# *Lymph drainage of Abdomen , Head and Neck*


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# * Lymphatic Drainage of the Anterior Abdominal Wall



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## A- Superficial lymphatic

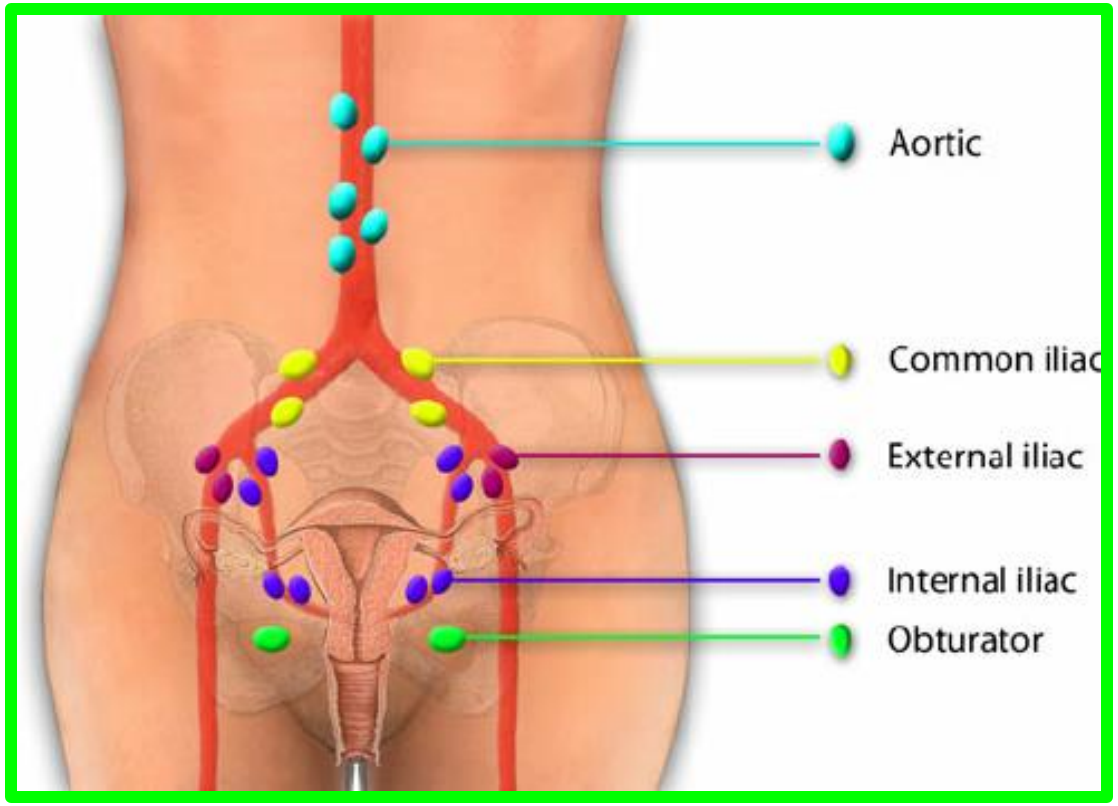
1- Above the umbilicus: they drain into the axillary lymph nodes.

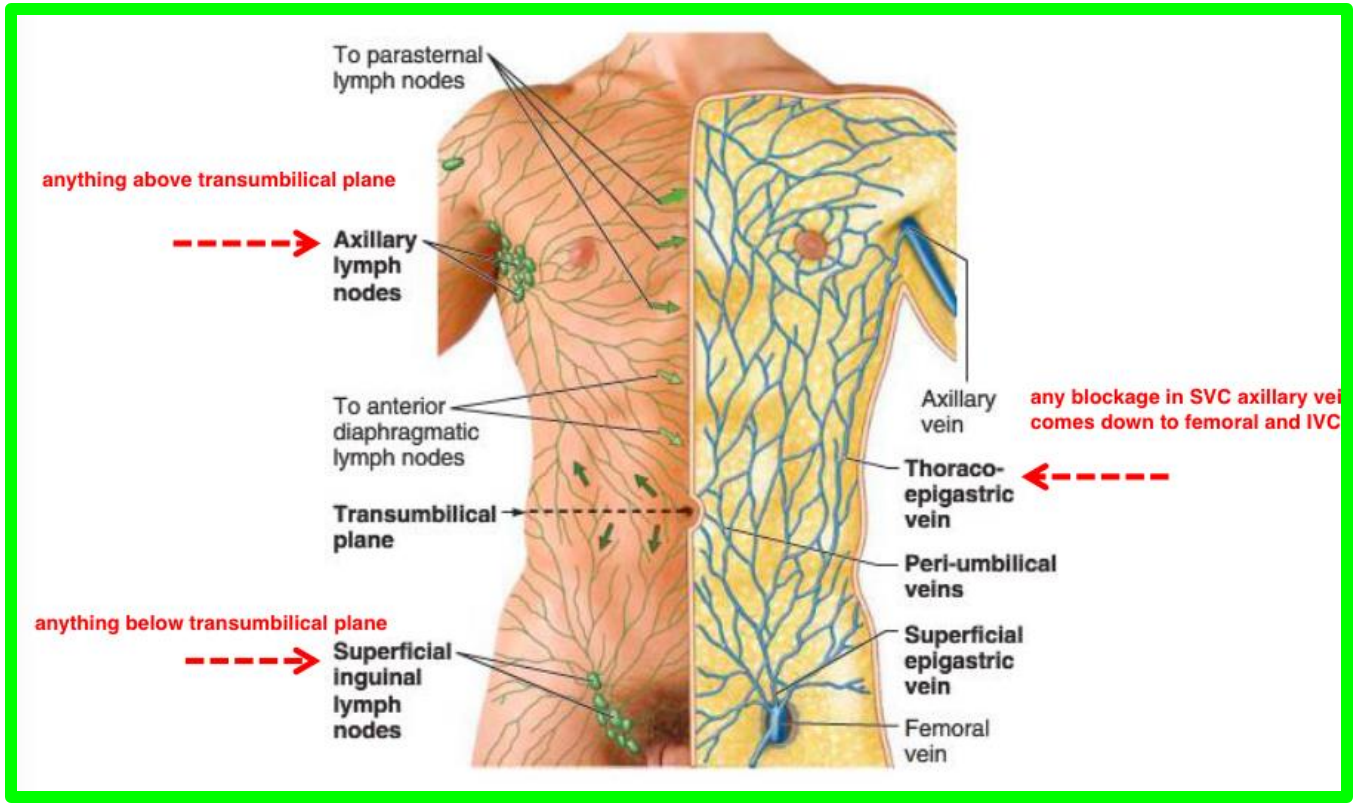
2- Below the umbilicus: they drain into the superficial inguinal lymph nodes.

## B- Deep lymphatic

1- Above the umbilicus: they drain into the parasternal lymph nodes.

2- Below the umbilicus: they drain into the external iliac Lymph nodes



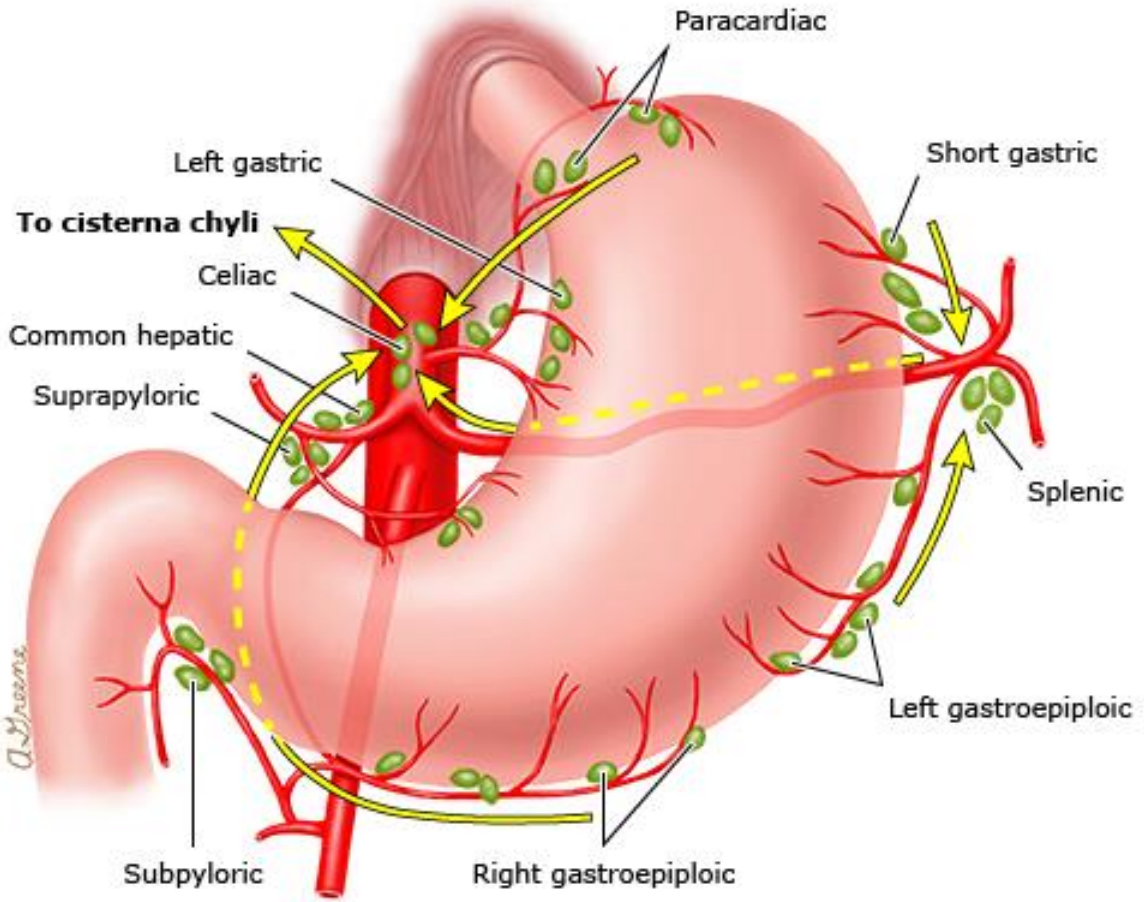



# * Lymph Drainage of Stomach



✓The lymph vessels follow the arteries into the left and right gastric nodes, the left *and* right gastroepiploic nodes, and the short gastric nodes.

✓ All lymph from the stomach eventually passes to the *celiac nodes* located around the root of the celiac artery on the posterior abdominal wall

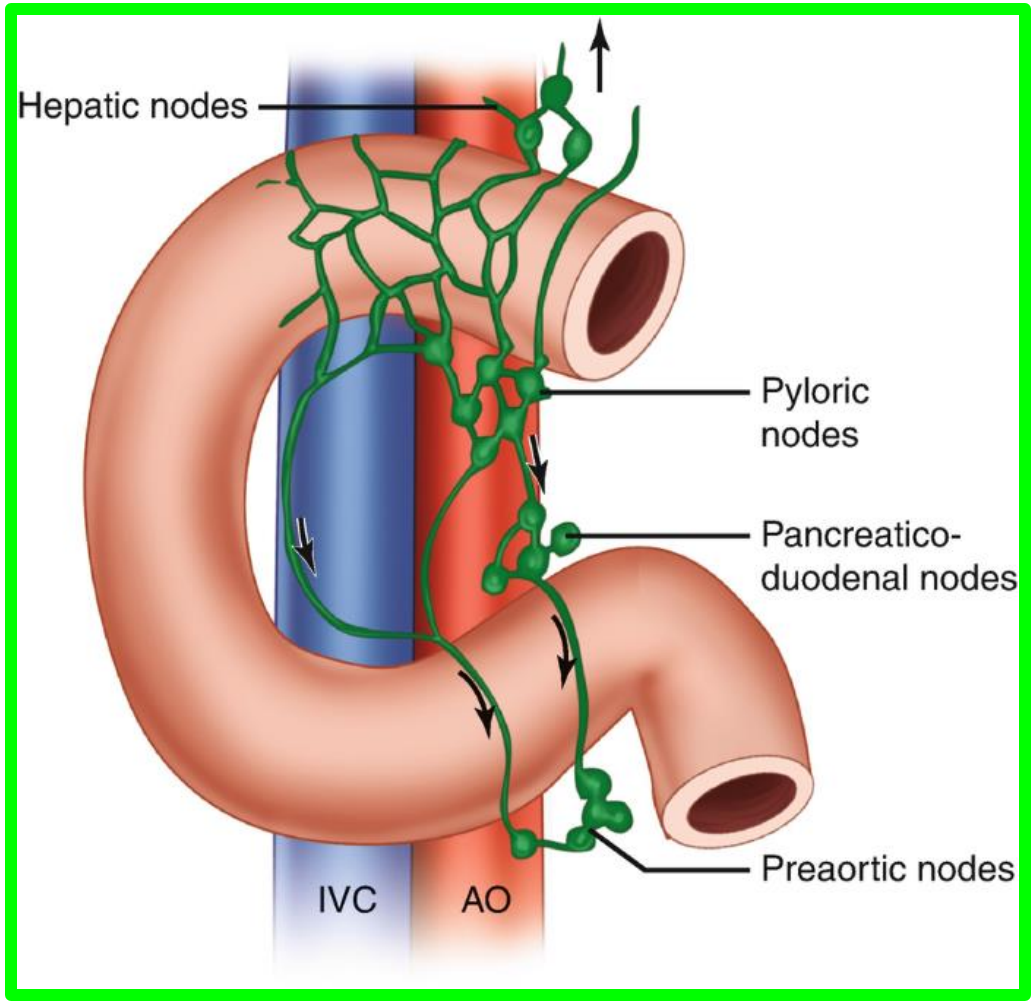


# * Lymphatic drainage of the duodenum

- **The upper part:** drains into **the hepatic lymph nodes**
- **The lower part:** drains into **the superior mesenteric lymph nodes**

The lymph vessels follow the arteries and drain upward via **pancreaticoduodenal nodes** to the **gastroduodenal nodes** and then to **the celiac nodes** and

Downward via **pancreaticoduodenal nodes** to the **superior mesenteric nodes** around the origin of the **superior mesenteric artery.**



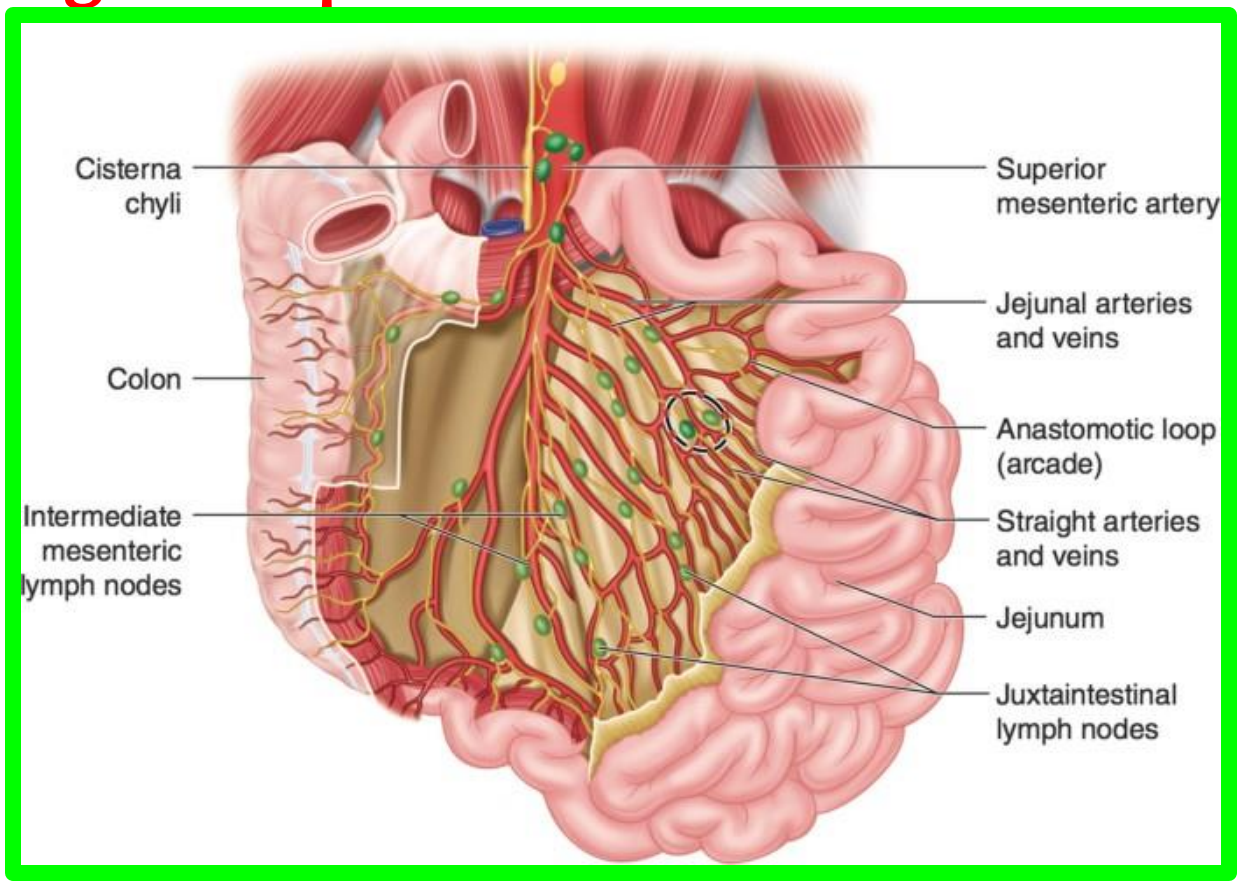
# * Lymphatic drainage of the Jejunum and Ileum

- The mesenteric lymph nodes are arranged into 3 groups:

A) Small and numerous lymph nodes close to the small intestine.

B)Larger and fewer lymph nodes along the jejunal and ileal vessels.

C) Larger and fewer lymph nodes along the superior mesenteric vessels



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# * Lymphatic drainage of the colon

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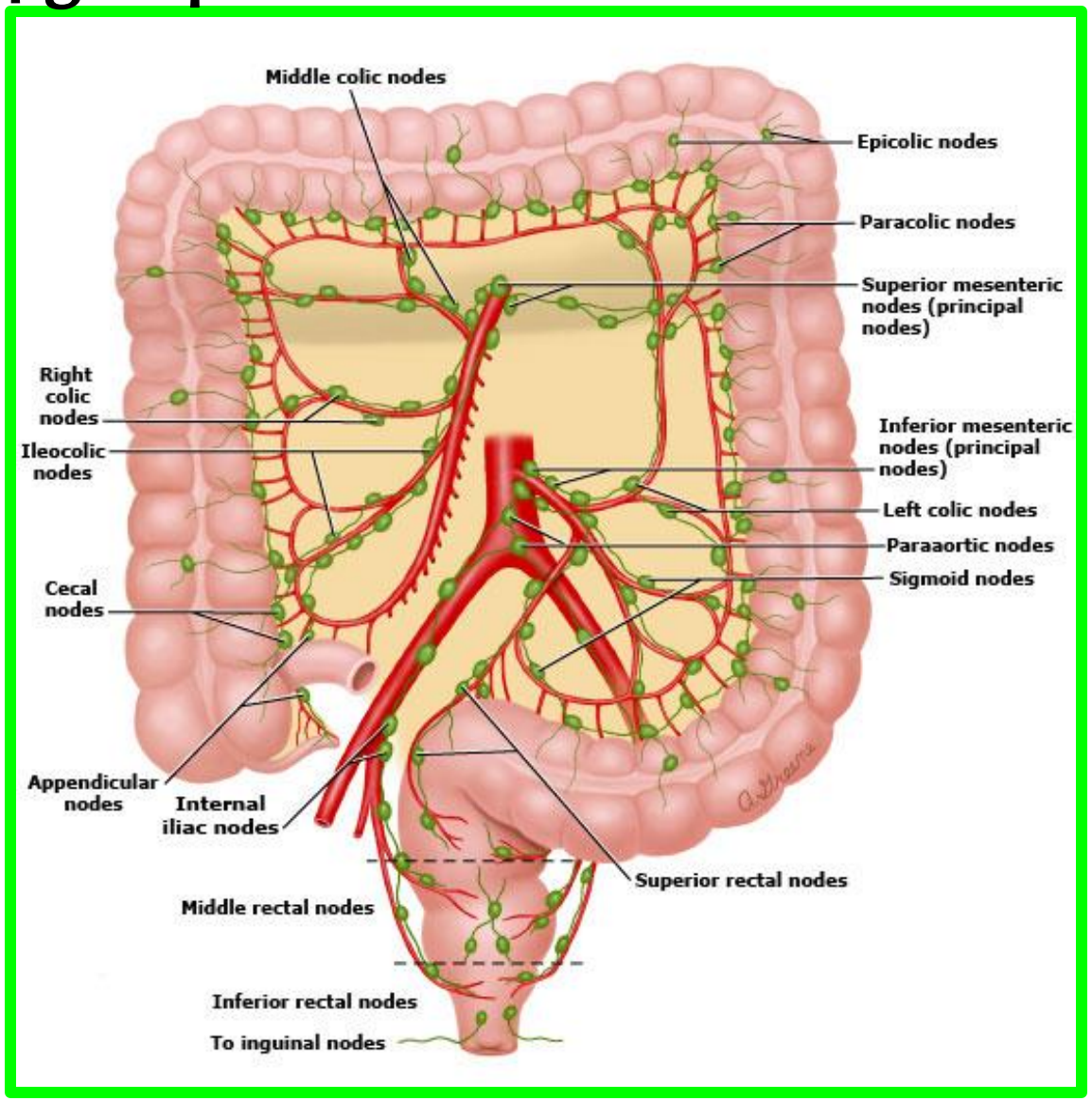
✓ The colic lymph nodes are arranged into 4 groups:

1- Epicolic lymph nodes: on the wall of the colon.

2- Paracolic lymph nodes: along the borders of the colon.

3- Intermediate colic lymph nodes: along the branches of the superior and inferior mesenteric vessels.

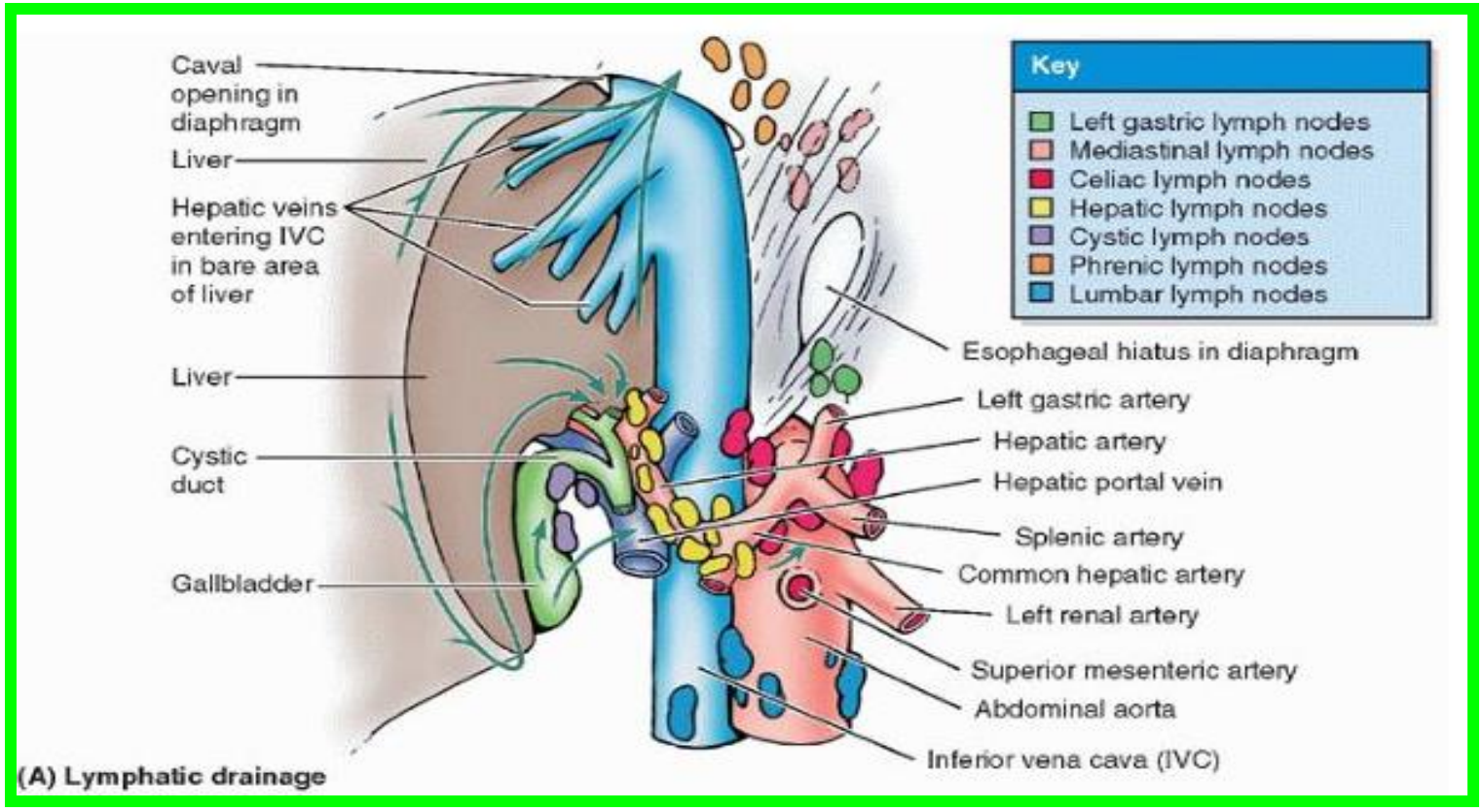
4- Terminal colic lymph nodes: along the superior and inferior mesenteric vessels.



# * Lymph Drainage of the liver



- ✓ The liver produces a large amount of lymph about one third to one half of all body lymph.
- ✓ The lymph vessels leave the liver and enter several lymph nodes in the porta hepatis.
- ✓ The efferent vessels pass to the celiac nodes.



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# * Lymph Drainage of the liver

## 1- Superficial lymphatic drain the whole surfaces of the liver and end into:

a- The lymph nodes around the terminal part of IVC.

b- Hepatic lymph nodes (along hepatic artery).

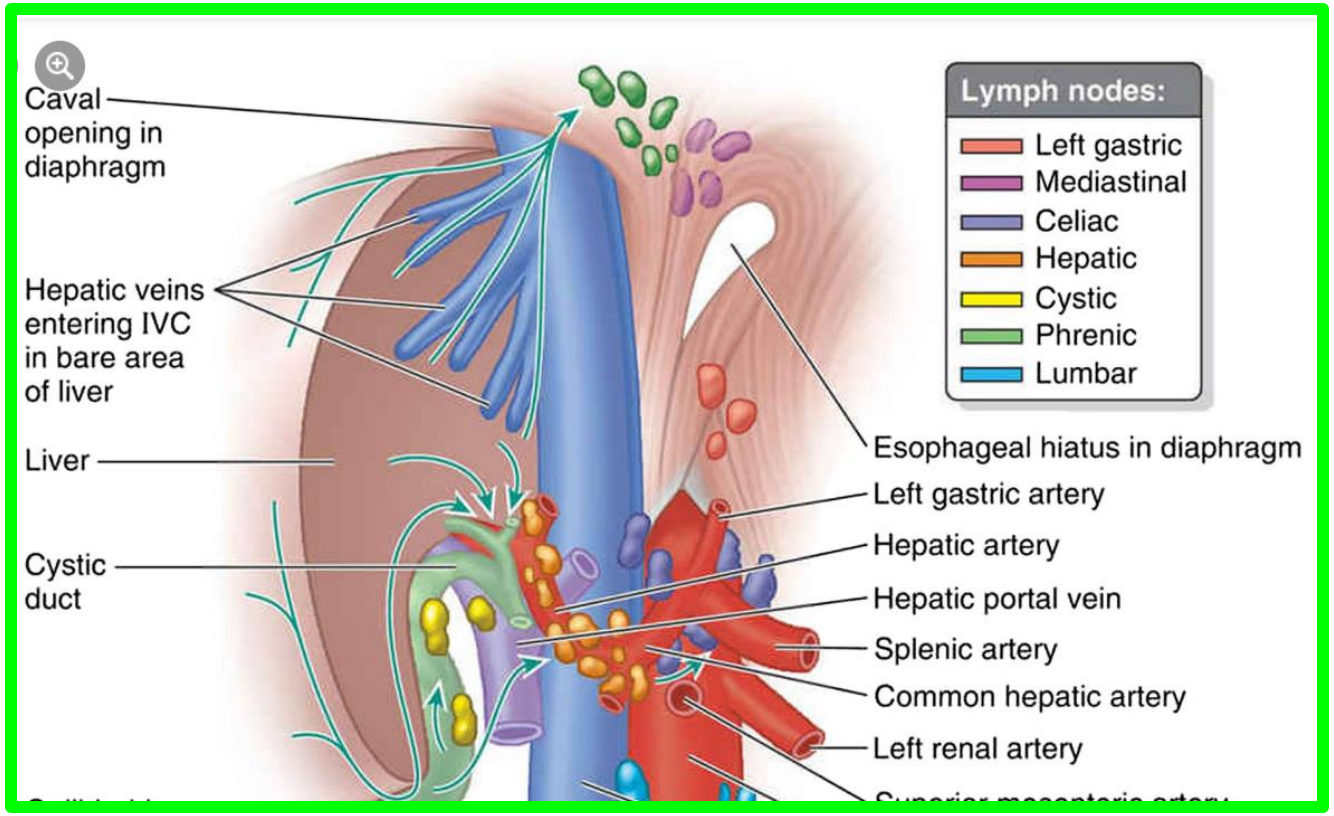
c- Para-cardiac group (around the lower part of esophagus).

d- Celiac lymph nodes (around the celiac trunk).

## 2-Deep lymphatics: divided into ascending and descending trunks

A. Ascending trunk end in the lymph nodes around the I.V.C.

B. Descending trunk end in the hepatic lymph nodes.

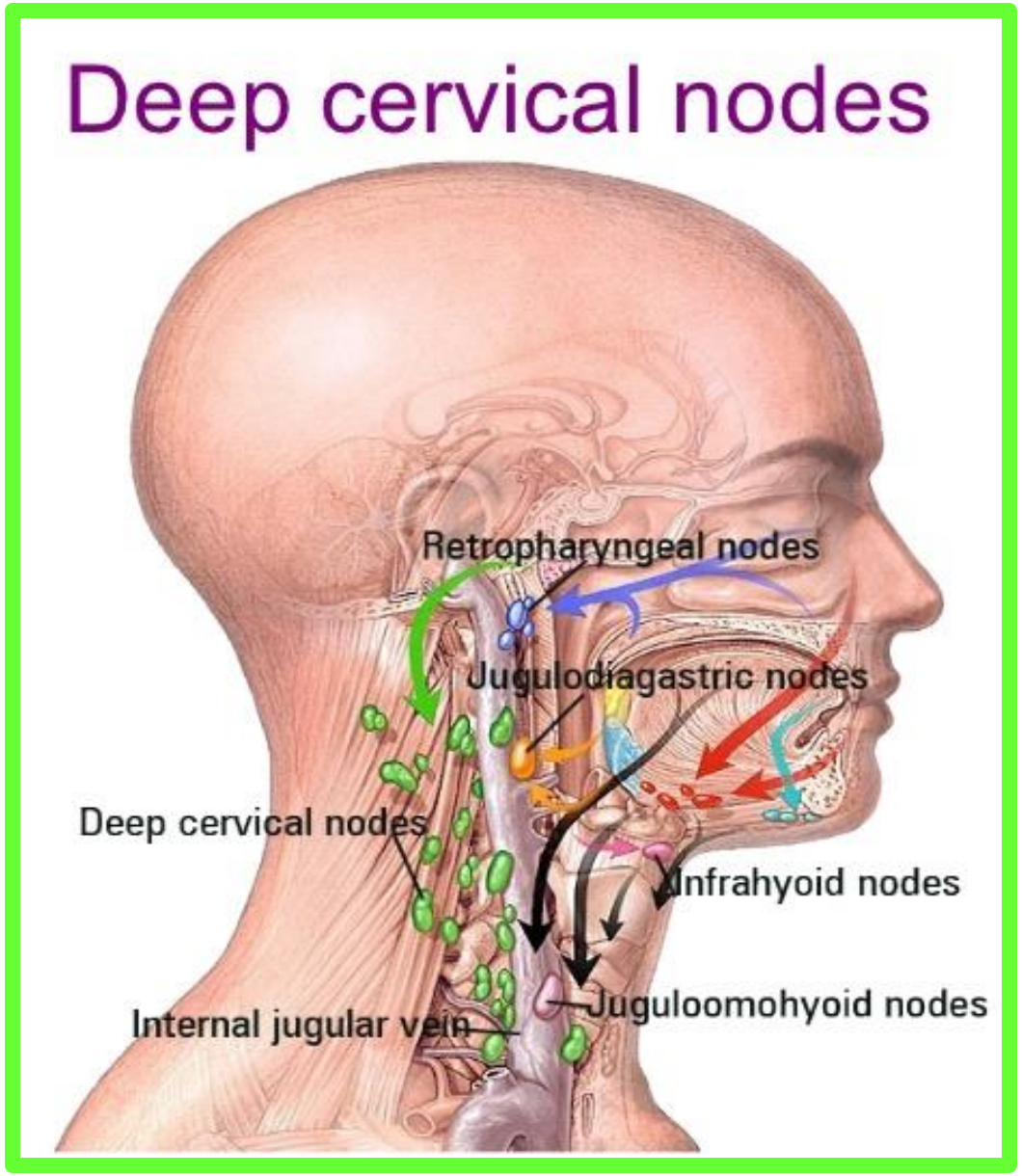


# Lymph drainage of head and neck

❖All the lymph drainage from the head and neck goes to the deep cervical nodes.

❖ They receive afferents from other lymph node groups in the head and neck as well as directly from organs in these regions.

❖Efferent from the deep cervical nodes form the jugular trunk which on the left drains into the thoracic duct and on the right into the right lymphatic duct.



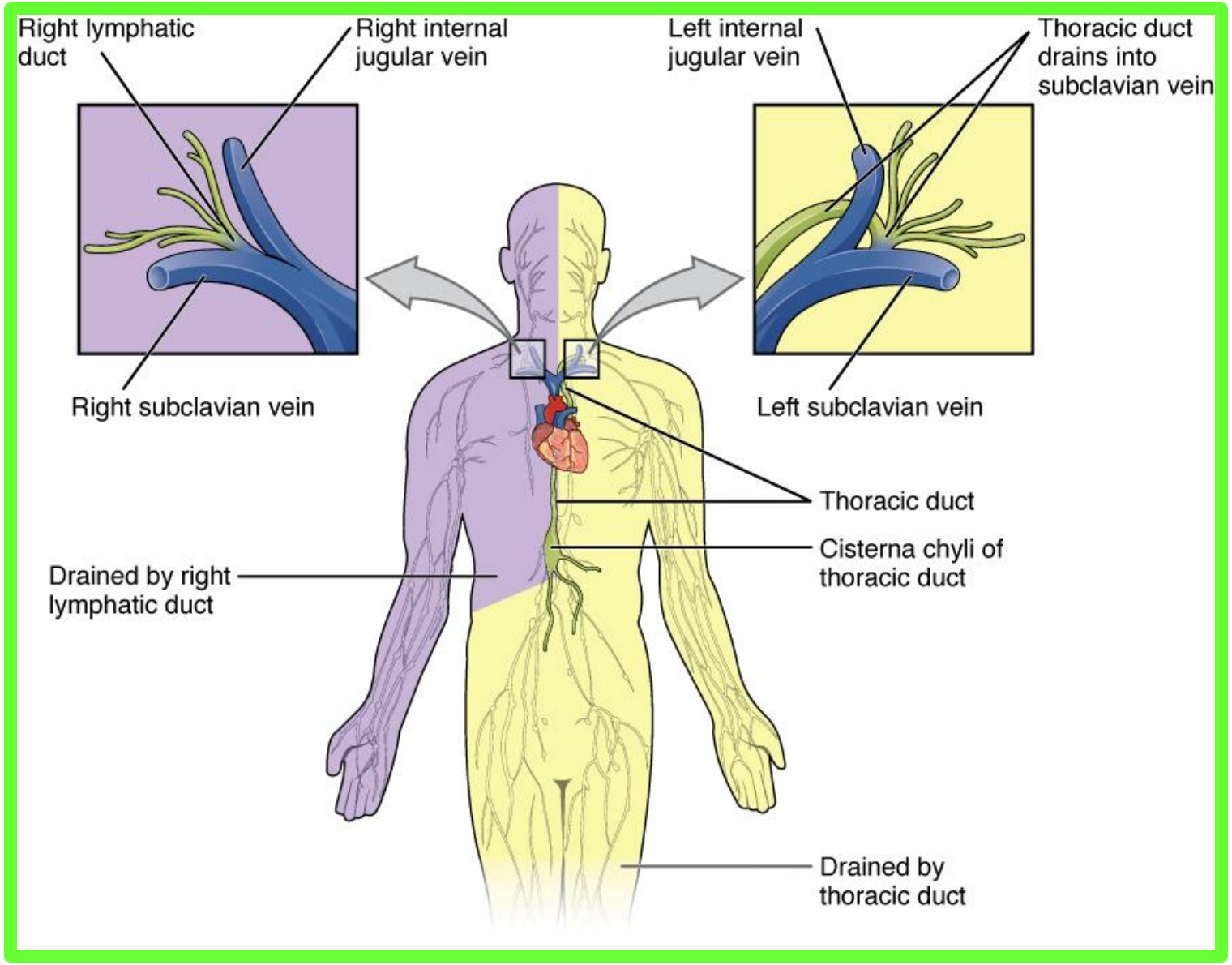
# Lymph drainage of head and neck



- The thoracic duct and
- The right lymphatic duct

usually empty into the junction of the subclavian and internal jugular veins on their respective sides;

Otherwise they open into either of these veins.

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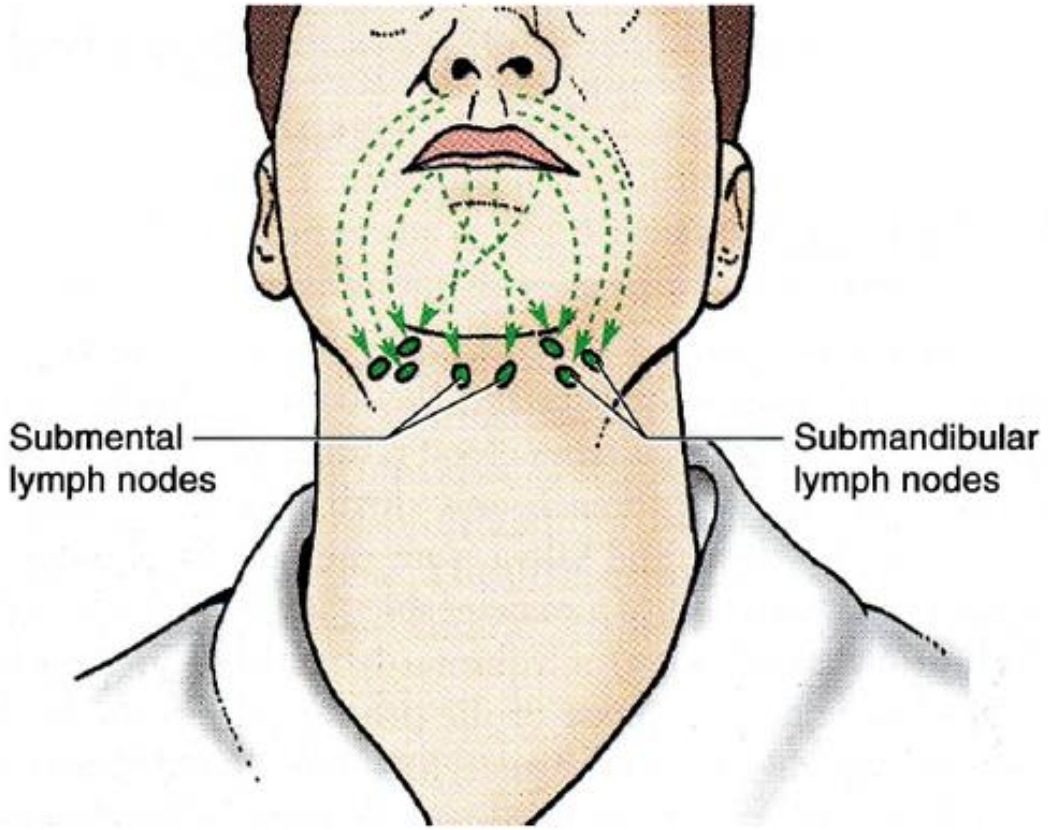
# Lymph drainage of head and neck

❖There is a horizontal, encircling band of lymph node groups at the craniocervical junction.

❖Nodes in all these groups are clinically palpable when enlarged.

❖1: *Submental Nodes lie across the midline*, below the chin in the submental triangle

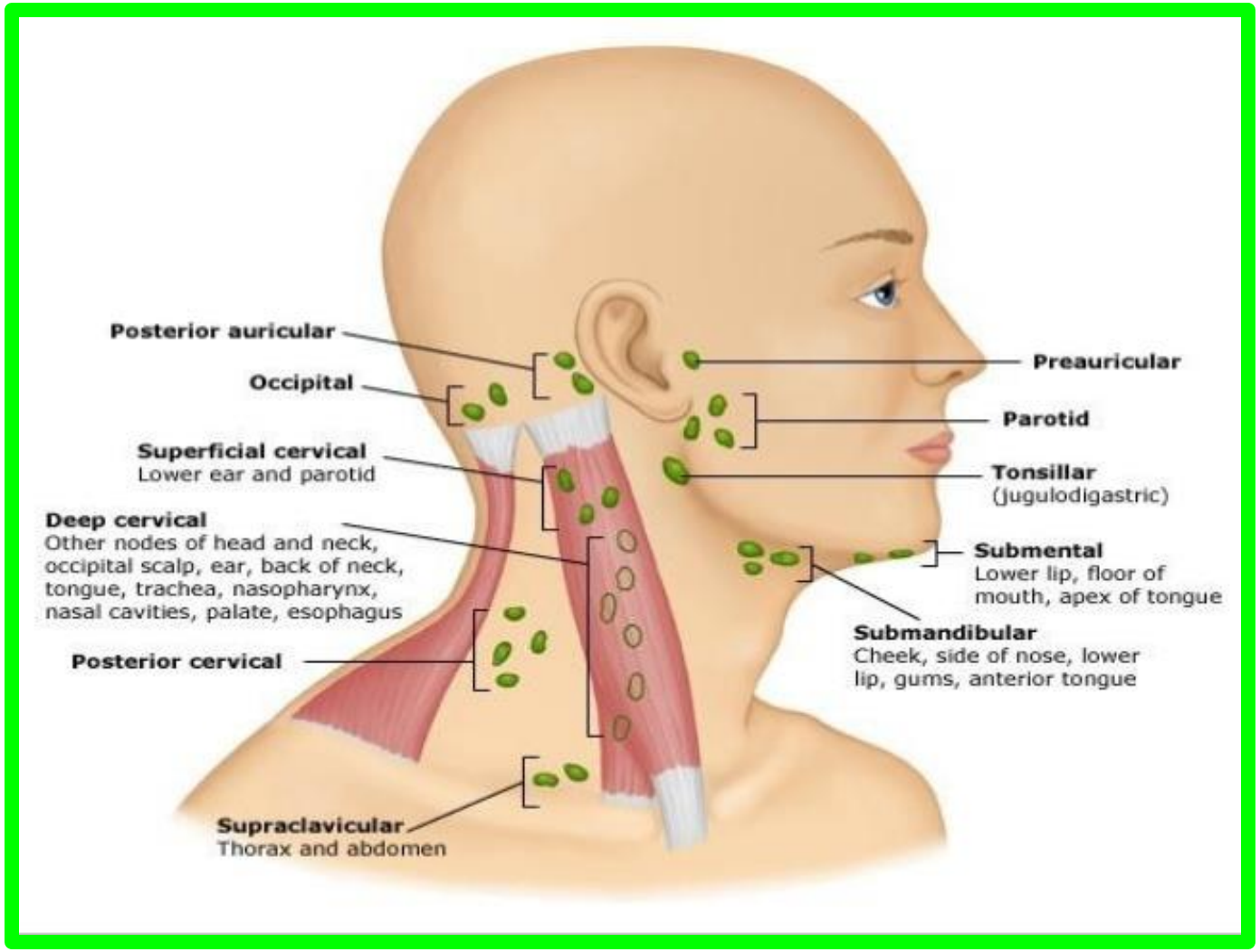



❖The other lymph node groups in the horizontal band are bilaterally represented.

# Lymph drainage of head and neck

❖2: Submandibular Nodes lie in the digastric triangle in relation to the submandibular salivary gland

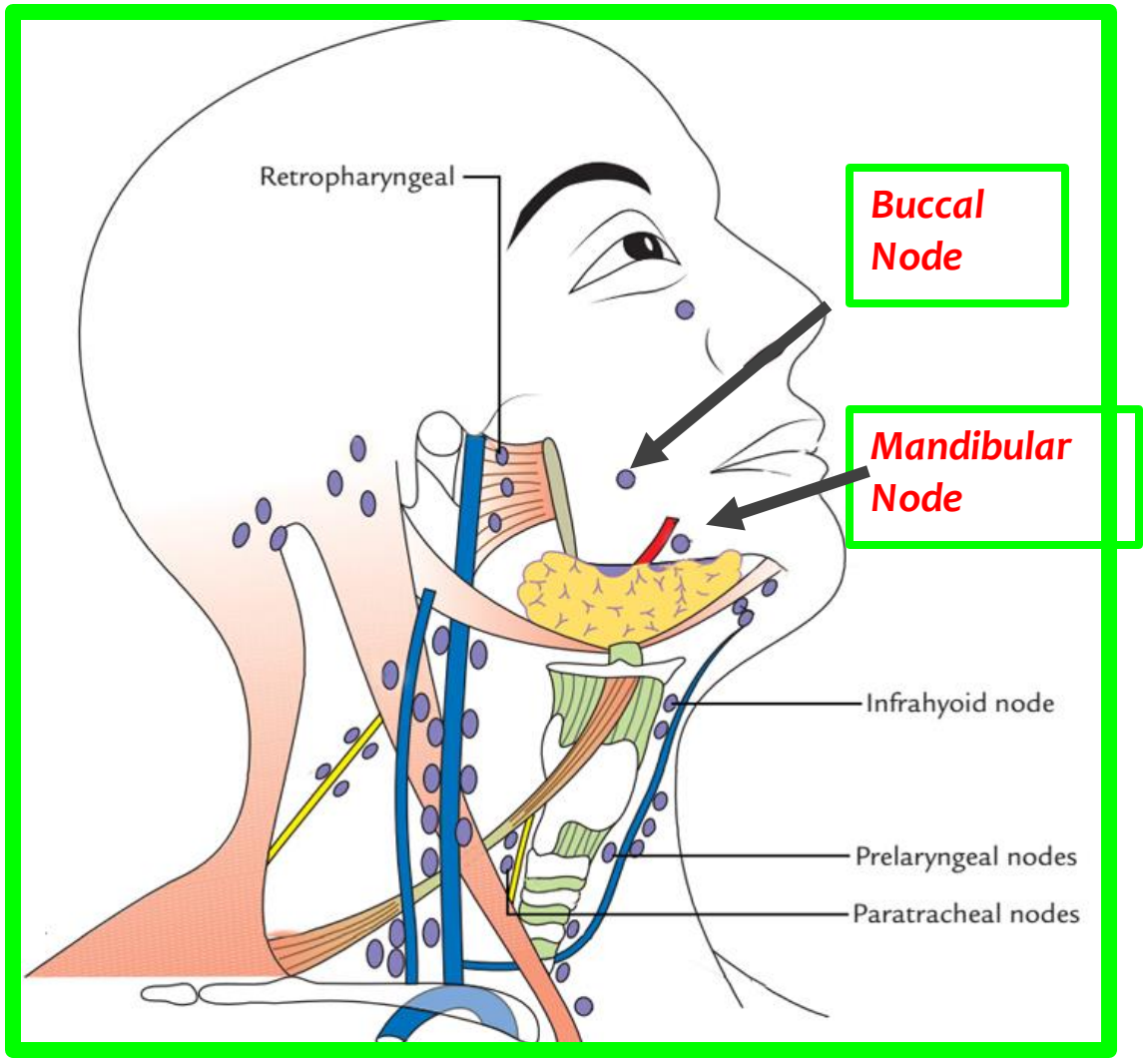
❖3:Preauricular Nodes are found both superficial and deep to the fascial capsule of the parotid, as well as within the gland



# Lymph drainage of head and neck

❖4: A *Small Mandibular Node* is frequently present where *the facial vessels cross the lower border of the mandible*,

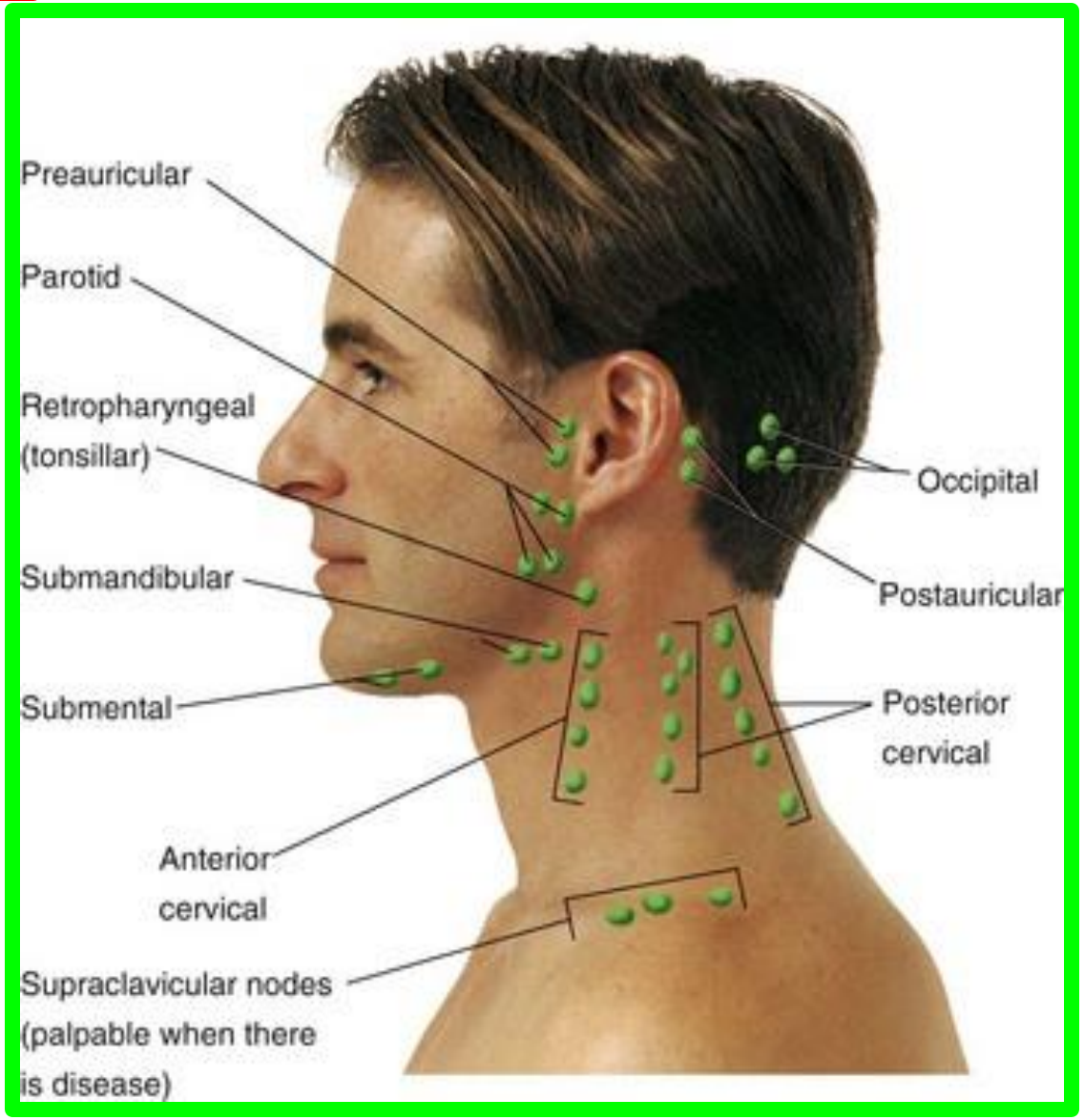
❖5: A Small *Buccal Node* lie on the *lateral surface of the buccinator*.



# Lymph drainage of head and neck

❖***6:One or two mastoid* (postauricular) *nodes*** *lie on* ***the mastoid process***

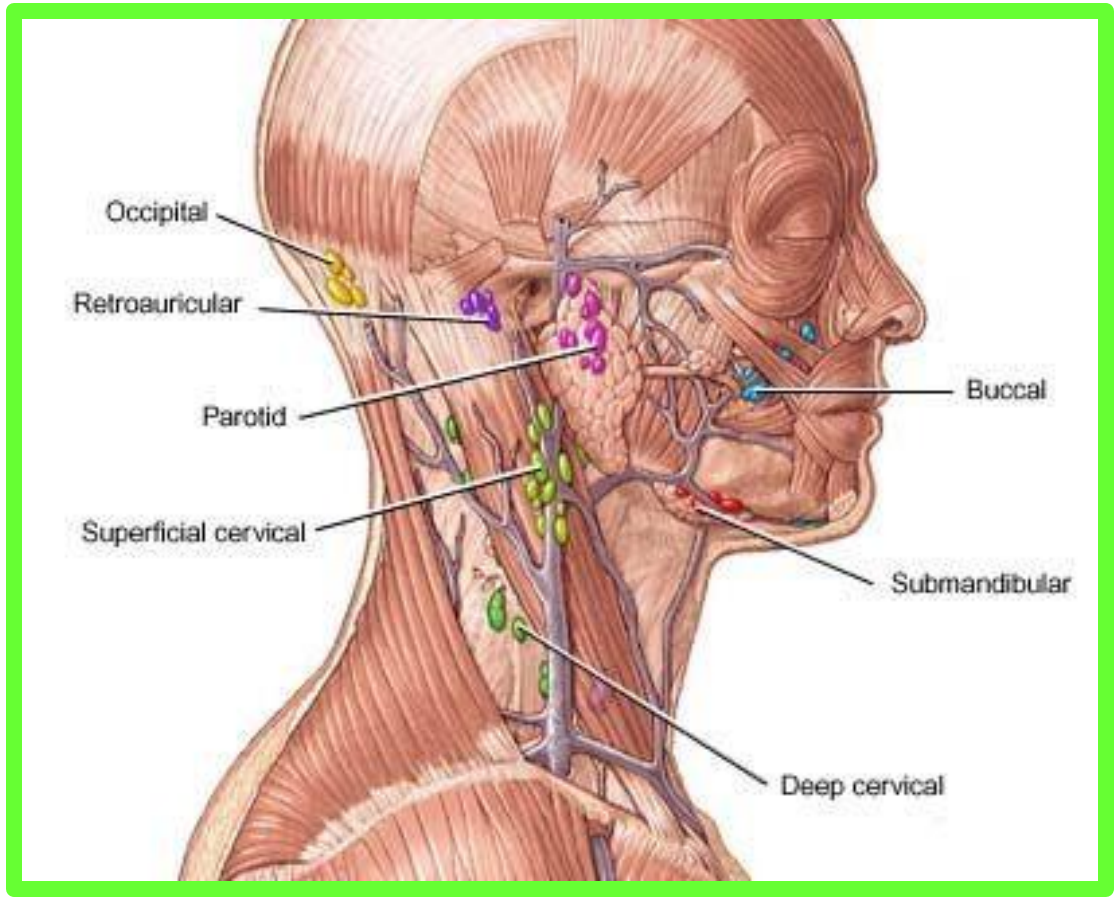
❖***7:two or three occipital nodes*** *are present at the* **apex of the posterior triangle of the neck.**



# Lymph drainage of head and neck



❖8:A few superficial cervical nodes lie along the external jugular vein, on the superficial surface of the sternocleidomastoid, and drain the lobule of the auricle, floor of the external acoustic meatus and skin over the lower parotid region, as well as the lateral cervical skin.

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# Lymph drainage of head and neck

**Anterior cervical skin drains to a few superficially located anterior cervical nodes along the anterior jugular veins; one such node frequently lies in the suprasternal space.**

## Veins of Neck

**Anterior jugular veins**

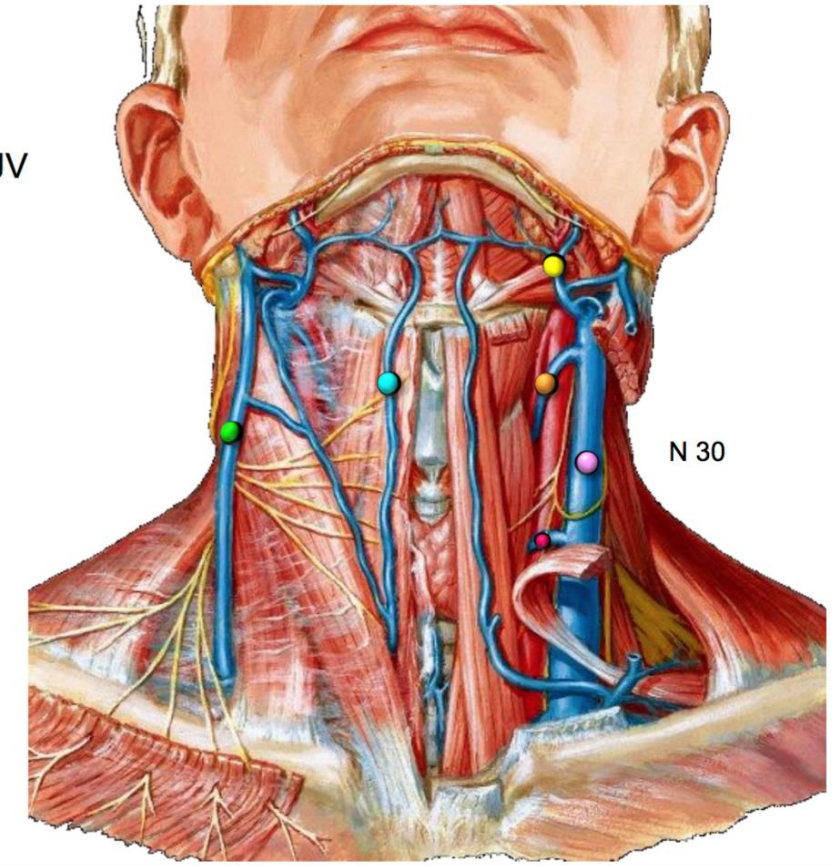
- arise from chin
- along sternohyoid
- deep to SCM to drain to EJV
- variable

**External jugular veins**

- Exposed in lateral apex

**Internal jugular veins**

- In carotid sheath
- Lateral to artery
- Join subclavian to form brachicephalic vein
- Receives
  - Facial v at hyoid
  - Superior, middle thyroid vv



# Lymph drainage of head and neck

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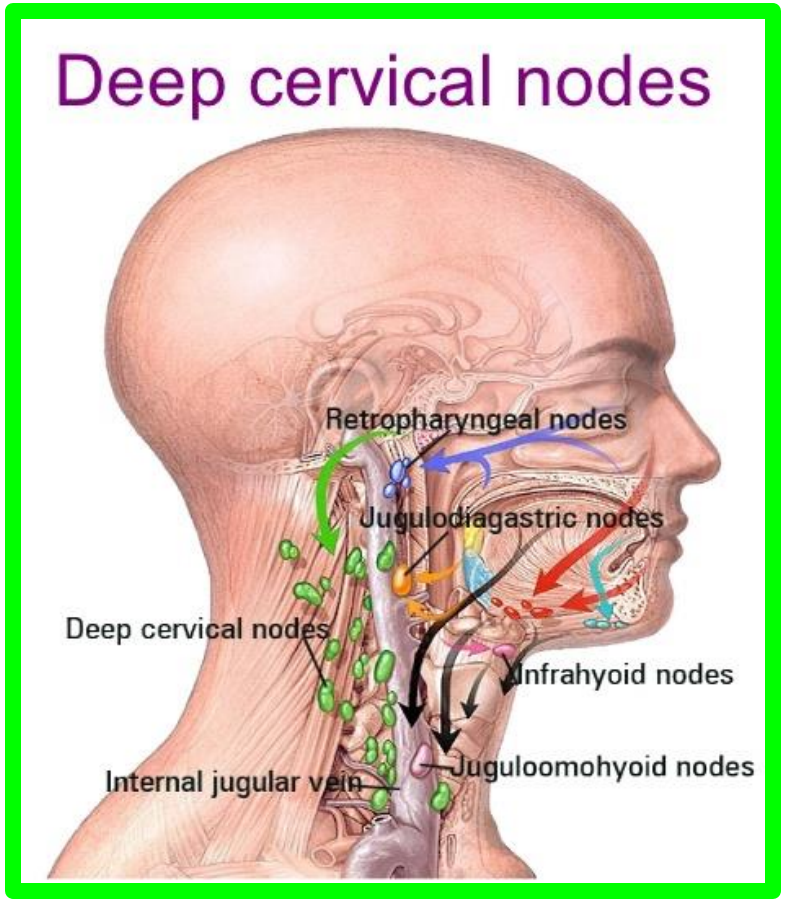
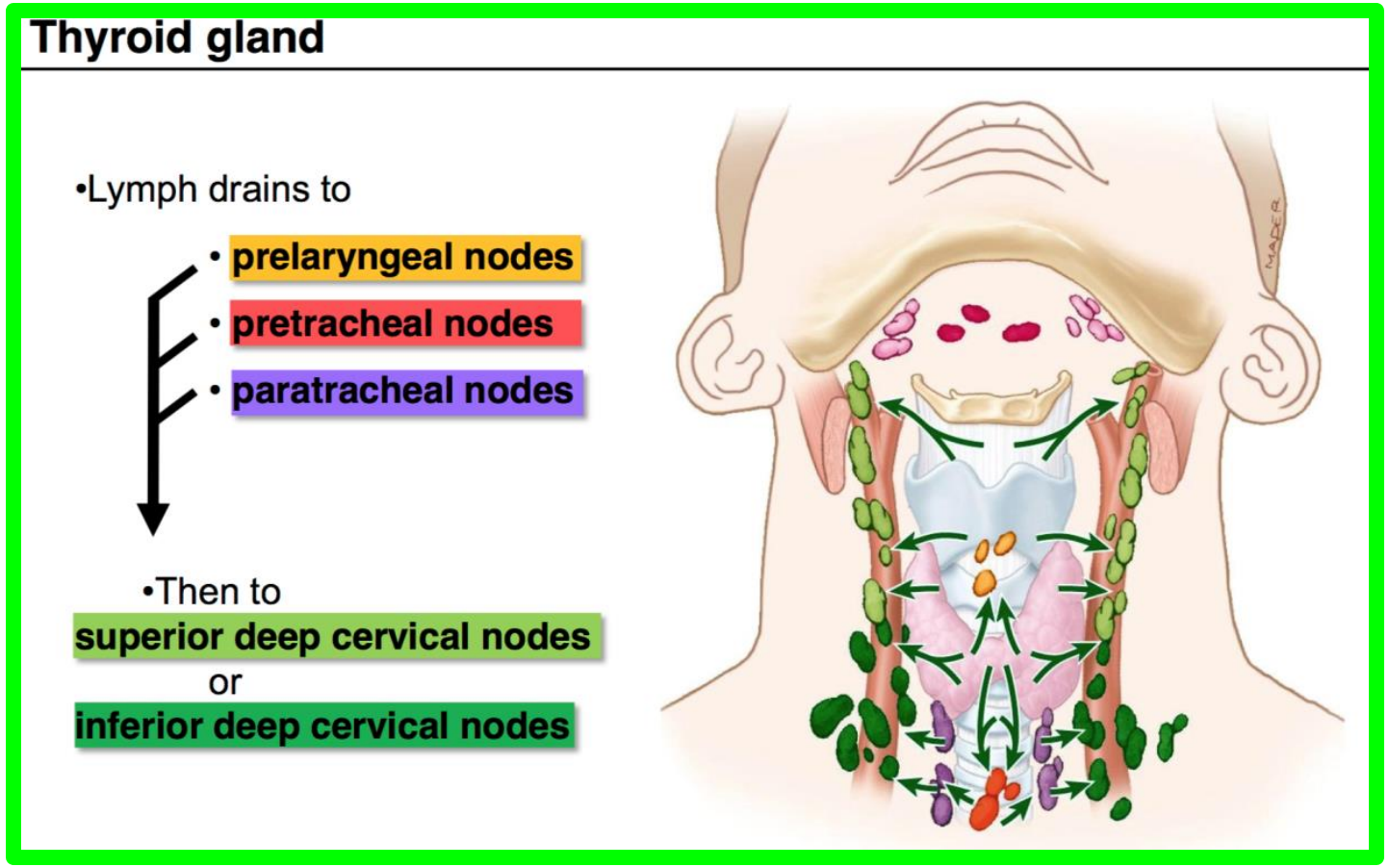
## Deep cervical lymph nodes, Arranged into 2 groups

1- In the middle line

2- On the side of the neck



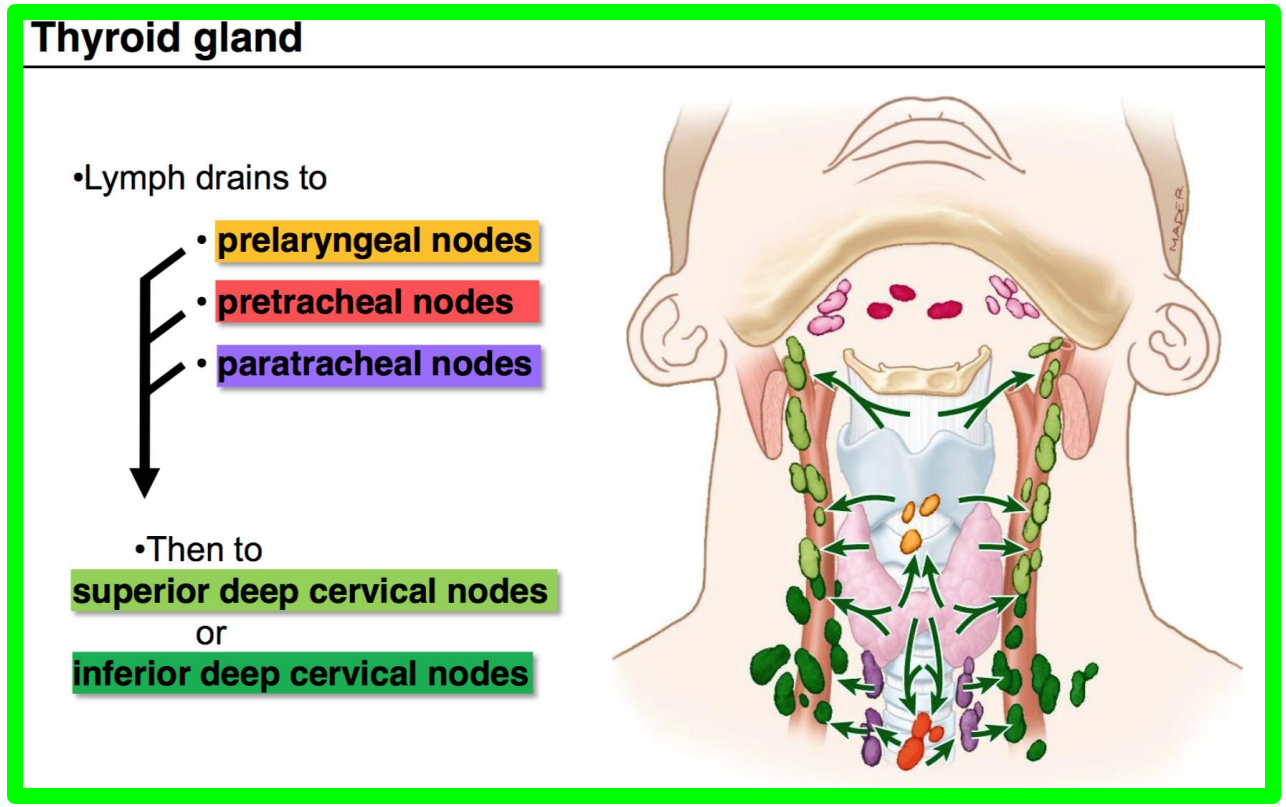



# Deep Cervical Lymph Nodes

## 1- In the middle line

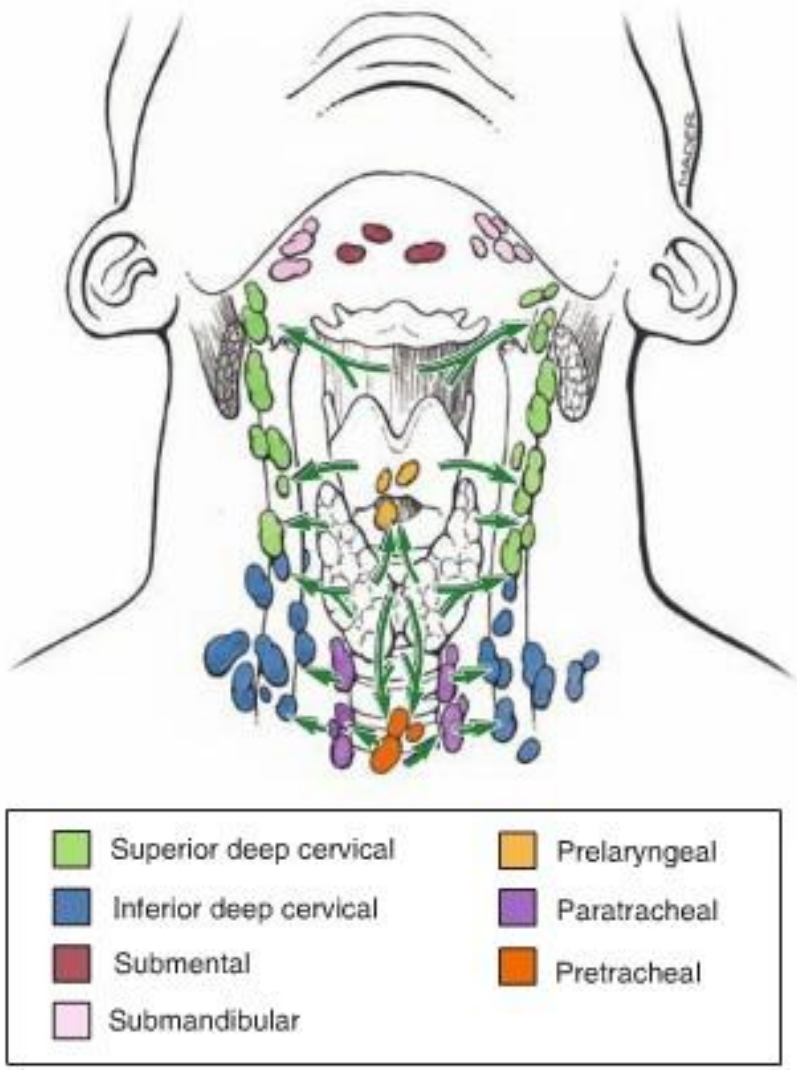
- ✓Deep to the investing fascia at the front of the neck are
- ✓Infrahyoid nodes lying on the thyrohyoid membrane,
- ✓Prelaryngeal nodes on the cricothyroid membrane and
- ✓Pretracheal nodes on the tracheal rings.

They drain the anterior cervical nodes and receive lymph from the larynx, trachea and thyroid gland



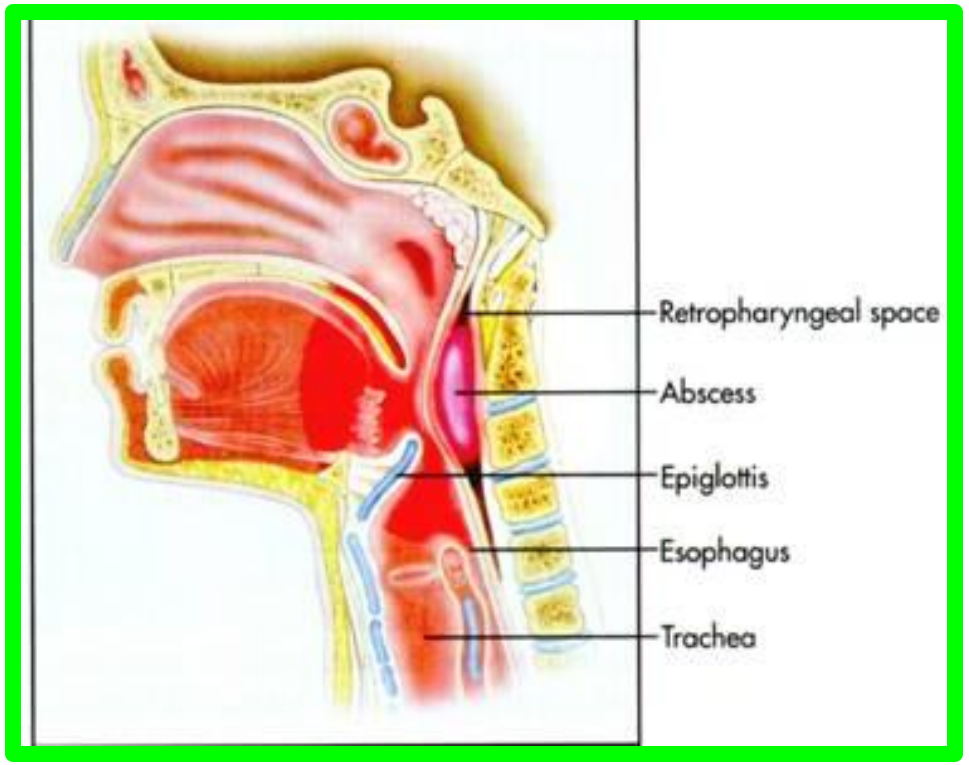
# Deep Cervical Lymph Nodes

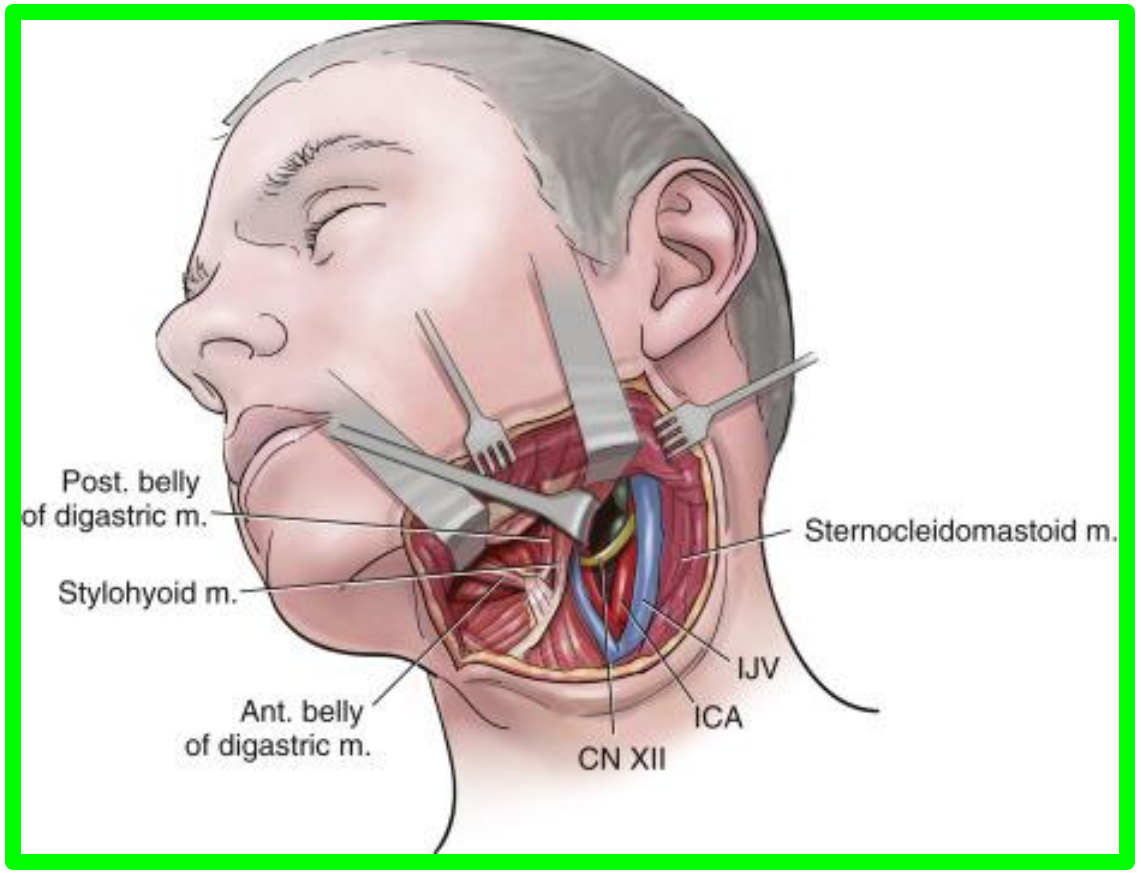
✓**Paratracheal nodes** on either side of the **trachea** and **oesophagus** receive lymph from **pretracheal nodes** and directly from the trachea and oesophagus.



# Deep Cervical Lymph Nodes

✓**Retropharyngeal nodes** lie **posterior to the pharynx** and **anterior to the prevertebral fascia**. They drain the pharynx, soft palate, posterior parts of hard palate and nose, and the cervical vertebrae. **When enlarged, these nodes can cause difficulty in swallowing (dysphagia) due to pressure on the pharynx**



# Deep Cervical Lymph Nodes

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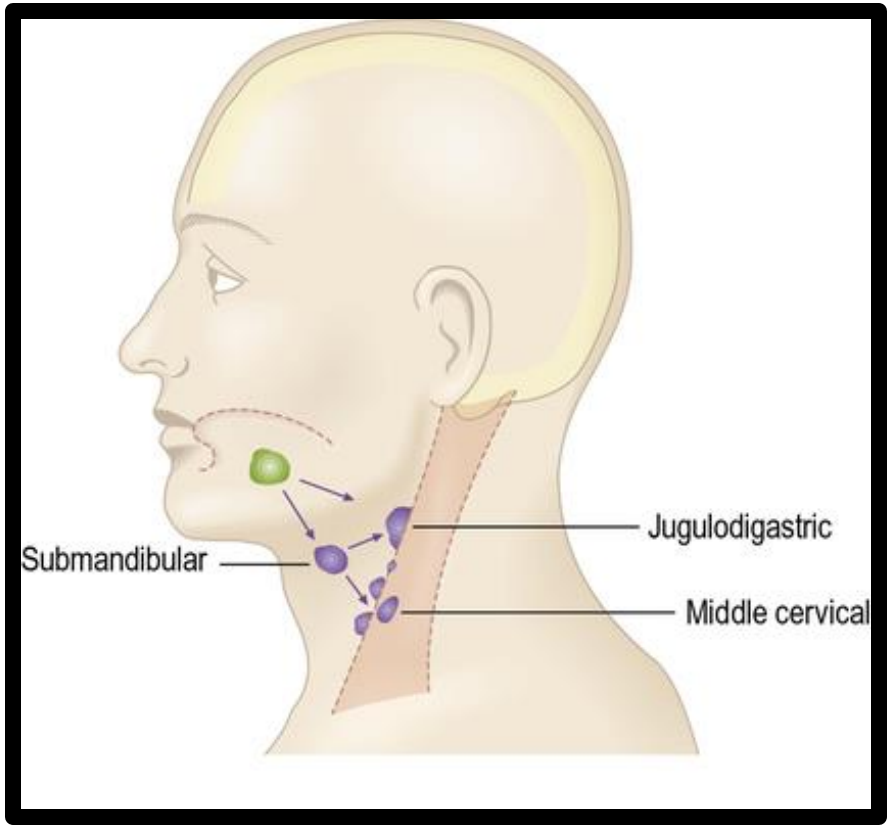
## 2- On the side of the neck

- These are the main lymph nodes in the neck.
- The lymph nodes are divided into 2 main groups,

**A- The upper deep cervical lymph nodes.**

- Along the upper part of the internal jugular vein deep to the sternomastoid muscle.

- ❑ The most important one is called the jugulo-digastric Lymph nodes. They lie in the angle between the posterior belly of digastnic and the internal jugular vein.
- ❑ It is concerned with the drainage of the tongue.



# Deep Cervical Lymph Nodes

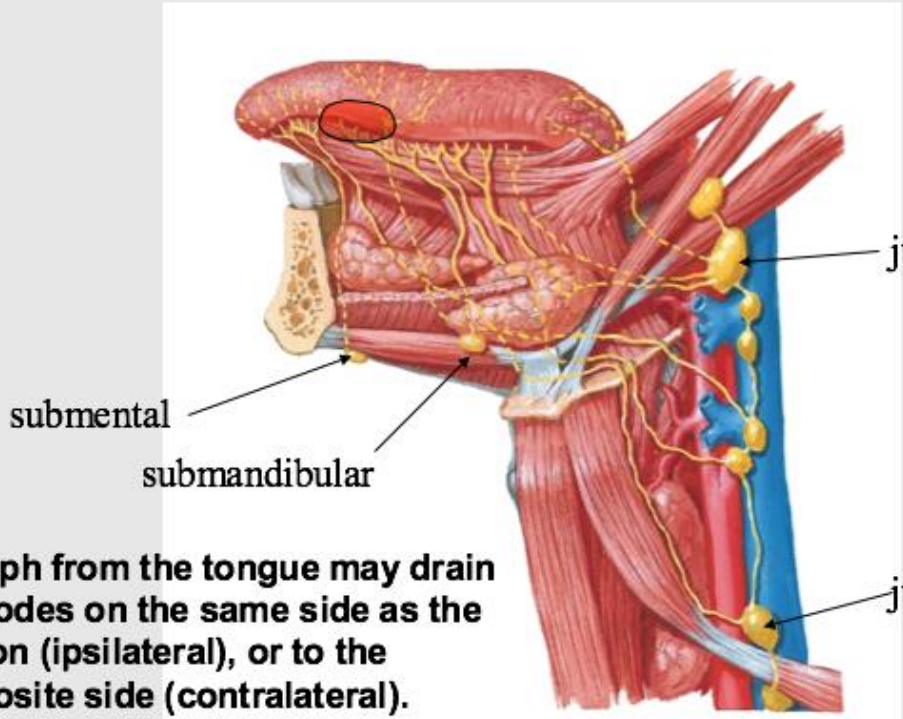


## B- The lower deep cervical lymph nodes.

- Along the lower part of the internal jugular vein deep to the sternomastoid muscle.
- The most important one is called the jugulo-omohyoid lymph nodes. They lie in the angle between the intermediate tendon of omohyoid and the internal jugular vein.

It is concerned specially with the drainage of the tongue.

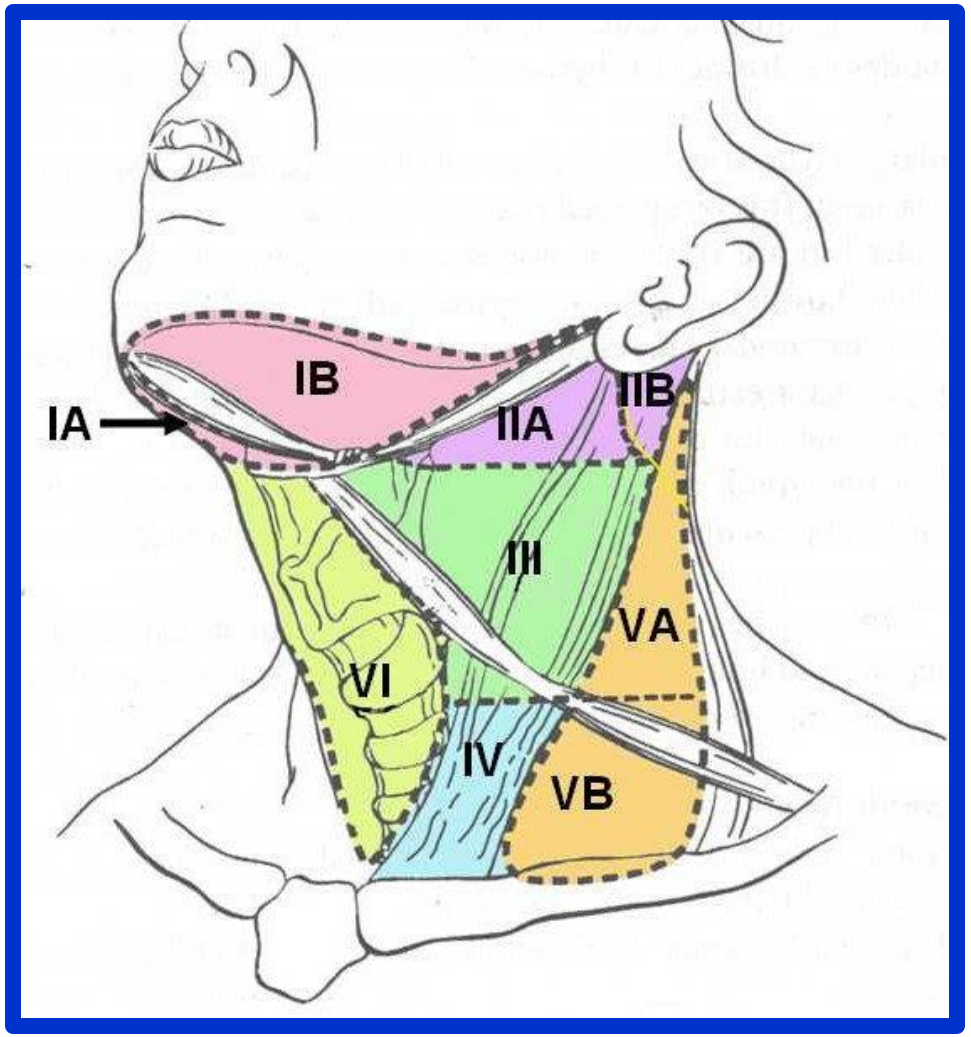
- Efferent, The upper groups → lower groups → jugular lymph trunk



# Surgical approach

**Surgeons treating malignant lymph nodes in the neck tend to classify them by levels.**

- ✓**Level I nodes** are in **the submental and submandibular triangles**
- ✓**Level II–IV nodes are deep cervical nodes**
- ✓**Level II being from the base of the skull to the carotid bifurcation (hyoid bone),**



# Surgical approach

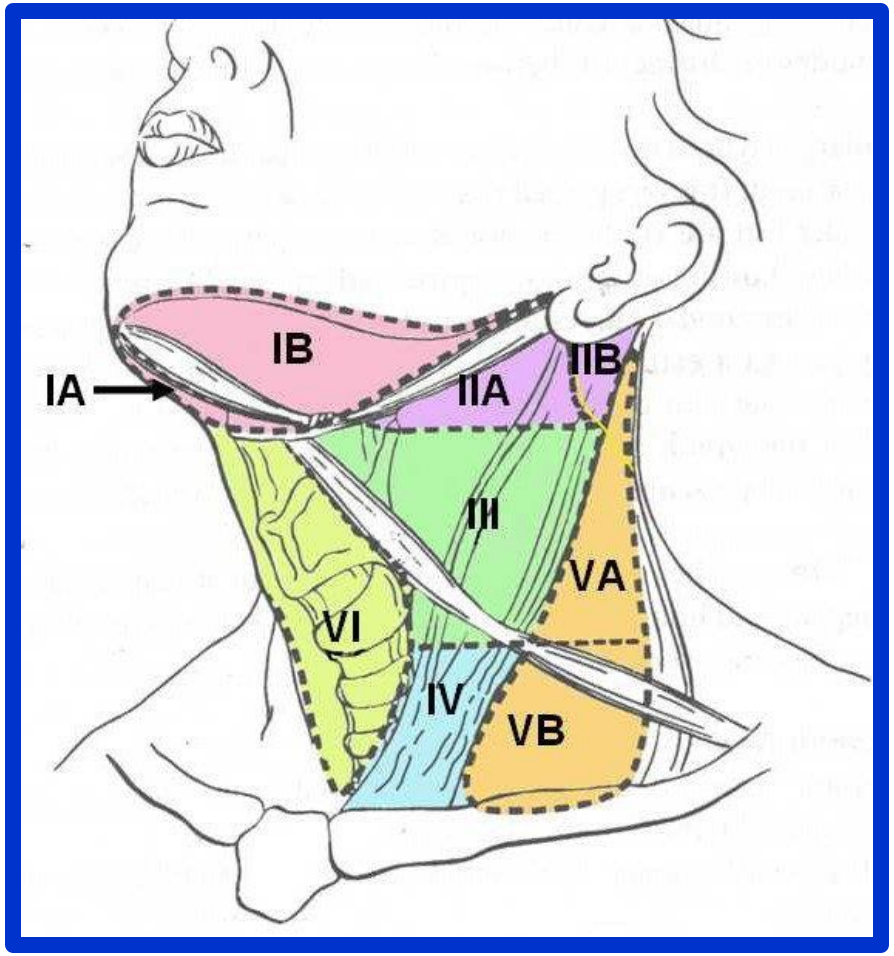
✓Level III from there to the intermediate tendon of omohyoid (cricoid cartilage), and

✓Level IV from there down to the clavicle and including the supraclavicular nodes.

✓Level V nodes are in the posterior triangle of the neck, related to the accessory nerve.

✓Level VI nodes are nodes surrounding the midline visceral structures and include the pretracheal and paratracheal nodes.

✓Level VII nodes are in the superior mediastinum.



# Surgical approach

**Classical radical neck dissection removed Level I–V nodes with the sternocleidomastoid muscle, internal jugular vein and accessory nerve.**

**Modified radical neck dissection (also called functional neck dissection) preserves some or all of these latter three structures.**

**Selective neck dissection removes some but not all Level I–V nodes.**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