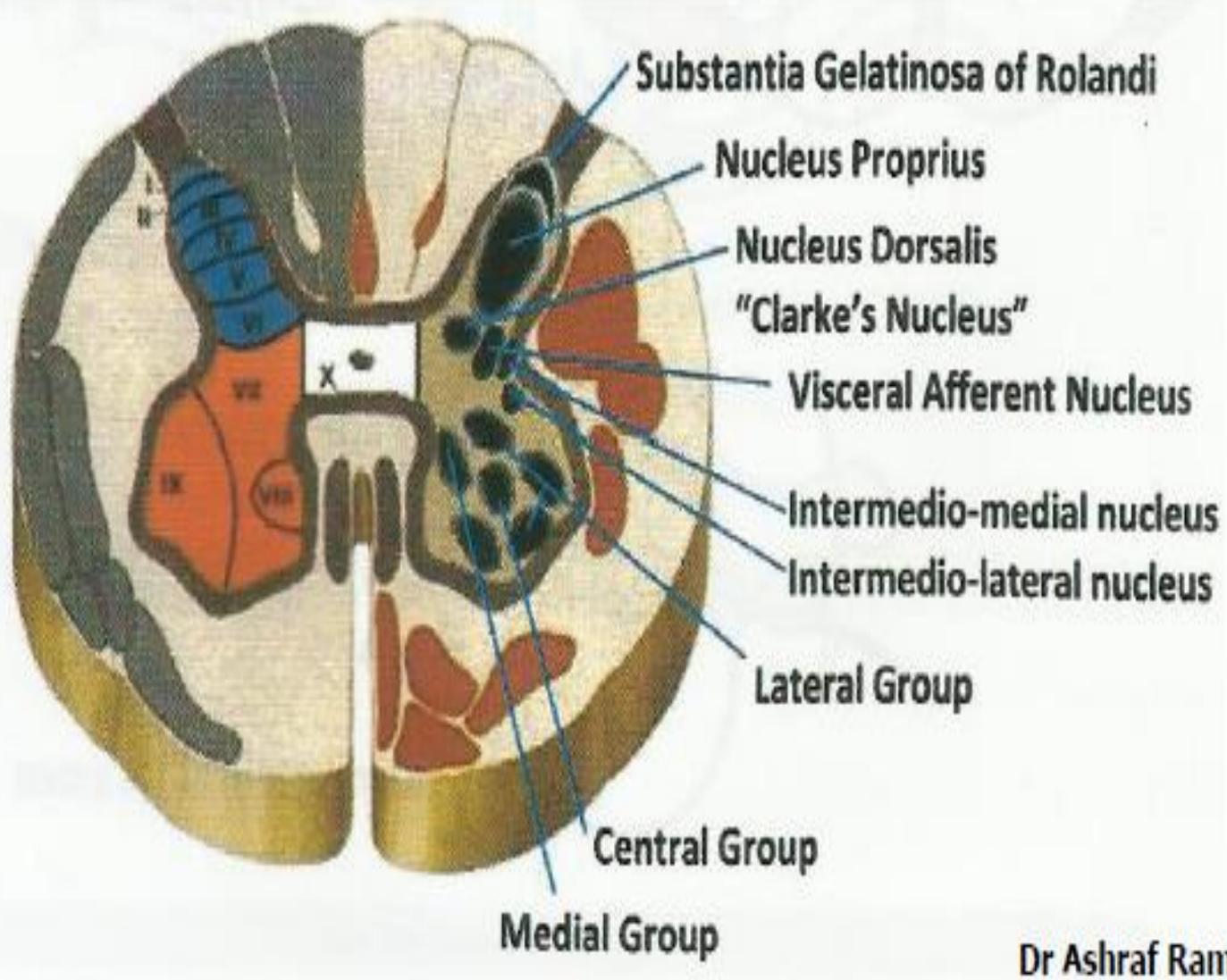


Nuclei of Grey matter of Spinal Cord

A. In Dorsal Horn: * Nuclei are mainly sensory:				B. In Lateral Horn:	C. In Ventral Horn: * Nuclei are mainly motor neurons		
1. Substantia Gelatinosa of Rolandi	2. Nucleus Proprius (Main sensory nucleus):	3. Nucleus Dorsalis "Clarke's Nucleus":	4. Visceral Afferent Nucleus:	* Contains the intermediate nucleus present in thoracic & upper 3 lumbar segments. It is further divided into Intermedio-medial & intermedio-lateral nuclei. These are sympathetic neurons whose axons pass in the ventral root of the corresponding spinal nerves to reach the ganglia of the sympathetic trunk.	1. Medial Group:	2. Central Group:.	3. Lateral Group:
Present at tip of dorsal horn in all segments of spinal cord.	Present anterior to Substantia Gelatinosa in all segments of spinal cord.	Present at the base of dorsal horn in C8 to L3 segments of the spinal cord.	Present in C8 to L3 segments of the spinal cord lies lateral to Clarke's Nucleus.		present throughout the whole length of the spinal cord and	present only in some cervical segments	present in cervical & lumbosacral segments
* Function: pain modulation.	relays exteroception.	relays unconscious proprioception	relays visceral sensations.		supply trunk muscles.	e.g. Phrenic Nucleus C3,4,5 & spinal accessory nucleus (C1-5)	and supply limb muscles
Notes				* A similar group of autonomic neurons "Sacral Parasympathetic" is present in S2,3,4 segments of the spinal cord but these do not form a lateral horn.	neurons which are either: 1. Alpha-motor neurons (anterior horn cells-AHC): Large, their axons pass in ventral root to supply extrafusal muscle fibers. 2. Gamma-motor neurons: Small, their axons also pass in ventral root to supply intrafusal muscle fibers (muscle spindles).		
Grey matter Laminae "of Rexed" ** Laminae I -VI: are sensory & occupy posterior horn. * L I → marginal layer of Waldeyer. * L II + part of LIII → Substantia gelatinosa of Rolandi. * The rest of LIII + L IV → Main sensory nucleus.				Lamina VII → occupies the lateral horn & extends into the middle part of the anterior horn. * It contains: 1. Clarke's nucleus. 2. Lateral horn nuclei (intermediolateral & internediomedial). 3. Middle part of anterior horn (between L VIII & IX), contains Renshaw cells.	* Laminae VIII-IX → occupy the anterior horn. L IX is lateral. It contains the motor neurons. LVIII is medial. It controls the muscle tone. * Lamina X → surrounds the central canal.		



Dr Ashraf Ramzy