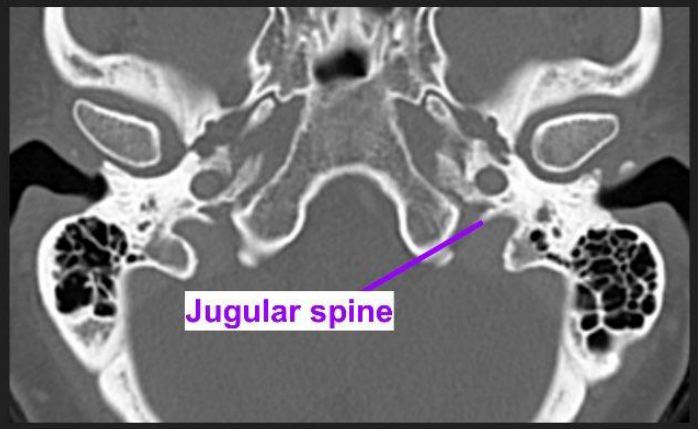
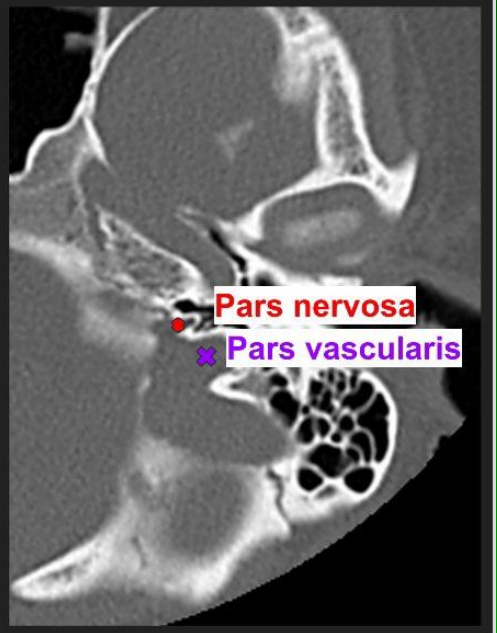
Jugular Foramen

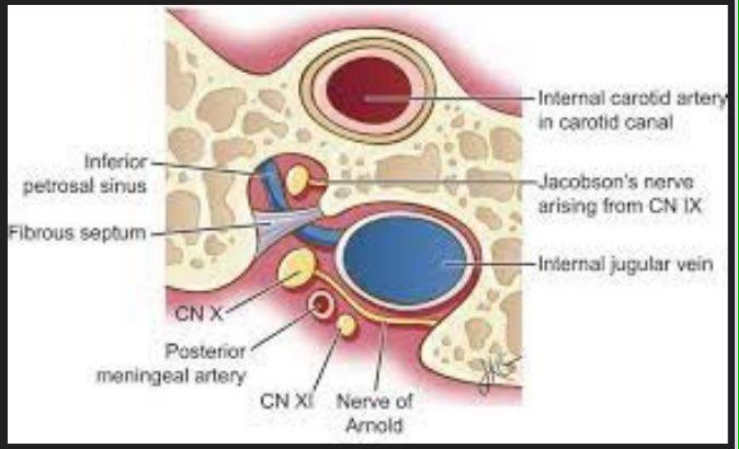




Jugular Foramen

Pars Nervosa
- CN IX
- Inferior Petrosal Sinus
- Jacobson Nerve

Pars Vascularis
- Internal Jugular Vein
- CN X
- Arnold's Nerve
- CN XI
- Posterior meningeal artery

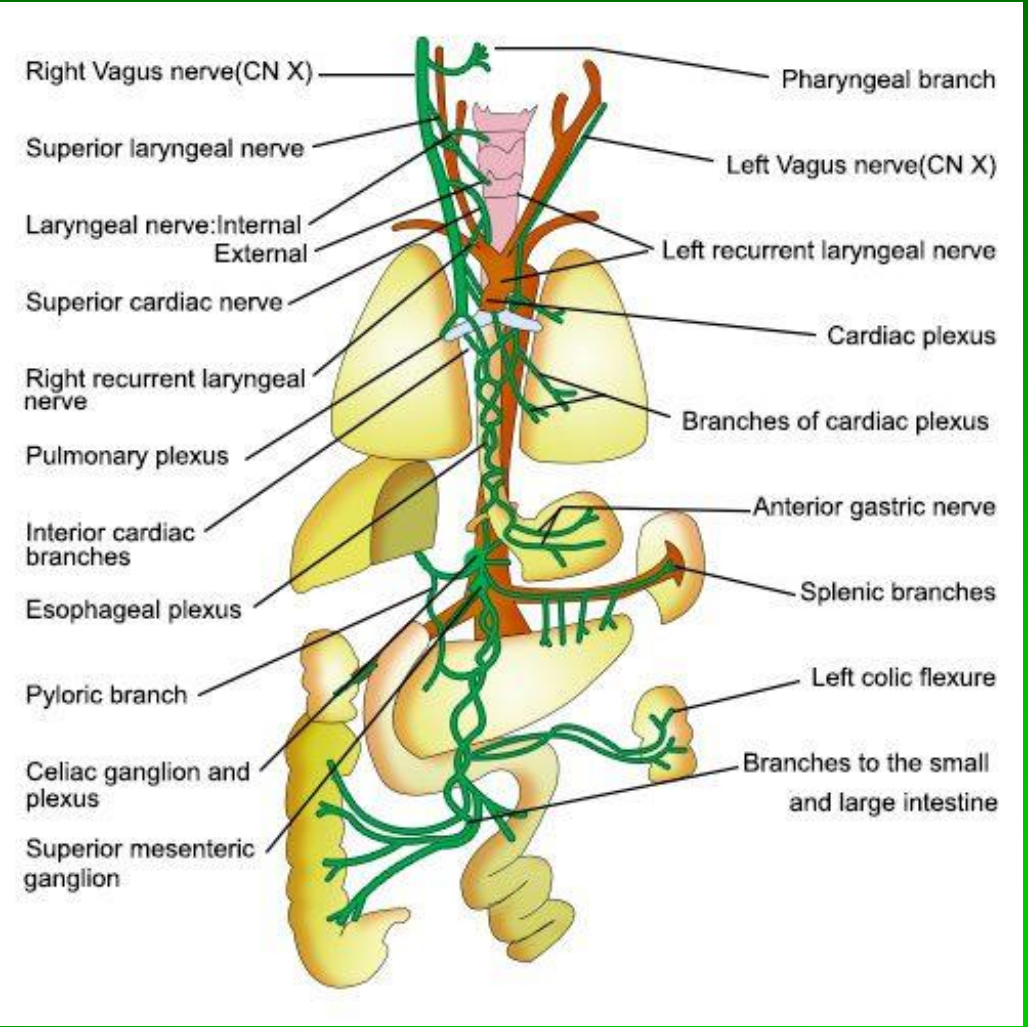


Sclafani, Anthony P. et al.: 2015 Total Otolaryngology—Head and Neck Surgery

CNX (Vagus Nerve)

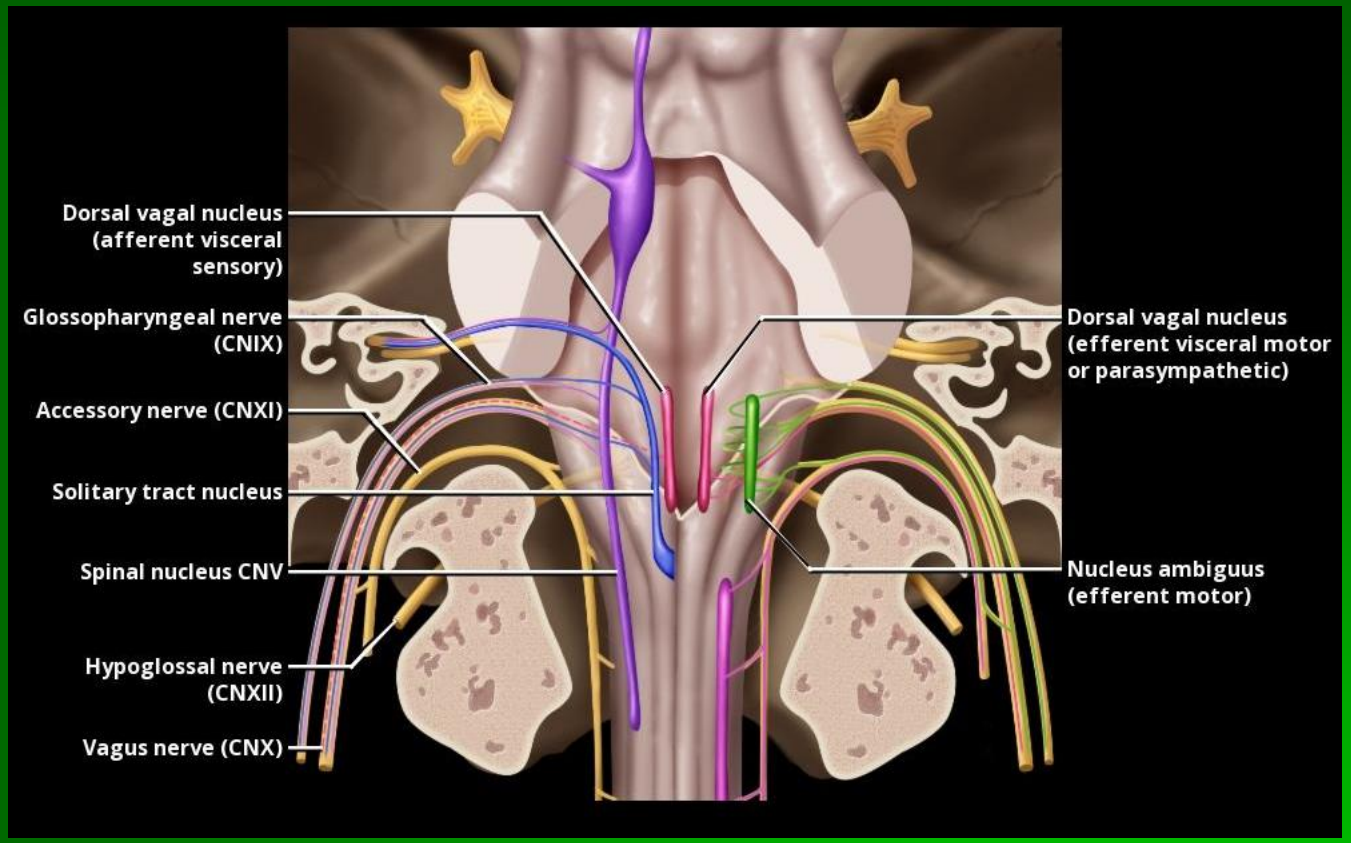
Jugular Foramen

- Sensory:
  - Innervates the skin of the external acoustic meatus and the internal surfaces of the laryngopharynx and larynx. Provides visceral sensation to the heart and abdominal viscera.
- Special Sensory:
  - Provides taste sensation to the epiglottis and root of the tongue.
- Motor:
  - Provides motor innervation to the majority of the muscles of the pharynx, soft palate and larynx.
- Parasympathetic:
  - Innervates the smooth muscle of the trachea, bronchi and gastro-intestinal tract and regulates heart rhythm.



Vagus Nerve

- Longest and one of most complex cranial nerves (CN) with diverse functions including parasympathetic (PS) innervation of neck, thoracic and abdominal viscera
- Involved in autonomic regulation of cardiovascular, respiratory, and gastrointestinal systems
- Additional innervation
  - Motor to majority of soft palate, pharynx, larynx, and palatoglossus tongue muscle
  - Visceral sensation from larynx, esophagus, trachea, thoracic and abdominal viscera
  - Sensory nerve to external tympanic membrane (TM), external auditory canal (EAC), and external ear
  - Taste from epiglottis



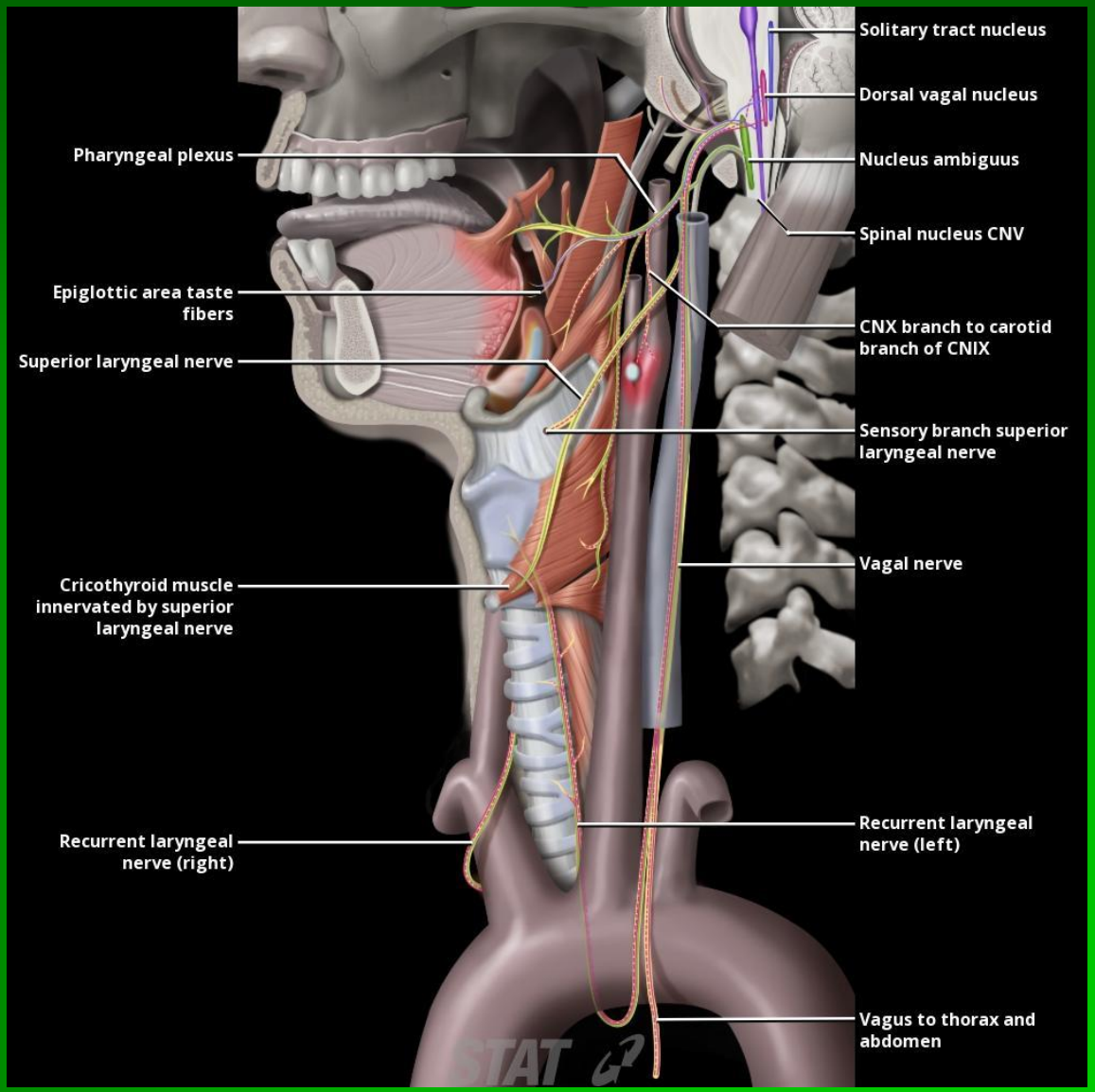
- Graphic of brainstem viewed from behind shows critical nuclear columns of CNX.
- Note the nucleus ambiguus supplies motor fibers to CNX.
- Dorsal vagal nucleus is a mixed nucleus, sending efferent parasympathetic fibers to the viscera while receiving afferent sensory fibers from these same viscera.
- The solitary tract nucleus receives taste information from the epiglottis and vallecula via CNX.

- Nucleus ambiguus supplies efferent motor innervation (green lines) via the pharyngeal plexus to the soft palate and pharynx (superior, middle, and inferior constrictor muscles) and via the recurrent laryngeal nerves to all laryngeal muscles except the cricothyroids.

- The dual-functioning dorsal vagal nucleus both sends out efferent fibers for involuntary motor activity in the viscera (solid pink line) as well as receives sensations from these same viscera (dashed pink line).

- The solitary tract nucleus receives taste information from the region of the epiglottis and vallecula.
- The spinal nucleus of CNV receives external ear and skull base-meninges sensory information.

- Only the visceral motor and sensory fibers from dorsal vagal nucleus continue on CNX to the rest of the body.



- Meningeal branches → dura of posterior cranial fossa

- Auricular branches → concha and root of auricle, post half of ext auditory meatus, outer surface of tympanic membrane

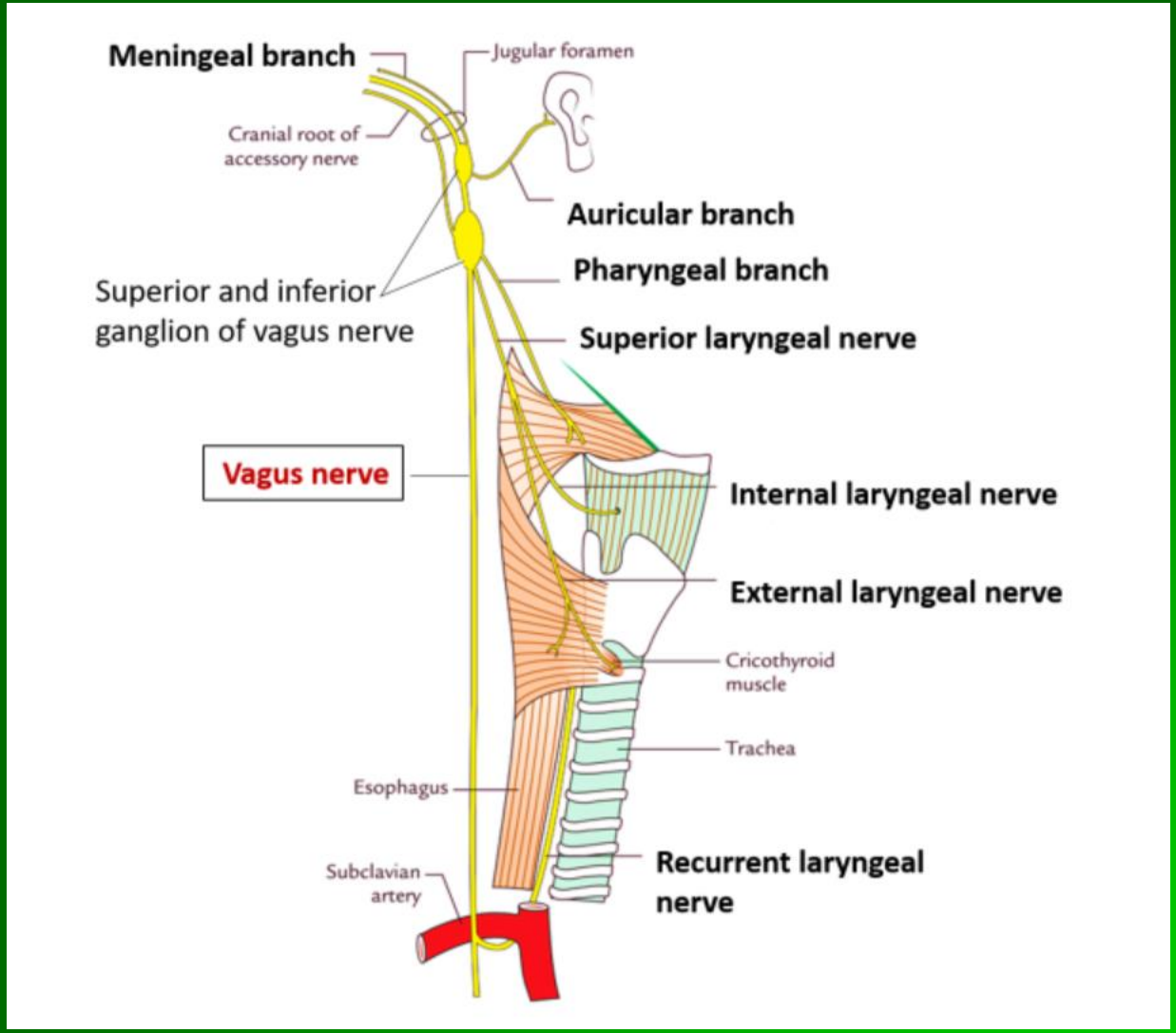
- Pharyngeal branch → pharyngeal plexus, muscles of pharynx and soft palate (except tensor veli palatini

- carotid branches → carotid body and carotid sinus

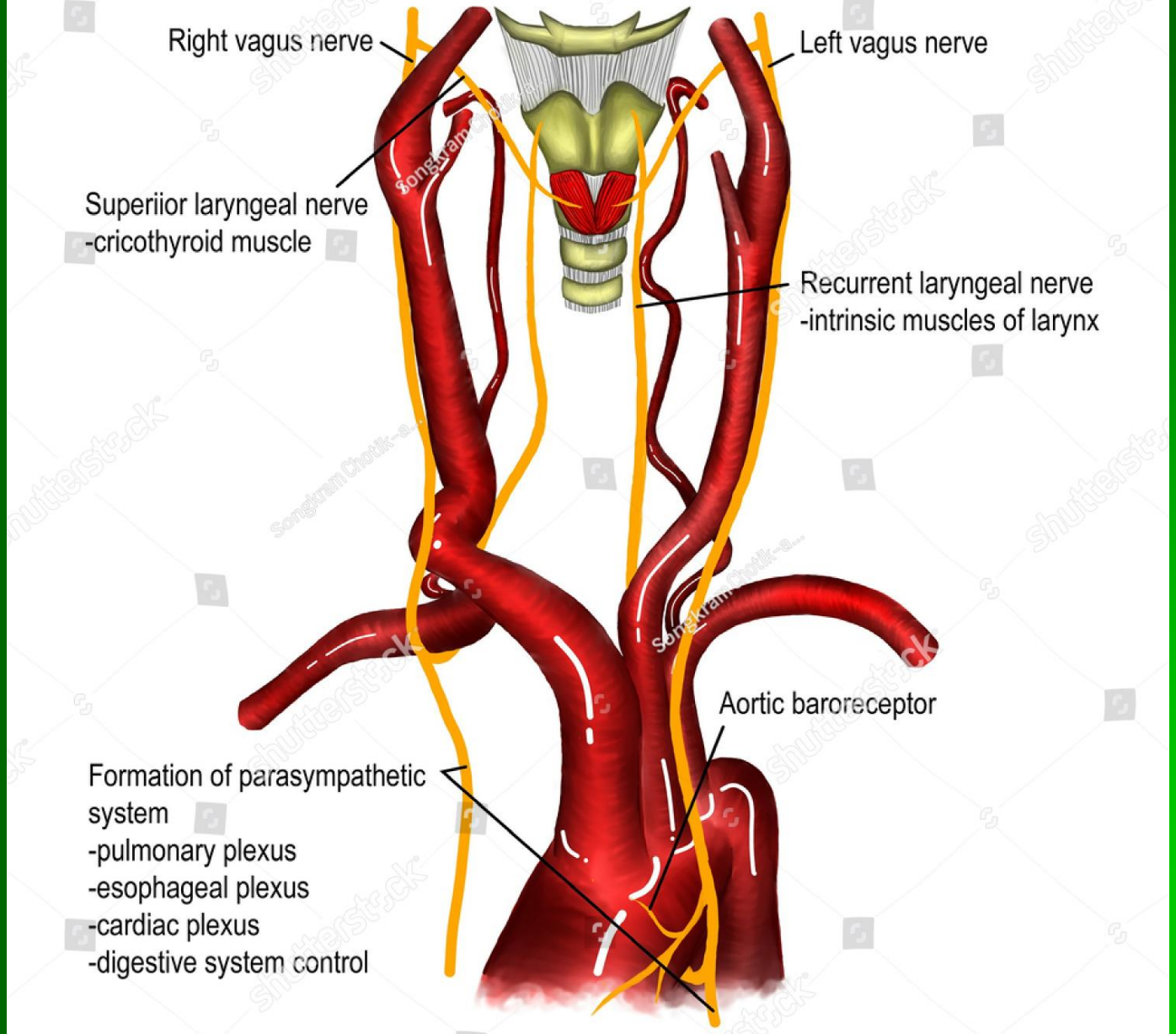
-Superior laryngeal nerve

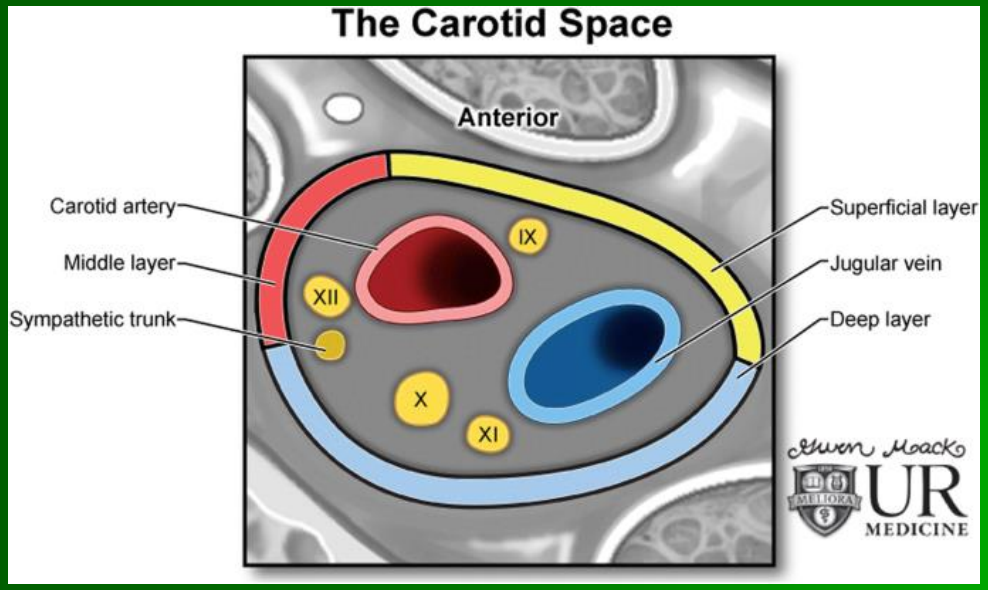
1)external laryngeal nerve→ cricothyroid, inferior constrictor and pharyngeal plexus

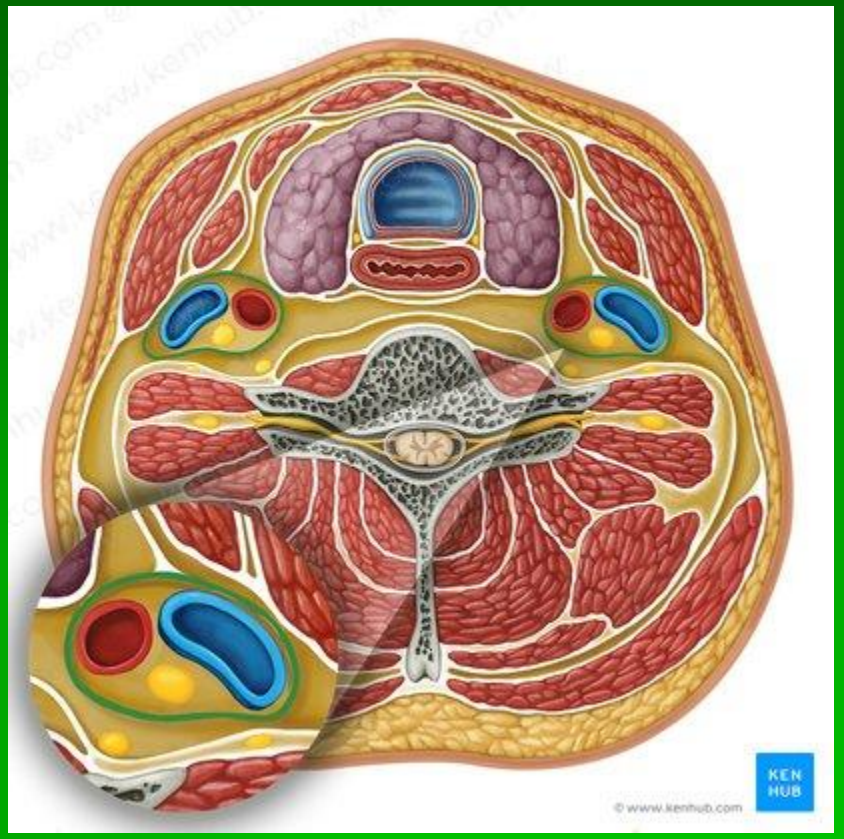
2) internal laryngeal nerve→ mucous membrane of larynx upto vocal cords


Meningeal branch
Jugular foramen
Cranial root of accessory nerve
Auricular branch
Pharyngeal branch
Superior and inferior ganglion of vagus nerve
Superior laryngeal nerve
Vagus nerve
Internal laryngeal nerve
External laryngeal nerve
Cricothyroid muscle
Trachea
Esophagus
Recurrent laryngeal nerve
Subclavian artery

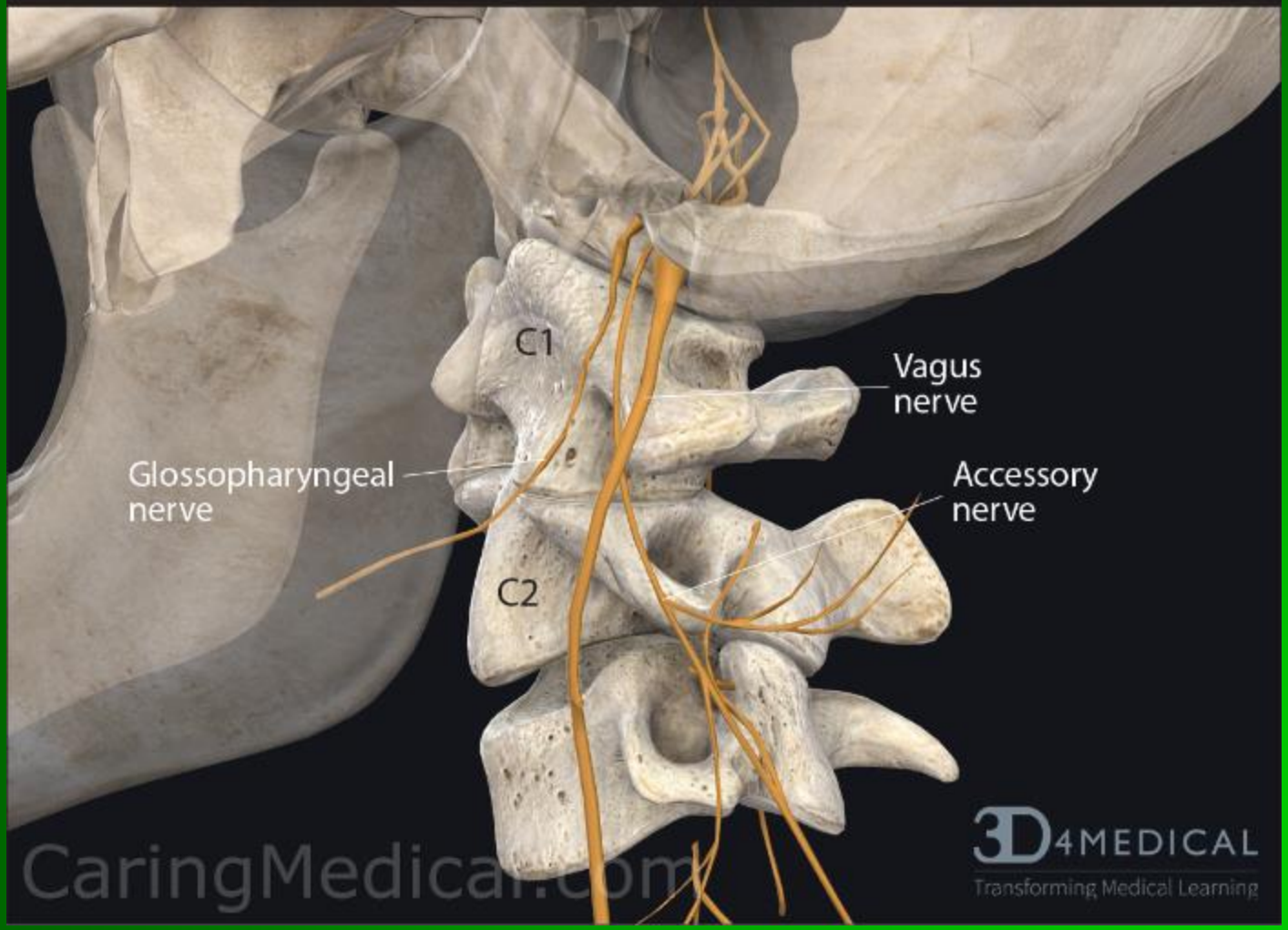
Distribution of Vagus nerve




The Carotid Space
Anterior
Carotid artery
Middle layer
Sympathetic trunk
Superficial layer
Jugular vein
Deep layer
IX
XII
X
XI
Gwen Moack
UR
MEDICINE


KEN HUB

The closeness of the glossopharyngeal (CN IX), vagus (CN X) and spinal accessory (CN XI) nerves. Cranial nerves IX, X and XI run together just in front of the C1 and C2 vertebrae. They can easily be damaged by the excessive motions of these vertebrae caused by upper cervical instability.



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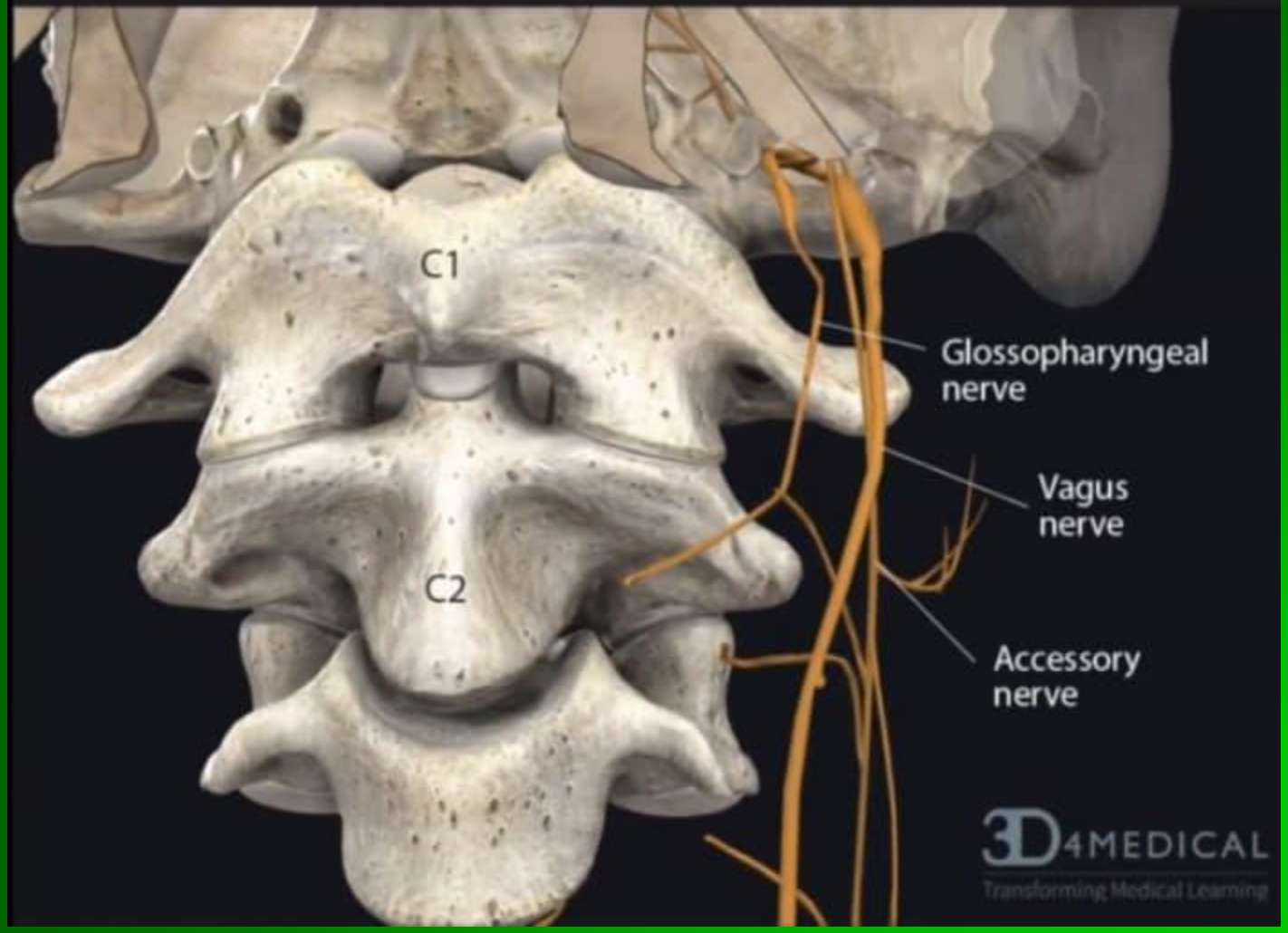
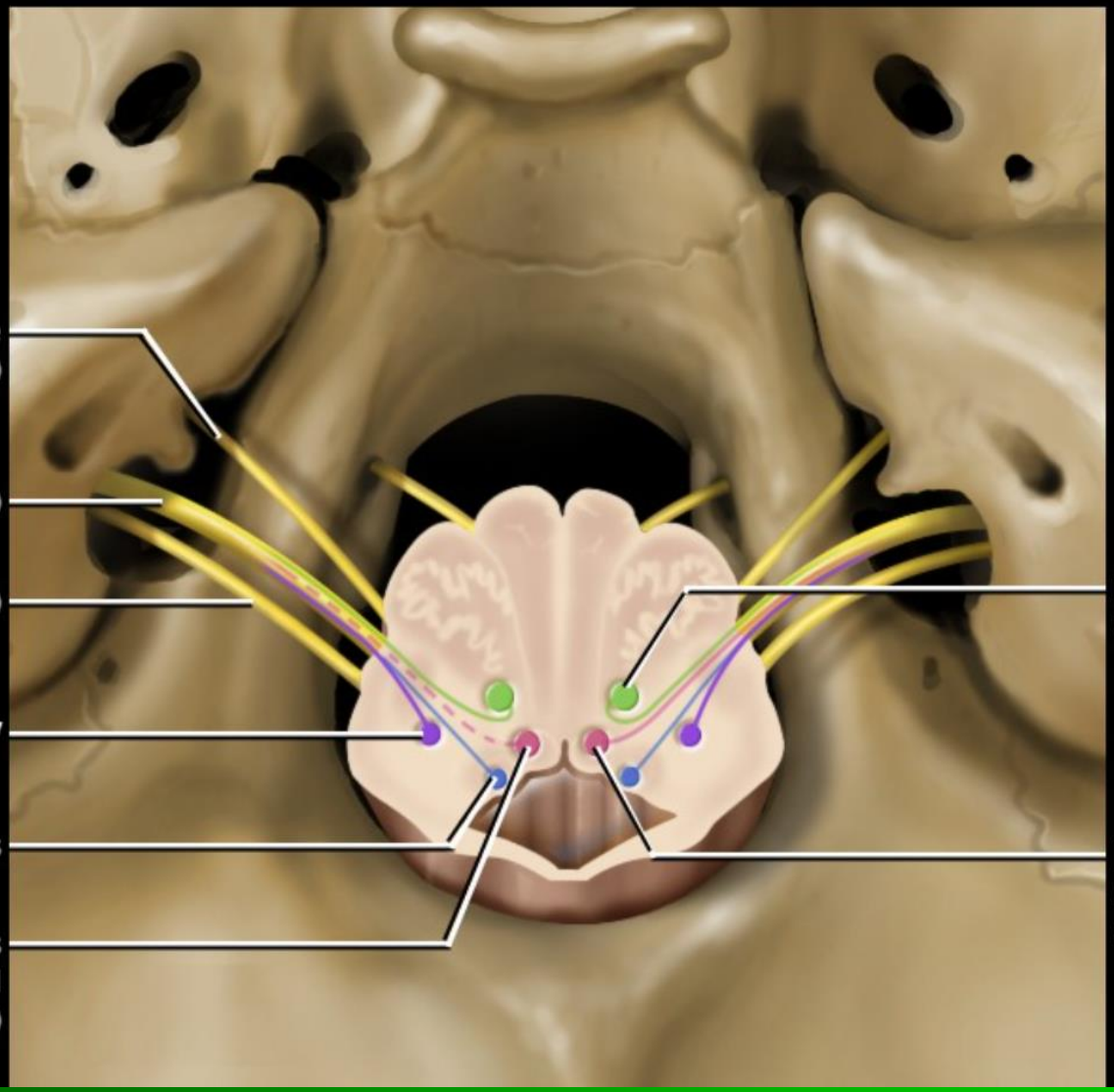
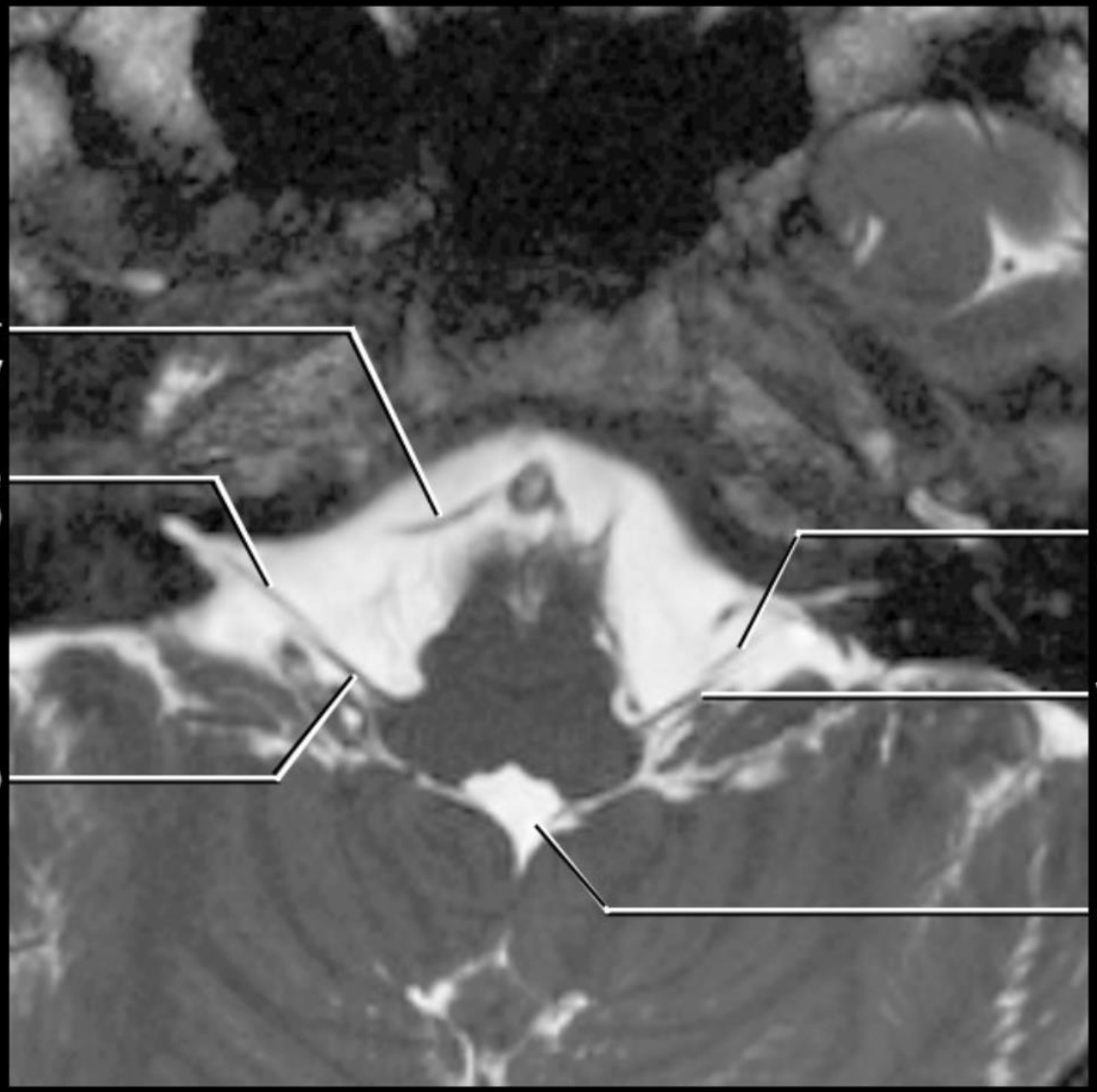



Glossopharyngeal nerve (CNIX)
Vagus nerve (CNX)
Accessory nerve (CNXI)
Spinal nucleus CNV
Solitary tract nucleus
Dorsal vagal nucleus (afferent visceral sensory)
Nucleus ambiguus (efferent motor)
Dorsal vagal nucleus (efferent visceral motor or parasympathetic)


Anterior inferior cerebellar artery
Glossopharyngeal nerve (CNIX)
Vagus nerve (CNX)
Glossopharyngeal nerve (CNIX)
Vagus nerve
4th ventricle