

## ANTERIOR TRIANGLE

### CAROTID\_TRIANGLE (LE)

#### Boundaries:

##### **Anterior & Above-**

Posterior belly of digastric and stylohyoid muscle

##### **Anterior & Below-**

Superior belly of omohyoid

##### **Posteriorly**

Sternocleidomastoid

##### **Floor-**

Thyrohyoid,

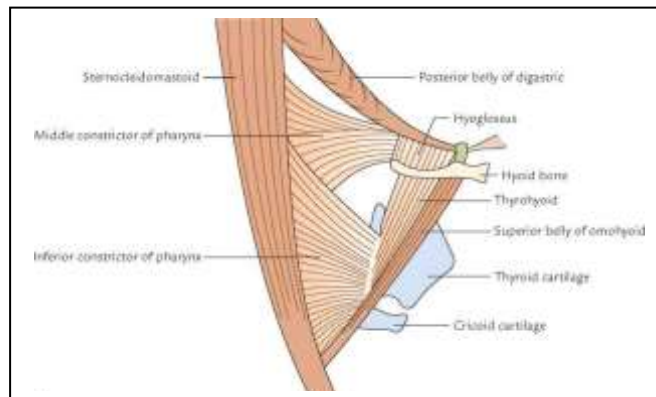
Hyoglossus,

Inferior constrictor

Middle constrictor

##### **Roof-**

Skin, superficial fascia, platysma, investing layer of deep cervical fascia.

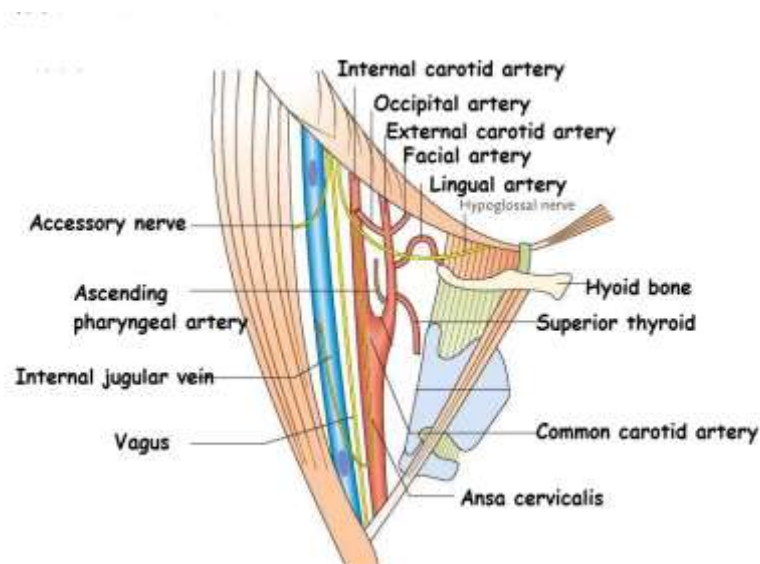


#### Contents of the carotid triangle:

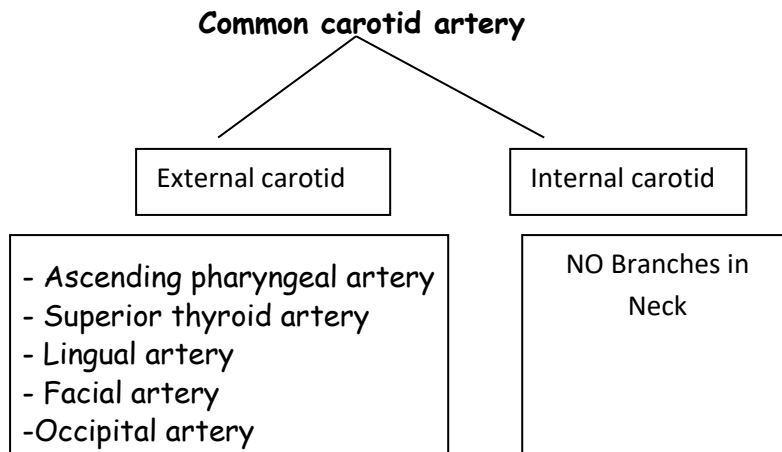
Arteries

Veins

Nerves



## Arteries:



## Veins:

Internal jugular vein and its tributaries

## Nerves:

Part of spinal accessory,  
Hypoglossal nerve,  
Vagus,  
Cervical sympathetic trunk

## CAROTID SINUS (SE)

Carotid sinus is a fusiform dilatation involving bifurcation of common carotid artery and internal carotid artery (beginning part).

In this region, wall of the artery is thinner and more elastic.

It receives sinus branch from glossopharyngeal nerve, vagus and from sympathetic trunk.

Carotid sinus acts as Baroreceptor.

It controls the intracranial blood pressure.

Stimulation of the carotid sinus produces reflex fall of blood pressure and slowing of heart.

### Carotid sinus syndrome:

Sudden attacks of syncope and slowing of heart beat from rotation of the head are observed in patients with hypersensitive carotid sinus.

## BRANCHES OF EXTERNAL CAROTID ARTERY: (SE)

### Branch from medial aspect:

Ascending pharyngeal artery

### Branch from anterior aspect

Superior thyroid artery

Lingual artery

Facial artery

### Branch from posterior aspect:

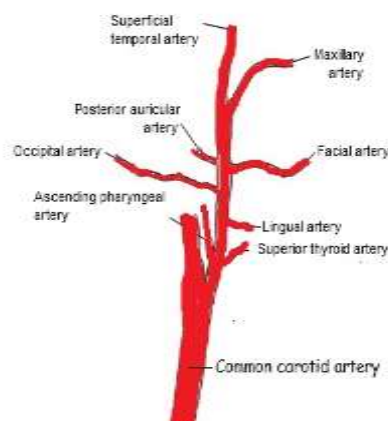
Occipital artery

Posterior auricular artery

### Terminal branches:

Maxillary artery

Superficial temporal artery



## LINGUAL ARTERY (SE)

Lingual artery is the principal artery of the tongue.

### Origin:

It arises as a branch of external carotid artery in the neck.

### Course:

Hyoglossus muscle divides the artery into 3 parts.

#### First part:

Extends from its origin up to Hyoglossus muscle. Crossed superficially by hypoglossal nerve.

Present in the carotid triangle.

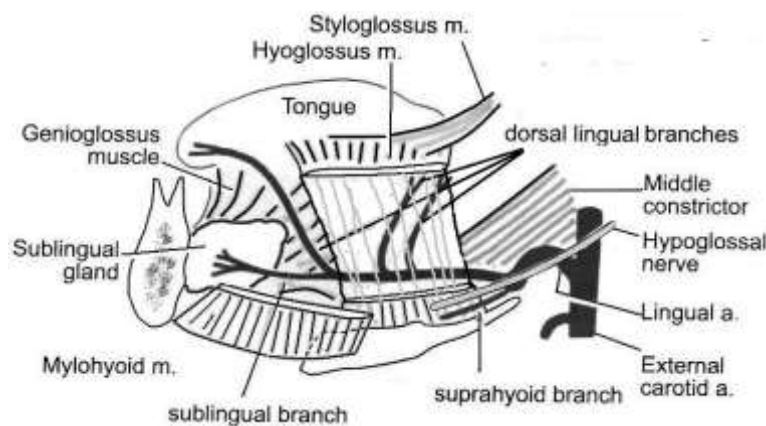
#### Second part:

Passes deep to the hyoglossus muscle.

#### Third part:

First ascends along the anterior border of hyoglossus muscle.

runs forwards beneath mucous membrane of undersurface of tongue. Lies on either side of frenulum linguae.



### Branches:

**First part:** suprahyoid branch

**Second part:** dorsal lingual arteries - 3 to 4 arteries, supply dorsal aspect of tongue, tonsil & soft palate.

**Third part:** sublingual artery

## **FACIAL ARTERY (SE)**

It is the principal artery of the face

### **Origin:**

It is a branch of external carotid artery

Arises at the level of superior horn of hyoid bone.

### **Course:**

Can be described under 2 parts -  
cervical part and facial part

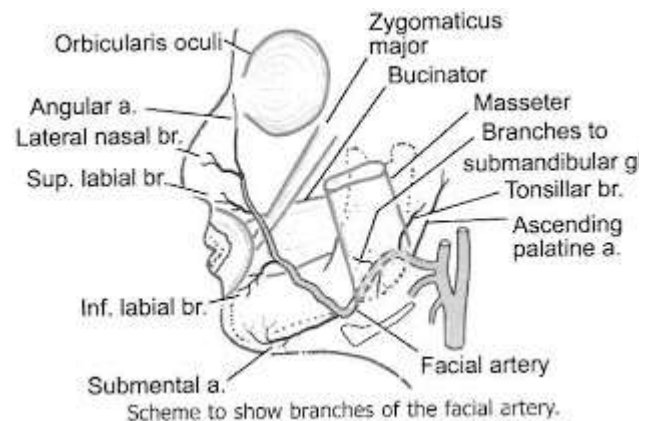
#### **Cervical part:**

From its origin it passes deep to posterior belly of digastric muscle and stylohyoid muscle.

Lodges in a groove on the posterior surface of submandibular gland

Appears beneath ramus of mandible and presents a loop with upward convexity.

Winds around the lower border of mandible and enters face at antero-inferior angle of masseter muscle.



#### **Facial part:**

Facial part of the artery has got a tortuous course

Passes upwards and forwards to a point 1.25cm lateral to the angle of mouth.

Ascends along lateral side of nose

At the medial angle of eye anastomoses with dorsal nasal branch of ophthalmic artery.

Facial vein lies behind the facial artery.

#### **Branches:**

From cervical part-

Ascending palatine artery

Tonsillar artery

Glandular branches

Submental artery

From the facial part-

Inferior labial artery

Superior labial artery

Lateral nasal artery.

## **FACIAL ARTERY - CERVICAL PART (SA)**

It is the principal artery of the face

### **Origin:**

It is a branch of external carotid artery

Arises in the carotid triangle.

Course of the artery: 2 parts - cervical & facial part.

### **Cervical part of facial artery:**

From its origin it passes deep to posterior belly of digastric muscle and stylohyoid muscle.

Lodges in a groove on the posterior surface of submandibular gland

Appears beneath ramus of mandible and presents a loop with upward convexity.

Winds around the lower border of mandible and enters face at antero-inferior angle of masseter muscle.

### **Branches of facial artery from cervical part-**

Ascending palatine artery

Tonsillar artery

Glandular branches

Submental artery

## **BRANCHES OF FACIAL ARTERY (SA)**

Branches from cervical part of facial artery-

Ascending palatine artery

Tonsillar artery

Glandular branches

Submental artery

Branches from facial part of facial artery-

Inferior labial artery

Superior labial artery

Lateral nasal artery.

## **BRANCHES OF EXTERNAL CAROTID ARTERY (SA)**

Ascending pharyngeal artery

Superior thyroid artery

Lingual artery

Facial artery

Occipital artery

Posterior auricular artery

Maxillary artery

Superficial temporal artery

## ANSA CERVICALIS (SA)

### Formation and distribution:

#### Superior root - (Descendens hypoglossi)

Carries fibres from C1

#### Inferior root - (Descendens cervicalis)

Carries fibres from C2 & C3

Winds around internal jugular vein

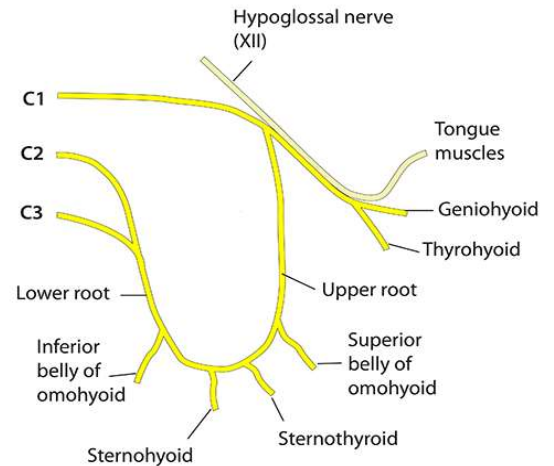
#### Loop (ansa) -

Lies in front of the carotid sheath

Lies at C6 vertebral level

#### **Muscles Supplied:**

sternohyoid,  
sternothyroid,  
inferior belly of omohyoid  
superior belly of omohyoid



## ANSA CERVICALIS - ROOT VALUE, DISTRIBUTION (SA)

#### Superior root - (Descendens hypoglossi)

Carries fibres from C1

#### Inferior root - (Descendens cervicalis)

Carries fibres from C2 & C3

Winds around internal jugular vein

#### Loop (ansa) -

Lies in front of the carotid sheath

Lies at C6 vertebral level

#### **Muscles Supplied:**

sternohyoid,  
sternothyroid,  
inferior belly of omohyoid  
superior belly of omohyoid

## **CAROTID SHEATH (SE)**

Carotid sheath -Tubular investment of the deep cervical fascia

**Extent:** Carotid sheath **extends** from the base of the skull to the arch of aorta.

### **Contents of the sheath**

Common carotid artery  
Internal carotid artery  
Internal jugular vein  
Vagus nerve

### **Relative positions of the contents**

Artery- medial,  
Vein - lateral  
Vagus - between and behind the vessels

### **Formation of carotid sheath**

Anterior wall- pretracheal fascia  
Posterior wall - prevertebral fascia

### **Relation of carotid sheath**

Anterior wall - Related to ansa cervicalis  
Posterior wall - cervical sympathetic chain.

### **Structures piercing the carotid sheath-**

External carotid artery  
Tributaries of internal jugular vein.  
9<sup>th</sup>, 11<sup>th</sup>, 12<sup>th</sup> cranial nerves,  
cervical br. of vagus nerve

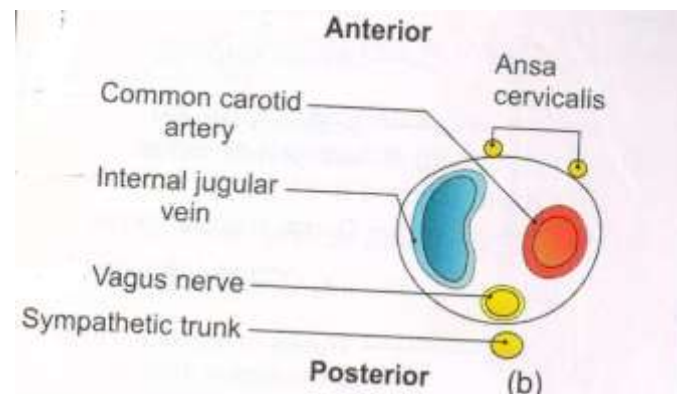
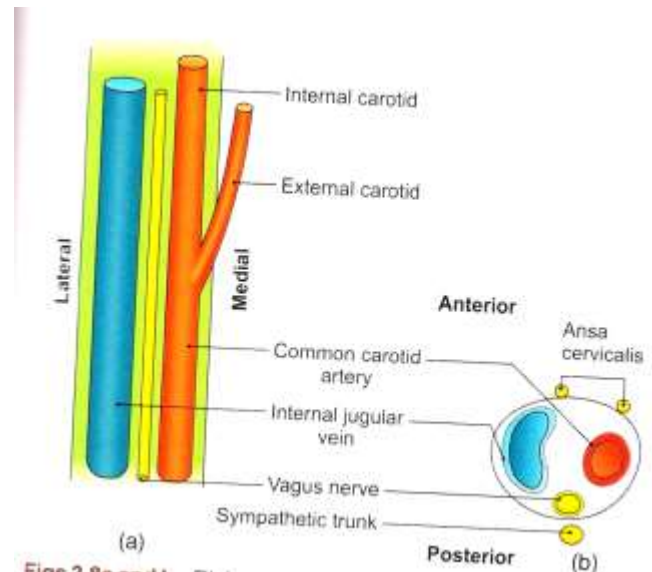
## **CONTENTS OF CAROTID SHEATH(SA)**

### **Contents of the sheath**

Common carotid artery  
Internal carotid artery  
Internal jugular vein  
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### **Relative positions of the contents**

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Vein - lateral  
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## BOUNDARIES OF MUSCULAR TRIANGLE (SA)

<b>Anteriorly:</b>	Anterior median line of the neck extending from hyoid bone to suprasternal notch
<b>Behind &amp; above</b>	Superior belly of omohyoid
<b>Behind &amp; below</b>	Lower part of sternocleidomastoid
<b>Floor</b>	Sternohyoid and sternothyroid muscles

## CONTENTS OF SUPRA STERNAL SPACE OF BURNS (SA)

It is triangular space above manubrium sterni.

Formed by splitting of investing layer of deep cervical fascia and are attached to the anterior and posterior borders of suprasternal notch.

### Contents:

Sternal head of sternocleidomastoid muscle

Jugular venous arch connecting anterior jugular veins of both sides.

Interclavicular ligament

Sometimes a lymph node

## DIGASTRIC TRIANGLE, SUBMENTAL TRIANGLE, SUBMANDIBULAR REGION

### SUBMENTAL TRIANGLE. (SE)

Lies below the chin.

#### **Boundaries:**

laterally by anterior bellies of digastric,

Base by the body of hyoid bone.

Apex lies at the chin

-Covered by skin, superficial fascia and investing fascia

-Floor-mylohyoid muscles.

-the median raphe

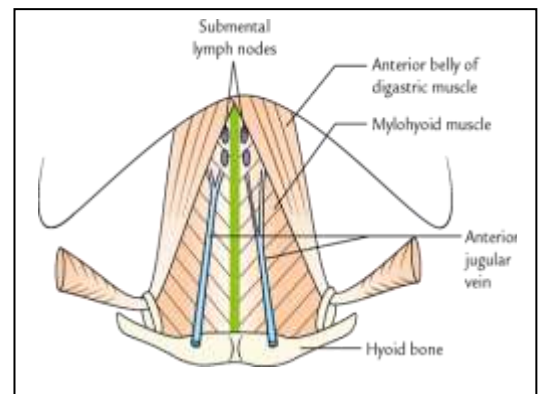
#### **Contents**

-anterior jugular veins.

-submental lymph nodes :

#### **Applied anatomy:**

-Sub mental lymph nodes drain the tip of tongue, anterior part of floor of mouth,  
Central part of lower lip and adjoining lips.



## DIGASTRIC TRIANGLE-BOUNDRIES AND CONTENTS (SE)

### **Boundaries:**

**Antero inferiorly**-anterior belly of digastric

**Postero inferiorly**- posterior belly of digastric & stylohyoid.



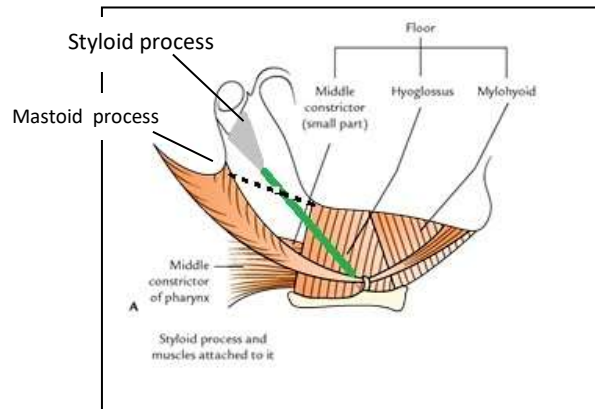
**Base** -base of the mandible & line joining the angle of mandible to the mastoid process.

**Roof** -skin,

-superficial fascia, platysma and investing fascia.

-deep fascia, splits to enclose the submandibular salivary gland.

**Floor** – mylohyoid, hyoglossus and middle constrictor of pharynx



## Contents.

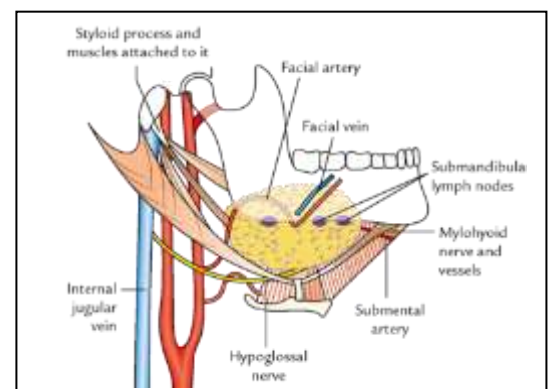
### Anterior part of the triangle.

- **Structures superficial to the mylohyoid.**

- superficial part of submandibular salivary gland.
- Facial vein
- Submandibular lymph nodes.
- Submental artery.
- Mylohyoid nerve and vessels.

### Structures superficial to hyoglossus.

- submandibular salivary gland.
- Intermediate tendon of the digastric and stylohyoid.
- Hypoglossal nerve



### Posterior part of the triangle.

#### Superficial structures:

- Lower part of the parotid gland.
- External carotid artery before it enters into the parotid gland.

#### Deep structures,

Passing between the external and internal carotid arteries.

- styloglossus.
- stylopharyngeus.

- glossopharyngeal nerve.
- Internal carotid artery.
- Internal jugular vein.
- vagus nerve

## **HYOGLOSSUS MUSCLE (SE)**

It is the muscle of the tongue.

### **origin:**

Whole length of greater cornua and lateral part of body of hyoid bone.

### **Insertion:**

Side of the tongue between styloglossus and inferior longitudinal muscle of tongue.

### **Nerve supply**

-Hypoglossal nerve.

### **Action**

- Depresses tongue
- makes dorsum convex.
- retracts the protruded tongue

## **STRUCTURES RELATED TO HYOGLOSSUS MUSCLE**

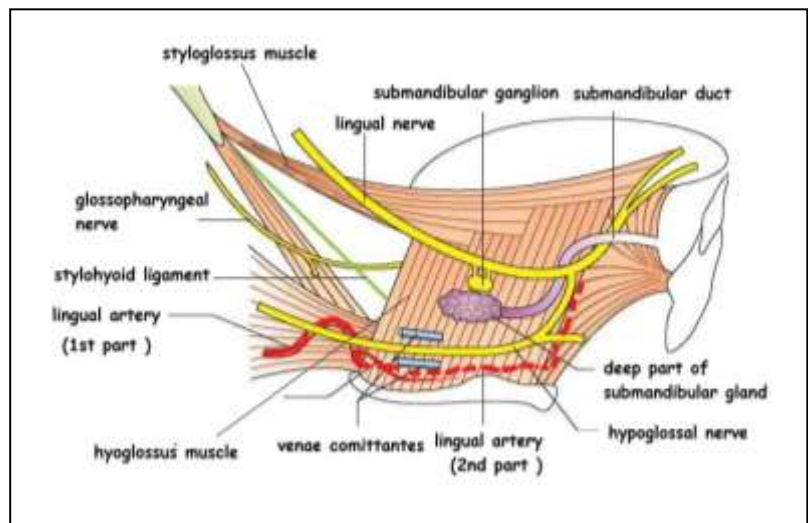
### **Relations of hyoglossus muscle:**

#### **Superficial relations:**

Styloglossus  
Lingual nerve  
Submandibular ganglion  
Submandibular gland & duct  
Hypoglossal nerve  
Veins accompanying lingual artery

#### **Deep relations :**

Glossopharyngeal nerve  
Stylohyoid ligament  
2<sup>nd</sup> part of lingual artery



## **DIGASTRIC MUSCLE (SA).**

### **Origin**

Anterior belly-digastric fossa of mandible .  
Posterior belly-mastoid notch of temporal bone.

### **Insertion**

-intermediate tendon, held by a fibrous pulley to the hyoid bone

### **Nerve supply**

- nerve to mylohyoid
- facial nerve.

### **Actions**

- Depresses mandible
- Elevates hyoid bone.

## MYLOHYOID MUSCLE.(SA)

Flat, triangular muscle.

### Origin

Mylohyoid line of mandible.

### Insertion.

Posterior fibers- body of the hyoid bone.

middle and anterior fibers - median raphe between mandible and hyoid bone.

### Nerve supply.

Nerve to mylohyoid.

### Action.

Elevates floor of mouth in first stage of deglutition.

Helps in depression of mandible and elevation of hyoid bone.

## SUBMANDIBULAR GANGLION (SE)

It is a Parasympathetic peripheral ganglion.

Relay station for secretomotor fibers to the submandibular and sublingual salivary glands.

**Situation:**It lies on the hypoglossal muscle.

Above the deep part of submandibular salivary gland.

Suspended from the lingual nerve by two roots.

Topographically it is related to the lingual nerve.

Functionally related to chordatympani branch of the facial nerve.

### Roots.

1.Sensory root.

2.Sympathetic root.

3.Secretomotor root.

**Sensory root:** is through the lingual nerve

**Sympathetic root:** is derived from the plexus around the facial artery

**Secretomotor root:**

Superior salivatory nucleus



Facial nerve



Chorda tympani nerve



Joins lingual nerve



Submandibular ganglion



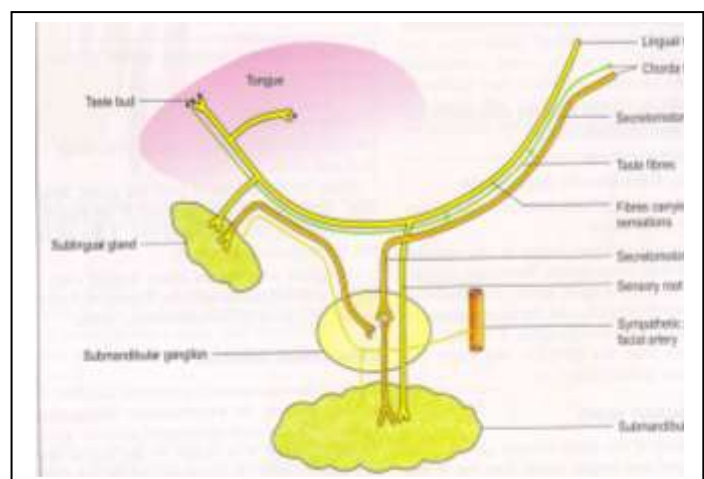
Relay



Postganglionic fibres



Submandibular gland and sublingual gland.



**Branches:**

Direct branches to the submandibular salivary gland.

To the sublingual gland through lingual nerve.

**SUBMANDIBULAR DUCT.(SA)**

It is 5cm long, thin walled duct.

Emerges at the anterior end of the deep part of the gland

It passes on the hyoglossus muscle between lingual nerve and hypoglossal nerve

Is crossed by the lingual nerve and turns medial to it.

It terminates into the floor of mouth on the summit of sublingual papillae at the base of the frenulum of the tongue.

**SECRETOMOTOR SUPPLY OF SUBMANDIBULAR GLAND (SA)**