Arteries of head and neck

Subclavian Artery

★ **Origin:**

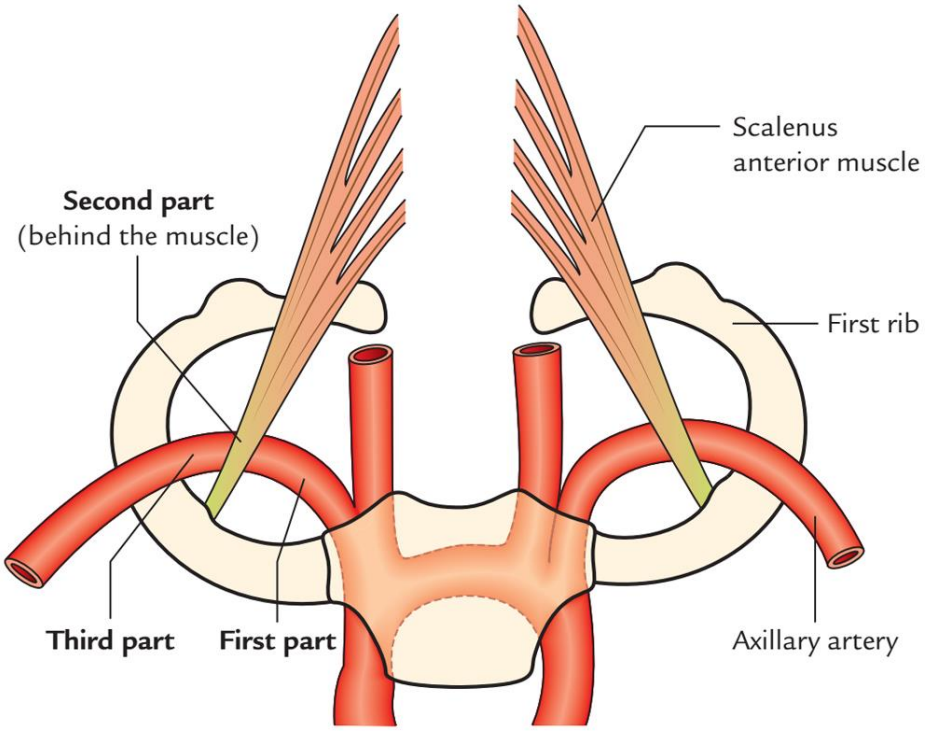
- The **right** subclavian artery arises from the **brachiocephalic** artery behind the **right sternoclavicular joint.**
- while the **left** artery arises from the **arch** of aorta behind the **manubrium sterni**.

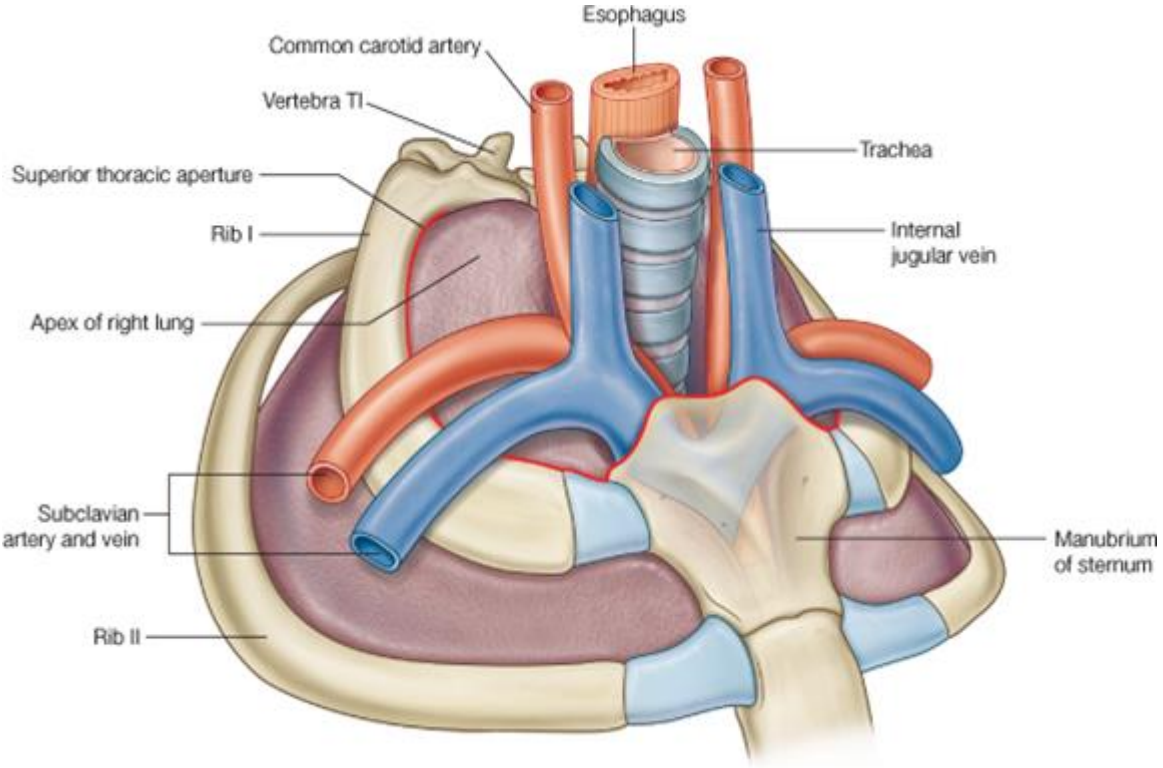
★ **Course:**

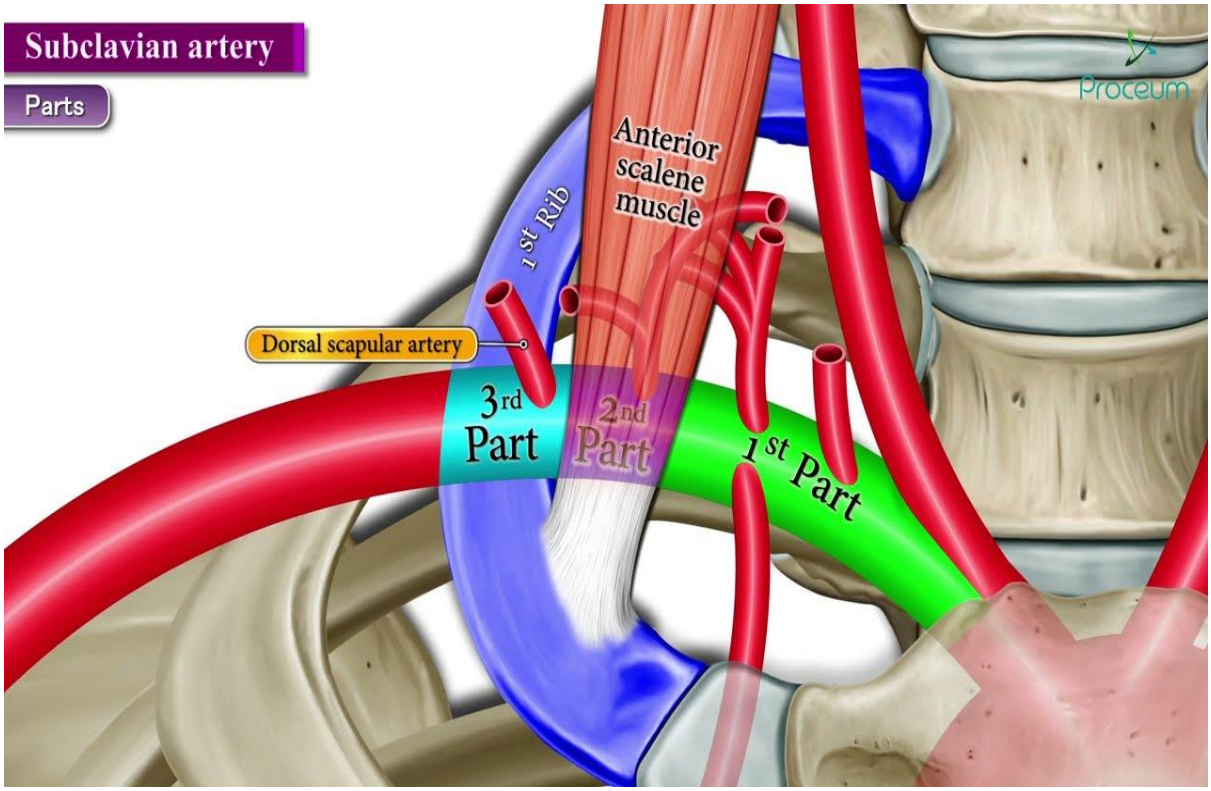
- **Both** arteries **enter** the neck behind the **sternoclavicular** joints.
- Each artery has an **arched course** in the root of the neck.
- It runs **behind scalenus anterior** muscle and in **front of the apex** of lung and cervical pleura.

★ **Parts:**

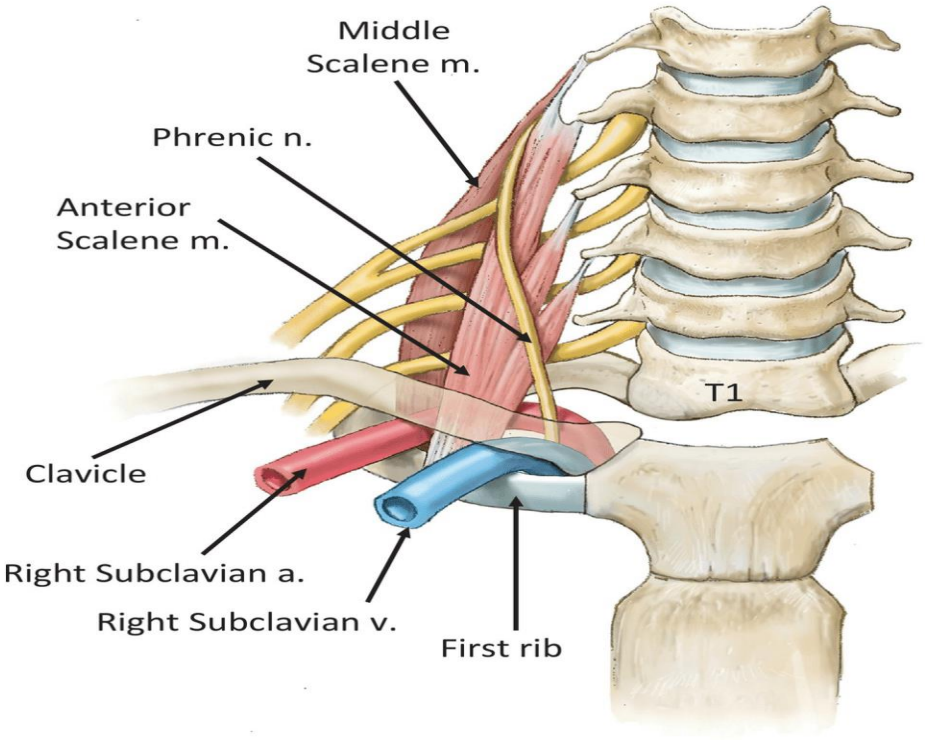
- The scalenus anterior muscle divides the artery into **3 parts**; 1st part (medial), 2nd part (deep), and 3rd part (lateral) to the muscle.







Each artery **ends** at the outer border of the **first rib** to become the **axillary** artery.

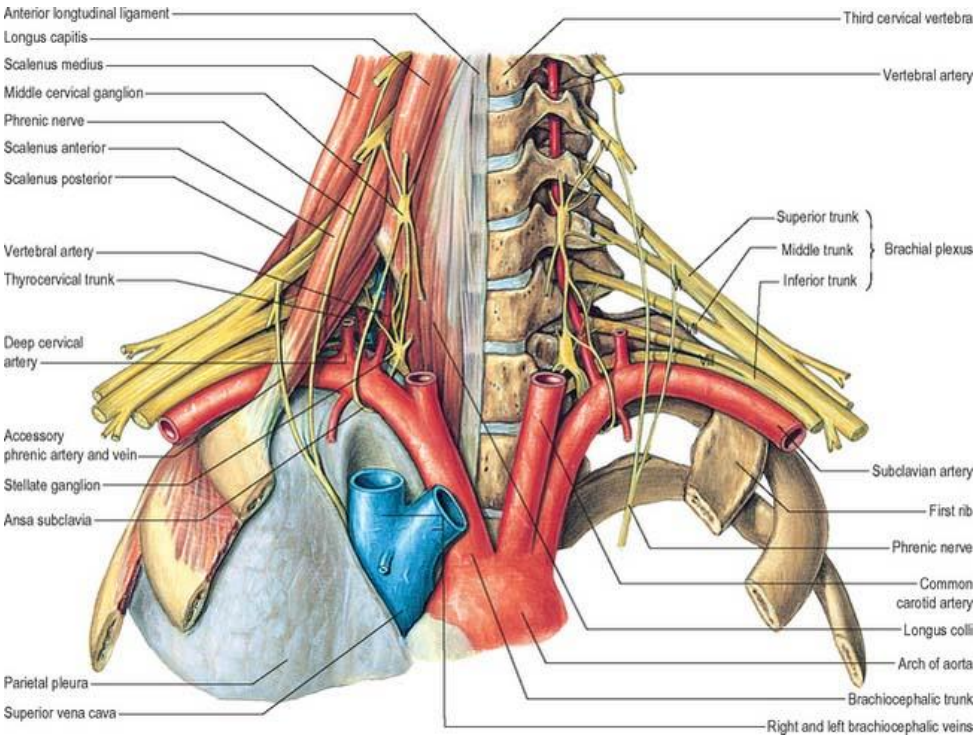


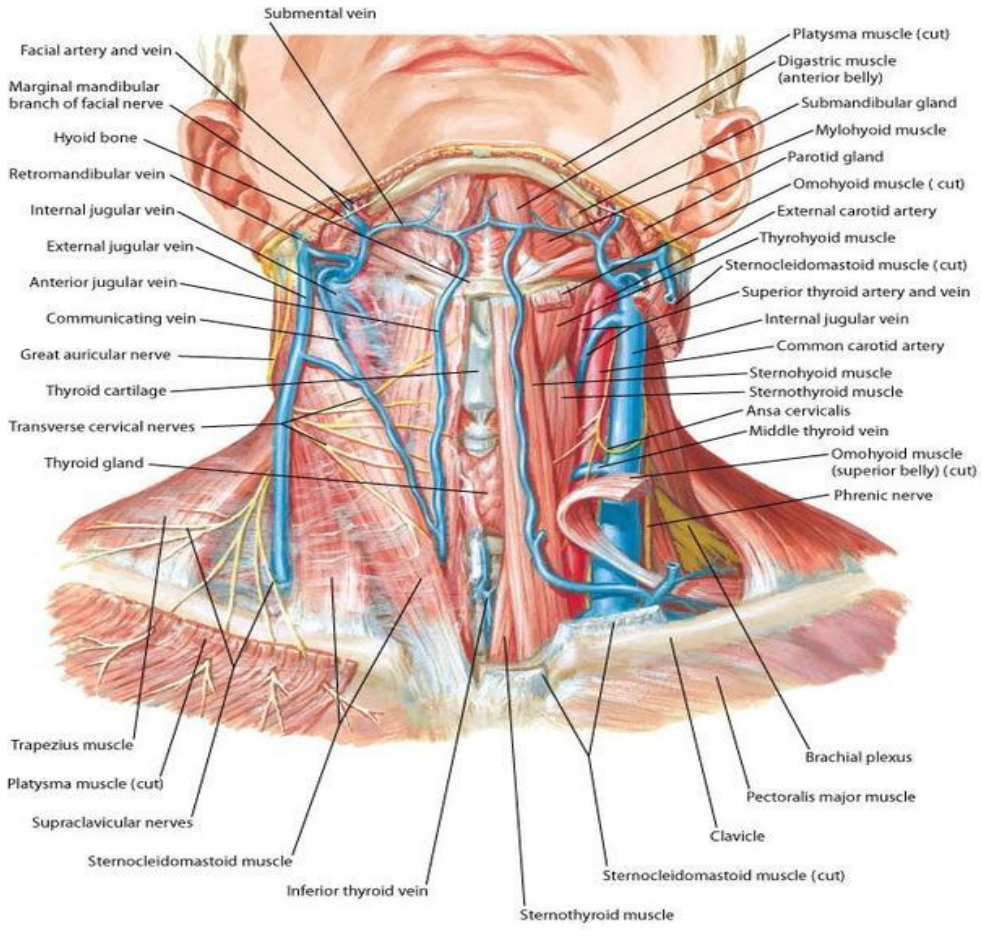
★**Relations & branches**:

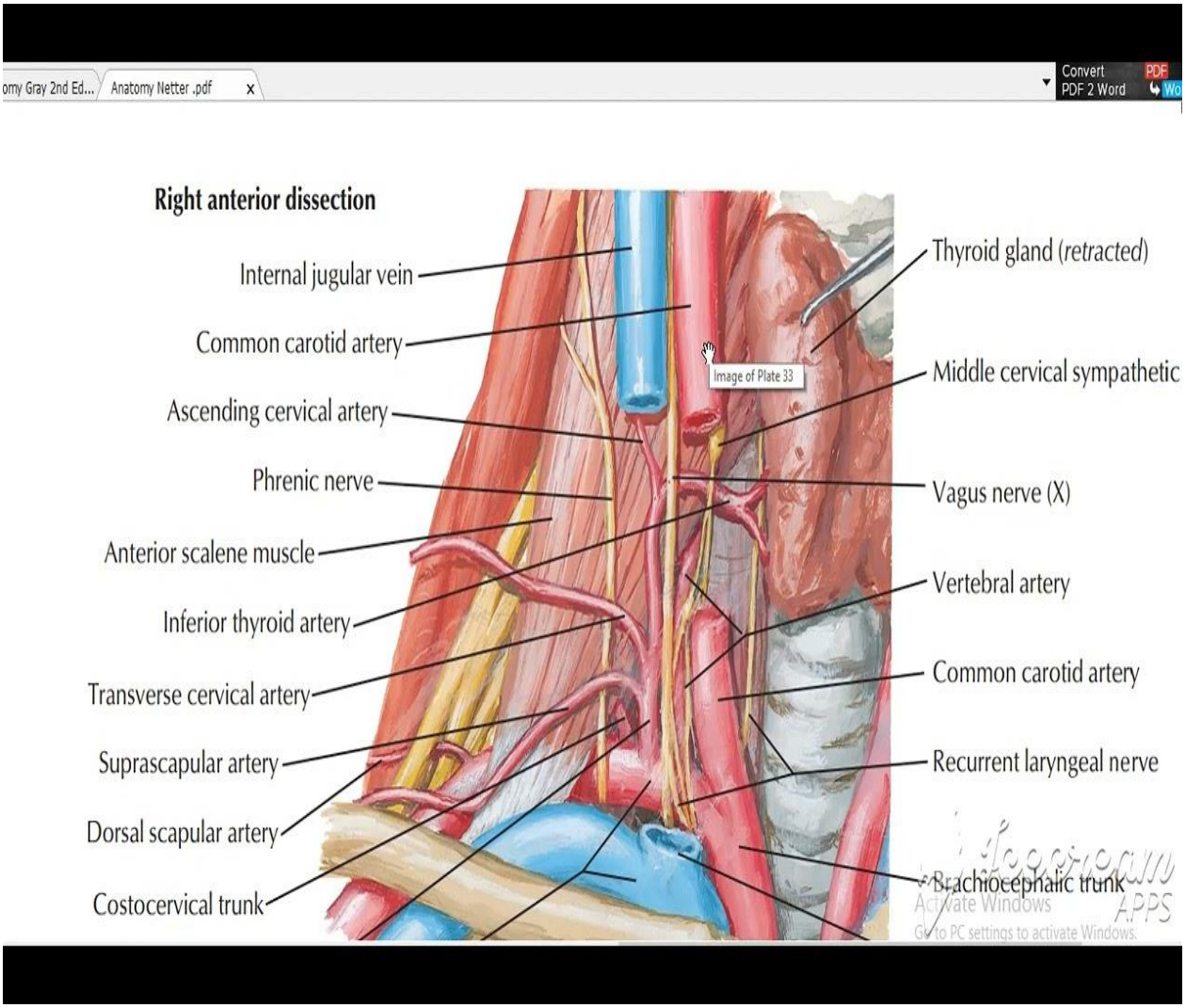
	Anterior	**Posterior**
1st part	1. **Muscles**: Sterno mastoid, sternohyoid, sterno-thyroid. 2. **Nerves**: vagus & its cardiac branch, sympathetic chain, ansa subclavian(a loop of sympathetic fibers) and phrenic nerve (on left side only). 3. **Vein**; internal jugular vein. 4. **Thoracic duct** (on left side only)	1. **Apex of lung, cervical pleura & Suprapleural membrane**. 2. Recurrent laryngeal nerve (on right side only)
2nd part	**1. Sternomastoid** **2. Scalenus anterior muscle with right phrenic nerve only.**	**As (1) of 1st part**
3rd part	**1. Skin and fascia of posterior triangle** **2. Clavicle** **3. Subclavian vein** **4. Lower part of external jugular vein.**	**1. Lower trunk of brachial plexus.** **2. Scalenus medius.**

★ Surface anatomy:

- It is represented by a convex line, one inch above the clavicle and drawn from sternoclavicular joint to mid-clavicular point.







★ **Branches:**

I) From 1st part:

1- **Vertebral artery**.

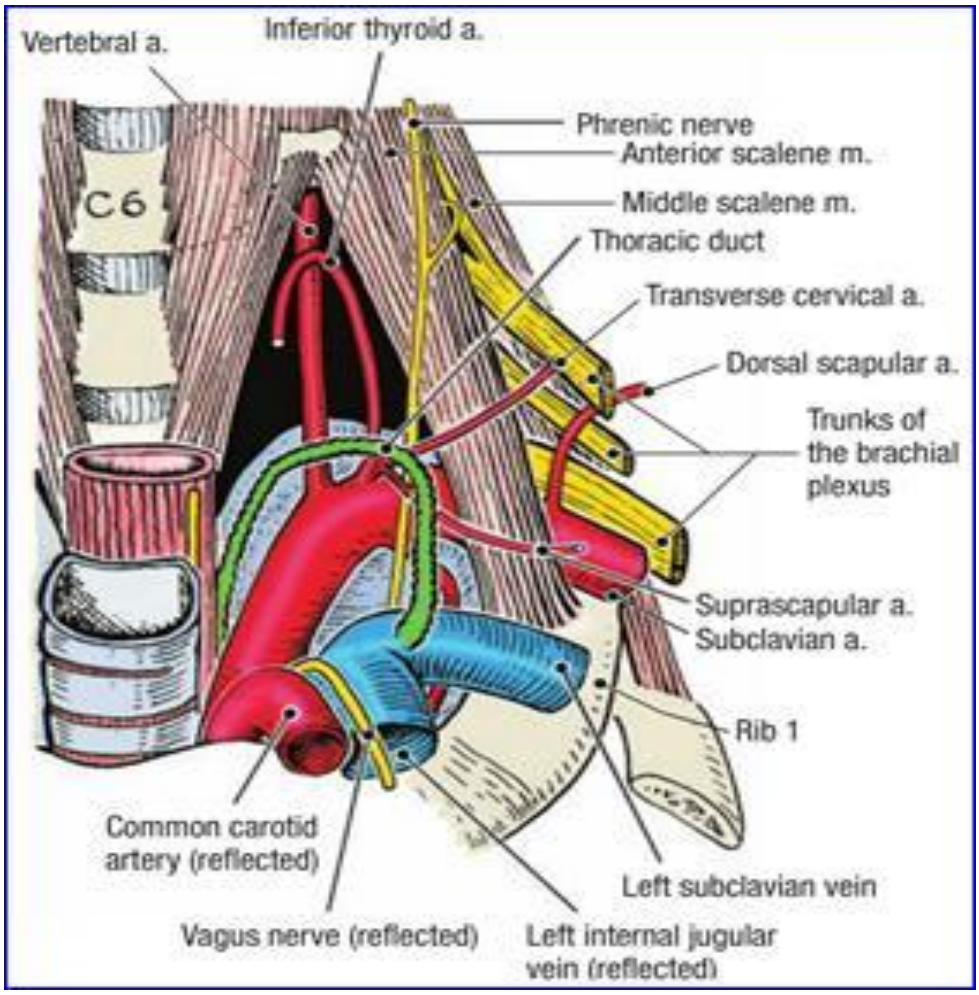
2- **Internal thoracic artery**.

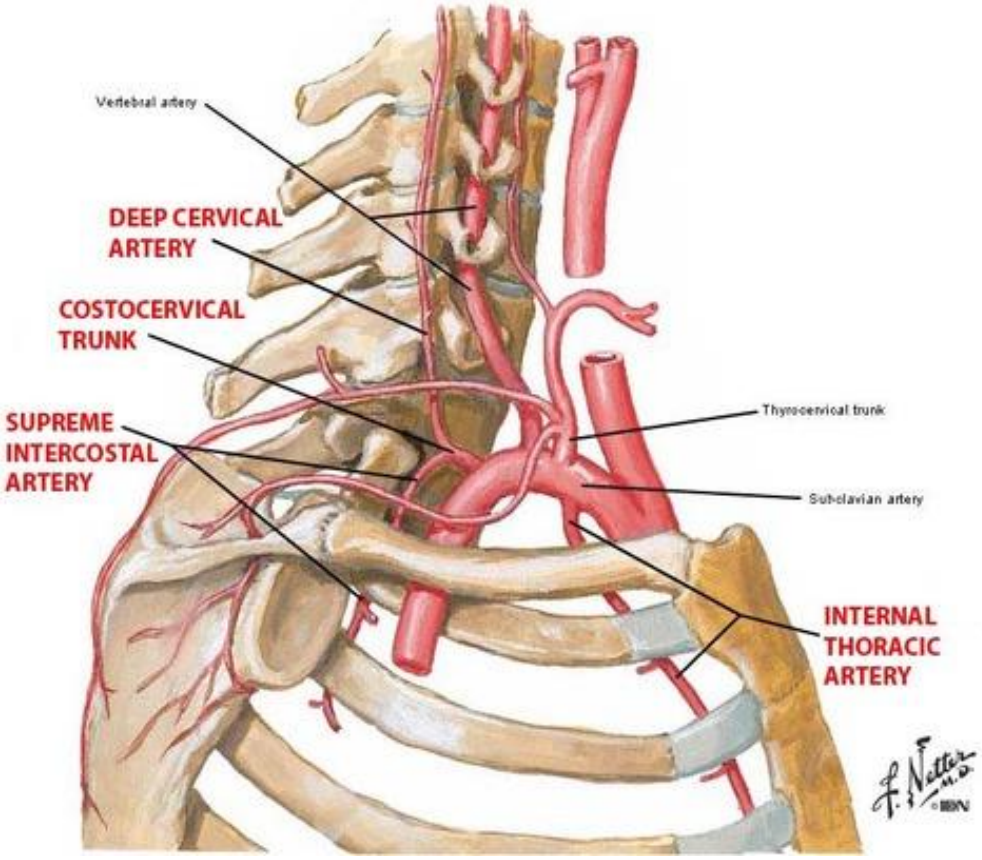
3- **Thyrocervical trunk**: divides immediately into 3 branches: transverse cervical, suprascapular and inferior thyroid arteries.

II) From 2nd part:

- **Costo-cervical trunk** which divides into: deep cervical artery and superior intercostal arteries

III) From 3rd part: Usually has no branches.


Vertebral a.
Inferior thyroid a.
C6
Phrenic nerve
Anterior scalene m.
Middle scalene m.
Thoracic duct
Transverse cervical a.
Dorsal scapular a.
Trunks of the brachial plexus
Suprascapular a.
Subclavian a.
Rib 1
Common carotid artery (reflected)
Left subclavian vein
Vagus nerve (reflected)
Left internal jugular vein (reflected)


Vertebral artery
DEEP CERVICAL ARTERY
COSTOCERVICAL TRUNK
SUPREME INTERCOSTAL ARTERY
Thyrocervical trunk
Subclavian artery
INTERNAL THORACIC ARTERY

★ Vertebral Artery

- It **arises** from the upper aspects of 1st part of subclavian artery.
- The 2 arteries **end** by uniting together at the lower border of pons forming the basilar artery.
- **Course and relations:** Vertebral artery is divided into **4 parts:**

1) First part:

- It **extends** from subclavian artery till the **foramen transversarium** of the C6 vertebra.
- It lies in the inverted **V-shaped space** medial to scalenus anterior muscle.
- **Anterior relations:**
  - Carotid **sheath**: lengthwise
  - **Inferior thyroid artery crosses** from lateral to medial in front of vertebral artery.
  - On the **left side** only, **thoracic duct** crosses from medial to latera to in front of vertebral artery.
- **Posterior relations:** the sympathetic chain, C7 and C8 nerves.

2) Second part:

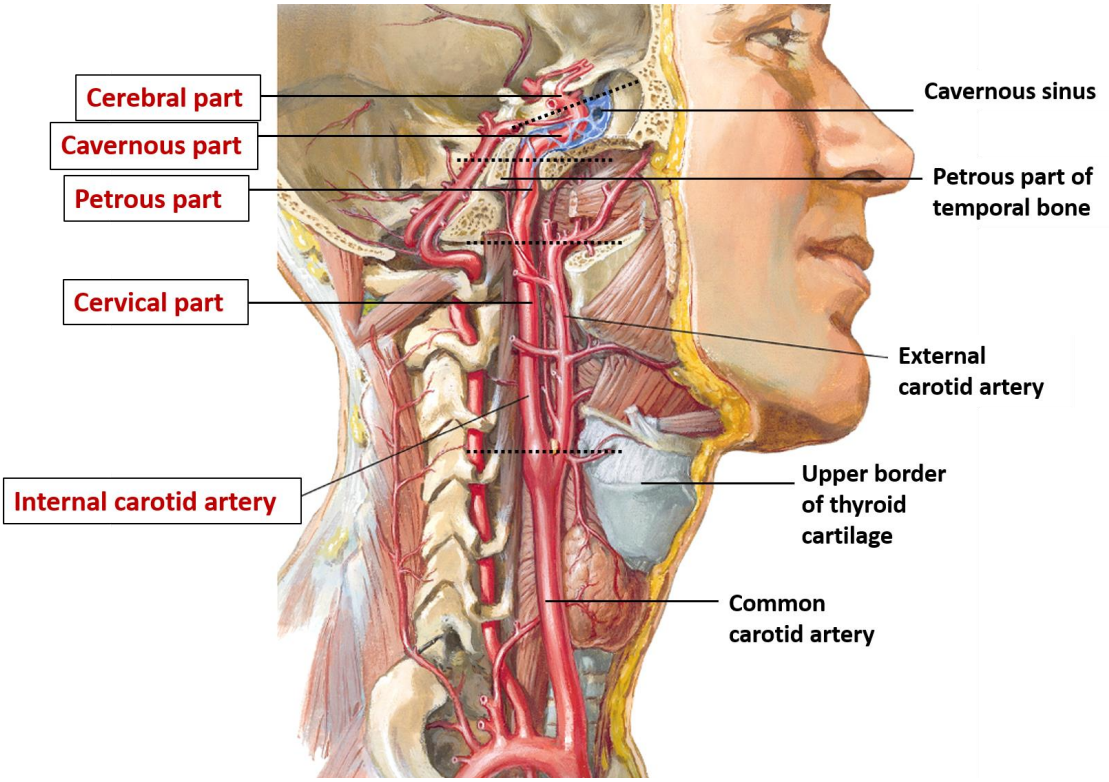
- It ascends in foramina transversaria of upper 6 cervical vertebrae surrounded by venous and sympathetic plexuses.

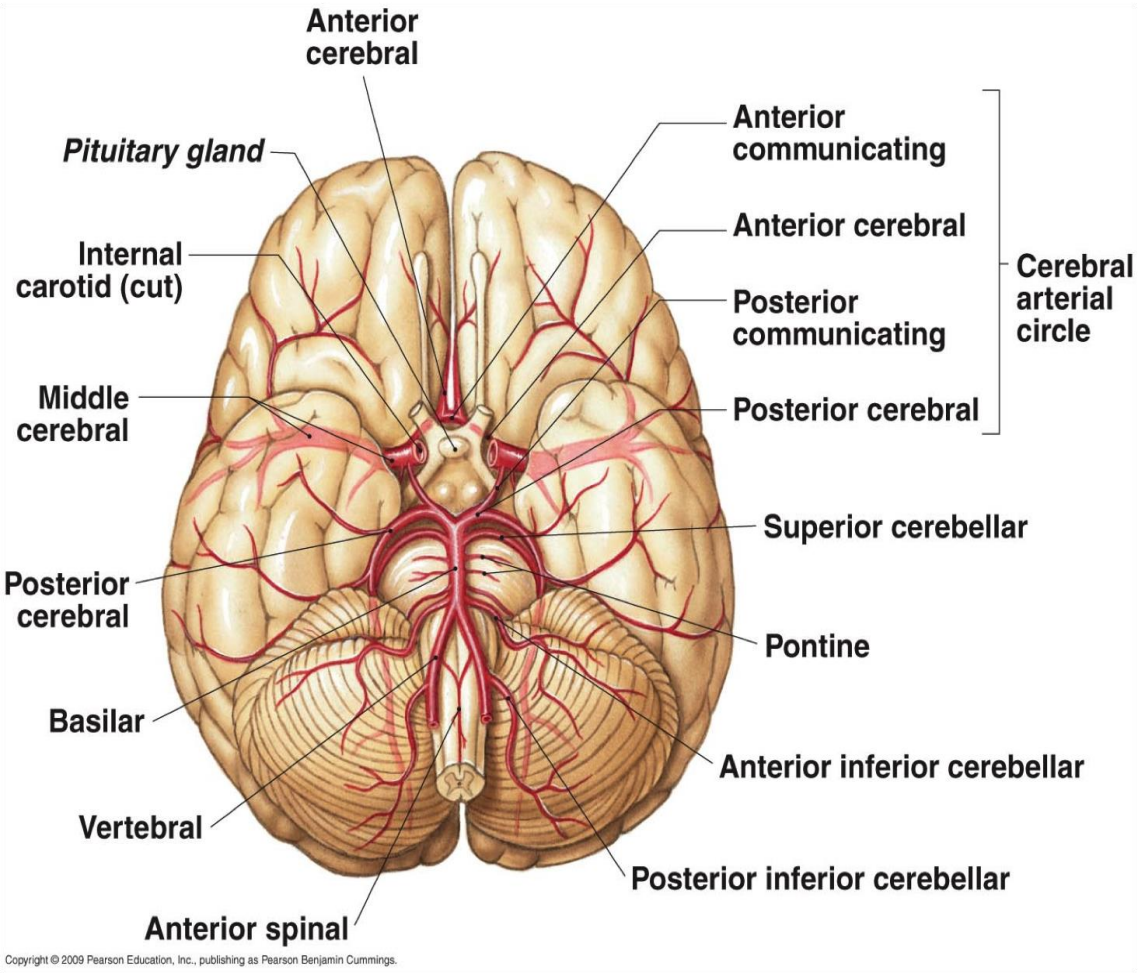
3) Third part:

- It lies in suboccipital triangle, grooving the upper surface of the posterior arch of atlas vertebra.

4) Fourth part:

- It enters the cranial cavity through foramen magnum.


Cerebral part
Cavernous part
Petrous part
Cervical part
Internal carotid artery
Cavernous sinus
Petrous part of temporal bone
External carotid artery
Upper border of thyroid cartilage
Common carotid artery


Anterior cerebral
Pituitary gland
Internal carotid (cut)
Middle cerebral
Posterior cerebral
Basilar
Vertebral
Anterior spinal
Anterior communicating
Anterior cerebral
Posterior communicating
Posterior cerebral
Cerebral arterial circle
Superior cerebellar
Pontine
Anterior inferior cerebellar
Posterior inferior cerebellar
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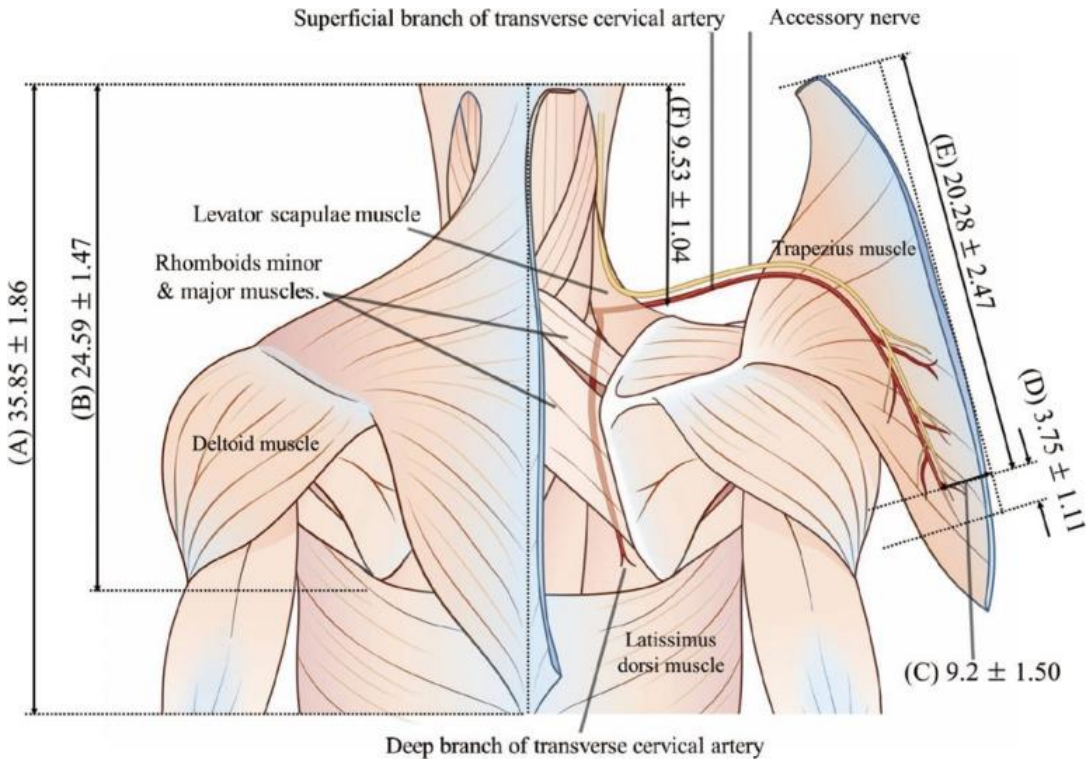
- **Branches:**
  1. **From first part:** no branches.
  2. **From 2nd part: Spinal** branches to the spinal cord and its meninges.
  3. **From 3rd part: Muscular** branches to muscles of the suboccipital triangle.
  4. **From 4th part:** Anterior and posterior **spinal** & **cerebellar** arteries

★ Thyrocervical Trunk:

- It **arises** from the first part of subclavian artery close to the medial border of the scalenus anterior muscle **under cover** of carotid sheath.
- It **divides** immediately into **3 branches:**
  1. **Inferior thyroid artery:** (See thyroid gland).
     - It ascends along the medial border of scalenus anterior then turns medially at level of C6 vertebra between carotid sheath (anterior) and vertebral artery (posterior) to reach thyroid gland.
  2. **Transverse cervical artery:**
     - It **passes laterally**, in front of the scalenus anterior muscle **above the suprascapular** artery.
     - It then traverses the **posterior triangle** and **divides** into 2 branches (superficial and deep) in relation to **levator scapulae** muscle.
       - The **deep branch** descends along the medial border of scapula to share in the anastomosis around the scapula.
       - The **superficial branch** gives many branches to the deep surface of trapezius muscle.



3. **Suprascapular artery:**
   - It **passes laterally** in front of scalenus anterior muscle.
   - Then it crosses the lower part of **posterior triangle**, very close to the clavicle to shares in the **anastomosis around the scapula.**

★Internal thoracic artery:(see thorax)

- It **arises** above the **sternal end of the clavicle**.
- Then it **descends** in the chest **behind the upper 6 costal cartilages**, 1½ cm lateral to the margin of the sternum.
- It **ends** at the **6th intercostal space** by dividing into its 2 terminal branches:

  1- Musculophrenic artery.

  2- Superior epigastric artery.

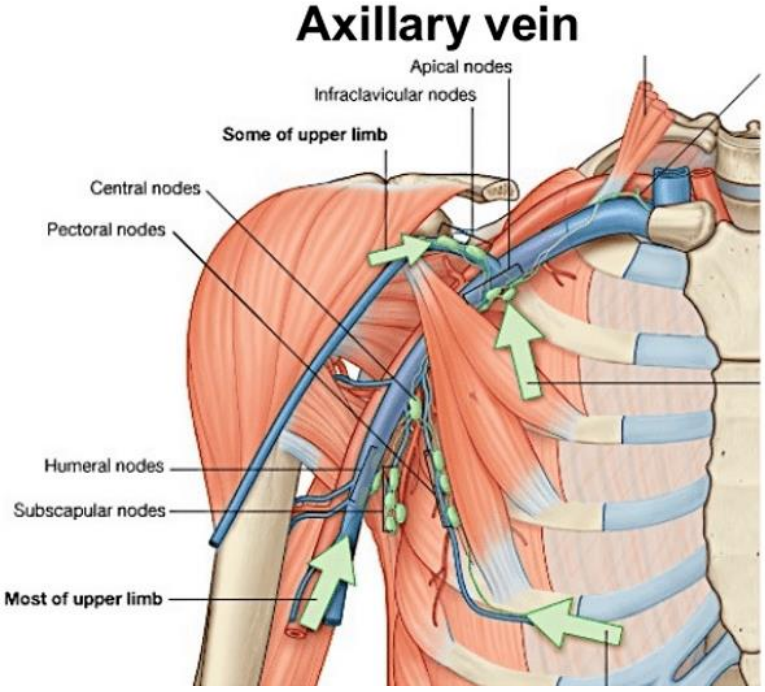
★ **Costocervical trunk:**

- It **arises** from the 2nd part of subclavian artery.
- It **passes backwards** over the apex of the lung and divides into:

1. **Deep cervical artery: Ascends** between the muscles of the back of the neck near the midline to **anastomose** with the descending branch of the occipital artery and with the 3rd part of vertebral artery.
2. **Superior intercostal artery:** Descends in front of the neck of the 1st rib and ends by giving **2 posterior intercostal** arteries.

Subclavian Vein

- It **begins** as the continuation of the **axillary vein** at the outer border of the first rib.
- It **runs medially** in a groove on the upper surface of the 1st rib, in front of the **scalenus anterior** muscle till its medial border where it **joins the internal jugular** vein to form the **brachiocephalic** vein.
- The subclavian vein lies **totally behind the clavicle**.
- **Tributaries: External jugular** vein is the only tributary.



Common Carotid Artery (CCA)

★ **Origin:**

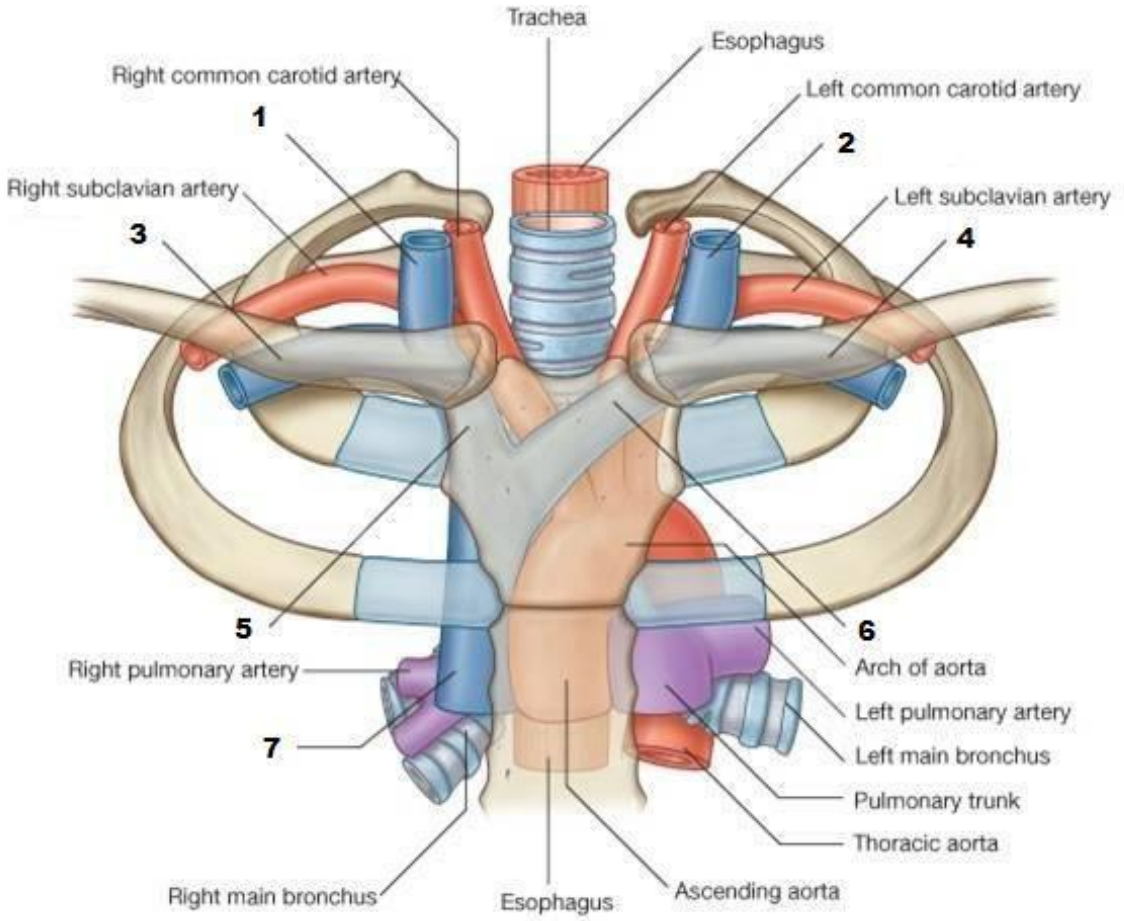
- **Right artery:** Arises in the neck from the brachiocephalic artery behind the right sternoclavicular joint.
- **Left artery:** Arises in the thorax from the arch of the aorta, behind manubrium sterni.

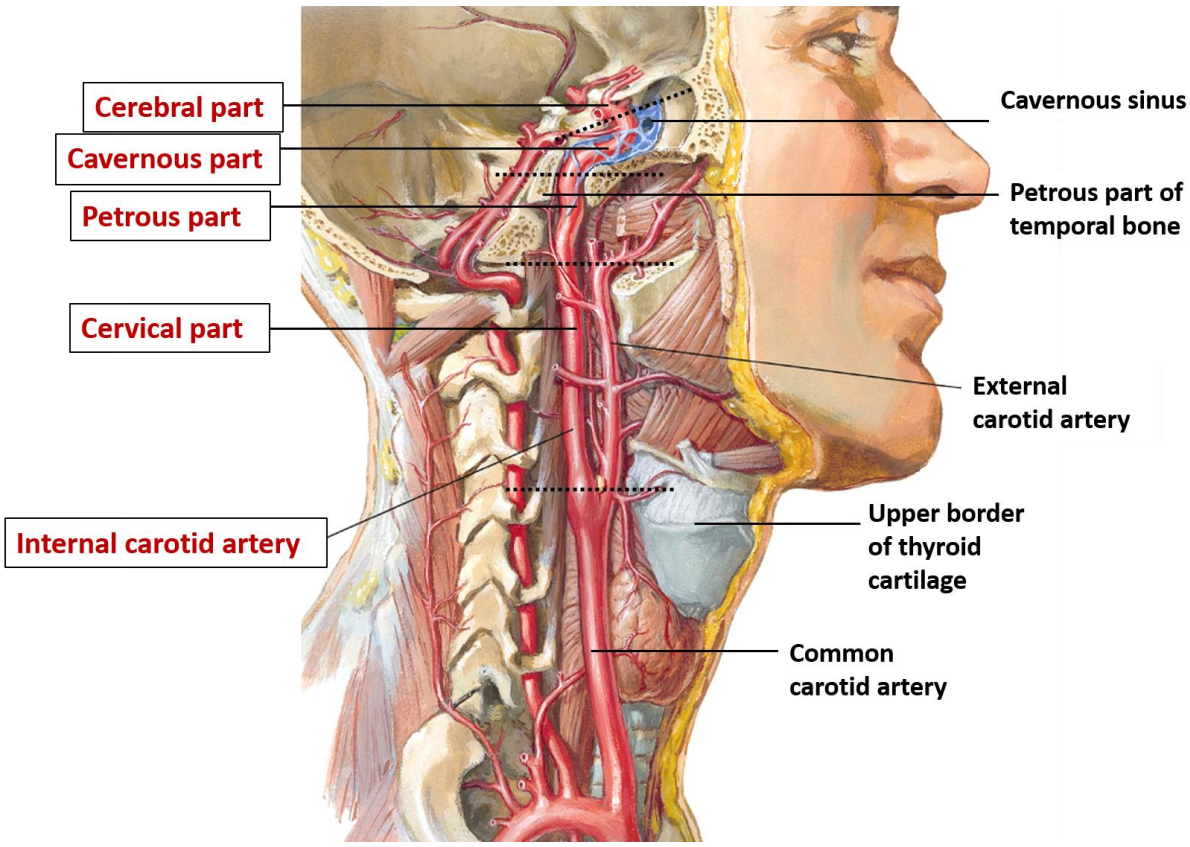
★ It **ends** at the **upper border of thyroid cartilage** (at disc between C3 and C4 vertebrae) by dividing into **external and internal** carotid arteries.

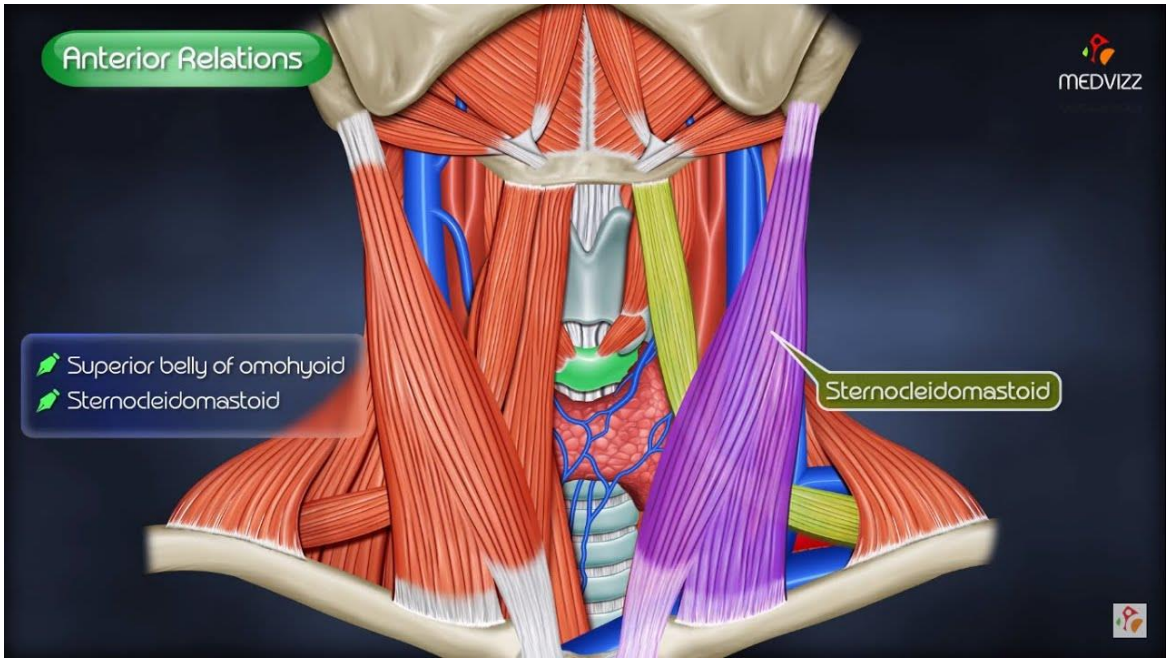
★ **Course:**It ascends inside the carotid sheath medial to vagus nerve and internal jugular vein.

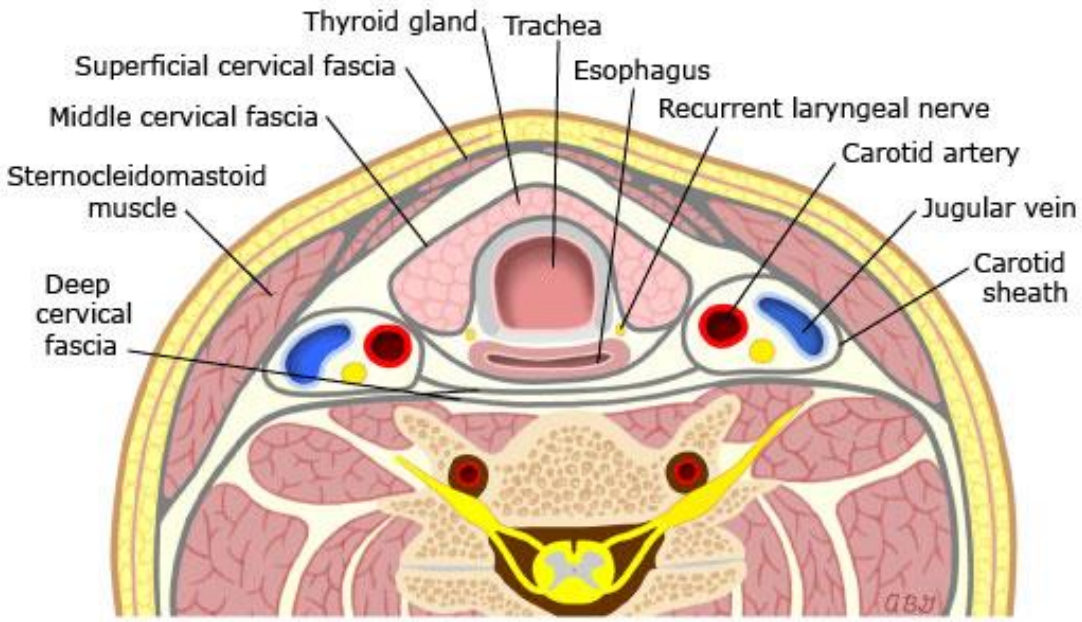
★ **Relations:**

- **Anteriorly:**
  - **Muscles:** Infrahyoid and sternomastoid muscles.
  - **Gland:** Thyroid lobe.
- **Posteriorly:**
  - **Cervical vertebrae** and prevertebral muscles.
  - **Arteries:** Inferior thyroid artery, vertebral artery.
  - **Nerves:** Sympathetic trunk and right recurrent laryngeal nerve.
- **Medially:**
  - **Larynx and pharynx** (above).
  - **Trachea and oesophagus** with recurrent laryngeal nerve in between (below).
- **Laterally**: internal jugular vein.


Trachea
Esophagus
Right common carotid artery
Left common carotid artery
1
2
Right subclavian artery
Left subclavian artery
3
4
5
6
Right pulmonary artery
Arch of aorta
Left pulmonary artery
7
Left main bronchus
Pulmonary trunk
Thoracic aorta
Right main bronchus
Esophagus
Ascending aorta


Cerebral part
Cavernous part
Petrous part
Cervical part
Internal carotid artery
Cavernous sinus
Petrous part of temporal bone
External carotid artery
Upper border of thyroid cartilage
Common carotid artery


Anterior Relations
MEDVIZZ
Superior belly of omohyoid
Sternocleidomastoid
Sternocleidomastoid


Thyroid gland
Trachea
Superficial cervical fascia
Esophagus
Middle cervical fascia
Recurrent laryngeal nerve
Carotid artery
Sternocleidomastoid muscle
Jugular vein
Carotid sheath
Deep cervical fascia

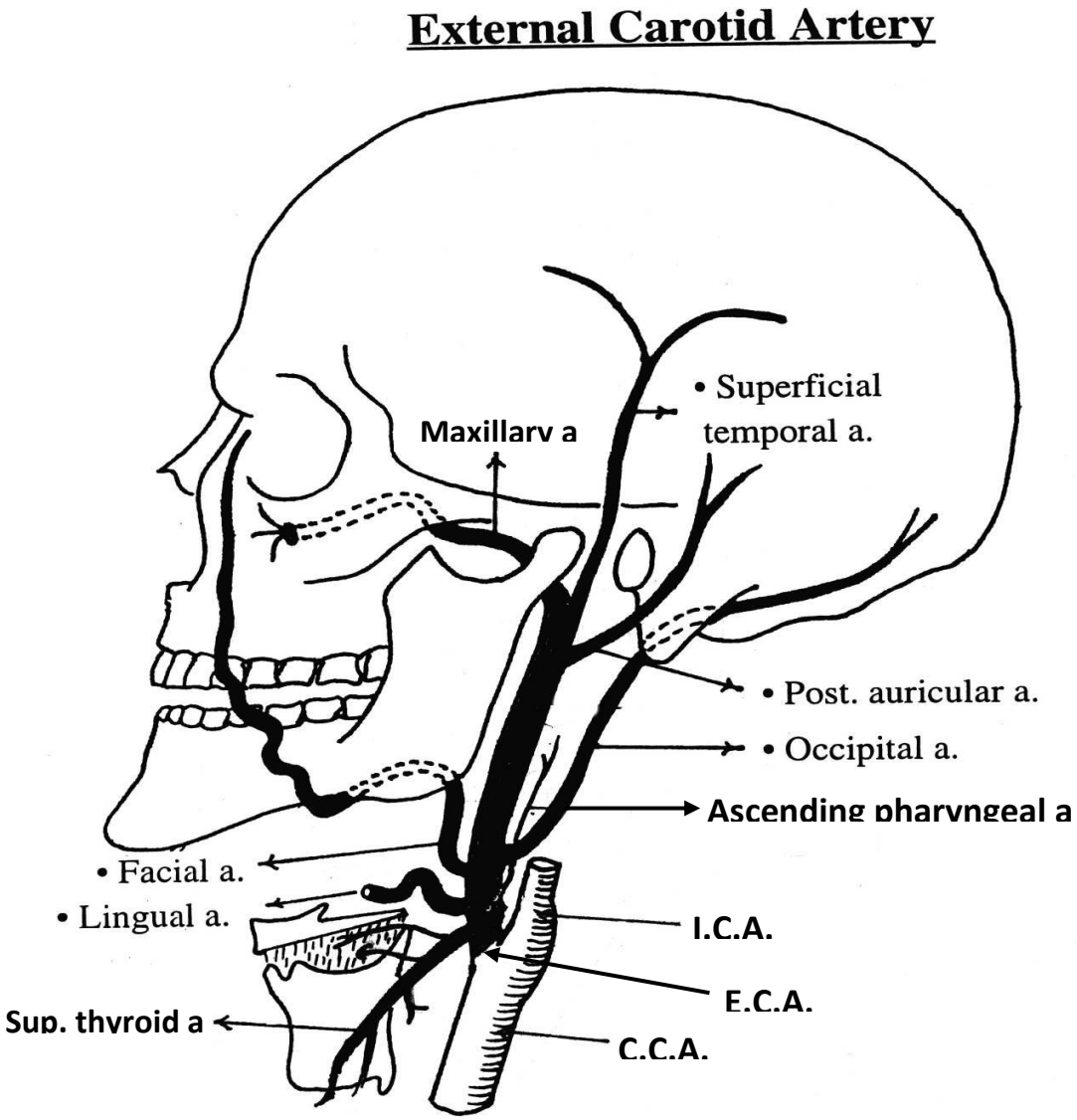
External Carotid Artery

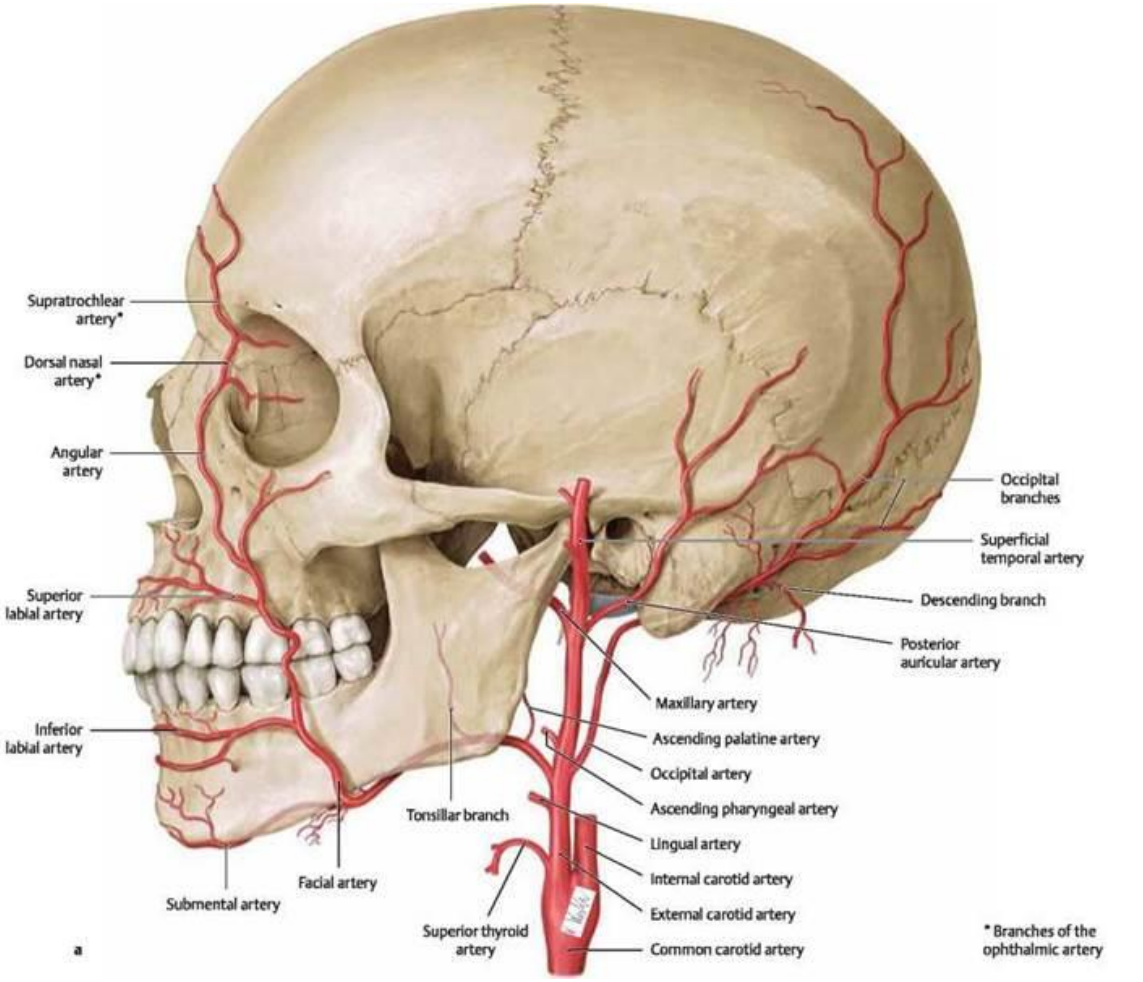
★ **Origin:**

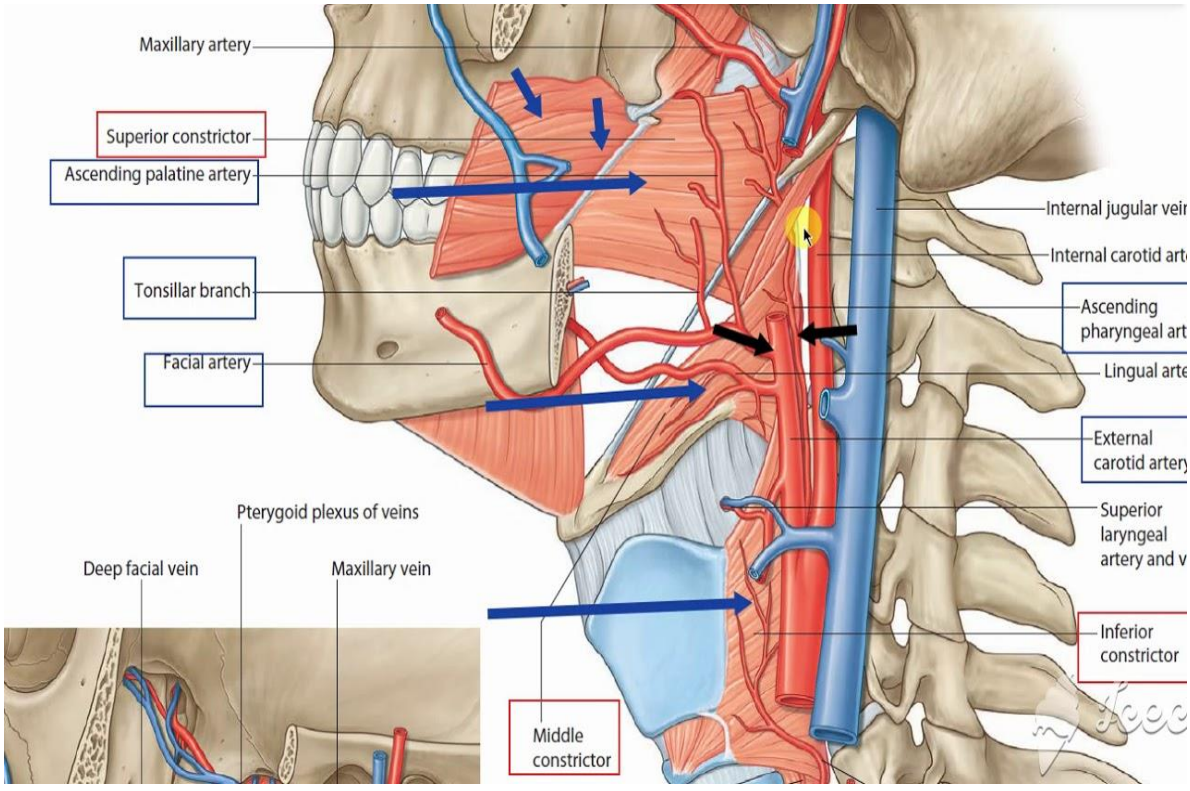
- It **arises** as one of 2 terminal branches of CCA at the level of upper border of thyroid cartilage (level of disc between C3 and C4 vertebrae).

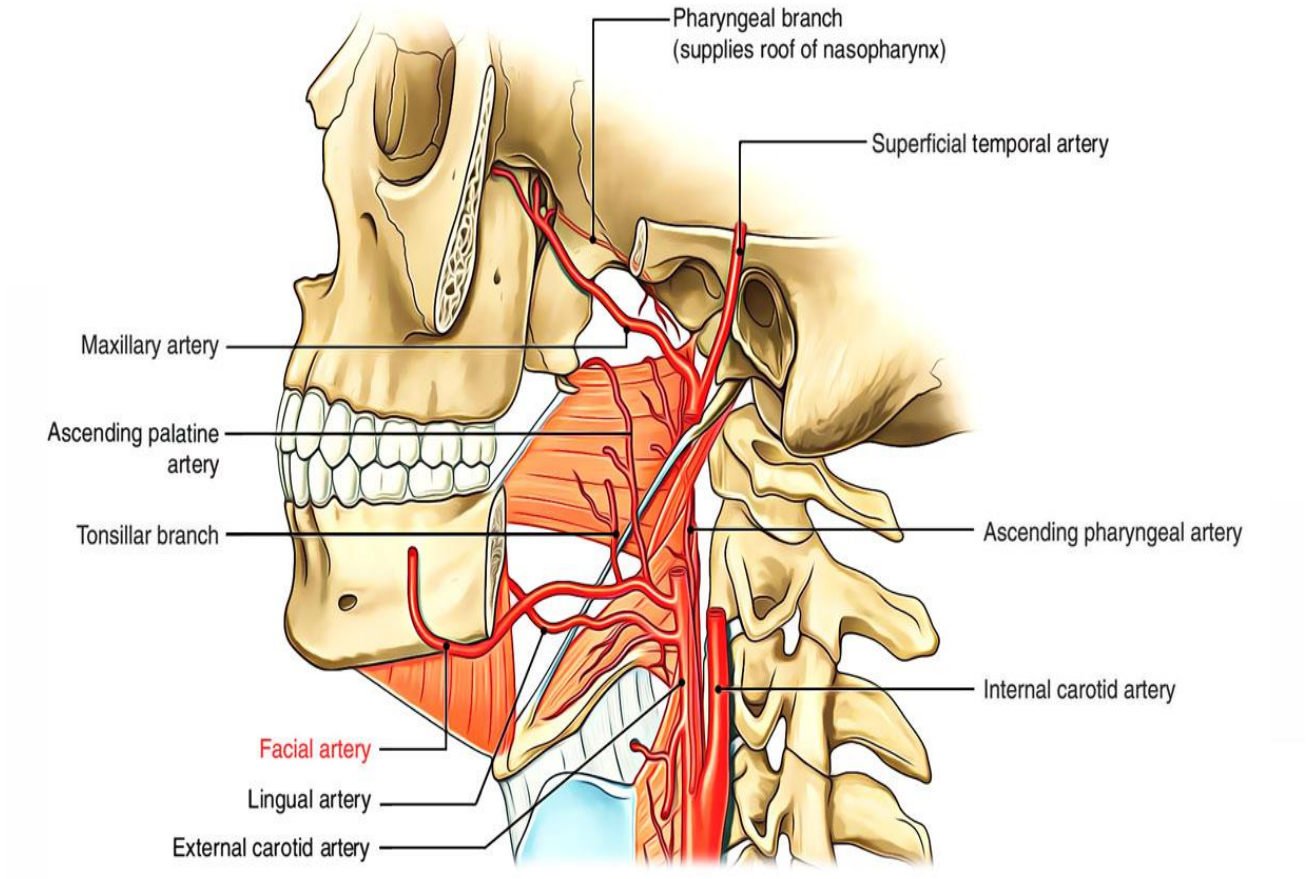
★ **Course and termination:**

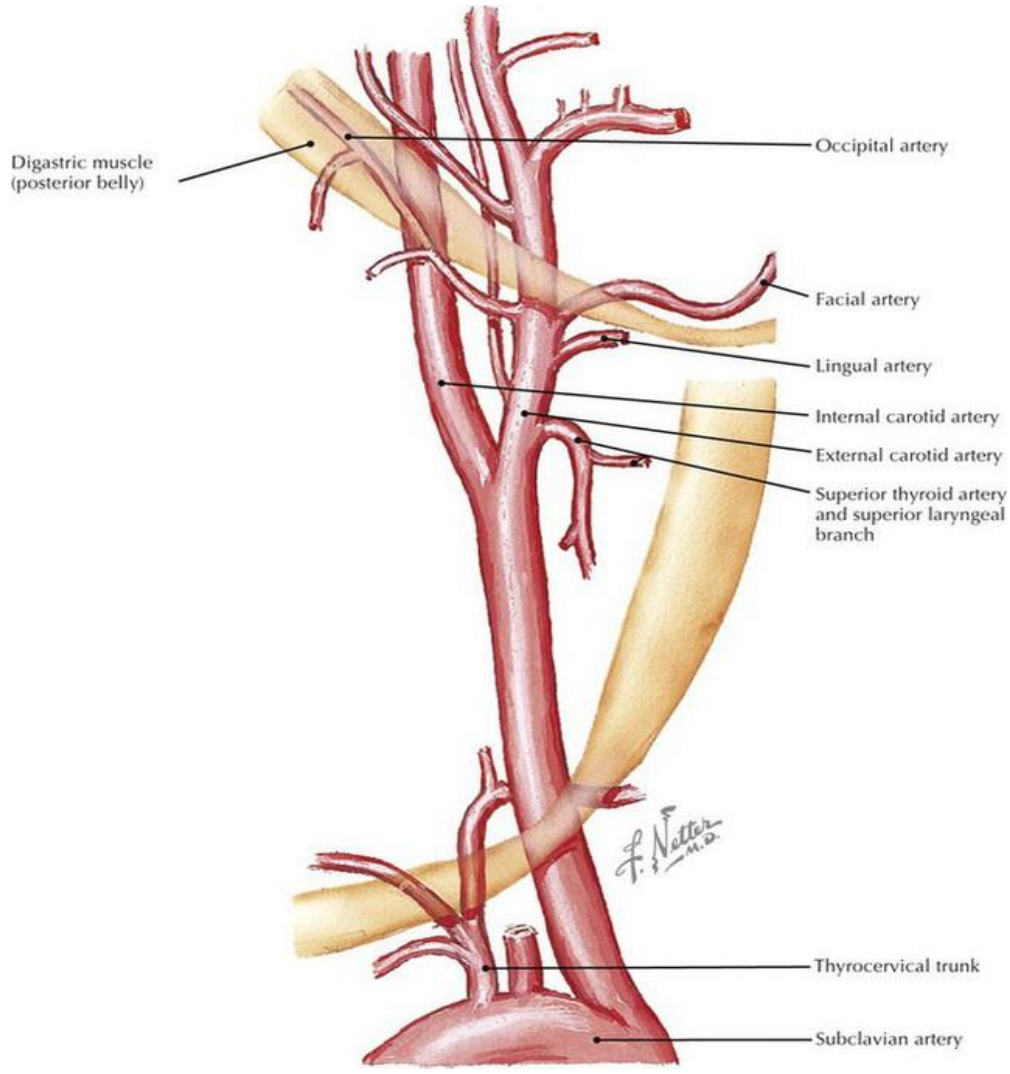
- It **ascends** anteromedial to internal carotid artery outside carotid sheath.
- It **ends** behind the neck of mandible inside the substance of parotid gland by dividing into superficial temporal and maxillary arteries.




Supratrochlear artery*
Dorsal nasal artery*
Angular artery
Superior labial artery
Inferior labial artery
Submental artery
Facial artery
Tonsillar branch
Superior thyroid artery
Occipital branches
Superficial temporal artery
Descending branch
Posterior auricular artery
Maxillary artery
Ascending palatine artery
Occipital artery
Ascending pharyngeal artery
Lingual artery
Internal carotid artery
External carotid artery
Common carotid artery
* Branches of the ophthalmic artery
a


Maxillary artery
Superior constrictor
Ascending palatine artery
Tonsillar branch
Facial artery
Internal jugular vein
Internal carotid art
Ascending pharyngeal art
Lingual arte
External carotid artery
Superior laryngeal artery and v
Inferior constrictor
Middle constrictor
Pterygoid plexus of veins
Deep facial vein
Maxillary vein

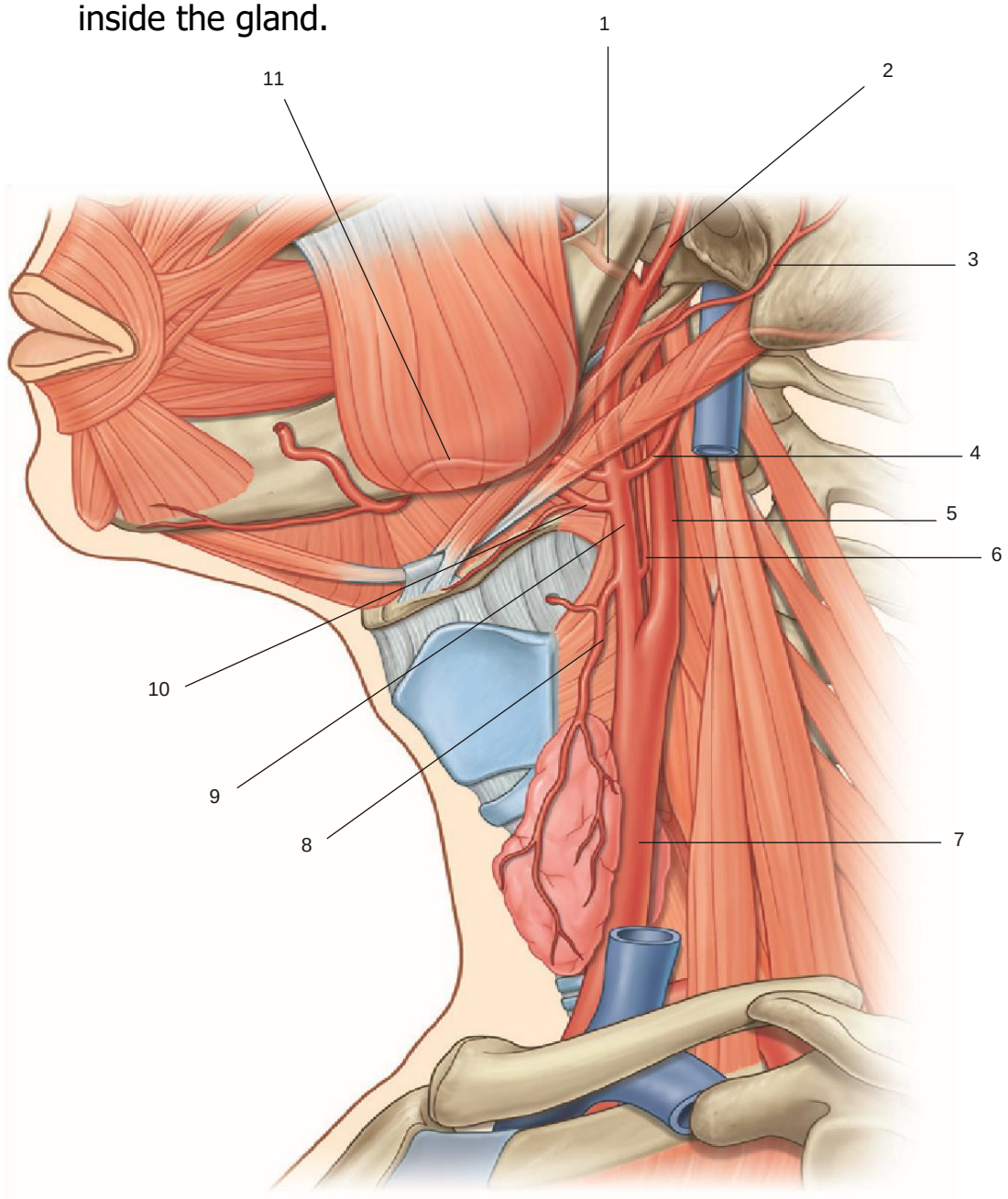

Pharyngeal branch
(supplies roof of nasopharynx)
Superficial temporal artery
Maxillary artery
Ascending palatine artery
Tonsillar branch
Ascending pharyngeal artery
Internal carotid artery
Facial artery
Lingual artery
External carotid artery

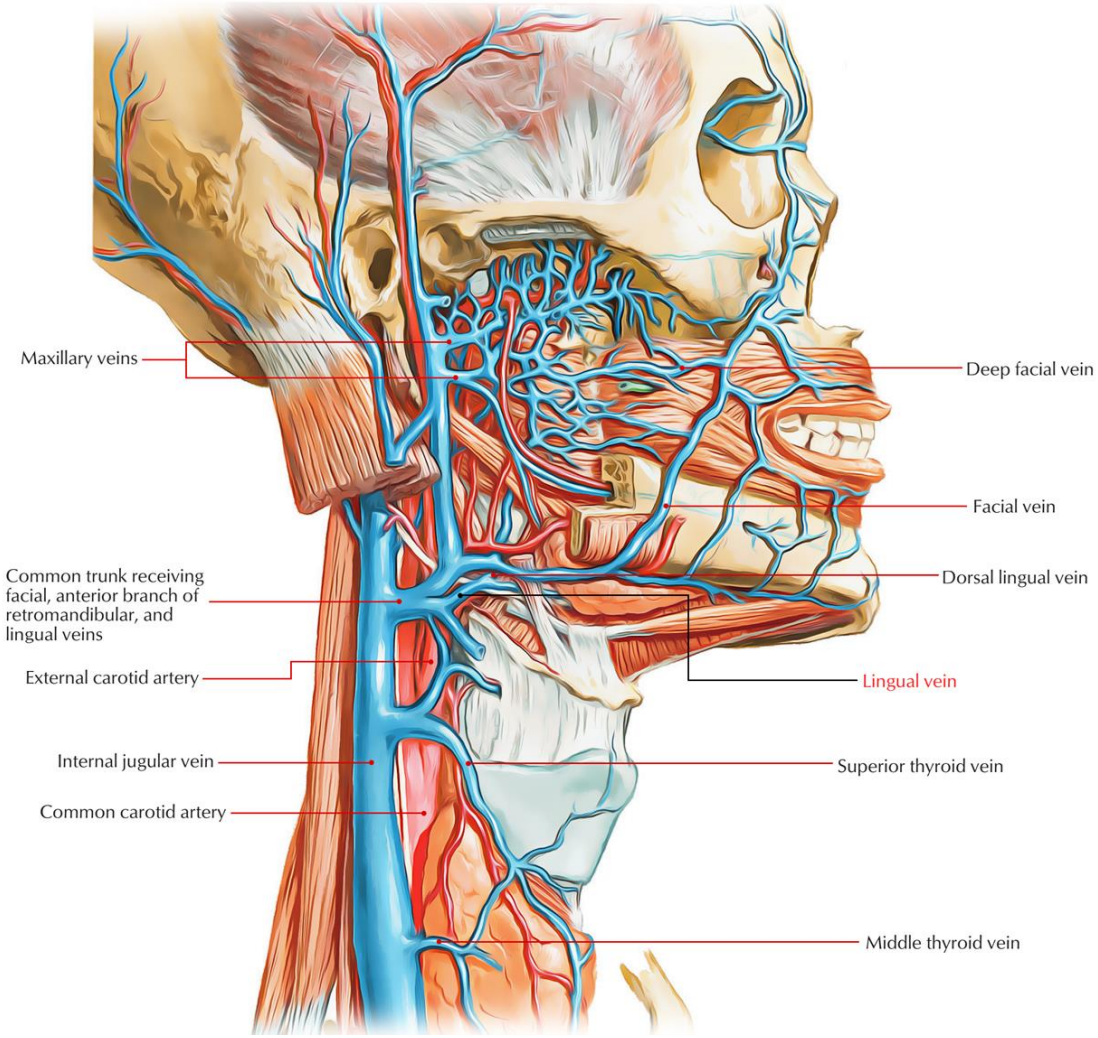

Digastric muscle (posterior belly)
Occipital artery
Facial artery
Lingual artery
Internal carotid artery
External carotid artery
Superior thyroid artery and superior laryngeal branch
Thyrocervical trunk
Subclavian artery

★ **Relations:**

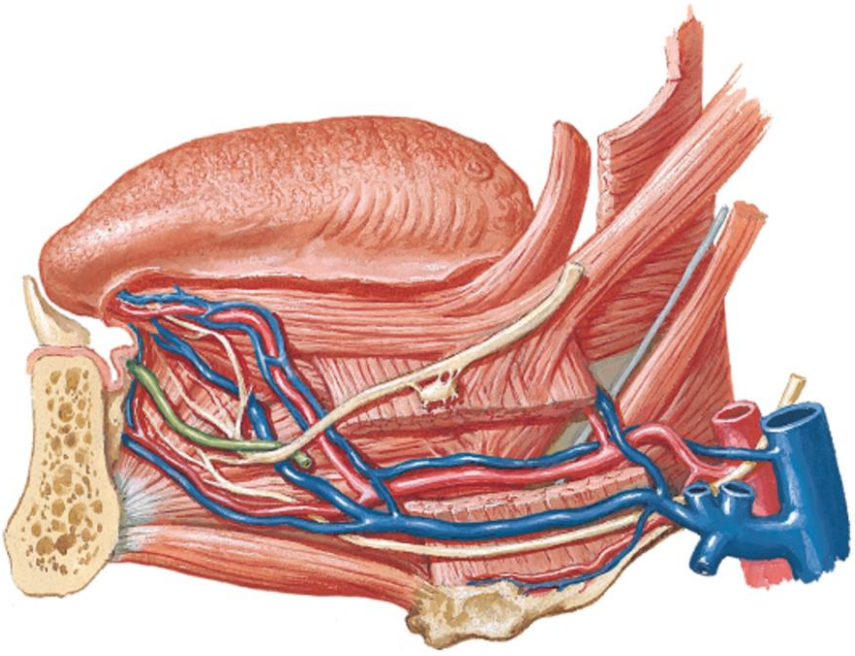
A- Superficial relations (3 muscles, 2 veins, one nerve, one gland):

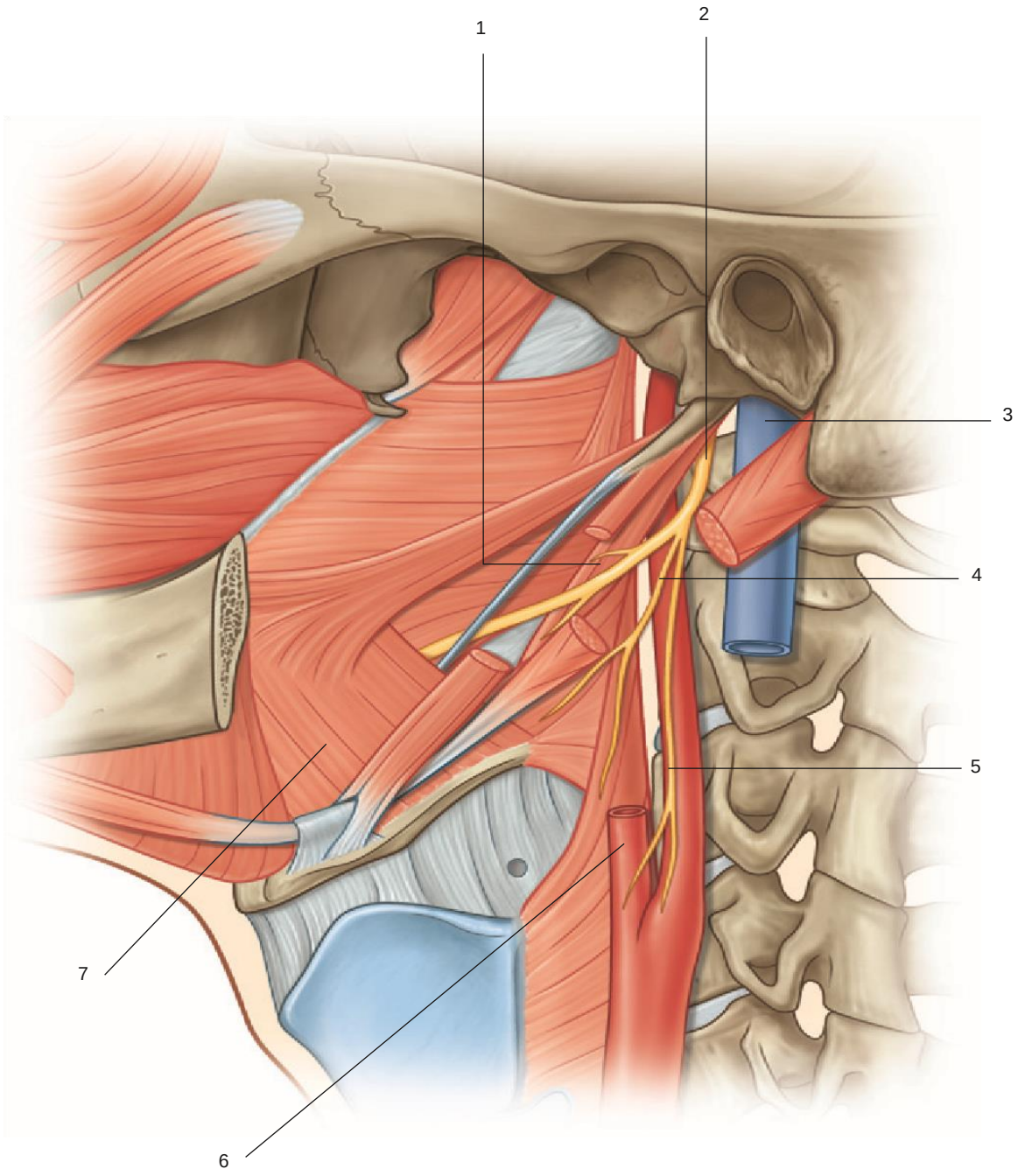
- **Three muscles:** Sternomastoid, posterior belly of digastric with stylohyoid muscles pass along its upper border.
- **Two veins:** Lingual and common facial veins.
- **One nerve:** Hypoglossal nerve crosses medially below posterior belly of digastric muscle.
- **Parotid gland:** With the retromandibular vein and facial nerve inside the gland.





Veins superficial to external carotid artery

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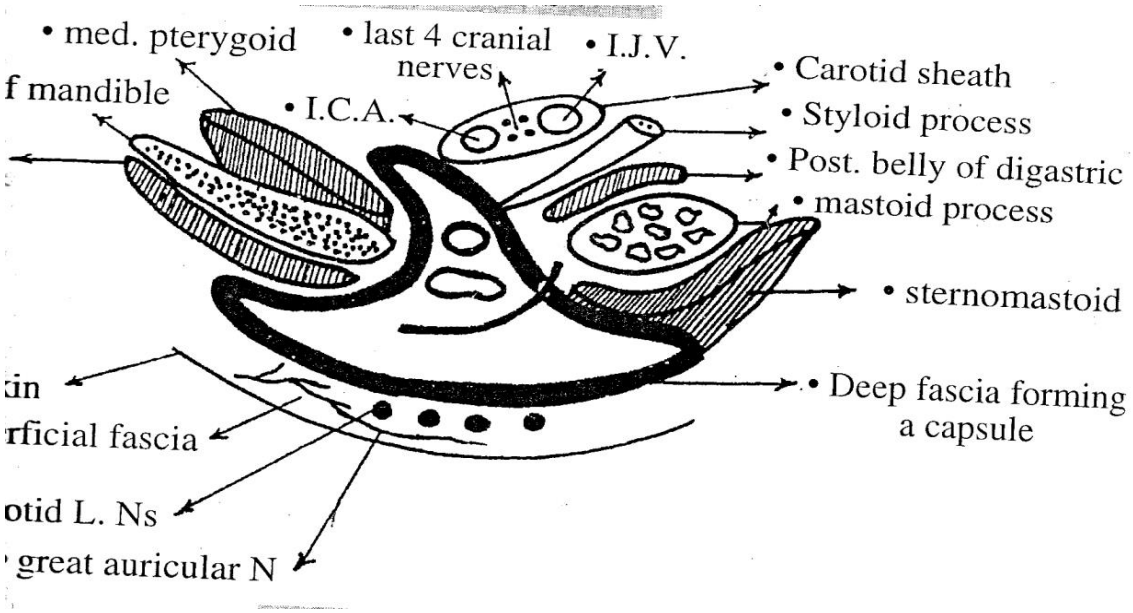
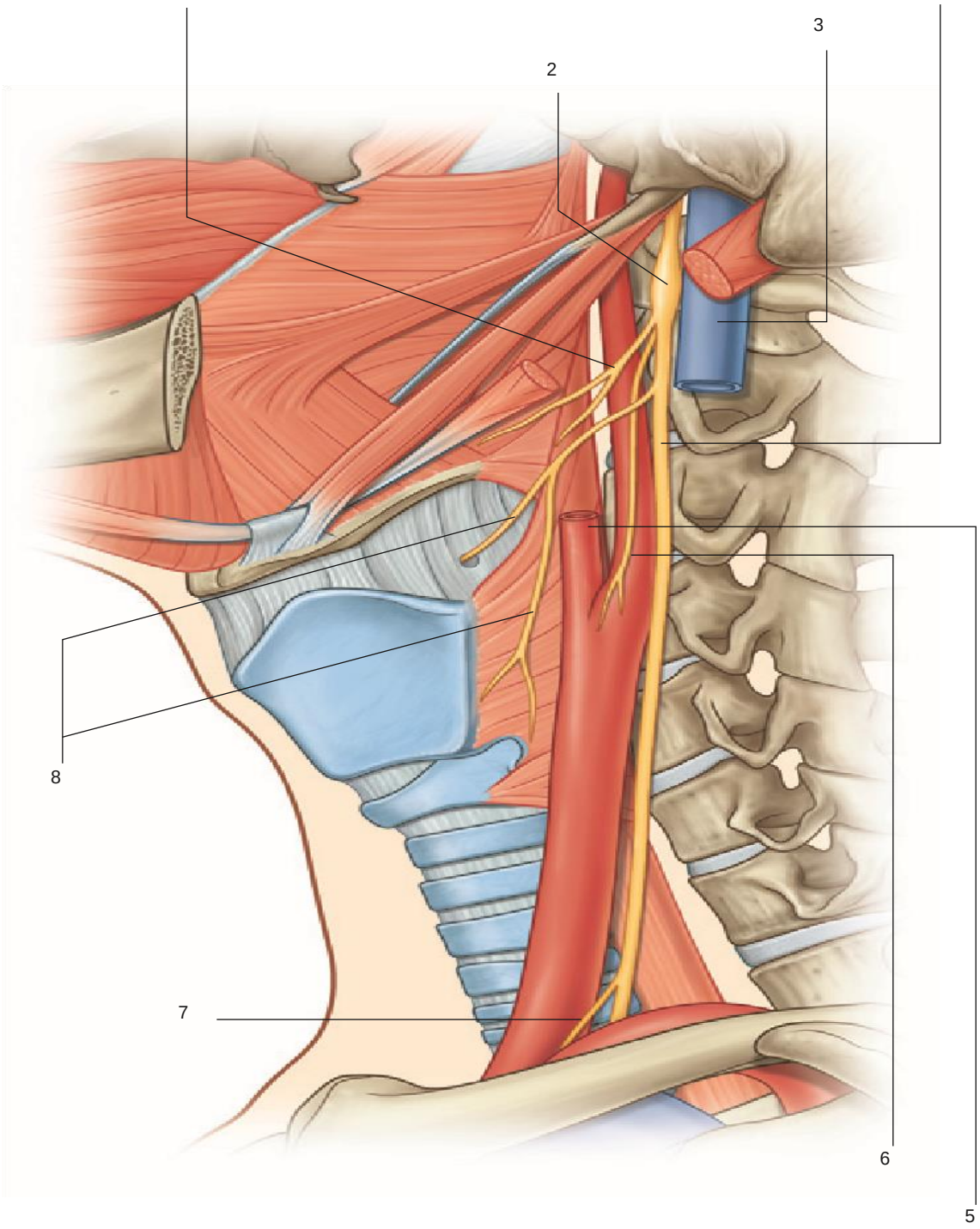

• med. pterygoid
• last 4 cranial nerves
• I.J.V.
f mandible
• I.C.A.
• Carotid sheath
• Styloid process
• Post. belly of digastric
• mastoid process
• sternomastoid
in
rficial fascia
otid L. Ns
great auricular N
• Deep fascia forming a capsule



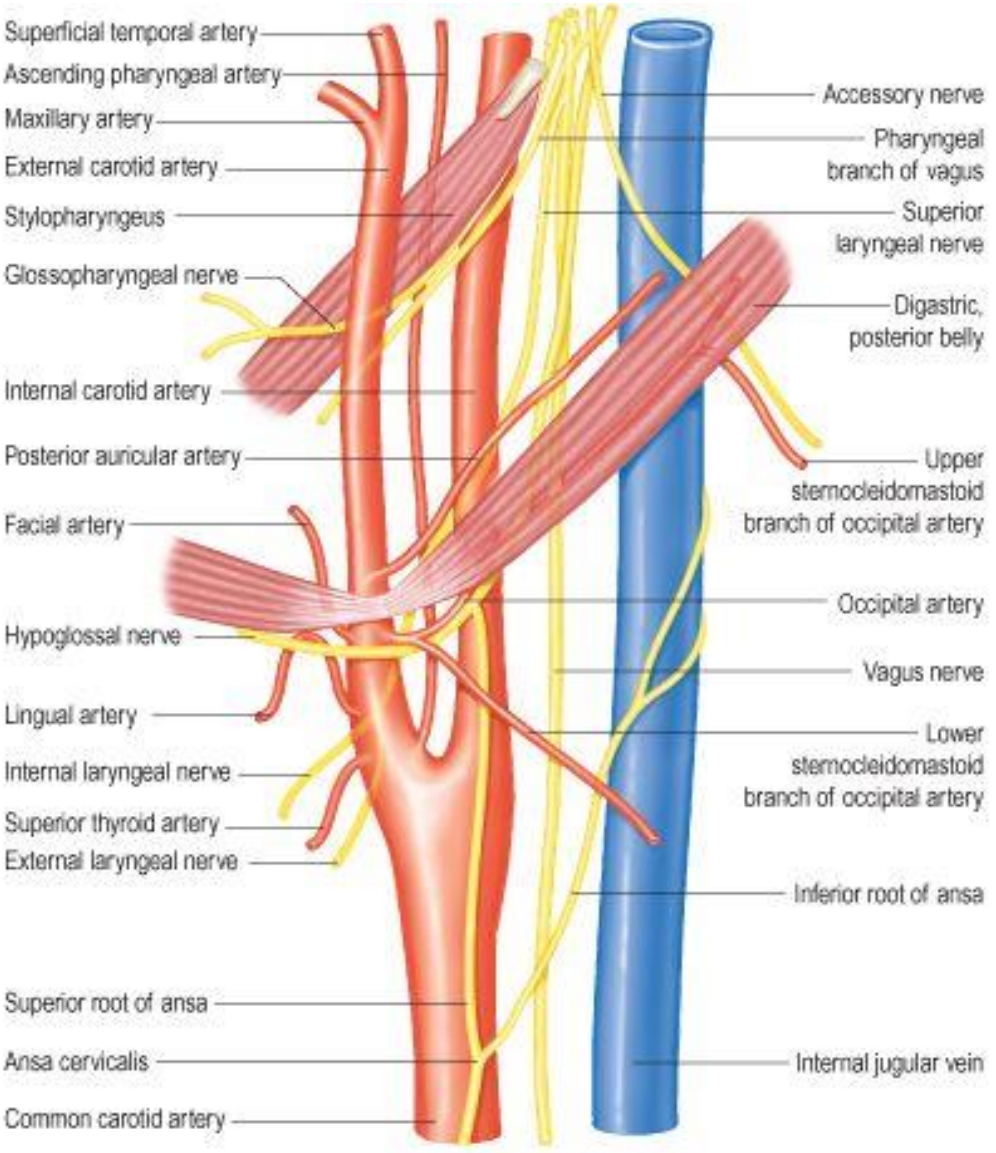
B- Deep relations:

1- **Pharynx**.

2- **ICA** with the following **structures passing between ICA and ECA:**

- **Styloid process with styloglossus and stylopharyngeus muscles**.

- **Glossopharyngeal nerve and pharyngeal branch of vagus**.
- **Part of parotid gland**.



Lingual Artery

★ **Origin:** It arises from the anterior aspect of external carotid artery, above superior thyroid artery, opposite the tip of the greater horn of hyoid bone.

★ **Course:** It is divided into **3 parts by hyoglossus muscle.**

A- First part:

- From external carotid artery till **posterior border of hyoglossus** muscle, in the **carotid triangle**.
- It is convex upwards, lying on **middle constrictor** muscle of pharynx and crossed superficially by **hypoglossal nerve**.
- **Branch:** It gives **suprahyoid artery** which passes forwards on the **lateral surface of hyoglossus** along the upper border of hyoid bone. It **anastomoses** with the opposite artery.

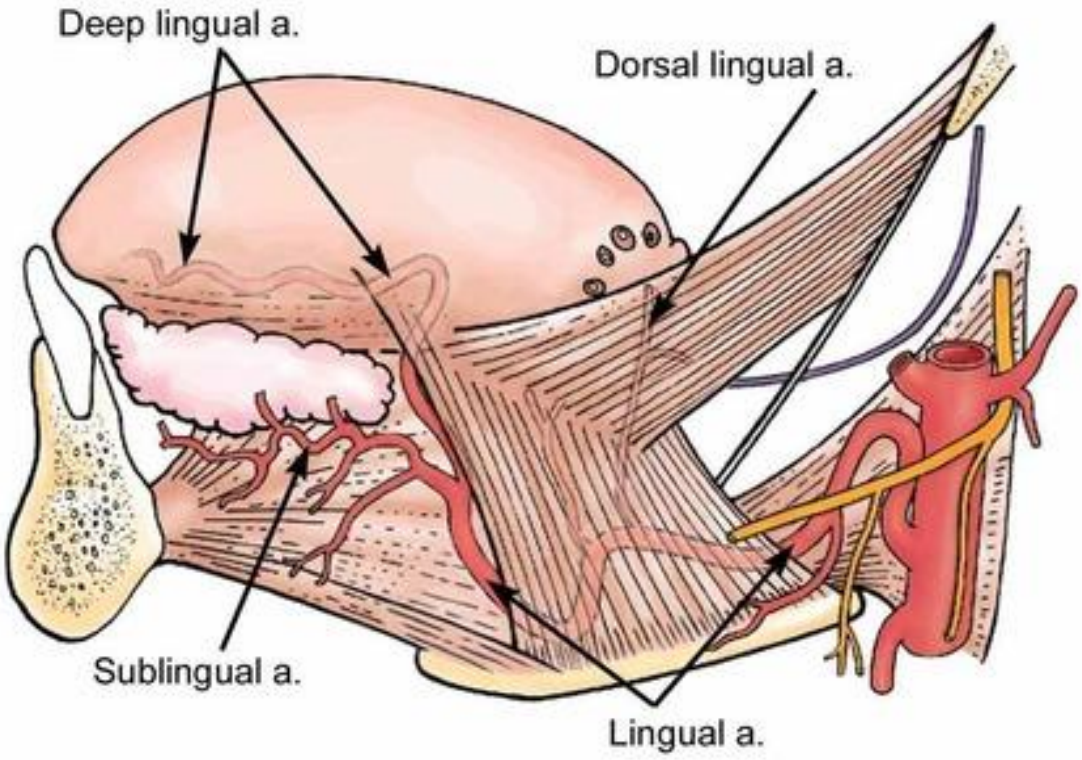
B- Second part:

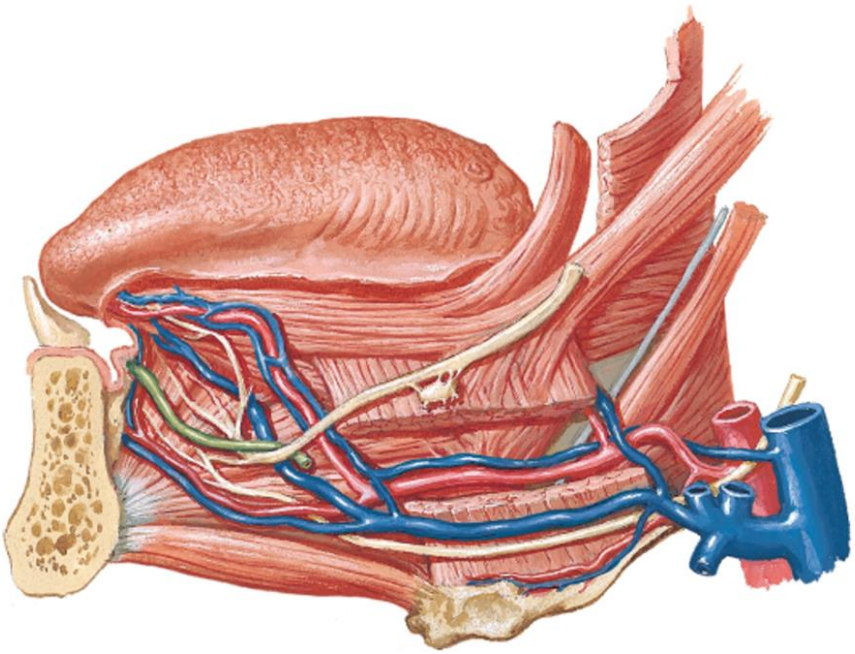
- It passes forwards **deep to hyoglossus**.
- **Branches:**It gives 2 **dorsal lingual arteries** which supply the **posterior** part of the **tongue** and end in the **palatine tonsil** supplying it.

C- Third part:

- It **ascends along the anterior border of hyoglossus**, lying on **genioglossus**, **crossed** by the lingual nerve and submandibular duct.
- **Branch:** It gives **sublingual artery** to sublingual gland then it ends as **deep lingual artery**, which enters the tongue about its middle and runs forwards towards its tip.
  - ➢ It is a **tortuous artery separated** from the mucosa of the lower surface of the tongue by the **deep vein of the tongue**.

- At the **tip of the tongue**, the lingual arteries of both sides **anastomose** together.





Facial Artery

★ **Origin:** It arises from the anterior aspect of **external carotid artery** immediately above the lingual artery (above the greater horn of hyoid bone).

★ **Parts and Course:** It has a **cervical part** in the neck and **facial part** in the face (see the face).

- **Cervical part:**
  - From its origin, it ascends upwards on the **side of pharynx** where the **superior constrictor** muscle separates it from the palatine tonsil.
  - It then passes deep to the **posterior belly of digastric** muscle to enter the **digastric triangle** where it passes along the **posterior border of submandibular gland** grooving it.
  - The facial artery, then runs forwards between the **medial pterygoid muscle laterally** and the **gland medially** to reach the **lower border of mandible**.
  - It then **hooks** around **lower border of mandible** to enter the face at the antero-inferior angle of **masseter muscle** to become the facial part in the face.

★ **Branches of the cervical part:**

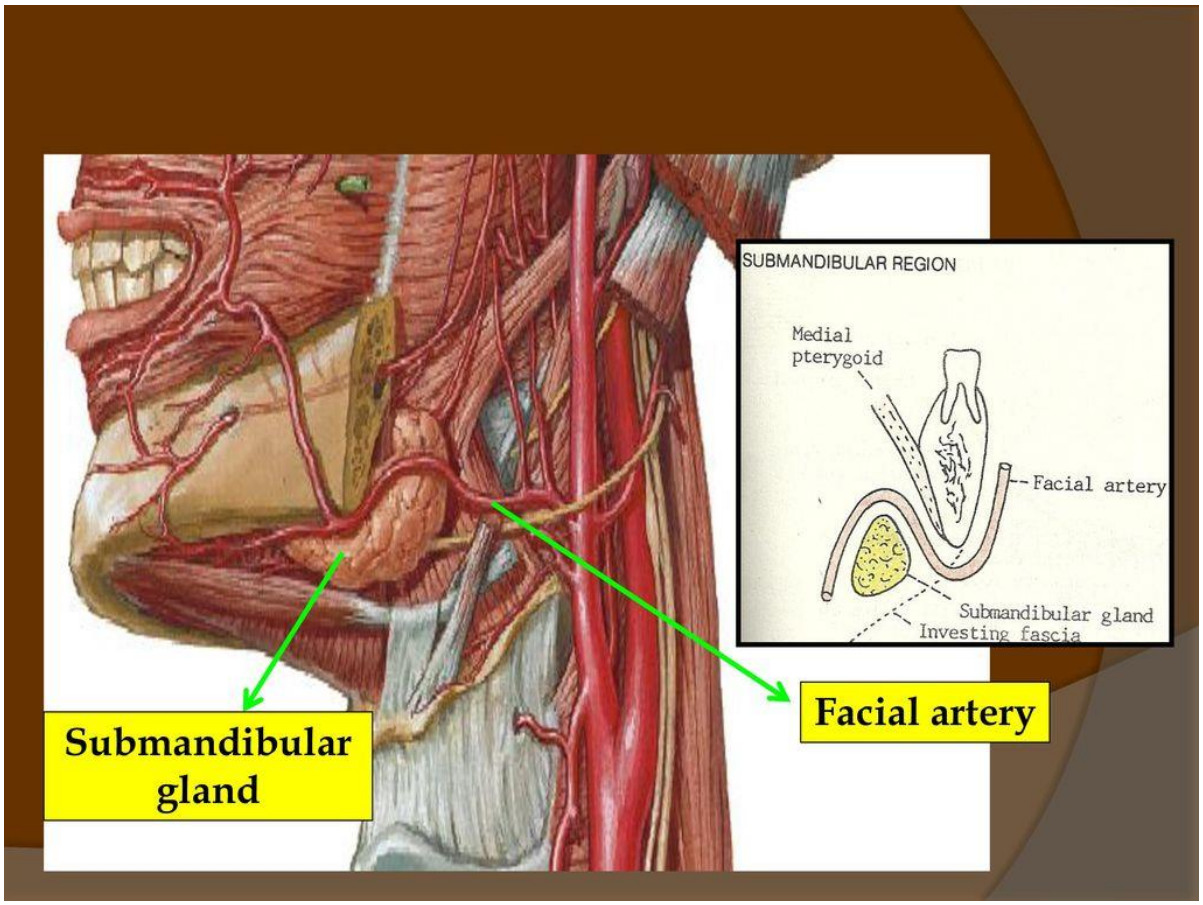
a- **Tonsillar artery:** The main artery of the tonsil, it **pierces** the **superior constrictor** muscle to reach and supply the tonsil.

b- **Ascending palatine:** To the soft palate, tonsil and pharynx.

c- **Glandular:** To the submandibular gland and nearby muscles and skin.

d- **Submental:** The **largest** branch, passes along the **lower border of the mandible** to the submental triangle. It

accompanies the **nerve to mylohyoid** and supplies the chin and lower lip.



Occipital Artery

★ **Origin:** It arises from the posterior aspect of external carotid artery opposite the origin of facial artery.

★ **Course & relations:** It passes upwards and backwards along the **lower border of posterior belly of digastric** then **deep to mastoid** process. It crosses the **apex of posterior triangle** to reach and supply the posterior part of the scalp.

★ **Branches:**

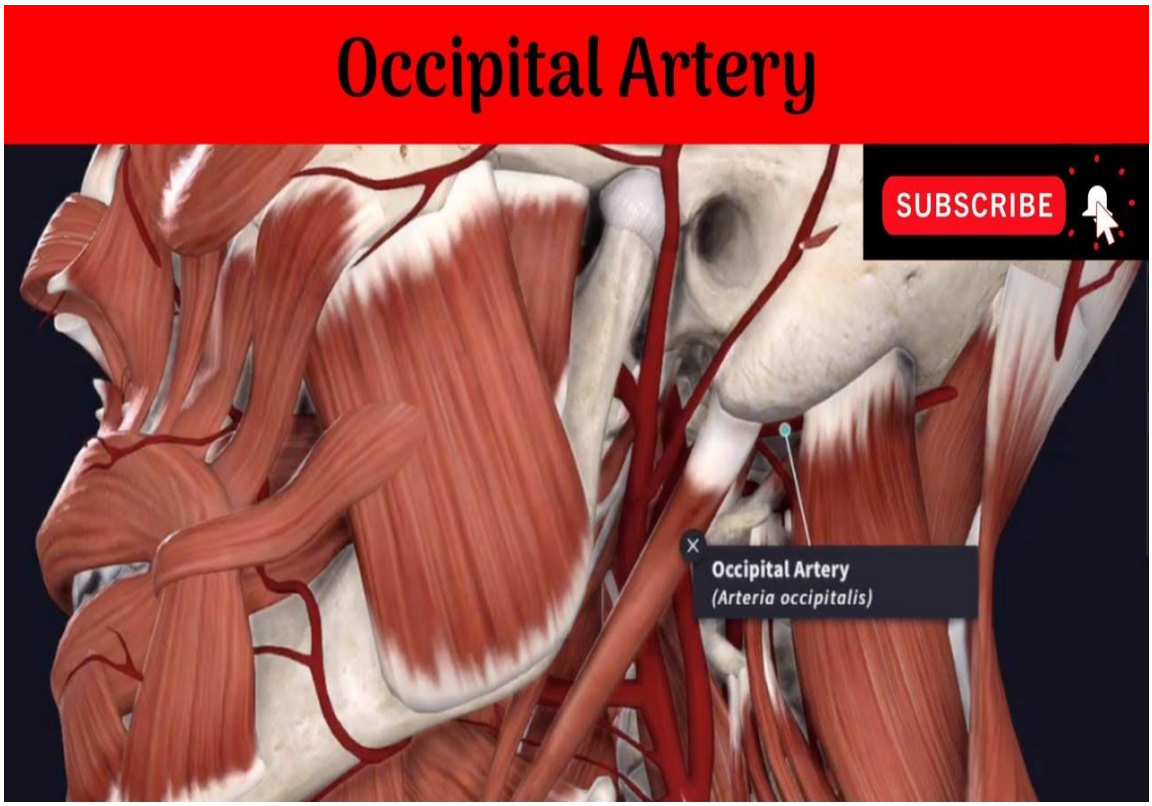
- **Two sternomastoid branches:** To sternomastoid muscle.
- **Mastoid branch:** Passes in the mastoid foramen to supply mastoid air cells.
- **Auricular branch:** Supplies the back of the auricle of the ear.
- **Muscular branches:** To digastric and stylohyoid muscles.
- **Stylomastoid artery (in 60% of cases):** It enters the **stylomastoid foramen** to supply the **middle ear**.

Posterior Auricular Artery

★ It arises from the **posterior aspect** of external carotid artery.

★ It runs along its **upper border the posterior belly of digastric** muscle and then curves upwards **behind the auricle** to supply:

- **Auricular branches:** To posterior surface of the auricle.
- **Occipital branch:** To the scalp behind the auricle.
- **Stylomastoid artery (in 40% of cases):** It supplies the middle ear.


Occipital Artery
SUBSCRIBE
Occipital Artery
(Arteria occipitalis)

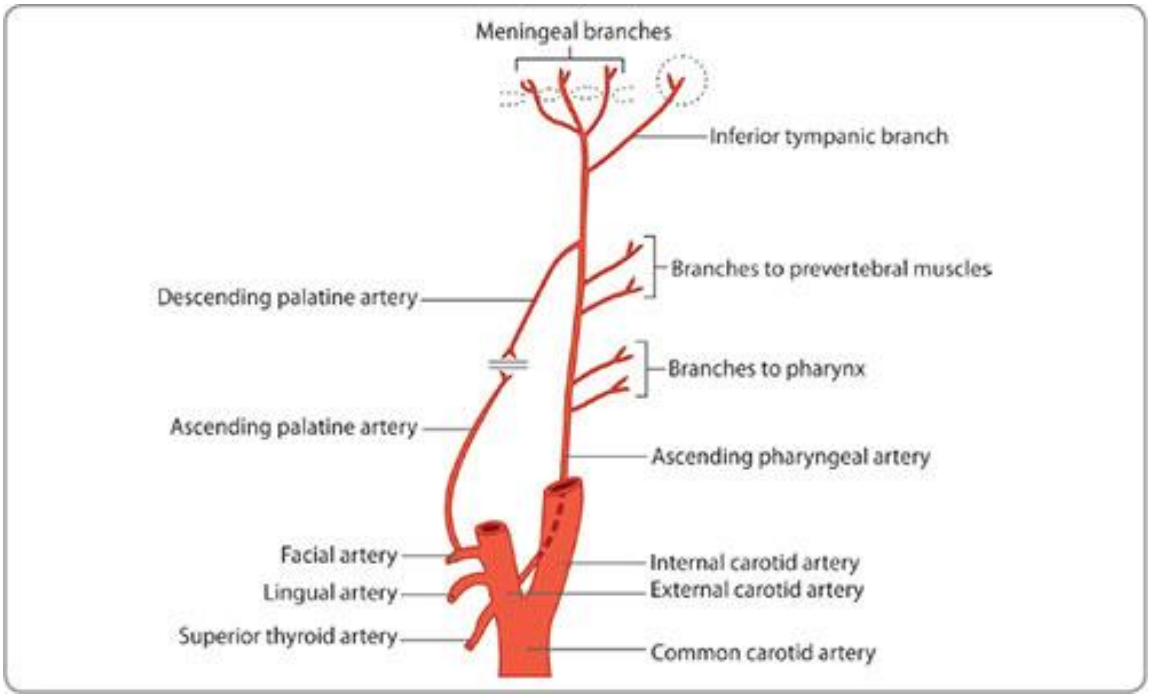
Ascending Pharyngeal Artery

★ It **arises** from the medial aspect of external carotid artery as its **smallest** branch.

★ It ascends on the **wall of the pharynx** to reach the base of the skull.

★ **Branches:**

- **Pharyngeal branches:** To the pharynx, soft palate and tonsil.
- **Descending palatine** artery to the palate.
- **Inferior tympanic artery: Accompanies** the tympanic branch of the glosso-pharyngeal nerve to supply the **tympanic cavity**.
- **Meningeal branches:** Pass through **jugular foramen** to the dura mater of posterior cranial fossa.



Internal Carotid Artery

★ It **arises** as one of the 2 terminal branches of CCA at the level of upper border of thyroid cartilage (level of disc between C3 and C4 vertebrae). Its beginning shows dilatation called the **carotid sinus.**

★ It **ends** at the **base of brain** by dividing into **anterior and middle cerebral** arteries.

★ **It has 4 parts:** (Cervical-Petrous-Cavernous-Cerebral)

I) Cervical part: It lies in the neck.

- **Relations:**
  1) It lies **inside carotid sheath** with IJV lateral, vagus postero-lateral and sympathetic chain posterior to it.
  2) **Superficial relations:**
     - External carotid artery.
     - Structures between ECA and ICA (See before ECA).
  3) **Deep relations:** Superior laryngeal nerve and constrictors of the pharynx.
  4) **At the base of the skull**: ICA lies anterior to the IJV with the lower 4 cranial nerves in between.
- **Branches:** It has no branches in the neck.

II) Petrous part:

- ICA passes in the **carotid foramen** to the carotid **canal** inside the **petrous part of temporal bone**.
- The artery runs **upwards** in carotid foramen, then passes **forwards and medially** in the carotid canal to reach the **foramen lacerum**.
- It passes **upwards** in the **foramen lacerum** to enter the **cavernous sinus**.

- **Branches:**

  a- **Carotico-tympanic artery:** Enters tympanic cavity.

  b- **Artery of pterygoid canal:** For the pharynx.

III) Cavernous part:

- **Inside the cavernous sinus**, the artery runs in a sinuous course (upwards, then forwards and finally upwards).
- It **leaves the sinus** through the anterior part of its **roof**.
- The artery is related laterally to **abducent nerve** (6^{th} cranial nerve) and medially to the **body of the sphenoid**.
- **Branches: Inferior hypophyseal** artery for the posterior lobe of the pituitary gland.

IV) Cerebral part:

- **After leaving the roof of cavernous sinus**, the artery passes **backwards** above the sinus for one cm, then it turns **upwards** to **end just below the anterior perforated substance** of the base of the brain by dividing into anterior cerebral and middle cerebral arteries.
- **Branches:**

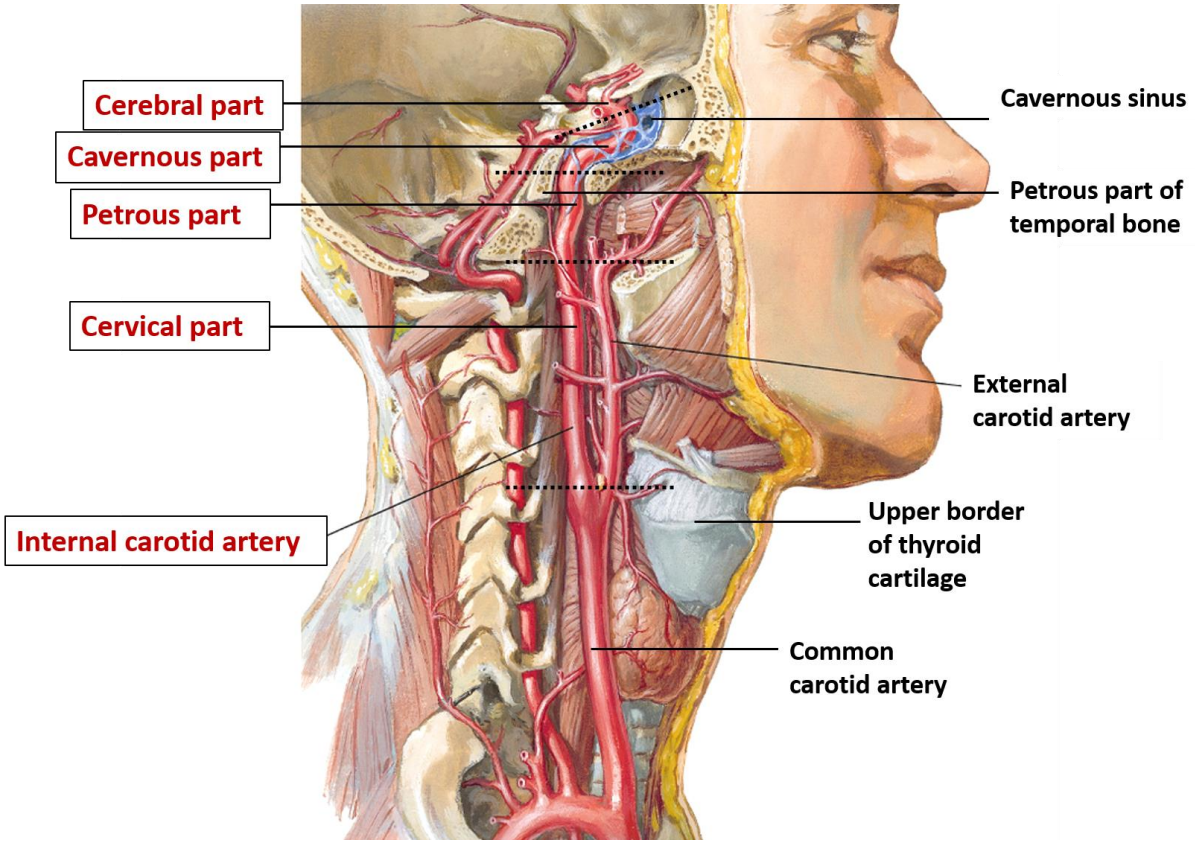
  1-Ophthalmic artery.

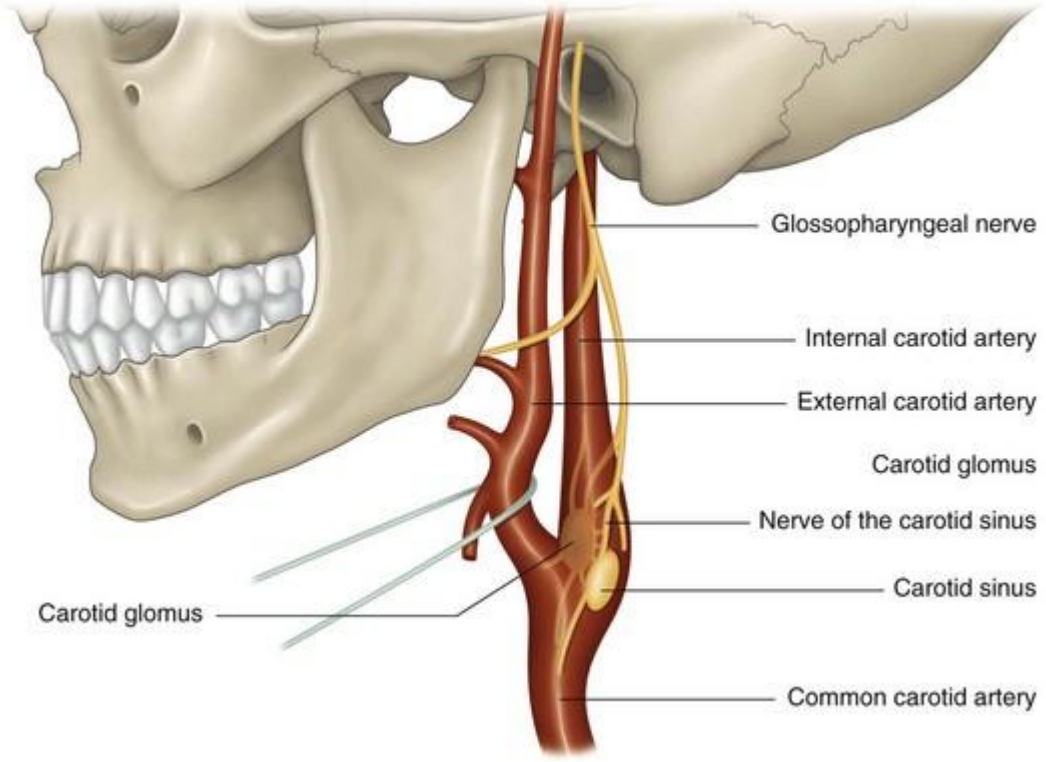
  2-Posterior communicating artery.

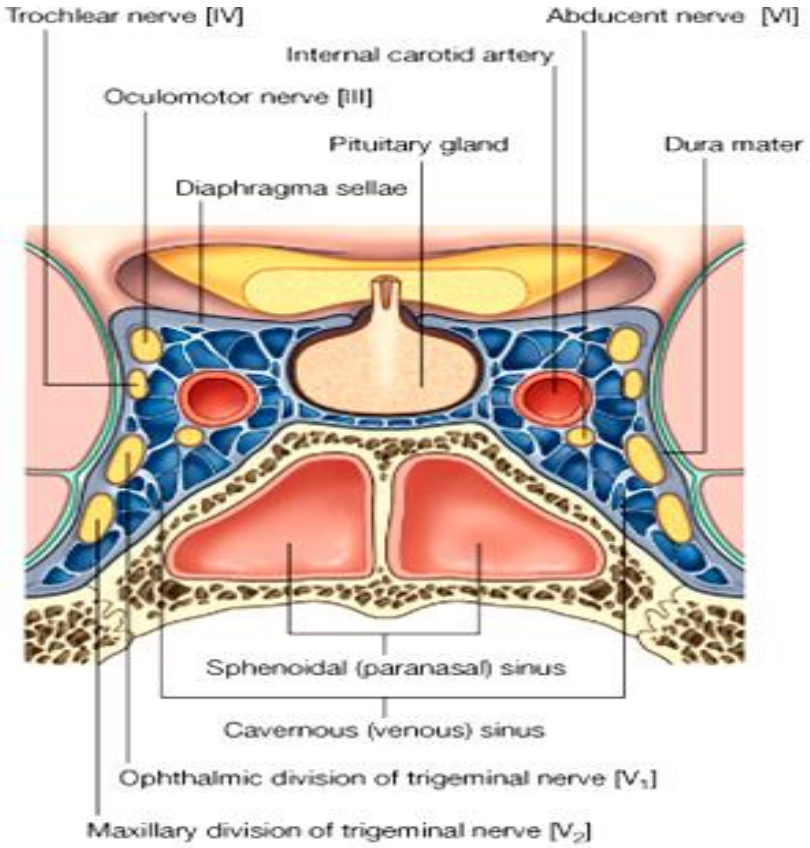
  3-Anterior choroidal artery.

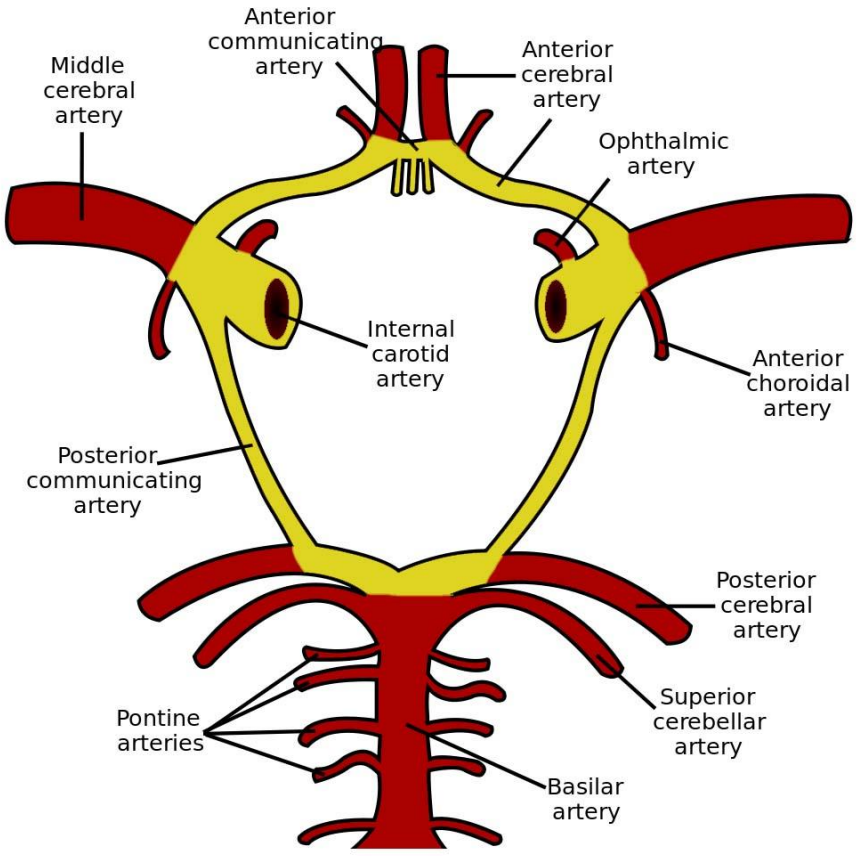
  4- 2 terminal branches: anterior cerebral and middle cerebral arteries.

★ **N.B.**: The petrous, cavernous and cerebral parts are called together the **intracranial part** of the internal carotid artery. It shows 6 bends to damp any sudden rise of pressure inside it.


Cerebral part
Cavernous part
Petrous part
Cervical part
Internal carotid artery
Cavernous sinus
Petrous part of temporal bone
External carotid artery
Upper border of thyroid cartilage
Common carotid artery


Glossopharyngeal nerve
Internal carotid artery
External carotid artery
Carotid glomus
Nerve of the carotid sinus
Carotid sinus
Common carotid artery
Carotid glomus


Trochlear nerve [IV]
Abducent nerve [VI]
Internal carotid artery
Oculomotor nerve [III]
Pituitary gland
Dura mater
Diaphragma sellae
Sphenoidal (paranasal) sinus
Cavernous (venous) sinus
Ophthalmic division of trigeminal nerve [V1]
Maxillary division of trigeminal nerve [V2]


Anterior communicating artery
Middle cerebral artery
Anterior cerebral artery
Ophthalmic artery
Internal carotid artery
Anterior choroidal artery
Posterior communicating artery
Posterior cerebral artery
Superior cerebellar artery
Pontine arteries
Basilar artery

Internal Jugular Vein(IJV)

★ It **begins** at the **jugular foramen** as a continuation of the **sigmoid sinus**. The right vein is usually larger than the left one.

★ It **ends** below by **joining** the **subclavian** vein to form the **brachiocephalic** vein behind the medial end of clavicle.

★ At its **upper and lower ends,** it forms the **superior and inferior bulbs**. The superior bulb is fixed to the margins of the jugular foramen.

★ It descends inside the **carotid sheath** :

a- **At the base of the skull** it lies posterior to ICA with the last 4 cranial nerves in between.

b- **Away from the skull** it lies lateral to the internal and common carotid arteries and vagus nerve.

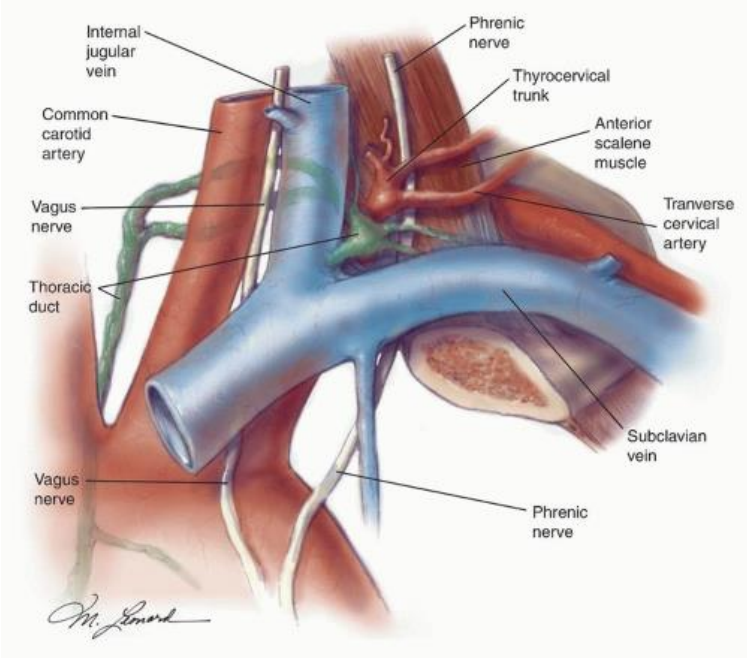
★ **Surface anatomy:**

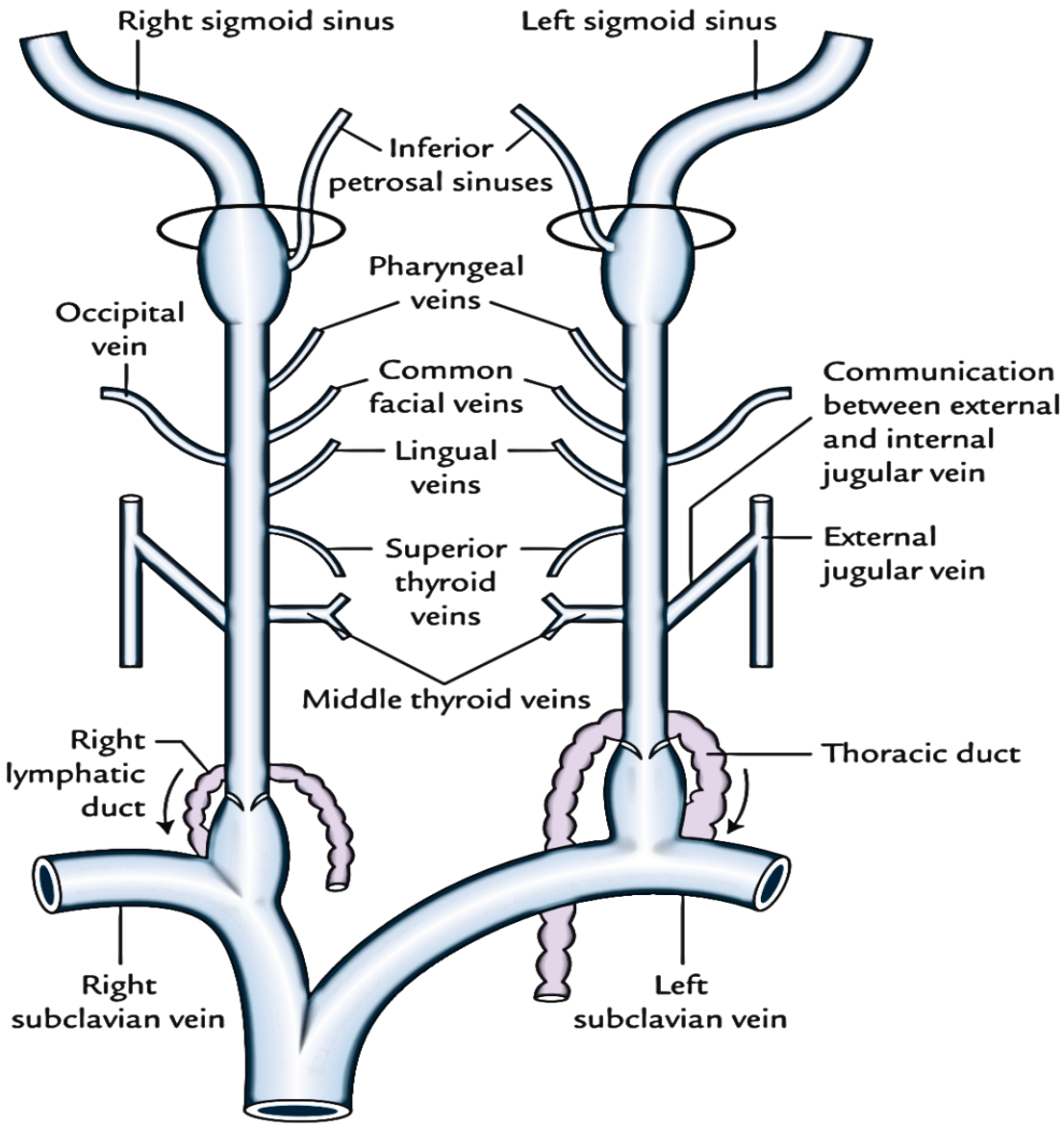
- A line is drawn from sternoclavicular joint till point between mastoid process and angle of mandible.
- The inferior bulb is just deep to the interval between sternal and clavicular heads of sternomastoid. This a landmark for insertion of **central venous catheter**.

★ **Tributaries:** From above downwards:

1. Inferior petrosal sinus.
2. Pharyngeal veins.
3. Common facial vein.
4. Lingual vein.
5. Superior thyroid vein.
6. Middle thyroid vein.
7. Occipital vein.

Ends of IJV


Internal jugular vein
Phrenic nerve
Thyrocervical trunk
Common carotid artery
Anterior scalene muscle
Vagus nerve
Tranverse cervical artery
Thoracic duct
Subclavian vein
Vagus nerve
Phrenic nerve


Right sigmoid sinus
Left sigmoid sinus
Inferior petrosal sinuses
Pharyngeal veins
Occipital vein
Common facial veins
Communication between external and internal jugular vein
Lingual veins
External jugular vein
Superior thyroid veins
Middle thyroid veins
Right lymphatic duct
Thoracic duct
Right subclavian vein
Left subclavian vein

★**Relations:**

I) Anterior:

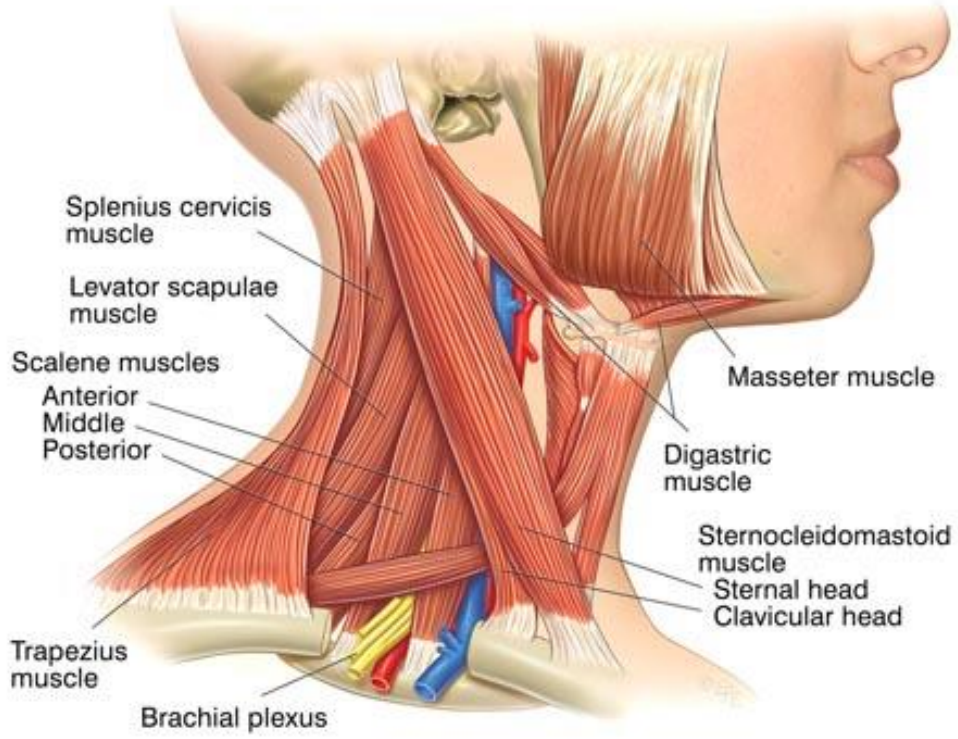
1. **Muscles:** Sternomastoid, posterior belly of digastric with stylohyoid on its upper border and inferior belly of omohyoid muscle.
2. 2 small **arteries** related to posterior belly of digastric muscle (occipital and posterior auricular).
3. **Styloid apparatus**.
4. Posteromedial surface of **parotid gland**.
5. **Spinal accessory** nerve crosses its upper part.
6. **Anterior jugular vein** crosses its lower part.
7. **Deep cervical lymph nodes** along the whole length of IJV.

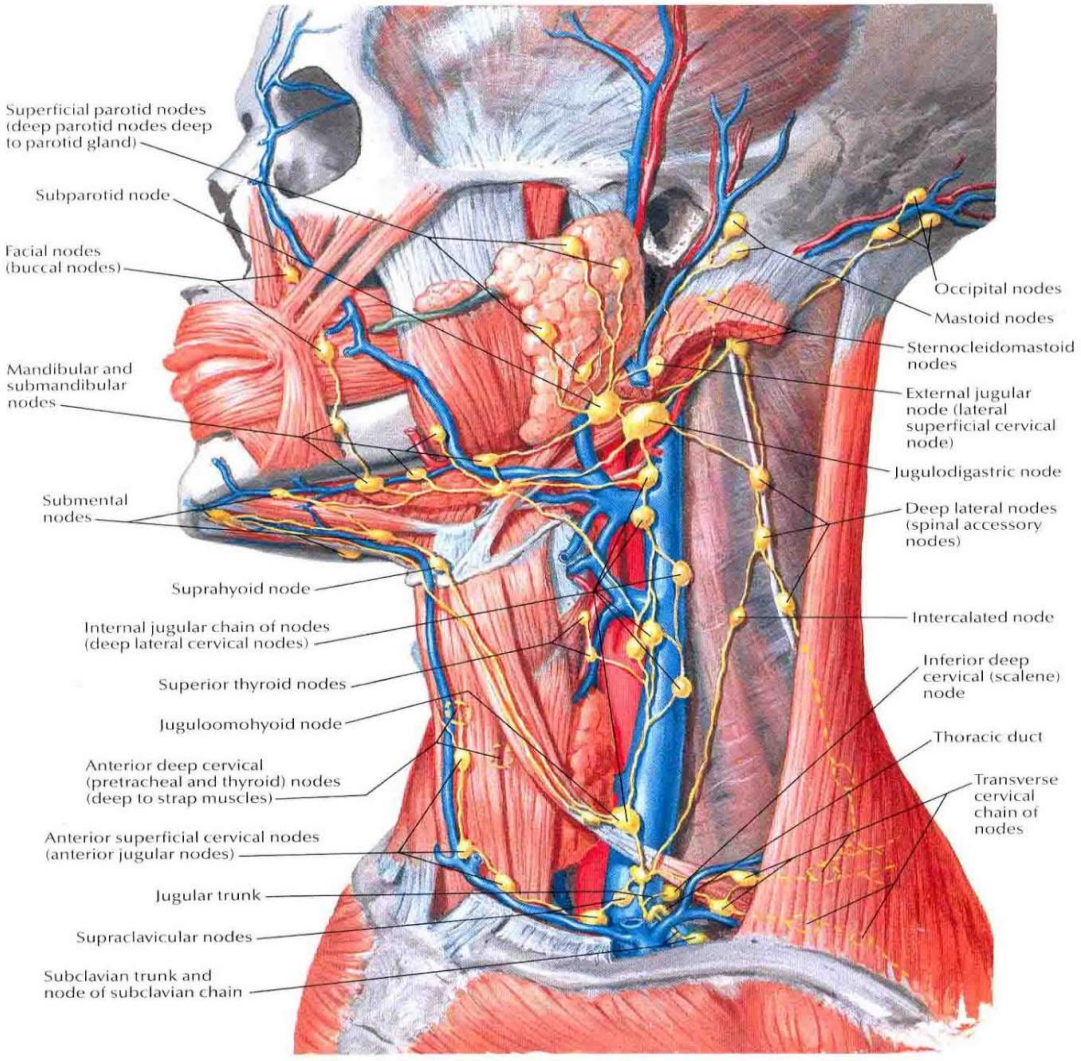
II) Posterior:

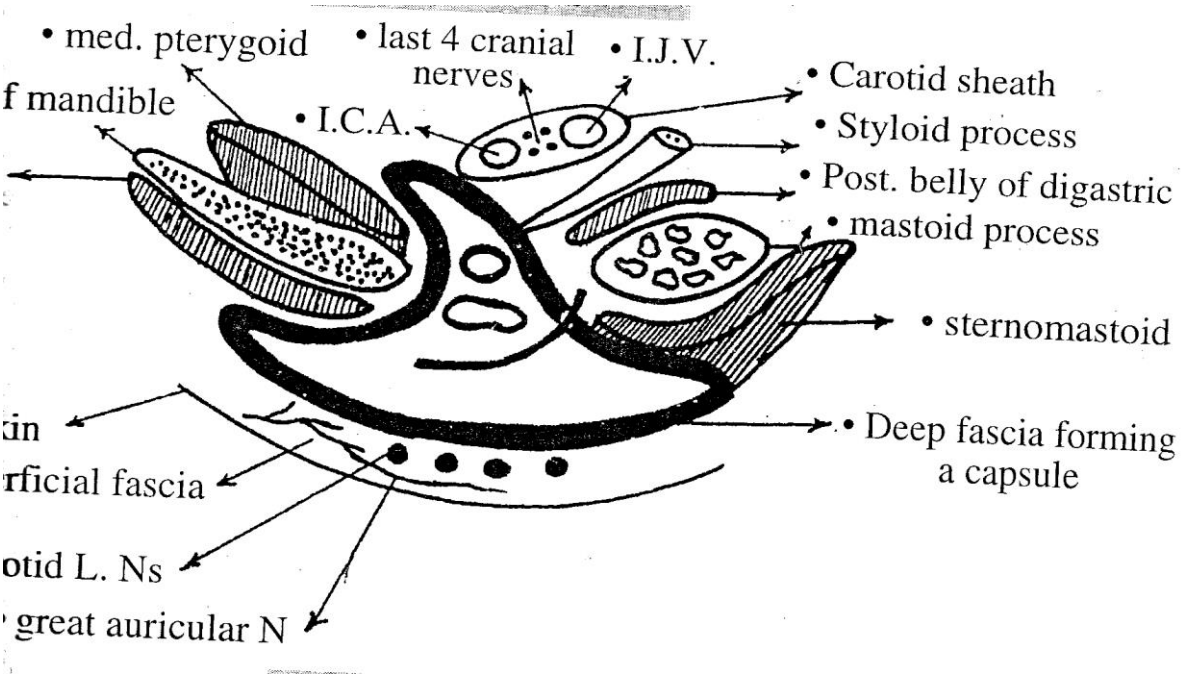
1. Transverse process of **cervical vertebrae**.
2. **Scalenus anterior** muscle.
3. **Phrenic** nerve.
4. First part of **subclavian artery** & **thyrocervical trunk**.
5. **Thoracic duct** (on the left side only).

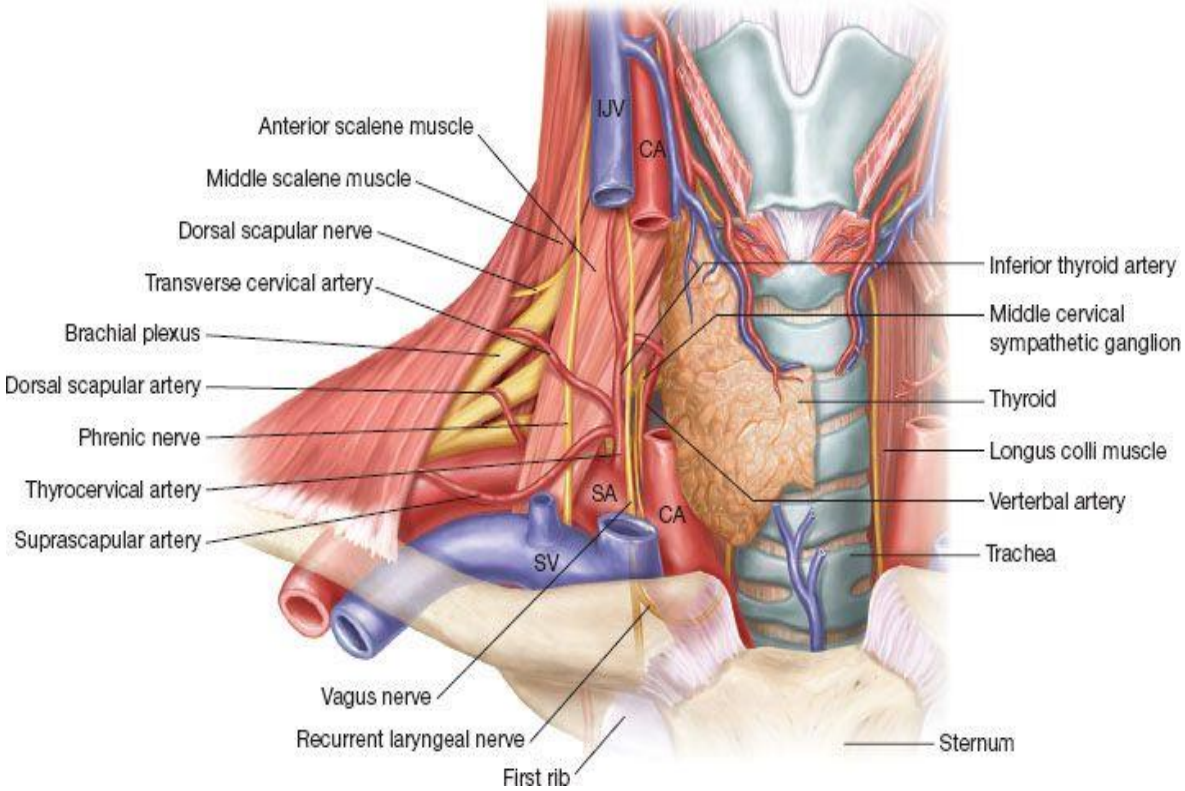
III) Relations in the carotid sheath:

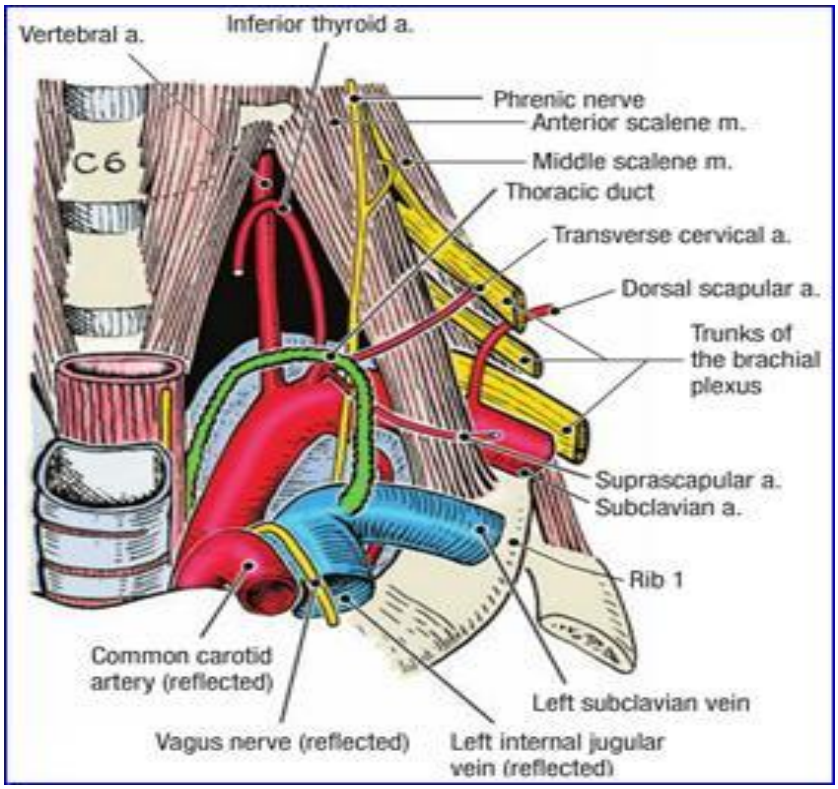
1. **At the base of skull:** IJV lies behind ICA with the last 4 cranial nerves in between.
2. **Away from the base of skull:** IJV is lateral to ICA & CCA with vagus nerve in between and behind them.

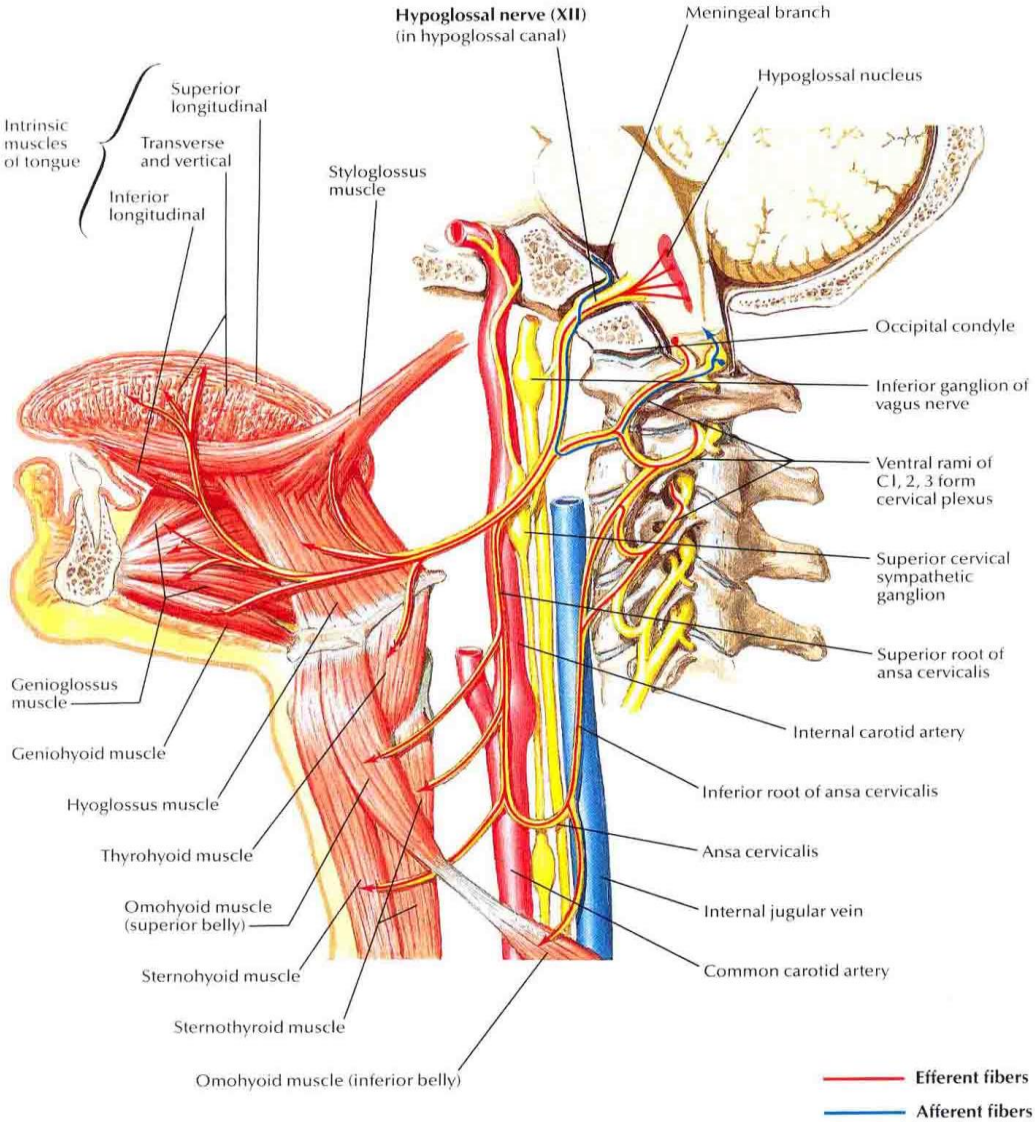

Splenius cervicis muscle
Levator scapulae muscle
Scalene muscles
Anterior
Middle
Posterior
Masseter muscle
Digastric muscle
Sternocleidomastoid muscle
Sternal head
Clavicular head
Trapezius muscle
Brachial plexus


Superficial parotid nodes (deep parotid nodes deep to parotid gland)
Subparotid node
Facial nodes (buccal nodes)
Mandibular and submandibular nodes
Submental nodes
Suprahyoid node
Internal jugular chain of nodes (deep lateral cervical nodes)
Superior thyroid nodes
Juguloomohyoid node
Anterior deep cervical (pretracheal and thyroid) nodes (deep to strap muscles)
Anterior superficial cervical nodes (anterior jugular nodes)
Jugular trunk
Supraclavicular nodes
Subclavian trunk and node of subclavian chain
Occipital nodes
Mastoid nodes
Sternocleidomastoid nodes
External jugular node (lateral superficial cervical node)
Jugulodigastric node
Deep lateral nodes (spinal accessory nodes)
Intercalated node
Inferior deep cervical (scalene) node
Thoracic duct
Transverse cervical chain of nodes


• med. pterygoid
• last 4 cranial nerves
• I.J.V.
f mandible
• I.C.A.
• Carotid sheath
• Styloid process
• Post. belly of digastric
• mastoid process
• sternomastoid
in
rficial fascia
otid L. Ns
great auricular N
• Deep fascia forming a capsule


Anterior scalene muscle
Middle scalene muscle
Dorsal scapular nerve
Transverse cervical artery
Brachial plexus
Dorsal scapular artery
Phrenic nerve
Thyrocervical artery
Suprascapular artery
IJV
CA
SA
CA
SV
Vagus nerve
Recurrent laryngeal nerve
First rib
Inferior thyroid artery
Middle cervical sympathetic ganglion
Thyroid
Longus colli muscle
Verterbal artery
Trachea
Sternum


Vertebral a.
Inferior thyroid a.
Phrenic nerve
Anterior scalene m.
C6
Middle scalene m.
Thoracic duct
Transverse cervical a.
Dorsal scapular a.
Trunks of the brachial plexus
Suprascapular a.
Subclavian a.
Rib 1
Common carotid artery (reflected)
Left subclavian vein
Vagus nerve (reflected)
Left internal jugular vein (reflected)


Hypoglossal nerve (XII) (in hypoglossal canal)
Meningeal branch
Hypoglossal nucleus
Intrinsic muscles of tongue
Superior longitudinal
Transverse and vertical
Inferior longitudinal
Styloglossus muscle
Occipital condyle
Inferior ganglion of vagus nerve
Ventral rami of C1, 2, 3 form cervical plexus
Superior cervical sympathetic ganglion
Superior root of ansa cervicalis
Genioglossus muscle
Geniohyoid muscle
Internal carotid artery
Inferior root of ansa cervicalis
Hyoglossus muscle
Thyrohyoid muscle
Ansa cervicalis
Omohyoid muscle (superior belly)
Internal jugular vein
Sternohyoid muscle
Common carotid artery
Sternothyroid muscle
Omohyoid muscle (inferior belly)
Efferent fibers
Afferent fibers