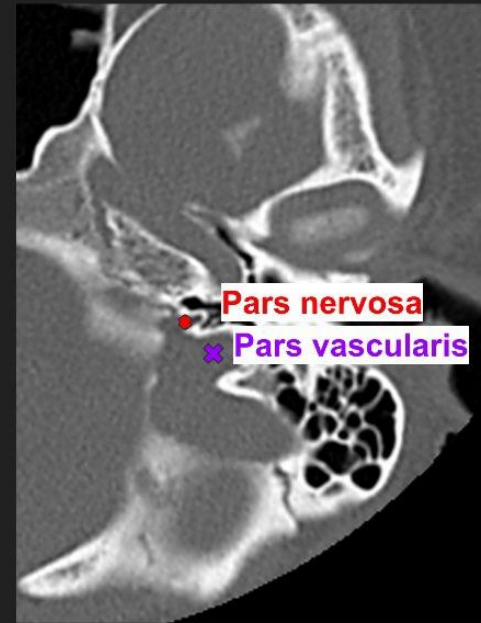
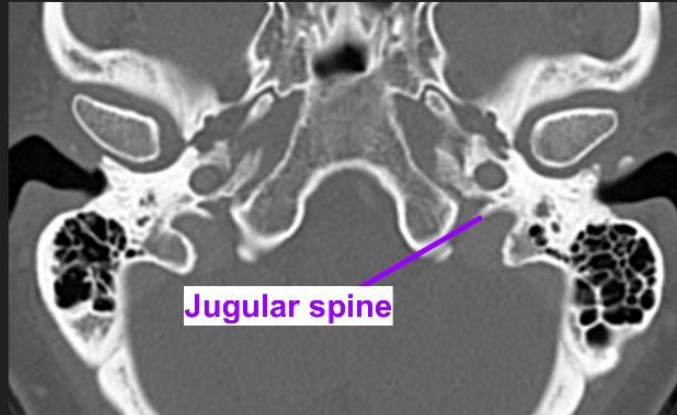


# Jugular Foramen



## Jugular Foramen

### Pars Nervosa

CN IX

Inferior Petrosal Sinus

Jacobson Nerve

### Pars Vascularis

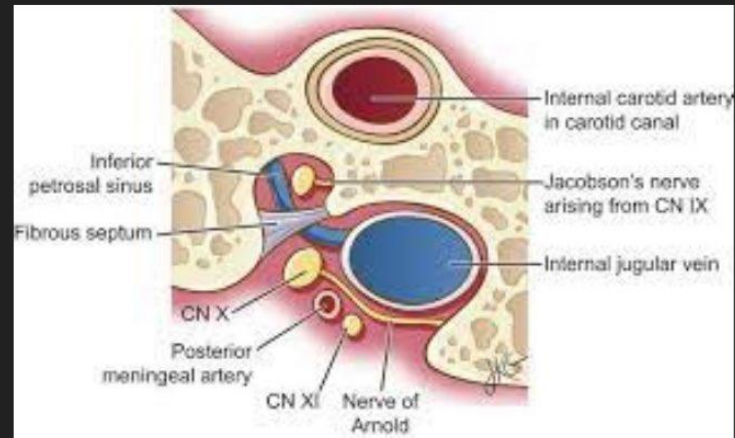
Internal Jugular Vein

CN X

Arnold's Nerve

CN XI

Posterior meningeal artery

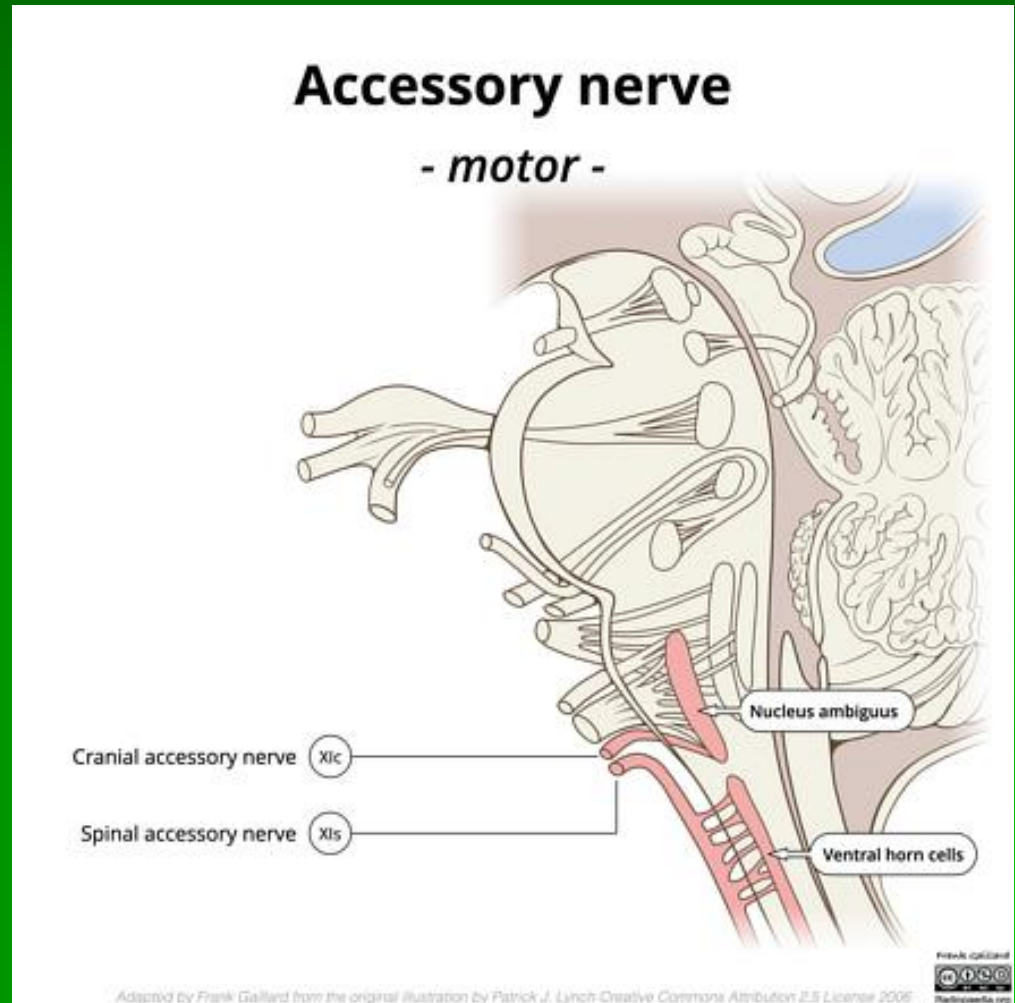


Sclafani, Anthony P. et al.: 2015 Total Otolaryngology—Head and Neck Surgery

# Accessory Nerve (CN XI)

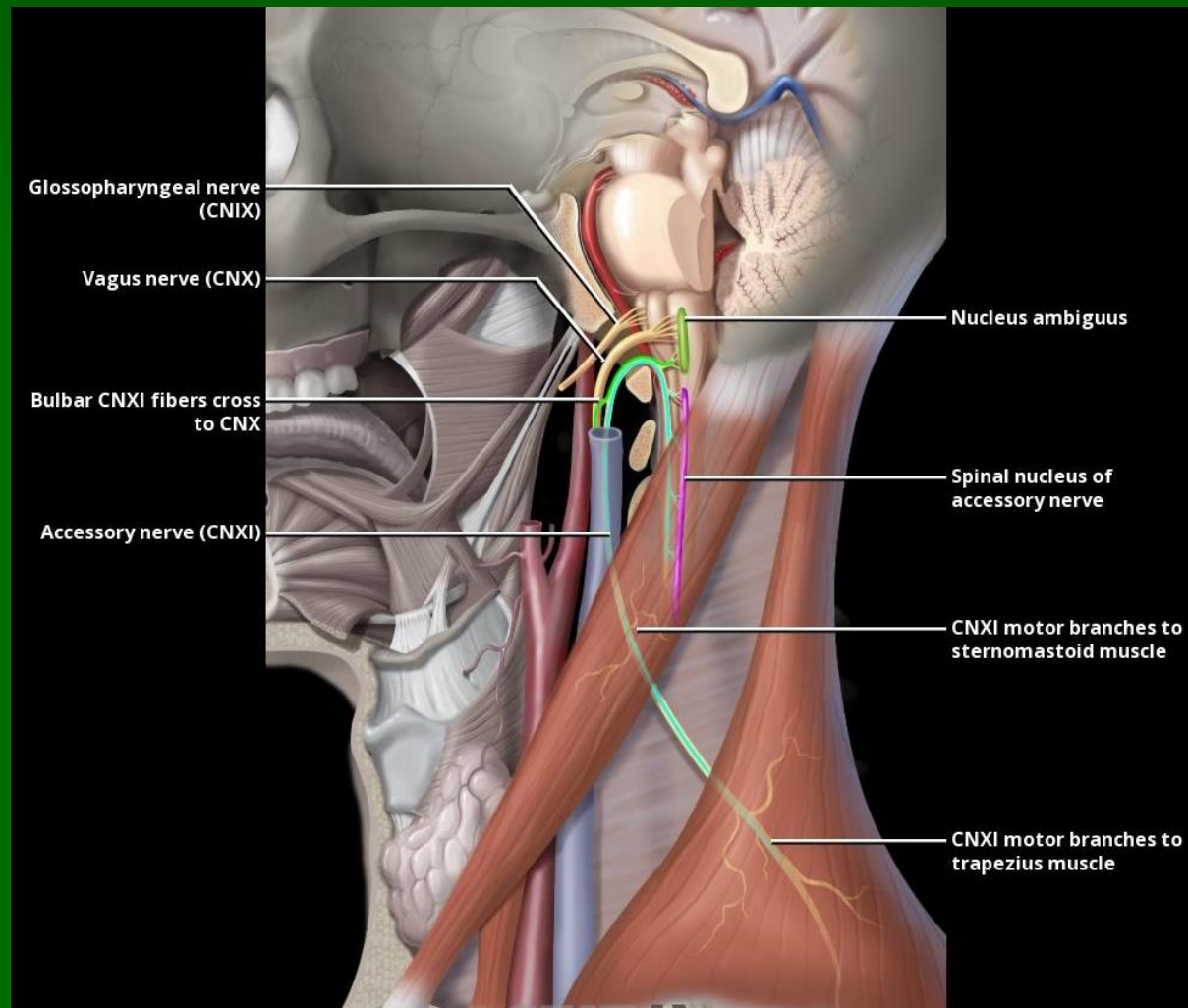
## Jugular Foramen

- Pure motor CN
  - sternocleidomastoid
  - Trapezius muscles (through spinal component)
  - palatal, pharyngeal, laryngeal muscles (through cranial component)
  - Two Parts
    - Cranial
    - Spinal



# Accessory Nerve (CN XI)

- Two parts - cranial part and the spinal part
- Cranial part (accessory portion)
  - smaller of the two.
  - Fibers arise from the cells of the nucleus ambiguus and emerge as four or five delicate rootlets from the side of the medulla oblongata, below the roots of the vagus nerve.
- Spinal part (spinal portion)
  - Firm in texture.
  - Fibers arise from the ventral horn cells in the cord between C1 and C5 of the cervical plexus.

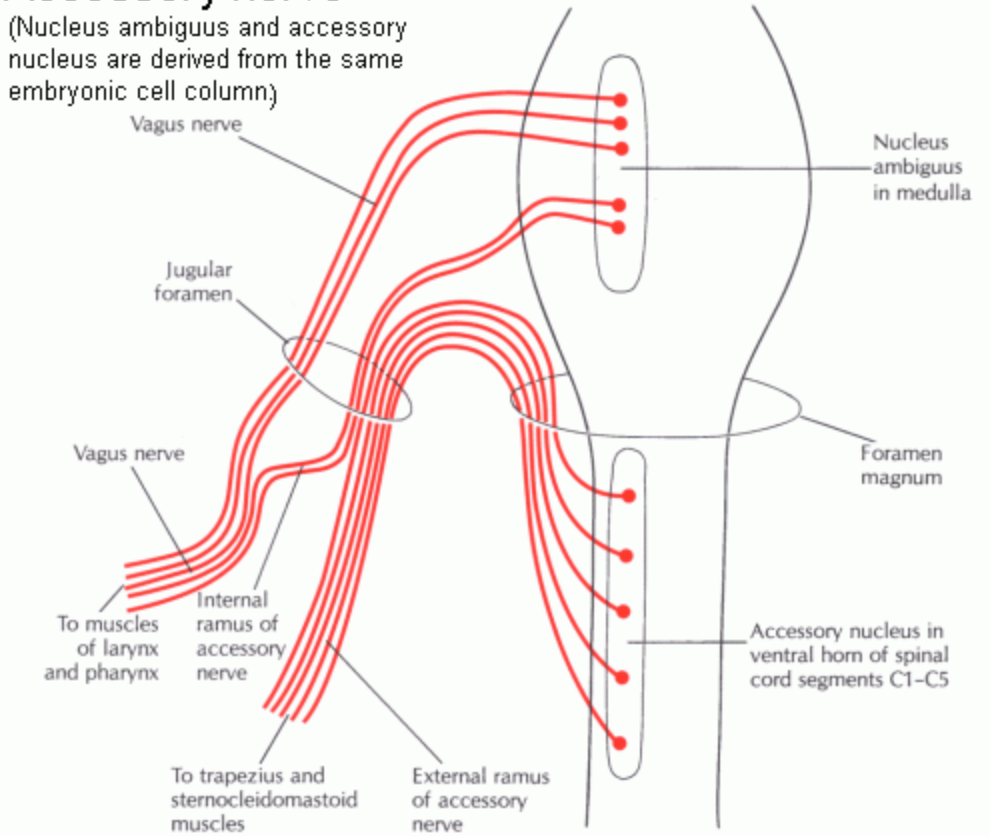


- Shows the lower nucleus ambiguus at the origin of the bulbar root of CNXI while the spinal nucleus gives rise to the spinal root.
- Both roots combine in the jugular foramen.
- Extracranially, the bulbar fibers cross to the vagus nerve to eventually provide motor innervation via the pharyngeal plexus to the soft palate and superior constrictor muscles and via the recurrent laryngeal nerve to the majority of the endolaryngeal muscles.
- The spinal fibers that remain in the accessory nerve provide motor innervation to the sternocleidomastoid and trapezius muscles. Notice extracranial CNXI runs in the floor of the posterior cervical space.



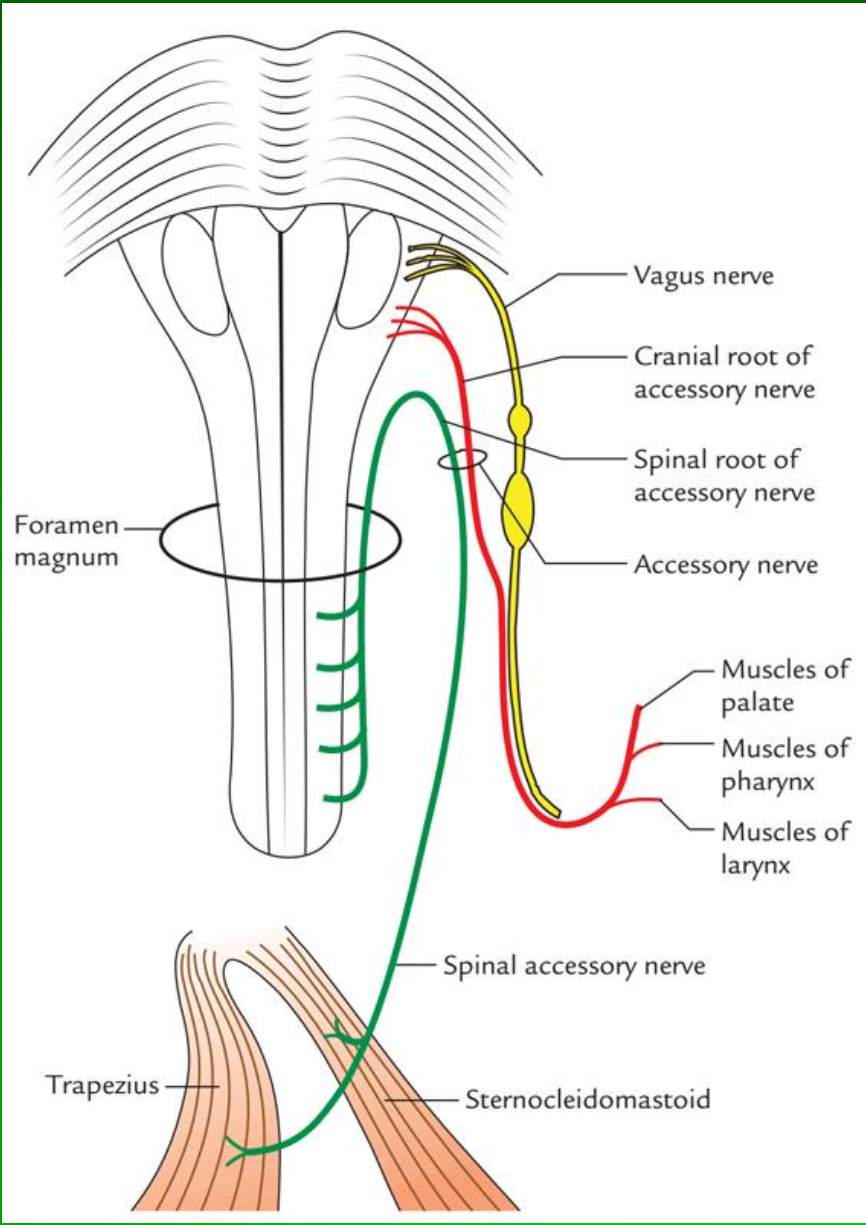
# Accessory nerve

(Nucleus ambiguus and accessory nucleus are derived from the same embryonic cell column)



Spinal and cranial roots of the accessory nerve.

After Kiernan JA (1996) *Barr's The Human Nervous System*, 7th edn Philadelphia: Lippincott.

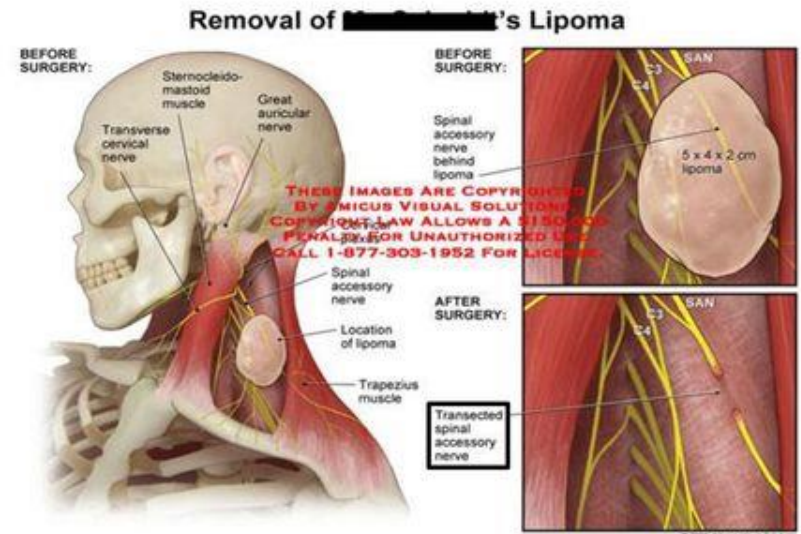
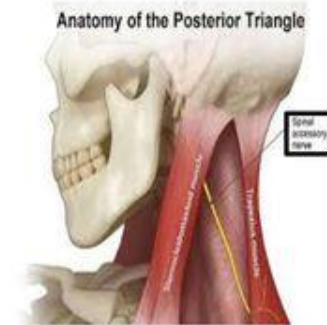


# Accessory (XI) 11<sup>th</sup> Cranial Nerve Injury of Spinal Root

## ○ Causes:

- Because of the relatively *superficial position* of the nerve in the **posterior triangle**, it may be damaged by penetrating trauma as *stab wounds*.
- It is considered the most commonly iatrogenically\* injured nerve as during *removal of malignant lymph nodes* in the posterior triangle.

\* induced inadvertently by a physician or surgeon or by medical treatment or diagnostic procedures



## The Accessory Nerves – XI – unique origin from spinal cord

