

CERVICAL LYMPH NODES

(ANATOMY & EXAMINATION)

Hemant

(DTCD 1st YEAR)

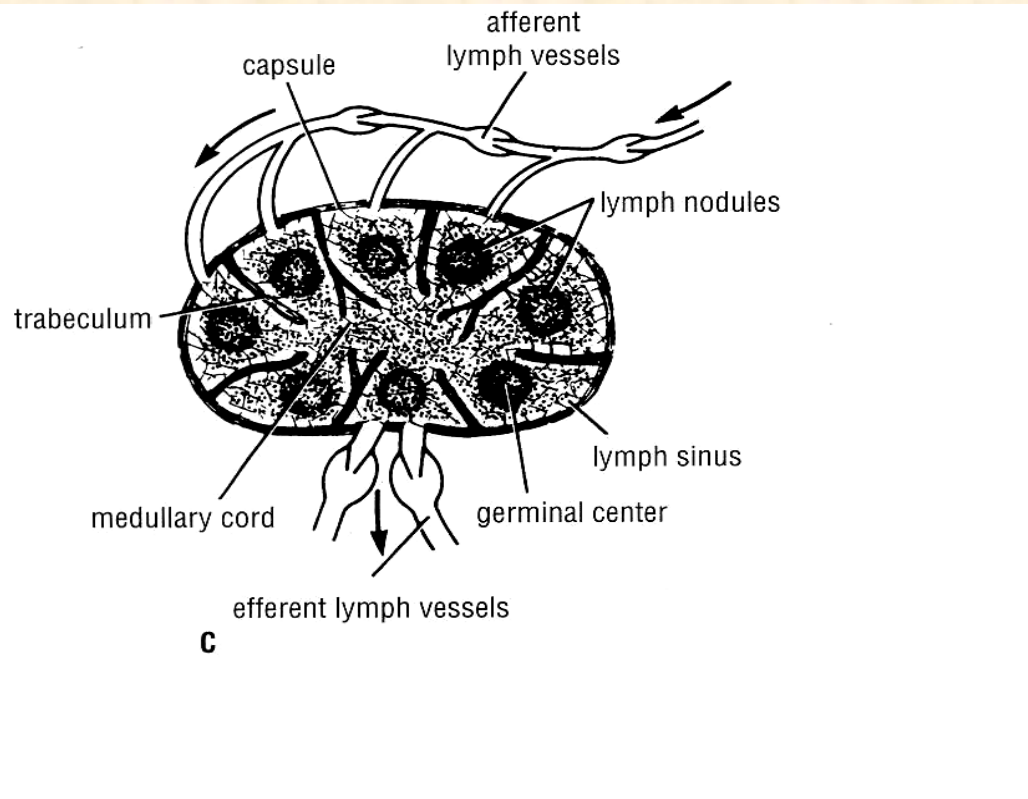
LYMPHATIC SYSTEM

1. **Lymphatic Tissues: A Type of connective tissue that contains large numbers of lymphocytes.**
2. **Lymphatic Vessels: Are Tubes that assist the cardiovascular system in the removal of tissue fluid from the tissue spaces of the body; The vessels then return the fluid to the blood.**
3. **Lymph : name given to tissue fluid once it has entered a Lymphatic Vessel**

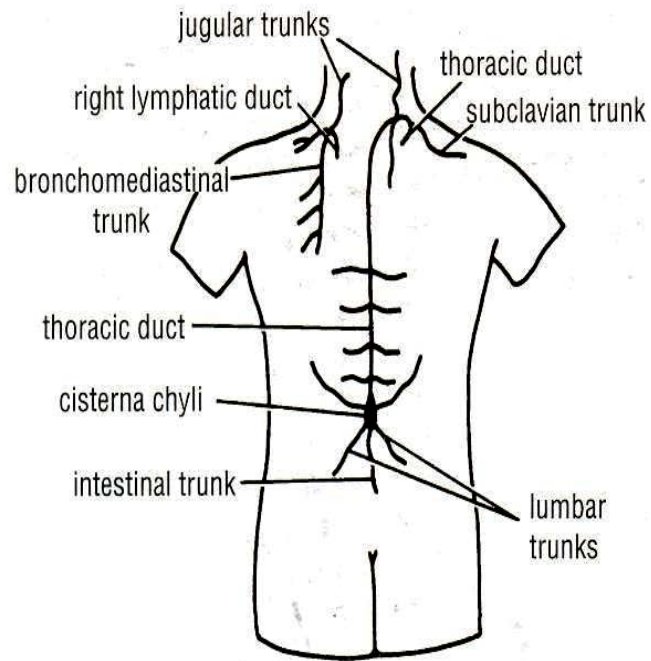
A LYMPH NODE

Before Lymph is returned to the blood stream, it passes through at least one lymph node and often through several

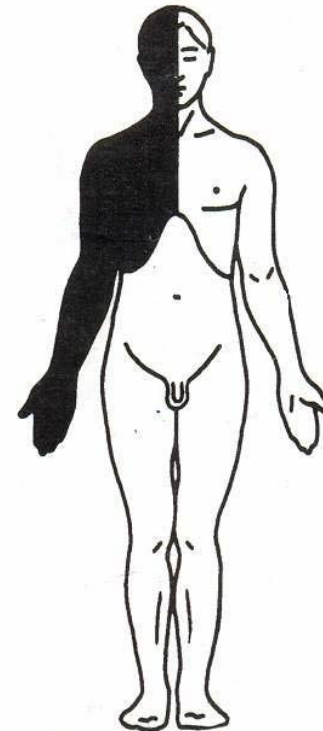
The Lymph vessels that carry lymph to a lymph node are referred to as afferent those that transport it away from a node are called efferent vessels.



Lymph reaches the blood stream at the root of neck by large lymph vessels called the right lymphatic duct and the thoracic duct.



A



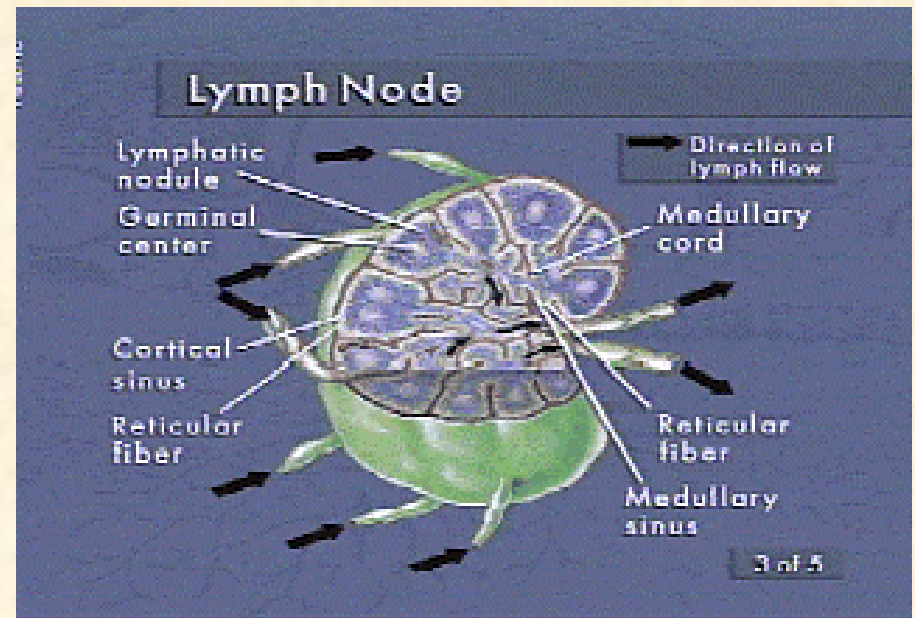
B

White - thoracic duct

Black - right lymphatic duct

Structure of Lymph Nodes :

- Lymph nodes are oval-shaped or bean-shaped structures.
- Some are as small as a pinhead and others as large as a lima bean.
- Each lymph node is enclosed by a fibrous capsule.
- Once lymph enters the node, it "percolates" slowly through the spaces known as **sinuses** before draining into a single efferent draining vessel.
- One-way valves in both the afferent and efferent vessels keep lymph flowing in one direction.



STRUCTURE OF LYMPH NODE

Fibrous septa or trabeculae extend from the covering capsule toward the center of the node.

Cortical nodules found within the sinuses along the outer region of the node are separated from each other by these trabeculae.

Each cortical nodule is composed of packed lymphocytes that surround a less dense area called a germinal center.

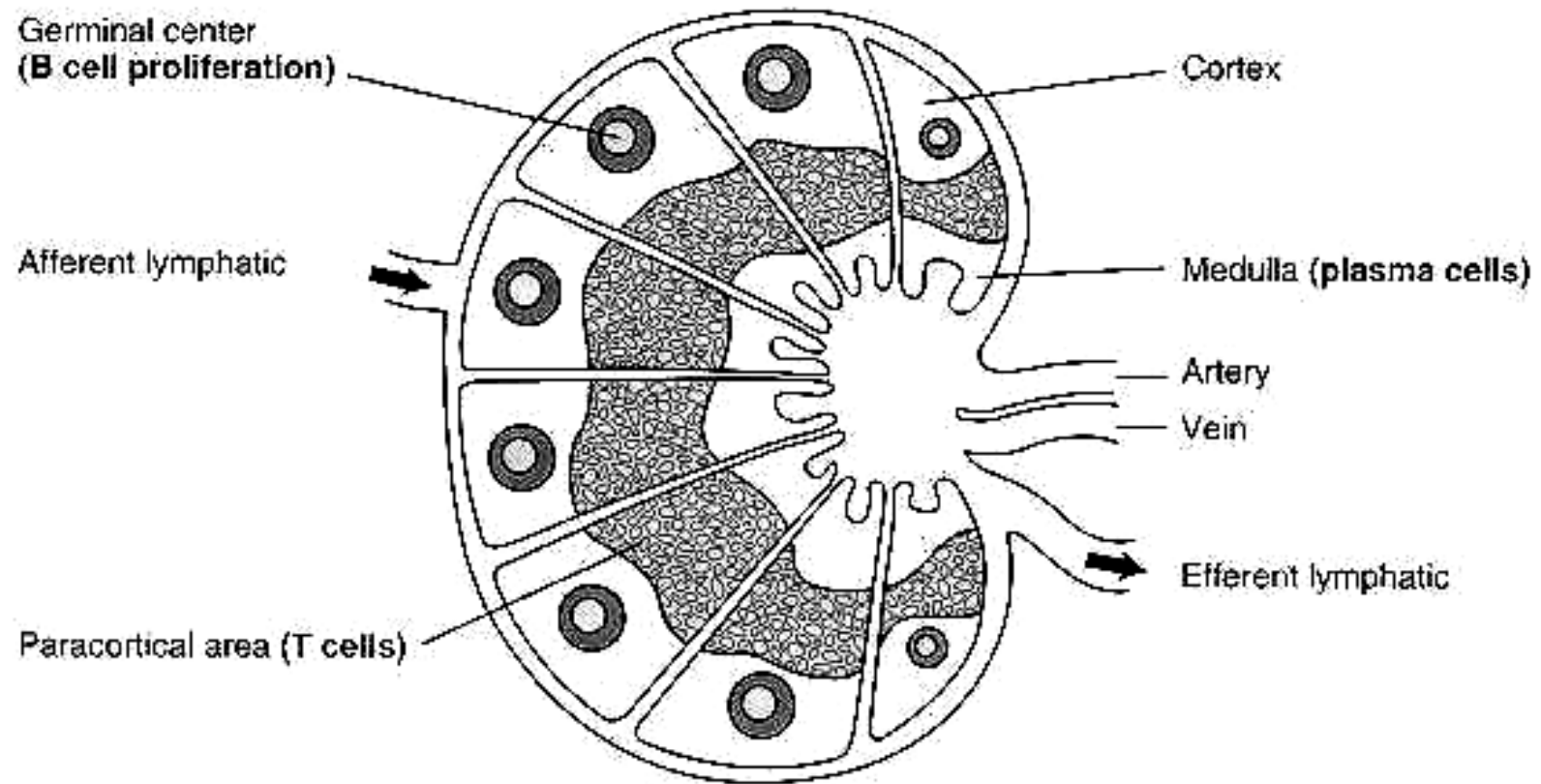
When an infection is present, germinal centers form and the node begins to release lymphocytes.

Lymphocytes begin their final stages of maturation within the germinal center of the nodule and then are pushed to the more densely packed outer layers as they mature to become antibody-producing plasma cells.

The center or medulla of a lymph node is composed of sinuses and cords.

Both the cortical and medullary sinuses are lined with specialized reticuloendothelial cells (fixed macrophages) capable of phagocytosis.

STRUCTURE OF LYMPH NODE

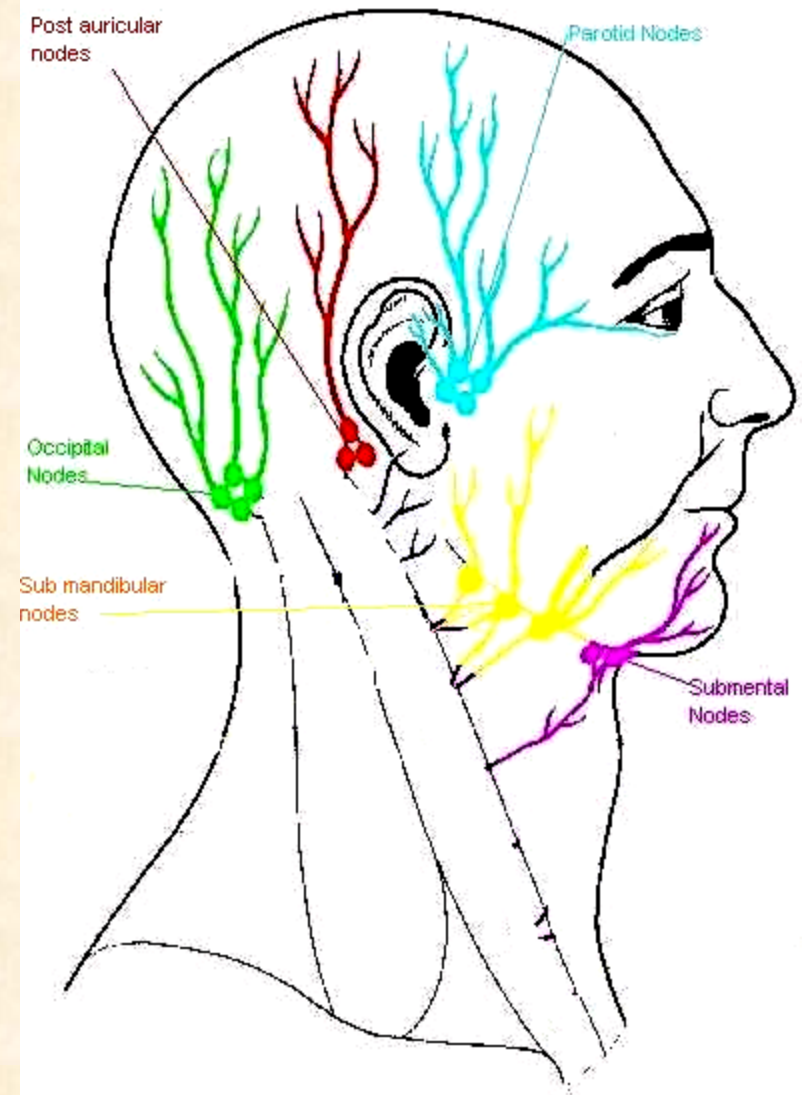


ANATOMY OF CERVICAL LYMPH NODES

Classification

1. Upper horizontal chain of nodes.

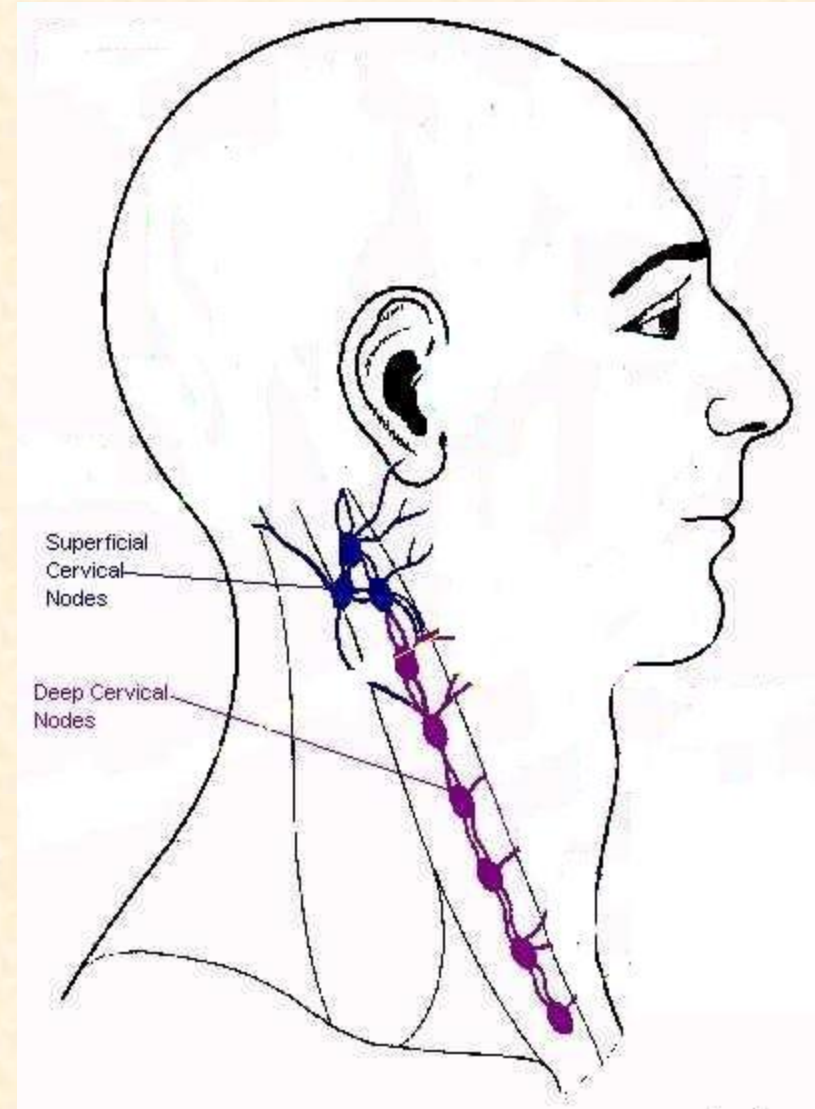
- a) Submental
- b) Submandibular
- c) Parotid
- d) Postauricular
- e) Occipital



2. Lateral cervical nodes.

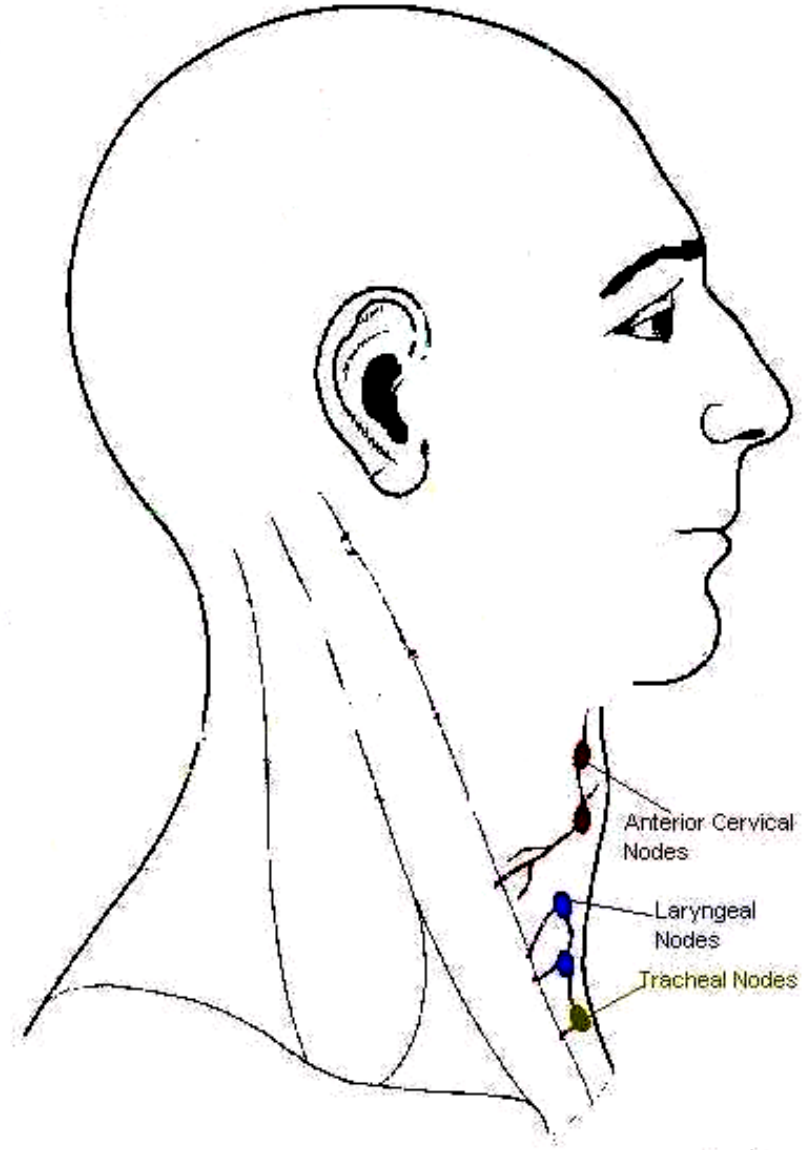
They include nodes, superficial and deep to sternocleidomastoid muscle and in the posterior triangle.

- a) Superficial external jugular group
- b) Deep group
 - i. Internal jugular chain (upper, middle and lower groups)
 - ii. Spinal accessory chain
 - iii. Transverse cervical chain



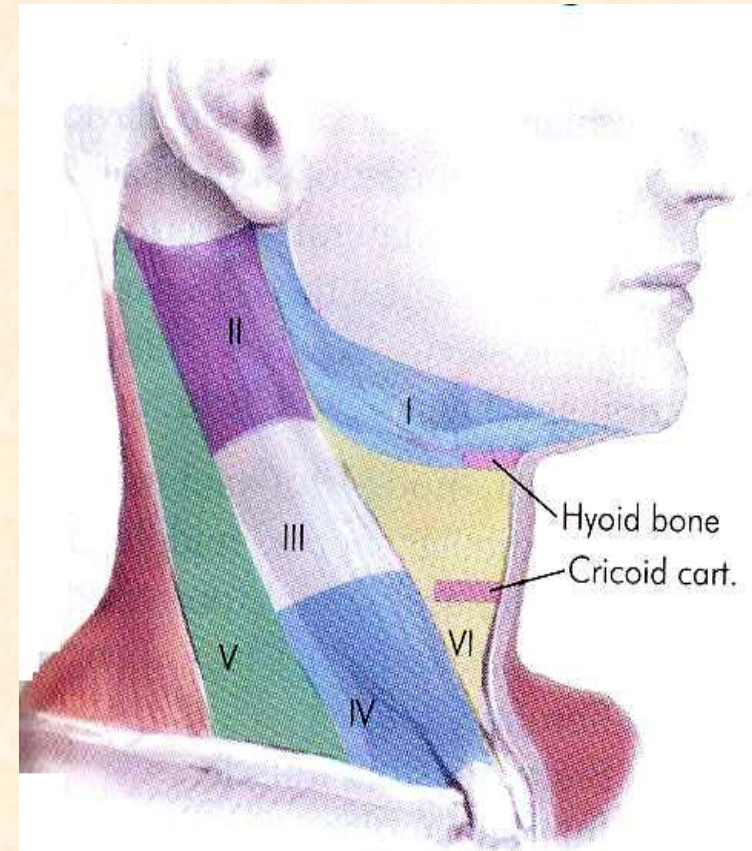
3. Anterior cervical nodes

- a) Anterior jugular chain
- b) Justavisceral chain
 - i. Prelaryngeal
 - ii. Pretracheal
 - iii. Paratracheal



Classification of Neck Nodes According to Levels

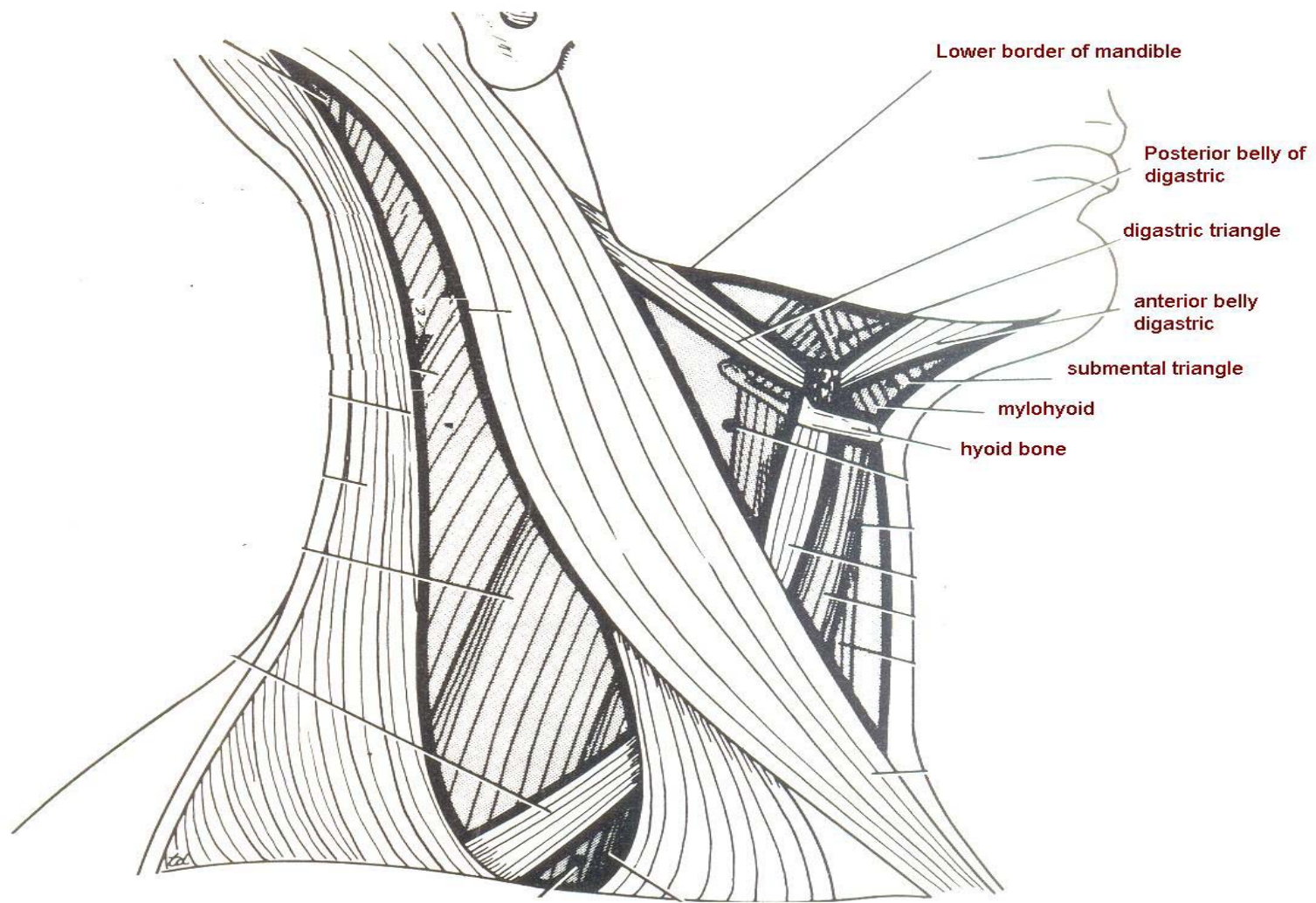
| | |
|------------------|---|
| Level I | Submental (IA) Submandibular (IB) |
| Level II | Upper jugular |
| Level III | middle jugular |
| Level IV | Lower jugular |
| Level V | Posterior triangle group (Spinal accessory and transverse cervical chains) |
| Level VI | Prelaryngeal Pretracheal Paratrachal |
| Level VII | Nodes of upper mediastinum |



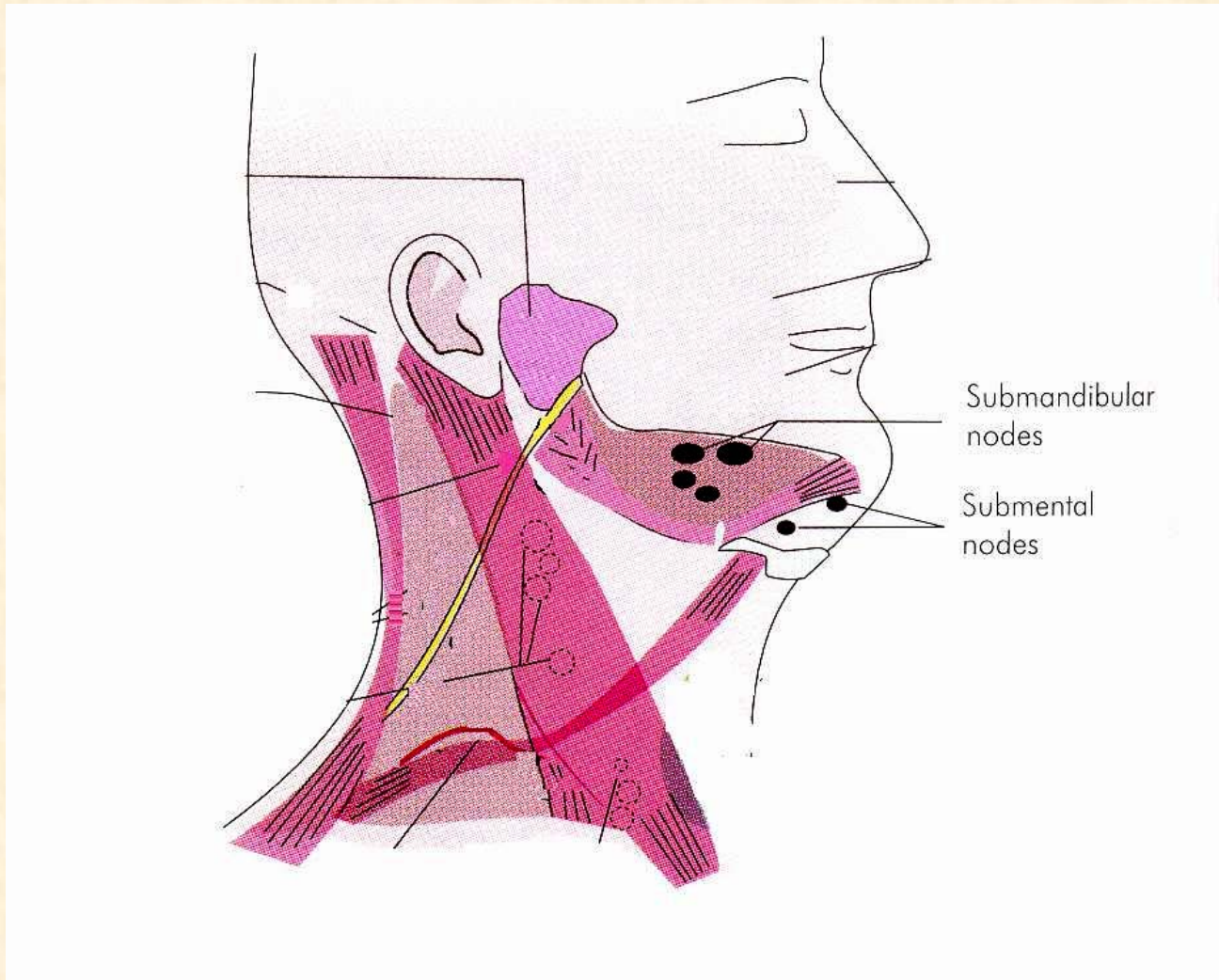
Level I includes :

- IA** Submental nodes, which lie in the submental triangle i.e. between right and left anterior bellies of diagastric muscles and the hyoid bone.

- IB** Submandibular ones, lying between anterior and posterior bellies of diagastric muscle and the body of mandible.



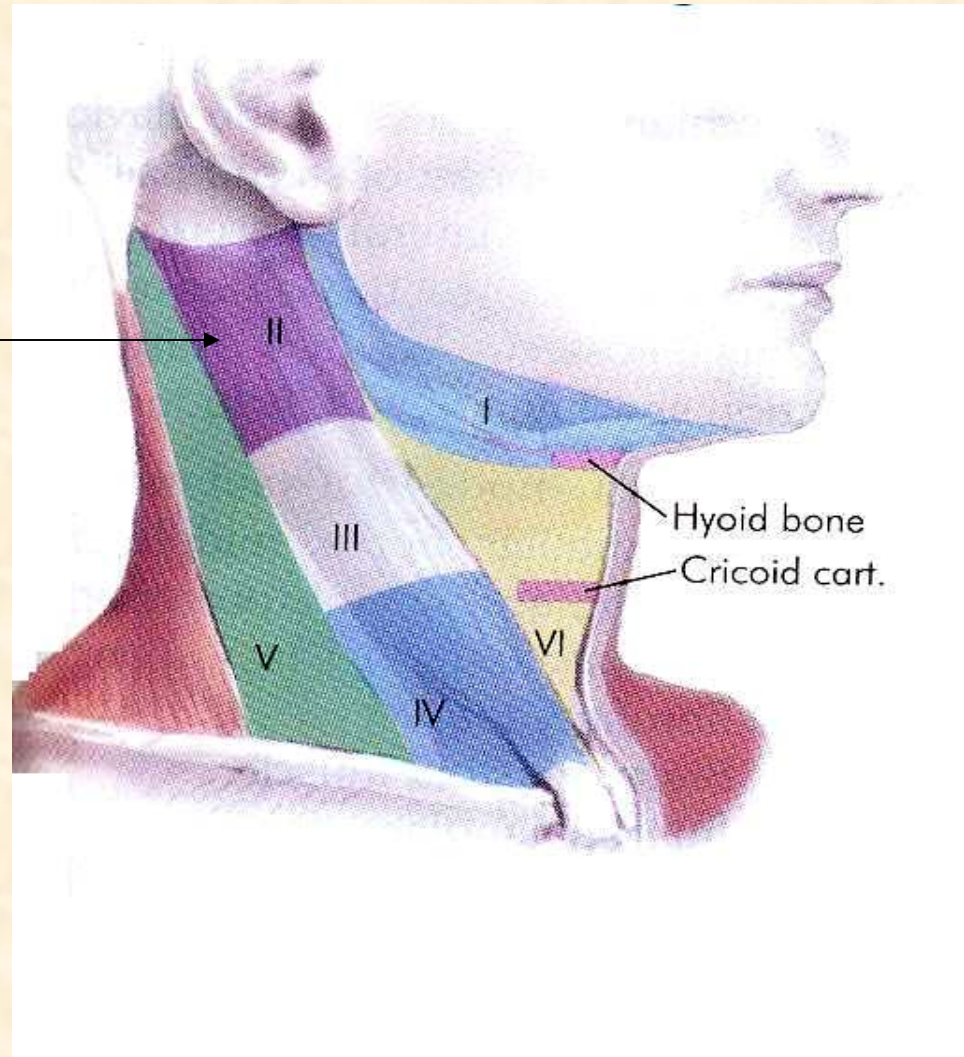
Snell S. Richard; Clinical anatomy for medical students, 1999;6:808



Dhingra P.L.; Diseases of EAR, NOSE and THROAT, 2004;3: 448

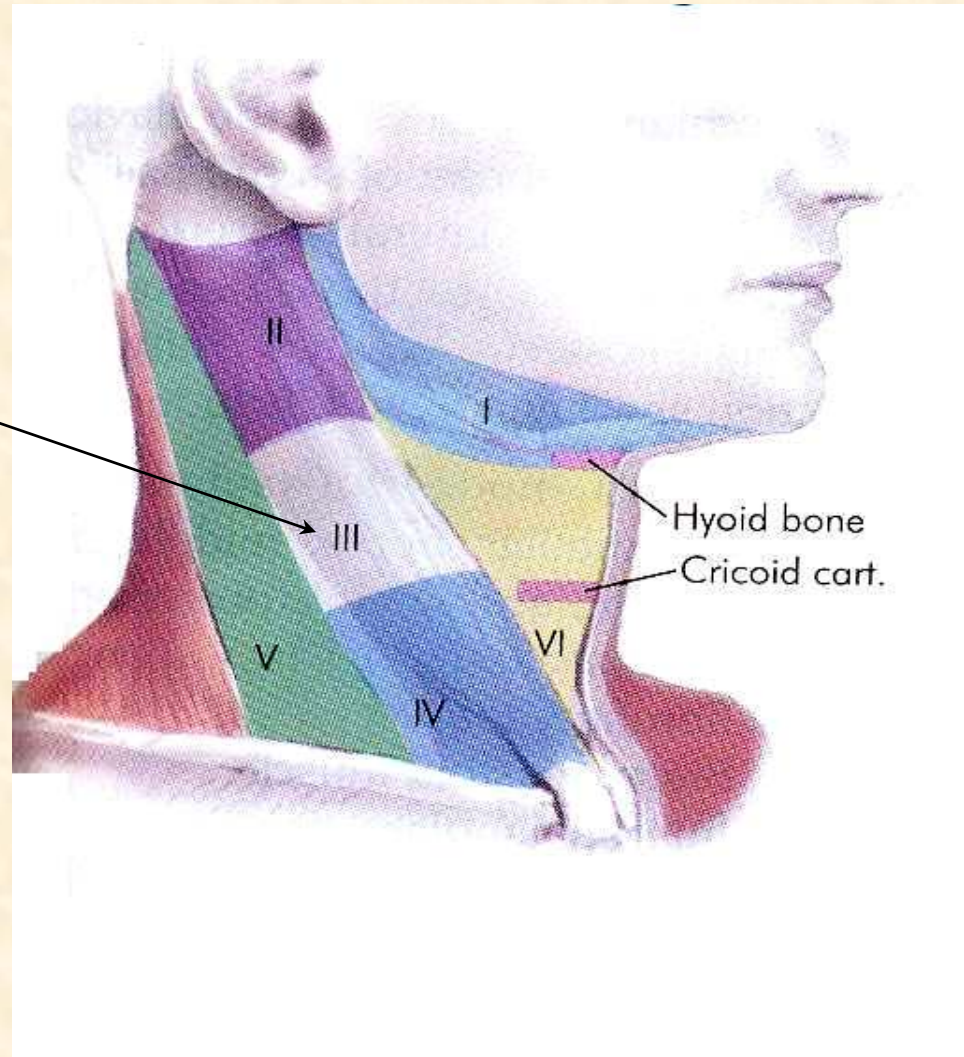
Level II – Upper Jugular Nodes

They are located along the upper third of jugular vein I.e. between the skull base above, and the level of hyoid bone (or bifurcation of carotid artery) below



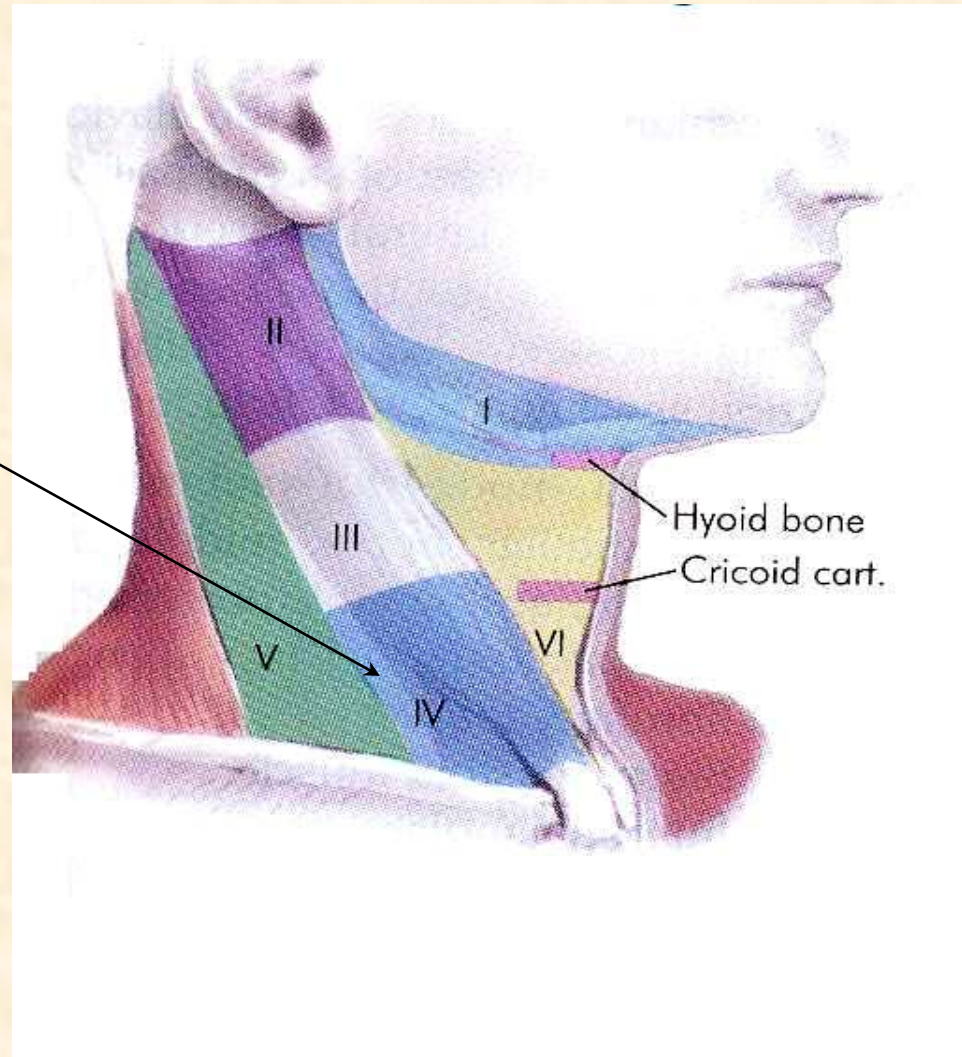
Level III – Middle Jugular Nodes

They are located along the middle third of jugular vein, from the level of hyoid bone above, to the level of upper border of cricoid cartilage.



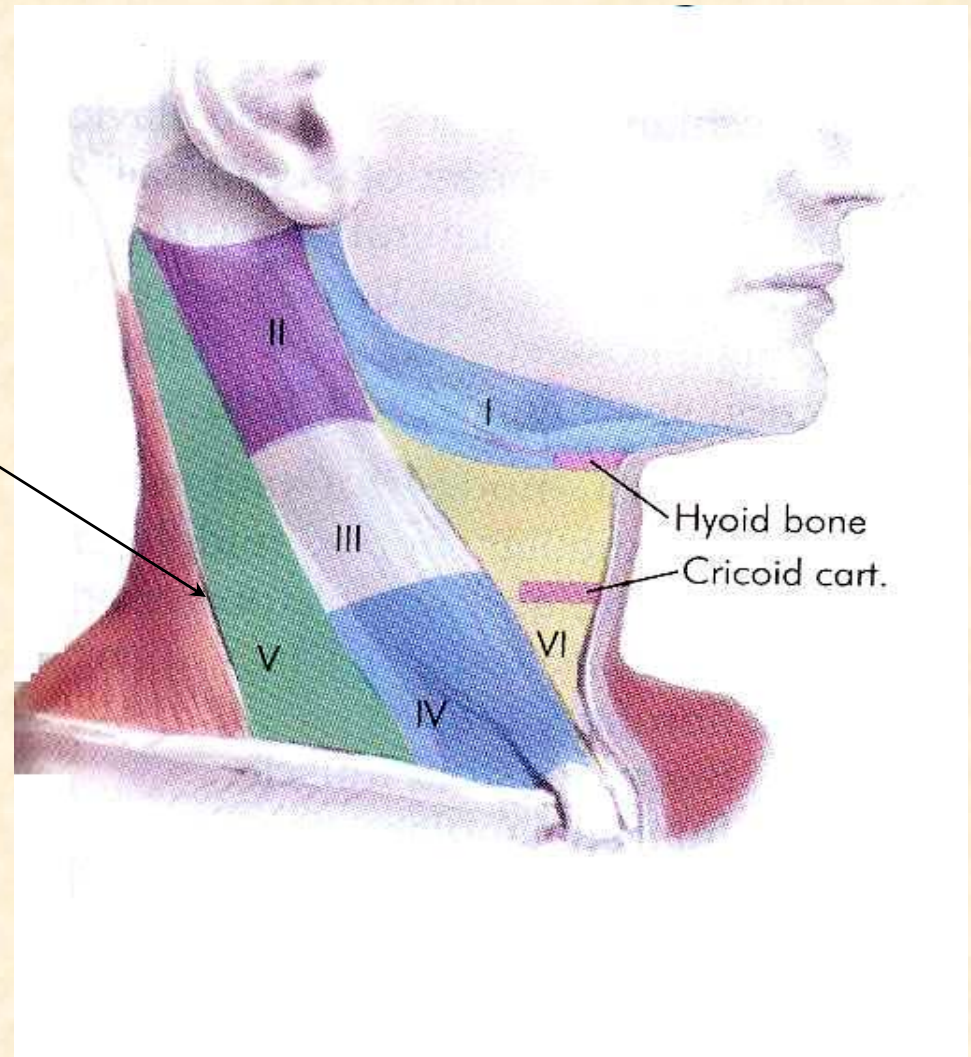
Level IV – Lower Jugular Nodes

They are located along the lower third of jugular vein; from upper border of cricoid cartilage to the clavicle.



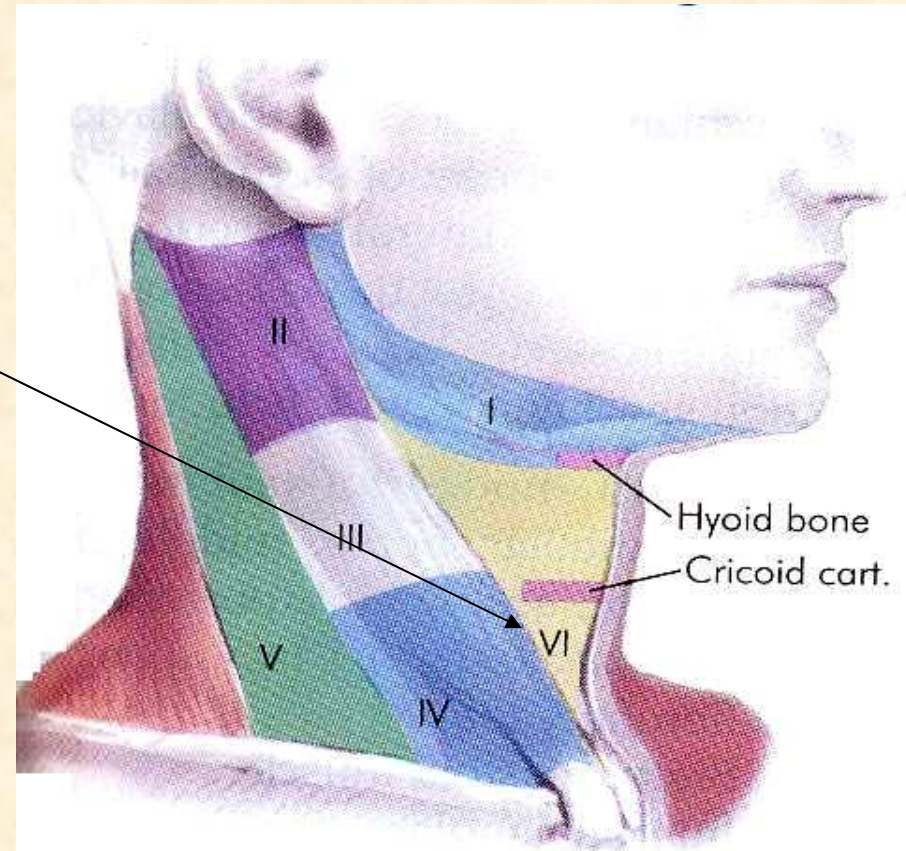
Level V – Posterior Cervical Group

They are located in the posterior triangle i.e. between posterior border of sternocleidomastoid (anteriorly), anterior border of trapezius (posteriorly), and the clavicle below. They include lymph nodes of spinal accessory chain, transverse cervical nodes and supraclavicular nodes.



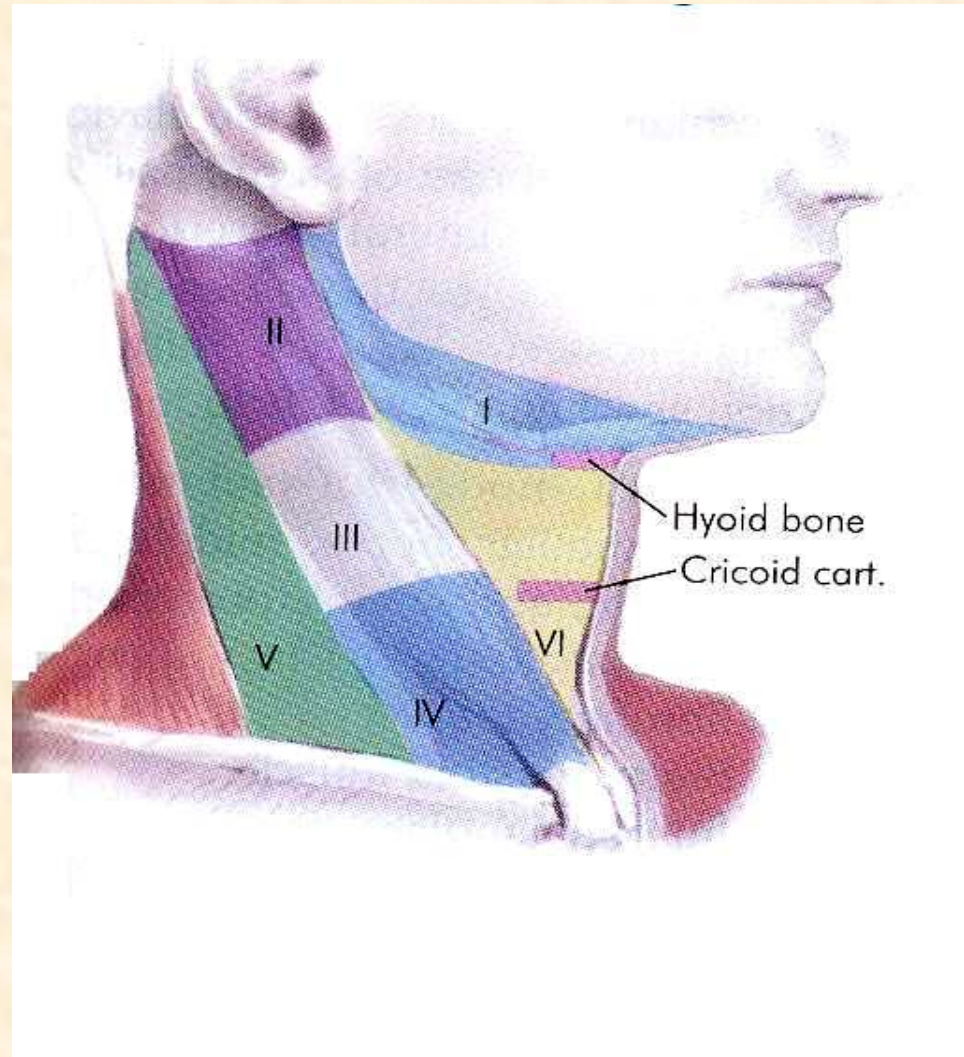
Level VI – Anterior Compartment Nodes

They are located between the medial borders of sternocleidomastoid muscles (or carotid sheaths) on each side, hyoid bone above and suprasternal notch below. They include prelaryngeal, pretracheal, paratracheal nodes.



Level VII

They are located below the suprasternal notch and include nodes of the upper mediastinum.



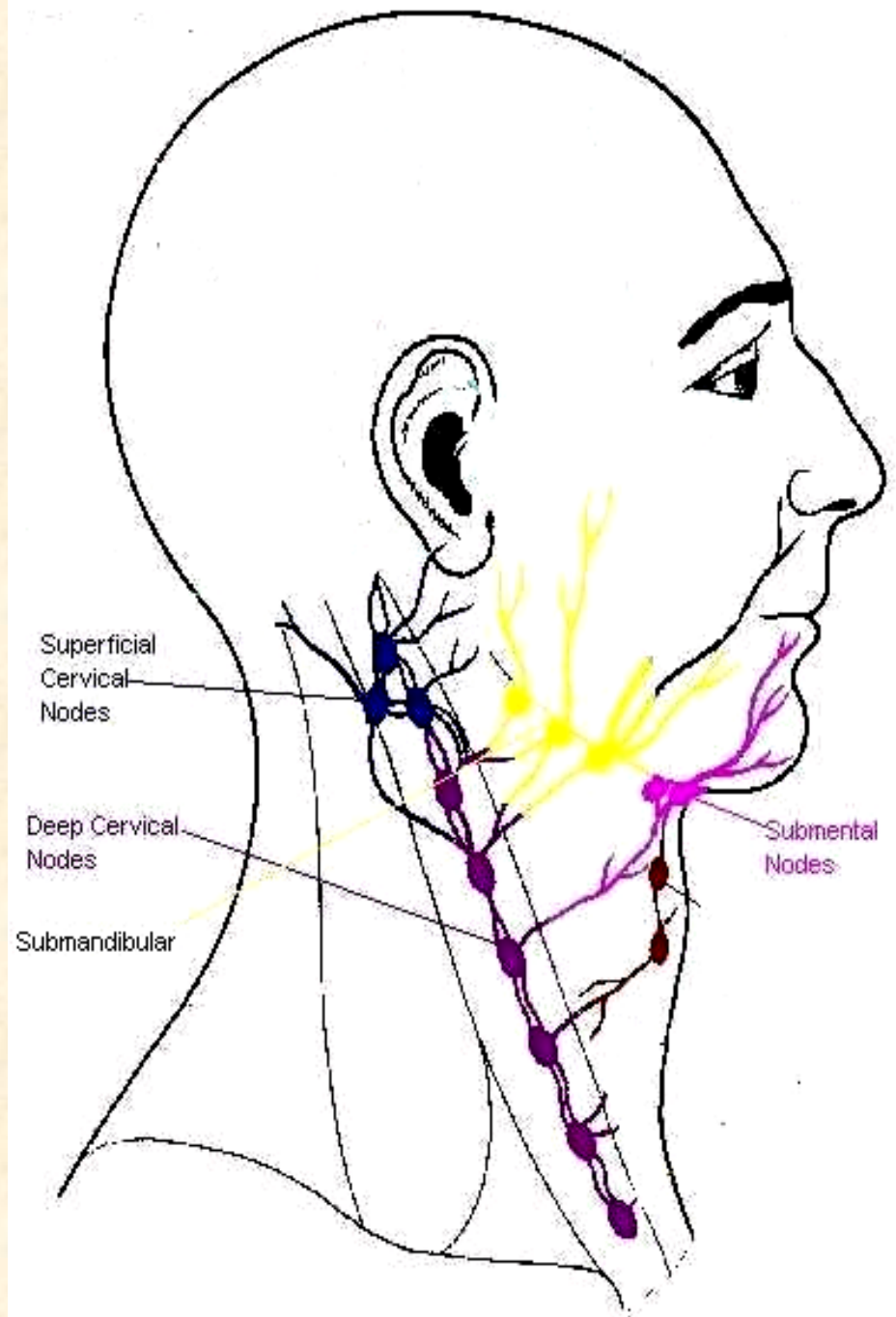
Submental Nodes

Lie on mylohyoid muscle in the submental triangle

2 to 8 in number

Drainage – afferents come from the chin, middle part of lower lip, anterior gums, anterior floor of mouth and tip of tongue.

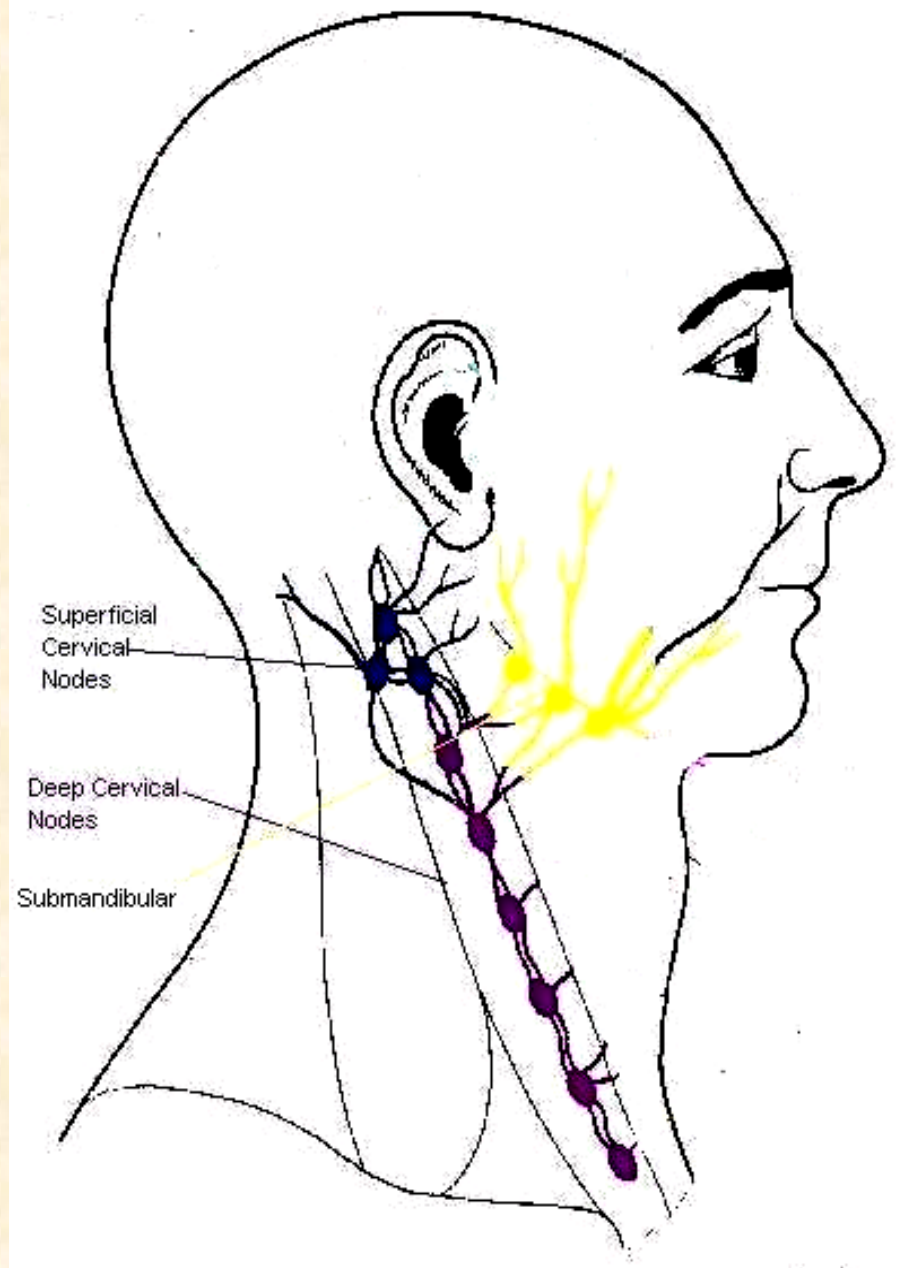
Efferents - they go to submandibular and internal jugular chain



Submandibular – they lie in submandibular triangle in relation to submandibular gland.

Afferents come from lateral part of the lower lip, upper lip, cheek, nasal vestibule and anterior part of nasal cavity, gums teeth medial canthus, soft palate, anterior pillar anterior part of tongue, submandibular and sublingual salivary glands and floor of mouth.

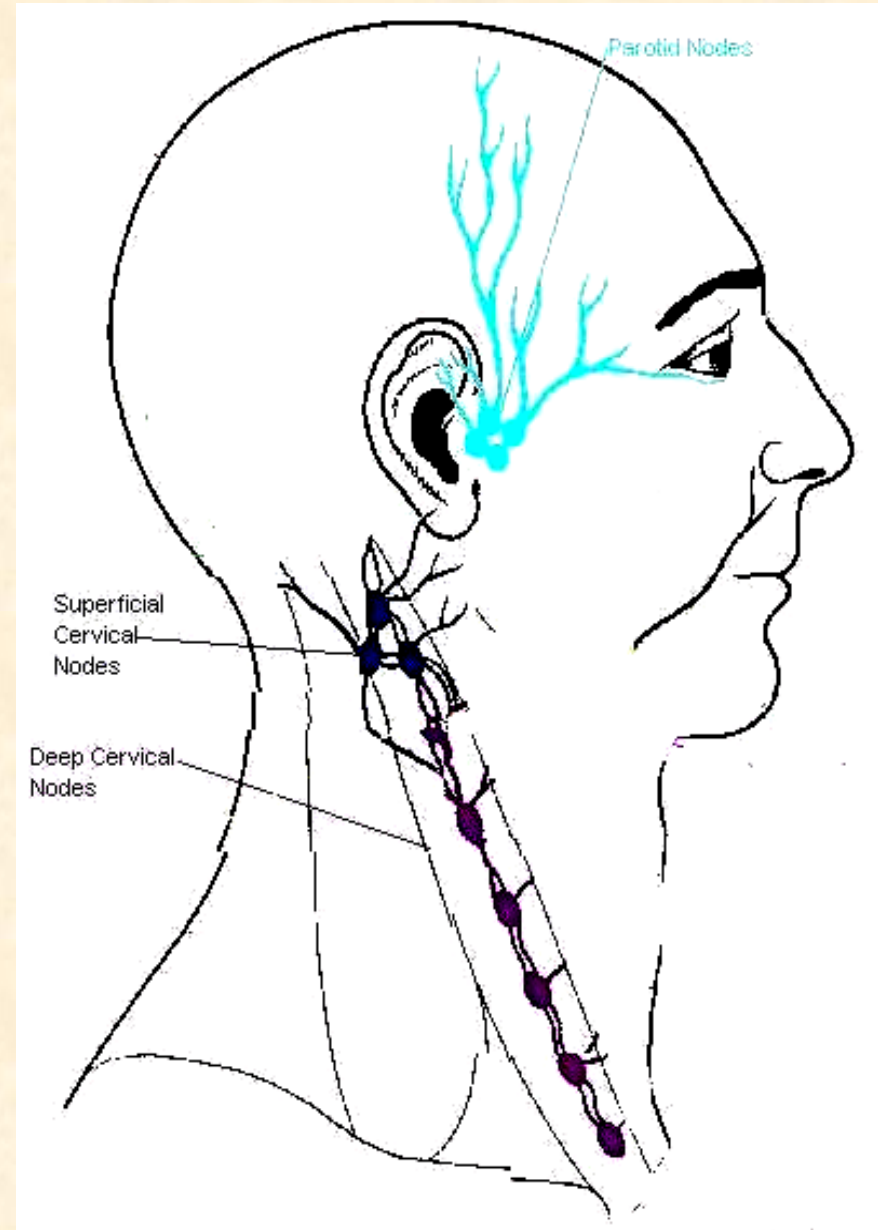
Efferents go to internal jugular chain.



Parotid nodes – they lie in relation to the parotid salivary gland.

Afferents come from the scalp, pinna, external auditory canal, face buccal mucosa.

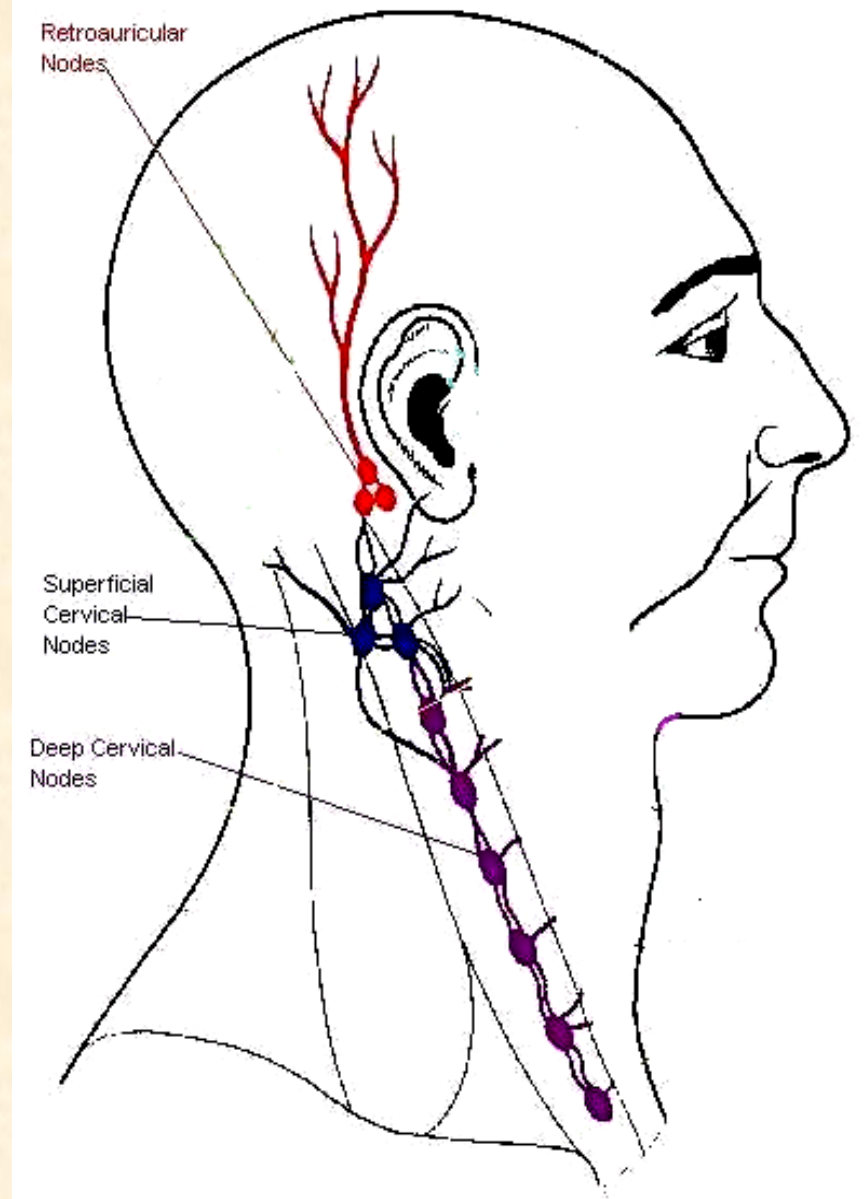
Efferents go to internal jugular or external jugular chain.



**Post auricular nodes
(mastoid nodes)** – they lie
behind the the pinna over the
mastoid.

Afferents come from the
scalp, posterior surface of
pinna and skin of mastoid.

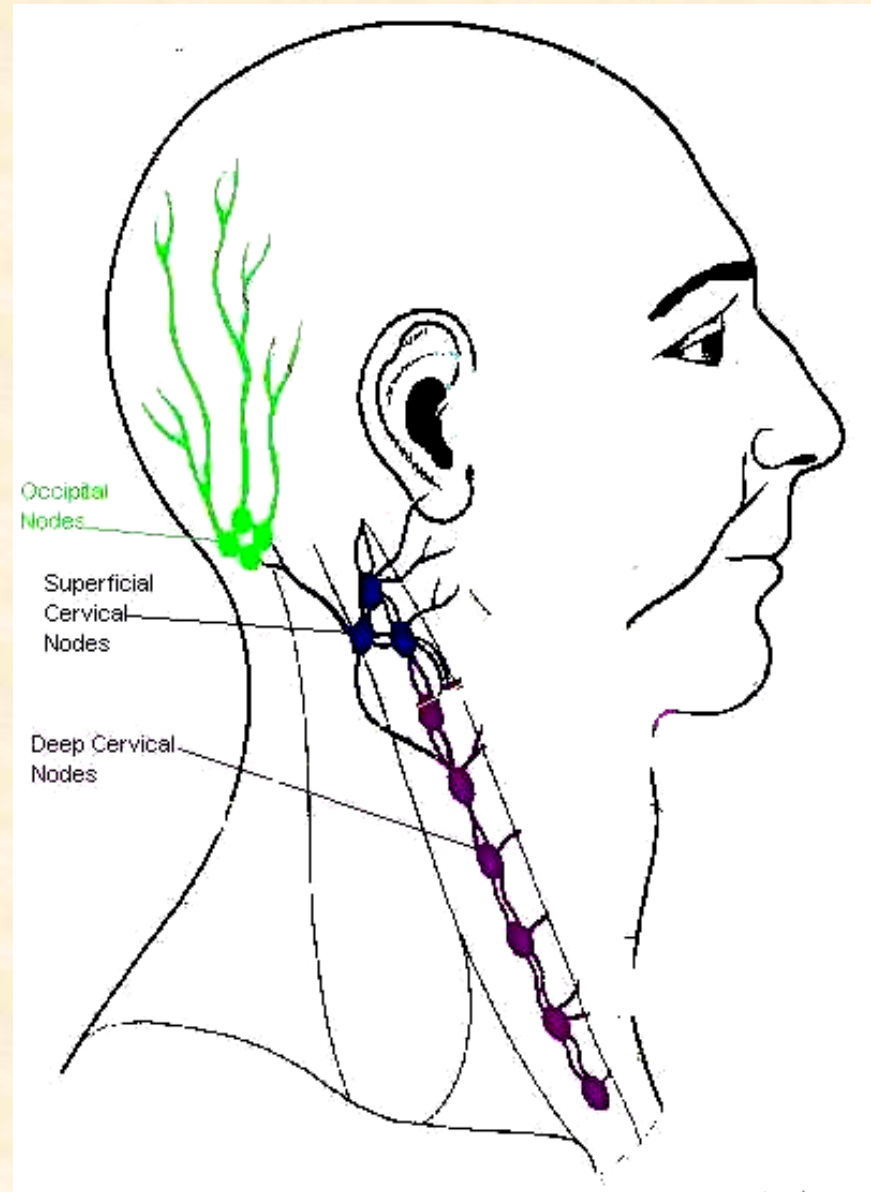
Efferents drain into internal
jugular chain



Occipital Nodes

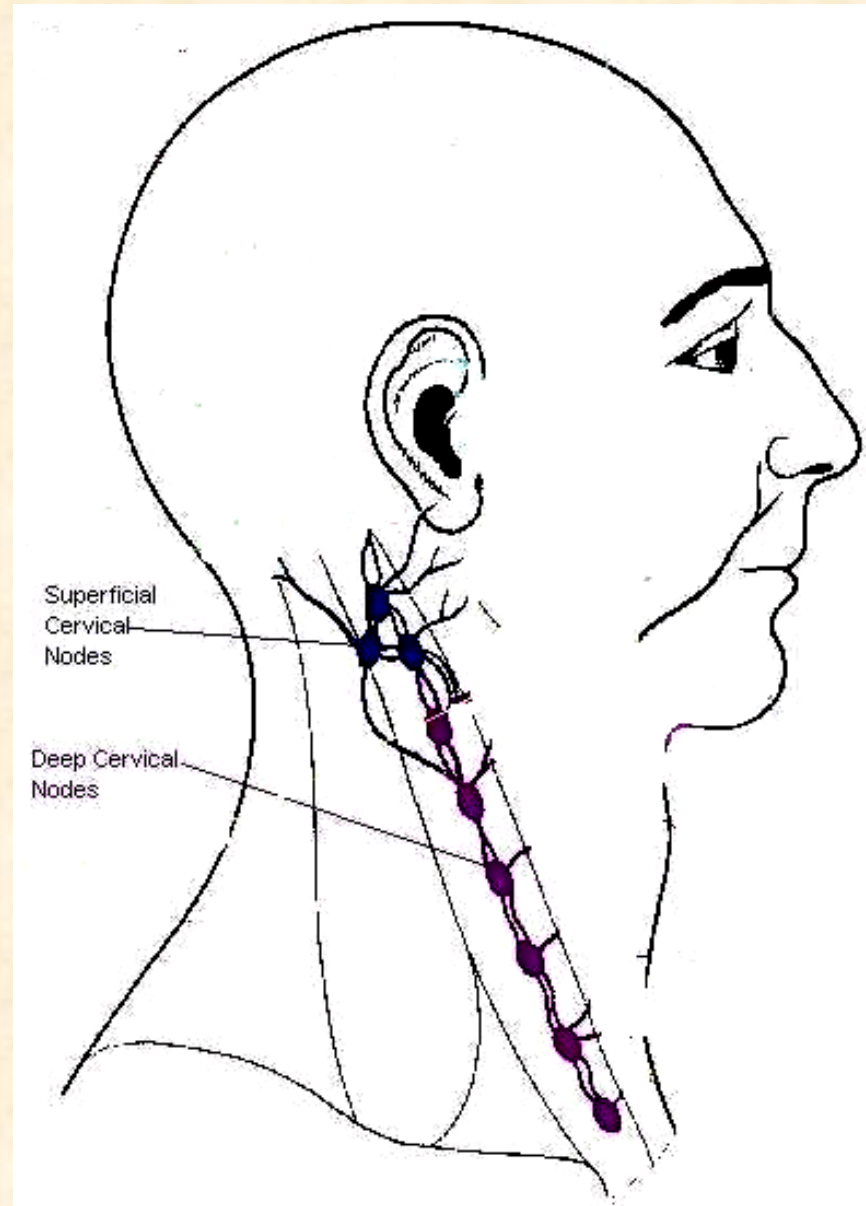
They lie at the apex of the posterior triangle

Afferents come from scalp, skin of upper neck. Efferents drain into upper accessory chain of nodes.



Lateral Cervical Nodes

- a) Superficial group – it lies along external jugular vein and drains into internal jugular and transverse cervical nodes.



Deep Group

It consists of three chains, the internal jugular, spinal accessory and transverse cervical.

Internal jugular chain

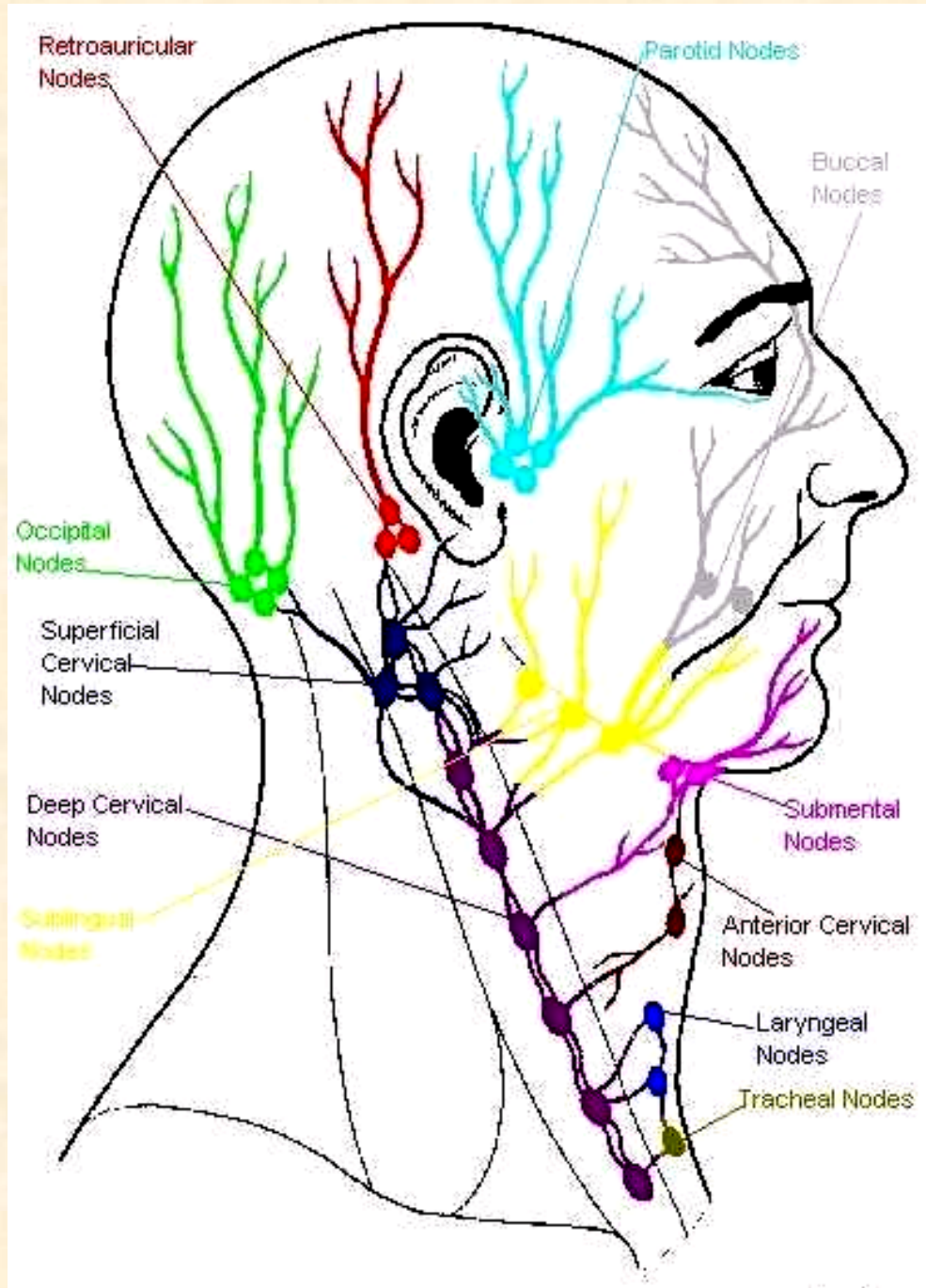
Lymph nodes of internal jugular chain lie anterior, lateral and posterior to internal jugular vein.

Upper group (jugulodigastric node) – drains oral cavity, oropharynx, nasopharynx, hypopharynx, larynx and parotid.

Middle group drains hypopharynx, larynx, thyroid, oral cavity, oropharynx.

Lower jugular group drains larynx, thyroid and cervical oesophagus.

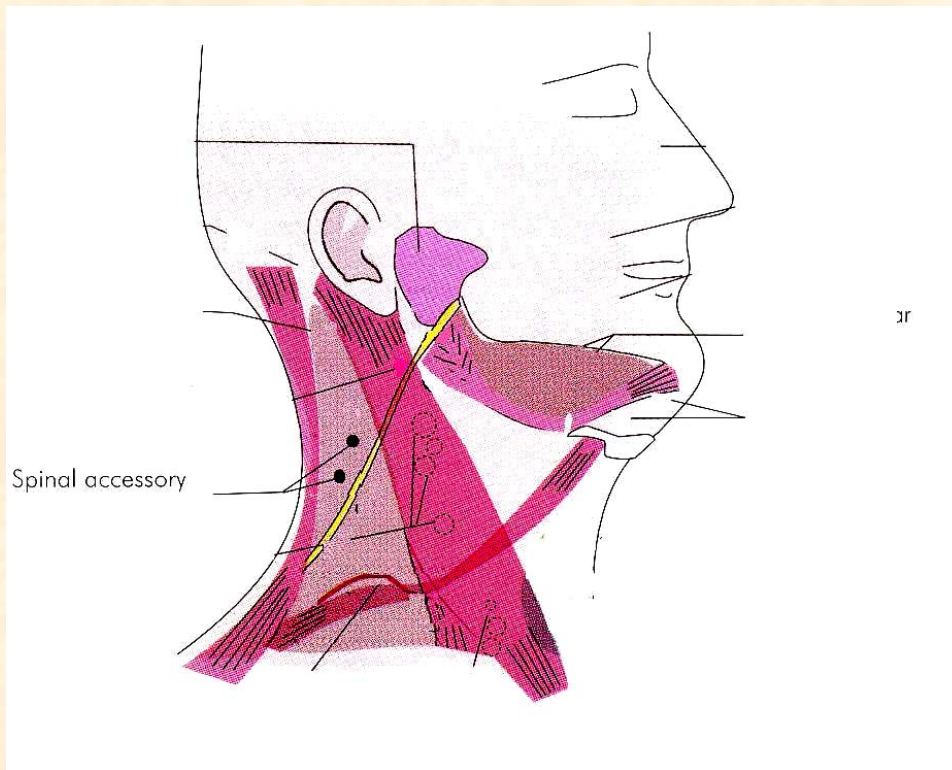
Drainage of Deep group of nodes



Spinal accessory chain

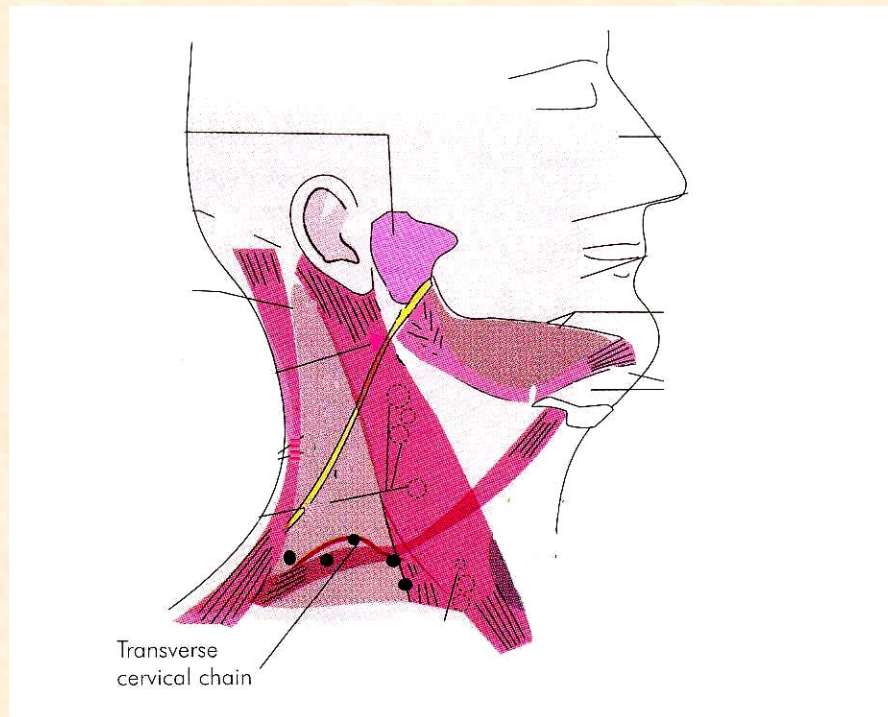
Lies along the spinal accessory nerve. Spinal accessory chain drains the scalp, skin of the neck, the nasopharynx, occipital and postauricular nodes.

Efferents from this chain drain into transverse cervical chain.



Transverse cervical chain (supraclavicular nodes)

It lies horizontally, along the transverse cervical vessels, in the lower part of the posterior triangle. The medial nodes of the group called scalene nodes. Afferents to those nodes come from the accessory chain and also infraclavicular structures, e.d. breast, lung, stomach, colon, ovary and testis.



Anterior Cervical Nodes

They lie between the two carotids and below the level of hyoid bone and consist of two chains:

(a) Anterior jugular chain - It lies along anterior jugular vein and drains the skin of anterior neck.

(b) Juxtavisceral chain – It consists of prelaryngeal, pretracheal, and paratracheal n

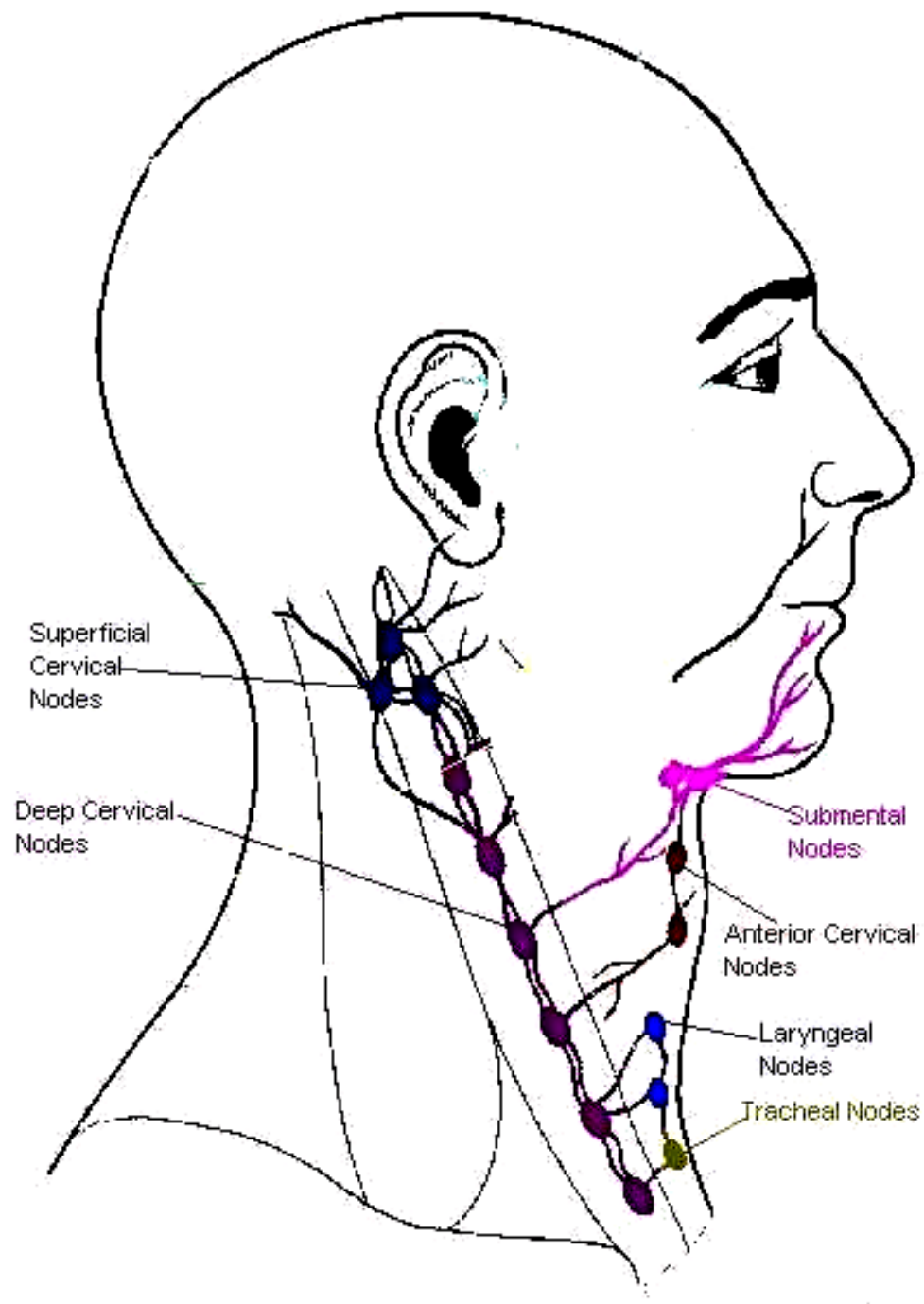
(i) Prelaryngeal node (Delphian node)

- lies on cricothyroid membrane and drains subglottic region of larynx and pyriform sinuses.

(ii) Pretracheal nodes lie in front of the trachea, and drain thyroid gland and the trachea. Efferents from these nodes go to paratracheal, lower internal jugular and anterior mediastinal nodes.

(iii) Paratracheal Nodes – drain the thyroid lobes, subglottic larynx, trachea and cervical oesophagus.

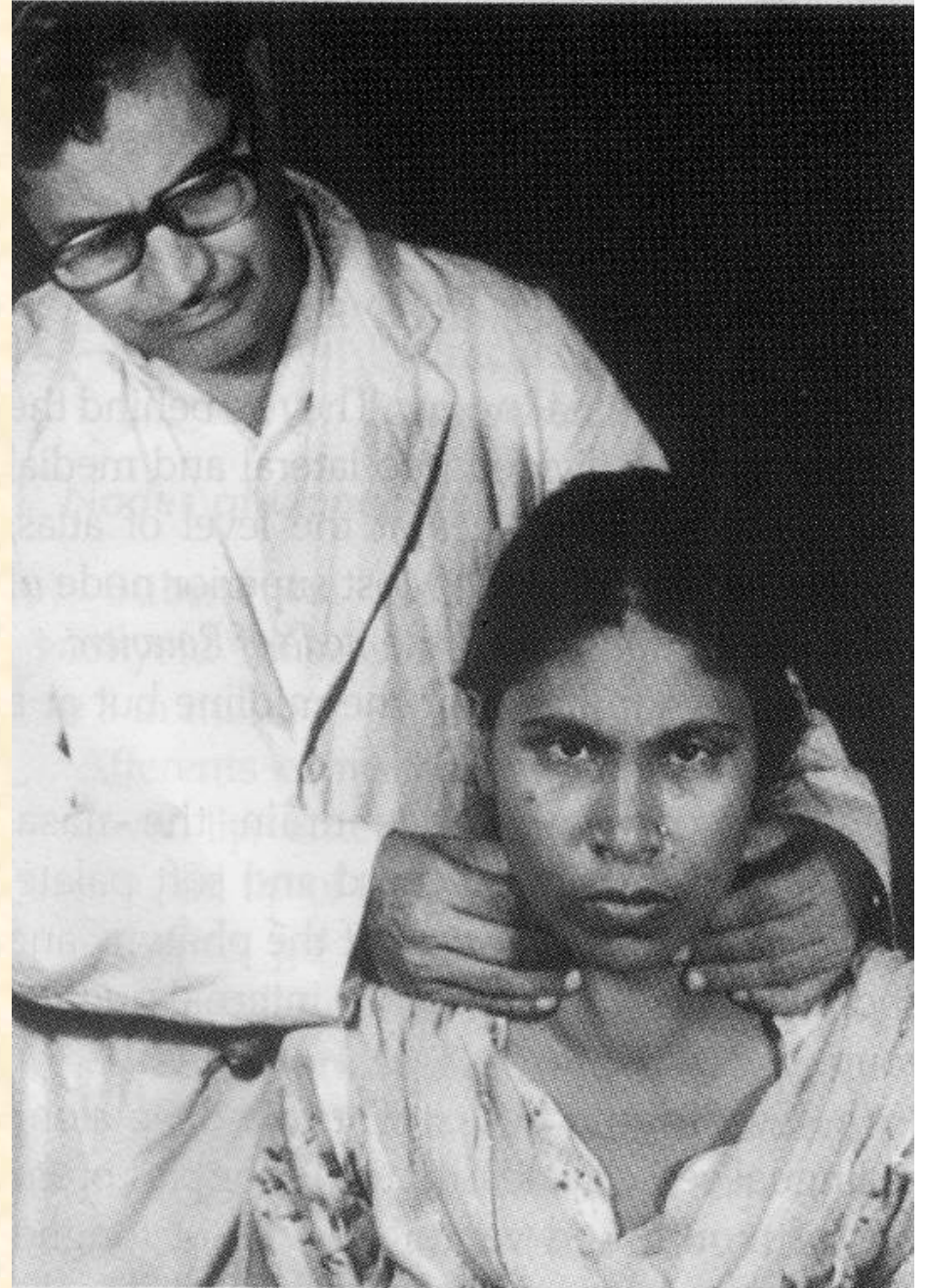
Drainage of anterior cervical group



EXAMINATION OF NECK NODES

Examination of neck nodes is important, particularly in head and neck malignancies and a systematic approach should be followed.

Neck nodes are better palpated while standing at the back of the patient. Neck is slightly flexed to achieve relaxation of muscles.



Examination of neck nodes.

When a node or nodes are palpable, look for the following points:

(i) Location of nodes

(ii) Number of nodes

(iii) Size – Abnormal Nodes

Greater than 1.5 c.m. in jugulo digastric area (level 1,2,3)

Greater than 1 c.m. elsewhere.

(iv) Consistency. Metastatic nodes are hard; lymphoma nodes are firm and rubbery; hyperplastic nodes are soft. Nodes of metastatic melanoma are also soft.

(v) Discrete or matted nodes.

(vi) Tenderness. Inflammatory nodes are tender.

(vii) Fixity to overlying skin or deeper structures. Mobility should be checked both in the vertical and horizontal planes.

The nodes are examined in the following manner so that none is missed.

- a) Upper horizontal chain.
- b) External jugular chain
- c) Internal jugular chain
- d) Spinal accessory chain
- e) Transverse cervical chain
- f) Anterior jugular chain
- g) Juxtavisceral chain.

Submental Nodes



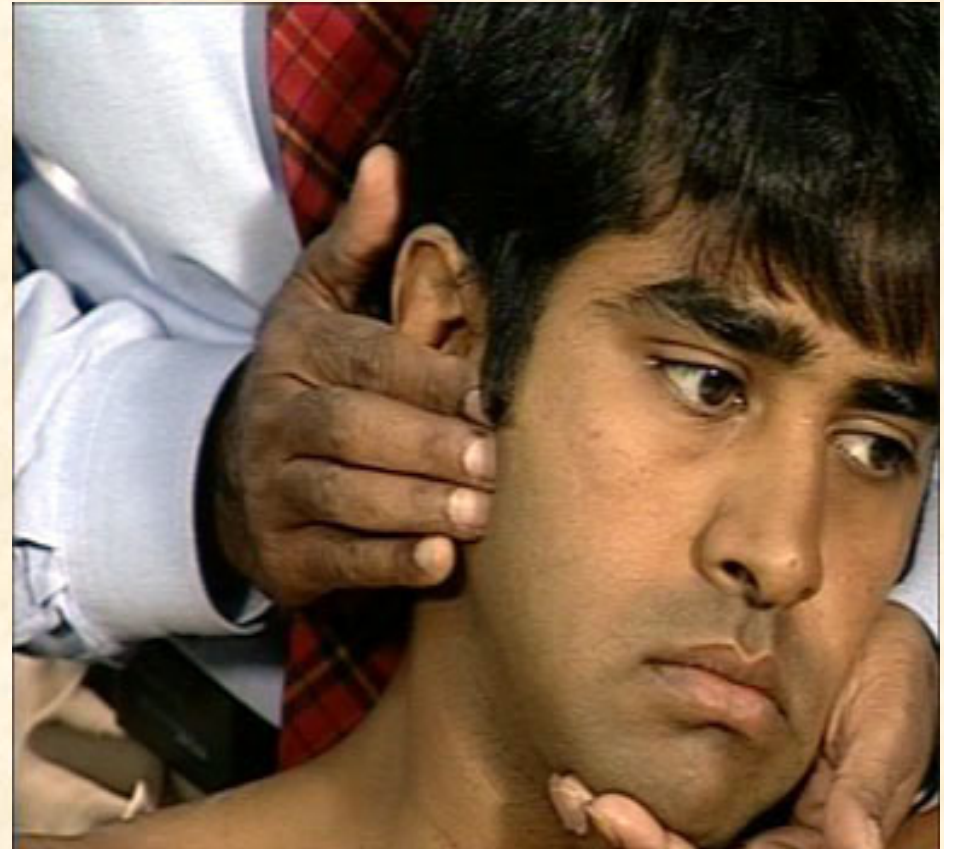
Submandibular Nodes

Roll your fingers against inner surface of Mandible with patient's head gently tilted towards one side.



Parotid (Preauricular) Nodes

Roll your finger in front of the ear, against the maxilla.



Post auricular (Mastoid Nodes)



Occipital Nodes



External jugular chain

It lies superficial to sternomastoid.

Internal jugular chain

Examine the upper, middle and lower groups. Many of them lie deep to sternomastoid muscle which may need to be displaced posteriorly.



Transverse Cervical Nodes

Supraclavicular (Scalene Nodes)

roll your fingers gently behind the clavicles. Instruct the patient to cough or to bear down like they are having a bowel movement. Occasionally an enlarged lymph node may pop up.



Thank you !