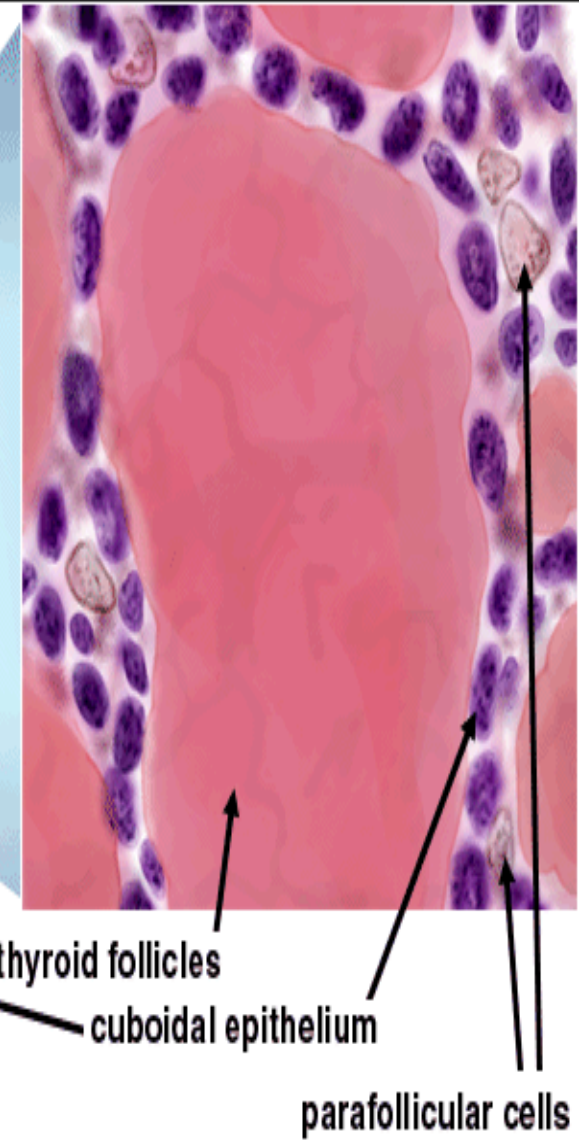
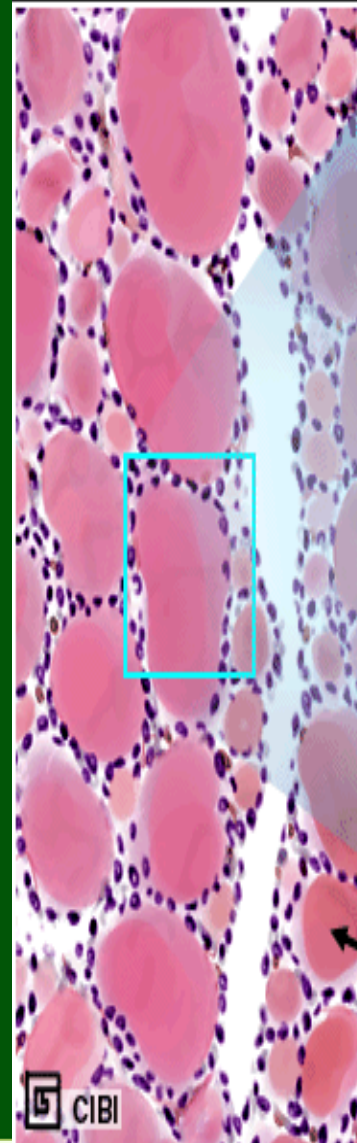


Endocrine practical block

Pathology Team

- 2-4 stations
- Both gross and microscopic pictures are important

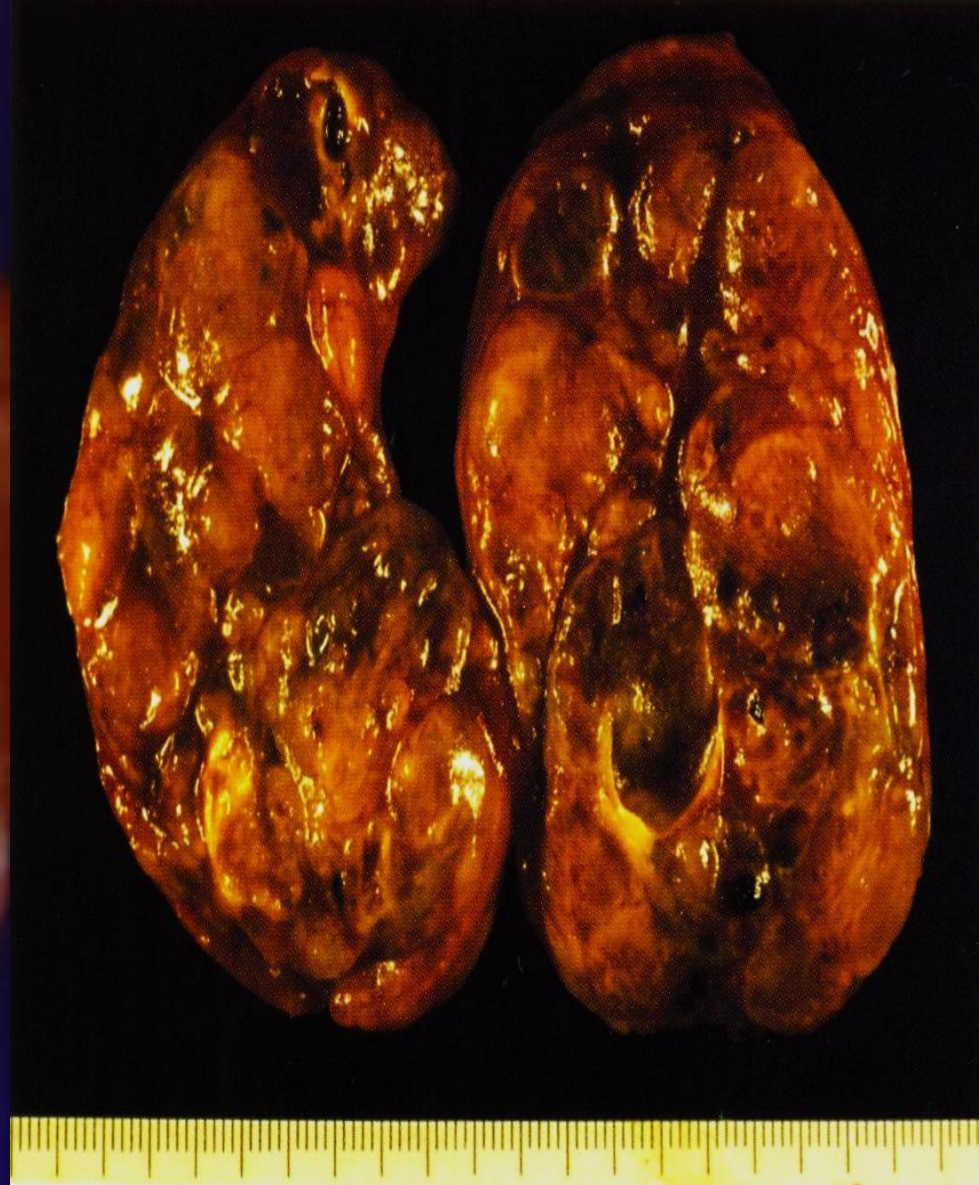
Thyroid Gland: Histology



The normal weight of the thyroid is 15-25 grams.

Case 1

Multinodular goiter



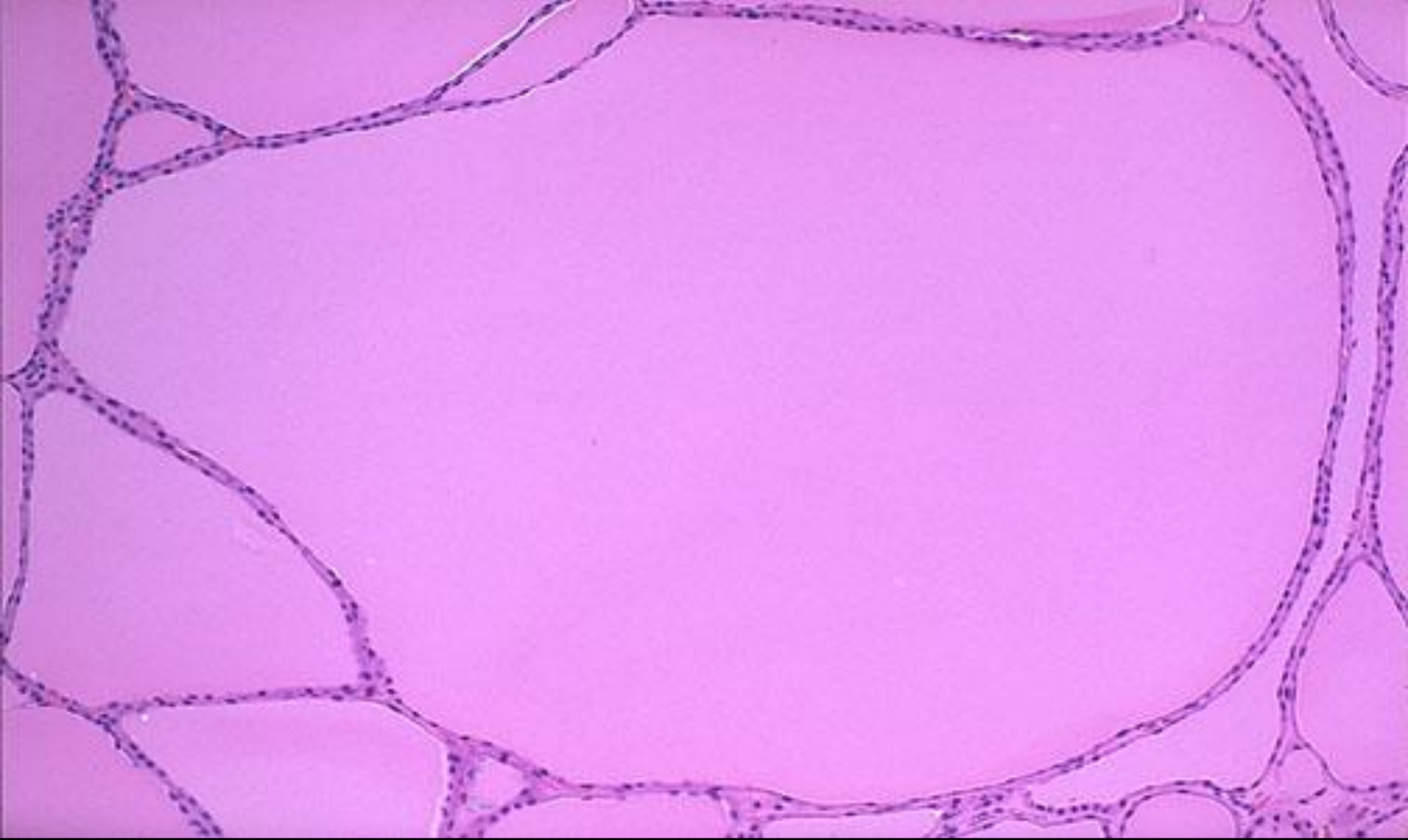
- Asymmetric enlargement
- Multinodules vary in size and in shape
- Haemorrhage
- Cystic degeneration

- Numerous follicles varying in size filled with colloid lined by flat epithelium (instead of normal cuboidal)

We can also see (not seen in this slide)

- Recent haemorrhage
- Haemosiderin macrophages
- Calcification
- Cystic degeneration





The follicles are irregularly enlarged, with flattened epithelium, consistent with inactivity, in this microscopic appearance at low power of a multinodular goiter.

Case 2

Thyrotoxicosis

HYPER-THYROIDISM-Features

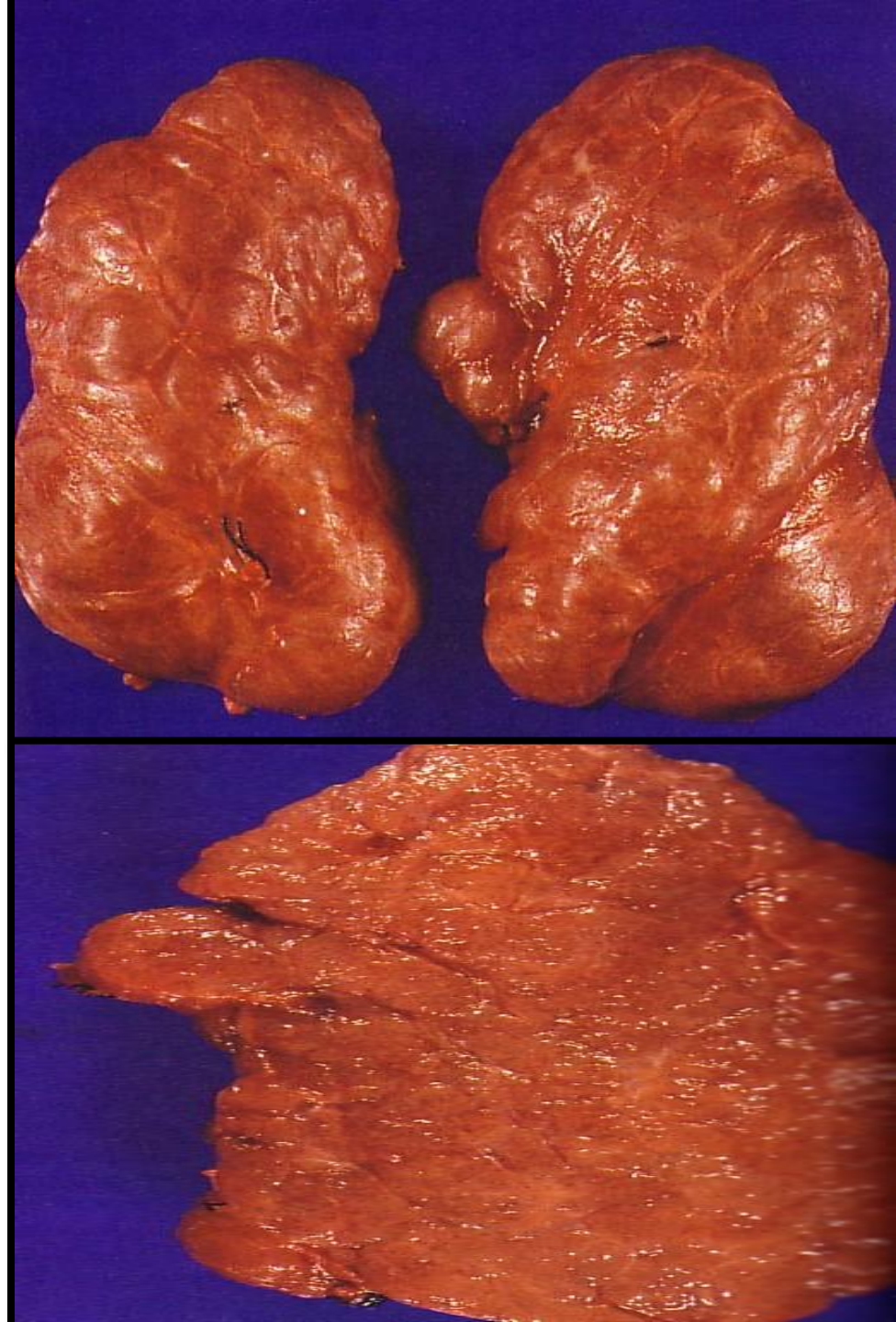
- **HYPERMETABOLISM**
- **Tachycardia, palpitations**
- **Increased T3, T4**
- **Goiter**
- **Exophthalmos**
- **Tremor**
- **GI hypermotility**
- **Thyroid “storm”, life threatening**

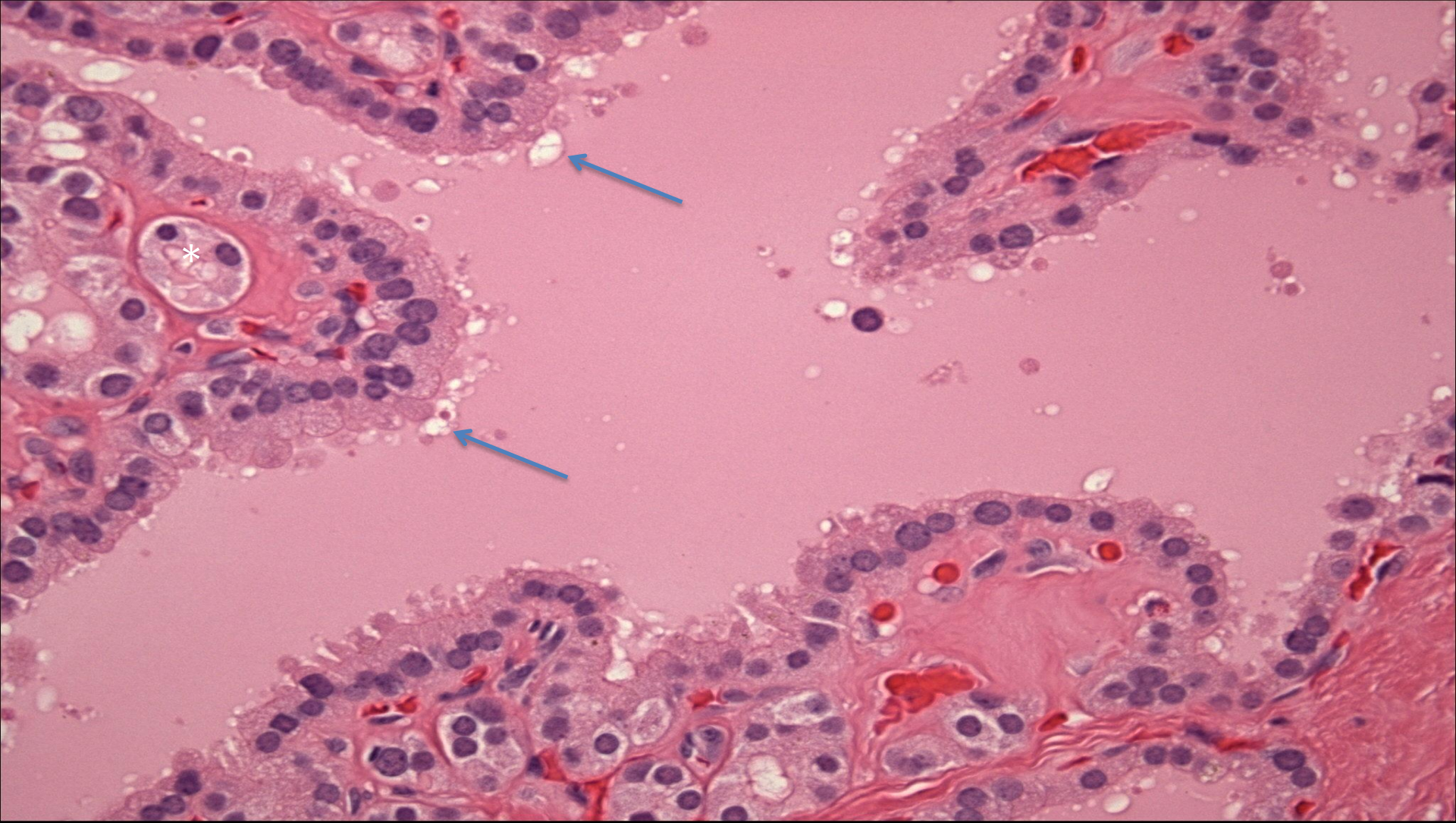
Exophthalmos



Graves Disease

- Symmetrical enlargement of thyroid gland
- Cut-surface is homogenous, soft and appear meaty (beefy)
- Hyperplasia and hypertrophy of follicular cells





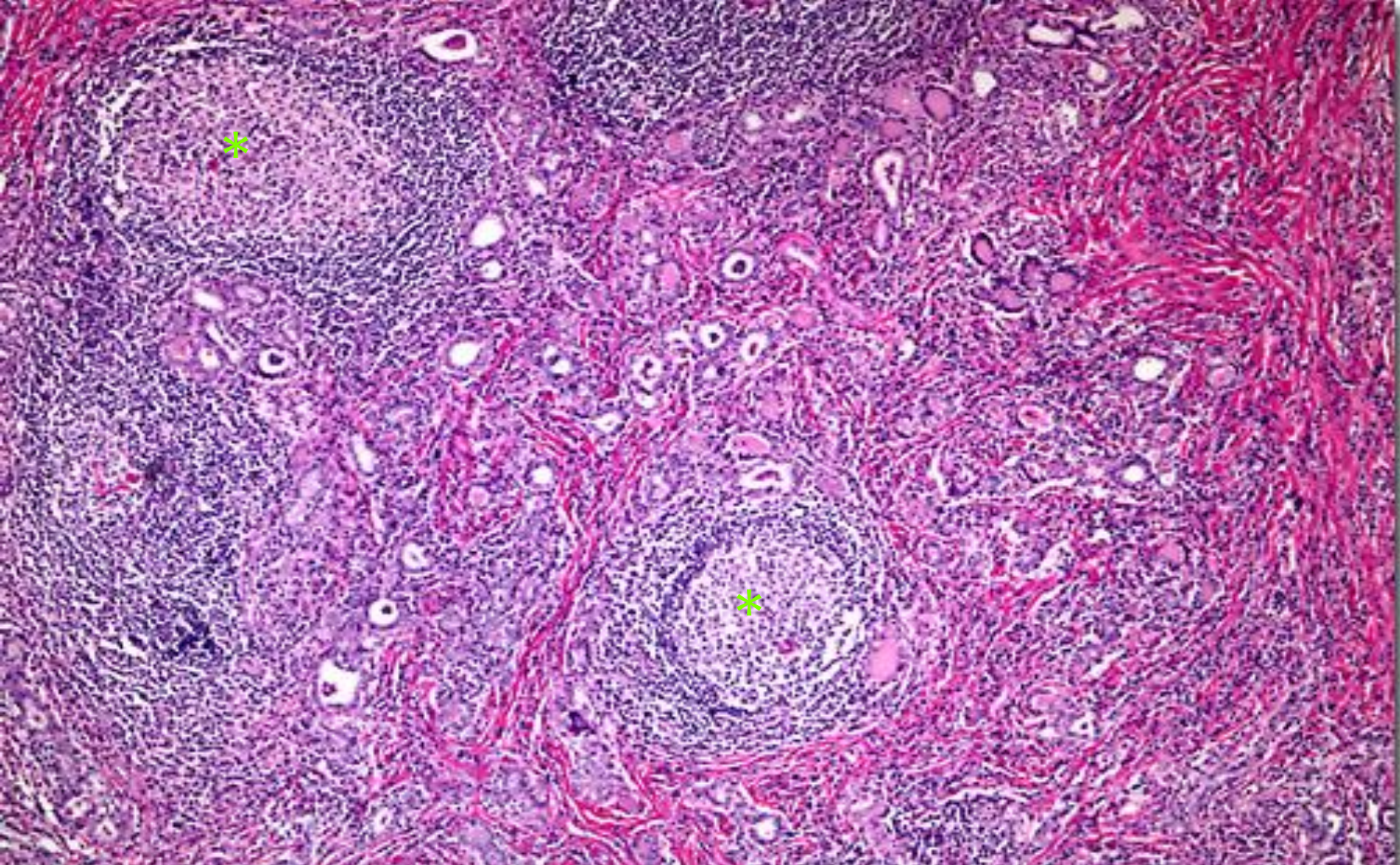
Section shows thyroid follicles lined by cuboidal to columnar and high cuboidal cells with evidence of peripheral vacuoles within the intrafollicular colloid material (scalloping) (arrows). Note the presence of peripheral smaller thyroid follicles devoid of colloid but lined by similar cells (*). Lymphocytic infiltration of the thyroid gland is sometimes seen in thyrotoxicosis. This feature is not, however,

Case 3

Hashimotos Thyroiditis

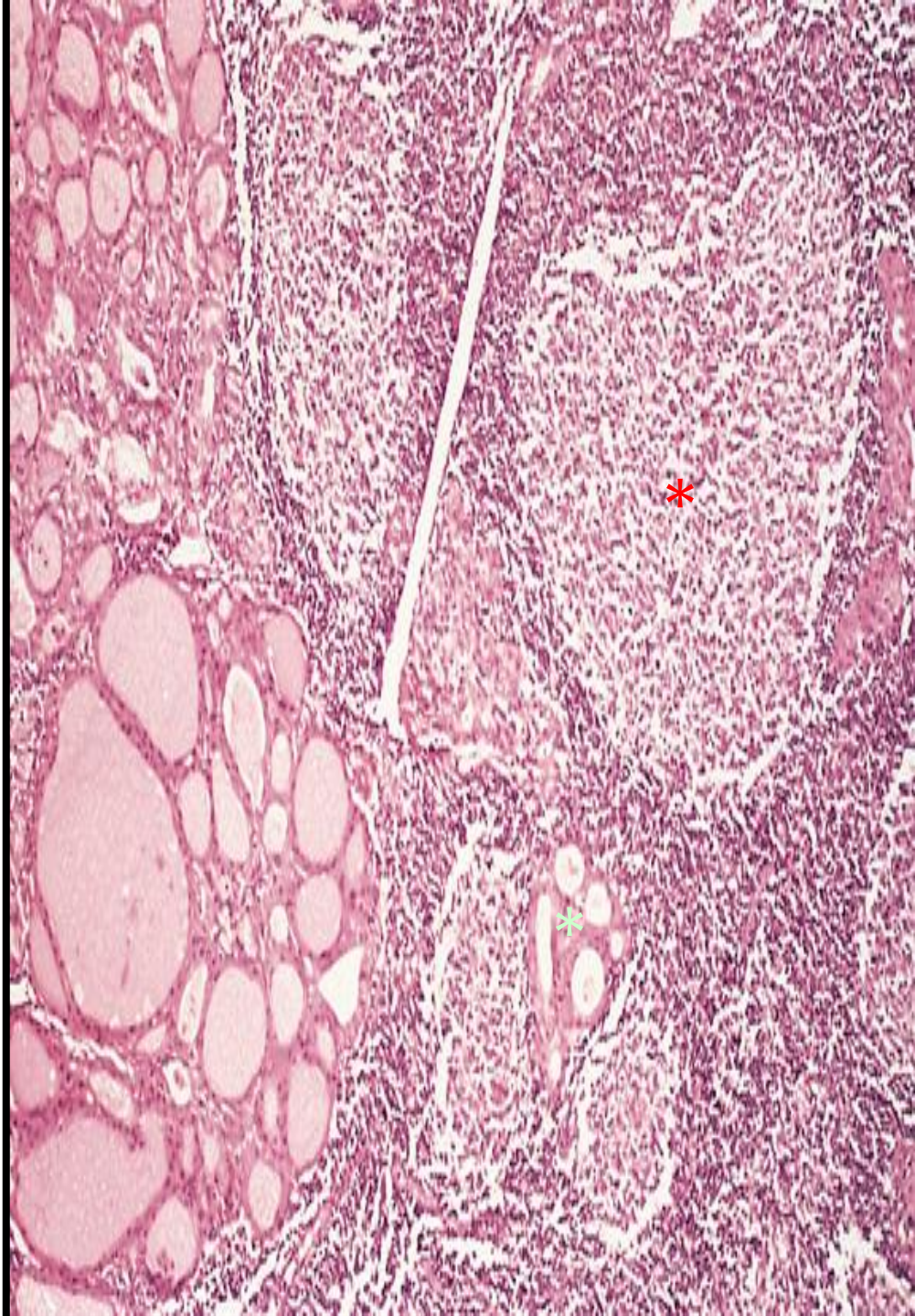
- Diffuse enlargement.
- Firm or rubbery.
- Pale, yellow-tan, to whitish firm & somewhat nodular cut surface (because of the presence of lymphocyte)





The diagnosis of Hashimoto thyroiditis requires not only lymphoid follicles in the thyroid, but SECONDARY (i.e., germinal centers (*)) follicles should be present. If the thyroid gland looks like a lymph node, the diagnosis is Hashimoto thyroiditis, Hashimoto = auto-immune

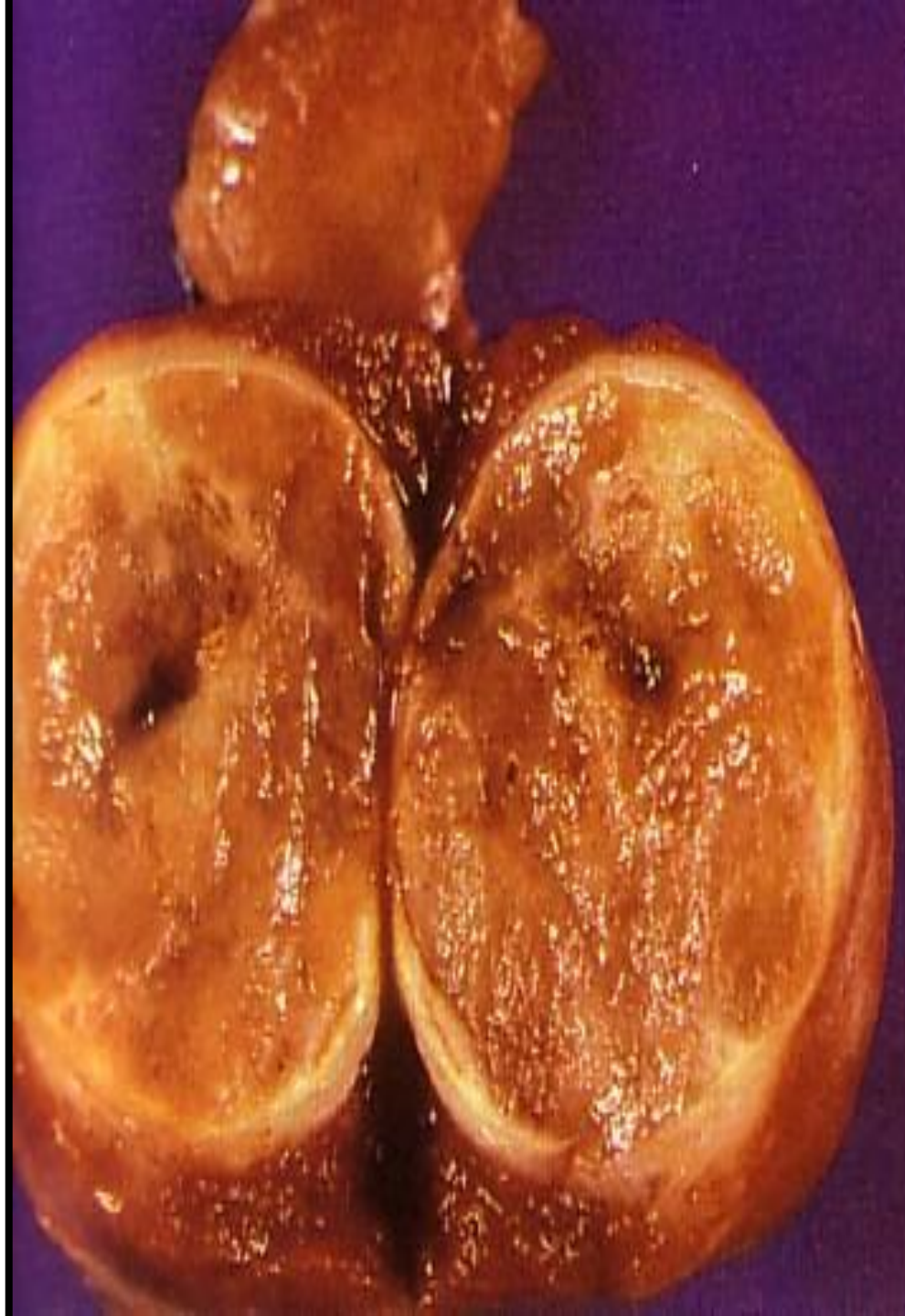
- Massive lympho-plasmacytic infiltration with lymphoid follicles formation (germinal centers) (*)
- Destruction of thyroid follicles
- Increased interstitial connective tissue.
- Remaining follicles are small and many are lined by Hürthle cells. (*)

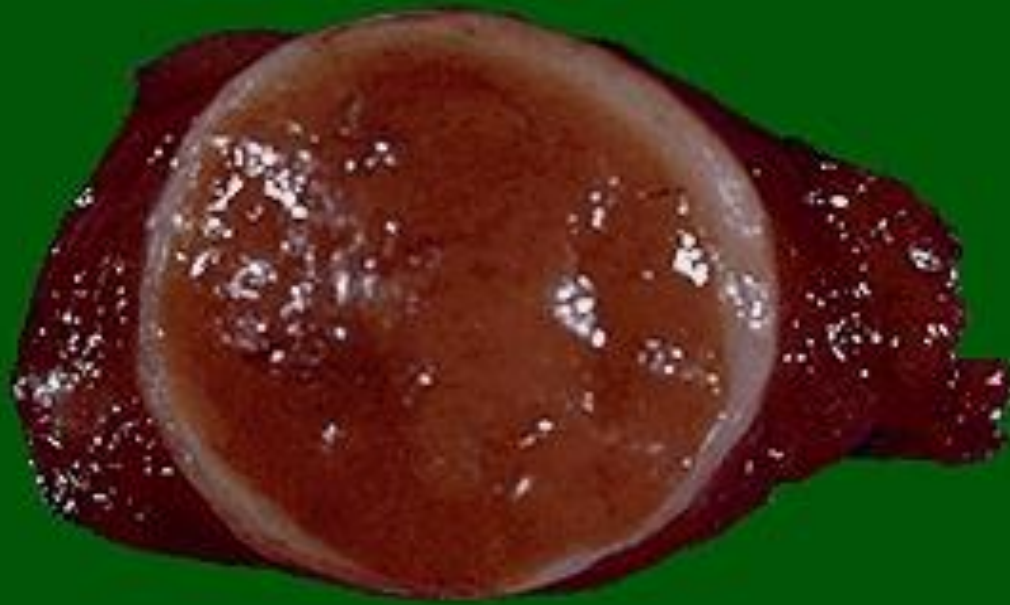


Case 4

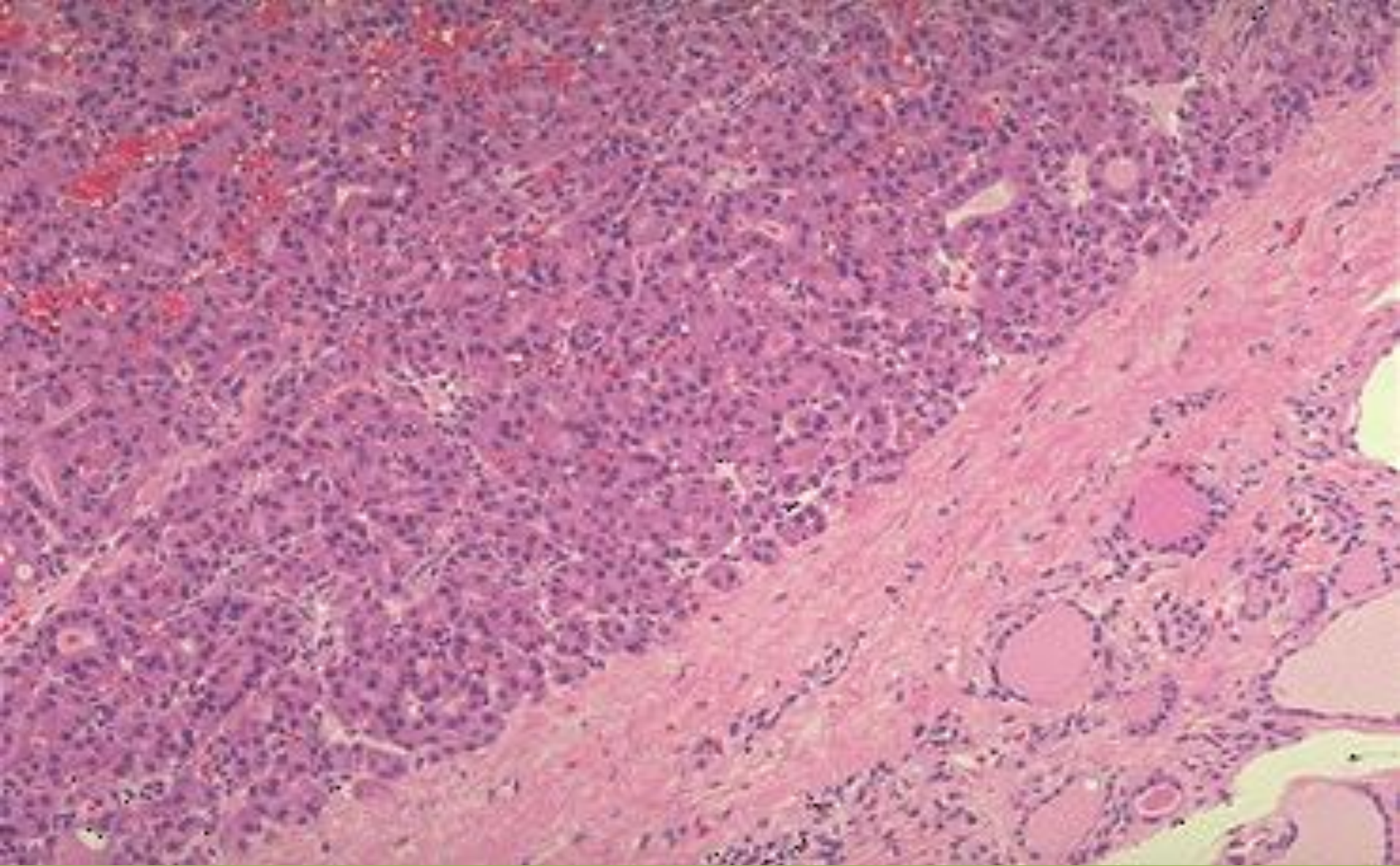
Follicular adenoma

- Solitary
- Variably sized
- Encapsulated
- Well-circumscribed
- With homogenous gray-white to red-brown cut-surface
- +/- degenerative changes





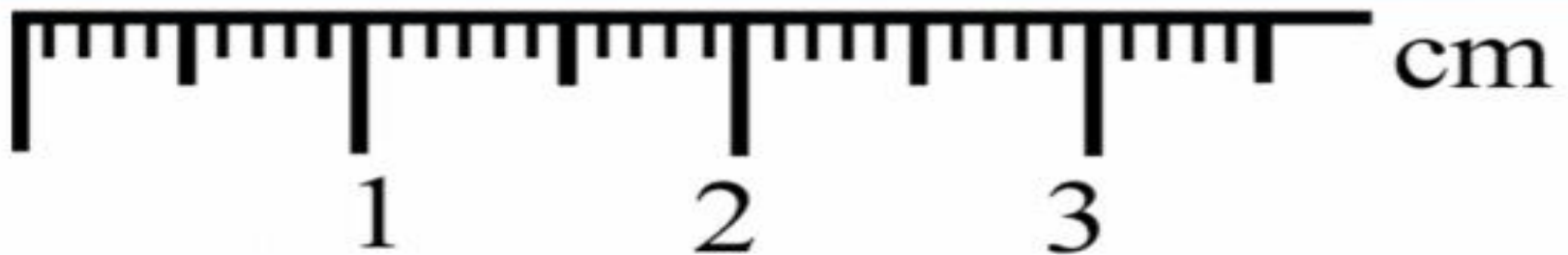
There is a well circumscribed light brown and circular tumor nodule which is surrounded by a thick and whitish capsule . The surrounding thyroid tissue is unremarkable . The features are consistent with a follicular adenoma of thyroid gland . patients with follicular neoplasm are treated with subtotal thyroidectomy just to be on the safe side.



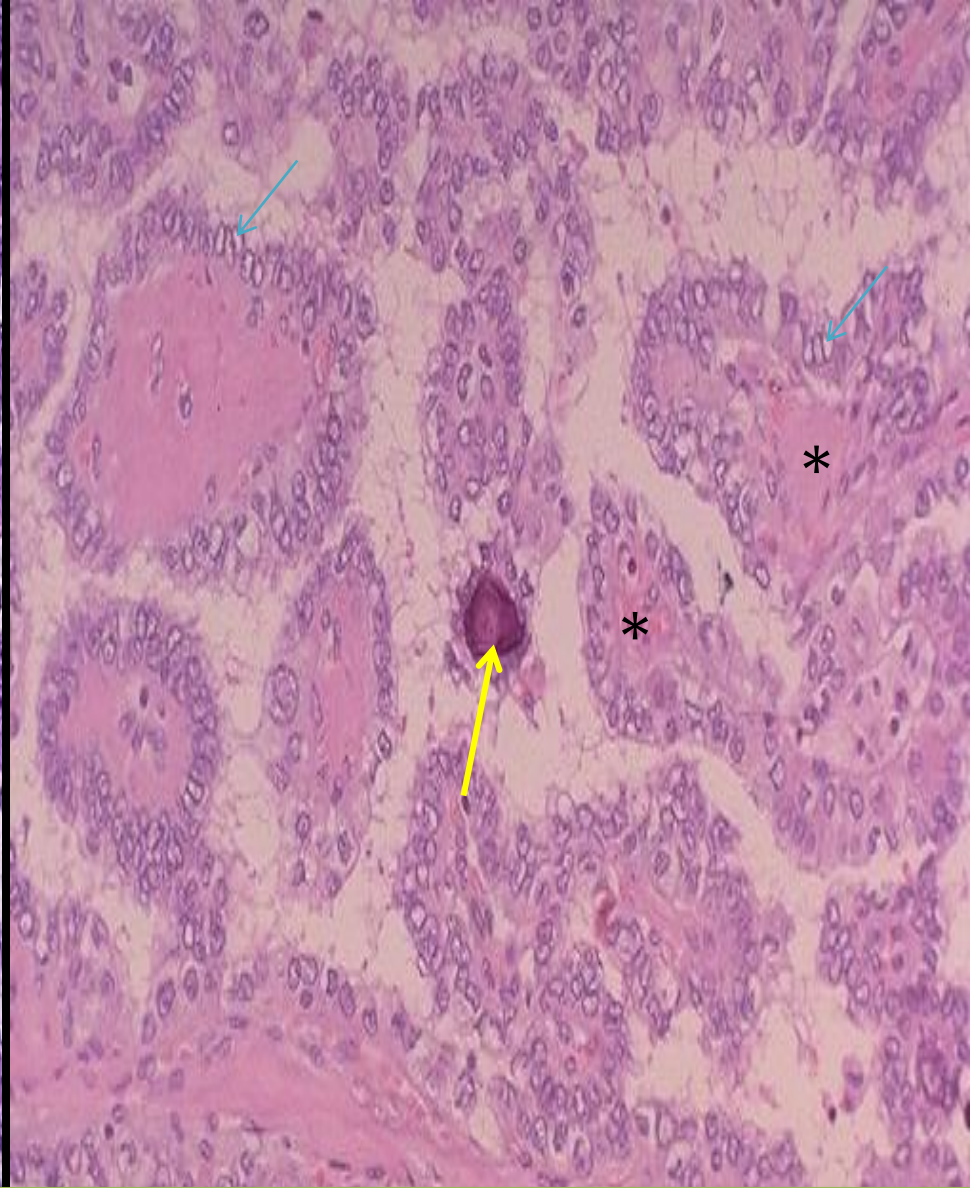
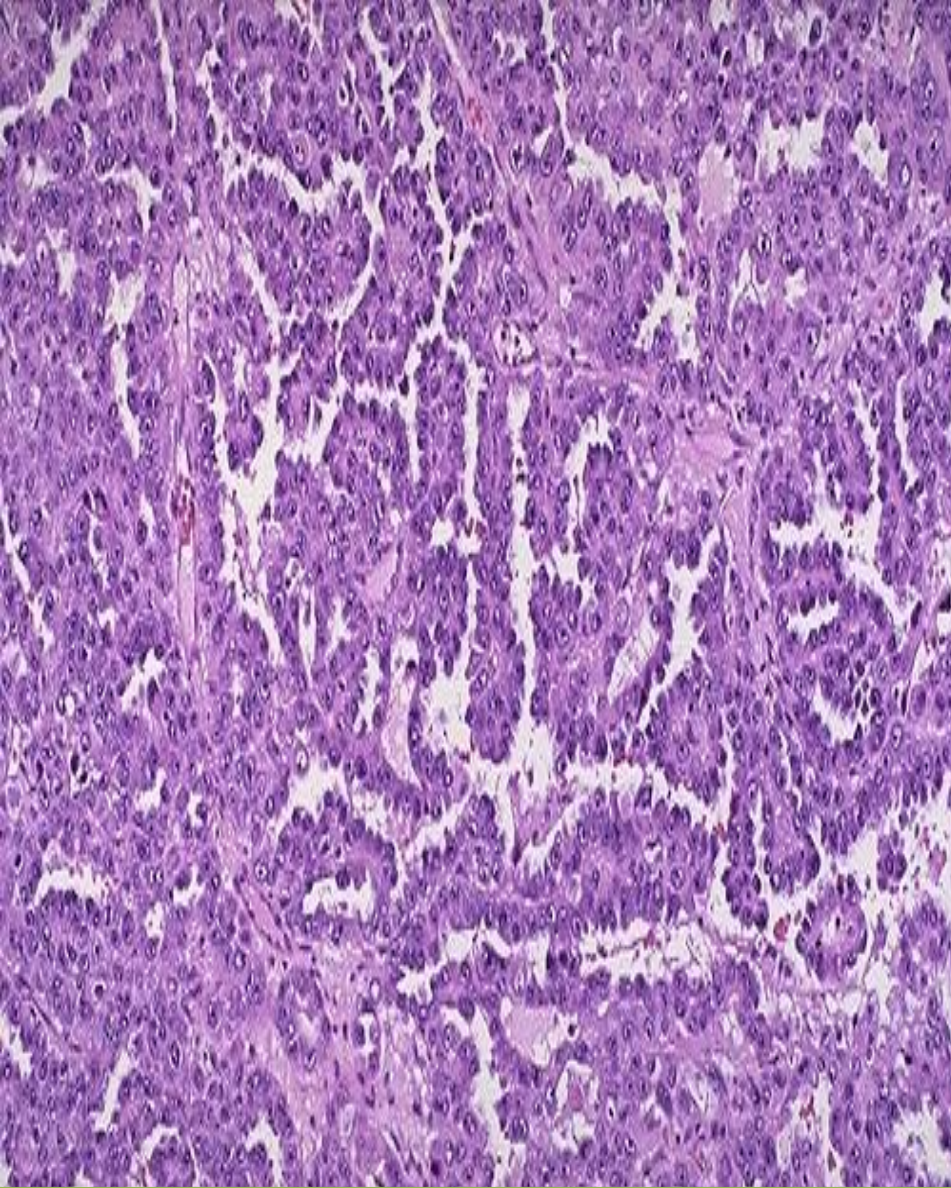
Normal thyroid follicles appear at the lower right. The follicular adenoma is at the center to upper left. This adenoma is a well- differentiated neoplasm because it closely resemble normal tissue. The follicles of the adenoma contain colloid, but there is greater variability in size than normal. EXTREMELY well encapsulated tumor. It is benign.

Case 5

Papillary thyroid carcinoma



A relatively well circumscribed pale and firm nodule showing a whitish cut surface with vague scattered papillary areas. Papillary neoplasm do NOT usually look uniform on cut surface. This neoplasm can be multifocal, because of the propensity to invade lymphatic within thyroid, and lymph node metastases and metastasis to lungs are common.



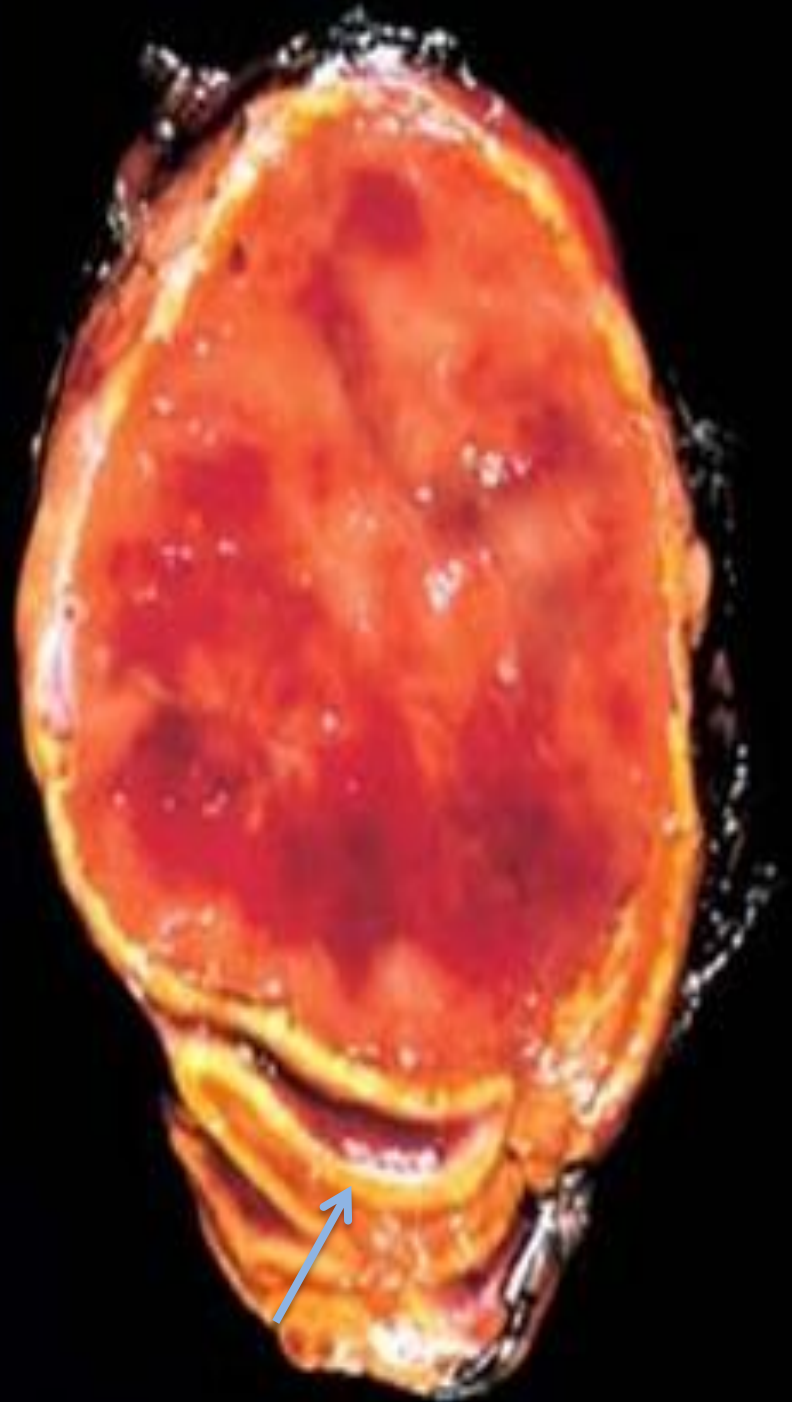
Sections show a papillary neoplasm consisting of papillary fronds (*) lined by overlapping clear nuclei (Orphan Annie nuclei (blue arrows)) in which considerably cytoplasm has invaginated into the nucleus.. Calcified Psammoma bodies are also seen (yellow arrow). Mtastatize thru lymph nodes and lungs while follicular carcinoma is thru blood vessels

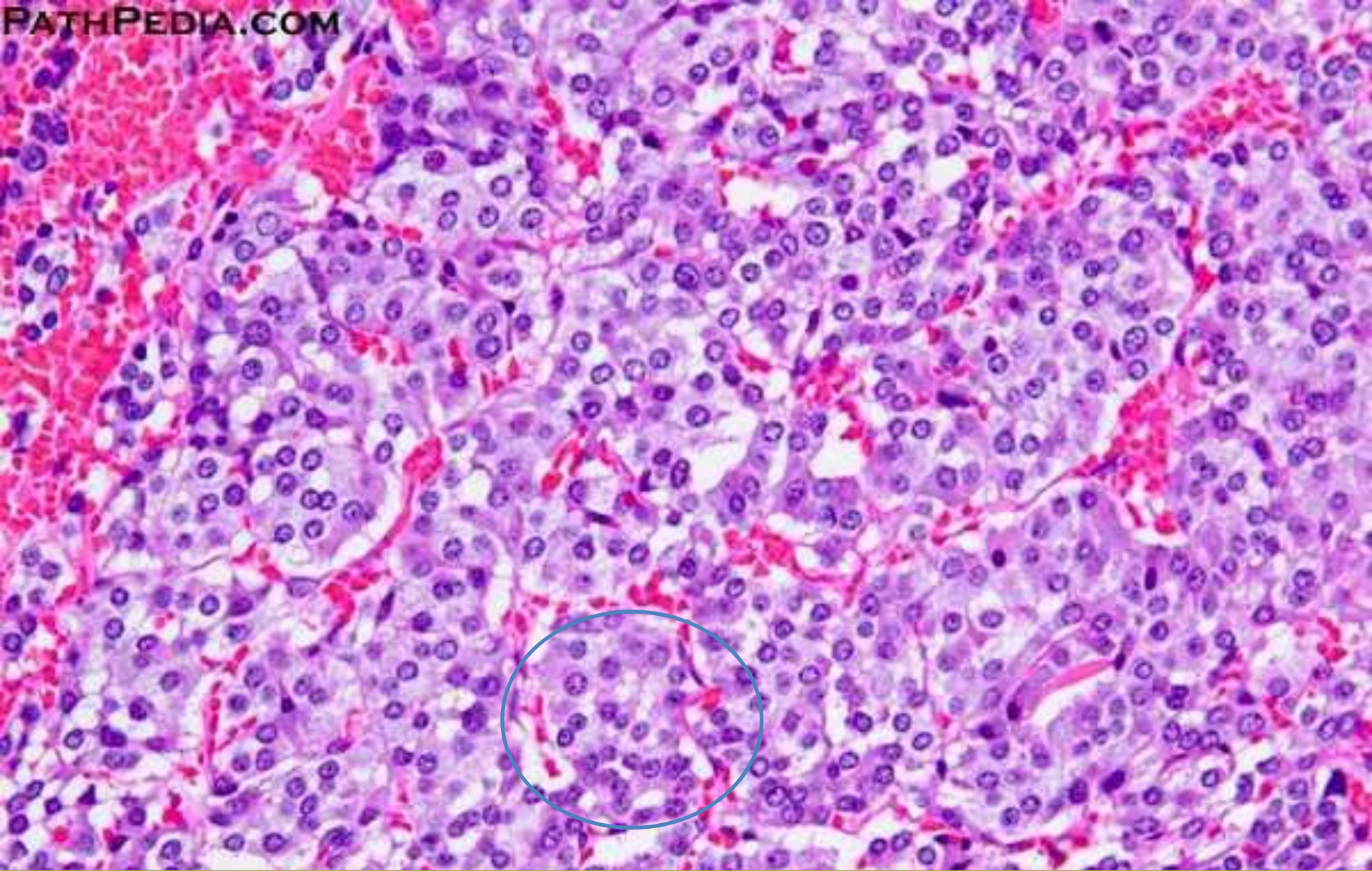
Case 6

Pheochromocytoma

Pheochromocytoma

The figure shows a single partly pale and partly hemorrhagic adrenal medullary mass which appears to be compressing the adrenal cortex (arrow)





Zellballen: Nest-like clusters of uniform, round-to-polygonal chief cells surrounded by delicate richly vascular tissue

Pheochromocytoma

- Characteristic nests of cells
“Zell-ballen” seen (clear in the previous slide)
- The cells are polygonal to spindle shaped with abundant finely granular cytoplasm (*)
- nuclei with stippled ‘salt and pepper’ chromatin. (red circle)
- Pleomorphic cell (yellow arrow)

