THYROID GLAND

Objectives:

By the end of this lecture, the student should be able to:

1. Describe the histological structure of thyroid gland.
2. Identify and correlate between the different endocrine cells in thyroid gland and their functions.

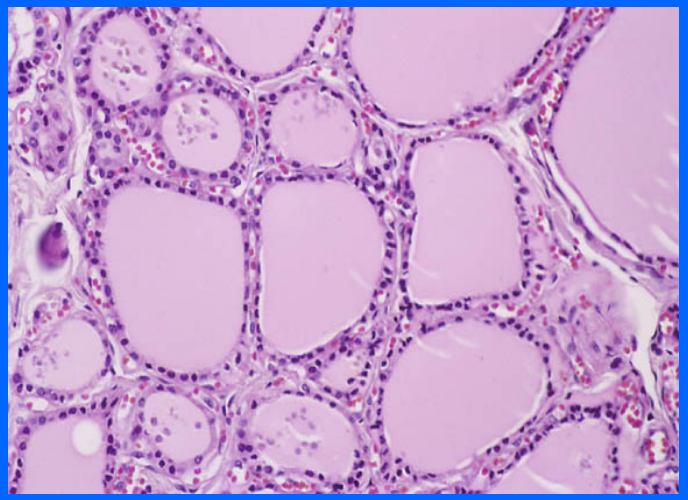
THYROID GLAND STROMA

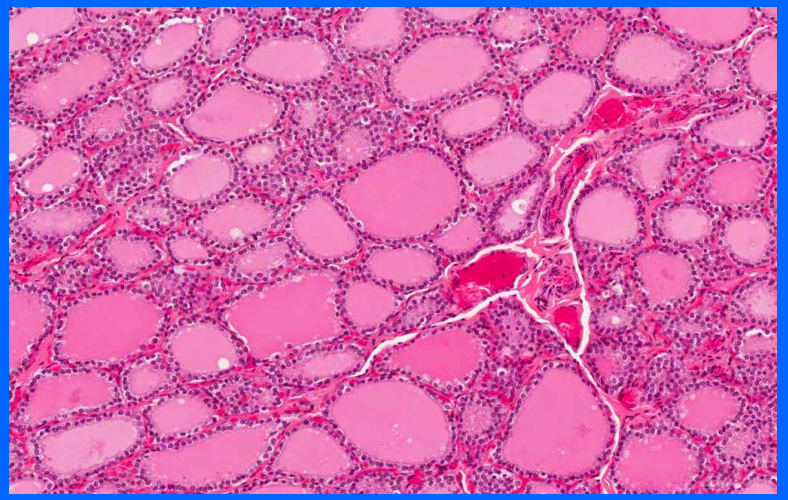
1- Capsule: dense irregular collagenous C.T.

2- Septa (Interlobular septa): " " " " .

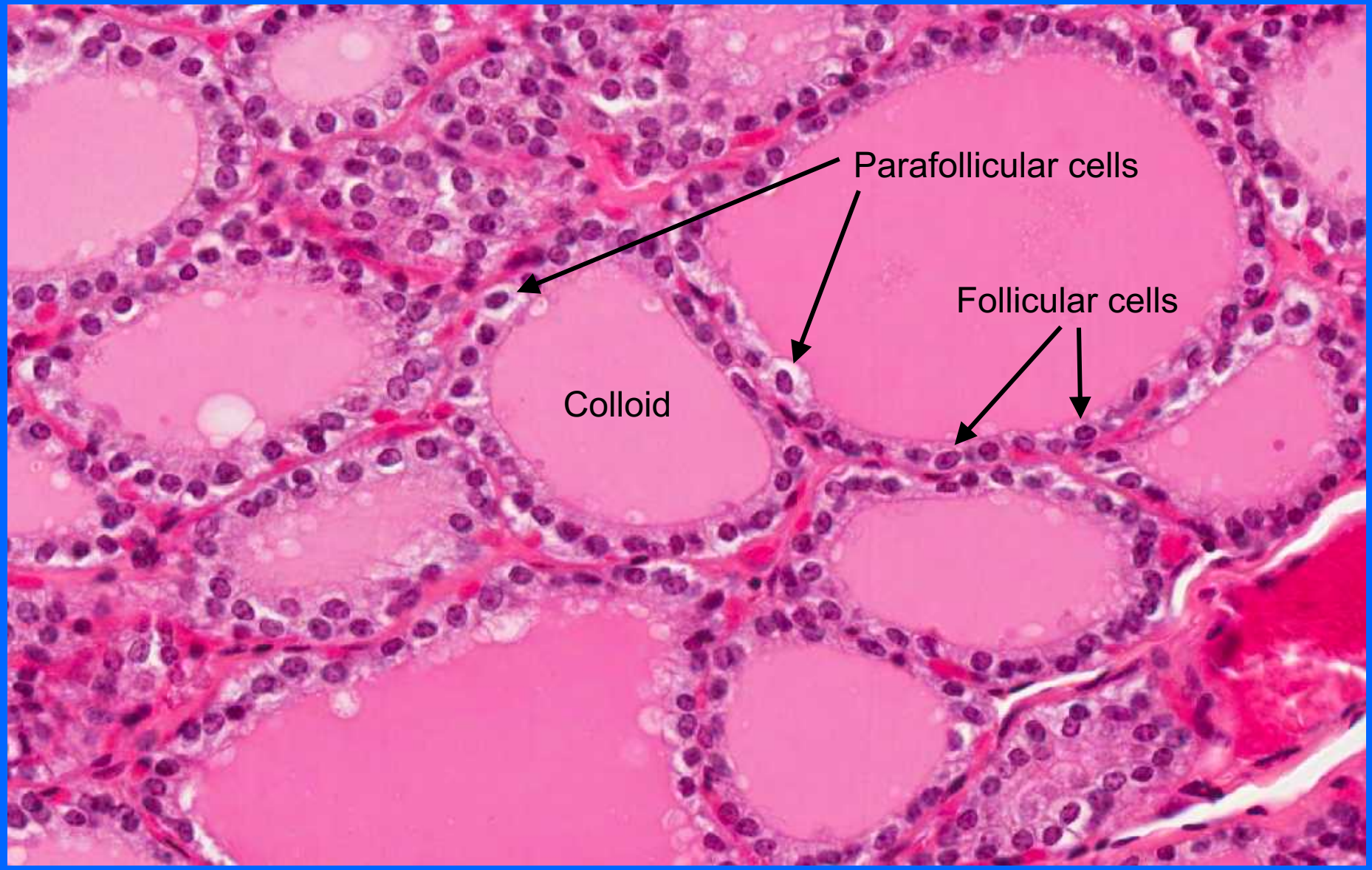
3- Reticular fibers:

Thin C.T., composed mostly of reticular fibers with rich capillary plexus surrounds each thyroid follicle.





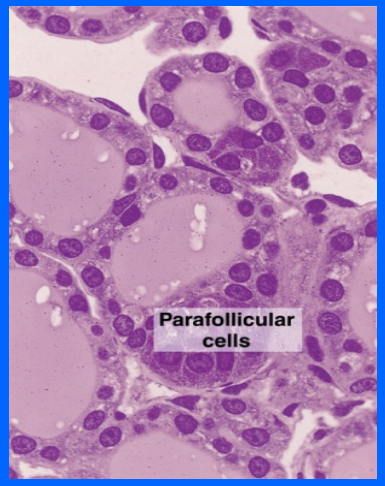
THYROID GLAND

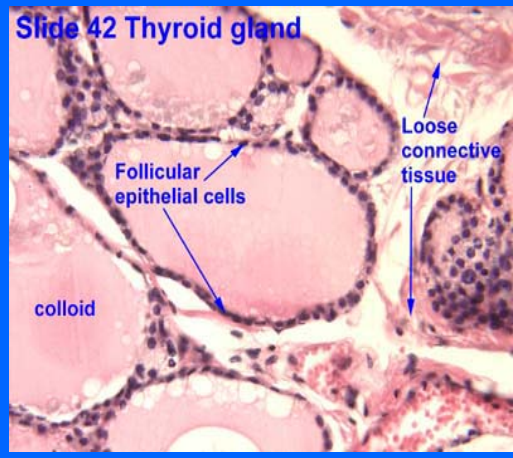


PARENCHYMA OF THYROID GLND

THYROID FOLLICLES:

Are the structural and functional units of the thyroid gland.





L/M:

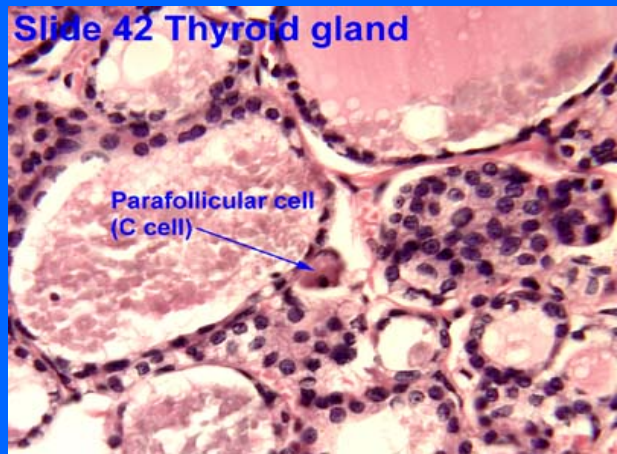
1- Simple cuboidal epithelium:

a- Follicular cells.

b- Parafollicular cells.

2- Colloid: central colloid-filled lumen.

N.B. Each follicle is surrounded by thin basal lamina.



FOLLICULAR (PRINCIPAL) CELLS

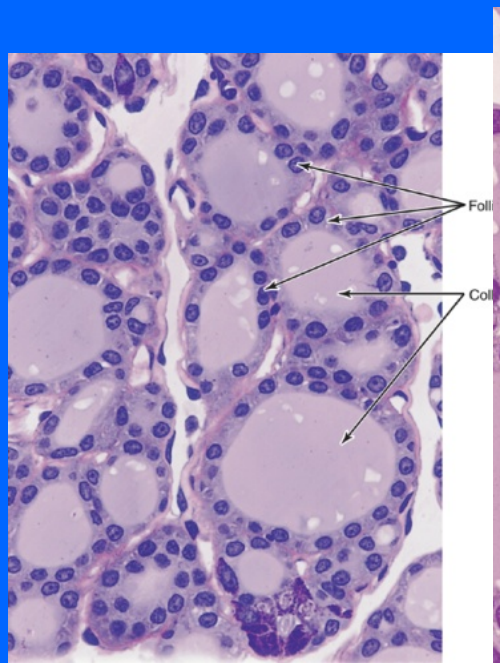
L/M:

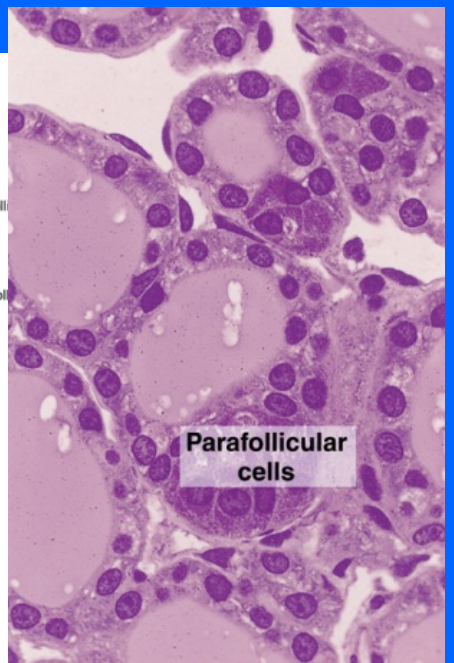
Simple cuboidal cells

Round nucleus with prominent nucleoli.

Basophilic cytoplasm.

Apical surface reaches the lumen of the thyroid follicle.





FOLLICULAR (PRINCIPAL) CELLS

E/M:

- Mitochondria.
- RER
- Supranuclear Golgi Complex.
- Numerous apically-located lysosomes.
- Numerous dispersed small vesicles:

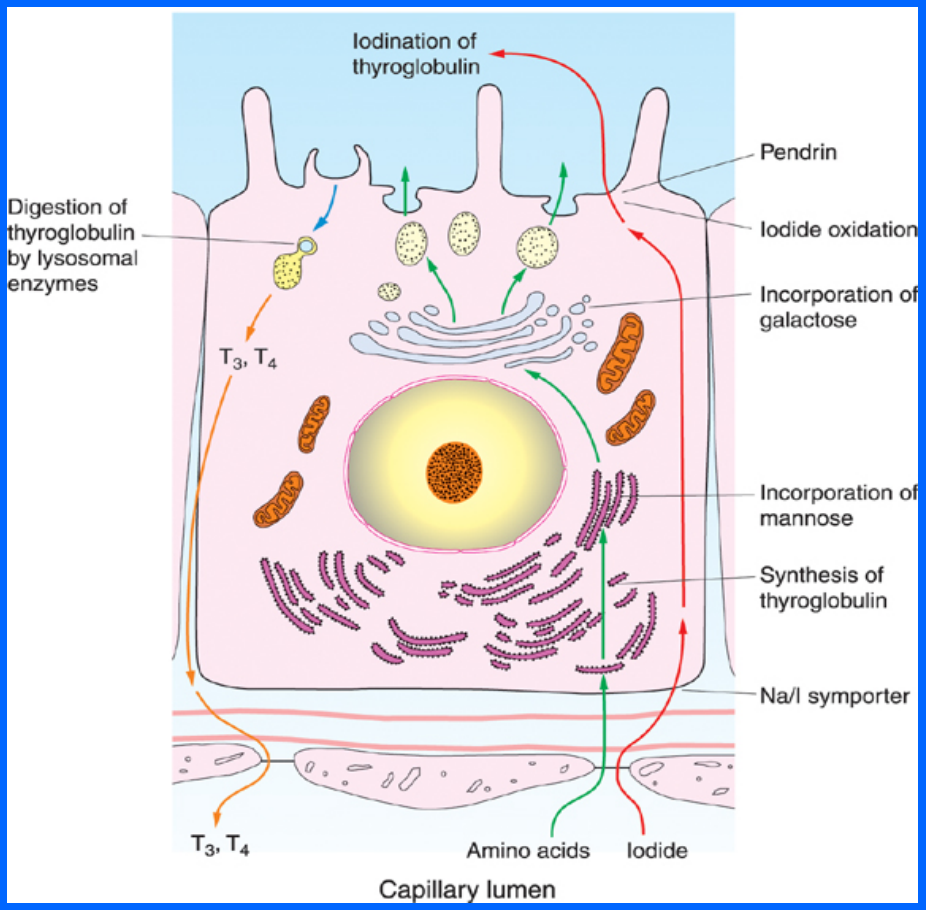
  contain newly formed thyroglobulin.

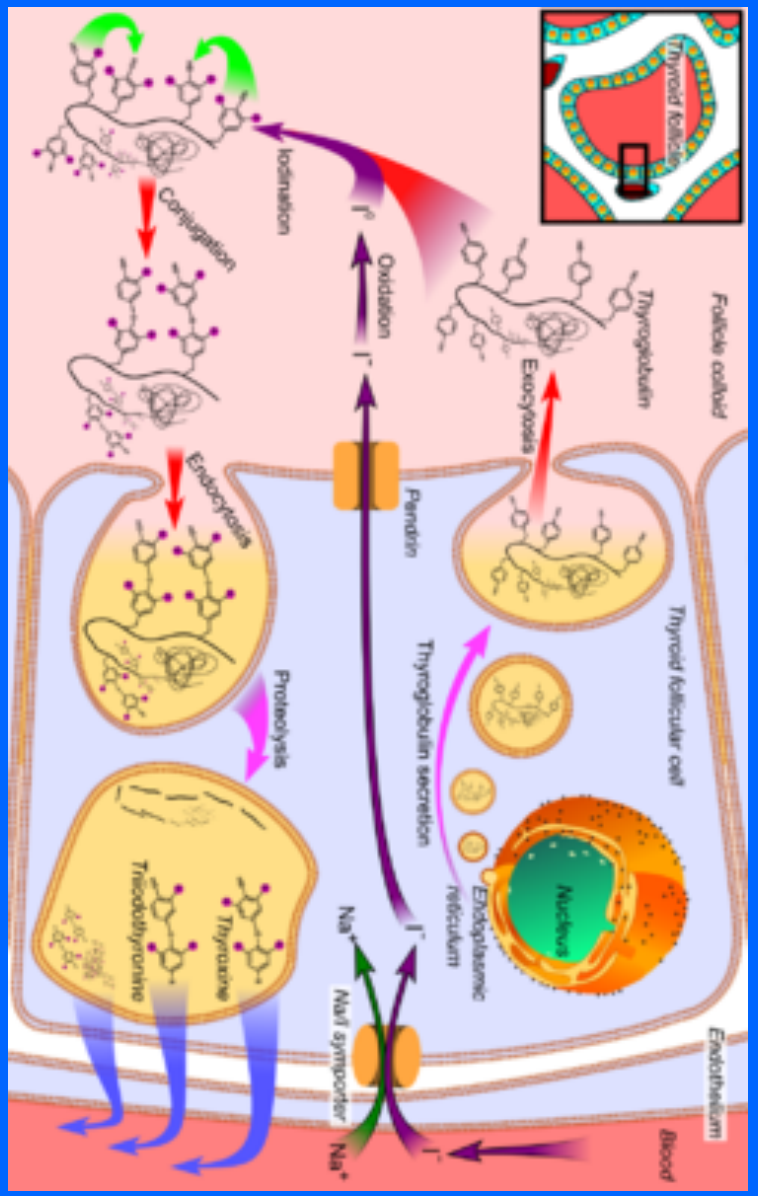
- Numerous apical short microvilli.

FOLLICULAR (PRINCIPAL) CELLS

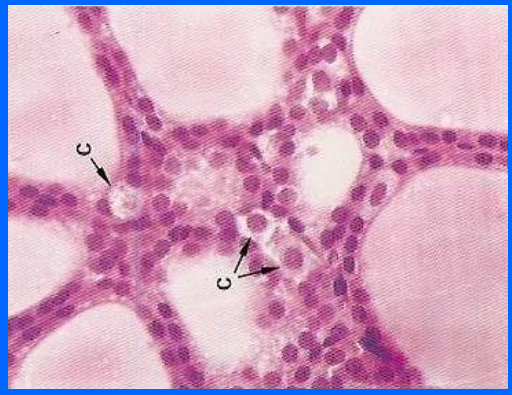
Function:

Synthesis of
thyroid hormones (T4 & T3).





PARAFOLLICULAR CELLS (CLEAR CELLS) (C-CELLS)



L/M:

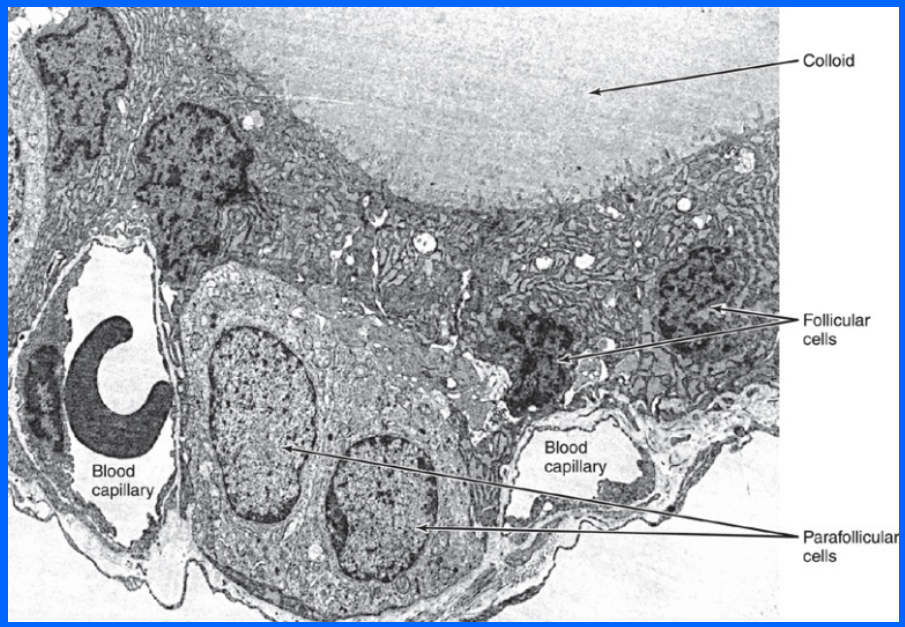
- Pale-stained cells (Clear Cells).
- Are found singly or in clusters in between the follicular cells.

- Their apices ***do not*** reach the the lumen of the follicle.
- Are larger than follicular cells (2-3 times).
- Only 0.1% of the epithelial cells.
- Have round nucleus

PARAFOLLICULAR CELLS (CLEAR CELLS) (C CELLS)

E/M:

- Mitochondria.
- RER (moderate).
- Well-developed Golgi.



Function:

Secrete calcitonin.

PARATHYROID GLANDS

Objectives:

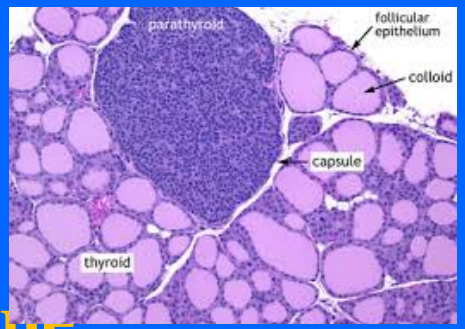
Students should be able to:

1. Describe the microscopic structure of the parathyroid gland.

2. Describe the functional structure of the parathyroid cells.

Parathyroid glands

- They are 4 glands on the post. of thyroid gland.



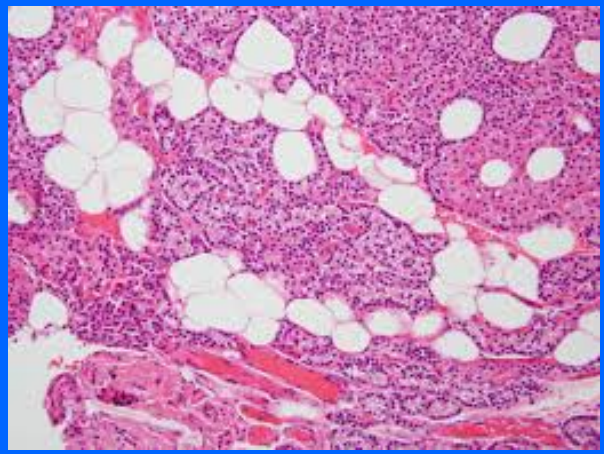
- (A) Stroma of parathyroid gland:

1- Capsule: Each gland has its Thin capsule.

2. Septa: thin.

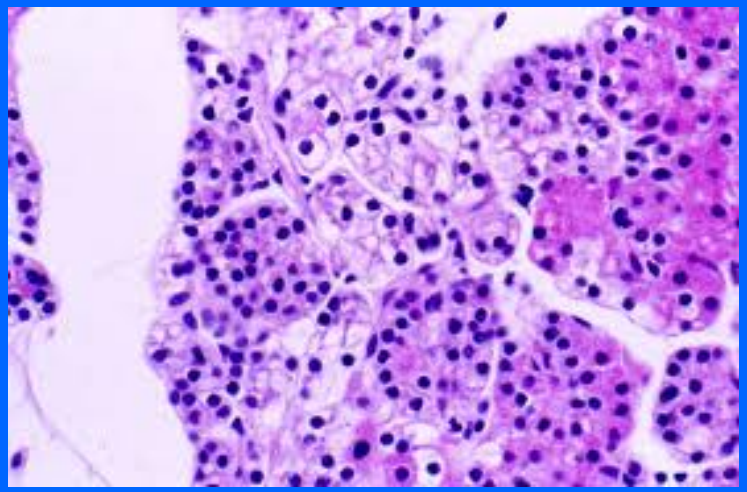
3. Reticular C.T.

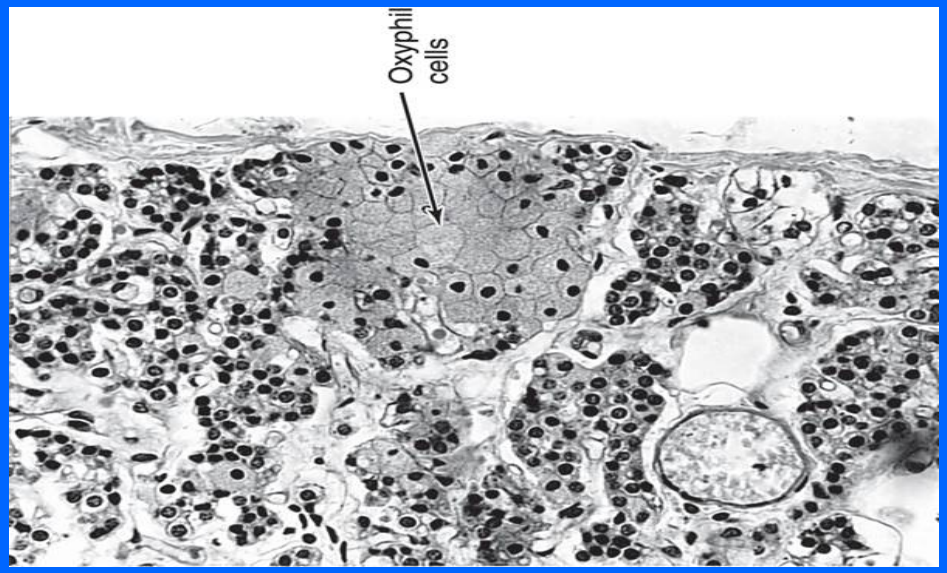
- C.T. stroma in older adults often contains many adipose cells.



(B) Parenchyma of Parathyroid gland

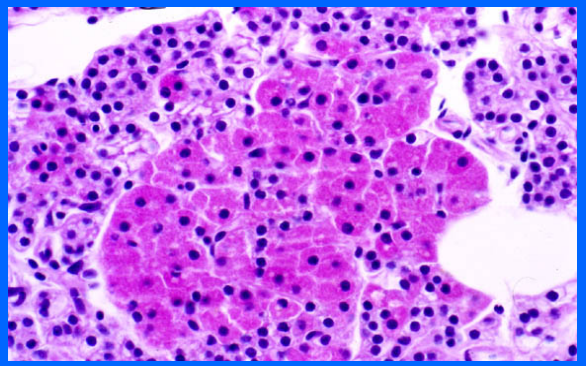
The parenchyma is formed of cords or clusters of epithelial cells (chief cells & oxyphil cell) with blood capillaries in between. These cells are surrounded by reticular fibers.





(B) Parenchyma of Parathyroid gland

1. Chief cells: They are slightly eosinophilic.
They are rich in rER.
They secrete parathyroid hormone (increase blood calcium level).



2. Oxyphil cells:

They are arranged in groups or clusters or as isolated cells.
They are deep eosinophilic (acidophilic)
They have more numerous mitochondria
They are less numerous but larger than chief cells.
They are of unknown function
N.B. (They may be inactivated chief cells).

BEST WISHES

BEST WISHES