

N. vagus (X.), N. accessorius (XI.)

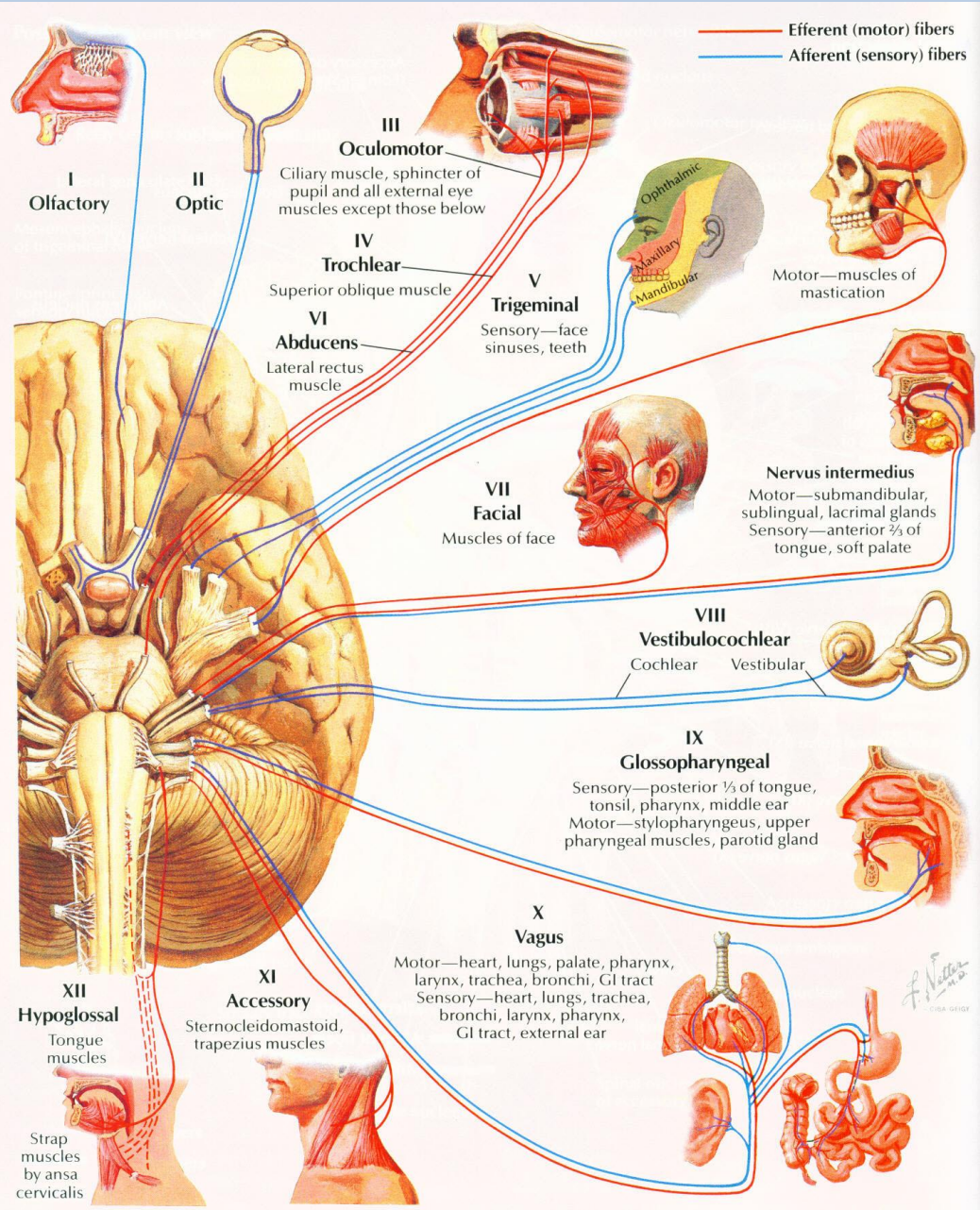
N. Hypoglossus (XII.)

Ph.D. Dr. Lendvai Dávid

Anatómia, Szövet- és Fejlődéstan Intézet

2018.

Az agyidegek



I. N. olfactorius

II. N. opticus

III. N. oculomotorius

IV. N. trochlearis

V. N. trigeminus

VI. N. abducens

VII. N. facialis

VIII. N. vestibulocochlearis

IX. N. glossopharyngeus

X. N. vagus

XI. N. accessorius

XII. N. hypoglossus

Funkció

N. vagus (X.)

- nyelés:

- m. levator veli palatini
- m. constrictor pharyngis med. és inf.
- az oesophagus izomzat

- hangképzés:

- larynx izmai

- viscerális kontroll!!!

- Visceroszenzoros speciális:

- ízlelő bimbók az aditus laryngis körül

- Somatosensoros:

- laryngeális mucosus membrán
- hypopharynx mucosus membrán
- vallecula epiglottica
- dura mater (fossa cranii posterior)
- meatus acusticus ext., bőrének hátsó része

N. accessorius (XI.)

- hangképzés:

- larynx izmok (mm. arytenoidei)

- fej és váll mozgásai:

- m. sternocleidomastoideus
- m. trapezius

N. hypoglossus (XII.)

- nyelv mozgásai:

- extrinsic and intrinsic izmok

- száj nyitása, nyelés:

- m. geniohyoideus
- mm. infrahyoidei (ansa cervicalis profunda!!!)

Branchiális apparátus

	Mesenchyme					Ectoderm		Endoderm
	Artery	Cartilage ¹	Bone ¹	Ligament ¹	Muscle ²	Nerve		
Pharyngeal arch							Clefts	Pouches
I. (mandibular)	(Maxillary artery)	Meckel's (as model for mandible)	Mandible (Intramembranous ossification); Malleus; Incus; (*)	Sphenomandibular lig.; Ant. lig. of malleus	Mm. of mastication; Tensor tympani; Tensor veli palatini; Mylohyoid; Digastric ant. belly;	Mandibular nerve (V/3.)		
							C1: External ac. meatus; ext. epithellum of tympanic membrane	P1: Auditory tube; Tympanic cavity; Int. epithellum of tympanic membrane
II. (hyoid)	(Stapedial artery; Hyoid artery)	Reichert's	Stapes; Styloid process; Hyoid (lesser horn and upper part of body)	Stylohyoid lig.	Muscles of facial expression; Stylohyoid; Digastric post. belly; Stapedius; Platysma (from Opercular proc.)	Facial nerve (VII.)		
							C2: (Cervical sinus)	P2: Epithellum of tonsillar fossa
III.	Internal carotid (prox. part)		Hyoid (greater horn and lower part of body)		Pharynx (upper part); Stylopharyngeus	Glossopharyngeal nerve (IX.)		
							C3: (Cervical sinus; Cervical vesicula)	P3: (Thymus) inferior parathyroid glands
IV.	Left: Arch of aorta; Right: Right subclavian artery (prox. part)	Thyroid cartilage			Pharynx (lower part); Larynx: cricothyroid	Vagus nerve (X.) (Superior laryngeal nerve)		
							C4: (Cervical sinus)	P4: Thymus; Superior parathyroid glands
V. (**)		Thyroid cartilage			Pharynx and larynx muscles (n. XI.: arytenoid)	Vagus nerve (X.) + Accessory nerve (XI.)		
								P5: Ultimobranchial body, C-cells in thyroid gland
VI.	Right: Right pulmonary artery; Left: Left pulmonary artery and ductus art. Botalli	Cricoid cartilage (?)			Larynx muscles ("intrinsic")	Vagus nerve (X.) (Recurent laryngeal nerve)		

¹ derivatives of neural crest (ecto-mesenchyme); ² derivatives of paraxial mesoderm or somite (mesoderm); (*) partially forms the maxilla (from the maxillary process of the first pharyngeal arch); (**) Some authors don't give derivatives for fifth pharyngeal arch but mention them at the sixth pharyngeal arch.

	SM (-dorsomedial-)	BM (=SVM) (-ventrolateral-)	GVM (= parasympath.)	GVS (from e.g. baroreceptors, chemoreceptors)	SVS (= taste)	GSS	SSS
III.	Oculomotor nucl.		Accessory oculomotor nucl. (Westphal-Edinger)				
IV.	Trochlear nucl.						
V.		Motor trigeminal nucl.				<ul style="list-style-type: none"> Mesencephalic trigeminal nucl. (ganglion cells in the CNS!) Proprioceptive. Principes sensory nucl. (pontine nucl.) of trigeminal nerve. Epicritic. Spinal trigeminal nucl. (receives fibres from CN V.,VII.,IX.,X.) Protopathic. 	
VI.	Abducent nucl.						
VII.		Facial nucl.	Sup. salivatory nucl.		Solitary tract nucl.	(+)	
VIII.							- Cochlear nuclei (dors. and ventral) - Vestibular nuclei (sup., inf., med., lat.)
IX.		Ambiguus nucl.	Inf. salivatory nucl.		Solitary tract nucl.	(+)	
X.	Medial ala cinerea nucl. (=dorsal vagal nucl.)		Lat. ala cinerea nucl.	Solitary tract nucl.	(+)		
XI.	(C ₁₋₈ motoneurons)						
XII.	Hypoglossal nucl.						
Spinal n.	+		+	+		+	

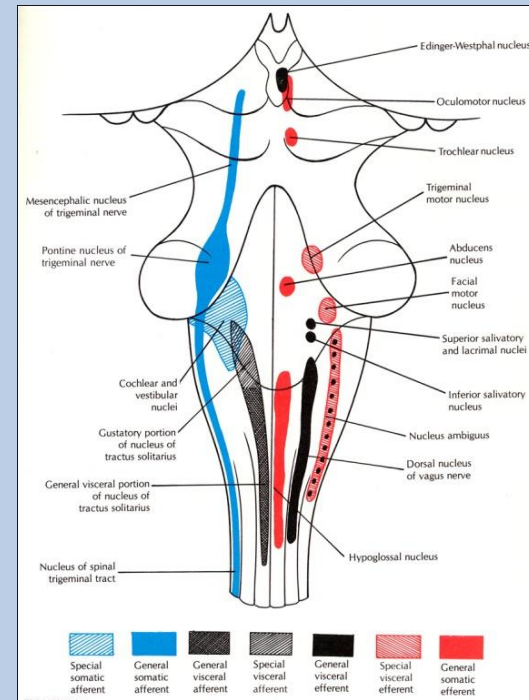
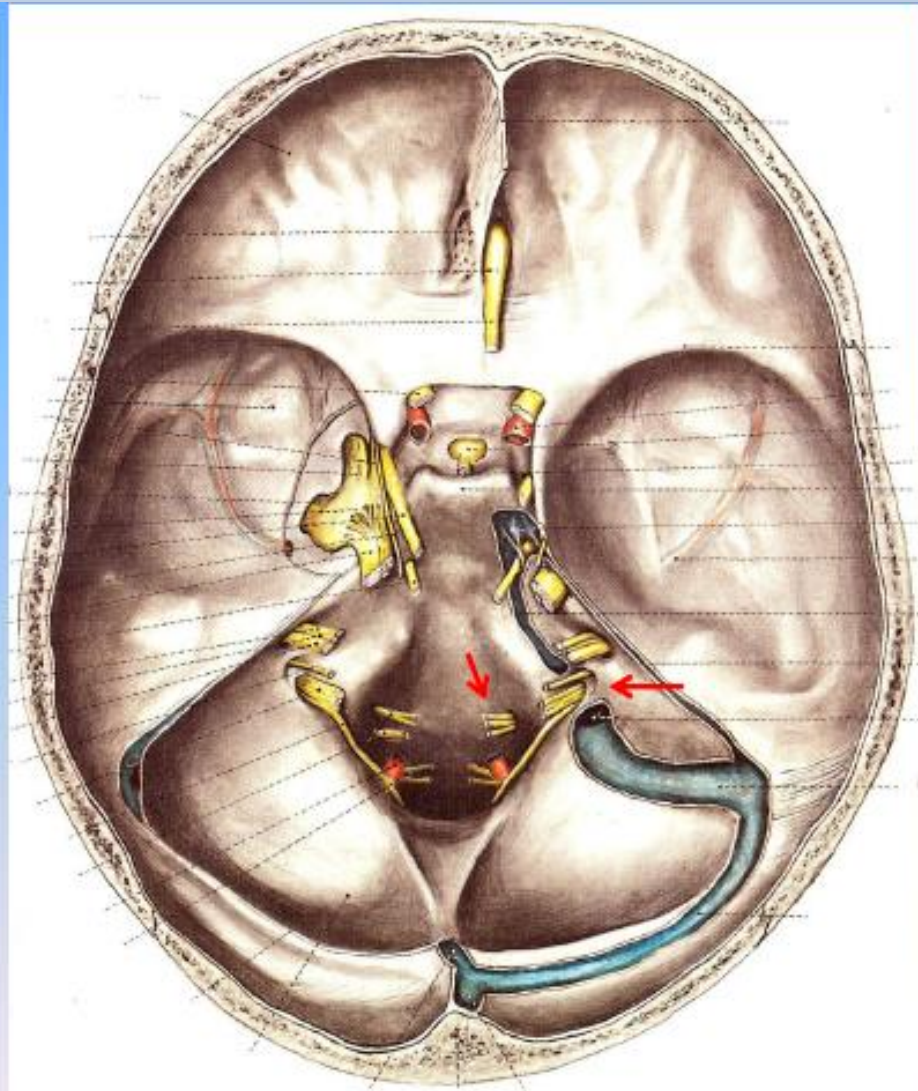
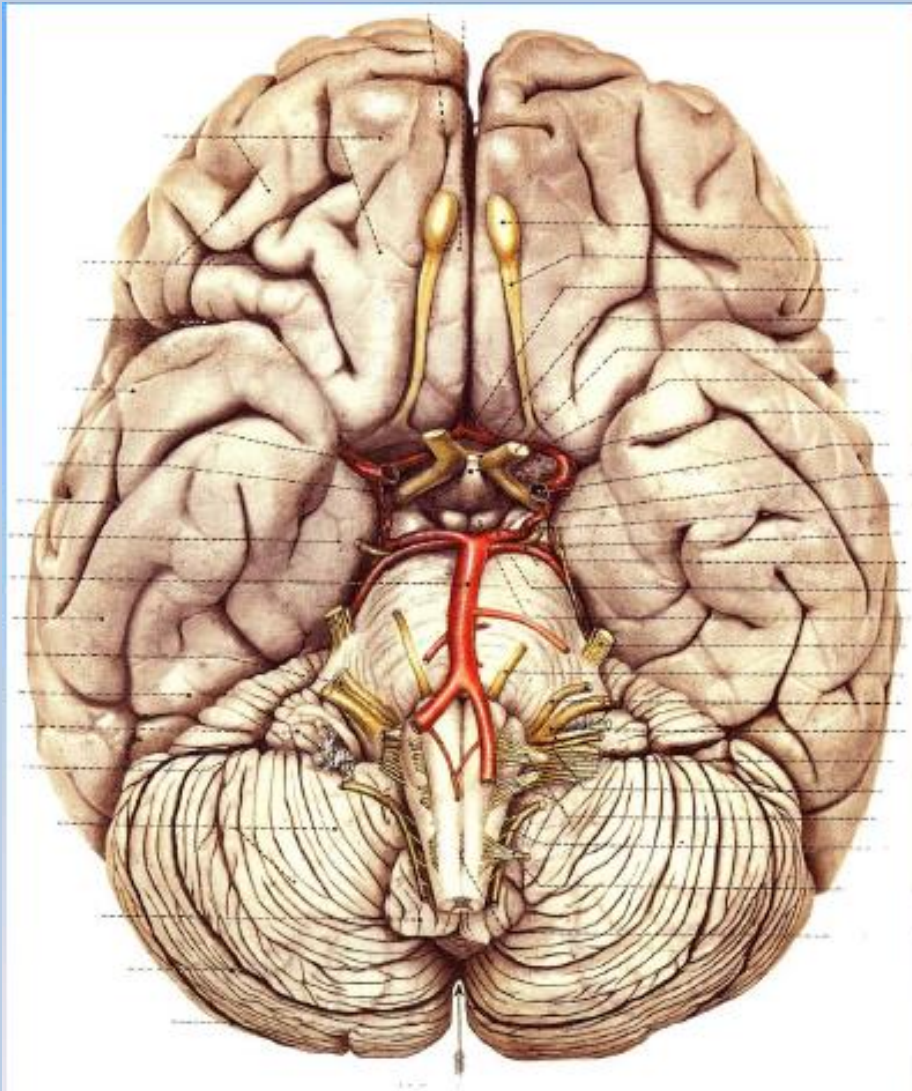


FIGURE 8-15. Classification of the nuclei of cranial nerves.



A NERVUS VAGUS MAGJAI:

nucl. ambiguus nucleus

VMS

nucl. dorsalis n. vagi

VMA

nucleus alae cinereae lateralis

VSA

nucleus tractus solitarii

VSS

nucleus tractus spinalis n. V.

SSA

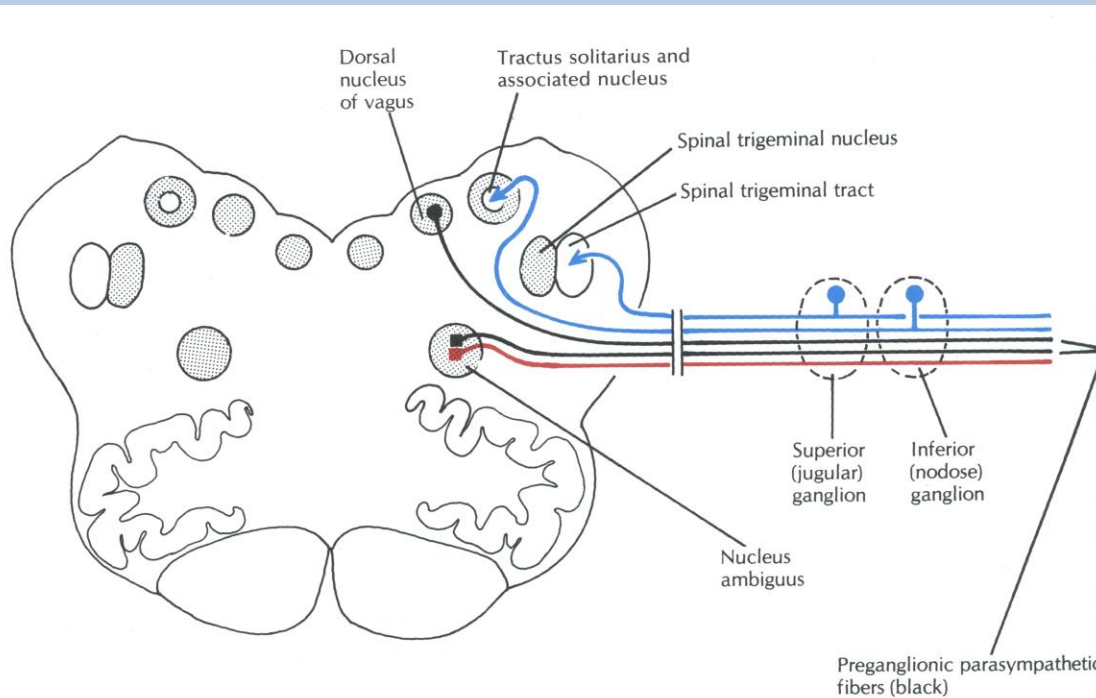


FIGURE 8-12. Components of the vagus nerve in the medulla.

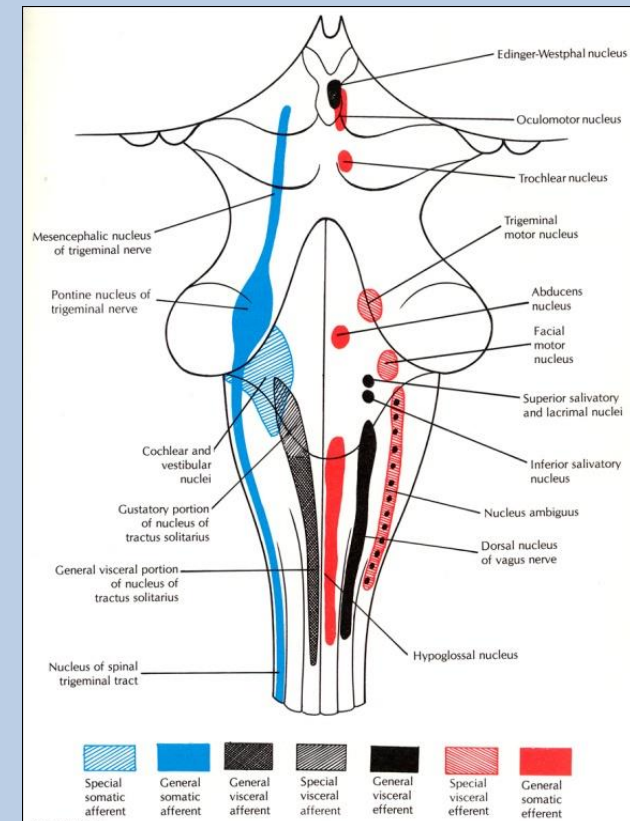


FIGURE 8-15. Classification of the nuclei of cranial nerves.

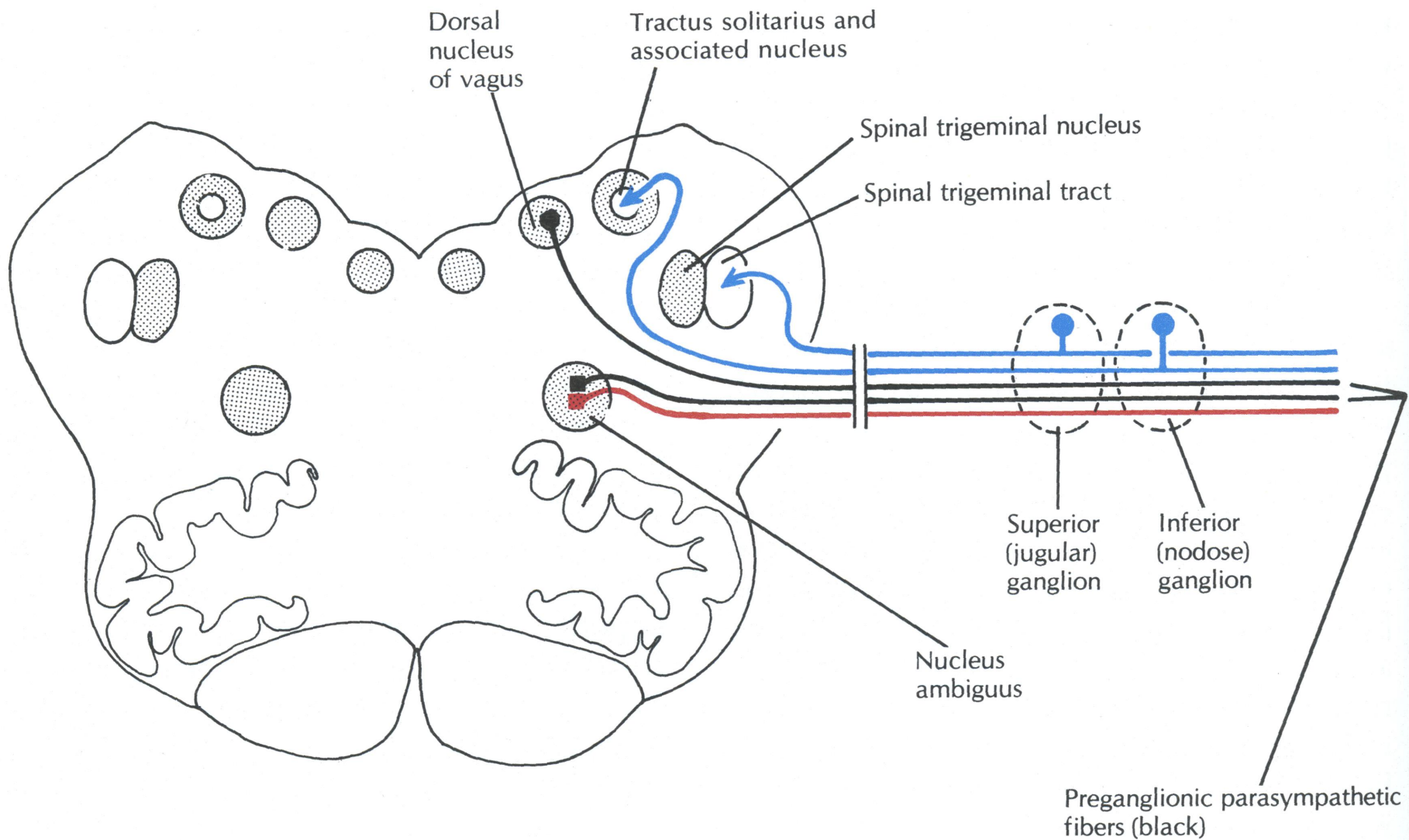
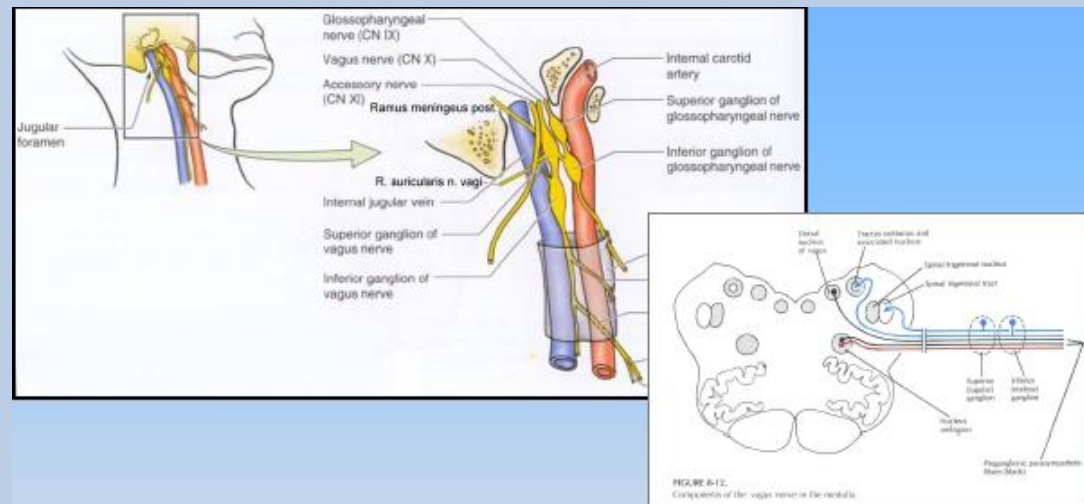
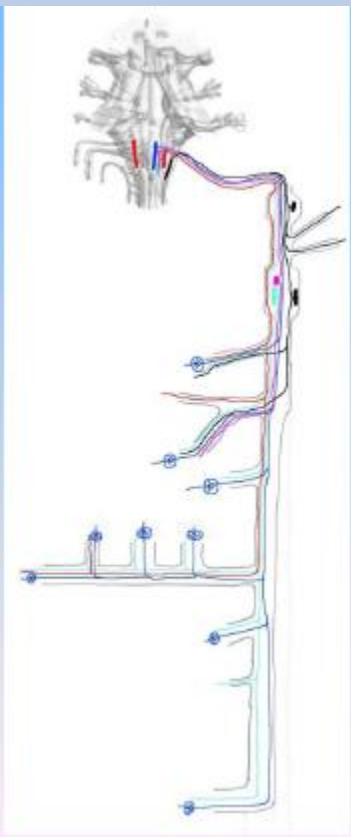


FIGURE 8-12.

Components of the vagus nerve in the medulla.

N. vagus ganglionjai

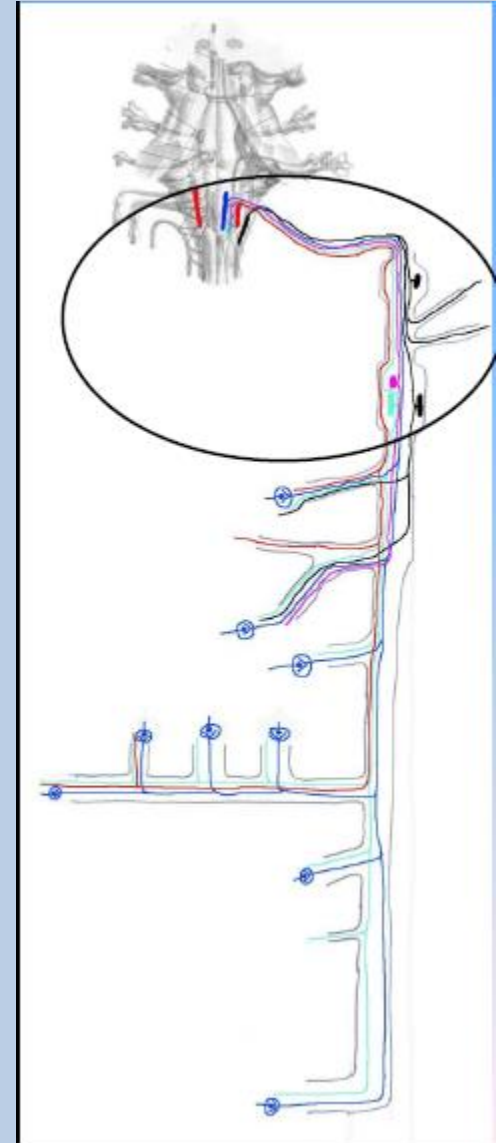
- érző:
 - ggl. superius nervi vagi (ggl. jugulare, foramen jugulare)
 - ggl.inferius nervi vagi (ggl. nodosum, 1.-2. cervicalis csigolya)



- parasympathikus (intramurálisan)

N. vagus ágrendszere

- cranio-cervicalis csoport:
 - r. meningeus post.
 - r. auricularis
 - rr. pharyngei
 - n. laryngeus sup.
 - rr. cardiaci sup.
 - n. laryngeus recurrens:
 - n. laryngeus inf.
 - rr. cardiaci inf.
 - rr. tracheales
 - rr. oesopahgeales

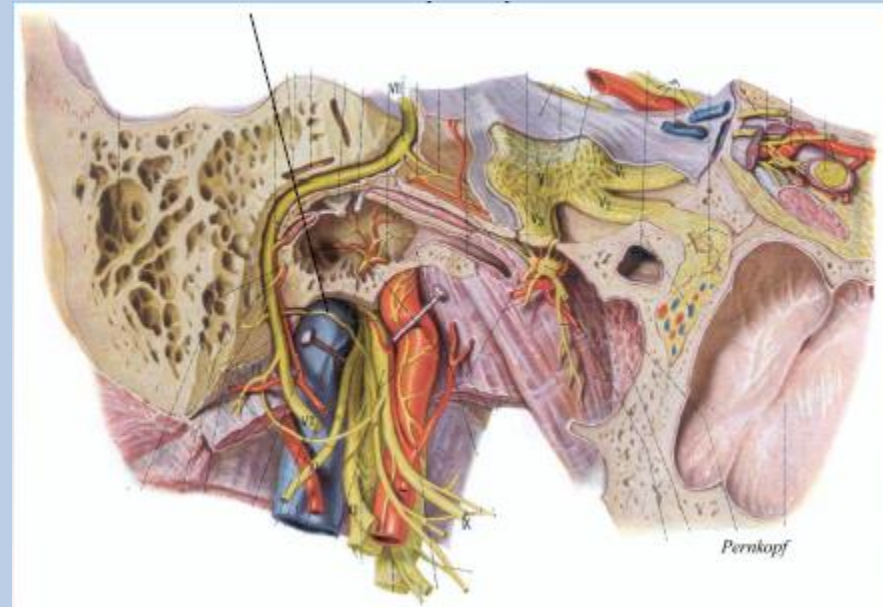


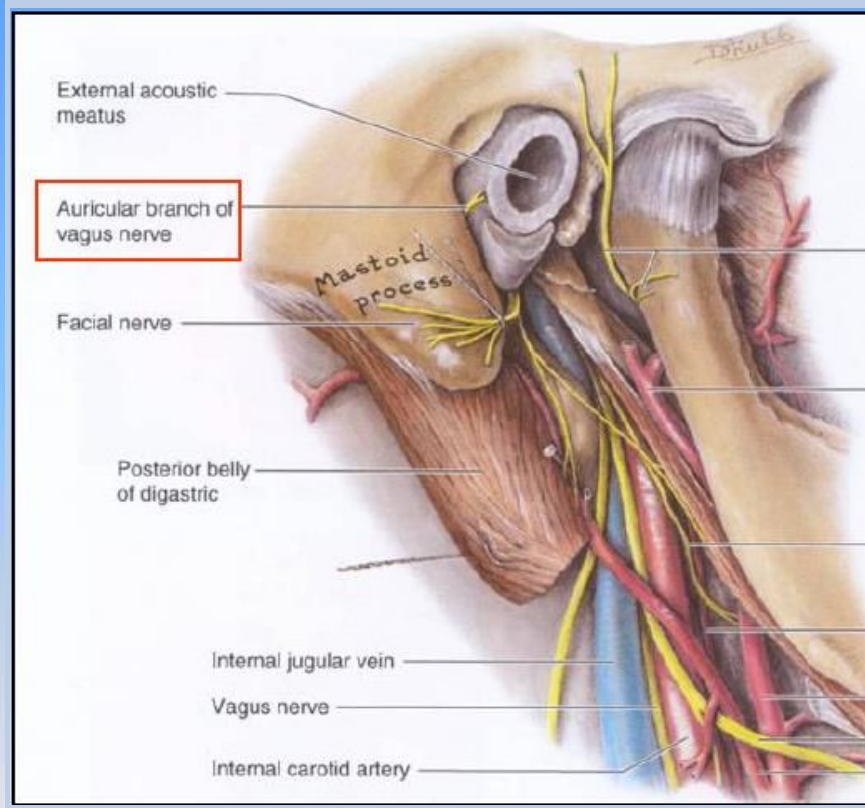
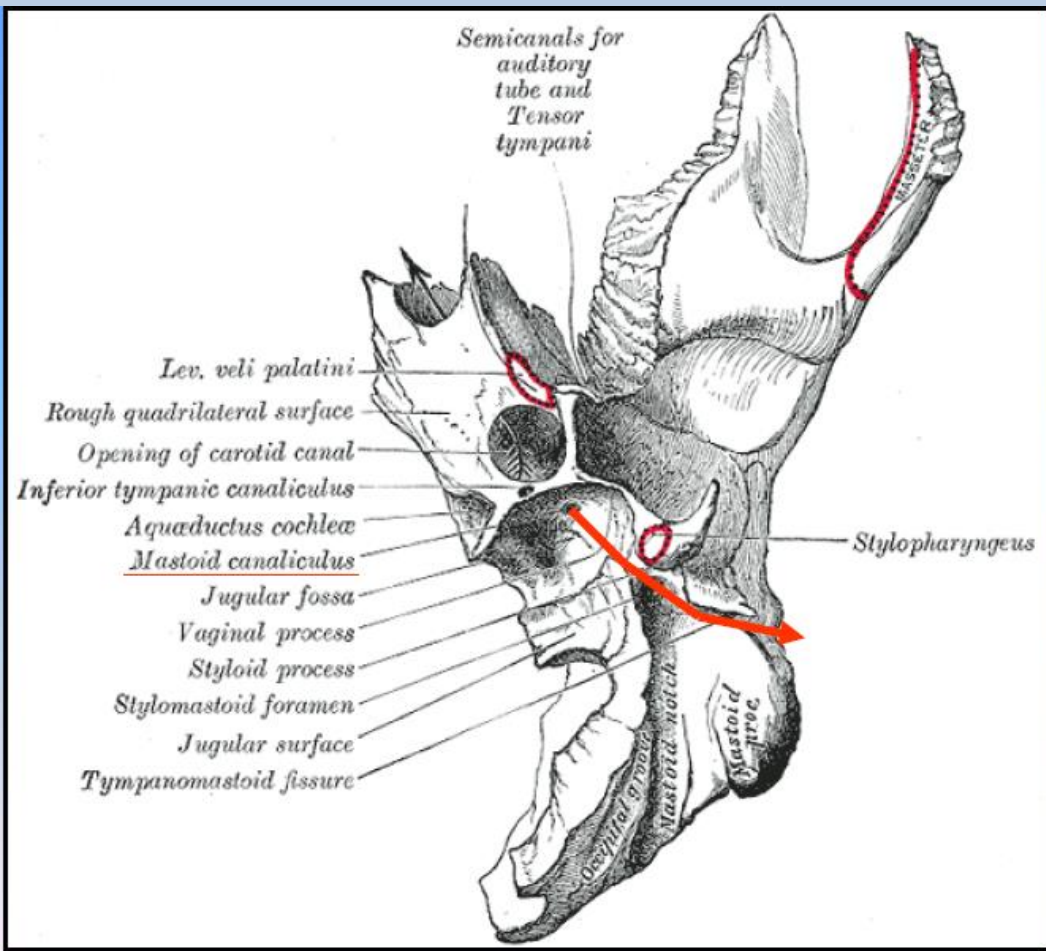
cranio-cervicalis csoport

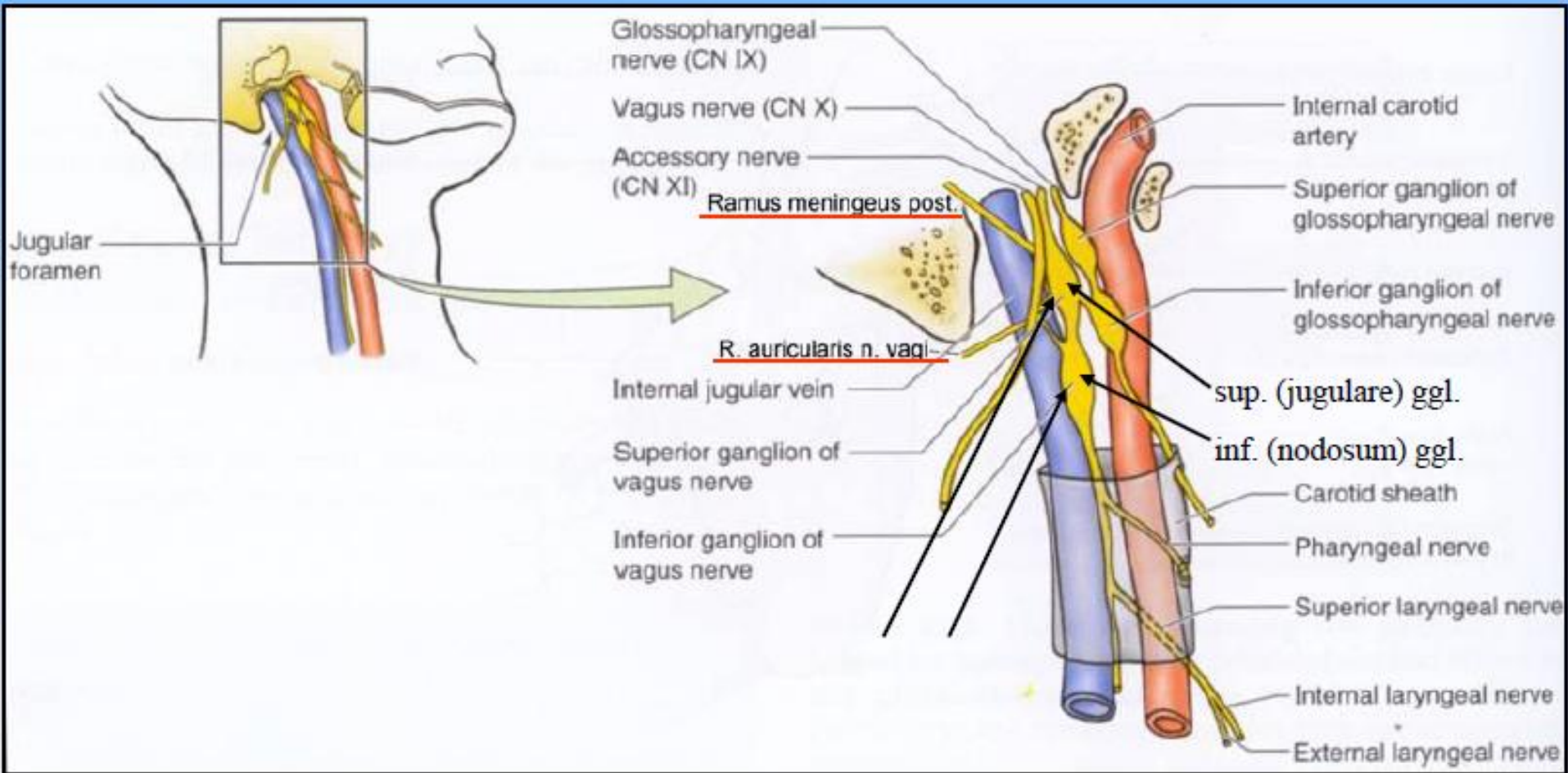


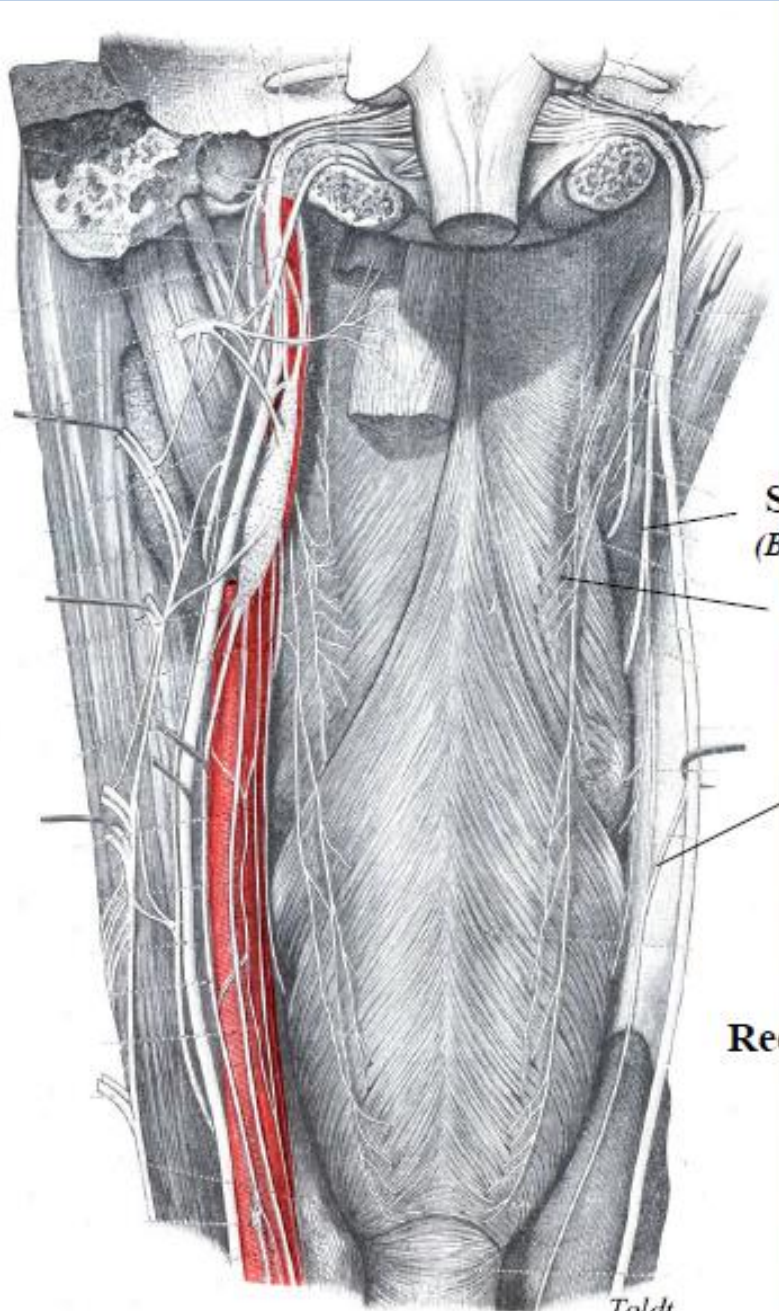
r. meningeus post. (ssá)

r. auricularis (ssá)







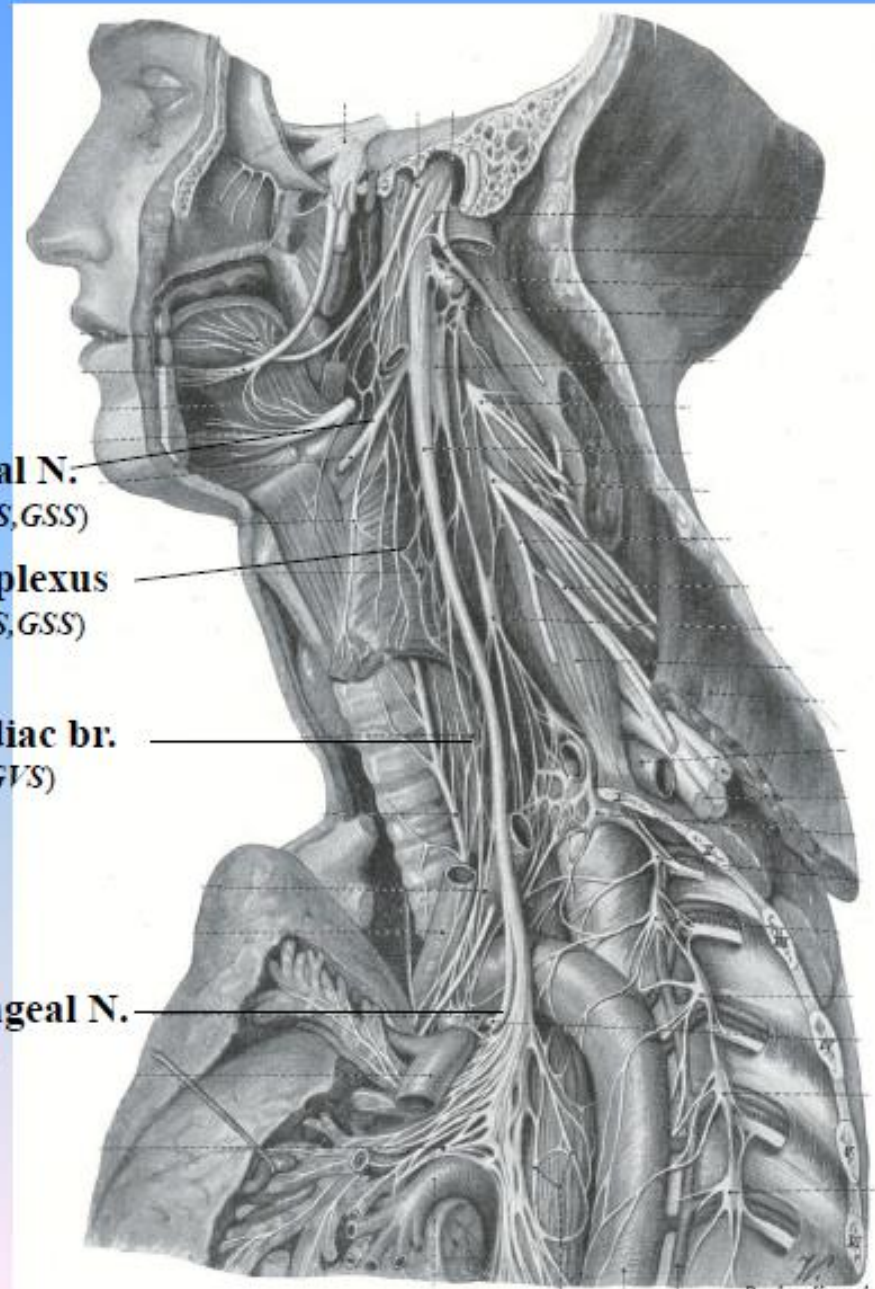


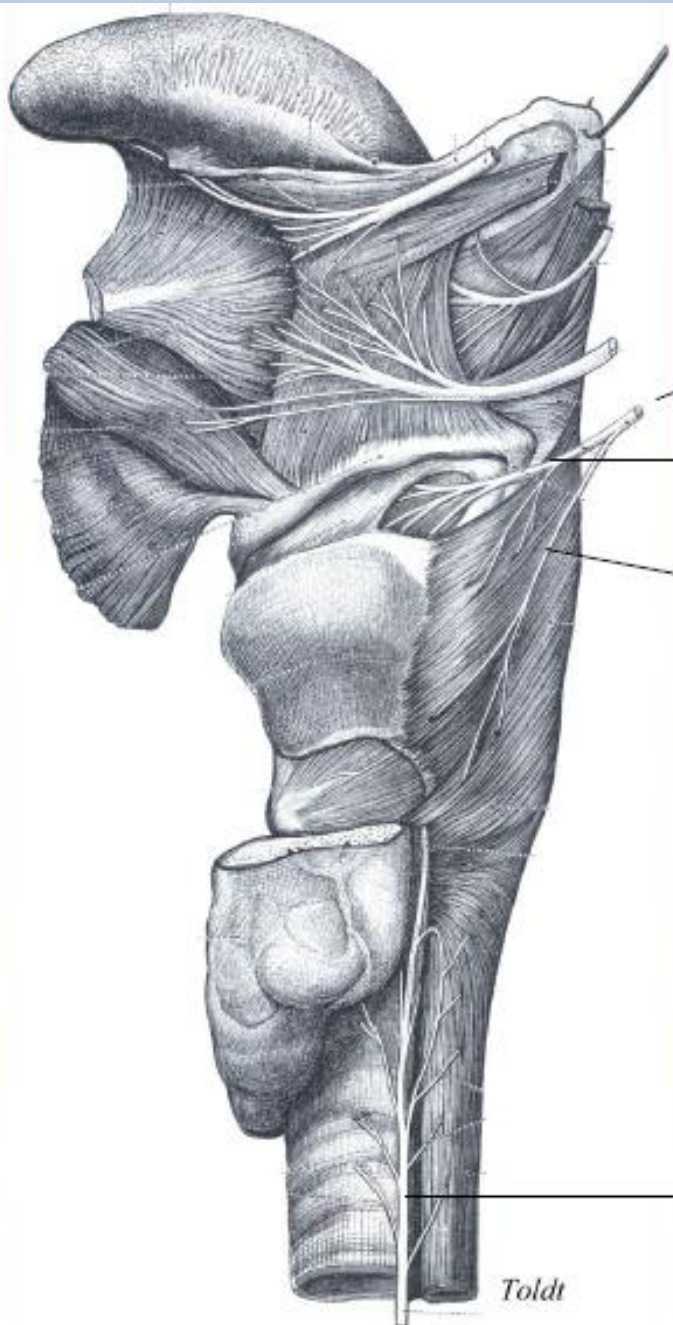
Sup. Laryngeal N.
(BM, GVM, GVS, SVS, GSS)

Pharyngeal plexus
(BM, GVM, GVS, GSS)

Sup. cardiac br.
(GVM, GVS)

Recurrent laryngeal N.
(BM, GVM, GVS)





Sup. Laryngeal N.

Internal branch
(GVM,GVS,SVS,GSS)

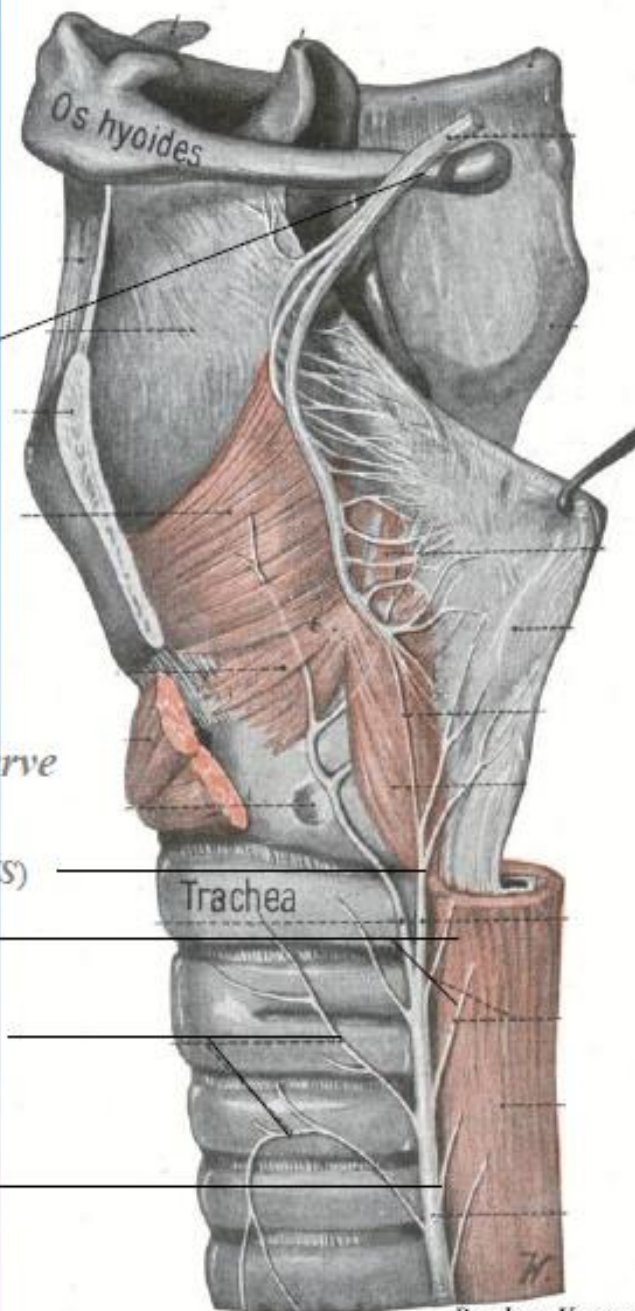
External branch (BM)

Inferior laryngeal nerve
(ant. and post. branches)(BM,GVM,GVS)

Oesophageal branches
(BM,GVM,GVS)

Tracheal branches
(GVM,GVS)

Recurrent laryngeal N.
(BM,GVM,GVS)

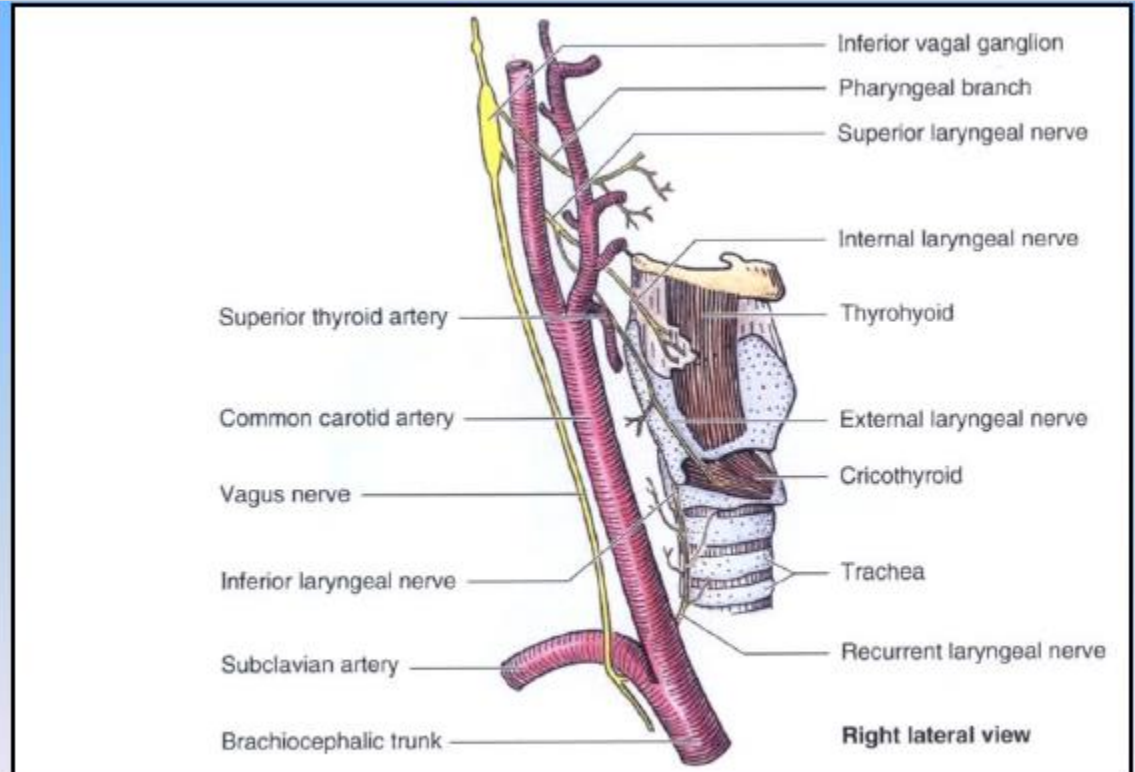
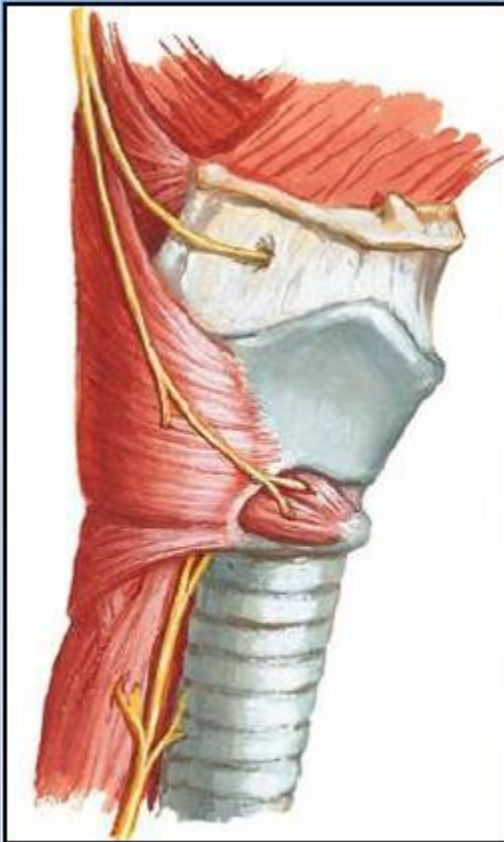


Os hyoides

Trachea

Rauber-Kopsc

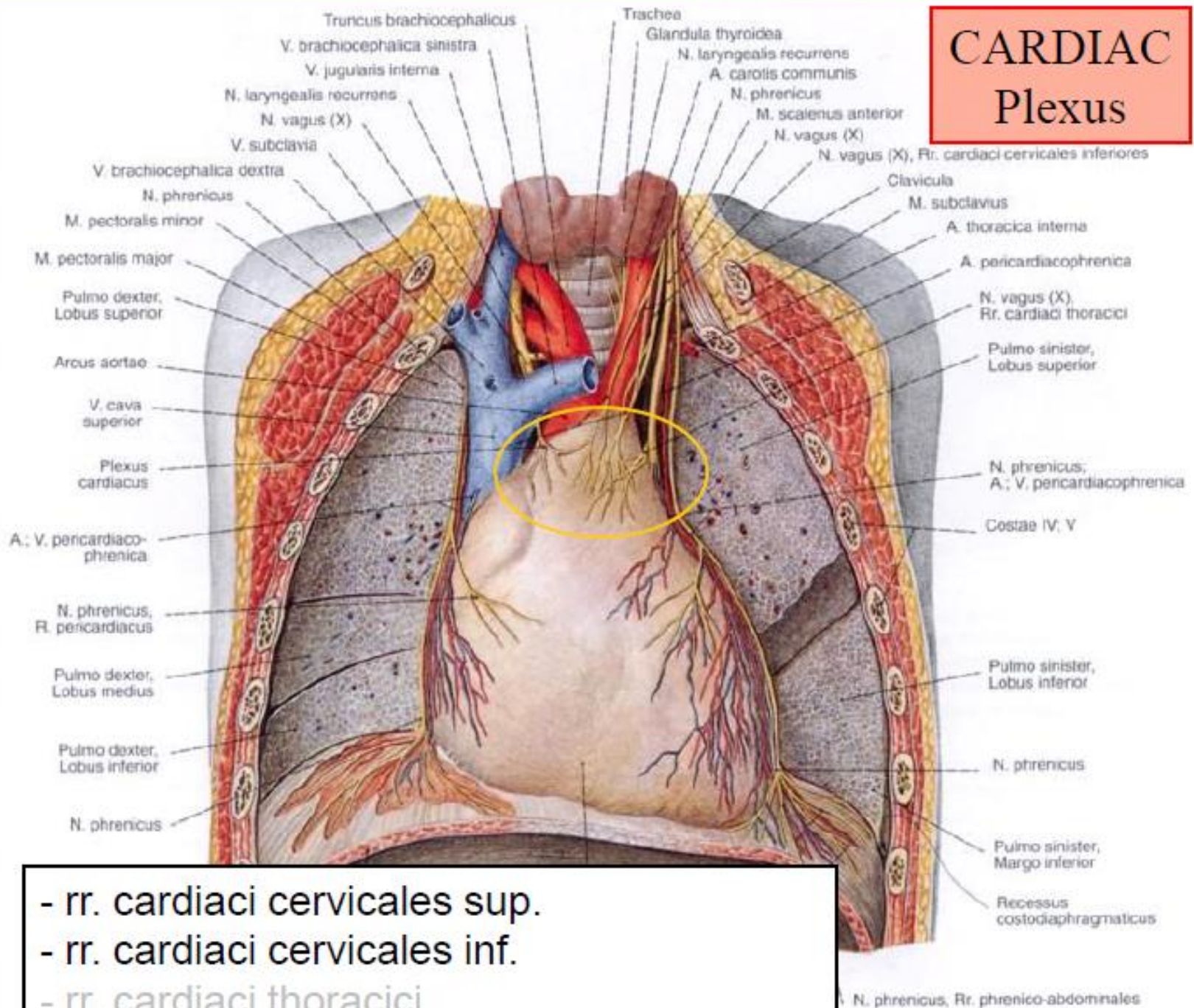
N. laryngeus sup (r. ext et int)



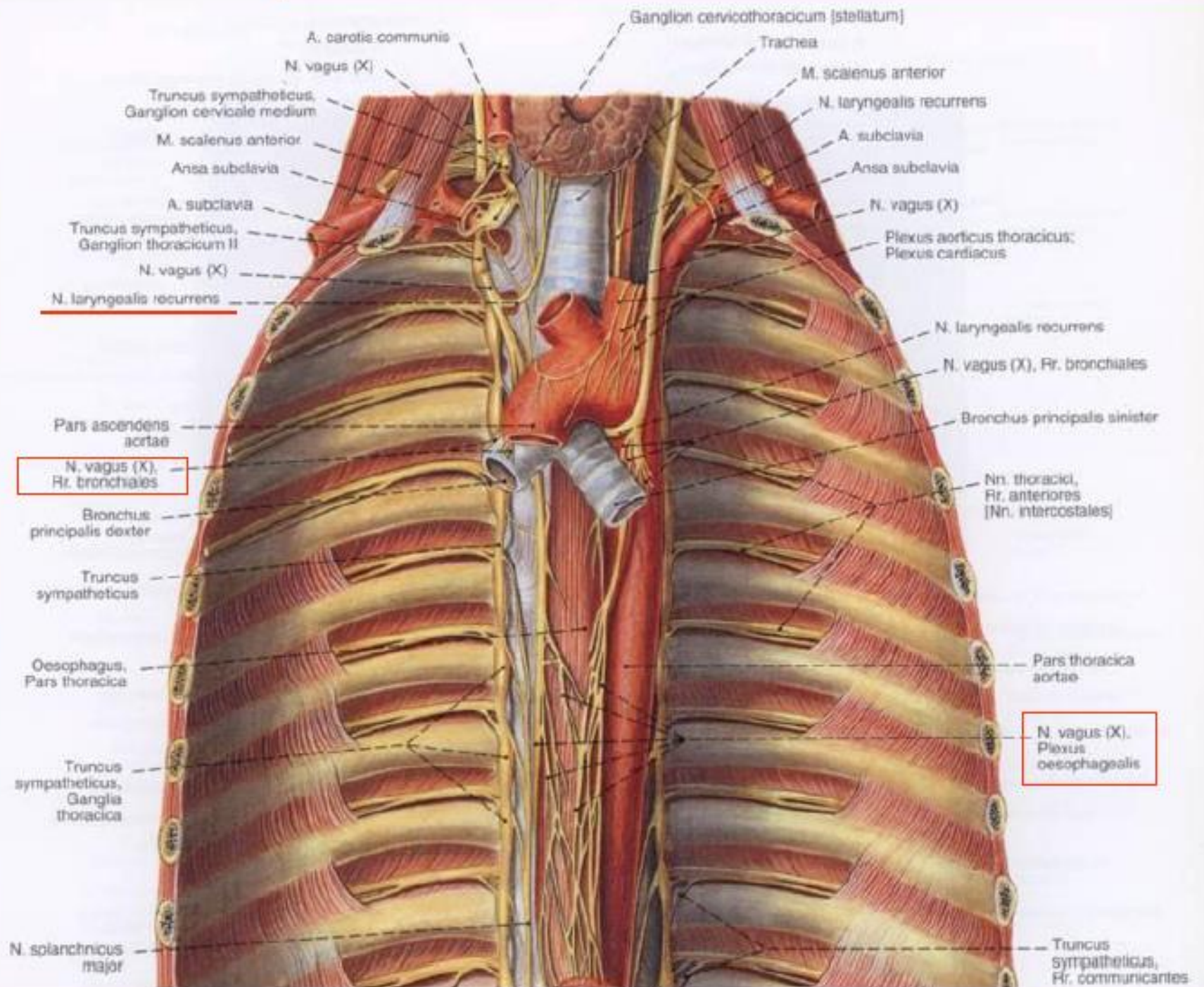
N. vagus ágrendszere

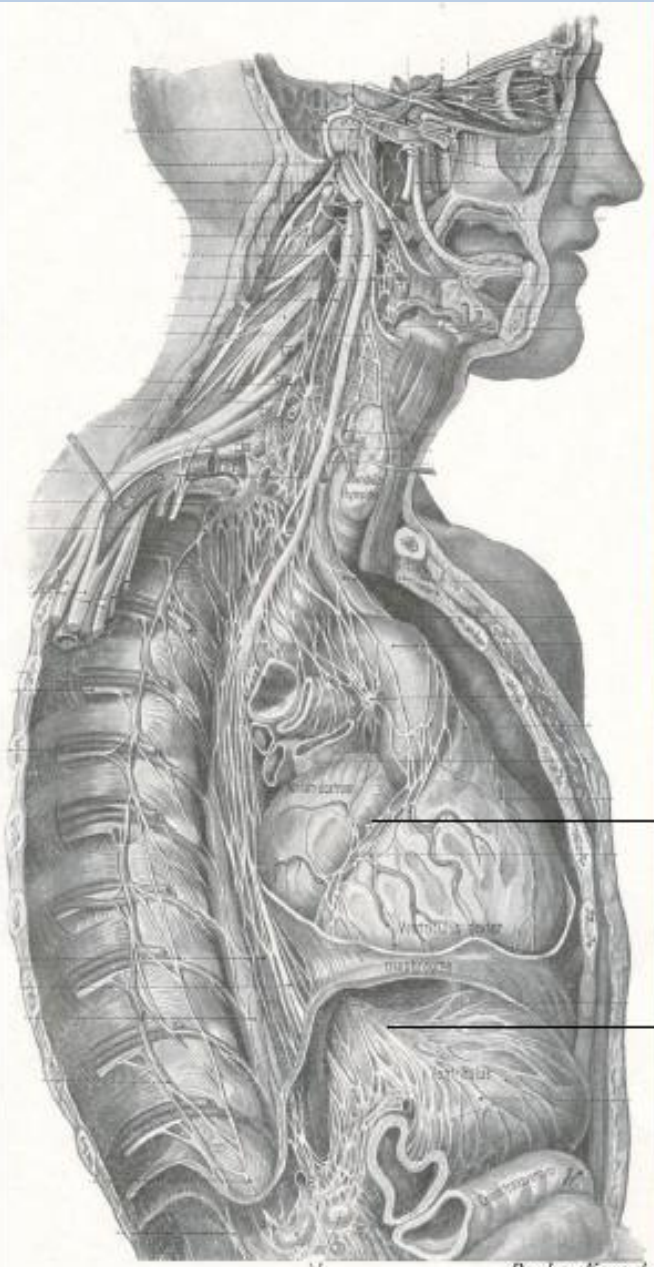
- thoracalis csoport:
 - rr. cardiaci
 - rr. bronchiales
 - rr. pericardiales
 - rr. oesophagei
- abdominalis csoport:
 - rr. viscerales

CARDIAC Plexus



- rr. cardiaci cervicales sup.
- rr. cardiaci cervicales inf.
- rr. cardiaci thoracici





Rauber-Kopsch

Tracheal branches
(GVM, GVS)

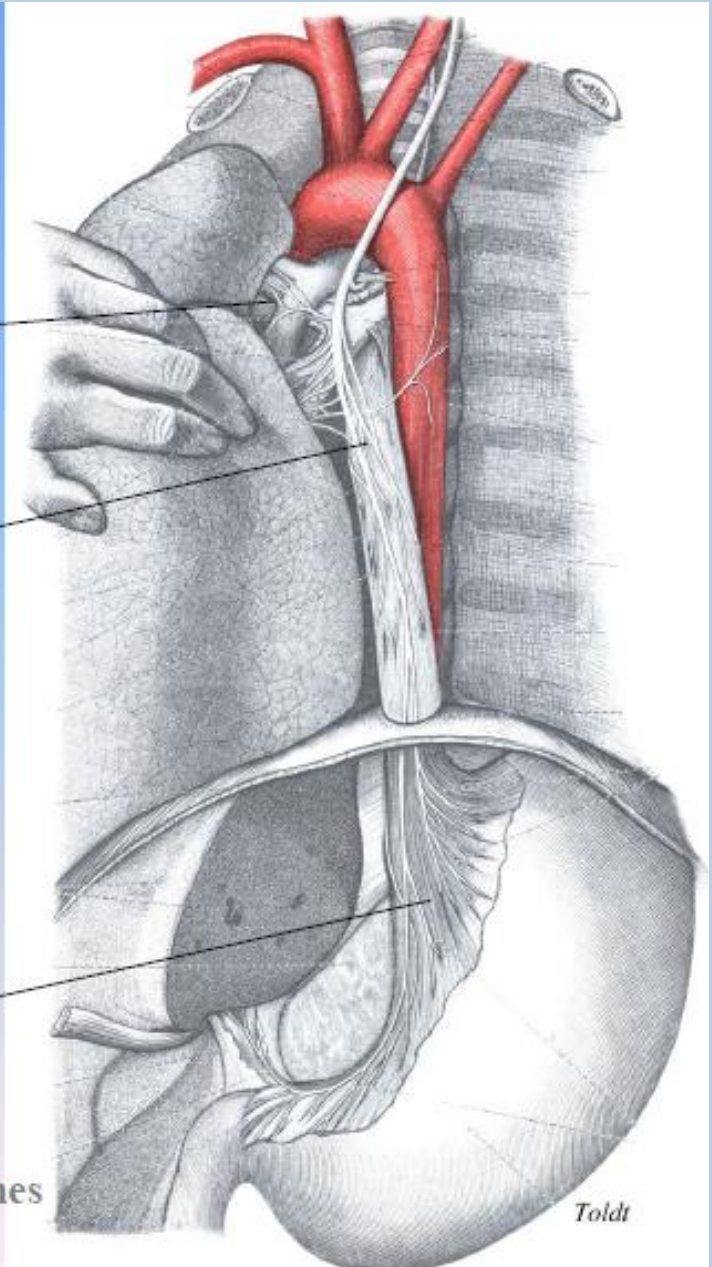
Bronchial branches
(GVM, GVS)

Oesophageal branches
(GVM, GVS)

Pericardial branches
(GVS)

Gastric branches
(GVM, GVS)

Hepatic, celiac, renal branches
(GVM, GVS)



Toldt

Pulmonary plexus

Esophageal plexus

Posterior gastric nerve

Celiac ganglion and plexus

Superior mesenteric ganglion

Pyloric branch

Renal plexus

Hepatic flexure

Anterior gastric nerve

Gastric branches

Splenic branches

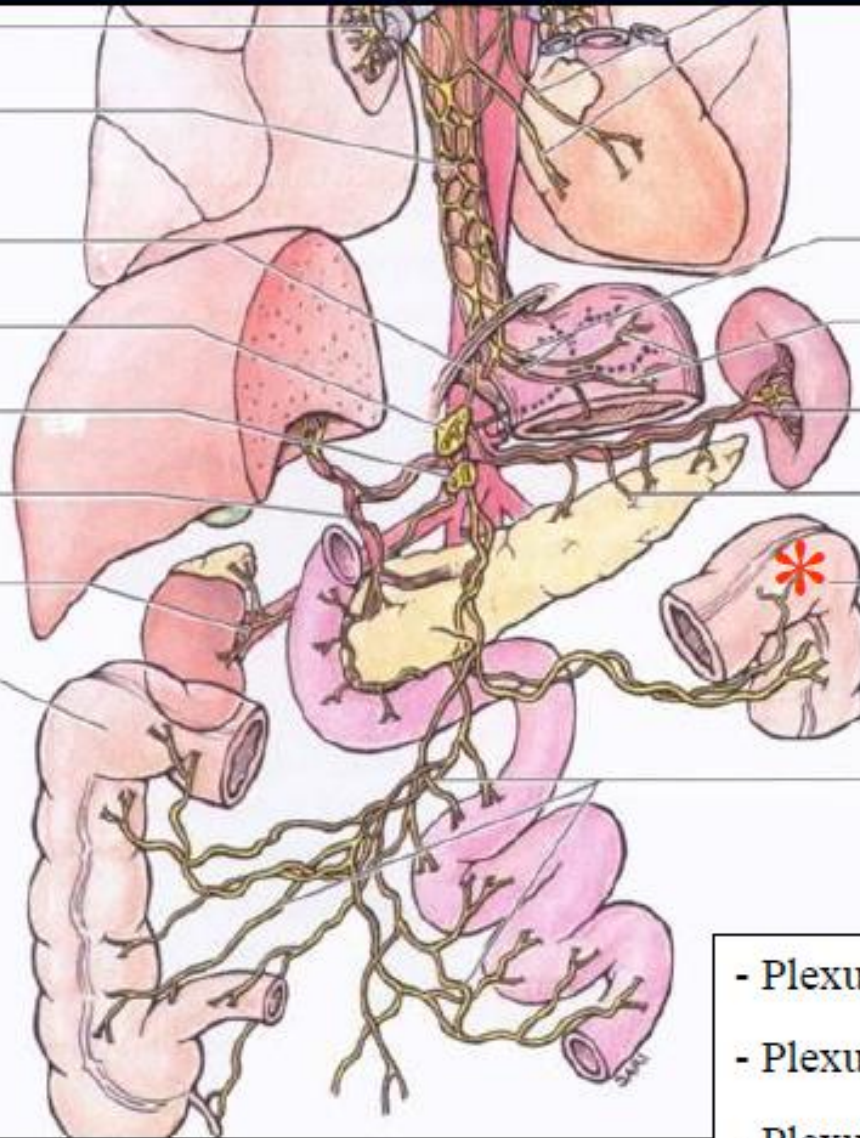
Pancreatic branches

Left colic flexure

Cannon-Böhm
point

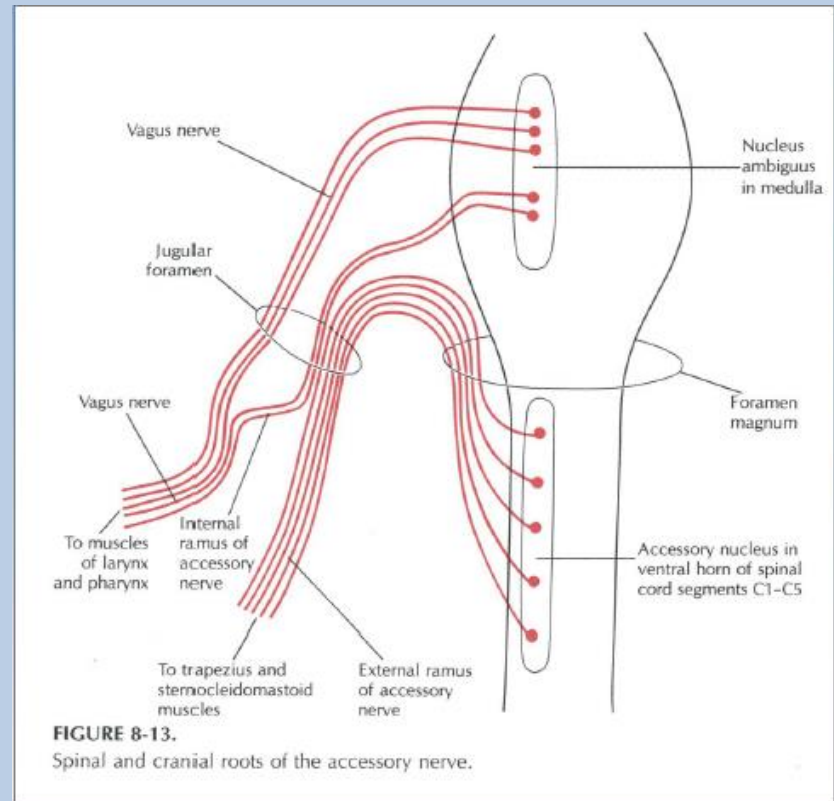
Branches to the small and large intestine as far as the left colic flexure

- Plexus gastricus
- Plexus hepaticus
- Plexus coeliacus
- Plexus renalis



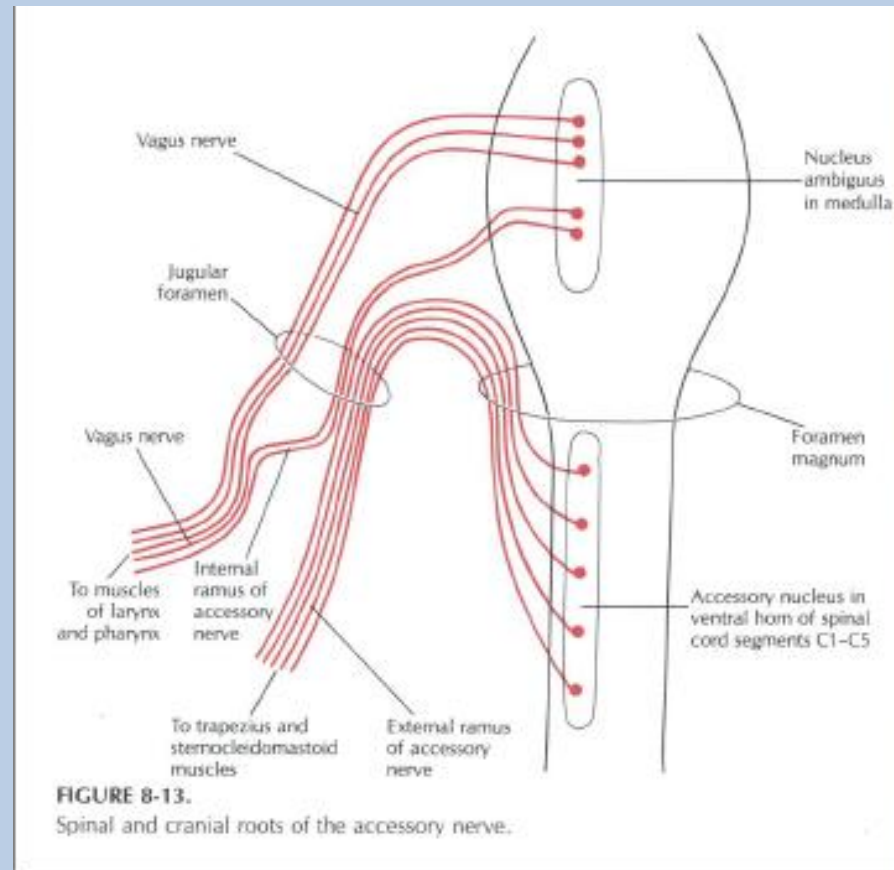
N. accessorius

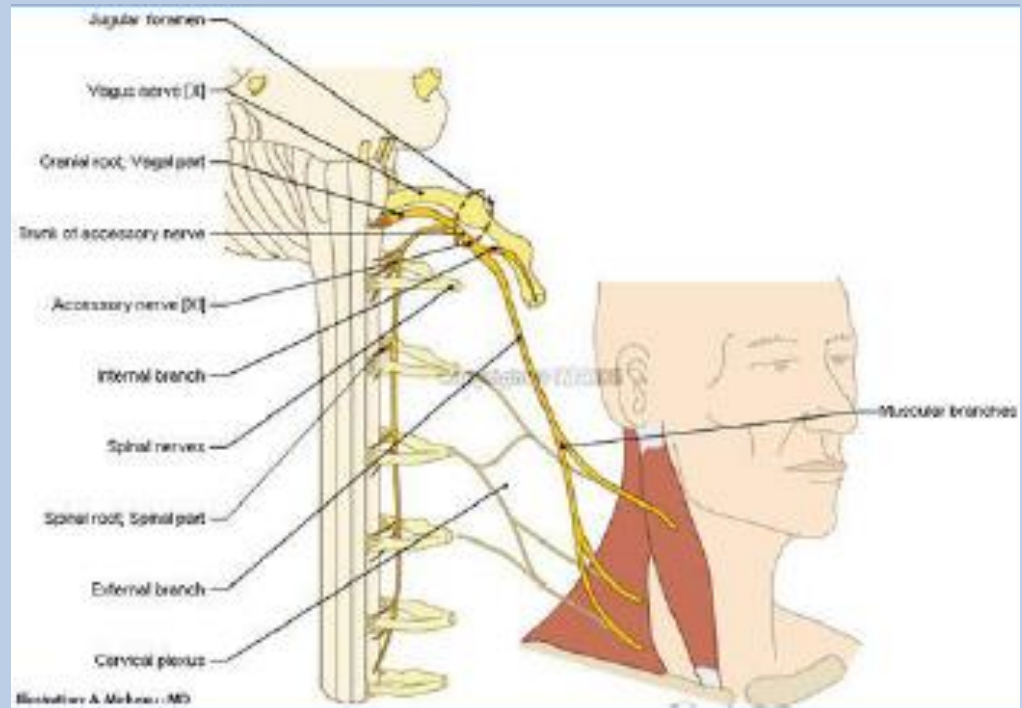
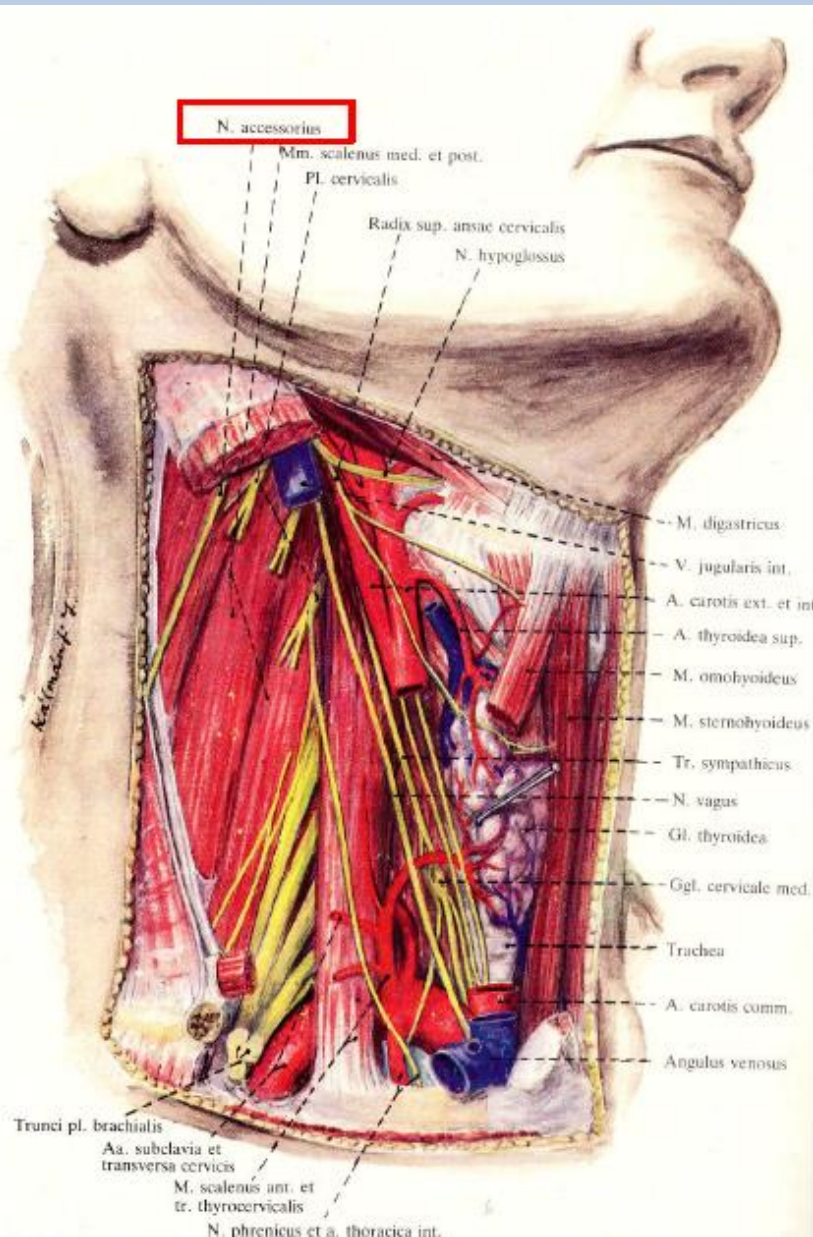
- nucl. ambiguus (VMS), cranialis gyökér
- C 1-6 mellső szarvi motoneuronok (SM), spinalis gyökér



N. accessorius ágai

- r. internus
 - csatlakozik a vagushoz és beidegzi a mm. arythenoideit
- r. externus (SM)
 - m. SCM, m. trapezius





N. hypoglossus

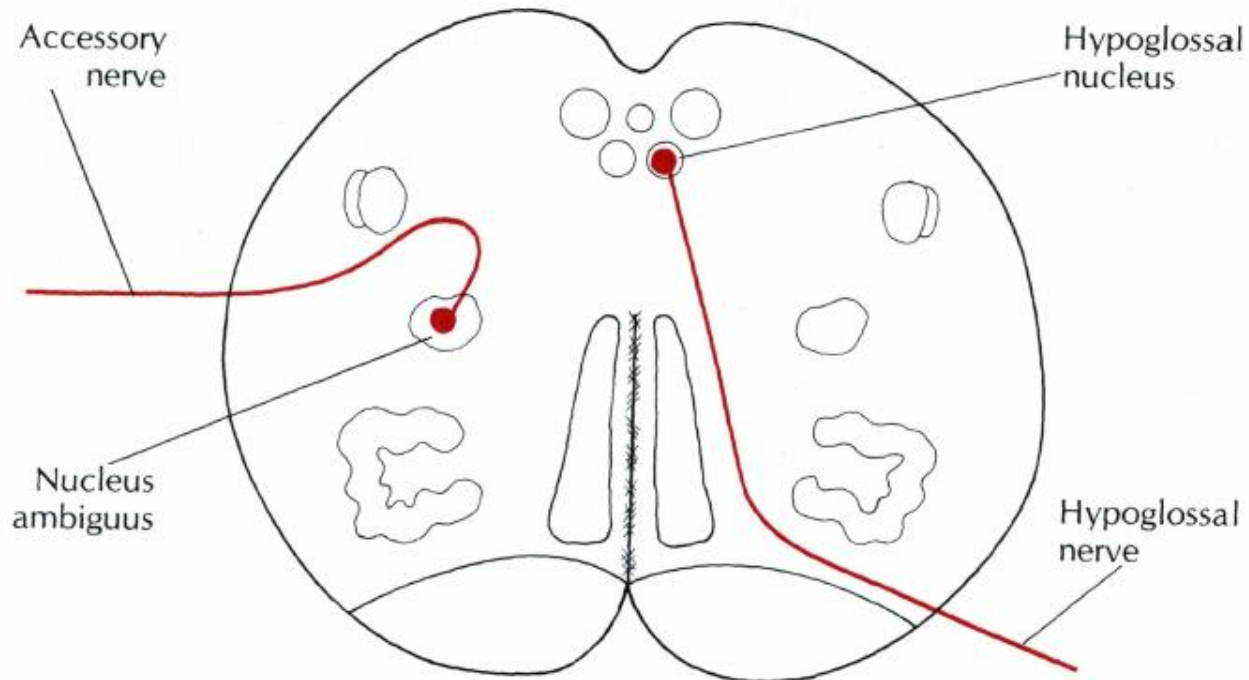
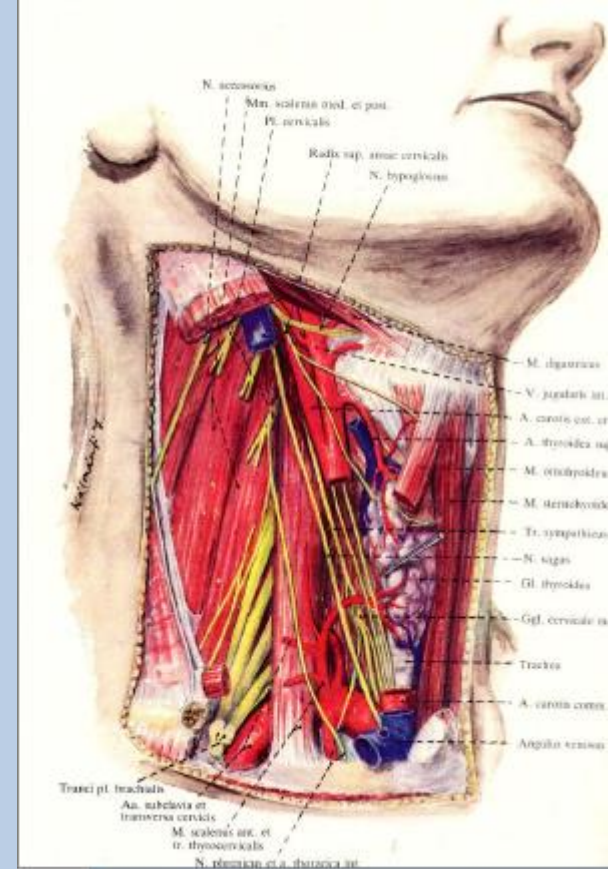
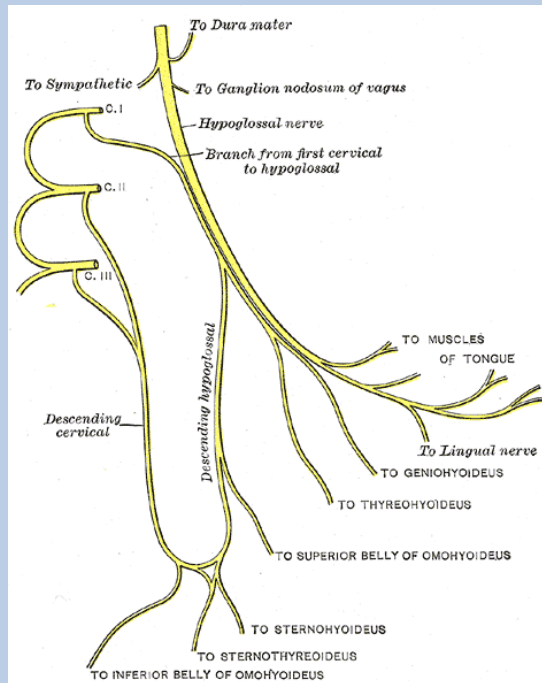
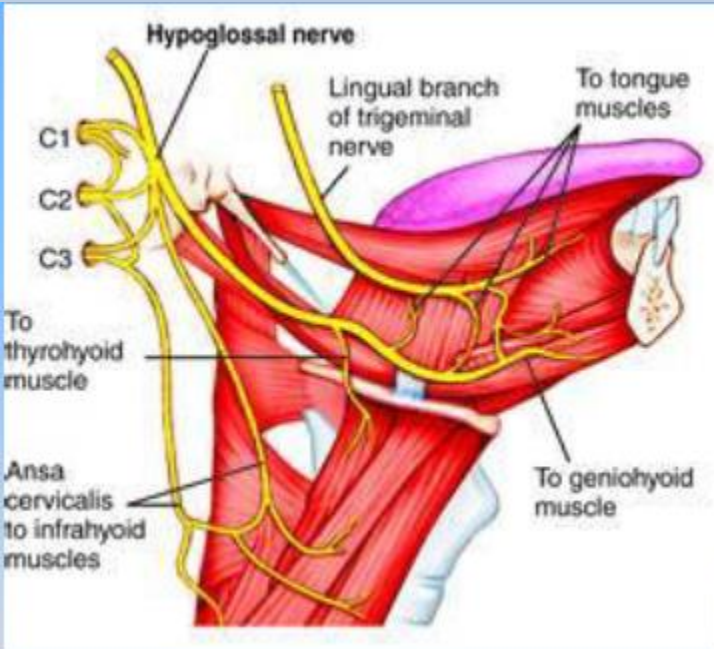
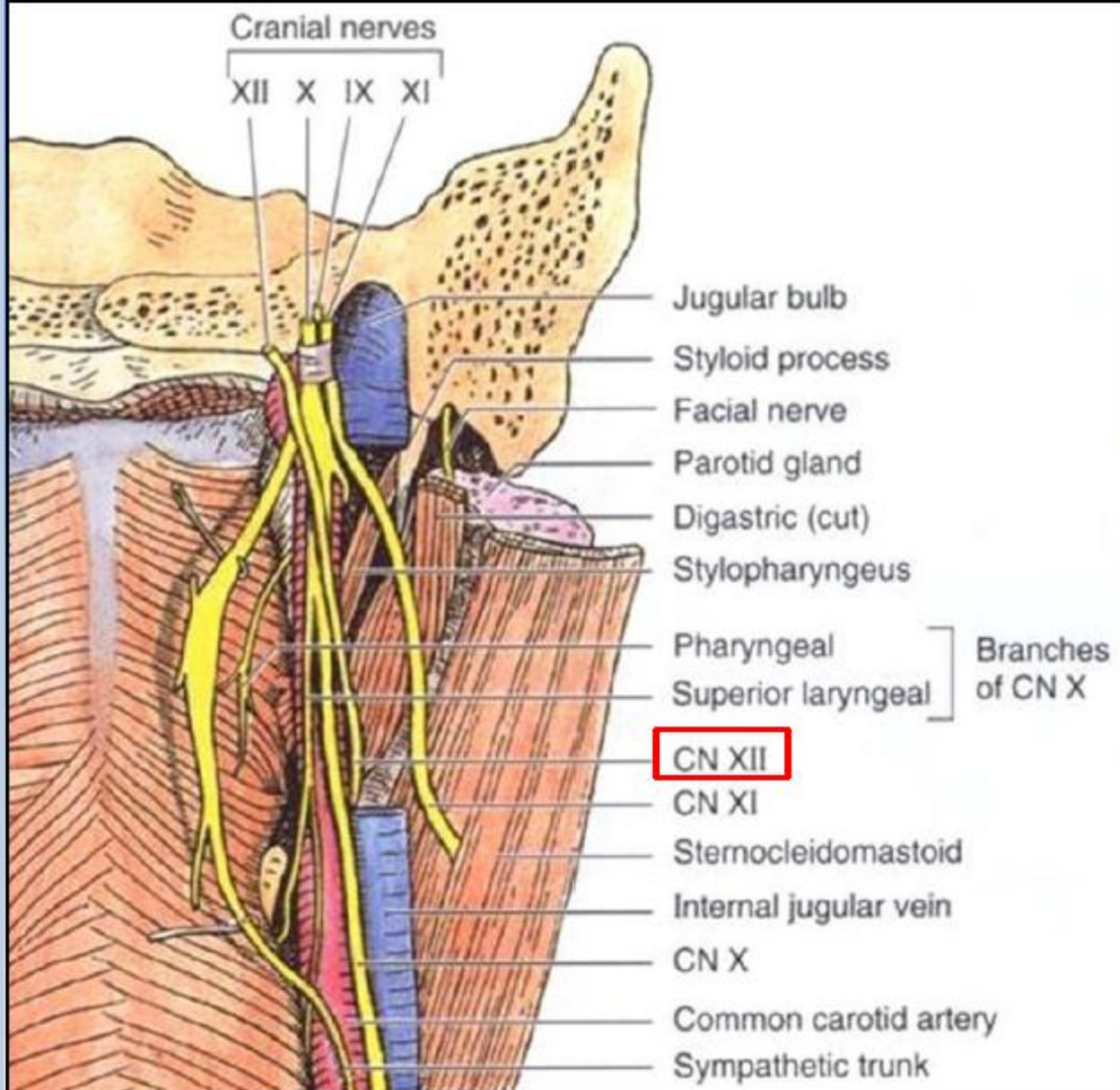


FIGURE 8-14.

Hypoglossal nerve and origin of the cranial root of the accessory nerve in the medulla.

XII. ansa cervicalis prof.





spatium parapharyngeum

idegek:

- n. IX., X., XII.
- truncus symp.

erek:

- a. carotis communis (int. et ext.)
- a. pharyngea asc.
- v. jugularis int.
- plexus venosus pharyngis

