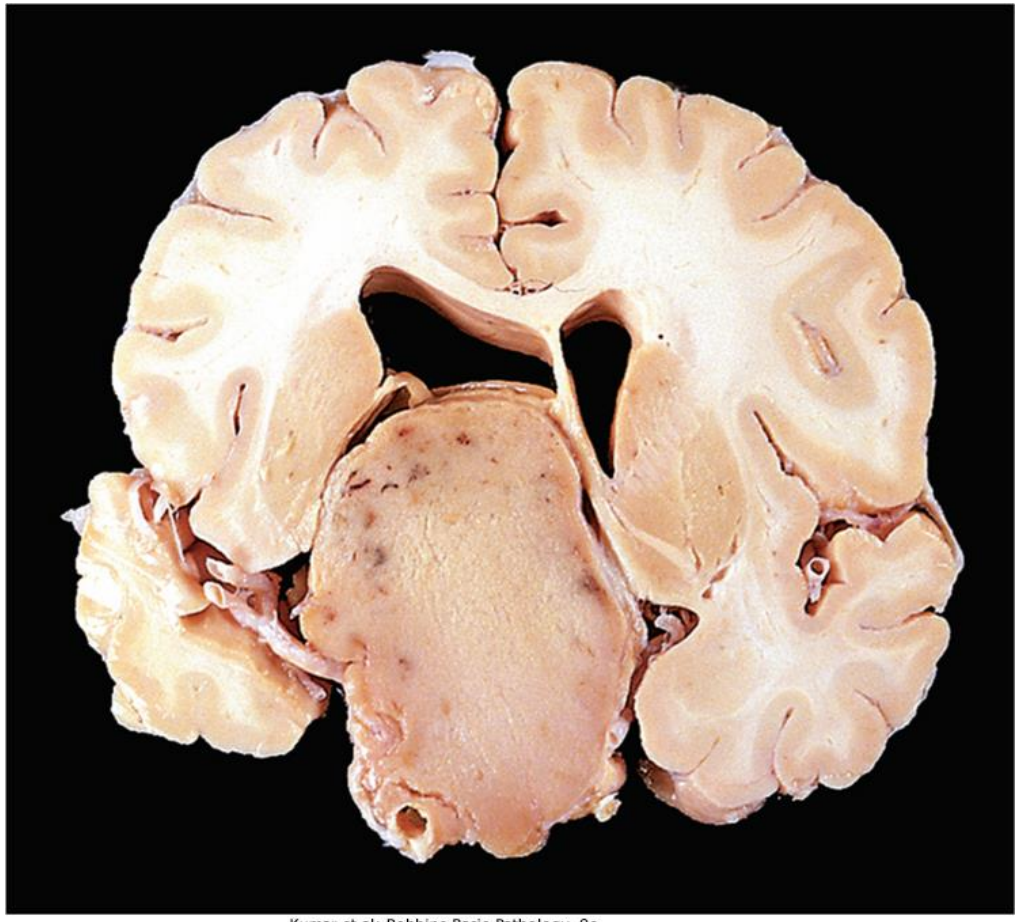
Endocrine pathology lab 2019

Heyam Awad

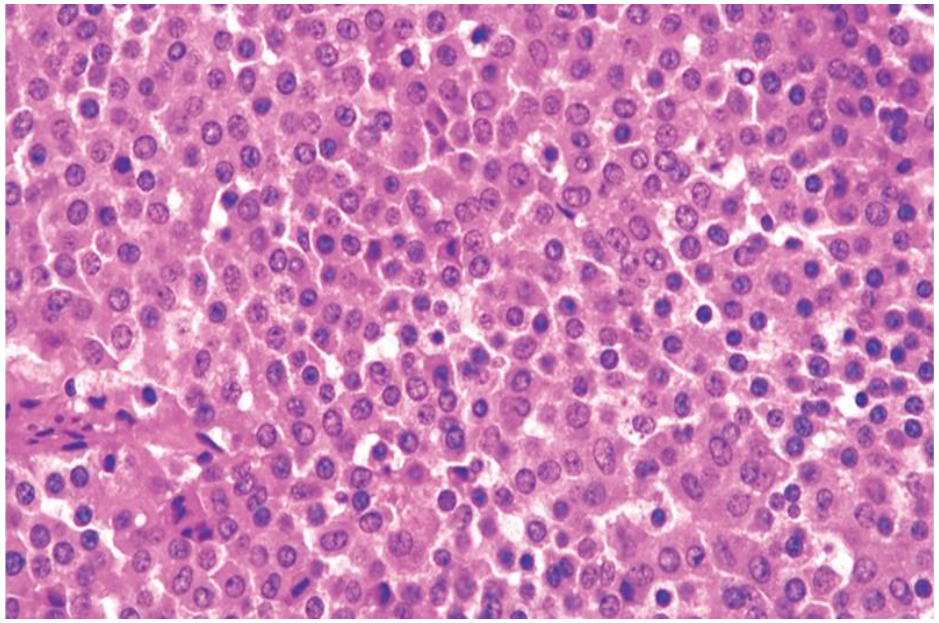
- The lab material was incorporated within the lectures, where we discussed all the relevant macroscopic and microscopic features of endocrine glands' pathology.
- This file summarizes the most important points in the lab material.
- In the practical part of the exam, I will ask you about the pictures in this file only.
- Some questions will just ask you to identify a macroscopic or microscopic features, others will incorporate the theoretical and lab material.
- Good luck

Pituitary adenoma: note that the lesion is well circumscribed and homogenous. These features indicate benign appearance

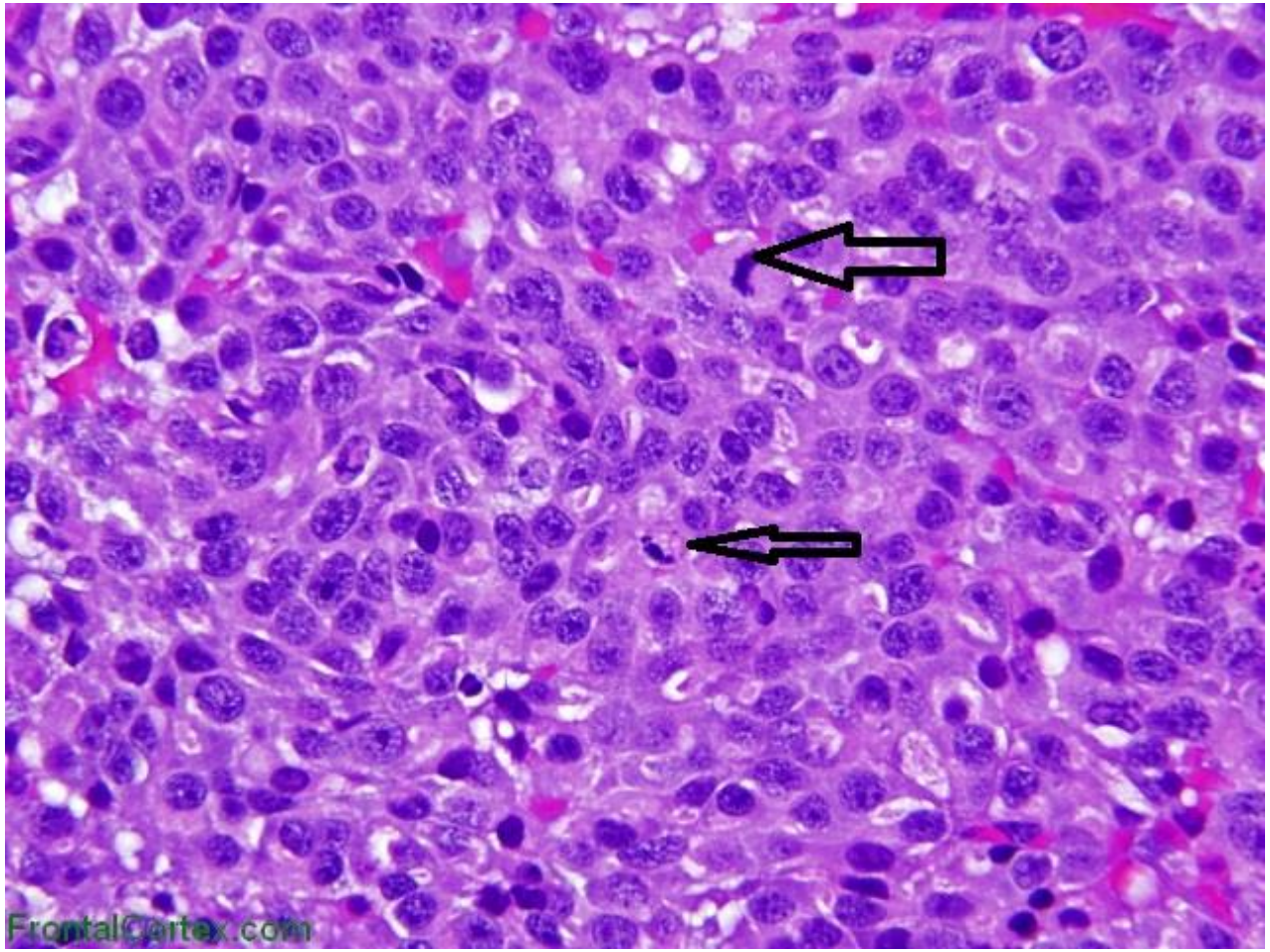


Pituitary adenoma

- Monomophic: one cell type.. All cells look similar, whereas in the normal pituitary several cell types exist.

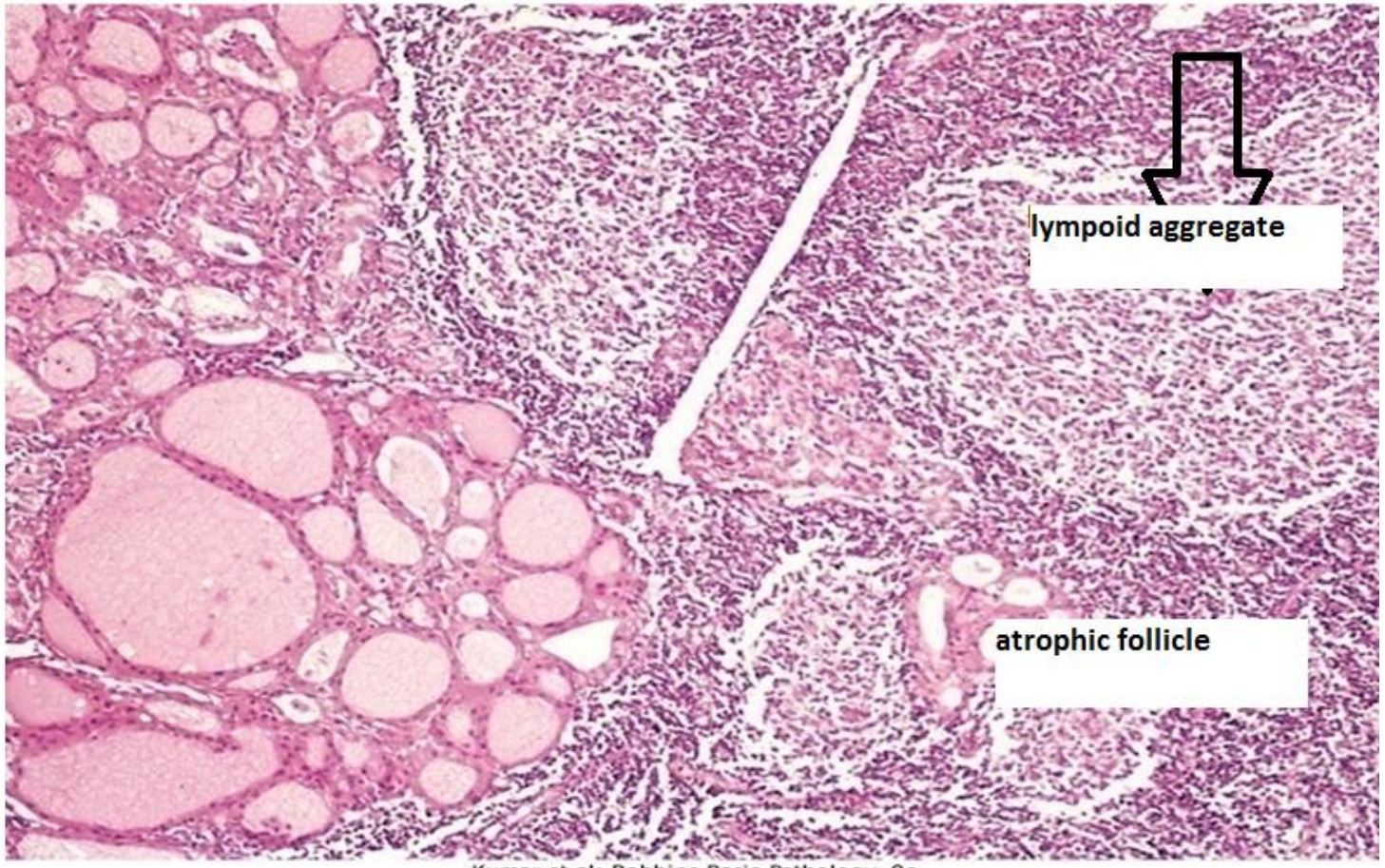


Atypical pituitary adenoma with increased mitosis.. These have TP53 mutation and are aggressive



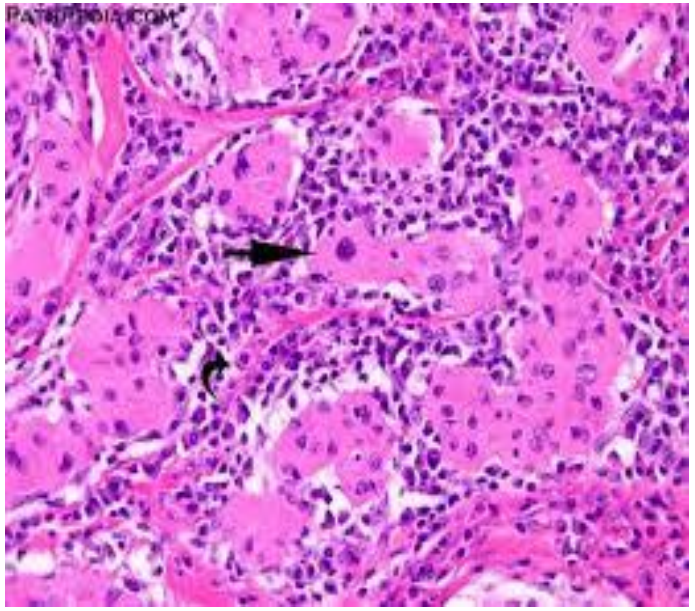
Hashimoto thyroiditis

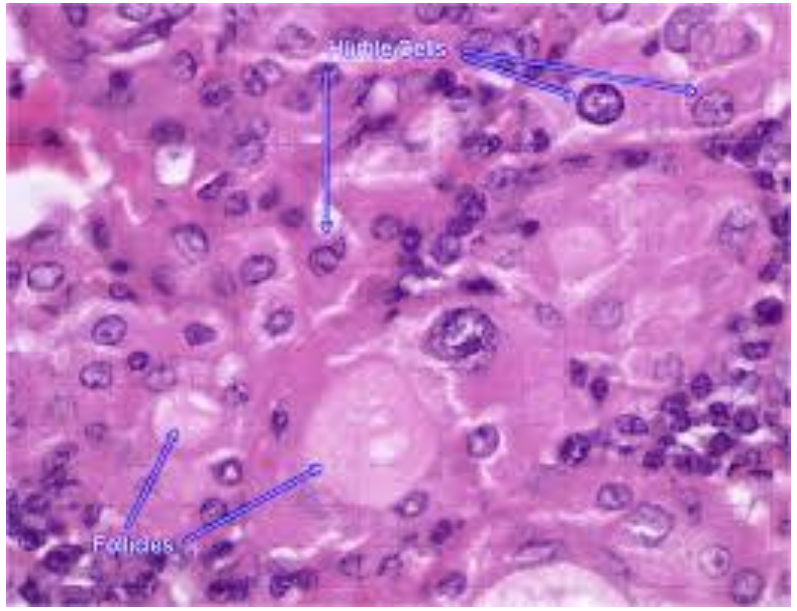
Hashimoto: atrophic follicles, lymphoid aggregates, Hurthle cells.



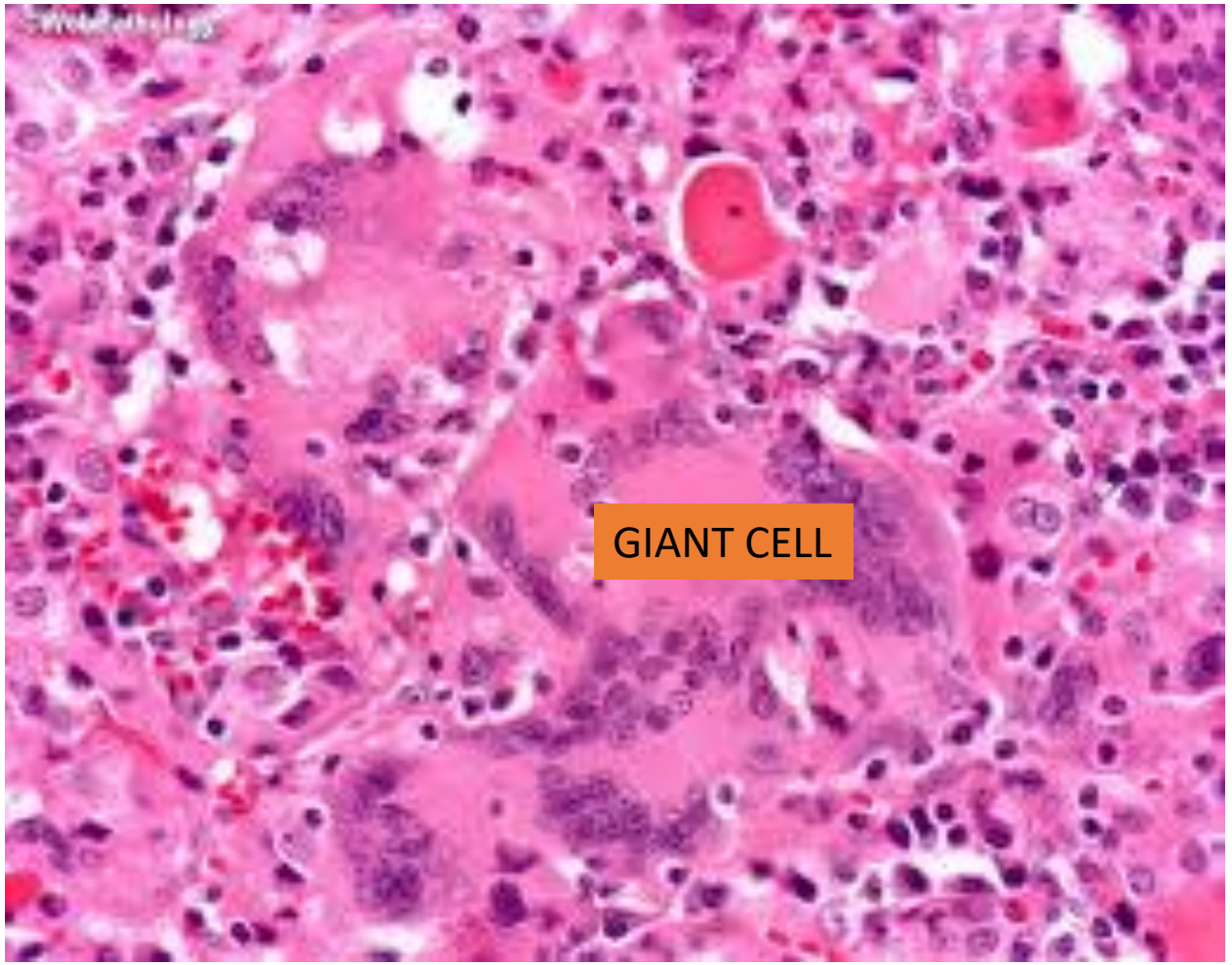
Kumar et al: Robbins Basic Pathology, 9e.

Hurthle cells: large cells with abundant eosinophilic cytoplasm, due to increased mitochondria





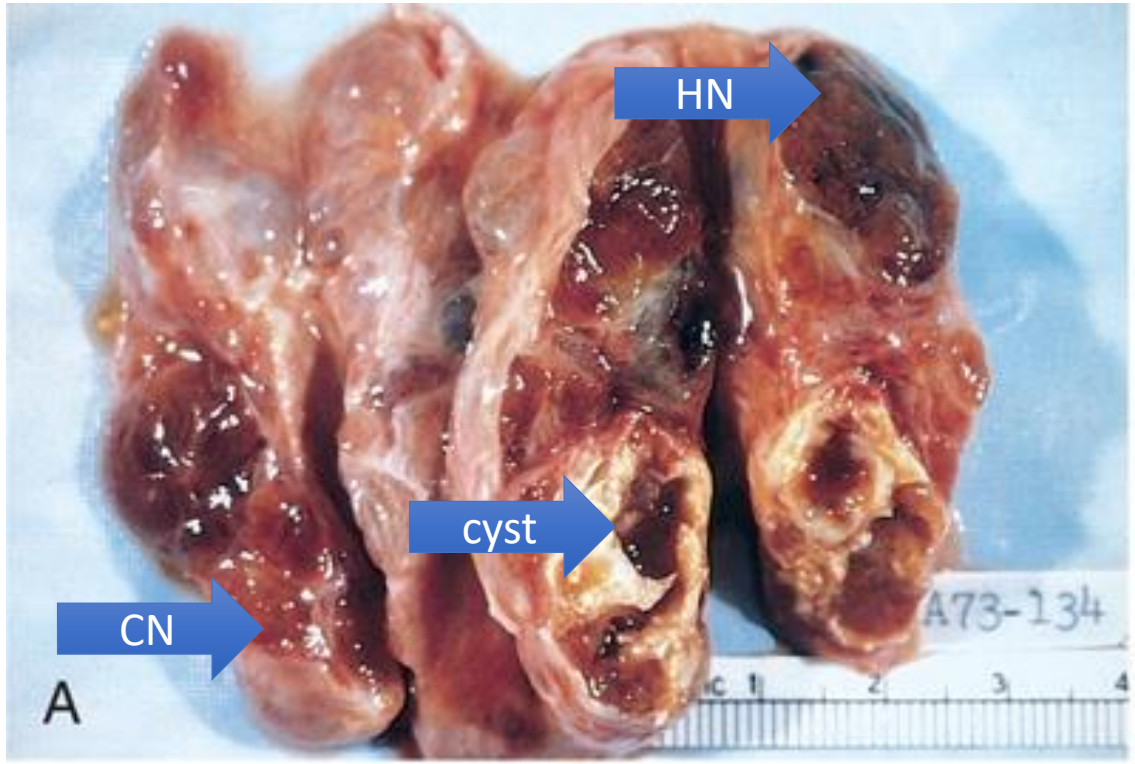
Subacute granulomatous thyroiditis



Gross: Diffuse Symmetrical enlargement of the thyroid gland with intact capsule,

multinodular goiter

Multinodular goiter: thyroid shows several nodules, some are hemorrhagic (HN), others contain colloid (CN) and some become cystic.

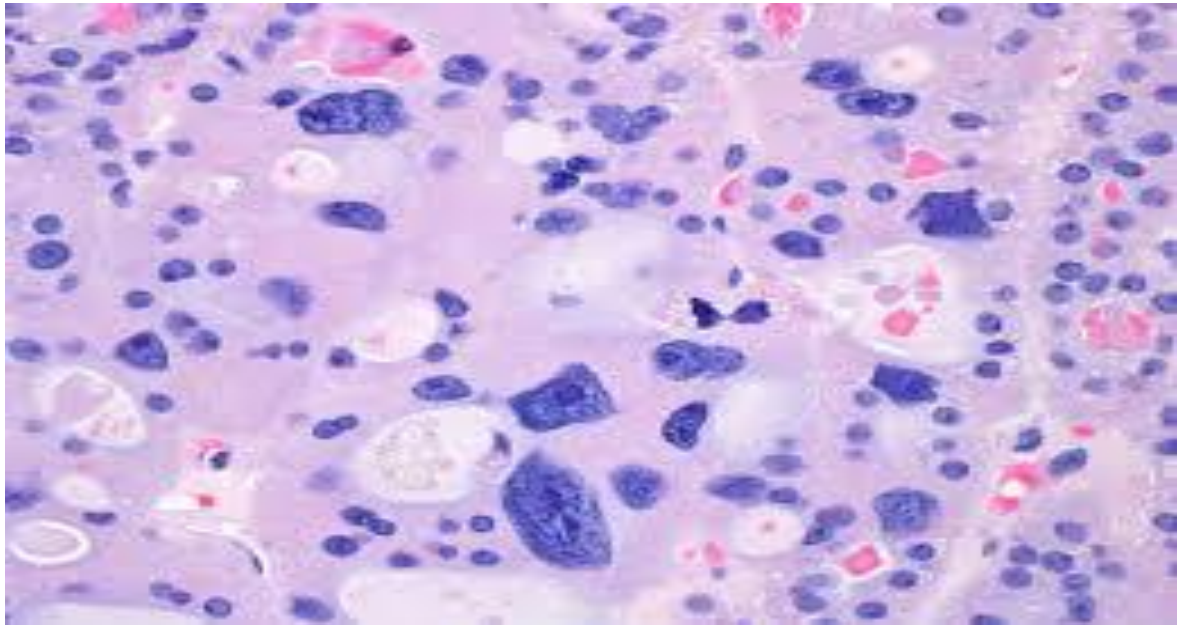


Follicular adenoma

- Well demarcated, encapsulated nodules.

Endocrine atypia in follicular adenoma

- Note the large, hyperchromatic, pleomorphic cells. These are atypical and this atypia in endocrine glands doesn’t necessarily mean malignancy.



Papillary thyroid carcinoma

- -papillae
- Clear nuclei
- Nuclear grooves
- Intranuclear inclusions
- Psammoma bodies.

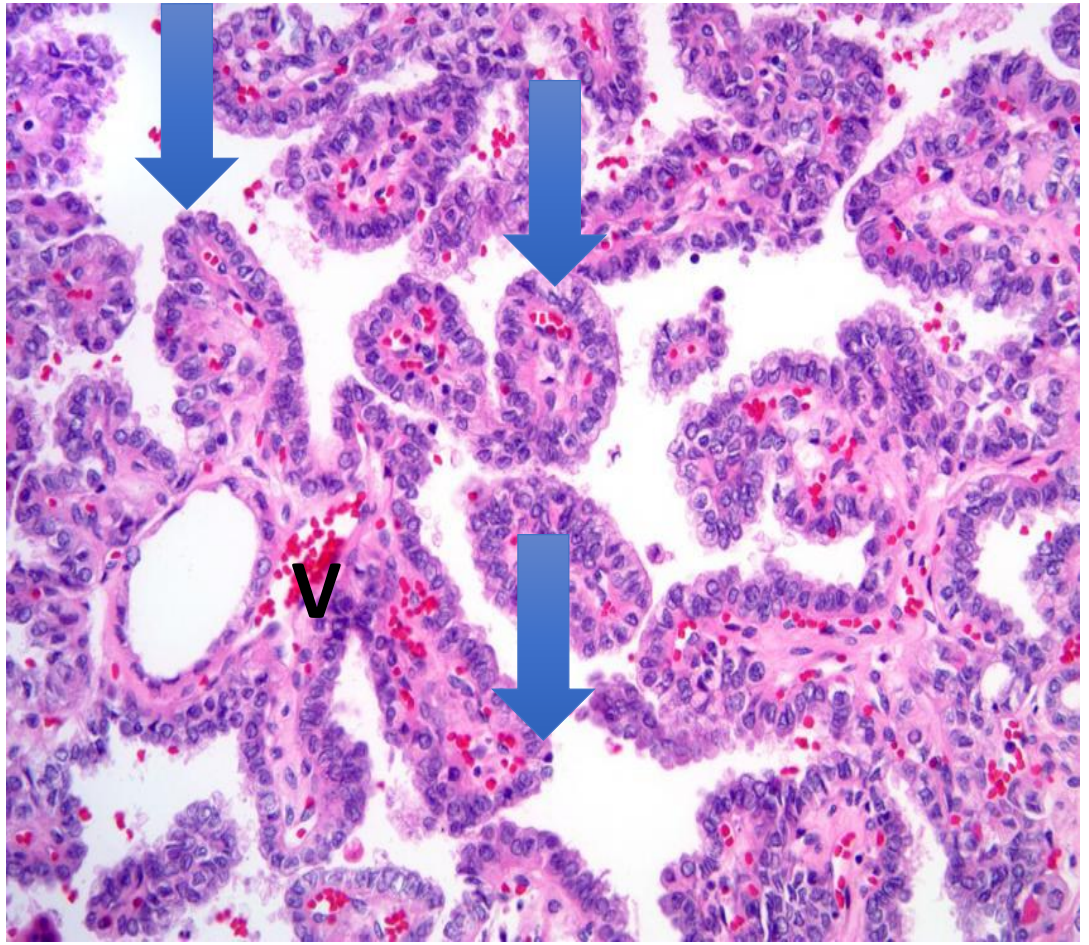
- Note: nuclear clearing is a formalin related artefact, so it cannot be seen in FNA

Papillae

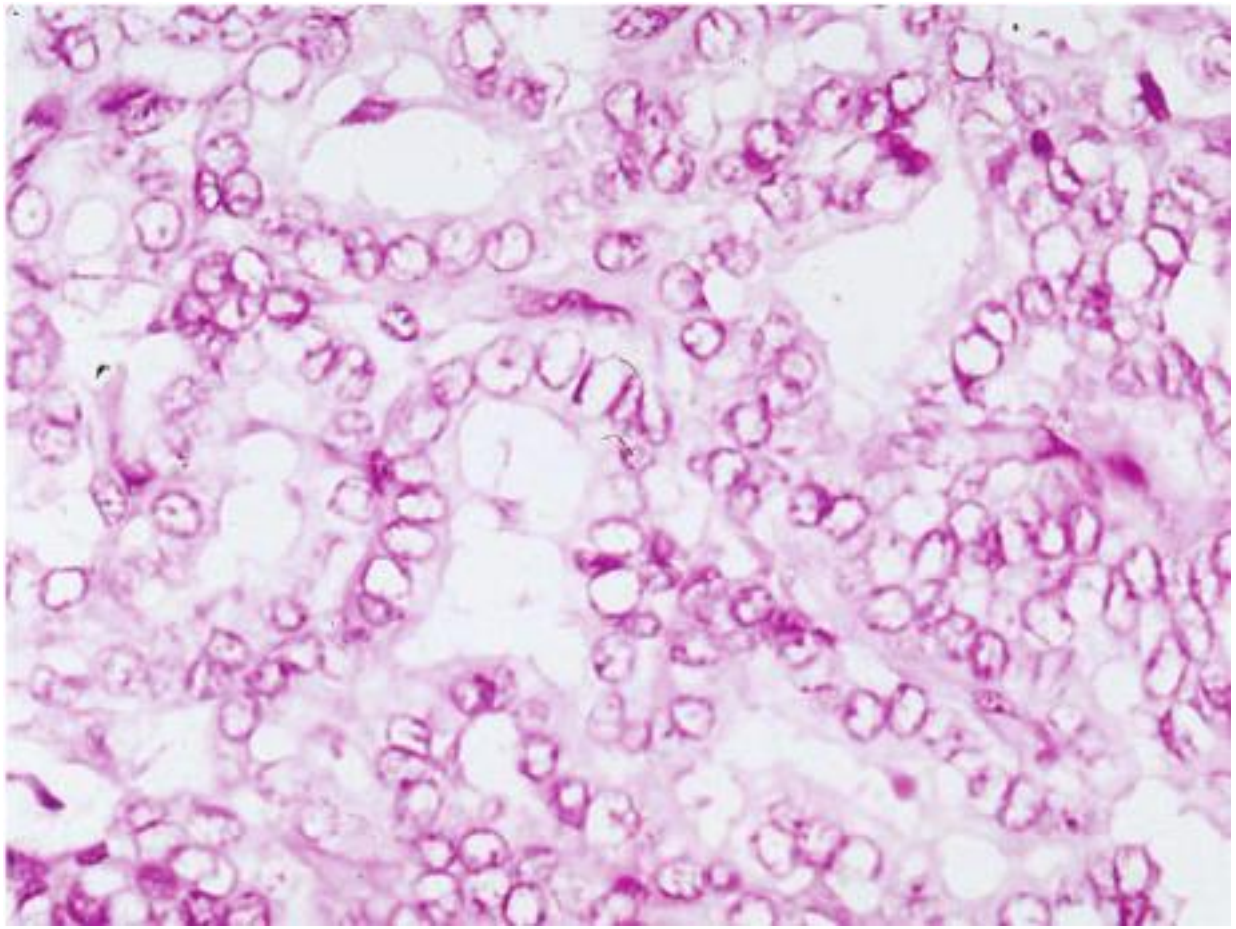
-Papillae (arrows) are finger-like projections covered by epithelial cells (the blue dots around the papillae).

-The papillae have fibro-vascular cores (central region which is fibrous and contains blood vessels (V))

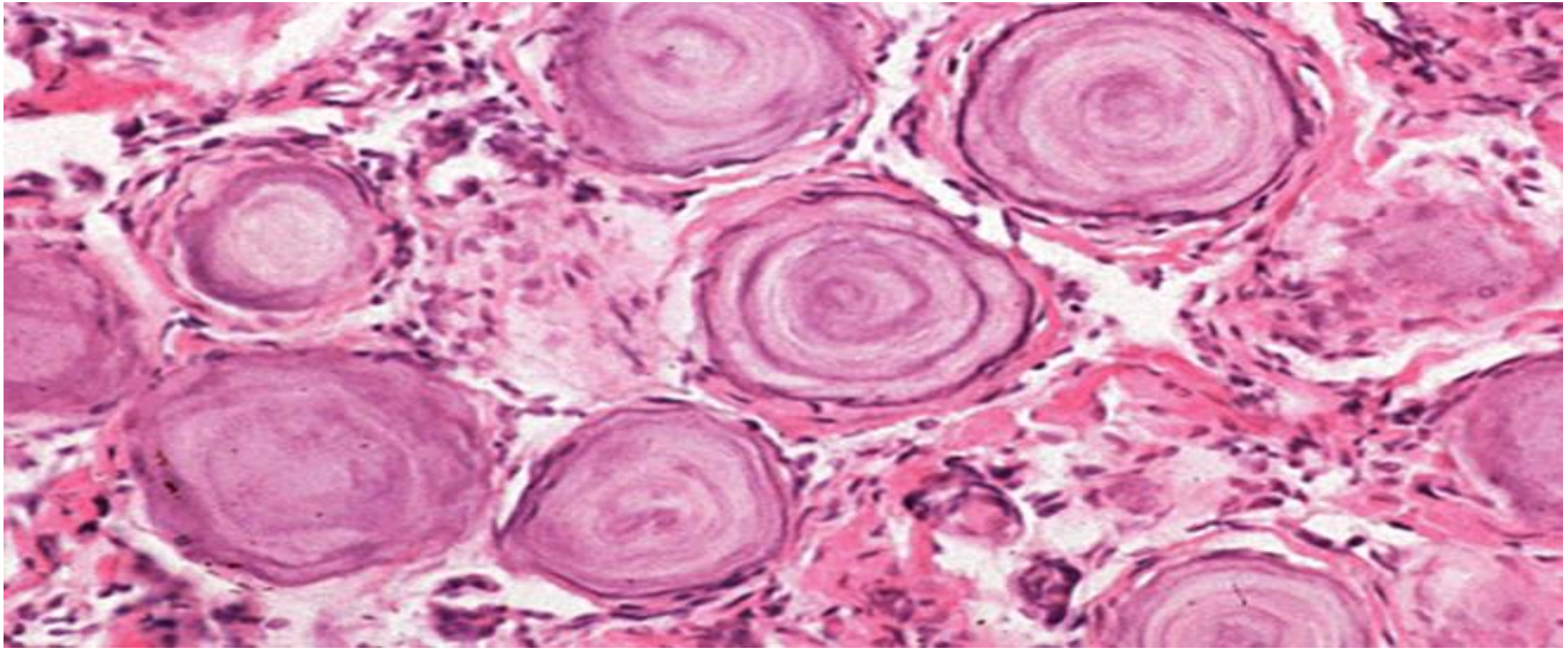
Note: all the red dots in the pic are red blood cells within the vessels.



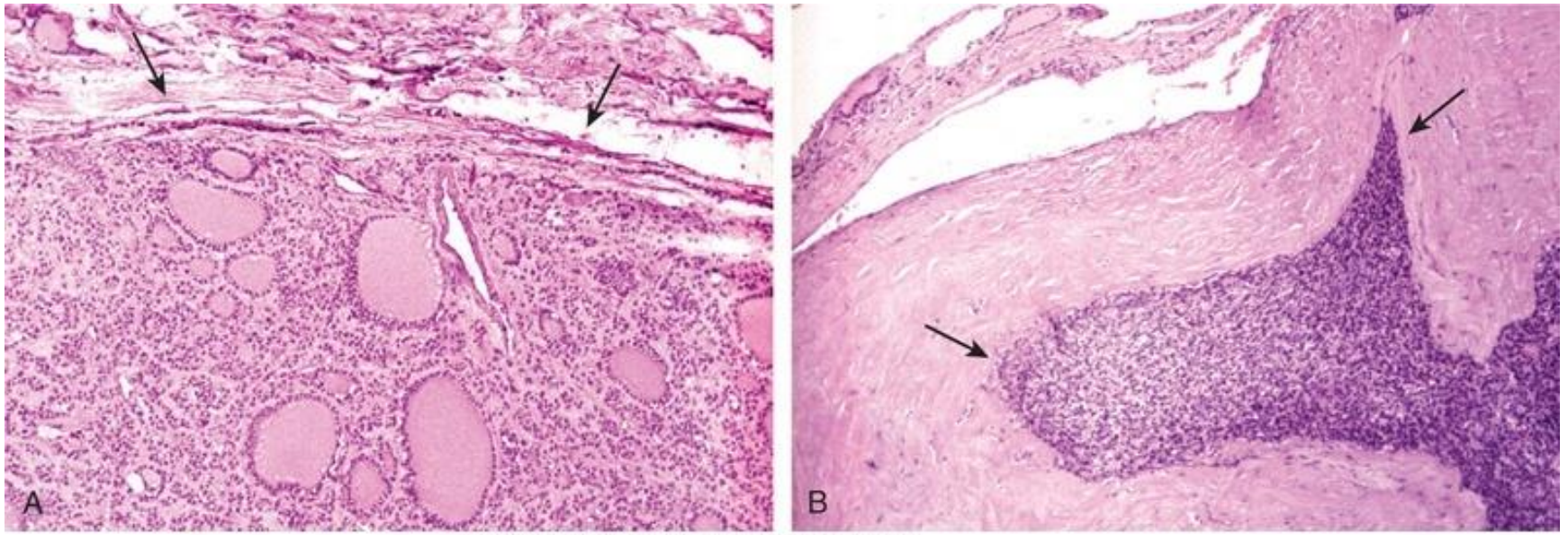
Clear nuclei: note the nuclei are white.



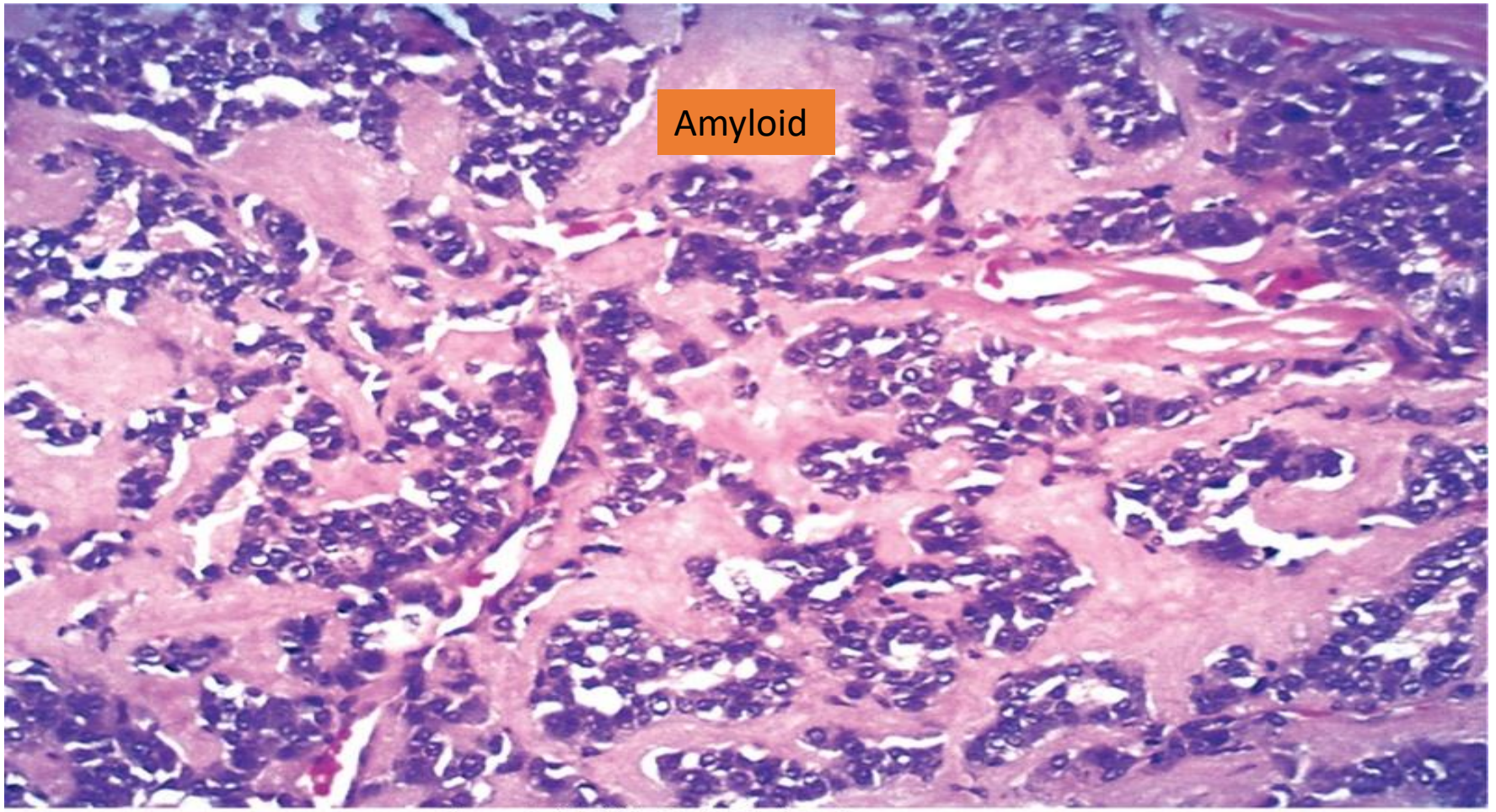
Psammoma bodies



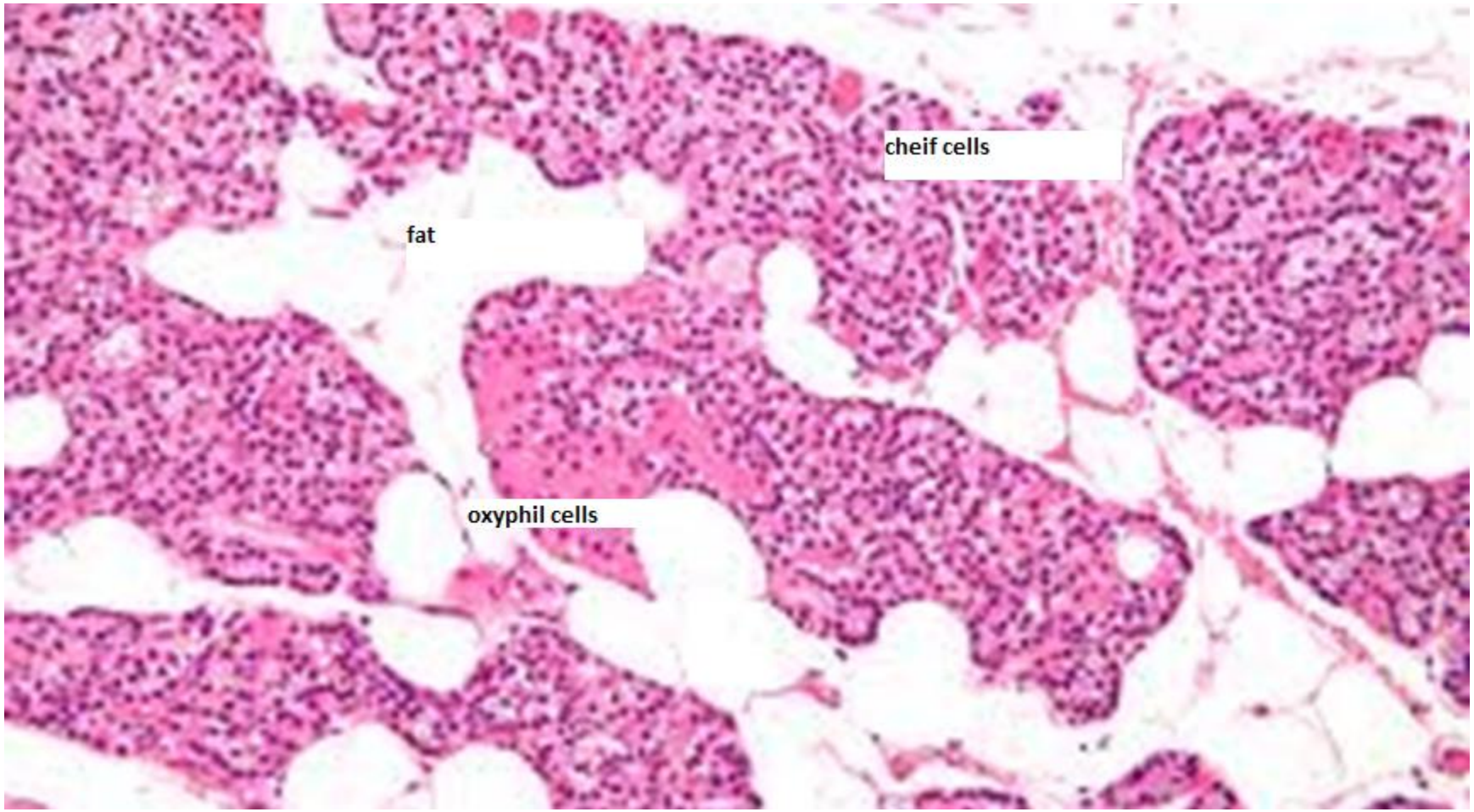
Follicular carcinoma: diagnosed by capsular or lymphovascular invasion



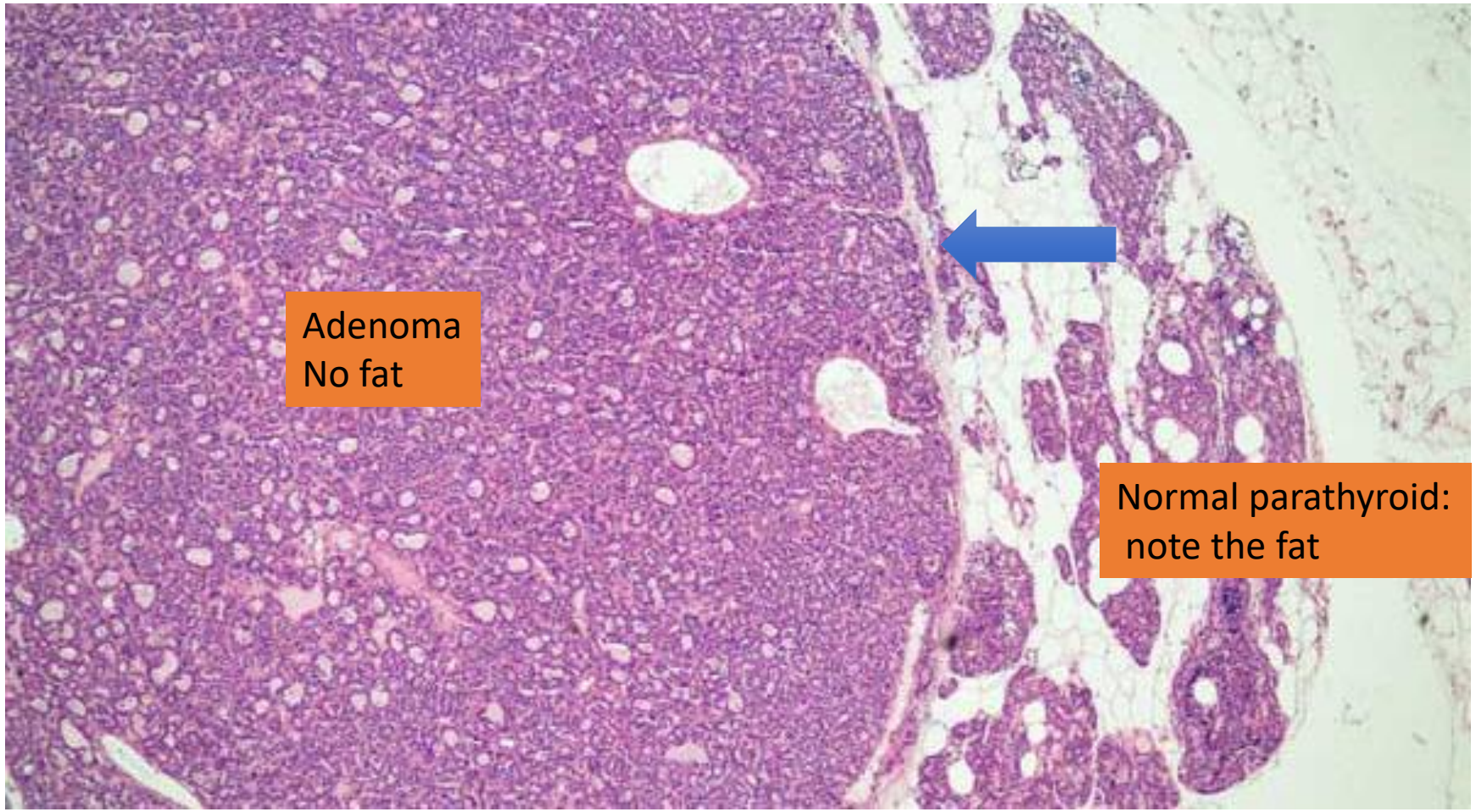
Medullary carcinoma: note the amyloid.



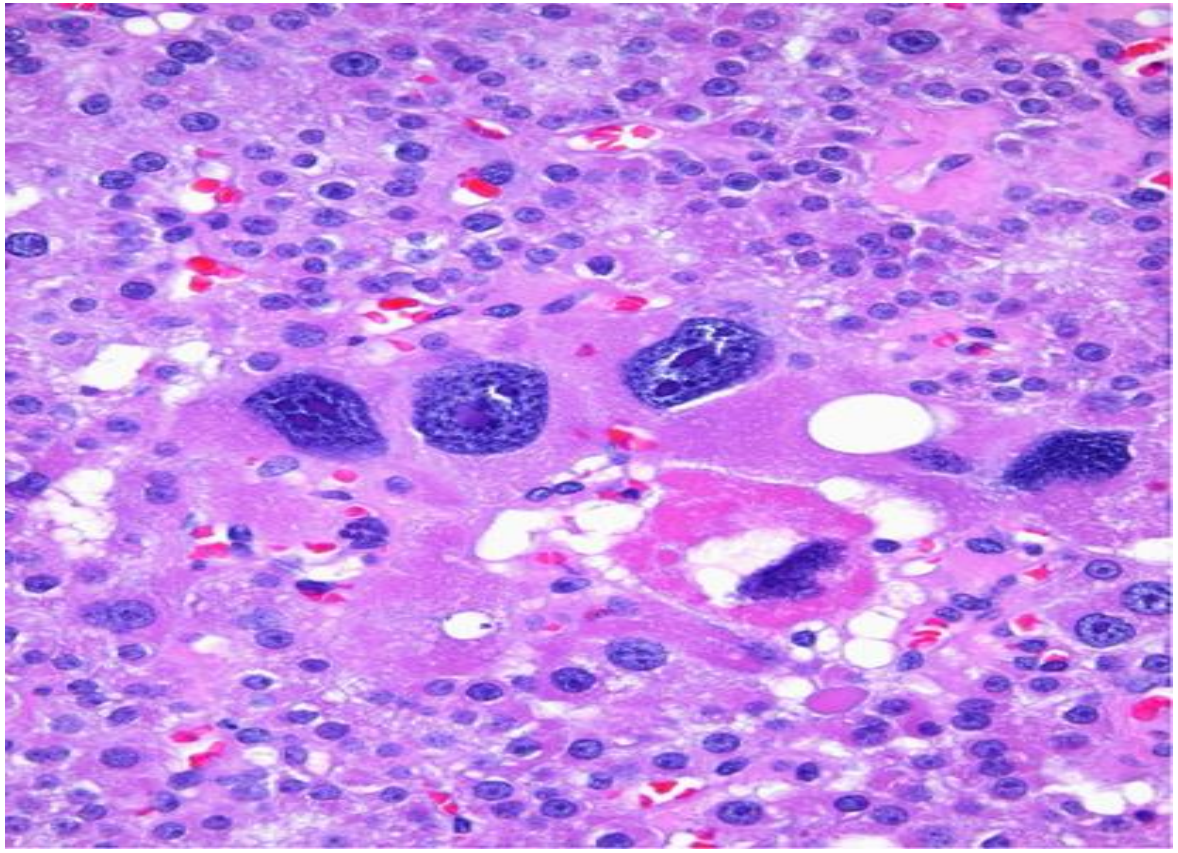
Parathyroid gland: contains fat.



Parathyroid adenoma. Note the thin capsule(arrow) separating the adenoma from normal .note also the absence of fat within the adenoma



Endocrine atypia in parathyroid adenoma.. This is not necessarily a malignant feature.



Diffuse cortical hyperplasia

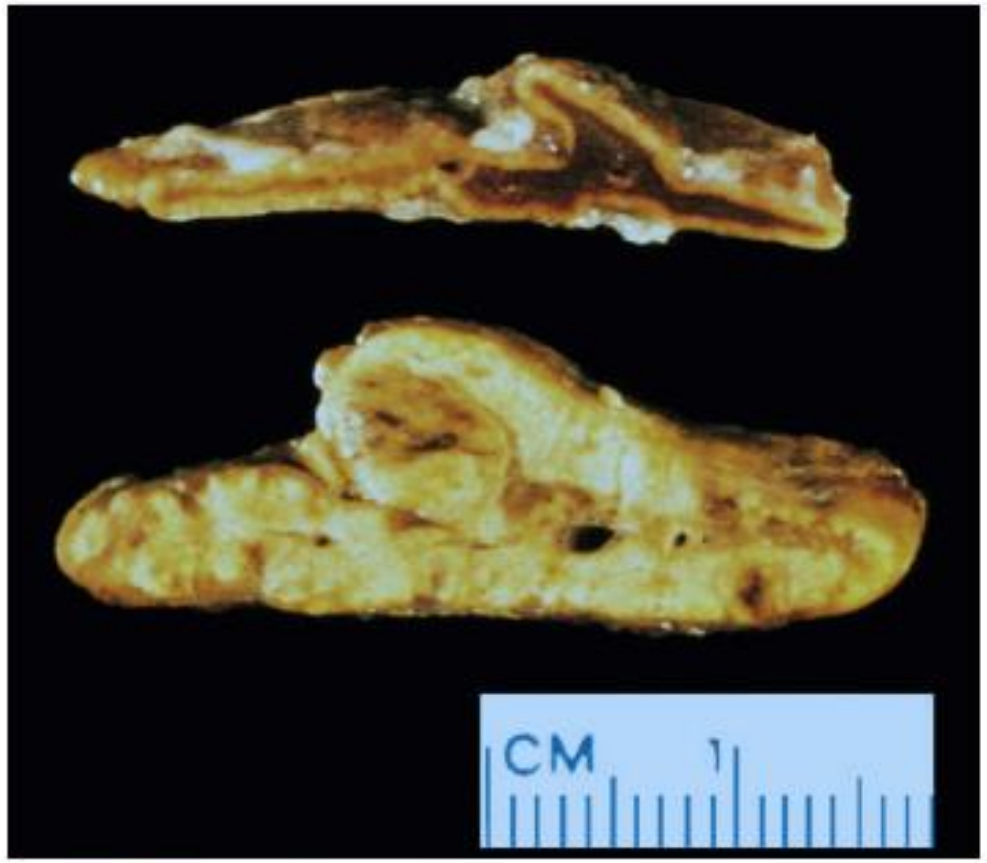


Fig. 20.35 Diffuse hyperplasia of the adrenal gland *(bottom)* contrasted with a normal adrenal gland *(top)*. In a cross-section, the adrenal cortex is yellow and thickened, and a subtle nodularity is evident. The abnormal gland was from a patient with ACTH-dependent Cushing syndrome, in whom both adrenal glands were diffusely hyperplastic. *ACTH*, Adrenocorticotropic

Adrenocortical adenoma

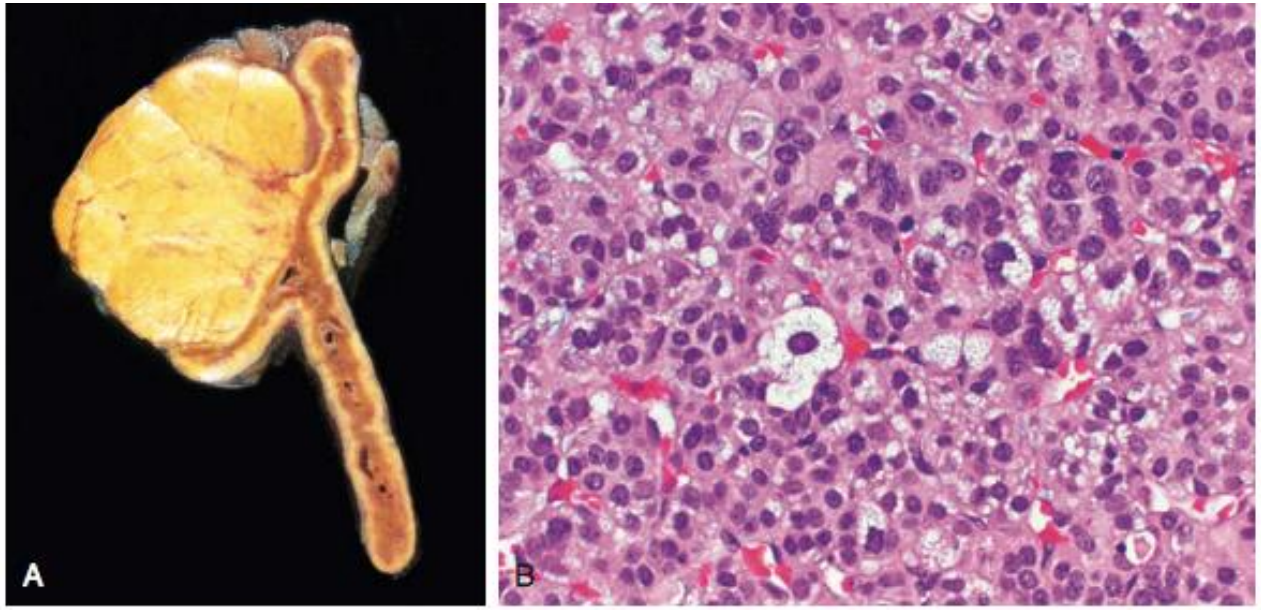
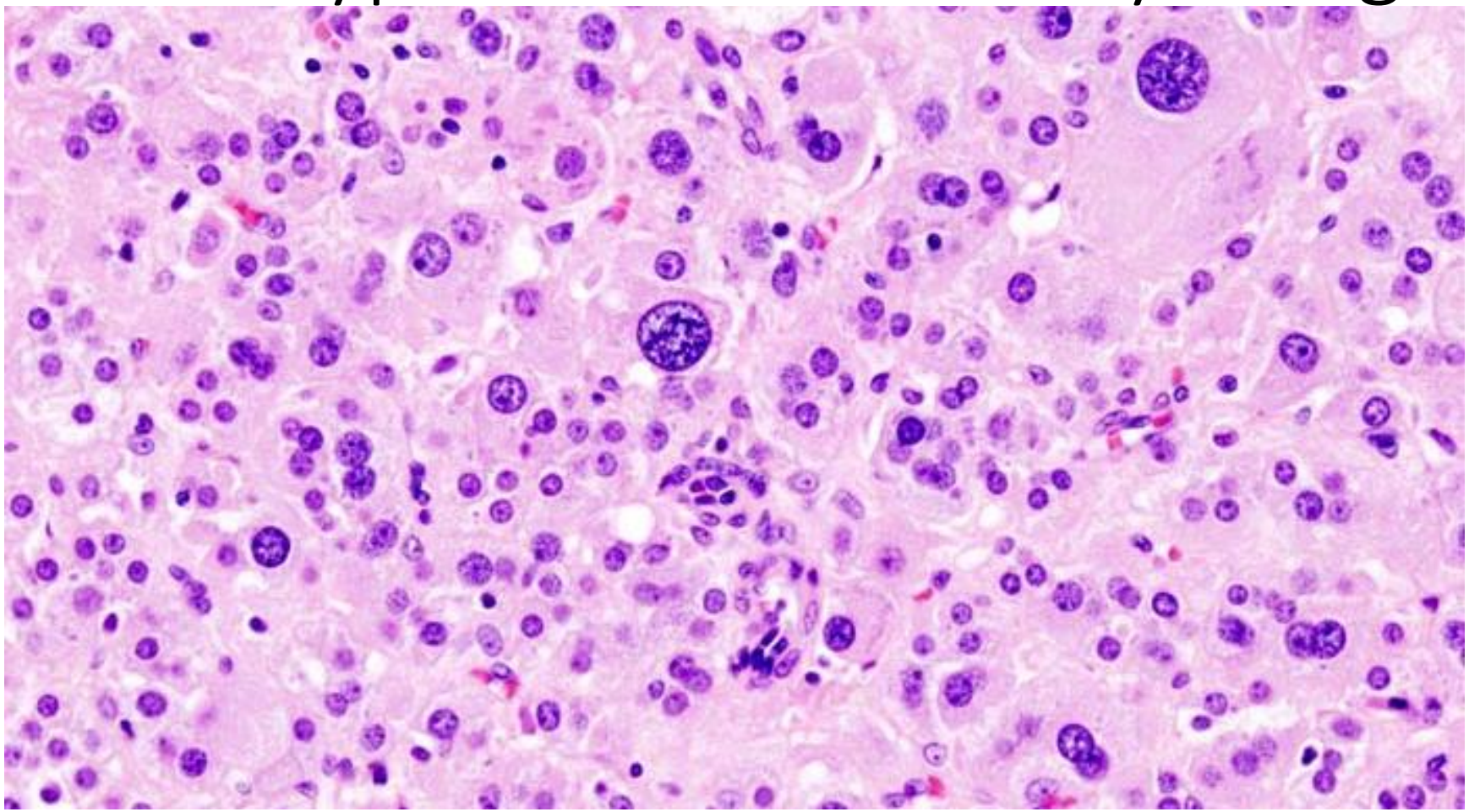


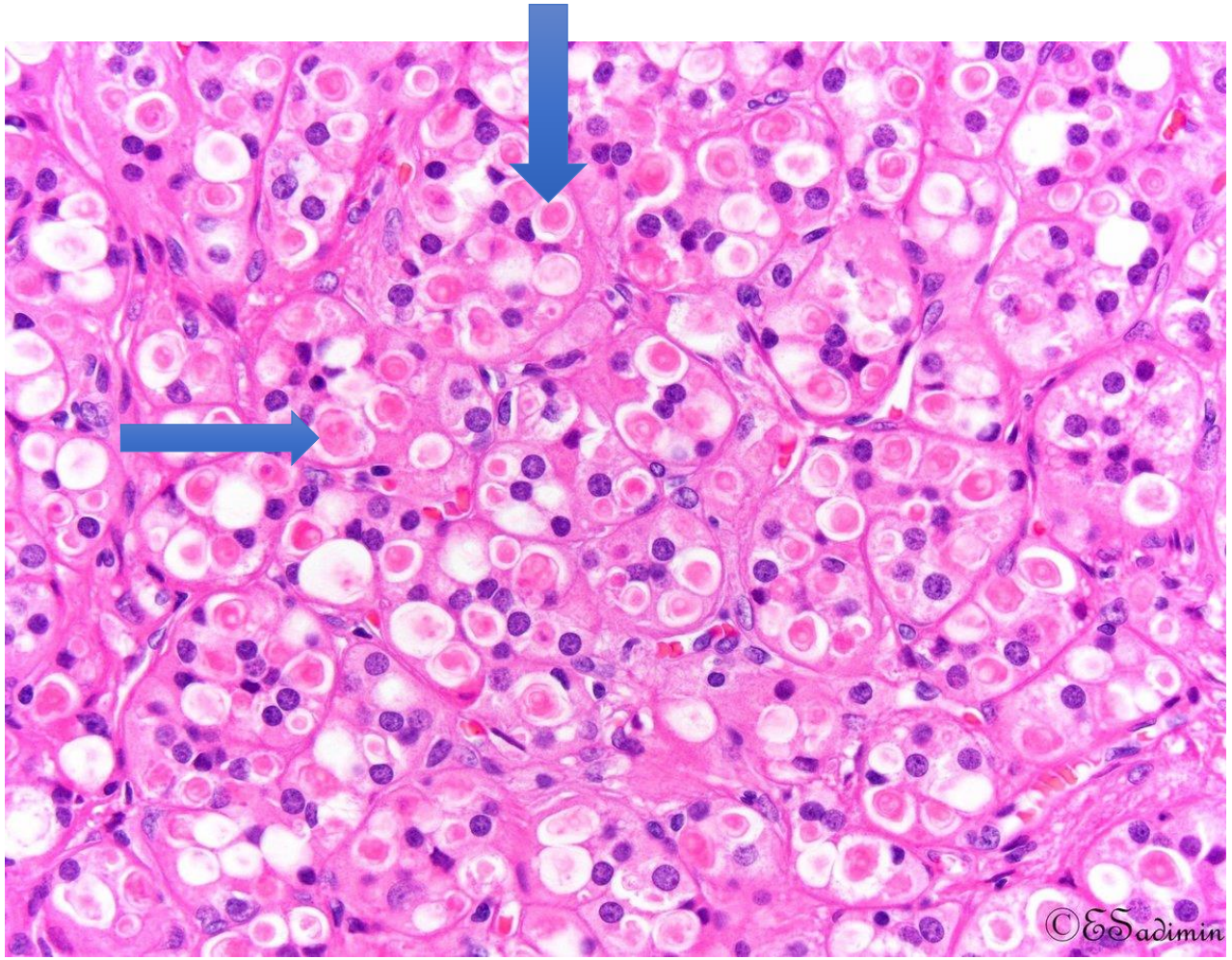
Fig. 20.37 Adrenocortical adenoma. (A) The adenoma is distinguished from nodular hyperplasia by its solitary, circumscribed nature. The functional status of an adrenocortical adenoma cannot be predicted from its gross or microscopic appearance. (B) Histologic features of an adrenal cortical adenoma. The neoplastic cells are vacuolated because of the presence of intracytoplasmic lipid. There is mild nuclear pleomorphism. Mitotic activity and necrosis are not seen.

Adrenocortical adenoma: encapsulated, circumscribed and soft

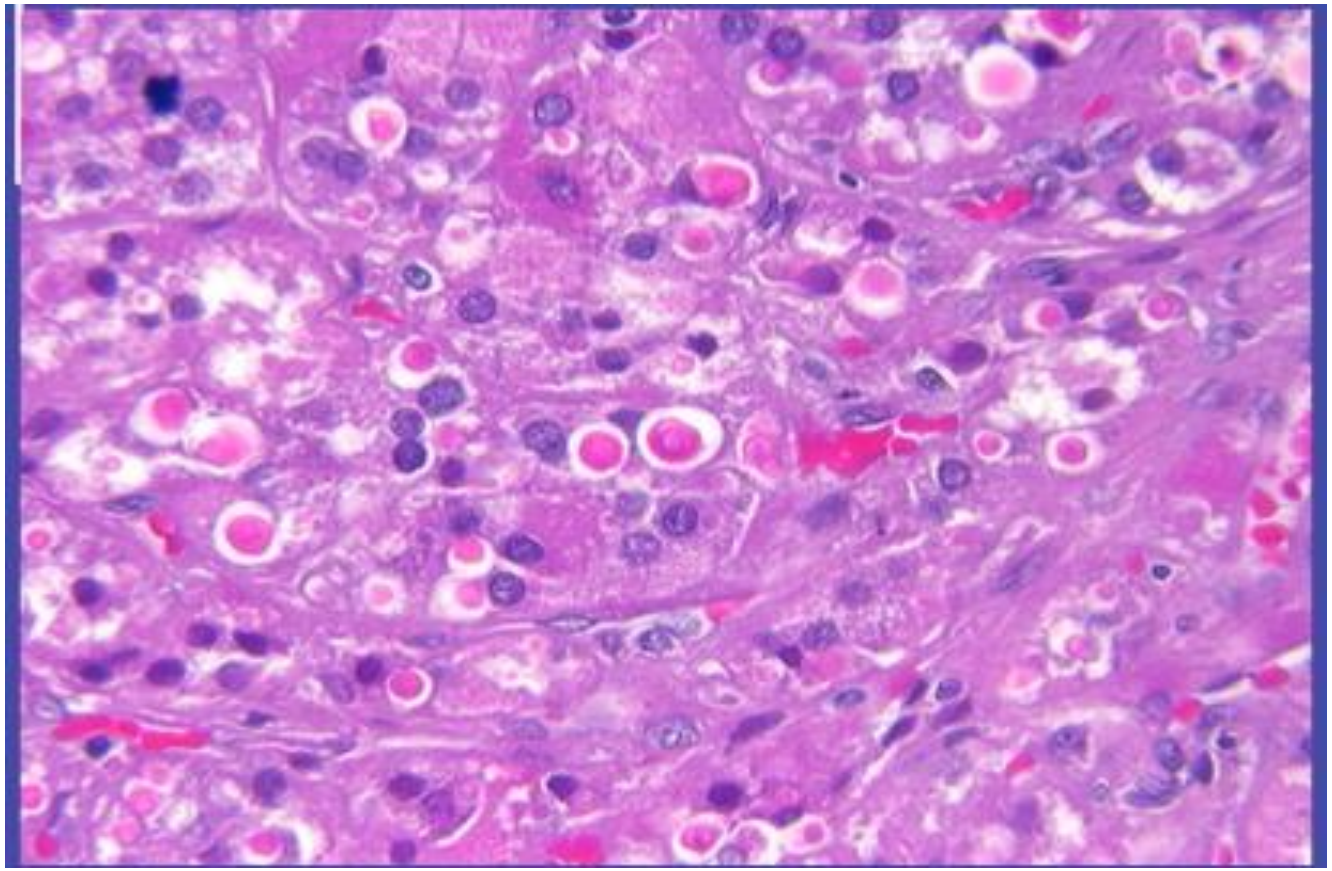
AGAIN: Adrenocortical adenoma/ note the endocrine atypia.. Not necessarily malignant



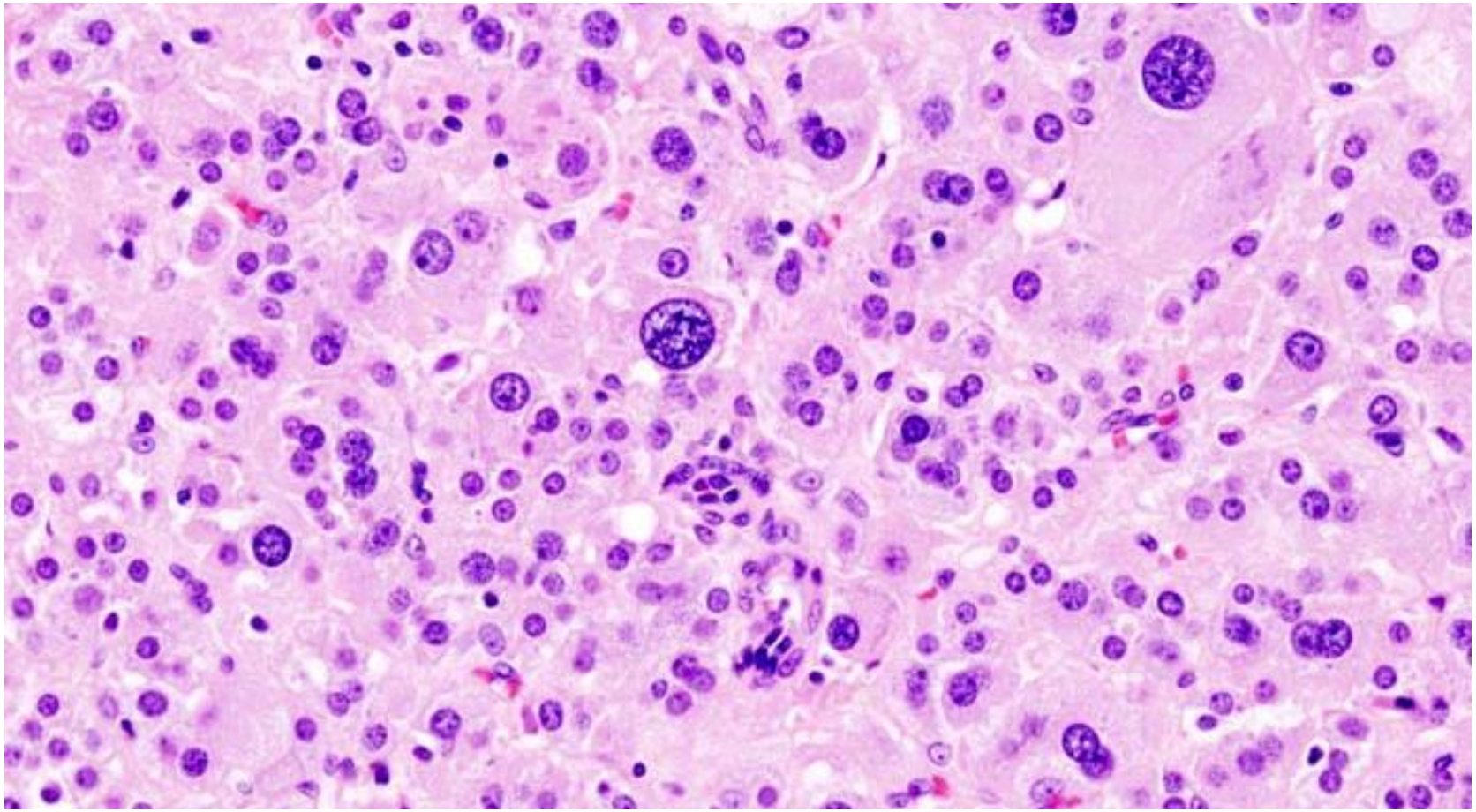
Spironolactone bodies



Spironolactone bodies:

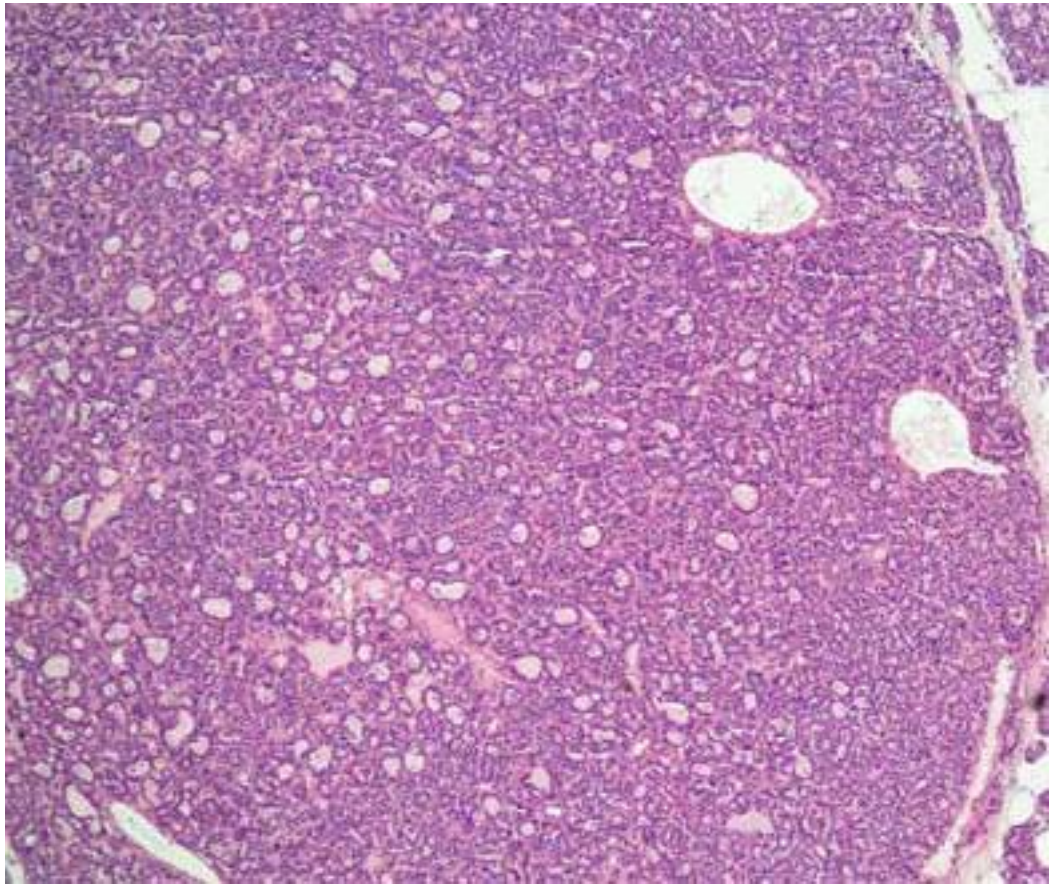


Exam style question: look at this pic and answer the question in the next slide:



- This histological picture is taken from a right adrenocortical single, encapsulated nodule. Choose the incorrect statement about this lesion:
- **The large hyperchromatic nuclei seen in this picture indicate malignancy.**
- No conclusion can be made from this picture regarding the behavior of this lesion.
- This lesion can result in hyperaldosteronalism.
- The left adrenal gland could be atrophic if this lesion proved to be hyper-functioning.
- This lesion can manifest clinically with hypertension and hypokalemia.

Question 2: look at this pic and ask the question in the next slide:



- This picture shows a parathyroid neoplasm. Which is the most important histopathological feature to differentiate normal parathyroid tissue from a neoplastic lesion?

- Presence of chief cells.
- **Presence of fatty tissue**.
- Low mitotic rate.
- Presence of Nuclear atypia.
- Presence of clear cells.


Thanks!
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