# Practical pathology

## Endocrine system

## Endocrine jars

**1- multinodular goiter**

**2- thyroid adenoma**

## Endocrine slides

**1- multinodular goiter**

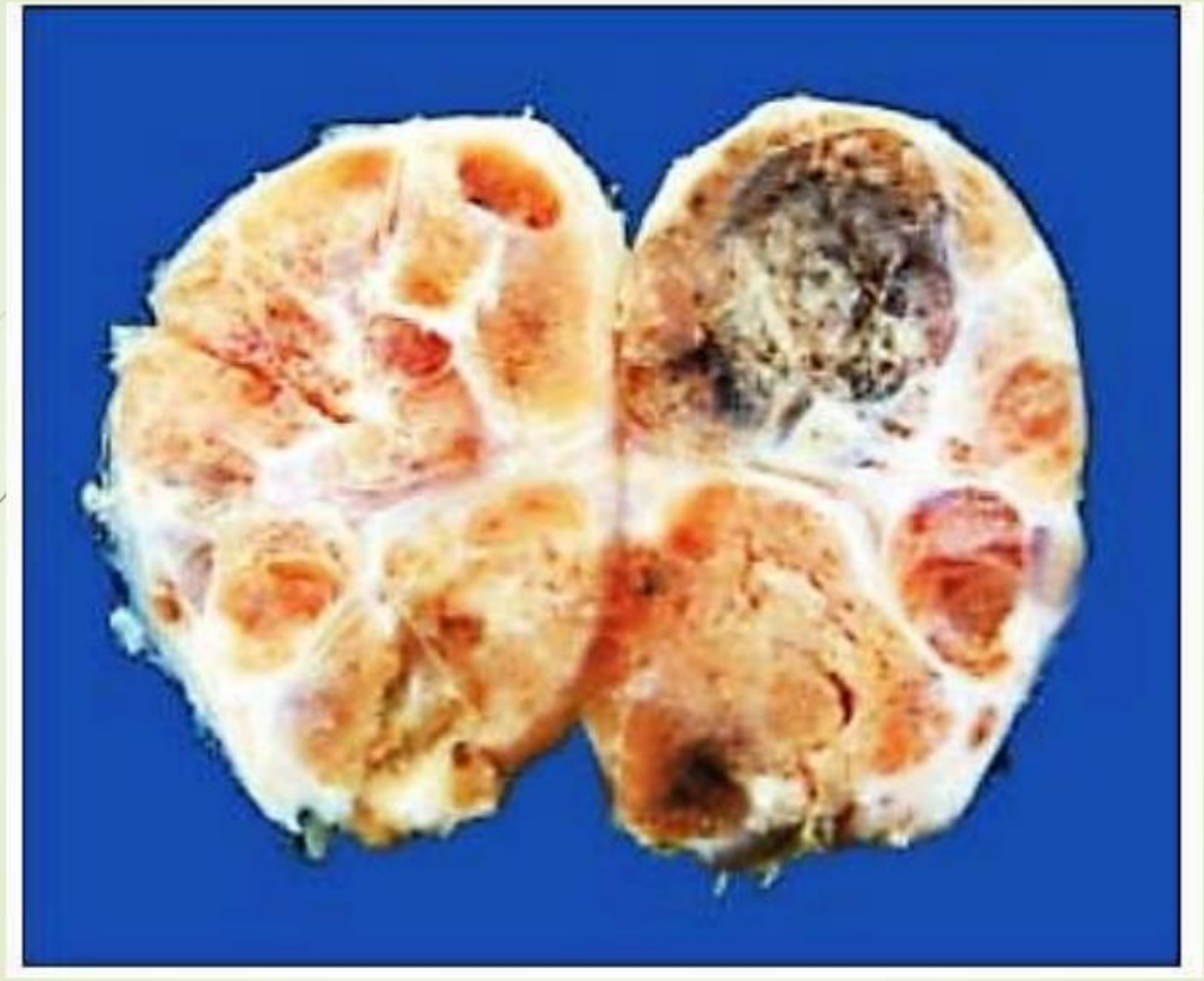
**2- pheochromocytoma**

**3- pituitary adenoma**

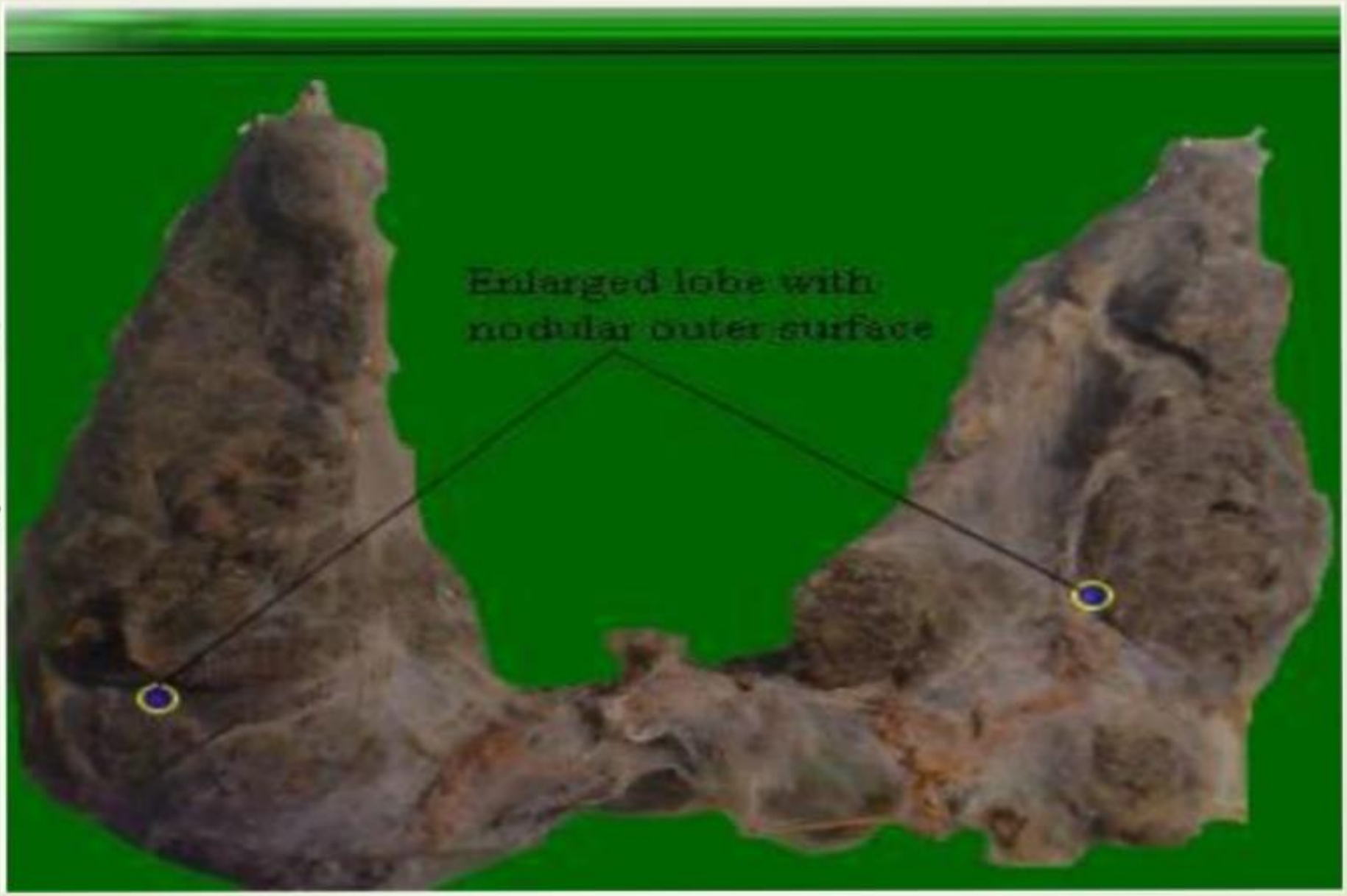
**4- papillary thyroid carcinoma**

# Multinodular goitre

- Size : Enlarged.
- Capsule : Thick with dilated vessels.
- Outer surface: Irregular (many nodular elevations &depression).
- Consistency : Firm.
- C\S : Shows nodules variable in shape & size. These nodules are formed of glistening, brown substance (colloid). The nodules are separated by fibrous septae.




Nodular cut section
Cystic changes


Enlarged lobe with
nodular outer surface


Enlarged nodular
thyroid lobe with areas
of cystic degeneration

# Thyroid adenoma

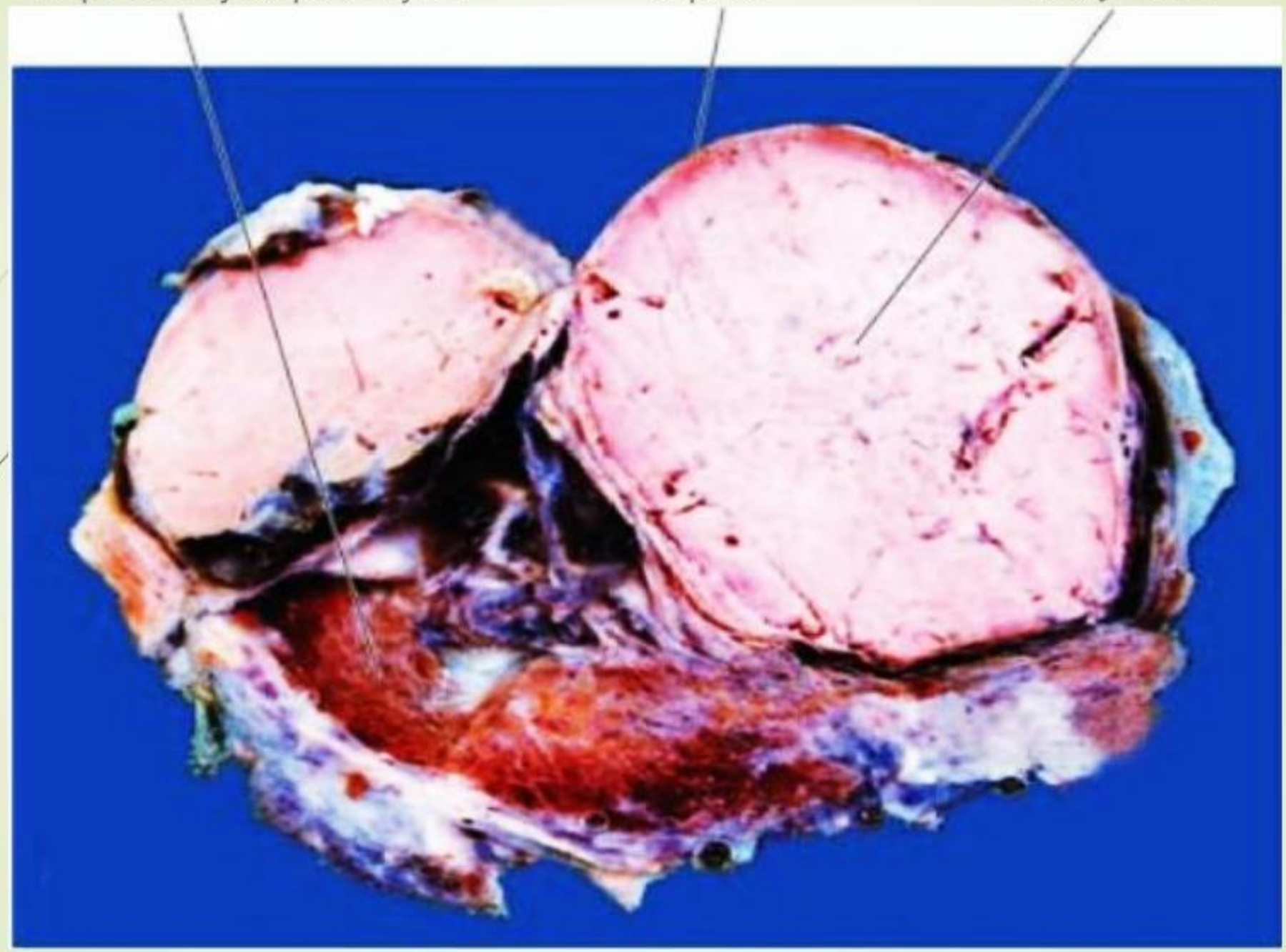
- Specimen: lobe of thyroid gland.
- Cut section revealed circumscribed mass surrounded by compressed thyroid tissue in the lower pole.
- The mass characterized by:

➢ Shape: Oval.

➢ Size: 5x3 cm.

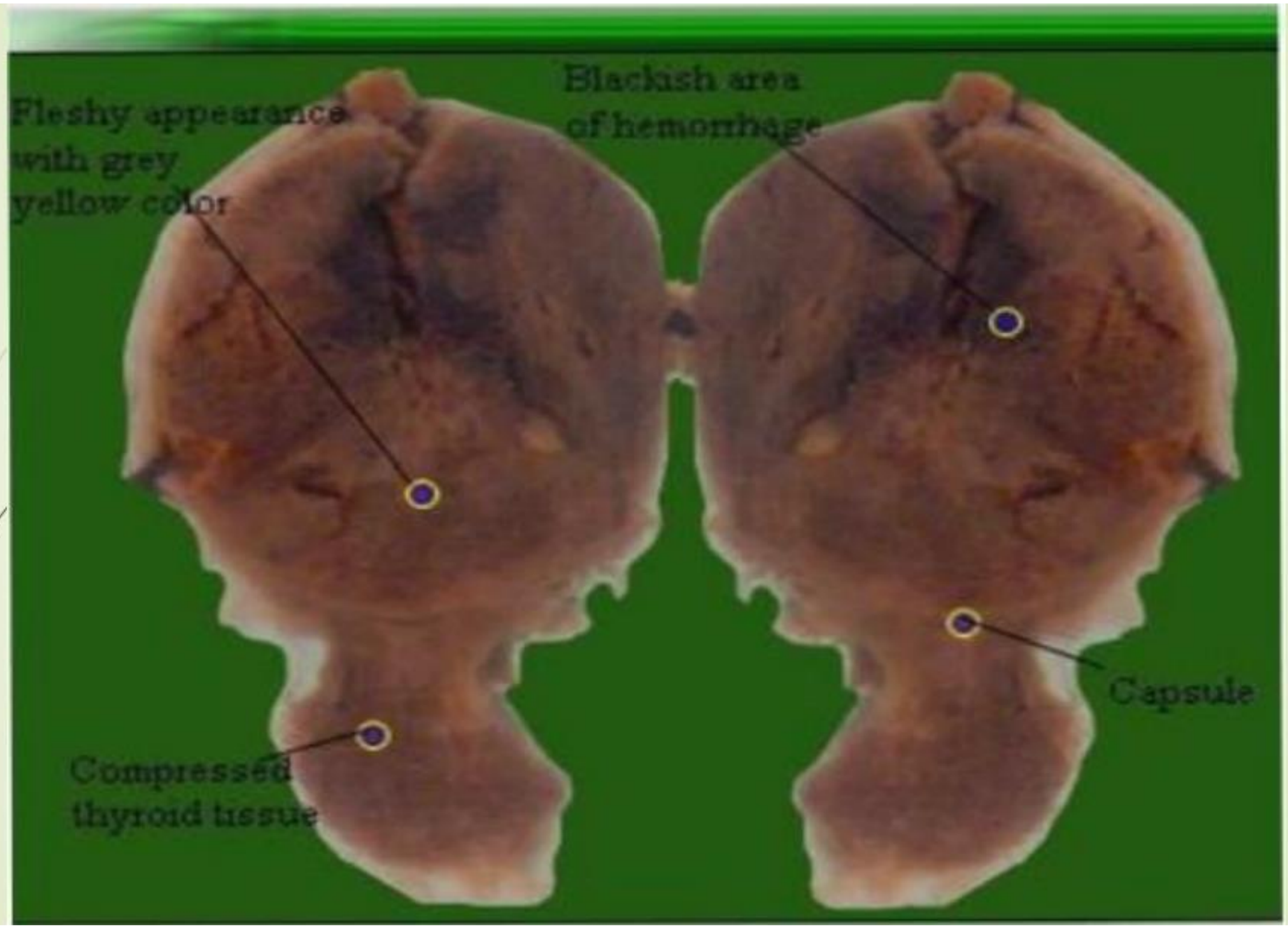
➢ Color: Grayish.

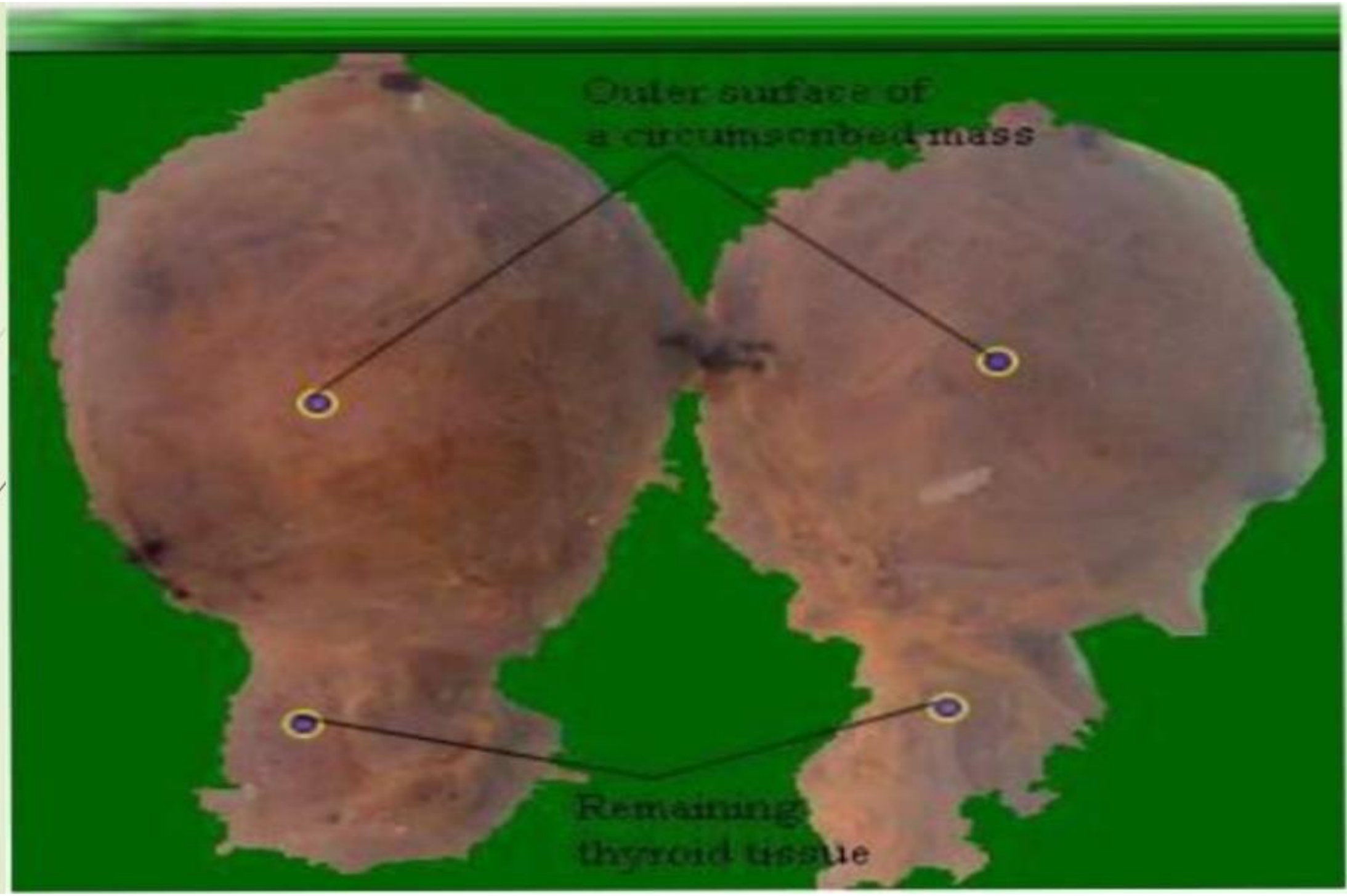
➢ Consistency: Firm.


Compressed thyroid parenchyma
Capsule
Solitary nodule


cm
1
2
3
4
5
6
SPECIMEN S-5173-83
DATE 12-20-83


METRIC 1


Fleshy appearance with grey yellow color
Blackish area of hemorrhage
Capsule
Compressed thyroid tissue

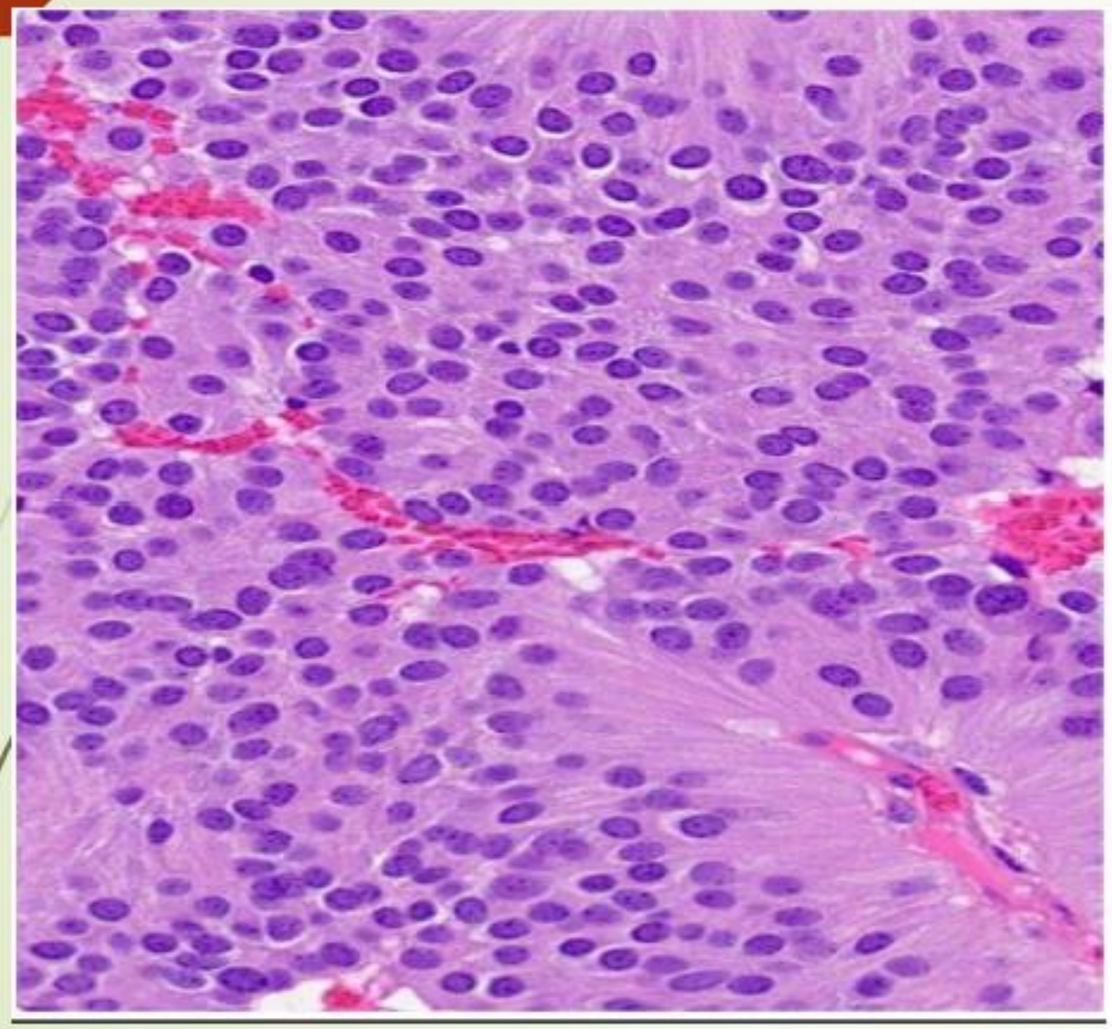

Outer surface of
a circumscribed mass
Remaining
thyroid tissue


Capsulated mass with
compressed thyroid tissue around

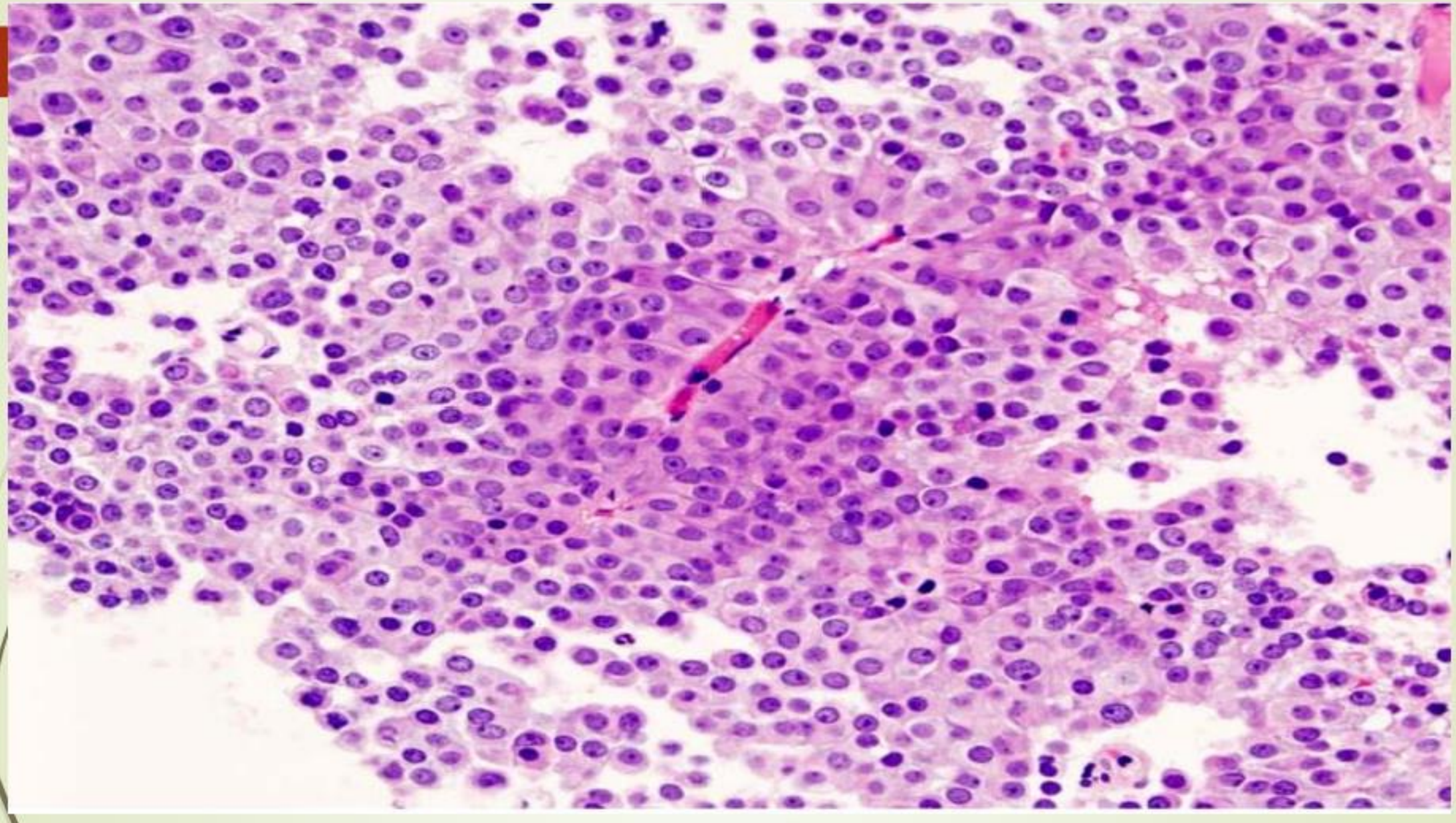
- The diagnosis is Pituitary adenoma

# Microscopic examination

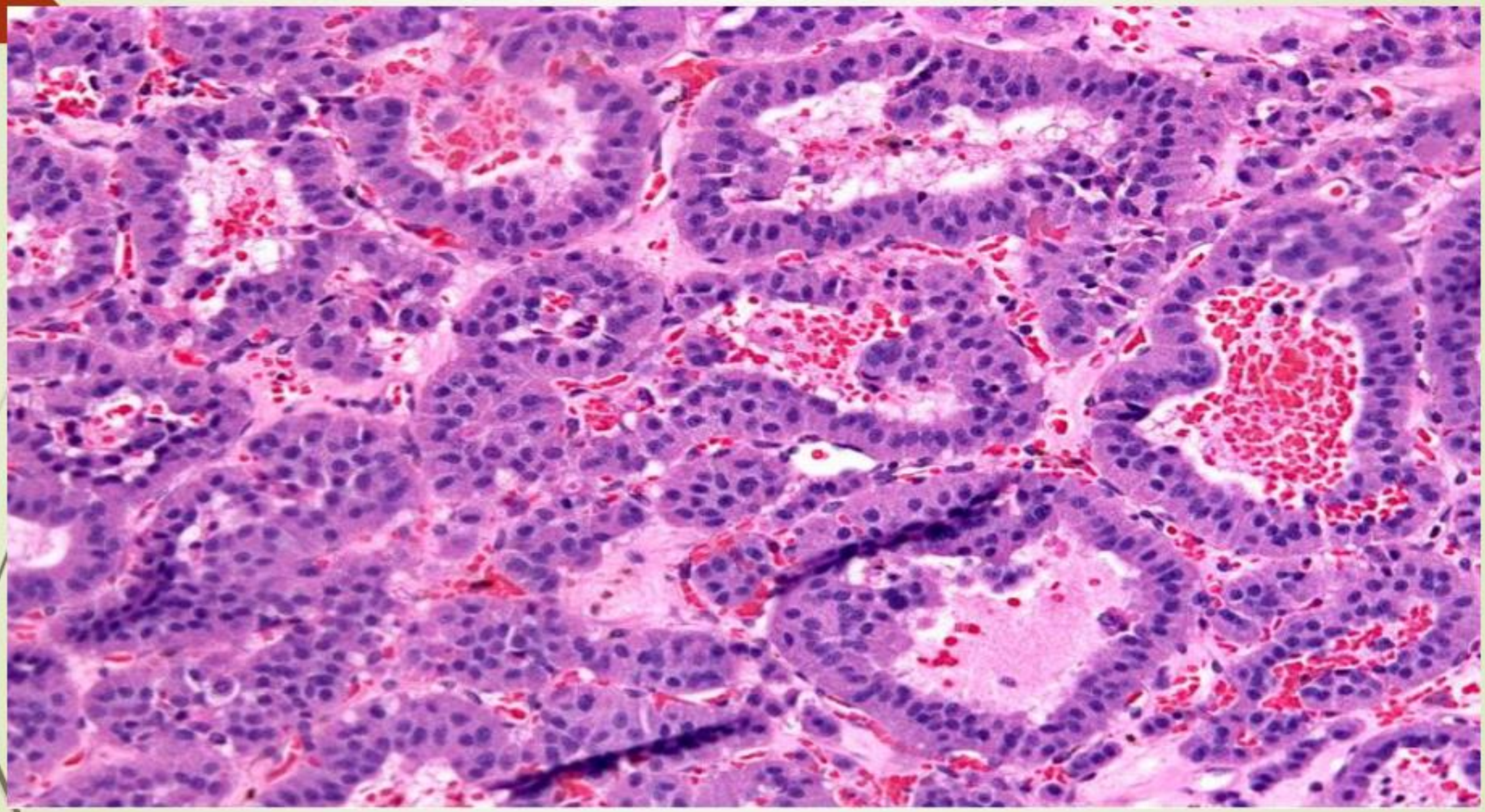
- **Solid sheets, nests** within a fibrovascular stroma, **pseudo rosettes** around vascular channels and descohesive growth pattern.
- Tumors have a uniform nuclear morphology with **stippled chromatin**, inconspicuous nucleoli and moderately abundant cytoplasm
- Cells may be classified as acidophilic, basophilic or chromophobic based on content of hormone containing secretory cells.
- **Crooke hyaline change** is characterized by large chromophobic or eosinophilic cells with a glassy hyaline appearance (due to accumulation of keratin filaments); it can be seen in neoplastic and nonneoplastic corticotrophs.



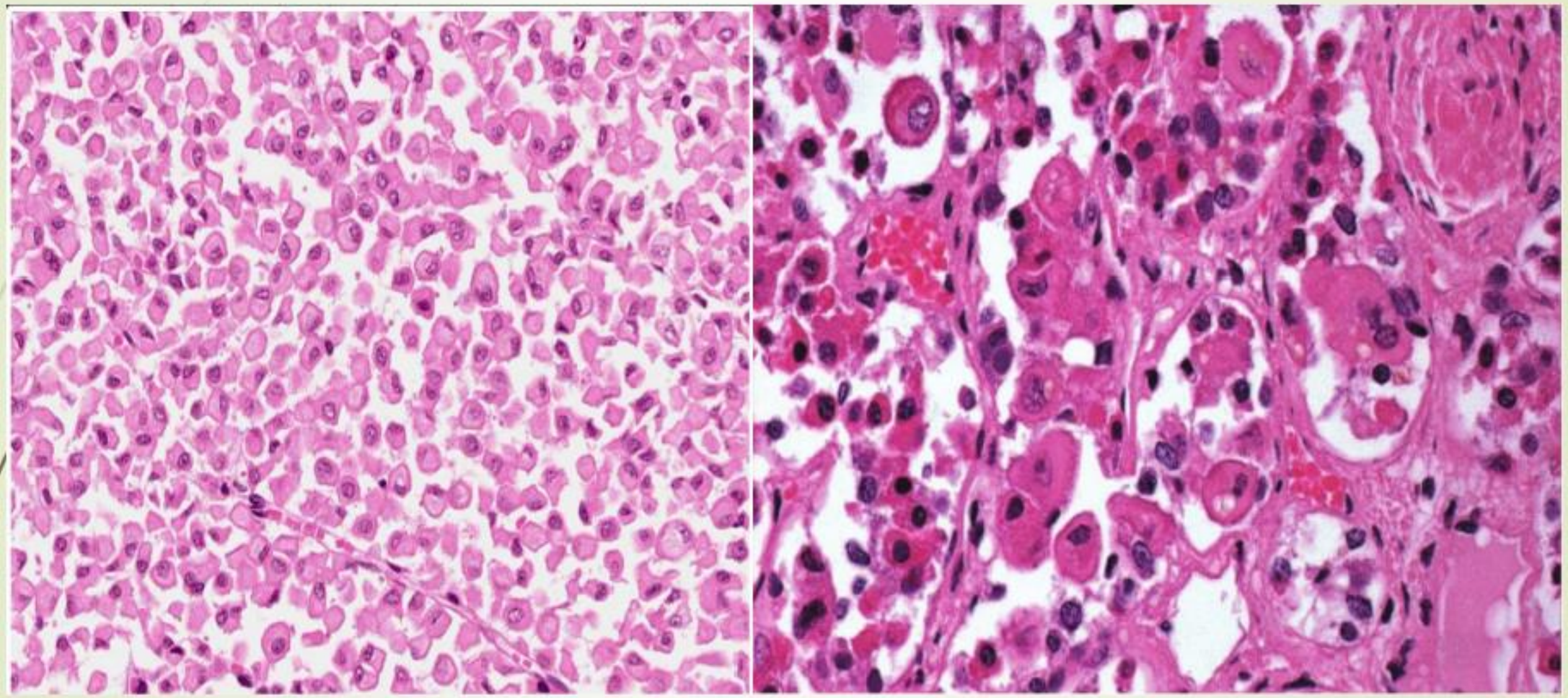

H&E



# **pseudo rosettes** around vascular channels



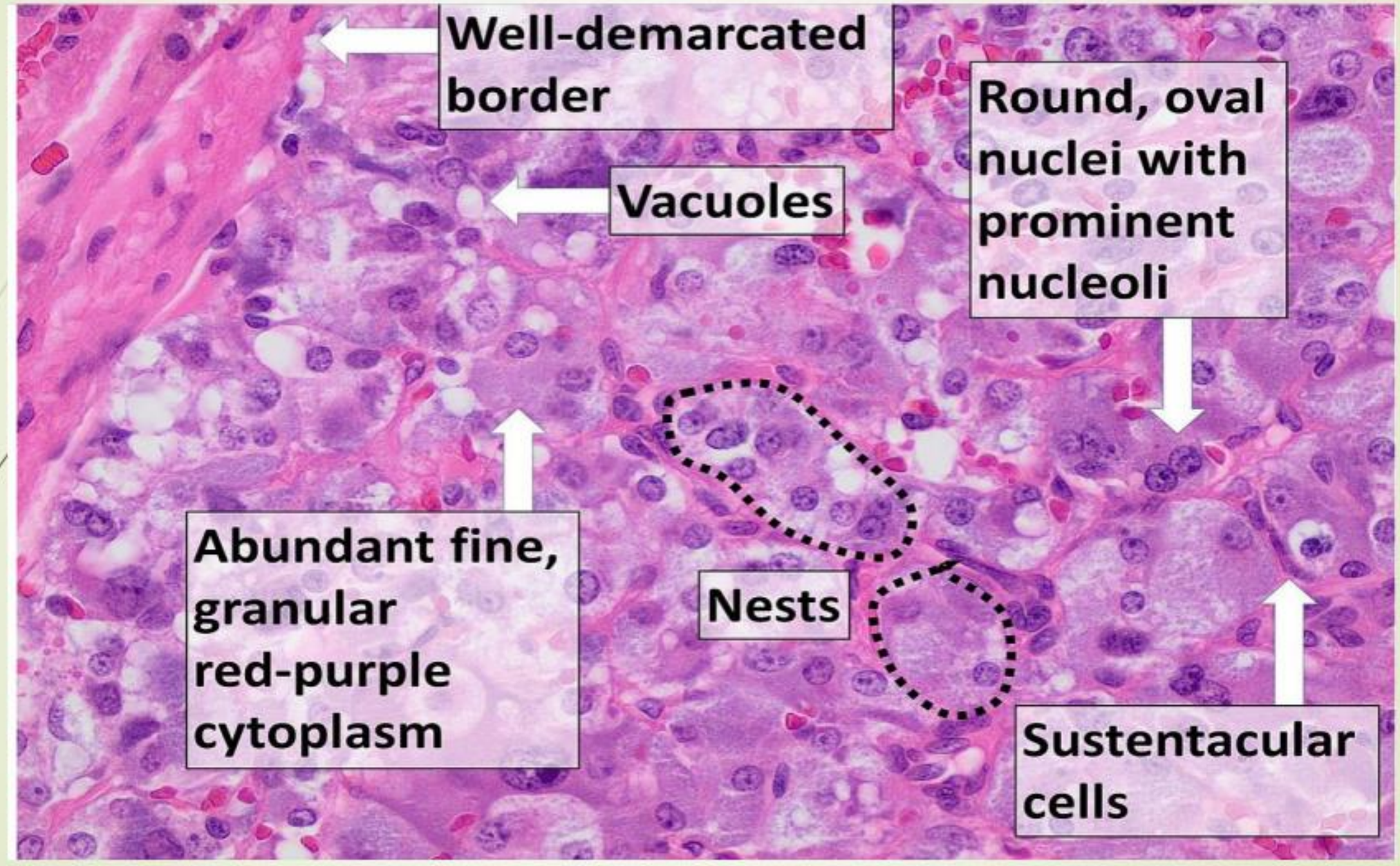
# Crooks hyaline change

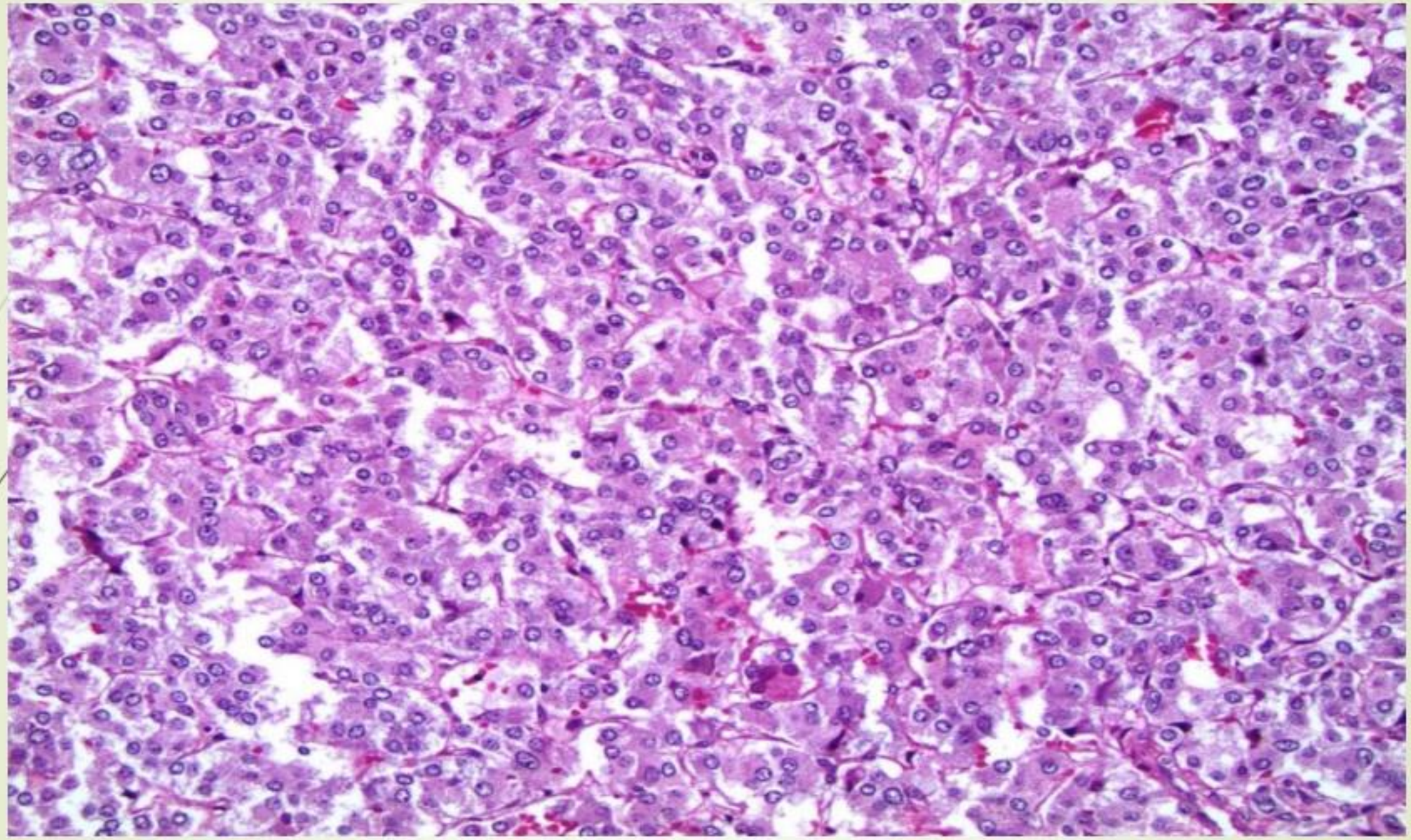


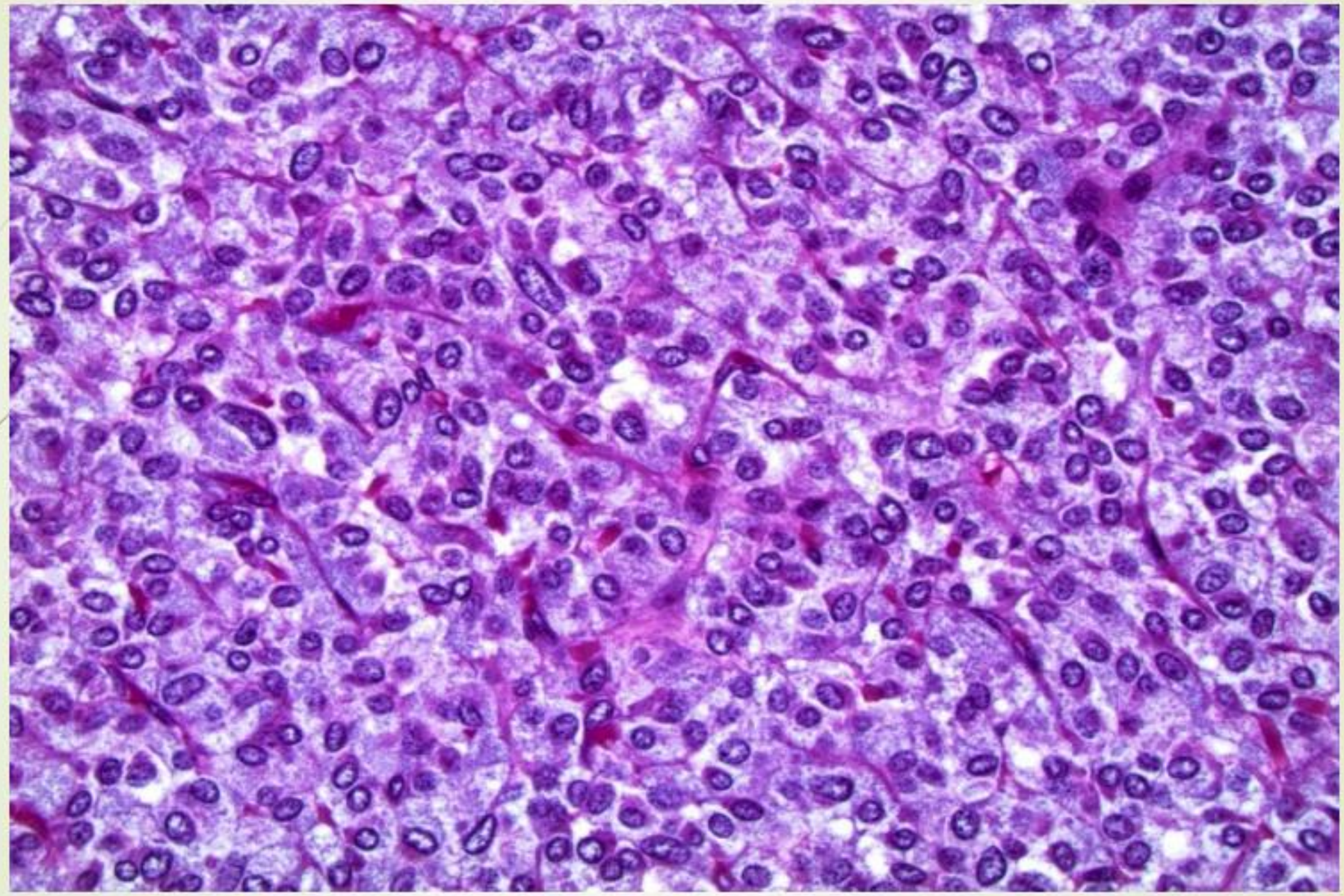
# Pheochromocytoma of adrenal medulla

# Microscopic examination

- Tumor is composed of clusters of **polygonal** chromaffin or chief cells that are surrounded by supporting **sustentacular cells** creating small nests **(Zellbalen nests)** supplied by rich vascular network.
- Cells: large, polygonal, uniform or extensively vacuolated
- Cytoplasm: abundant fine, granular red-purple cytoplasm
- Nuclei are round to ovoid with fine stippled chromatin **(Salt and pepper)** characteristic of neuroendocrine tumors

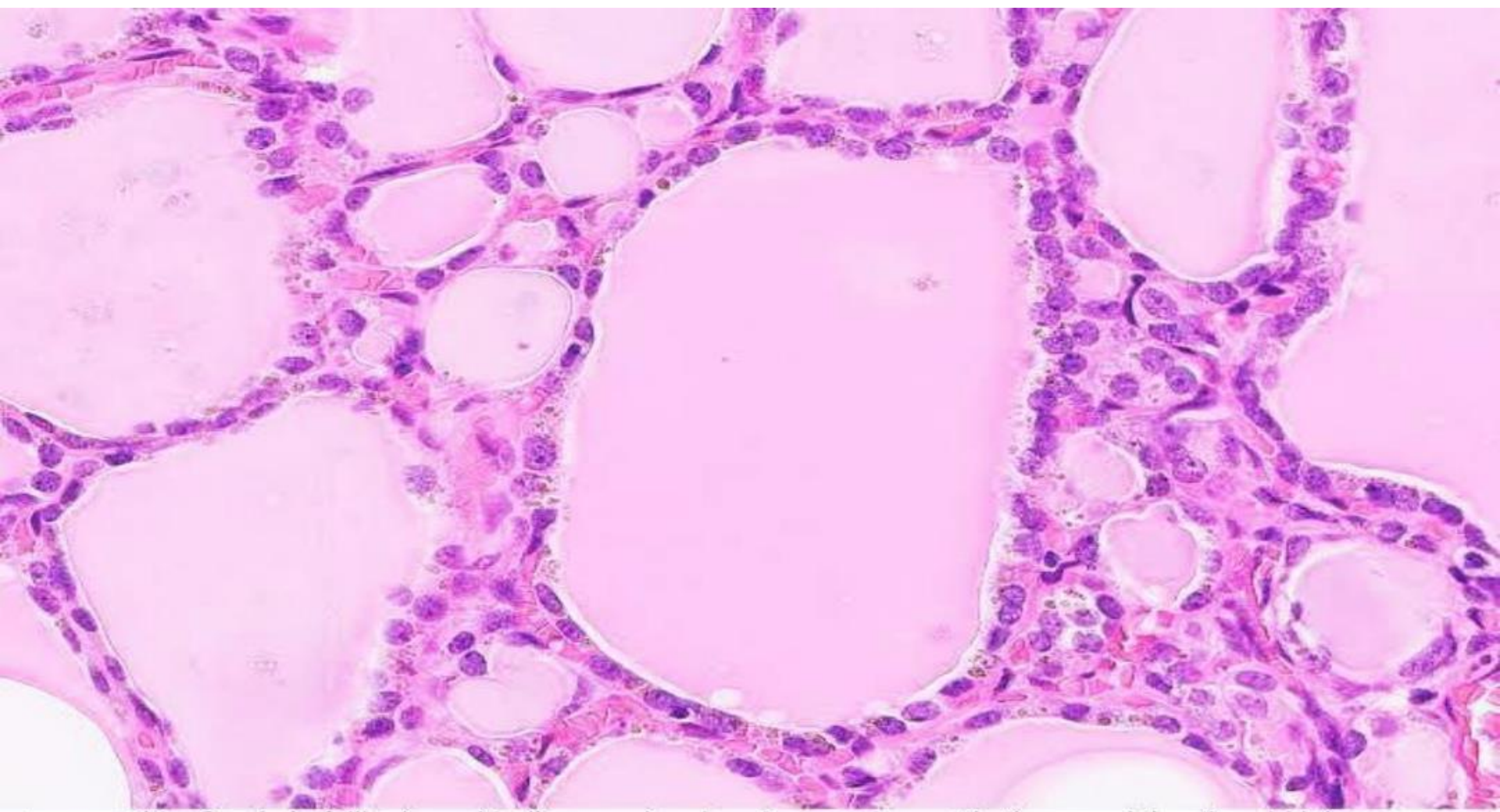

Well-demarcated border
Vacuoles
Round, oval nuclei with prominent nucleoli
Abundant fine, granular red-purple cytoplasm
Nests
Sustentacular cells

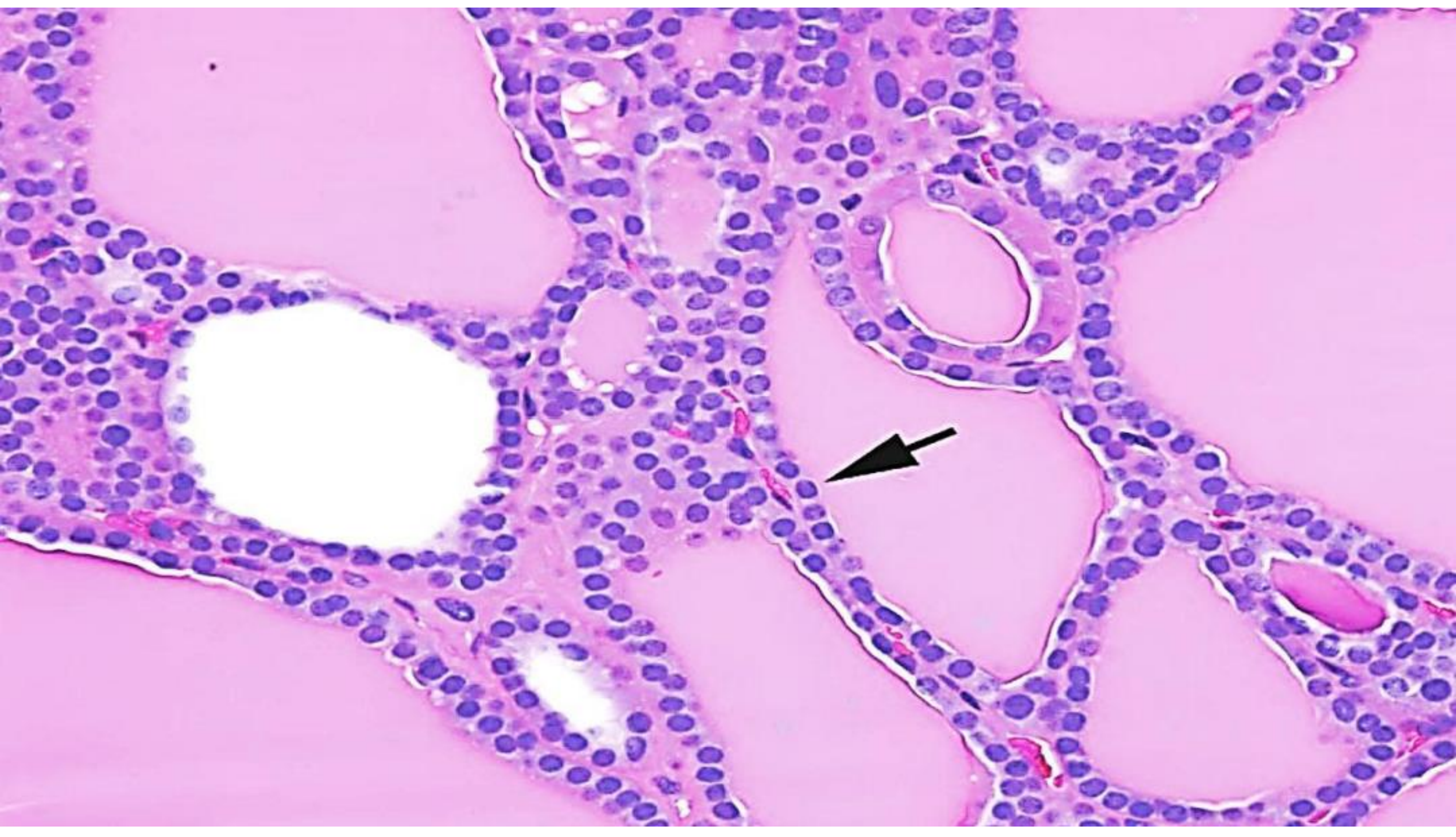




# Histology of thyroid gland

- Thyroid follicles vary in shape & size. They are lined by follicular cells & contain eosinophilic colloid.
- Normal follicular epithelium ranges from flattened to low columnar, depending on their degree of activity.
- Follicular cells with abundant granular acidophilic cytoplasm are referred to as **Hürthle cells.**
- The stroma or interstitium is little but highly vascular.





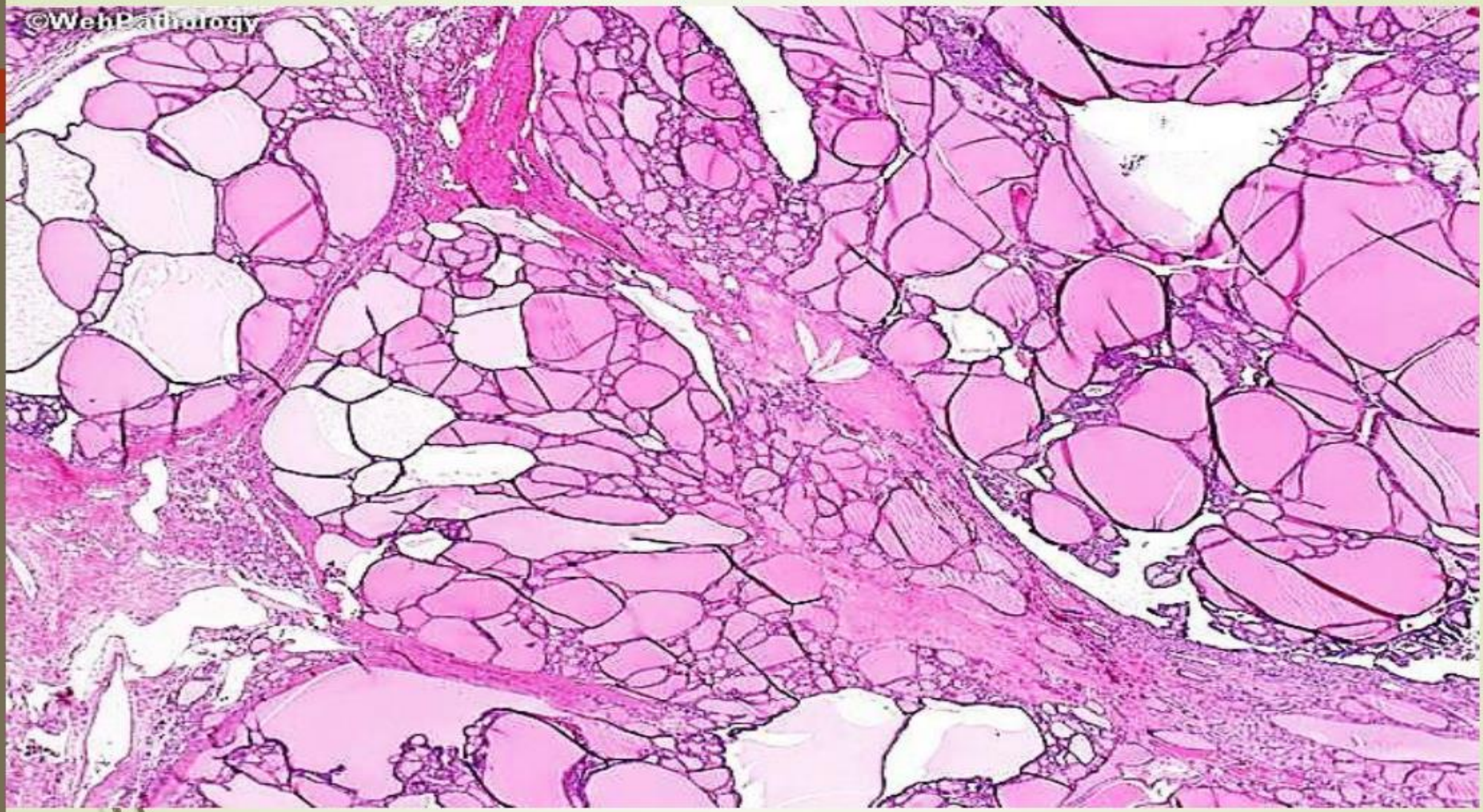
- Parafollicular cells or C cells represent small component (0.1%).

- They present within the follicular epithelium and are invested by the basement membrane. They are inconspicuous in normal thyroid.

- They have a neuroendocrine function, secrete calcitonin.

# Multinodular goitre

- Thyroid tissue divided by fibrous septa into nodules that vary in size and shape.
- The nodules are formed of variable size and shape thyroid follicles.
- Some are distended with colloid; others are collapsed.
- The Lining epithelial cells are flat to cuboidal.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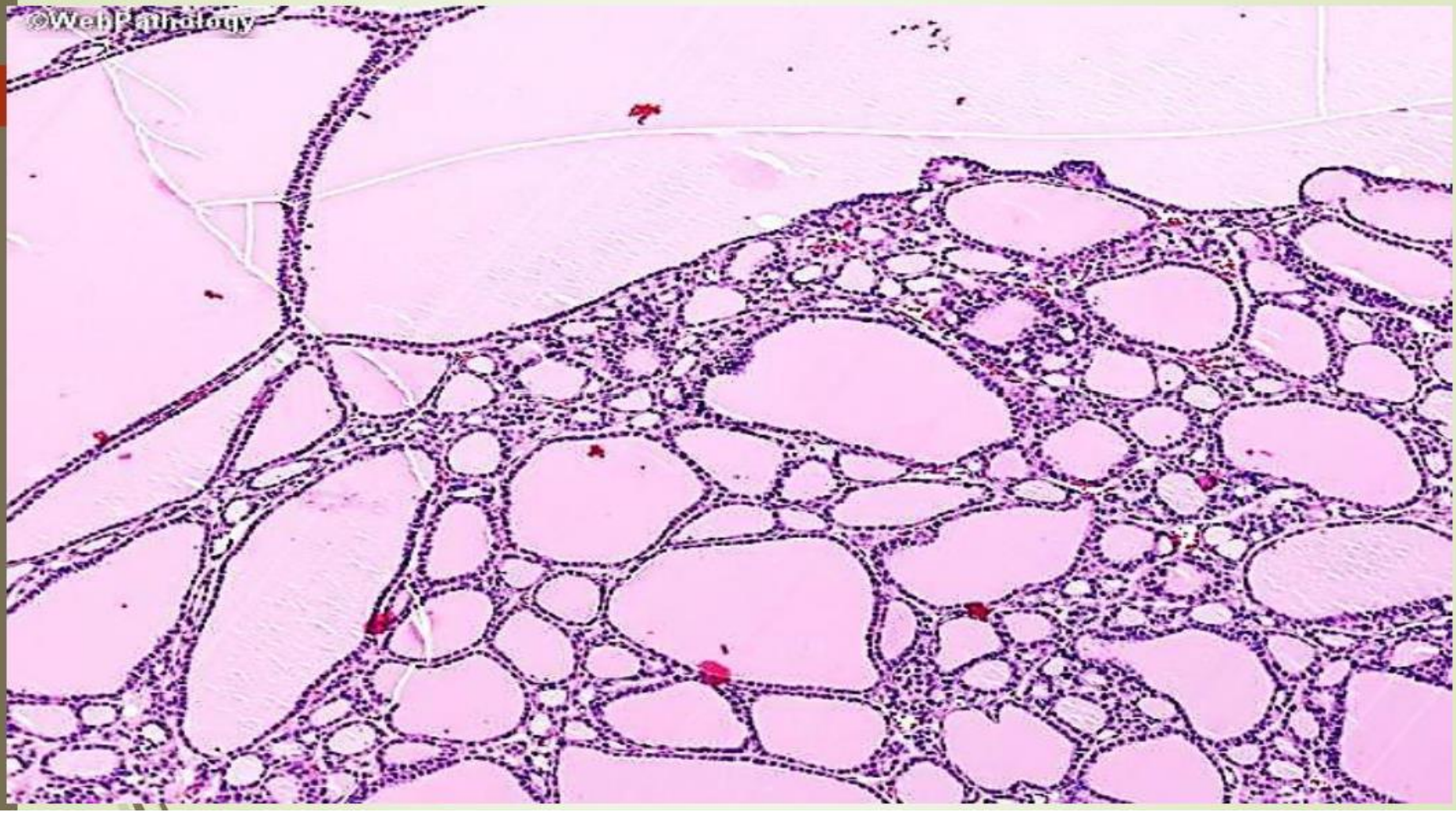
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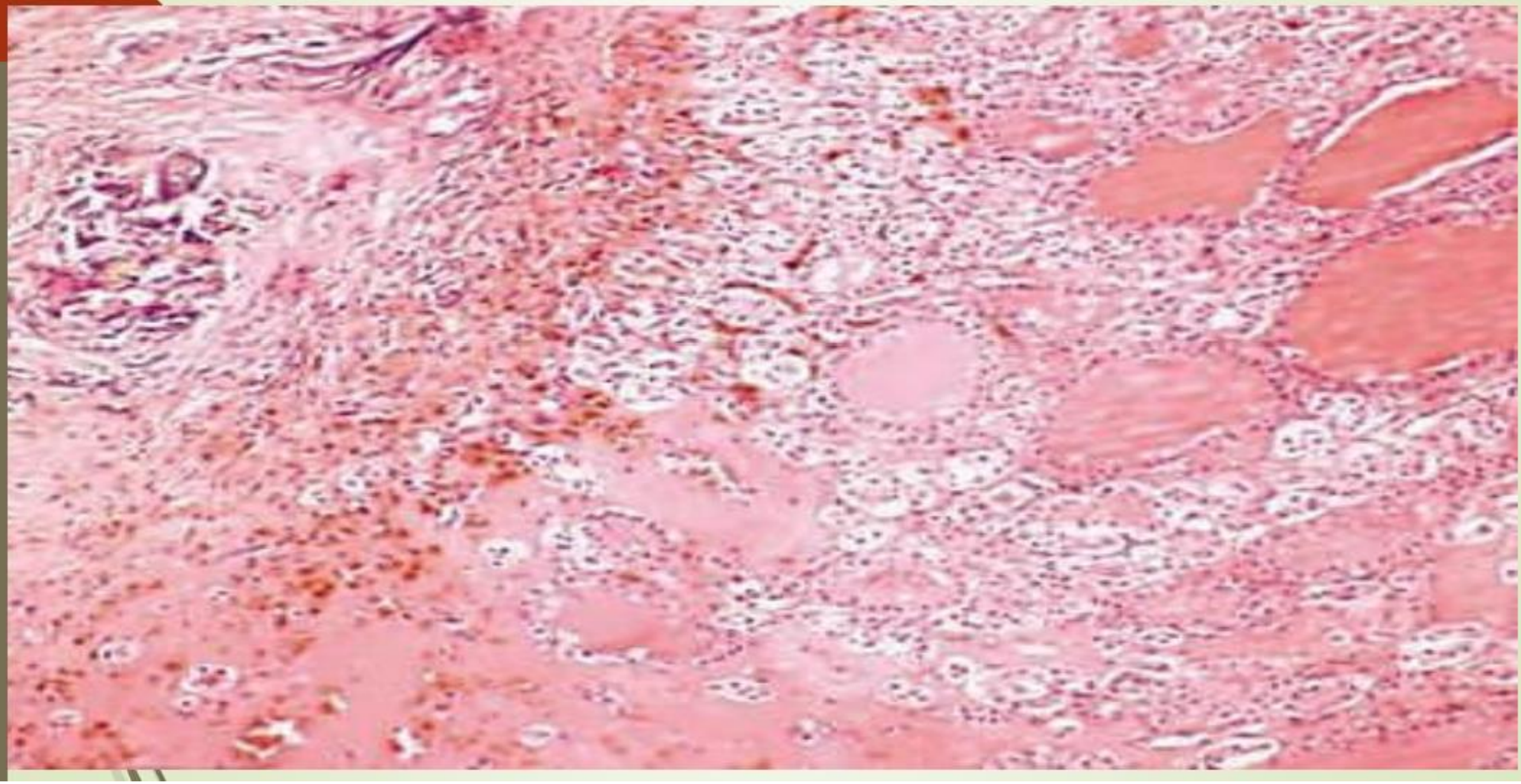
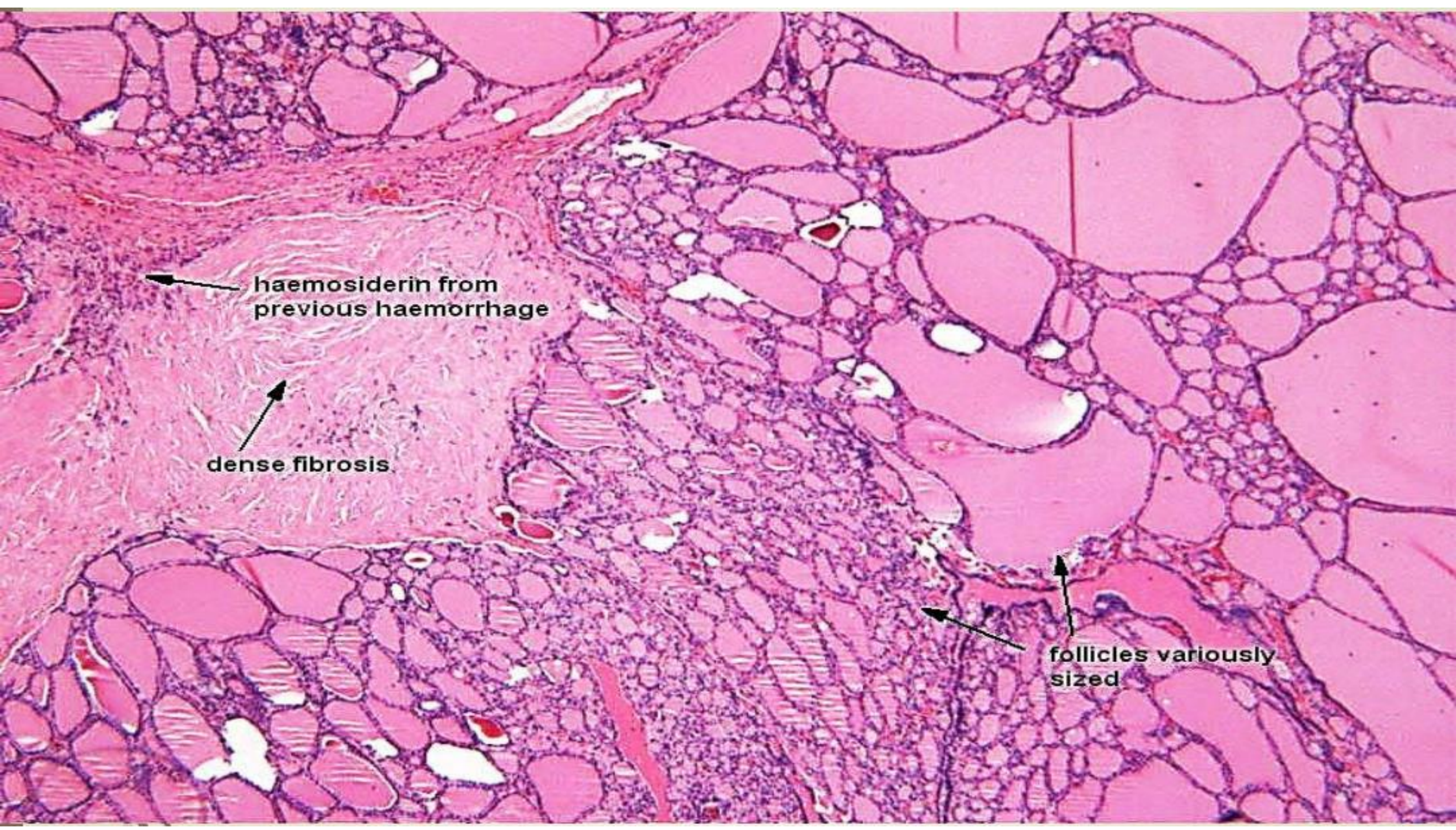
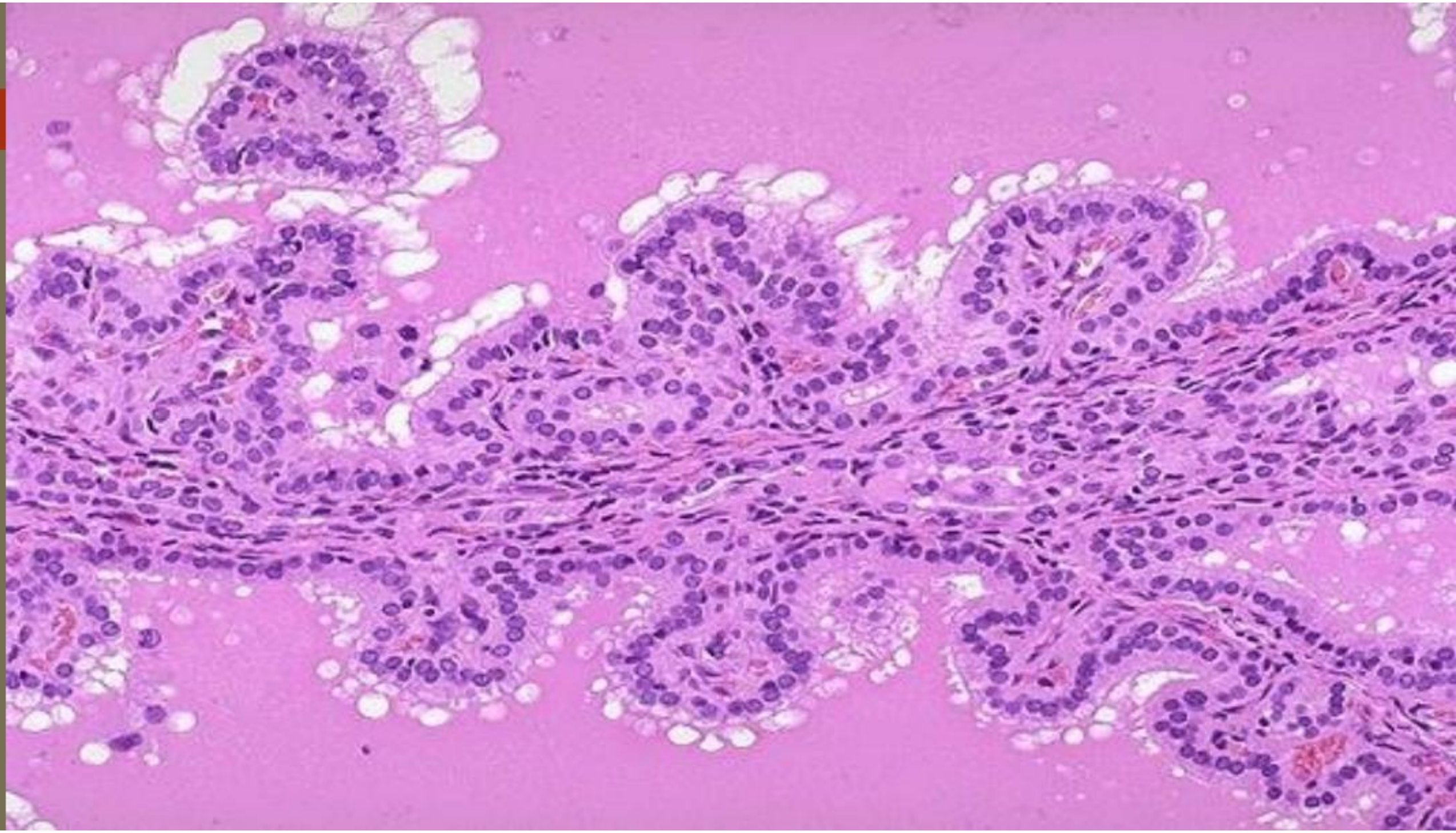
# Secondary changes

- Inflammation.
- Dystrophic calcification.
- Cystic degeneration.
- Hemorrhage, with abundant hemosiderin-laden macrophages.
- Fibrosis.

# Hemorrhage and calcification




haemosiderin from
previous haemorrhage
dense fibrosis
follicles variously
sized



# Papillary thyroid carcinoma

- It is the most common type of malignant thyroid tumors.
- It can occur at all ages including children and young adults but the incidence is higher with increasing age.
- Occurs more frequently in females than in males.

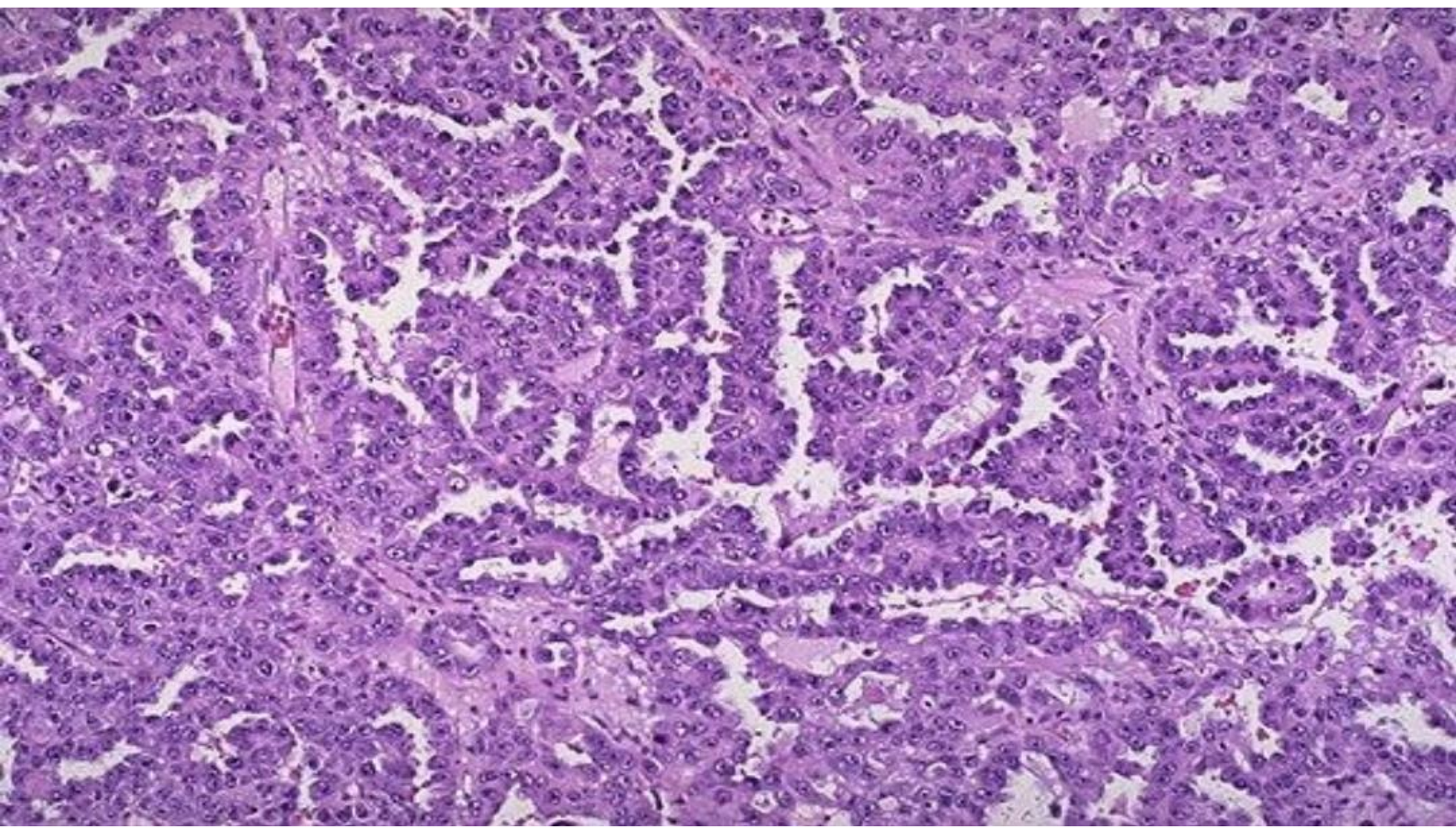
Branching papillary structures with a central thin fibrovascular core and covered by cuboidal cells. Follicles can present.

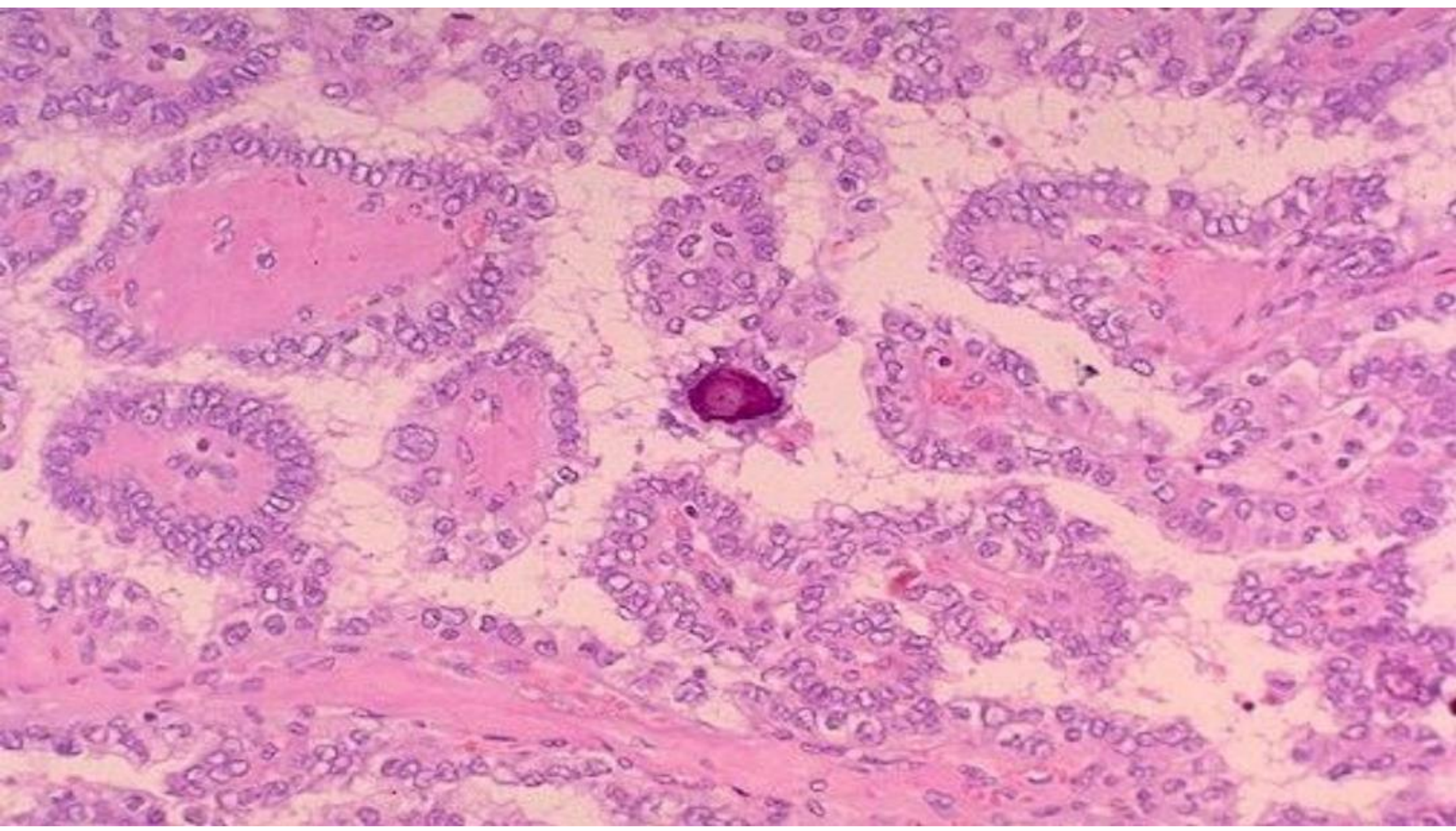
The cells have nuclear features:

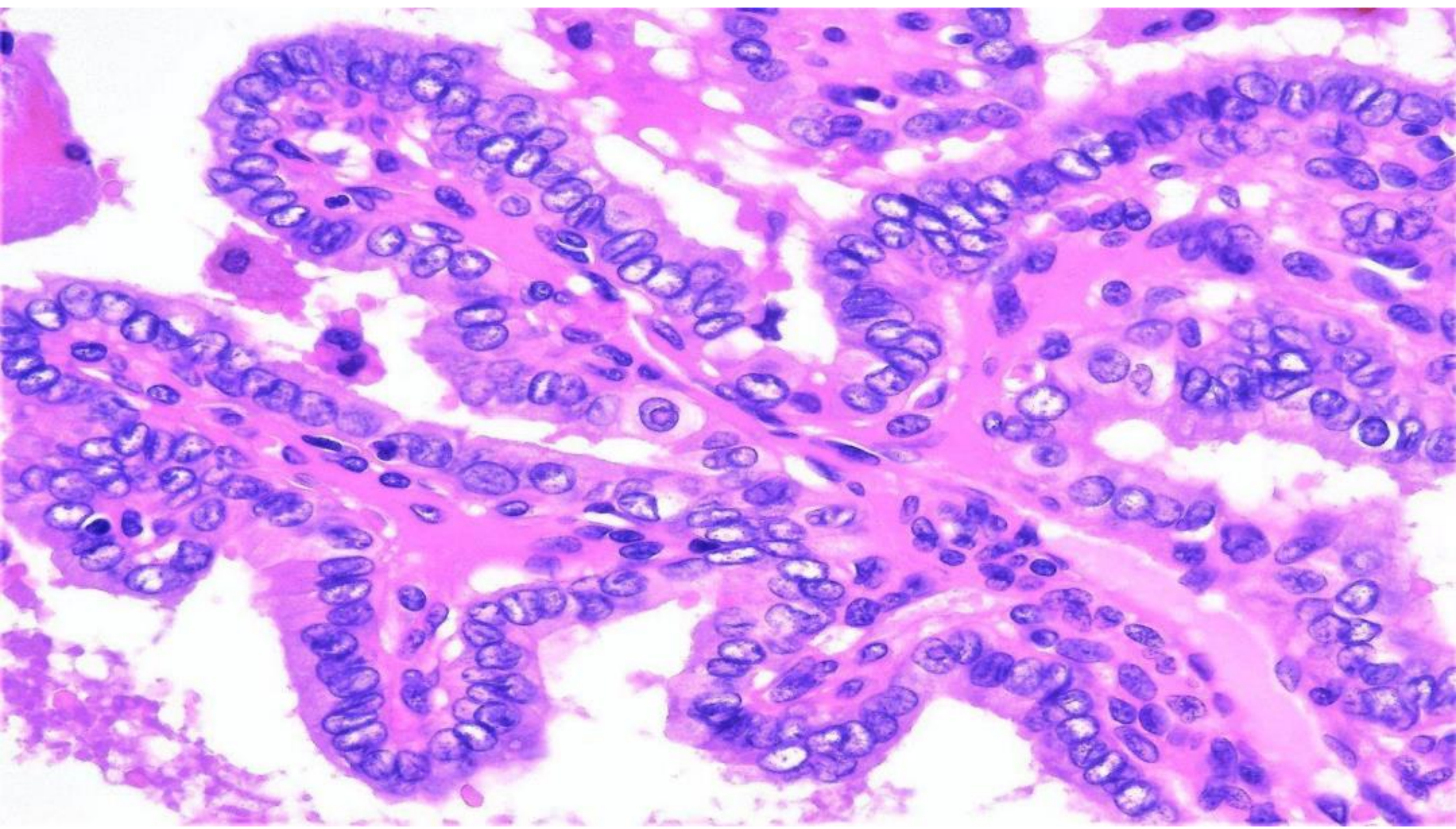
- Nuclear elongation and overlapping.
- Nuclear clearing (ground glass appearance).
- Longitudinal grooving (folding of nuclear membrane).
- Nuclear pseudoinclusions: indentations of the cytoplasm forming round acidophilic vacuoles.

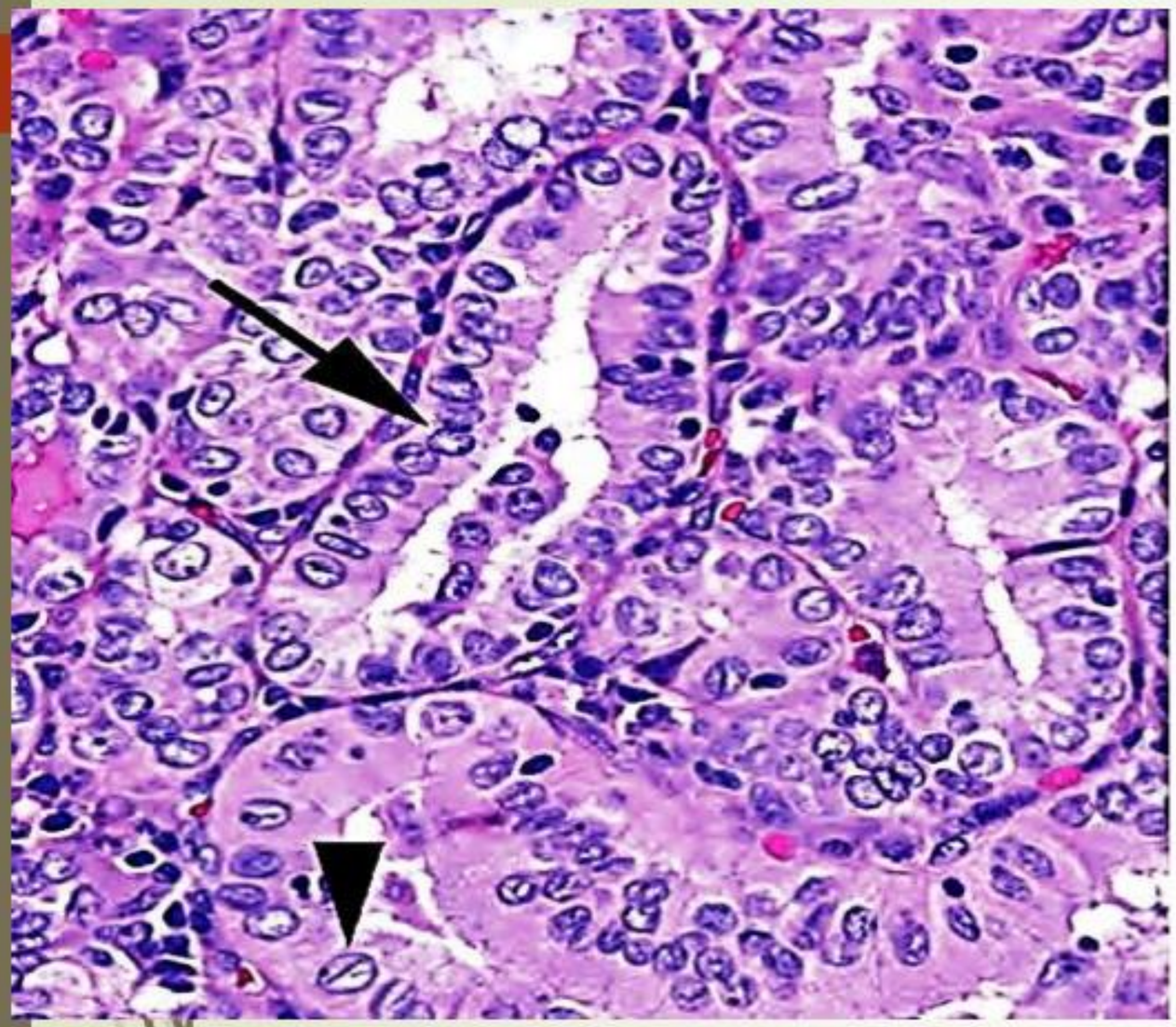
Fibrosis.

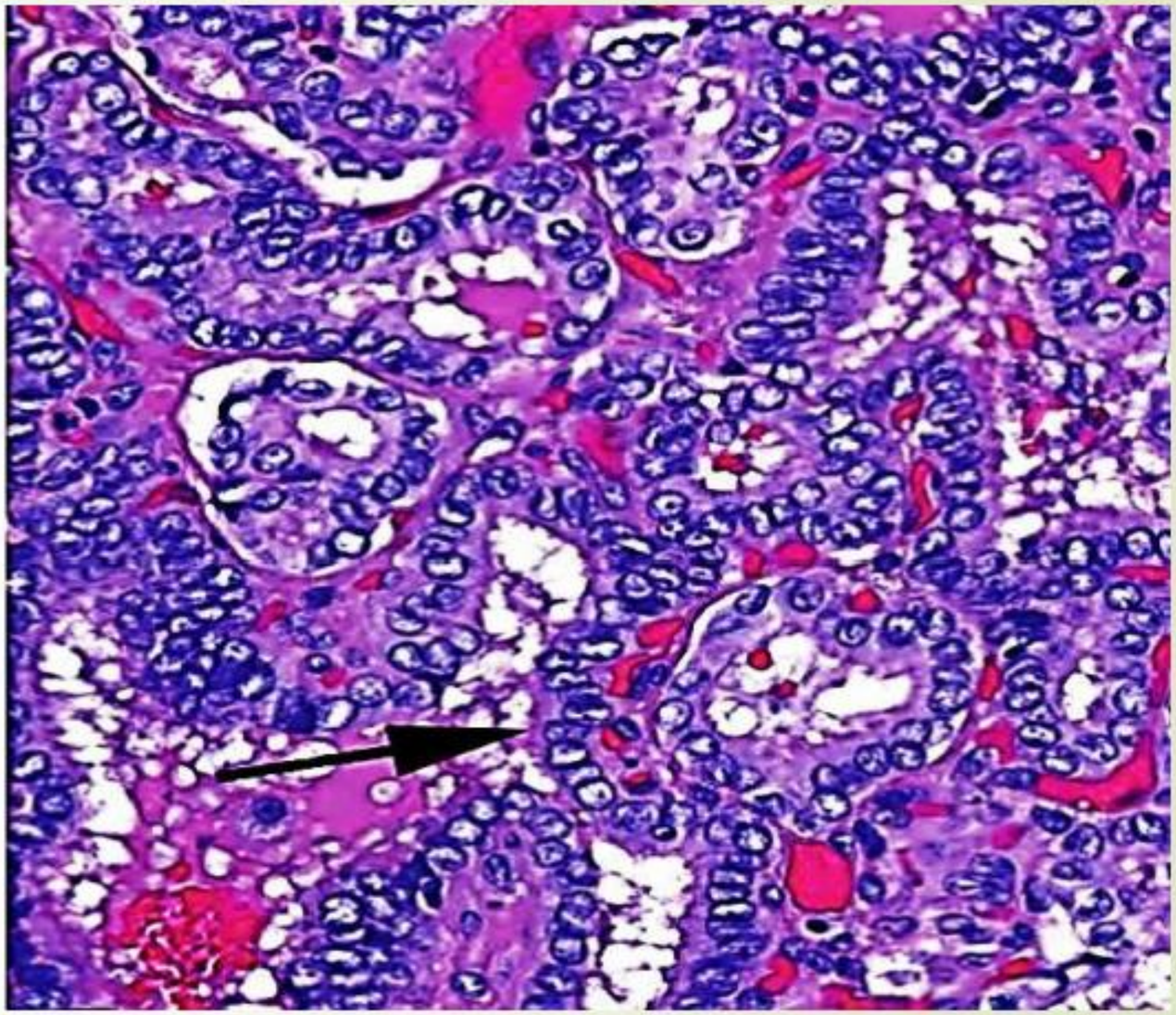
Psammoma bodies: laminated calcification.

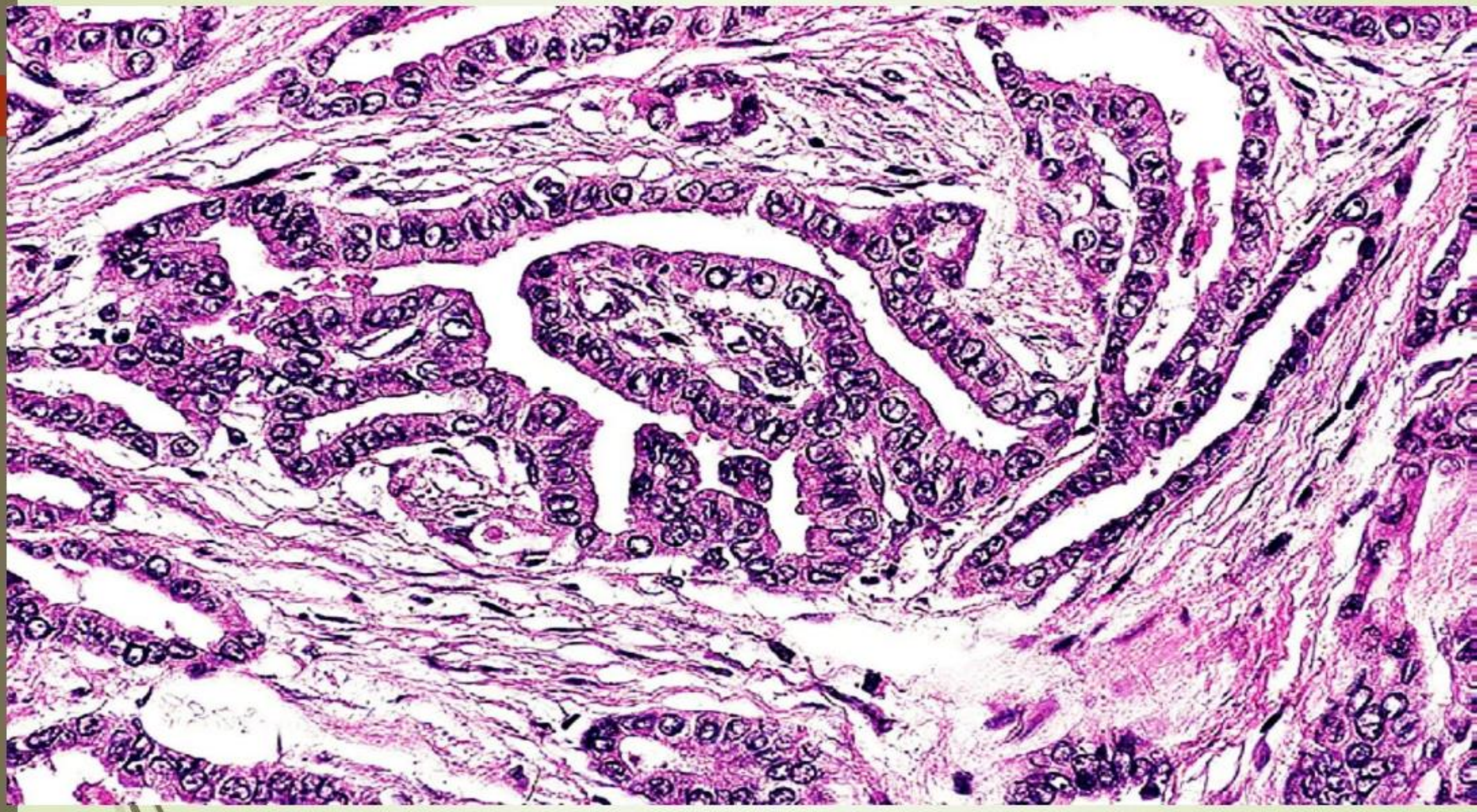


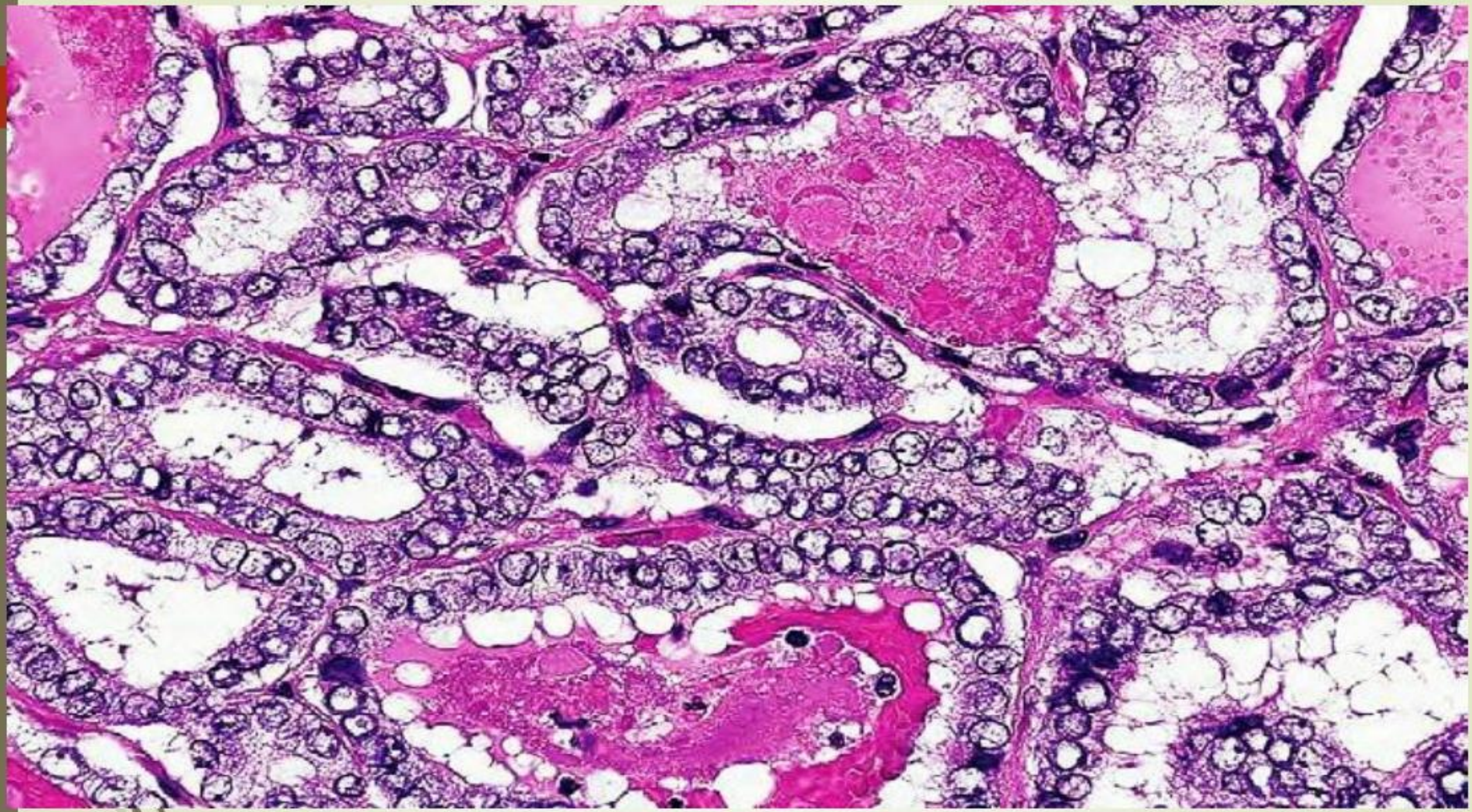


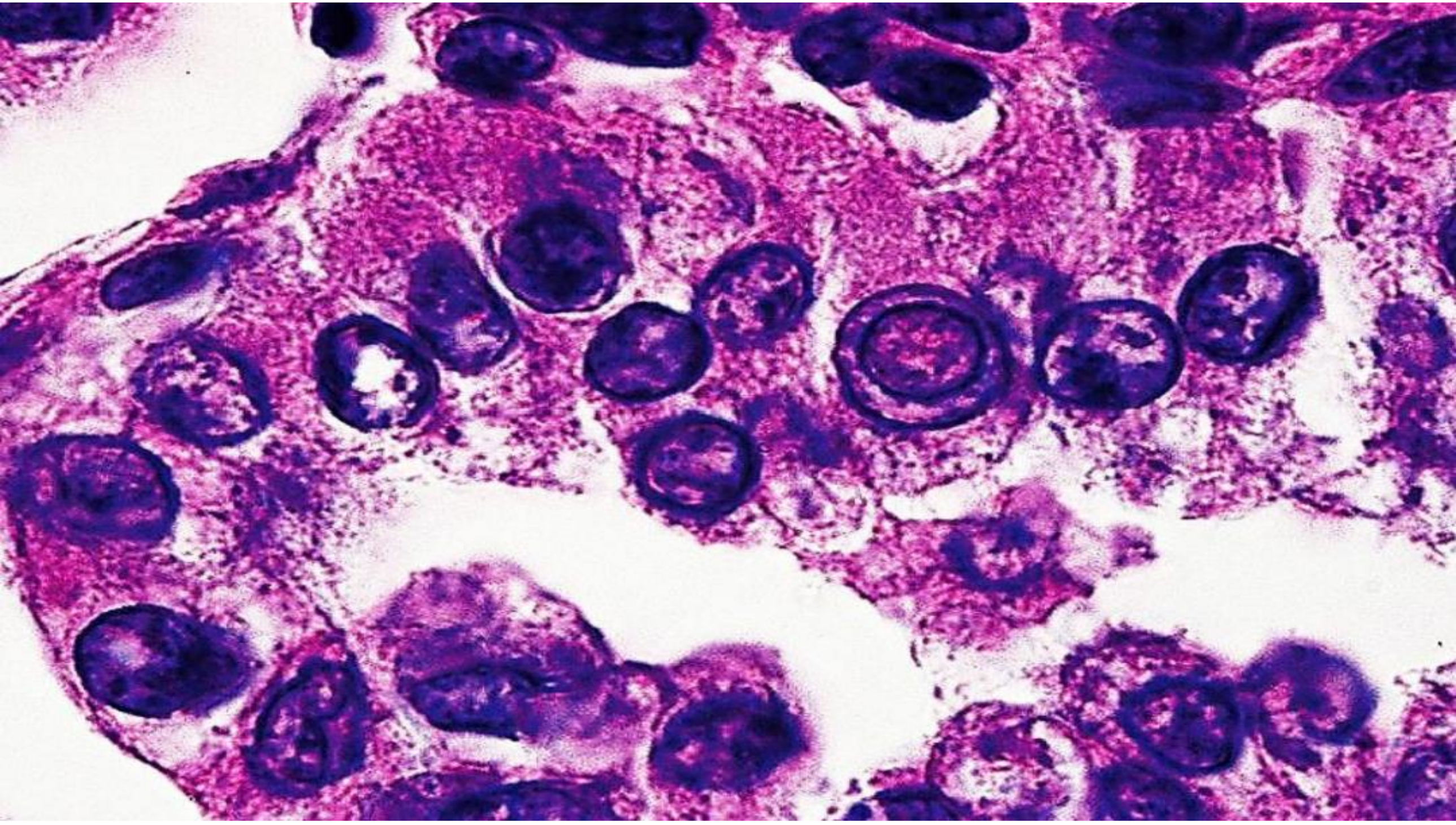


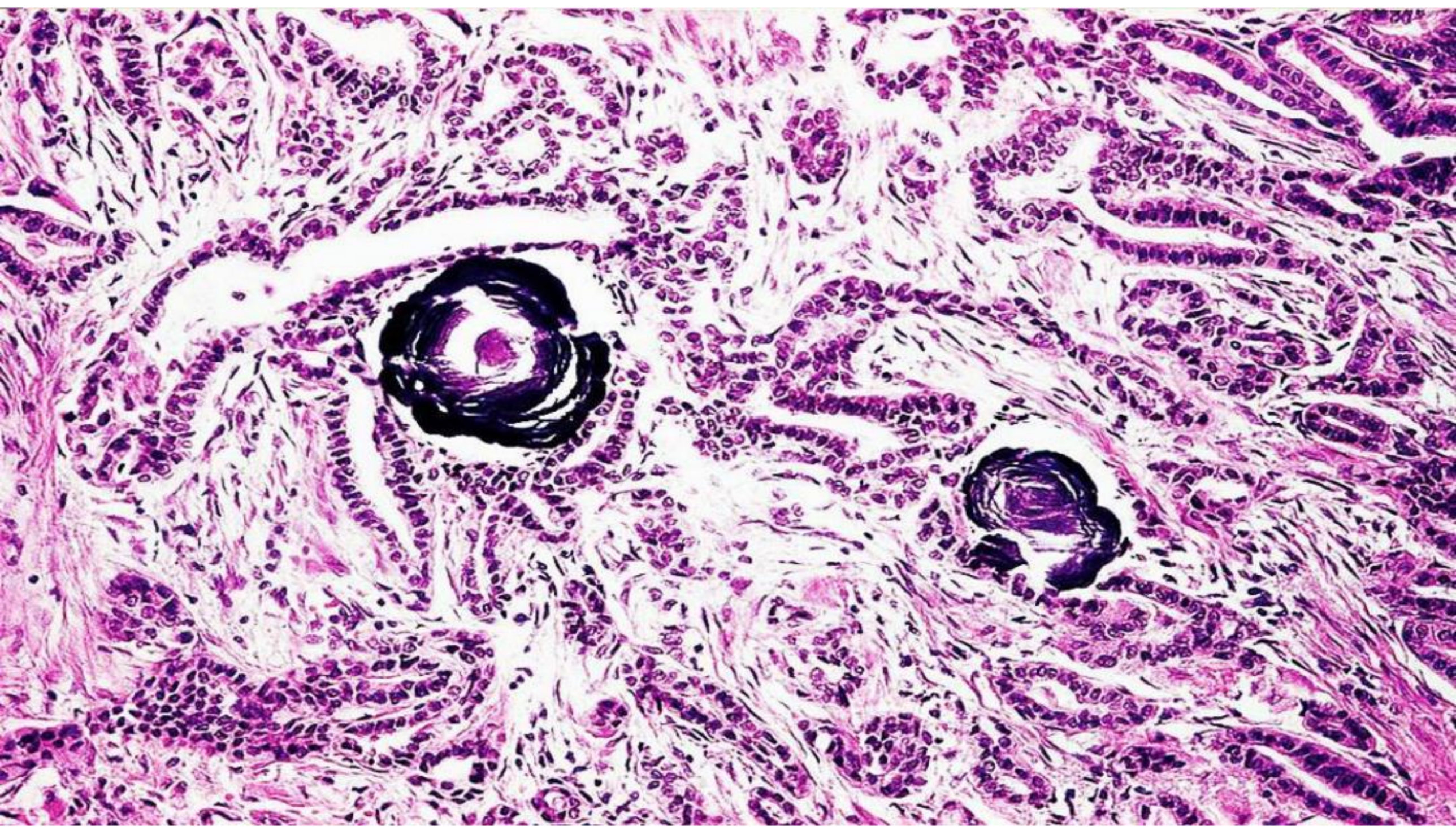












# identify the lesion
# describe


Thank
you!