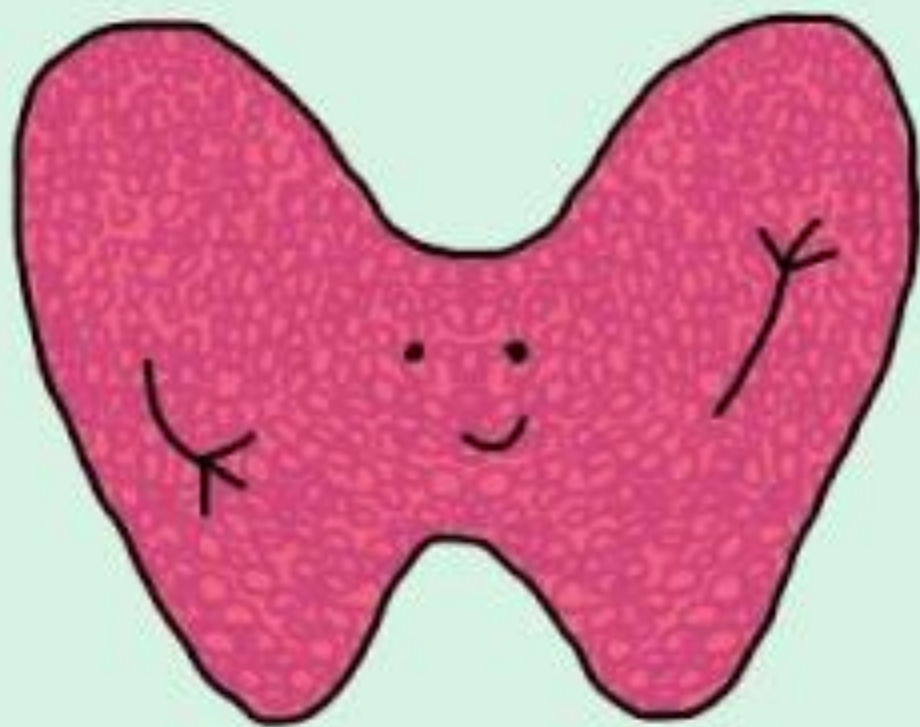


Thyroid Cancer



Hi. I'm your thyroid gland.



Types & clinical picture of malignant Goitre

Prof. Dr / Alaa El Suity

Content

1- EMBRYOLOGY

2- SURGICAL ANATOMY

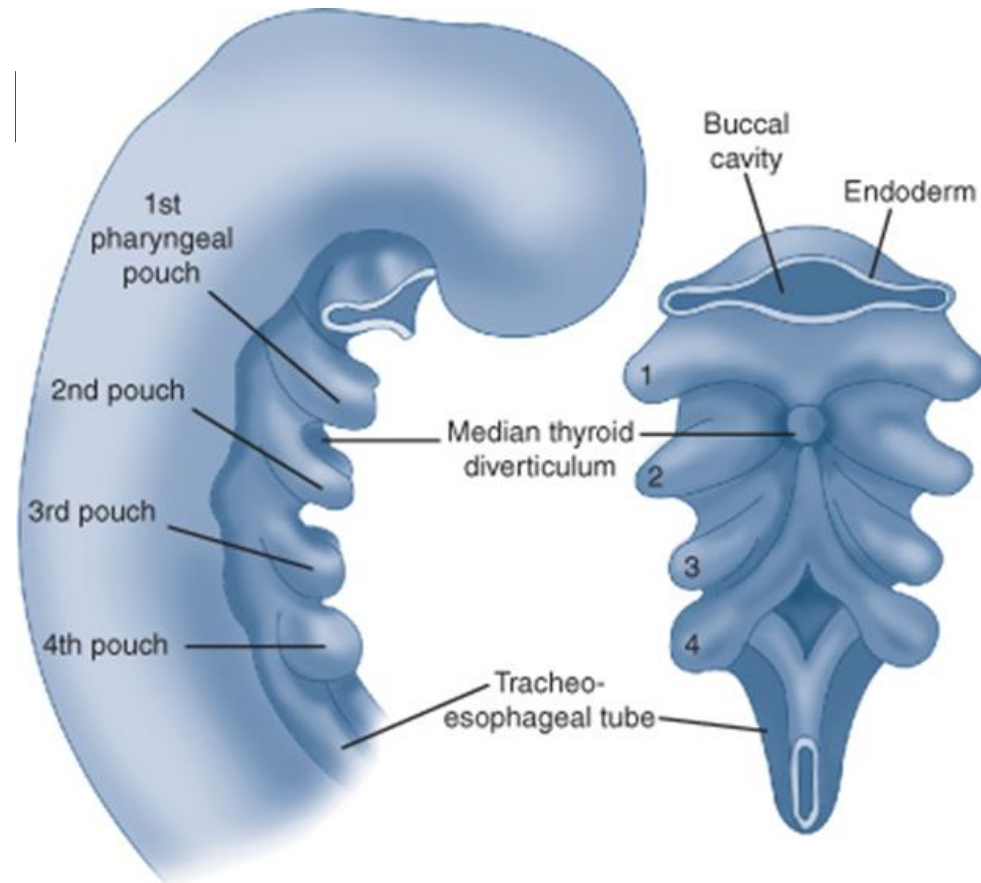
3- THYROID ENLARGEMENT

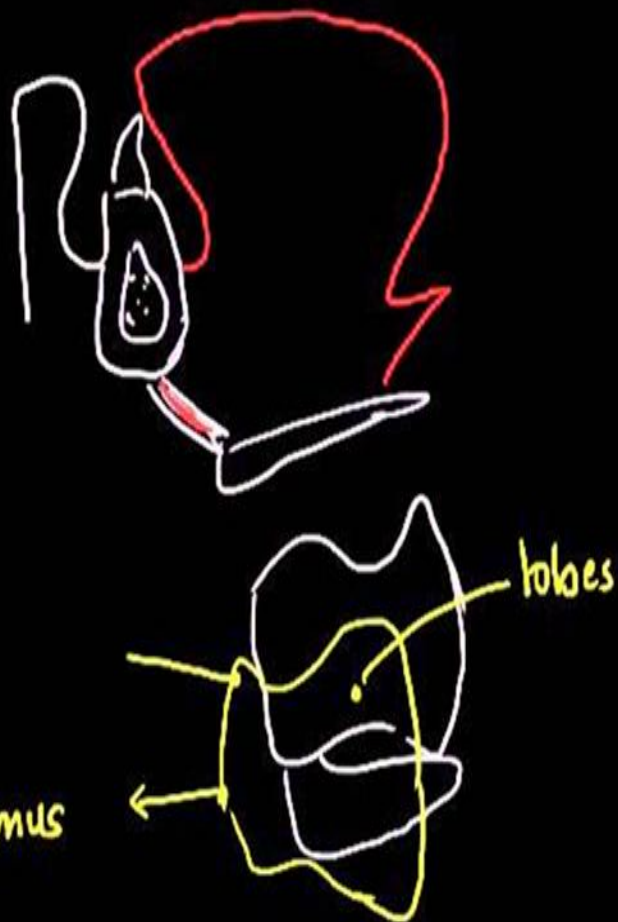
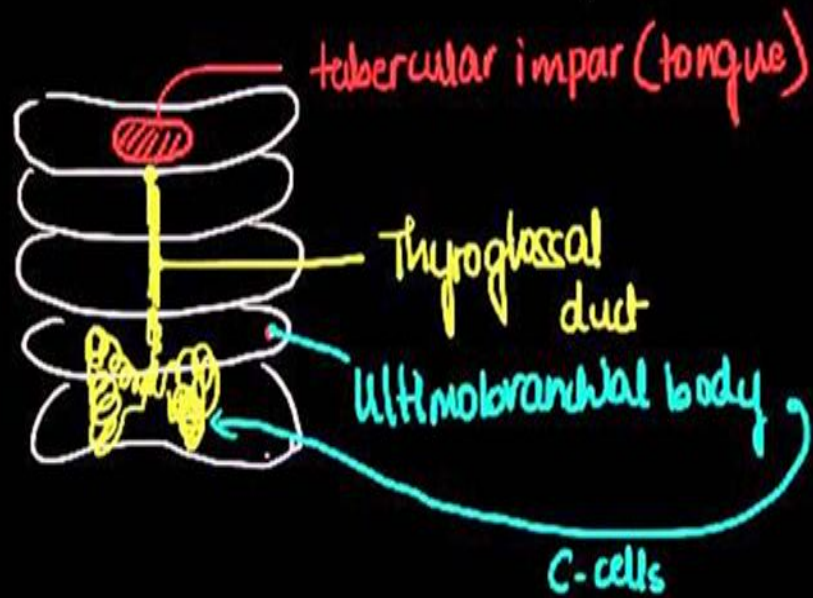
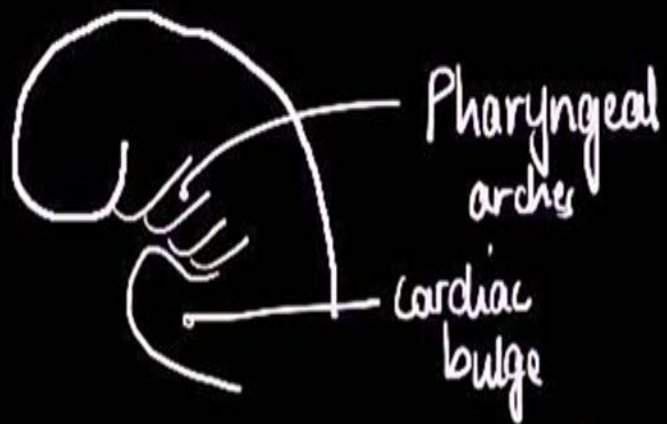
4- MALIGNANT GOITER

- types
- c/p
- grades
- stages
- complication
- take home message

EMBRYOLOGY

The thyroid gland formed of 2 structures
the thyroglossal duct &
The 2 ultimobranchia





Thyroid Gland Development

- Thyroid glands arise as an endodermal diverticulum from the floor of the pharynx

Week 3: Thickening in the floor **between the first and second pharyngeal pouches**

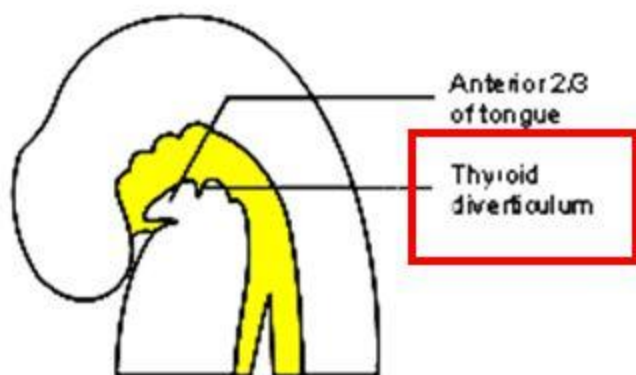
Week 4: Endoderm evaginates ventrally into the mesoderm to form the **thyroid diverticulum**

Week 5: a. Formation of **thyroglossal duct** b. Bifurcation on the tip of Thyroglossal duct forms isthmus and the lateral lobes of the gland

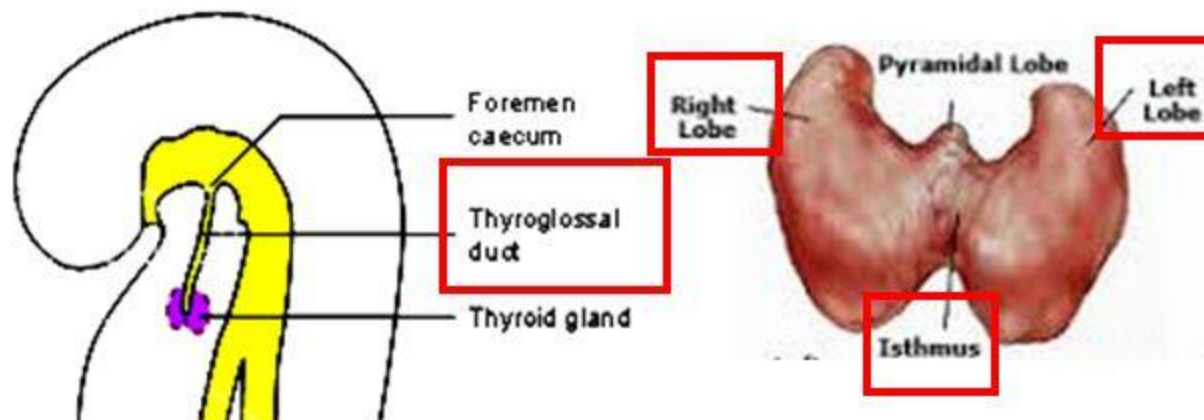
Weeks 5-6: Growth of duct down to the neck, migration of thyroid gland down to the neck

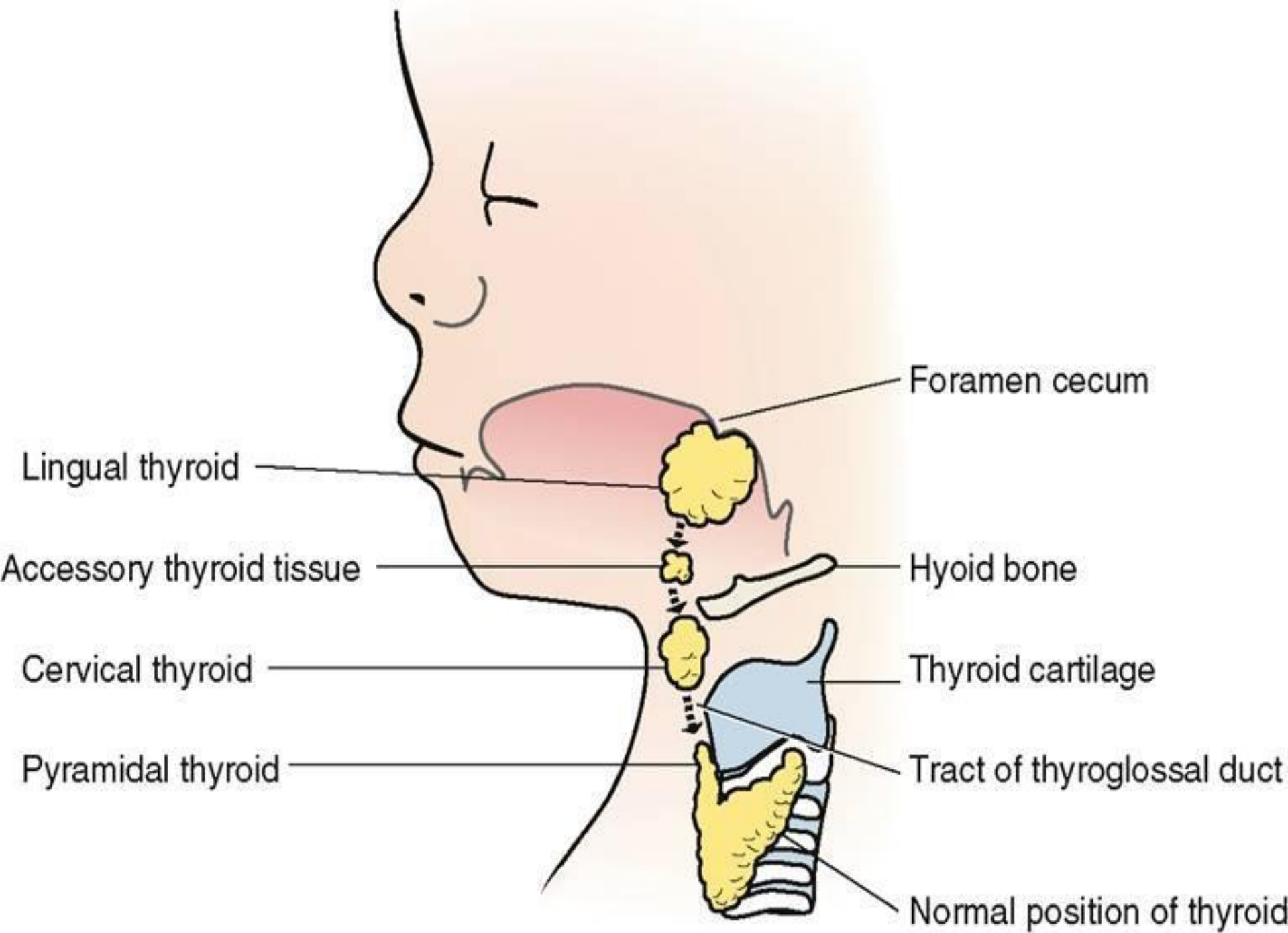
Week 7: Gland reaches the final position in relation to the larynx and the trachea

4 weeks



5 weeks





Surgical anatomy

The thyroid gland is located in the anterior neck, between the C5 and T1 vertebrae.

It is an endocrine gland, divided into two lobes which are connected by an isthmus, It is said to have a butterfly shape.

It lies behind the sternohyoid and sternothyroid muscles, wrapping around the cricoid cartilage and superior tracheal rings.

Superior laryngeal nerve

Vagus nerve

Carotid artery

Recurrent laryngeal nerve

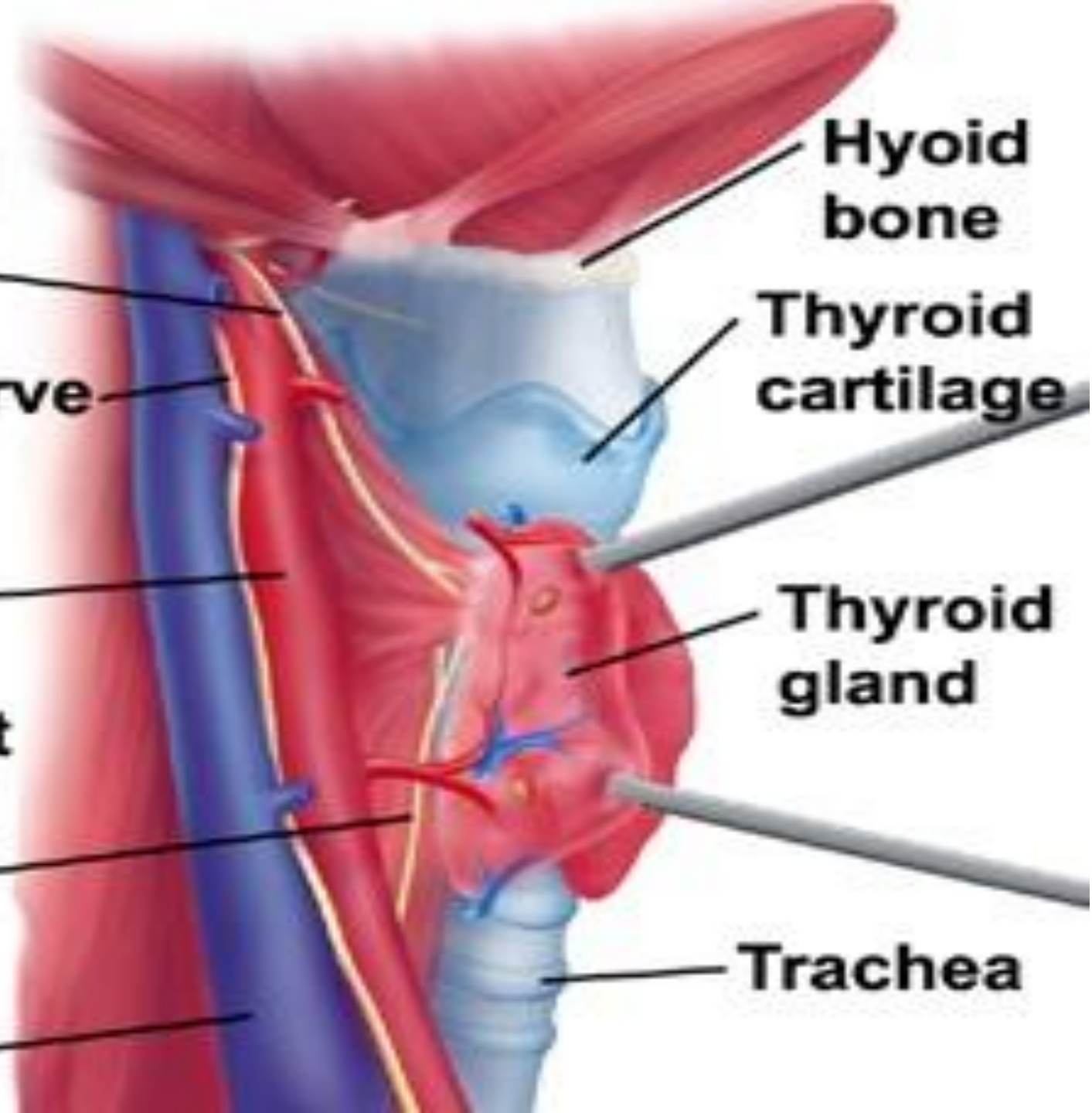
Jugular vein

Hyoid bone

Thyroid cartilage

Thyroid gland

Trachea



The normal thyroid gland weighs 20–25g.

The functioning unit is the lobule supplied by a single arteriole .

It consists of 24–40 follicles lined with cuboidal epithelium.

The follicle contains colloid in which thyroglobulin is stored

The thyroid gland secretes hormones directly into the blood. Therefore it needs to be highly vascularised.

Blood supply to the thyroid gland is achieved by two main arteries; the **superior and inferior thyroid arteries**.

The superior thyroid artery is the first branch of the external carotid artery.

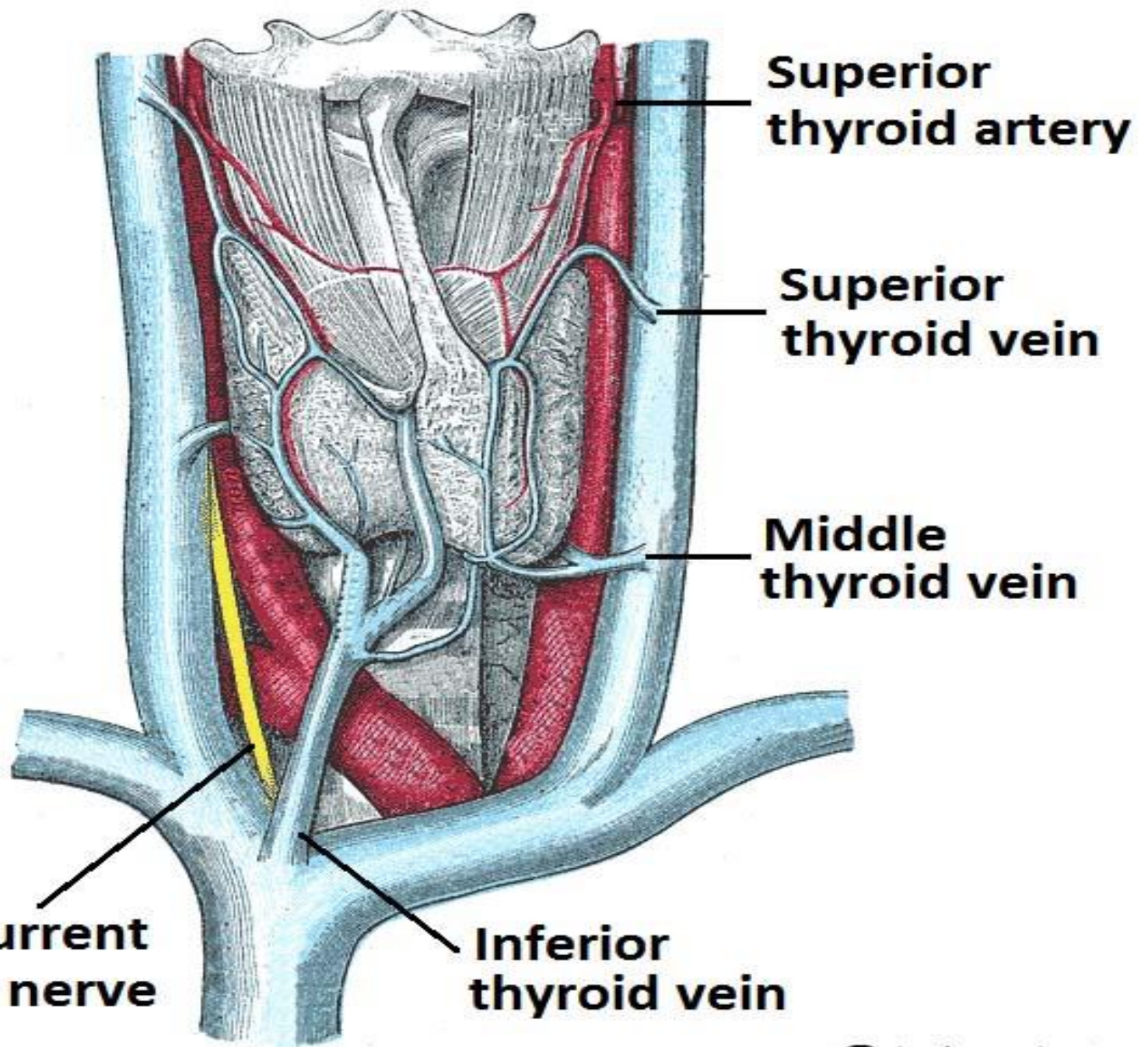
The inferior thyroid artery arises from the thyrocervical trunk (which in turn is a branch of the subclavian artery).

In a small proportion of people (around 10%), there is an additional artery present; the thyroid ima artery.

It comes from the brachiocephalic trunk of the arch of aorta

Venous drainage is carried out by the superior, middle and inferior thyroid veins, which form a venous plexus.

The superior and middle veins drain into the internal jugular veins, whereas the inferior drains into the brachiocephalic vein.



Innervation

The thyroid gland is innervated by branches derived from the sympathetic trunk. However, these nerves do not control endocrine secretion – release of hormones is regulated by pituitary gland.

Lymphatic drainage :

There is an extensive lymphatic network within the gland. Although some lymph channels pass directly to the deep cervical nodes

THYROID GLAND - GENERAL TOPOGRAPHY

Carotid arteries
Internal external

Superior laryngeal
nerve (branch of vagus)

Superior thyroid
artery & superior
laryngeal branch

Sternohyoid **C3**

Superior thyroid
vein

Thyrohyoid **C4**

Internal jugular
vein

Cricothyroid

Middle thyroid
vein

Sternothyroid **C6**

Subclavian artery

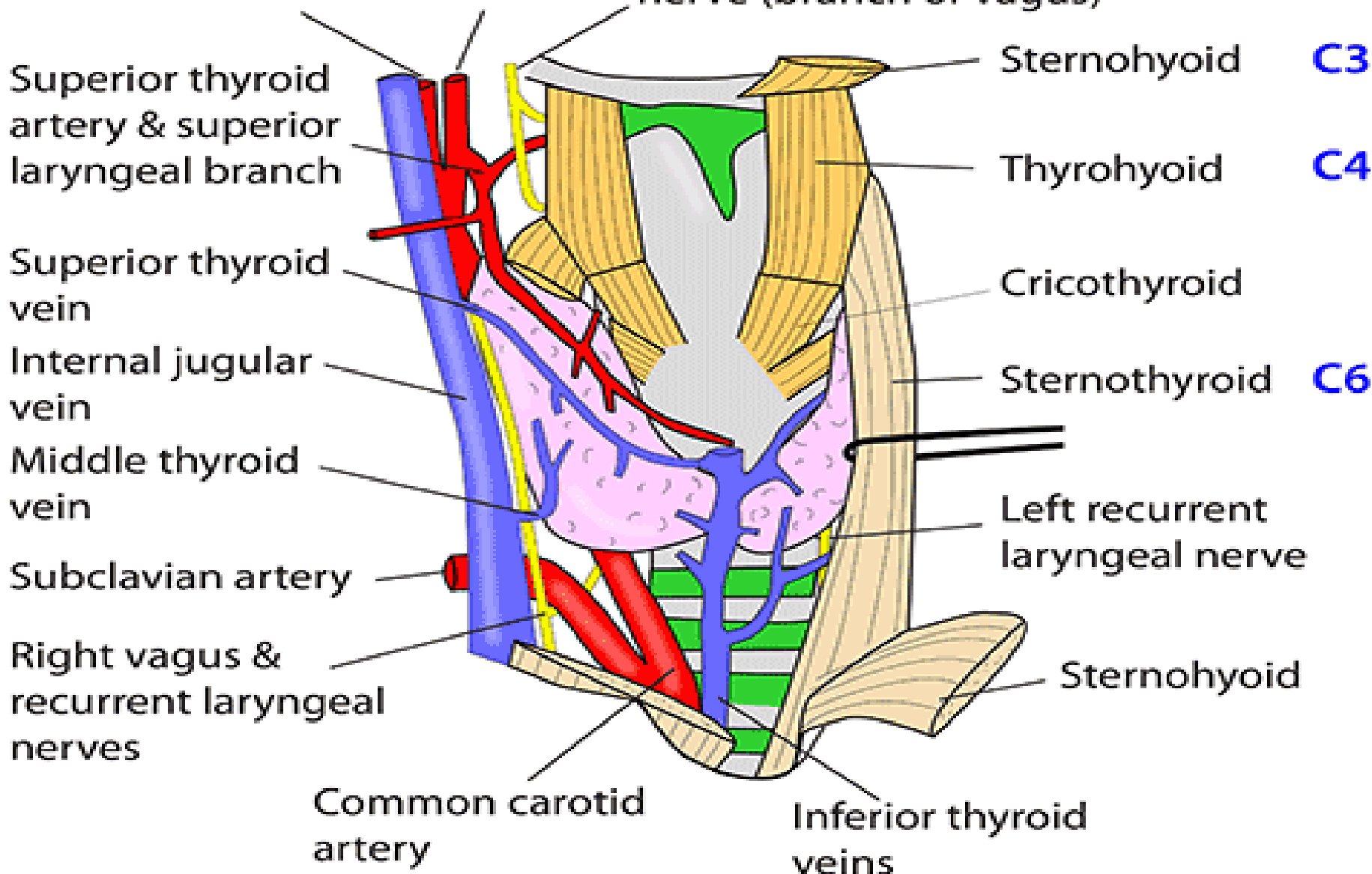
Left recurrent
laryngeal nerve

Right vagus &
recurrent laryngeal
nerves

Sternohyoid

Common carotid
artery

Inferior thyroid
veins



Thyroid enlargement



Normal



Goiter

Thyroid ENLARGEMENT

The normal thyroid gland is impalpable.

The term Goiter from the Latin word **gutter** means the throat is used to describe generalized enlargement of the thyroid gland.

This goiter may be :

- simple
- toxic
- neoplastic
- inflammatory

Malignant Sciter

CLASSIFICATION OF THYROID TUMORS

BENIGN

MALIGNANT

Follicular adenoma

primary

secondary

Differentiated

Undifferentiated

Parafollicular cells

Lymphoid cells

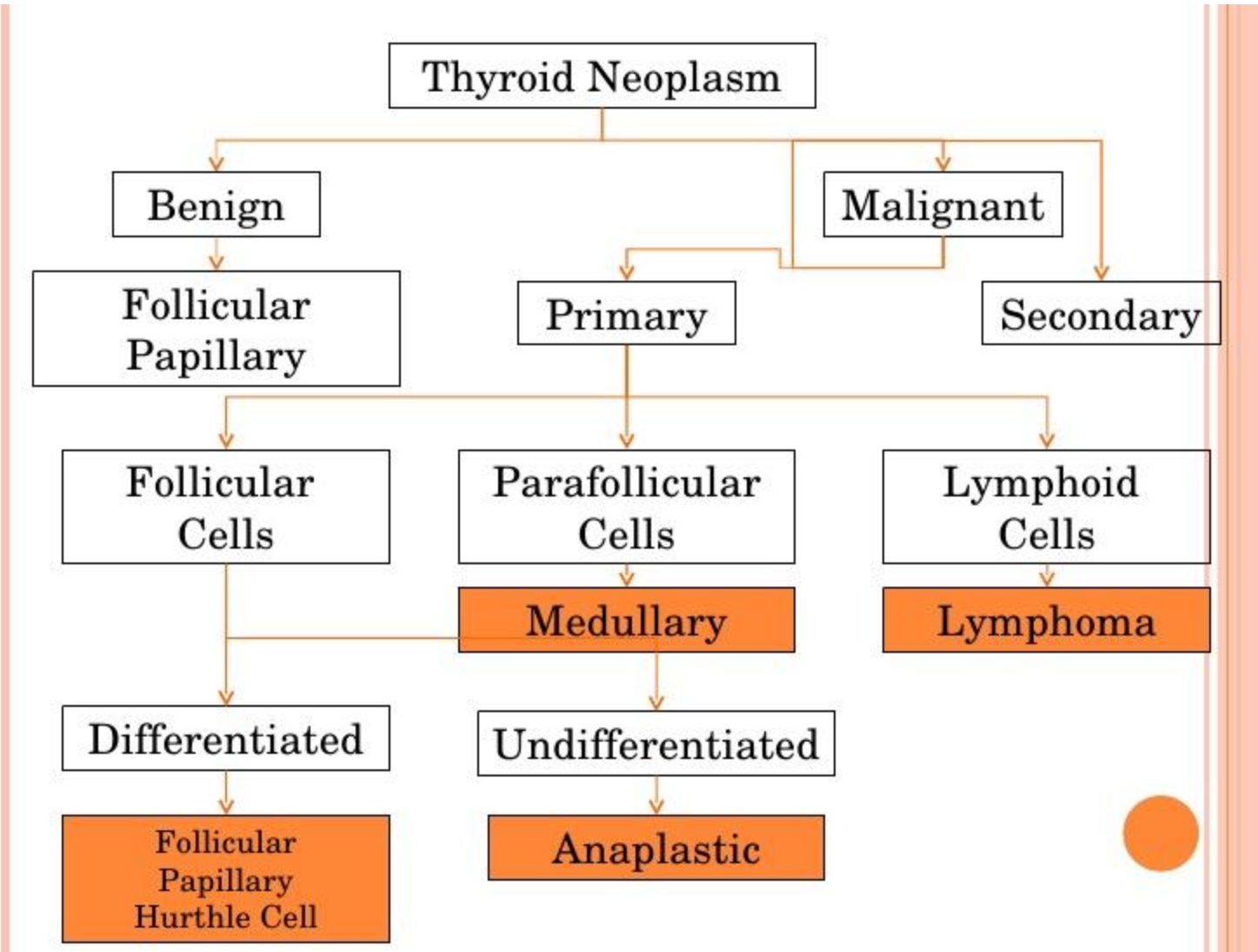
-Metastatic
-Local infiltration

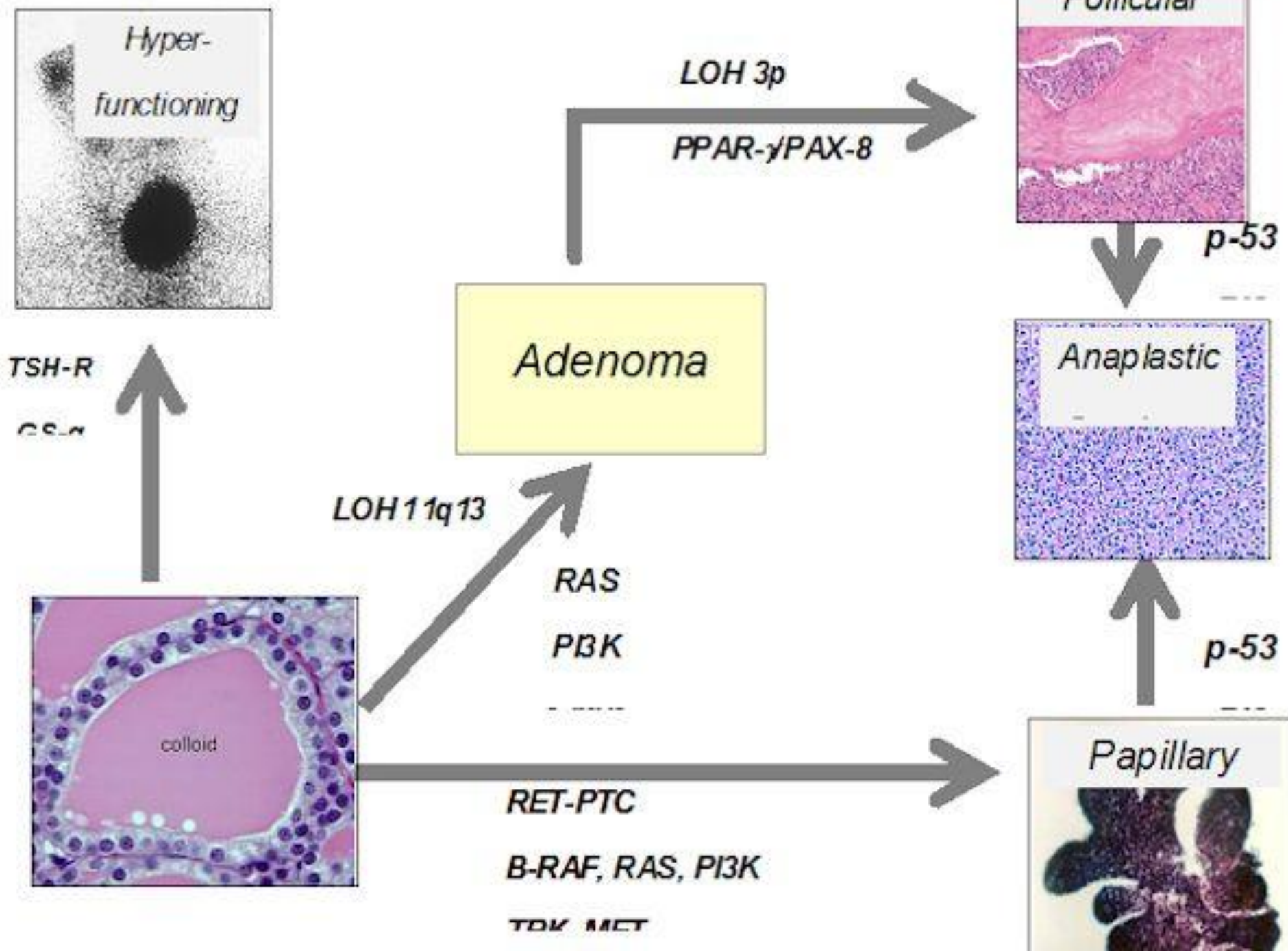
-follicular
-papillary

-anaplastic

-medullary

-lymphoma





Incidence of malignant tumors

FOLLICULAR

10–20%
FREQUENCY

PAPILLARY


75–85%
FREQUENCY

MEDULLARY

5%
FREQUENCY

ANAPLASTIC

<5%
FREQUENCY

| | Papillary | Follicular | Anaplastic |
|-----------|-------------------------|-------------|---|
| Incidence | 60% | 20% | 10% |
| Age | Children & young adults | Middle aged | Elderly |
| sex | Female | Female | Slightly  in males |

| | | | |
|------------------------------------|--|--|-----------------------------------|
| <p>Predisposing factors</p> | <p>1-external neck irradiation in childhood which were previously used to treat heamangioma & TB lymphadenitis . 2-papillary adenoma . 3- genetic factor .</p> | <p>1- SNG 2- follicular adenoma</p> | <p>-----De novo -- -----</p> |
| <p>Macroscopic picture</p> | <p>Ill defined mass infiltrating the surrounding Star shaped mass & gray in color</p> | <p>The same</p> | <p>The same</p> |