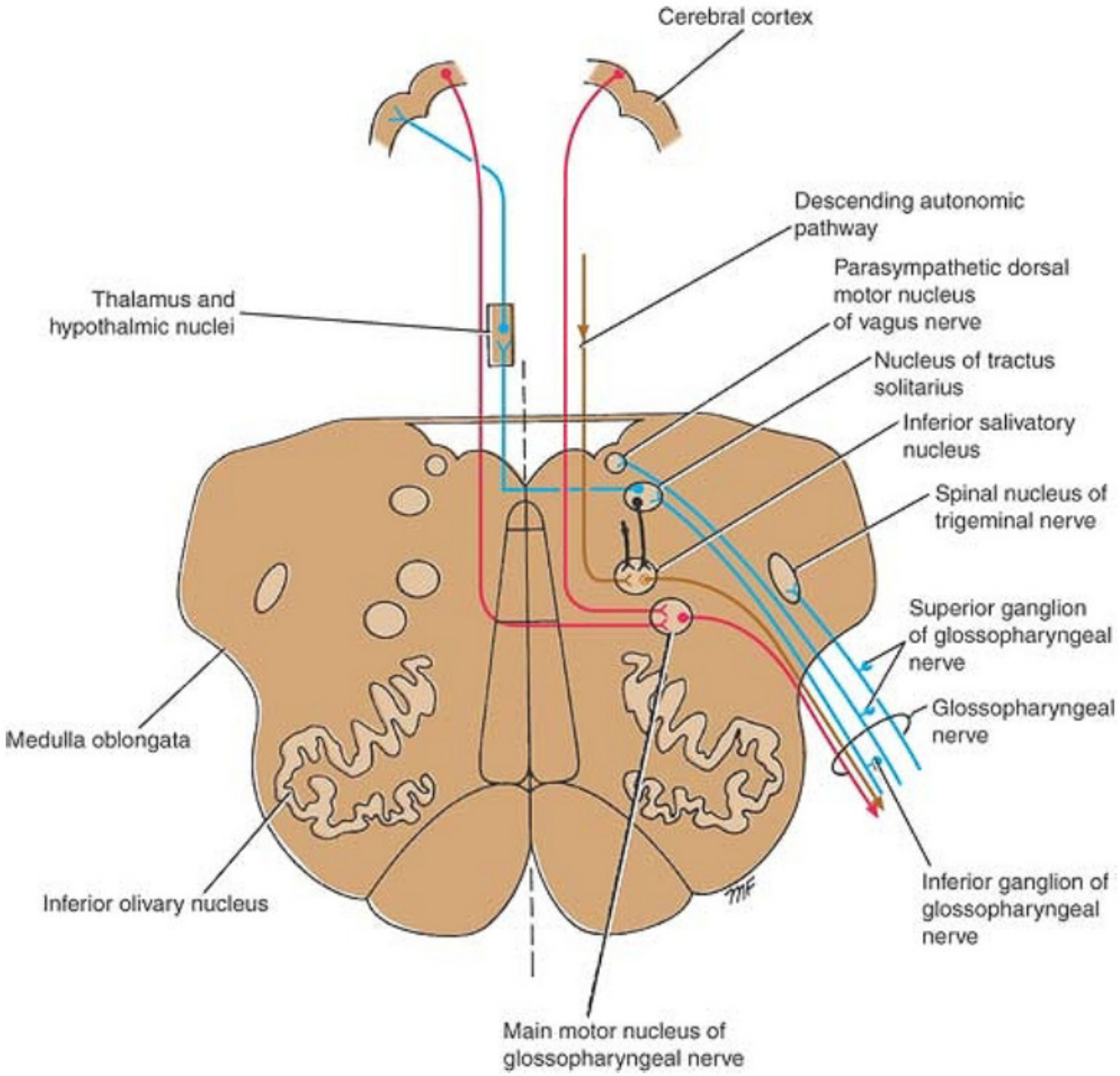
Glossopharyngeal Nerve Nuclei

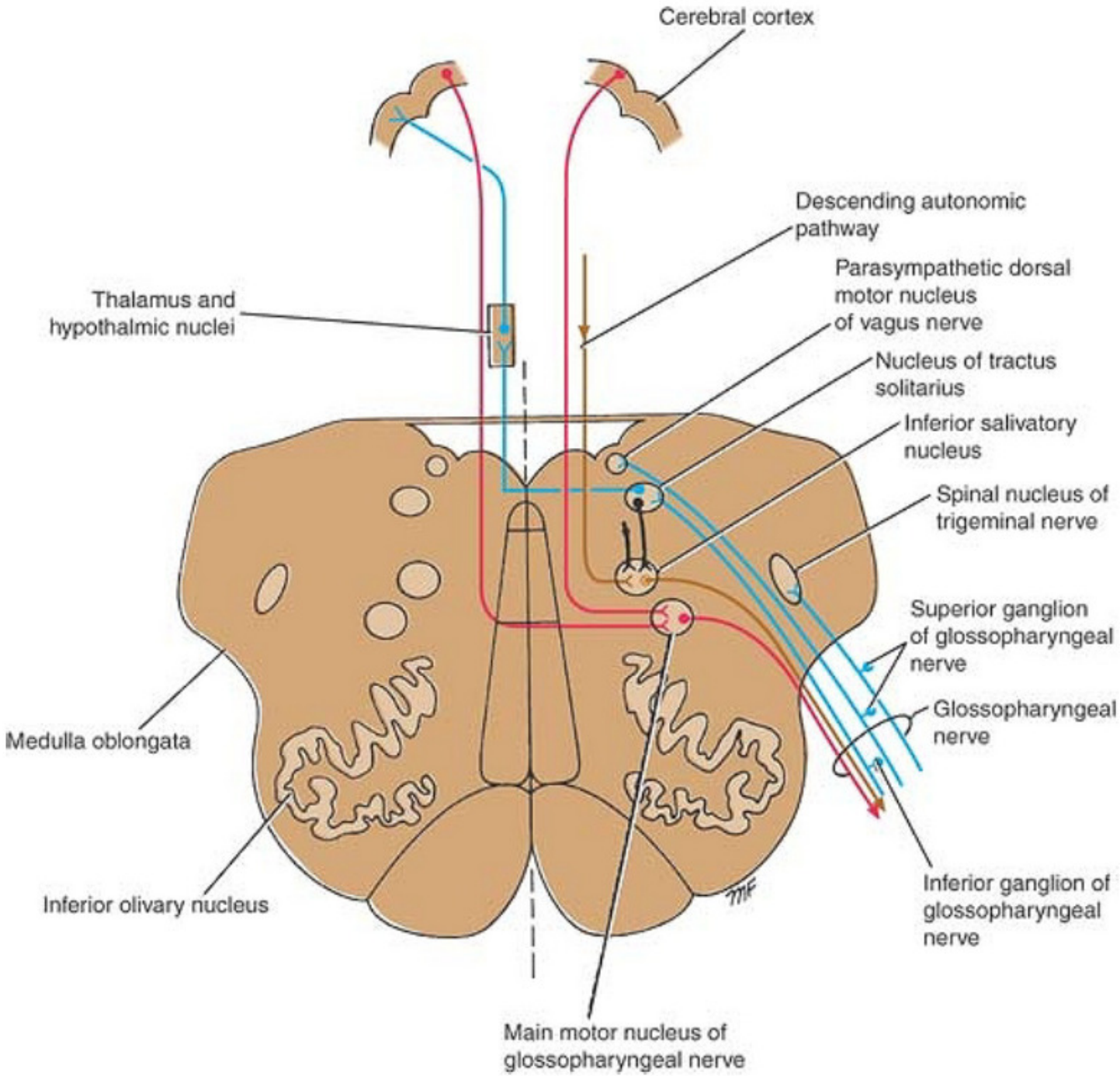
- **Main Motor Nucleus**
- Deep in the reticular formation of the medulla oblongata
- superior end of the nucleus ambiguus
- receives corticonuclear fibers from **both** cerebral hemispheres.
- supply the **stylopharyngeus muscle**



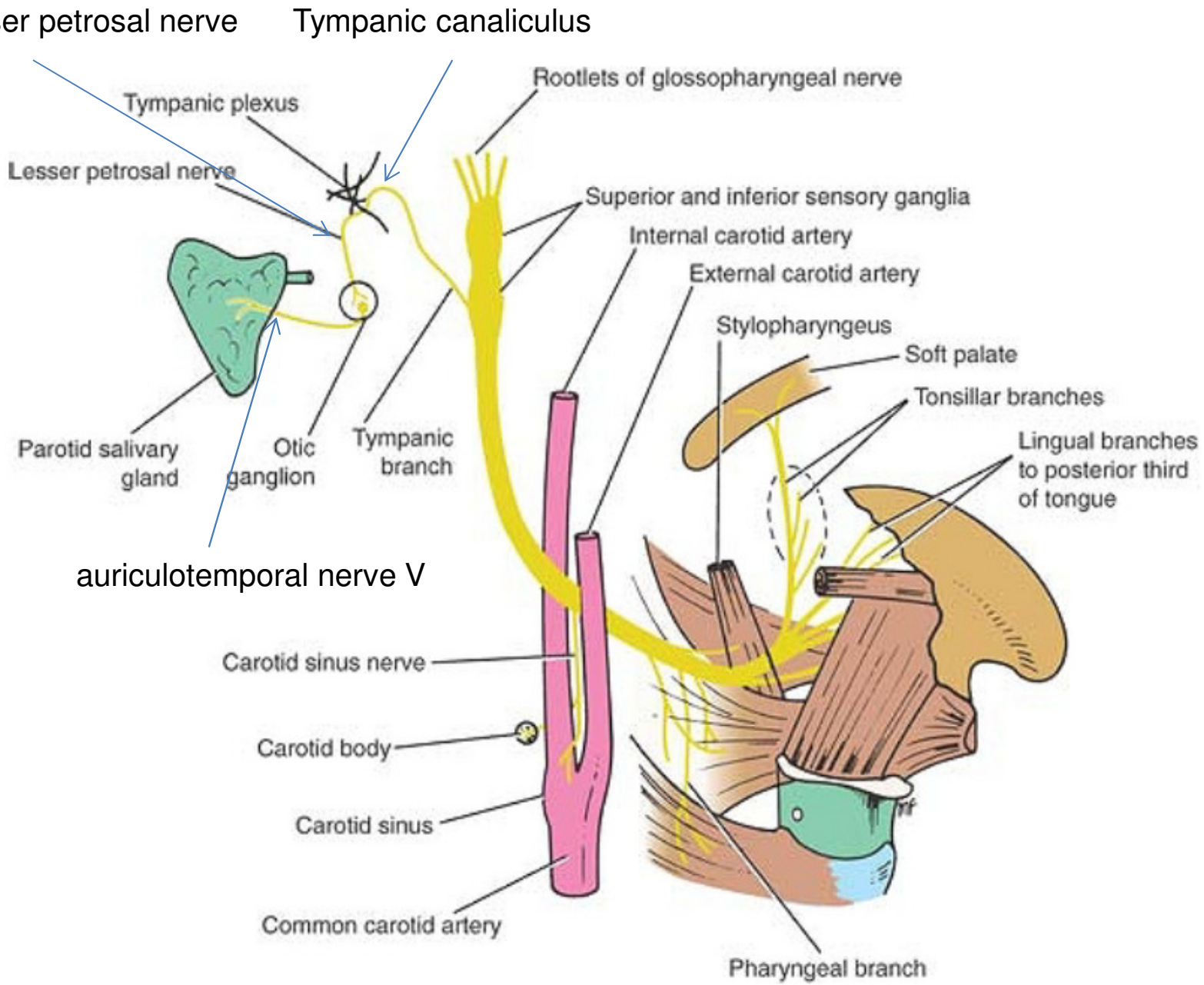
Glossopharyngeal Nerve Nuclei

Parasympathetic Nuclei:

- **Inferior salivatory nucleus**
- receives afferents from the hypothalamus
- efferent preganglionic parasympathetic fibers reach the otic ganglion through the tympanic branch the glossopharyngeal nerve

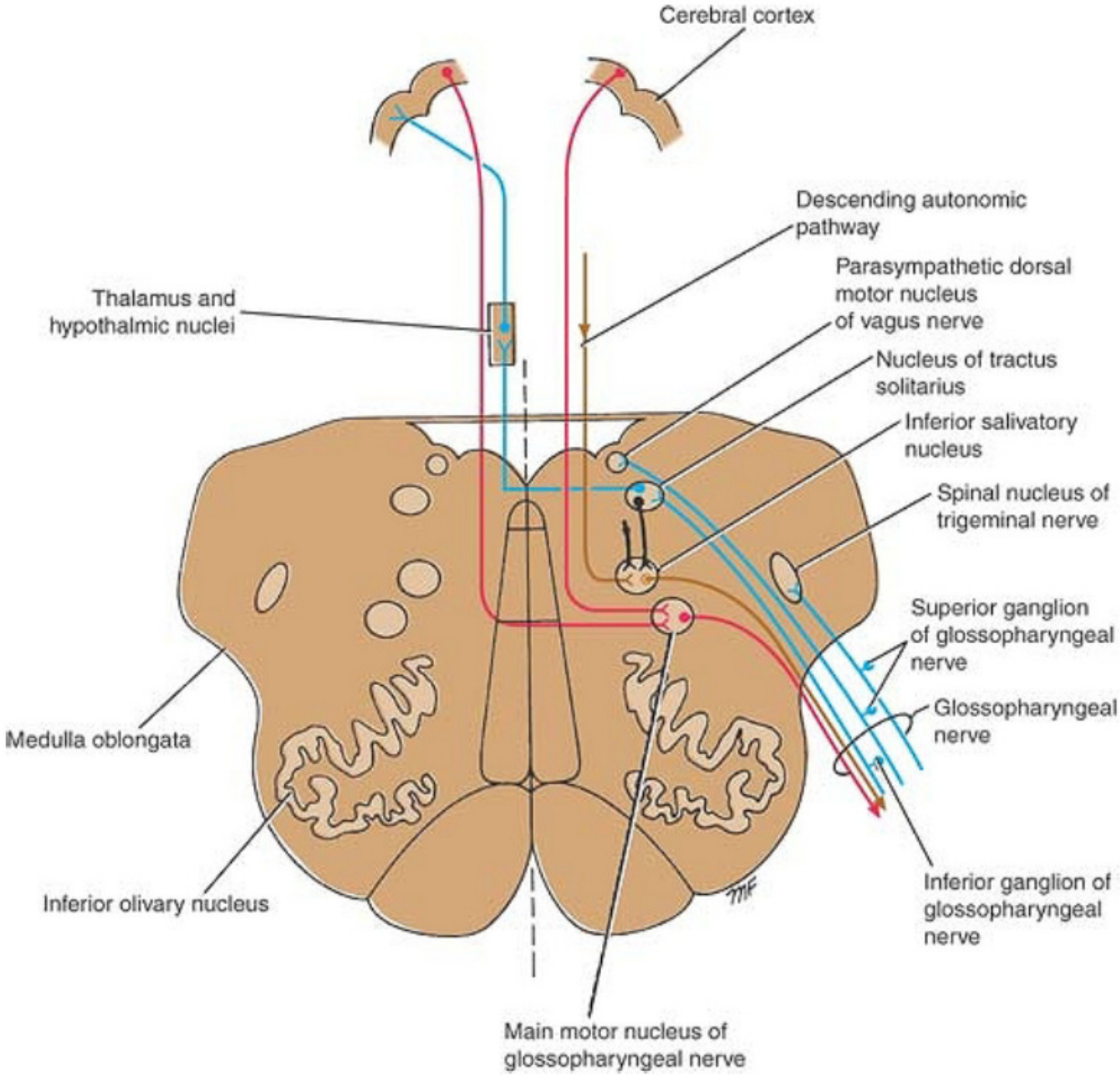


- The tympanic plexus, and the lesser petrosal nerve
- Middle cranial fossa, then throught foramen ovale to infratemporal fossa
- Postganglionic fibers pass to the parotid salivary gland.



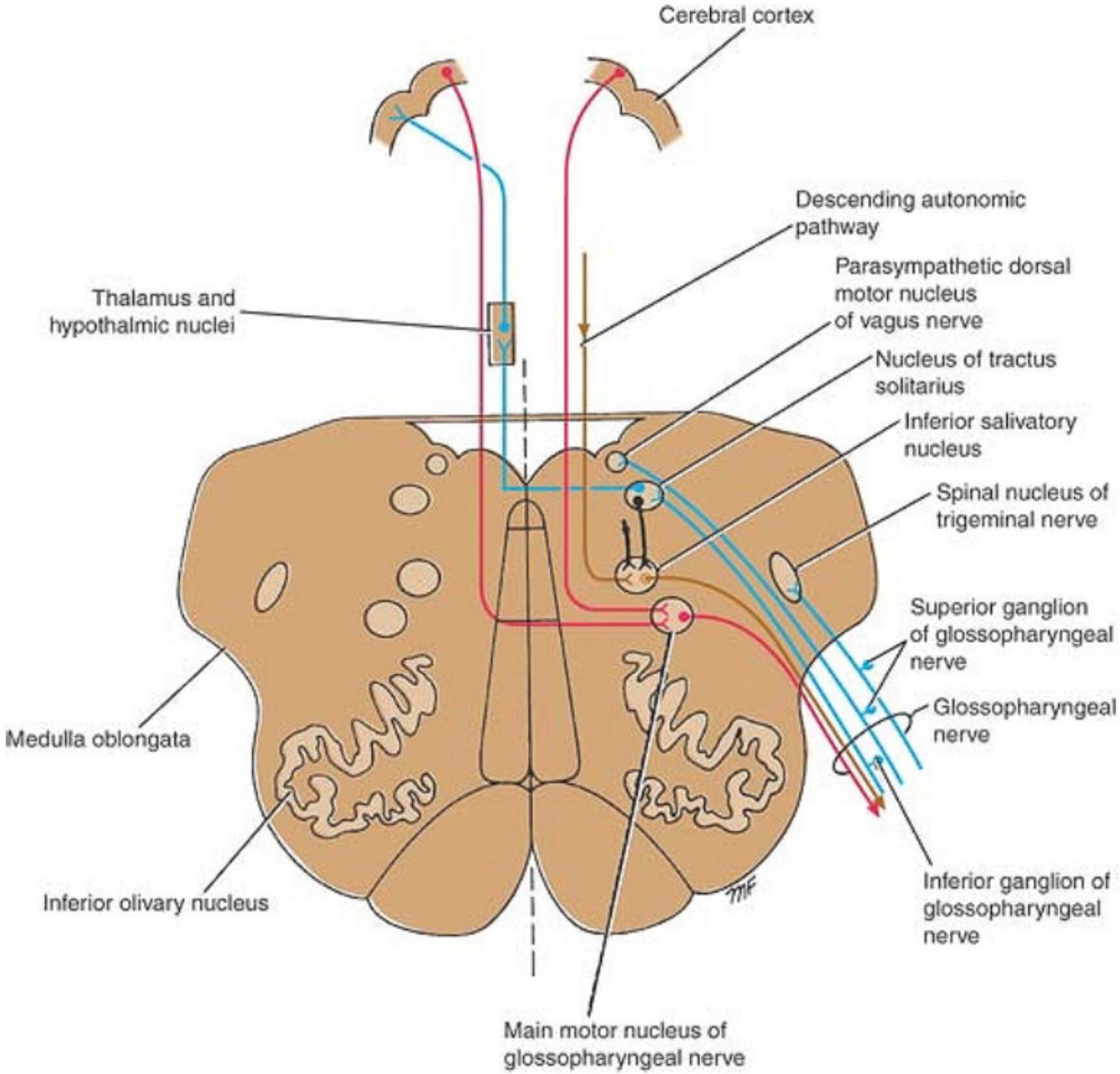
Glossopharyngeal Nerve Nuclei

- **Sensory Nucleus** part of the nucleus of the tractus solitarius
- **Taste** from posterior 1/3 of tongue
- Cell body in inferior glossopharyngeal ganglion
- Sensory nucleus
- Thalamus
- lower part of the postcentral gyrus



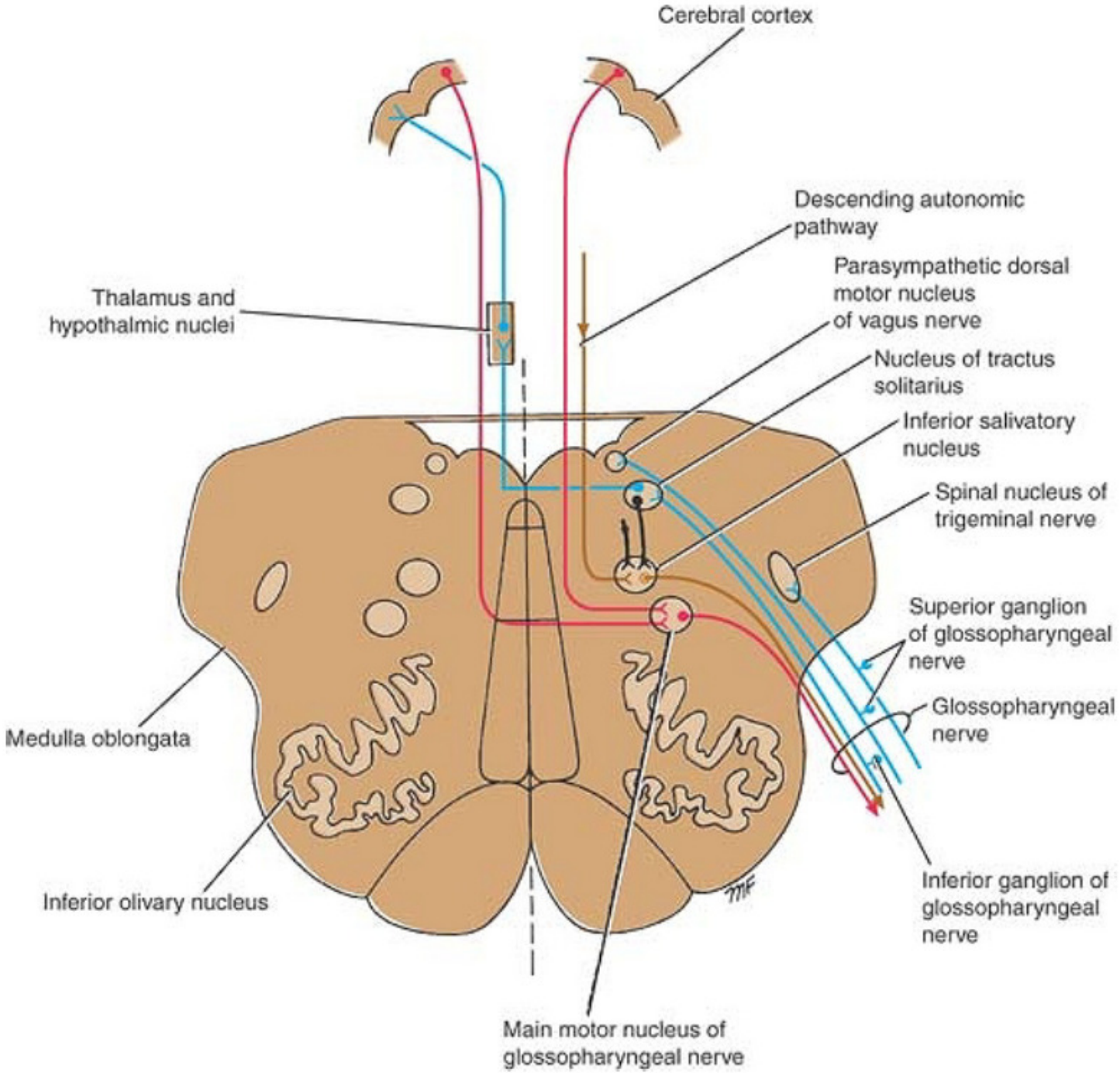
Glossopharyngeal Nerve Nuclei

- **Sensory Nucleus** part of the nucleus of the tractus solitarius
- Afferent impulses from the **carotid sinus** (baroreceptor)
- Cell body in inferior glossopharyngeal ganglion
- Sensory nucleus
- connected to dorsal nucleus of the vagus nerve (carotid sinus reflex



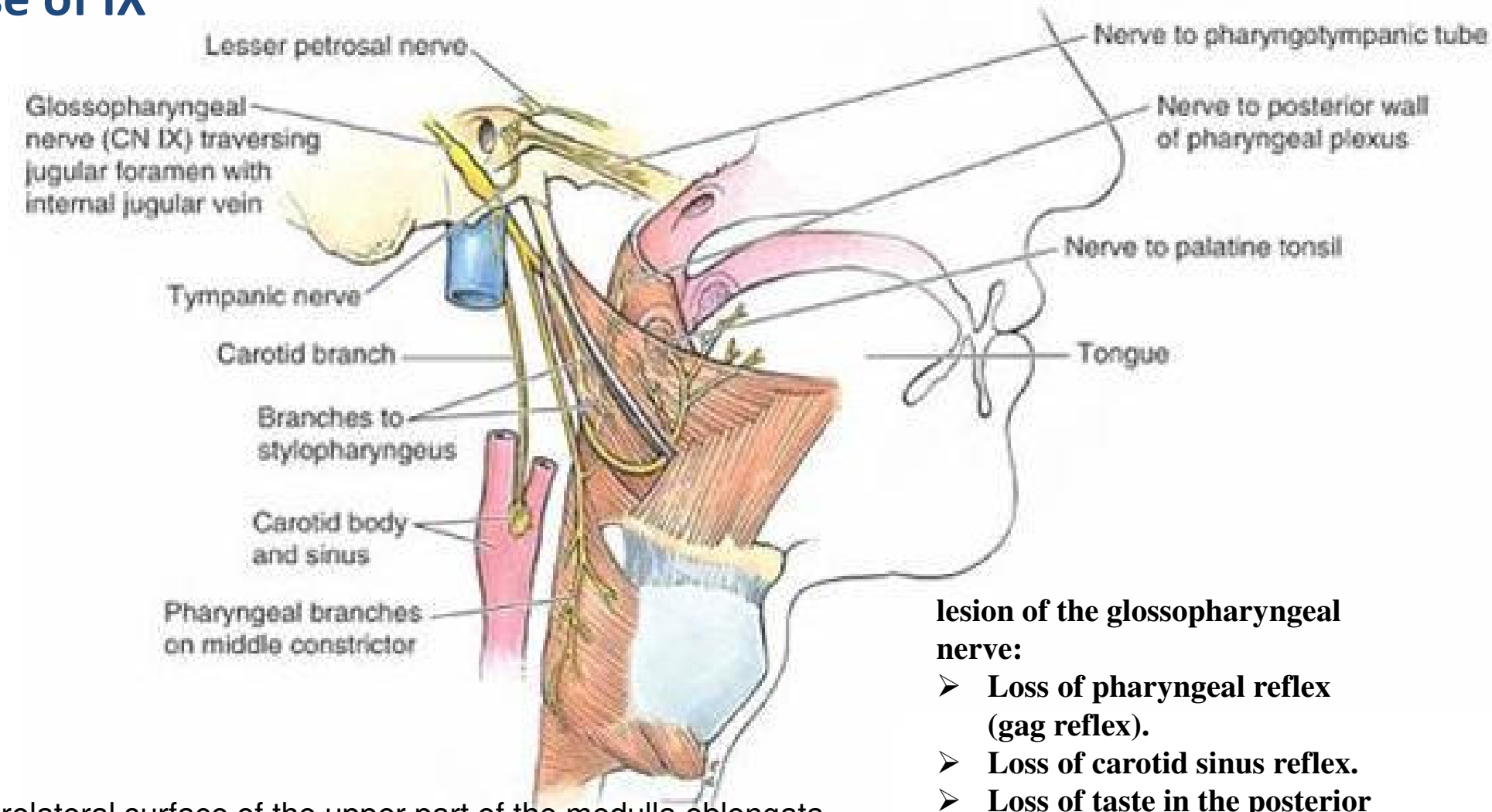
Glossopharyngeal Nerve Nuclei

- **Common sensation**
- Cell body in Superior glossopharyngeal ganglion
- spinal nucleus of the trigeminal nerve
- Thalamus
- postcentral gyrus



Sensation from
- middle ear
- Auditory tube
- Pharynx except nasopharynx
-Posterior 1/3 of tongue

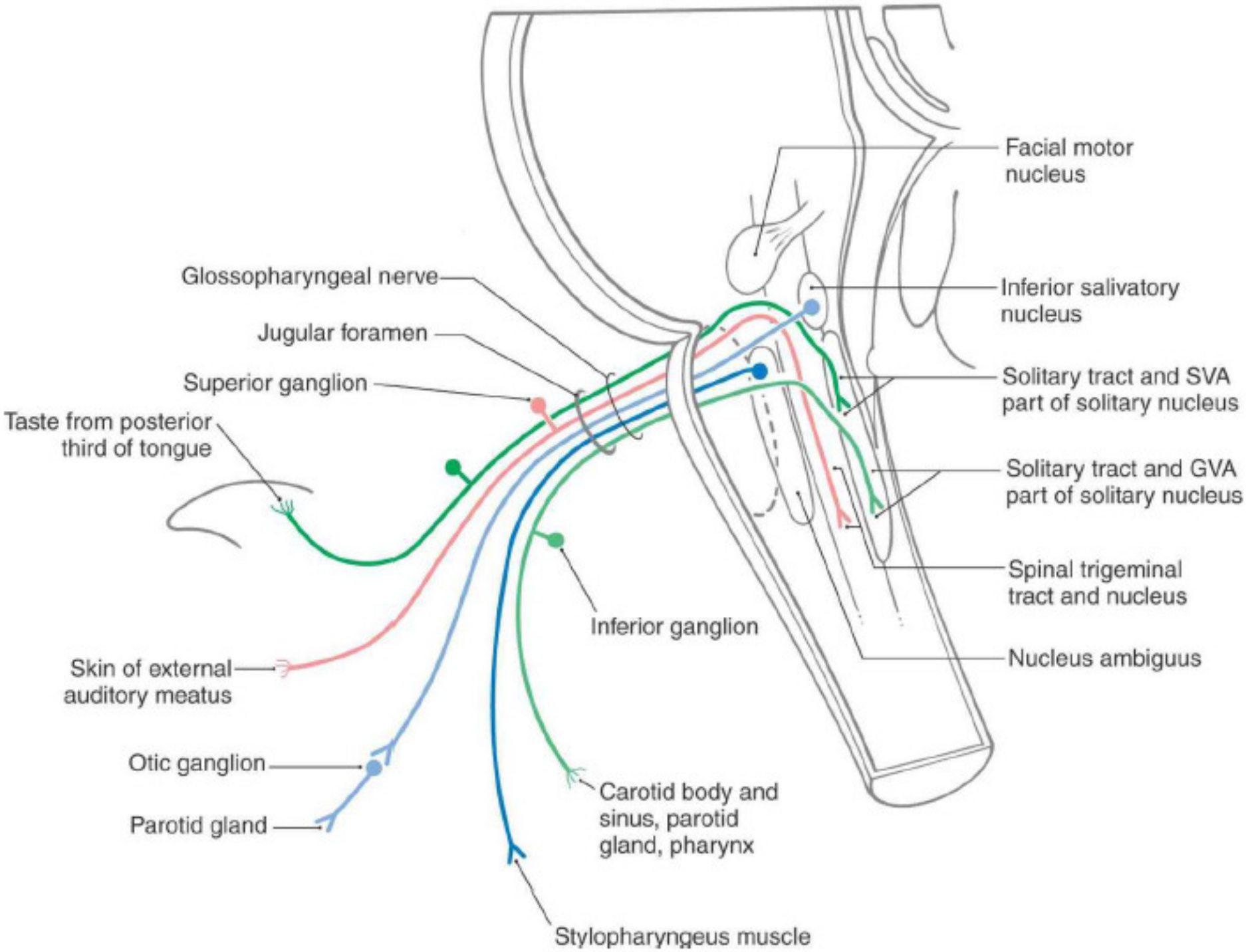
Course of IX



lesion of the glossopharyngeal nerve:

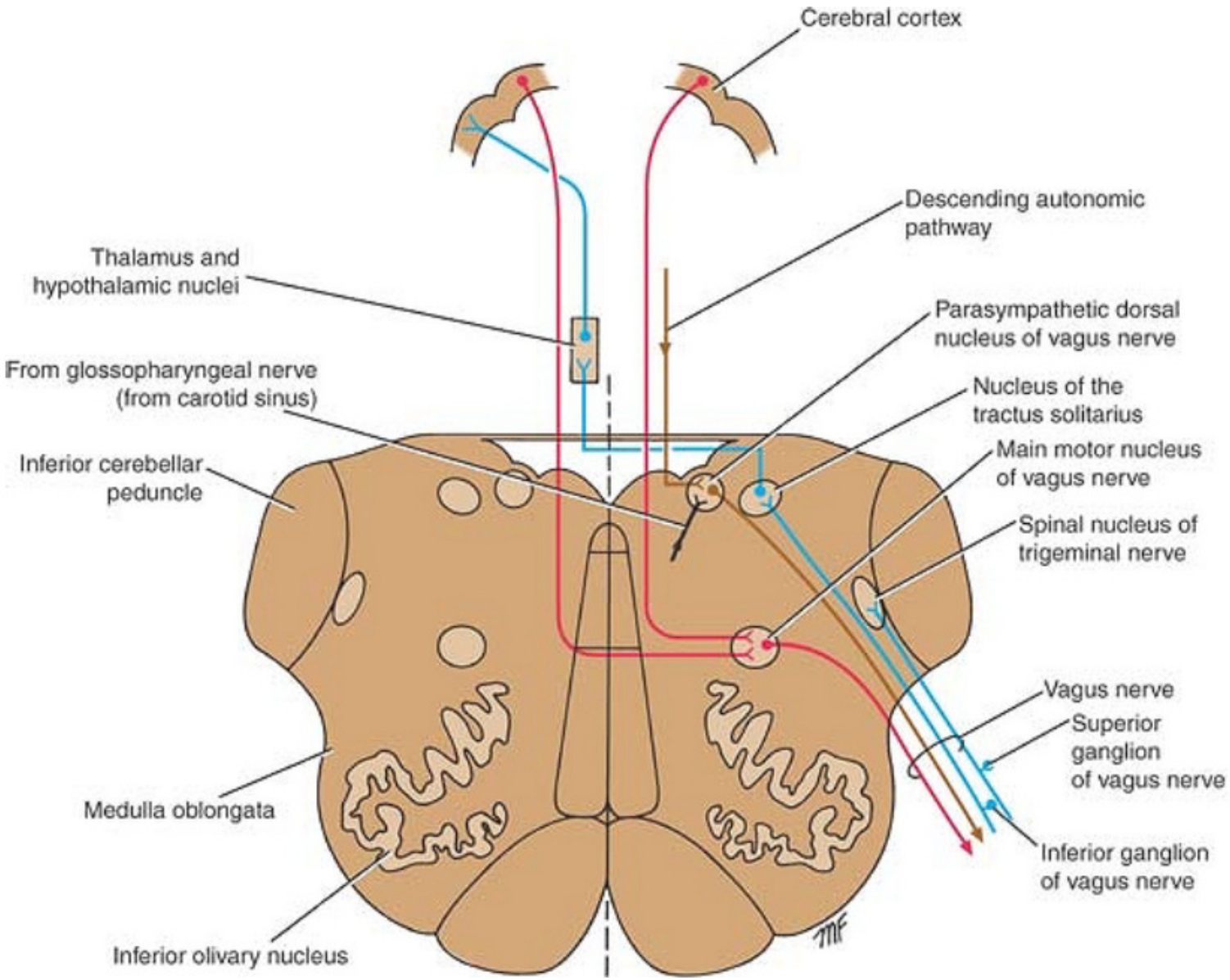
- **Loss of pharyngeal reflex (gag reflex).**
- **Loss of carotid sinus reflex.**
- **Loss of taste in the posterior third of tongue (Vallate papillae).**

- Anterolateral surface of the upper part of the medulla oblongata
- Groove between the olive and the inferior cerebellar peduncle
- Leaves the skull through the jugular foramen
- Posterior border of the stylopharyngeus muscle
- Between the superior and middle constrictor
- Sensory to the oropharynx laryngopharynx and the posterior 1/3 of the tongue


Facial motor nucleus
Glossopharyngeal nerve
Inferior salivatory nucleus
Jugular foramen
Solitary tract and SVA part of solitary nucleus
Superior ganglion
Taste from posterior third of tongue
Solitary tract and GVA part of solitary nucleus
Spinal trigeminal tract and nucleus
Inferior ganglion
Nucleus ambiguus
Skin of external auditory meatus
Otic ganglion
Carotid body and sinus, parotid gland, pharynx
Parotid gland
Stylopharyngeus muscle

Vagus Nerve Nuclei

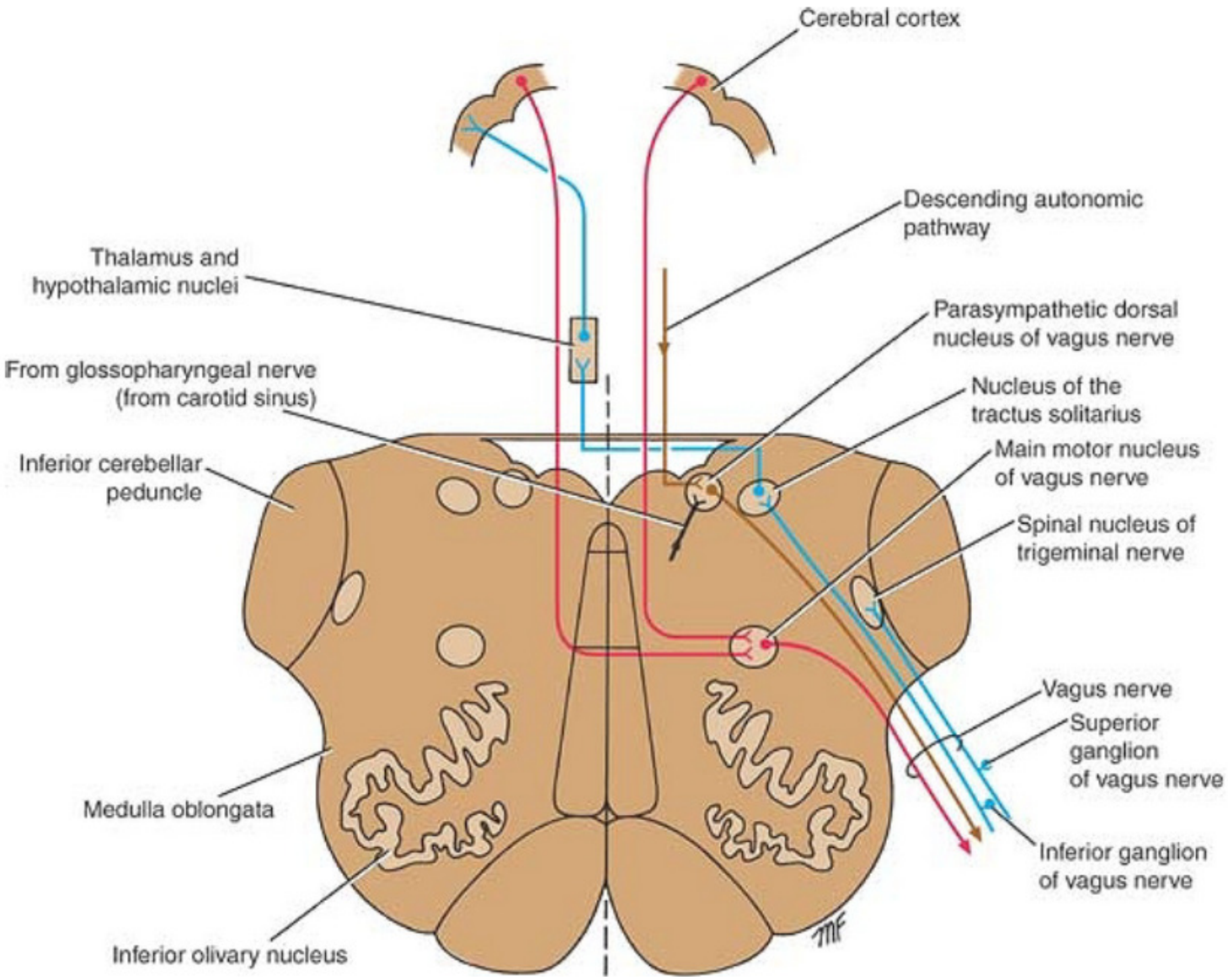
- **Main Motor Nucleus**
- Deep in the reticular formation of the medulla oblongata
- Lower part of nucleus ambiguus
- Receives corticonuclear fibers from **both** cerebral hemispheres.
- Supply the constrictor muscles of the pharynx and the intrinsic muscles of the larynx



Vagus Nerve Nuclei

Parasympathetic Nuclei:

- Dorsal nucleus of the vagus
- floor of the lower part of the fourth ventricle
- Receives afferents from:
  - Hypothalamus
  - glossopharyngeal nerve (carotid sinus reflex).



- Efferent to involuntary muscle of the bronchi, heart, esophagus, stomach, small intestine, and large intestine as far as the distal one-third of the transverse colon

Vagus Nerve Nuclei

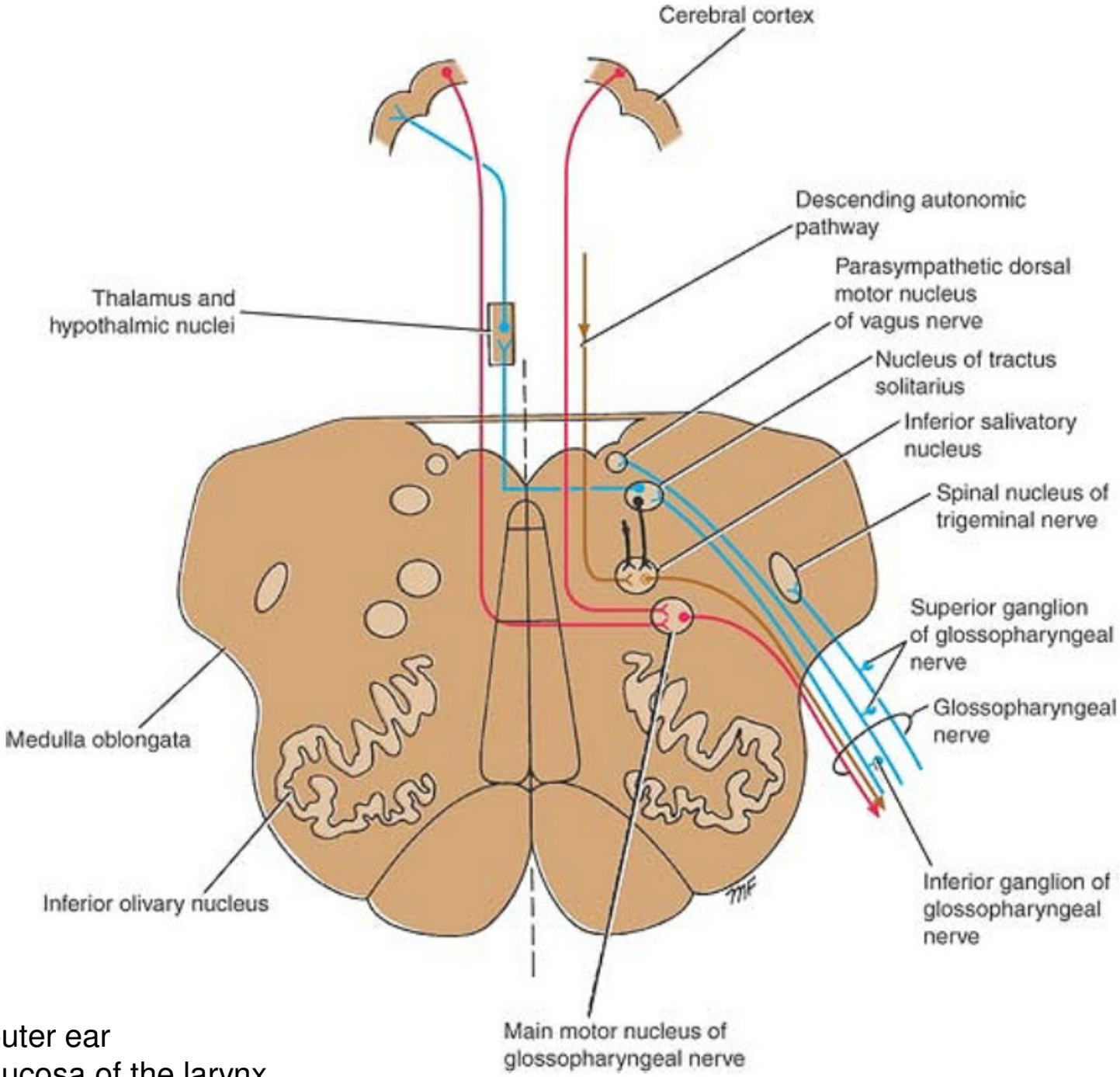
- **Sensory Nucleus**
  Lower part of the nucleus of the tractus solitarius

---**Taste** from epiglottis.

- Cell body in inferior ganglion of vagus
- Sensory nucleus
- Thalamus
- Postcentral gyrus

-- **common sensation**

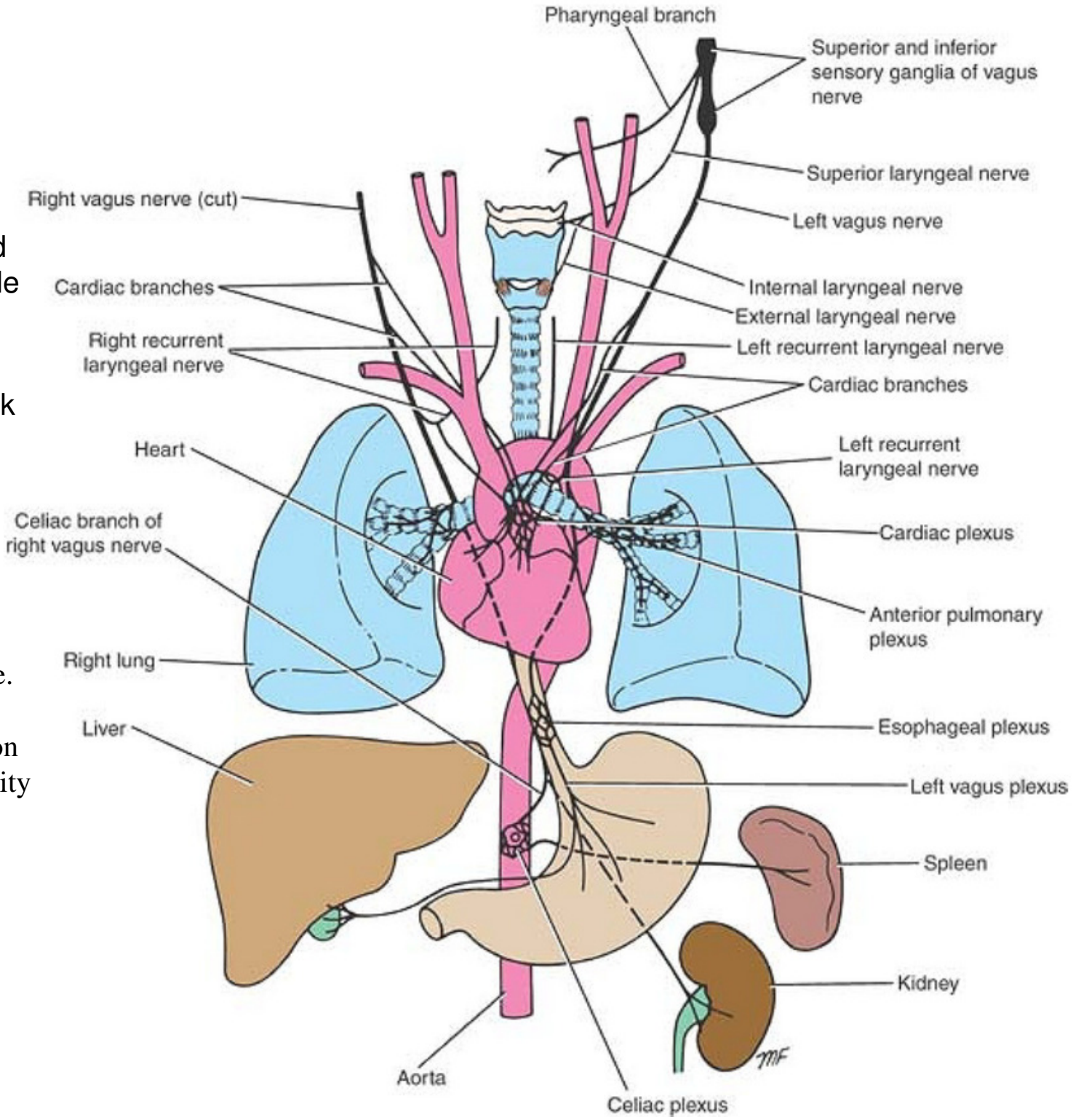
- superior ganglion of vagus
- Spinal nucleus of the trigeminal nerve**.**



- outer ear
- mucosa of the larynx
- Dura of Posterior cranial fossa

Course of X

- Anterolateral surface of the upper part of the medulla oblongata
- Groove between the olive and the inferior cerebellar peduncle
- Leaves the skull through the jugular foramen
- descends vertically in the neck within the carotid



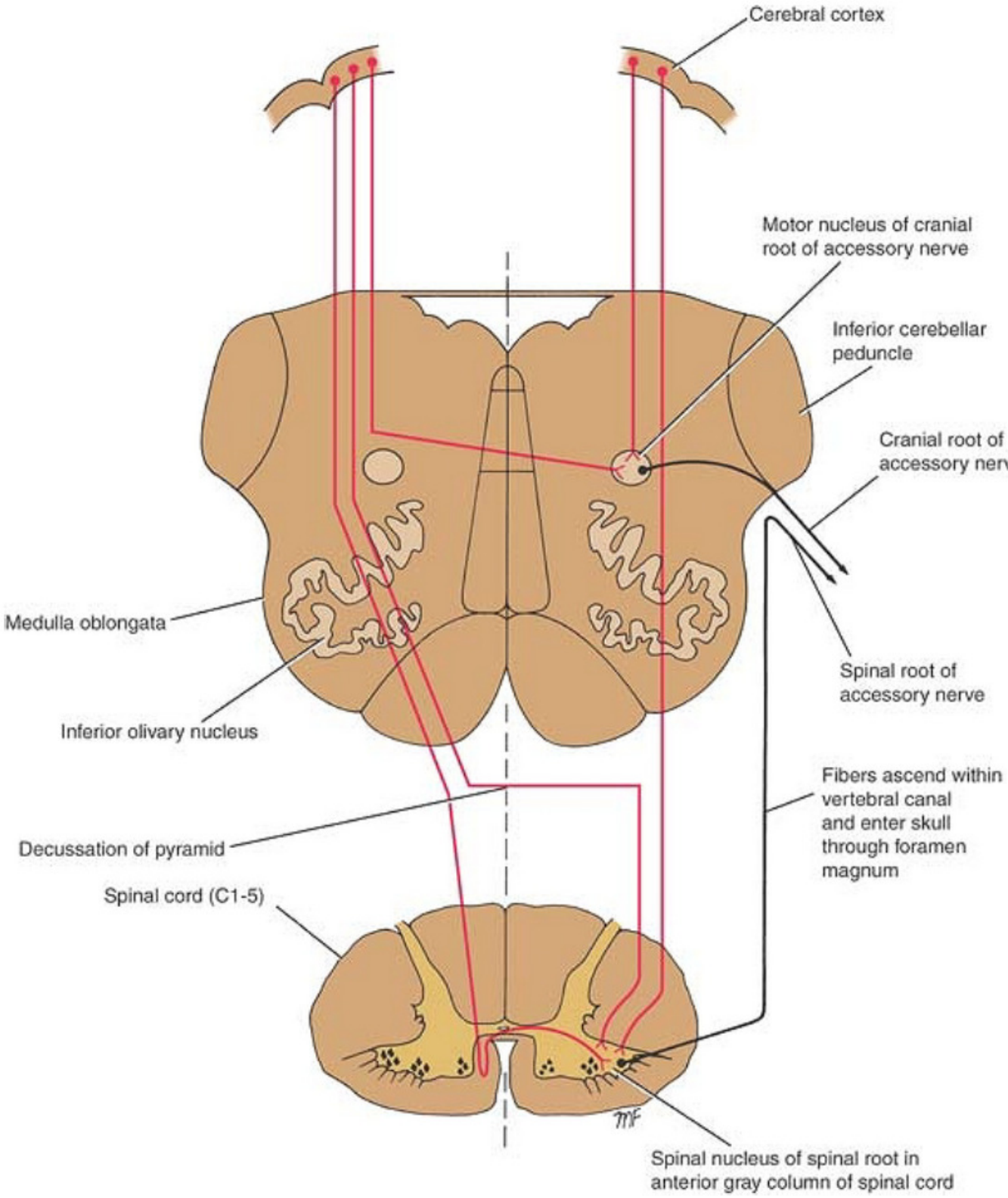
Lesion of Vagus:

- Uvula deviates to the healthy side.
- Hoarseness of voice
- Dysphagia and nasal regurgitation
- Arrhythmia in heart and irregularity in GI tract because

Accessory Nerve

cranial root

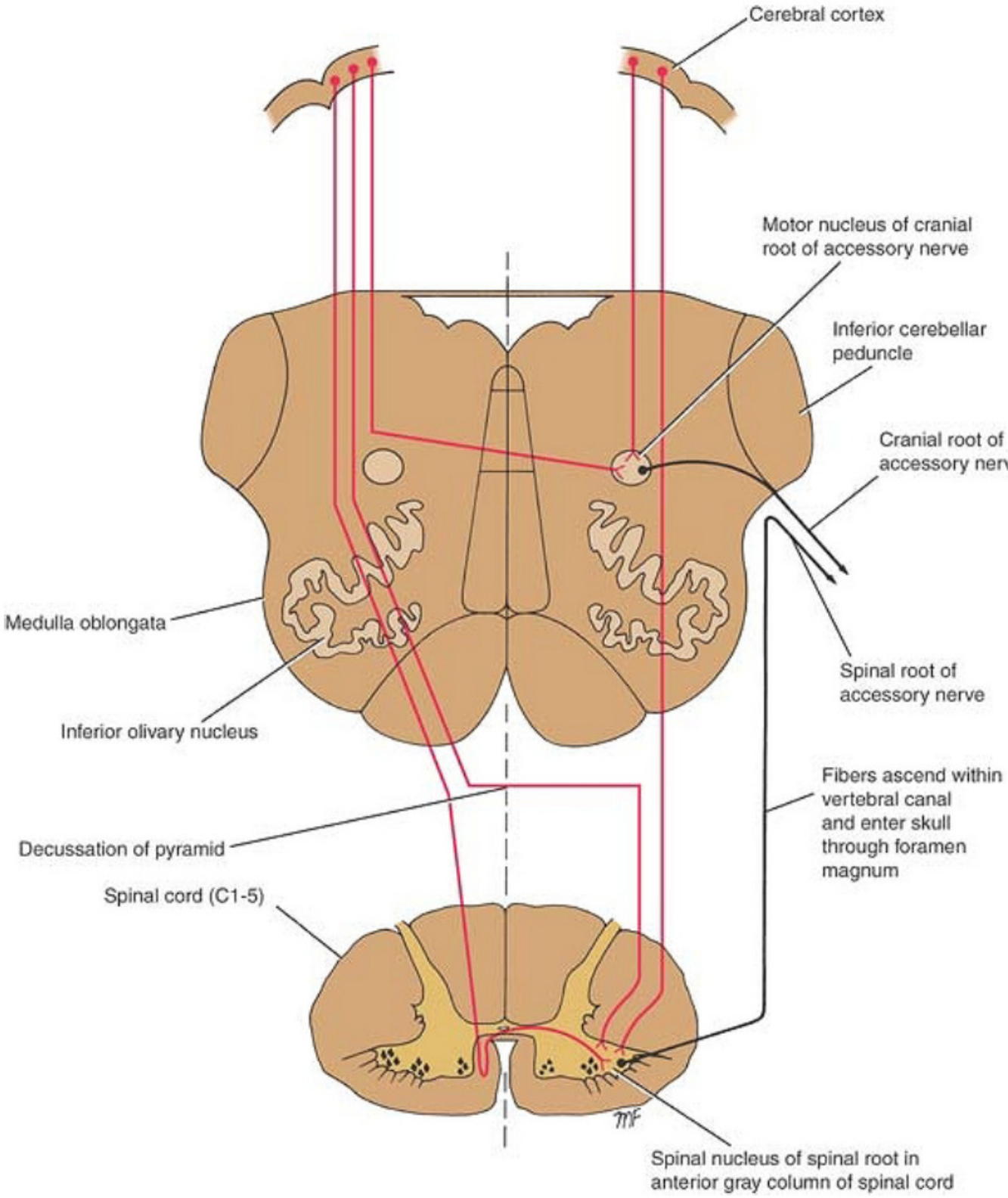
- nucleus ambigus
- Receives corticonuclear fibers from **both** cerebral hemispheres.
- anterior surface of the medulla oblongata between the olive and the inferior cerebellar peduncle
- joins the vagus nerve



Accessory Nerve

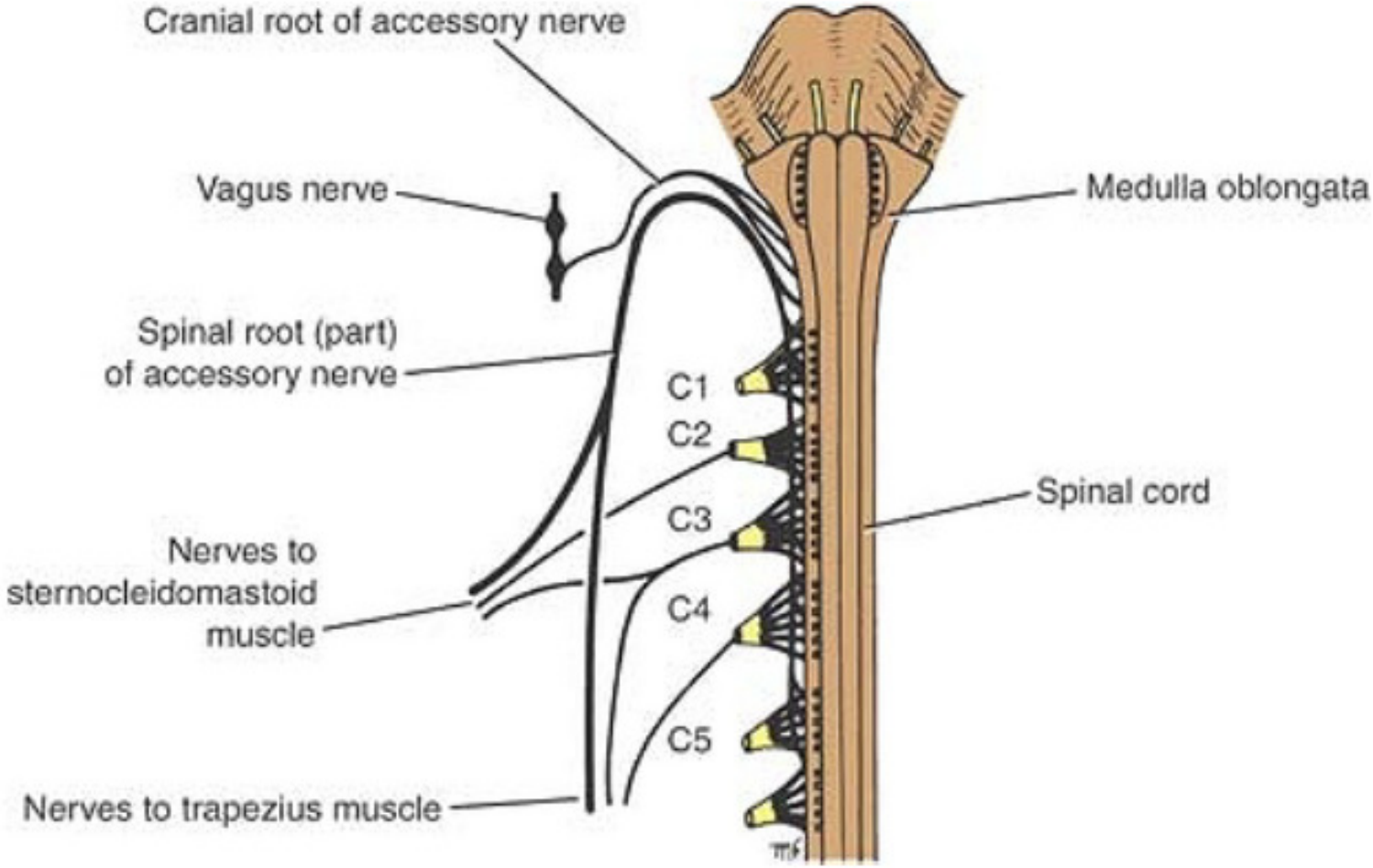
Spinal root

- **spinal nucleus** (anterior gray column of upper five cervical segments



Accessory Nerve Course

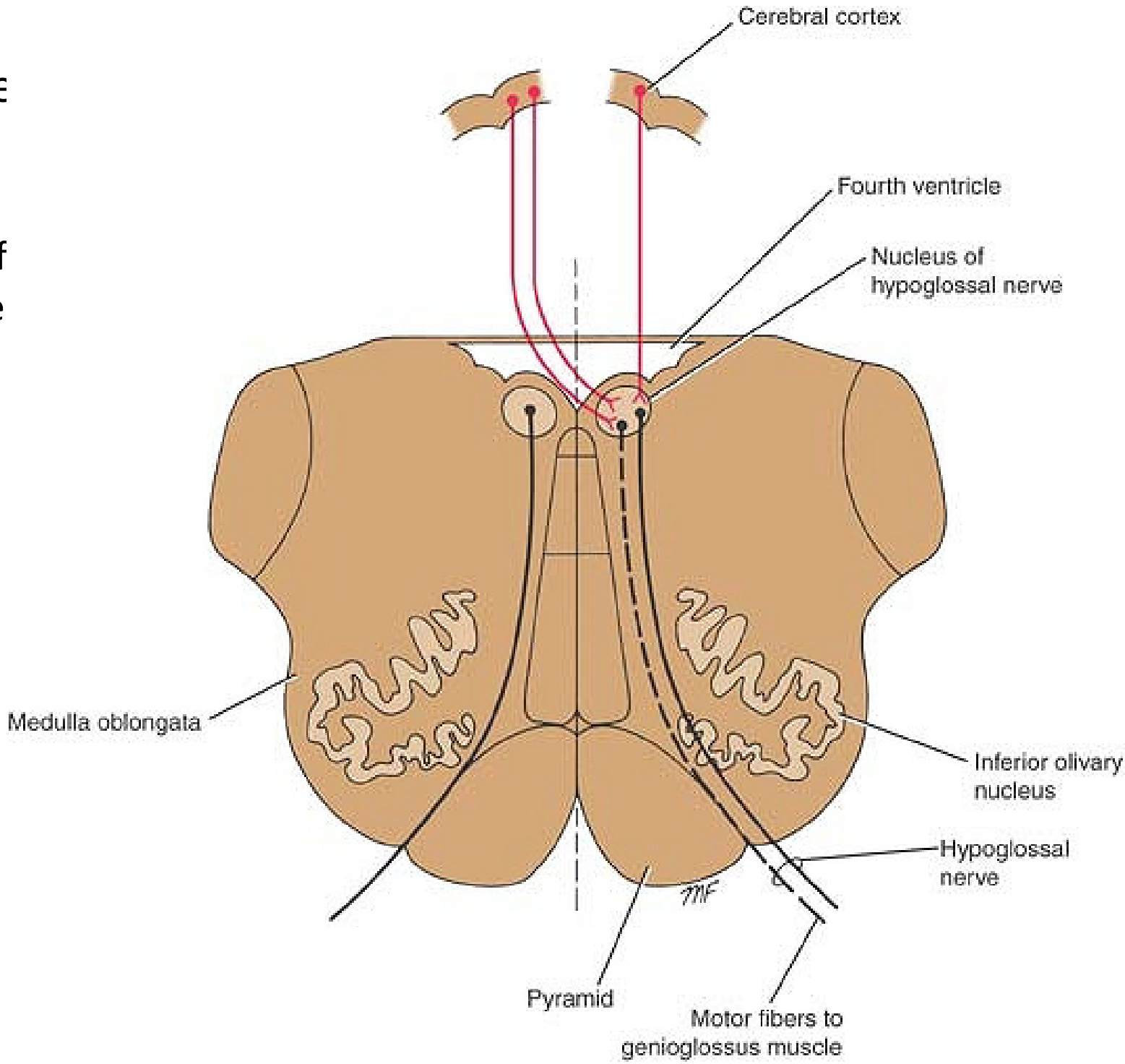
- spinal root emerge from the spinal cord between the anterior and posterior nerve roots of the cervical spinal nerves
- Enters the skull through the foramen magnum
- joins the cranial root



- Leaves the skull through jugular foramen, then separates into:
  - Cranial root: joins the vagus
  - Spinal root: supplies sternocleidomastoid and trapezius muscles

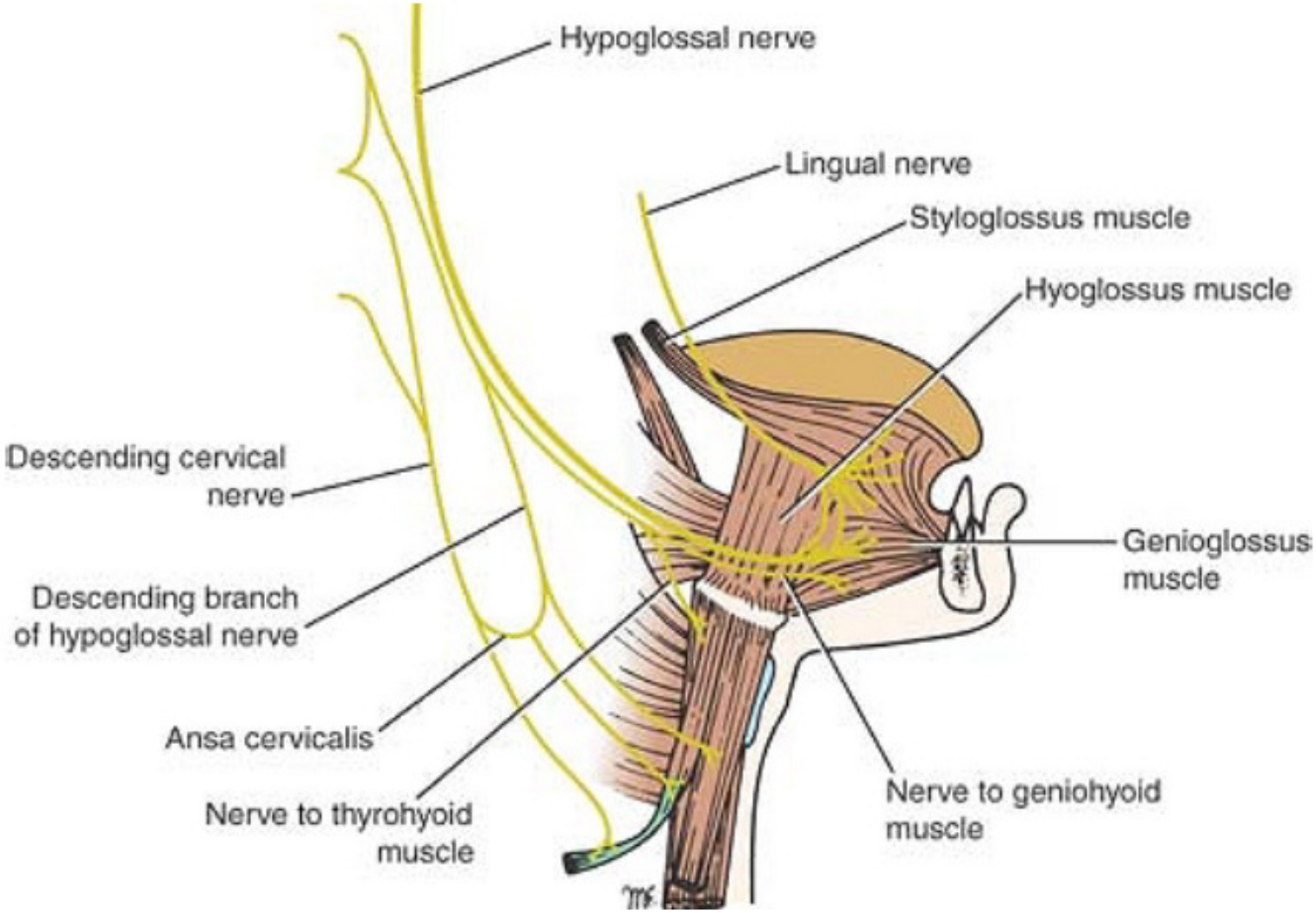
Hypoglossal nucle

- Beneath the floor of the lower part of the fourth ventricle
- Receives corticonuclear fibers from **both** cerebral hemispheres.
- Cells responsible for supplying the **genioglossus** muscle receives from **opposite** cerebral hemisphere



Hypoglossal Nerve Course

- anterior surface of the medulla oblongata
- between the pyramid and the olive
- leaves the skull through the hypoglossal canal
- between the internal carotid artery and the internal jugular vein



Hypoglossal Nerve injury

- Lower motor neuron lesion
  - Tongue deviation toward the paralyzed side
  - Muscle atrophy (ipsi)
- Upper motor neuron lesion
  - No atrophy
  - On protrusion tongue will deviate to the side opposite the lesion