

به نام خدا

- Case presentation in pathology ward
- Supervised by: Dr.Azar Baradaran
- Presented by: Roya Rostami

Patient Information:

Macroscopic Description :

- Pathology no: S03-1168
- Clinical History: Patient is a 51-year-old man who has experienced pain and swelling of the left testis for approximately 25 days prior to presentation, for which imaging studies were performed for further evaluation.
- Labeled as: Lt.Testis mass
- Specimen:
 - The specimen measured $13 \times 4.5 \times 3$ cm in aggregate.
 - The testis measured $6 \times 4.5 \times 3$ cm, the spermatic cord measured $7 \times 2 \times 1$ cm, and the epididymis measured $3 \times 1.5 \times 0.5$ cm.
 - On sectioning, a solid mass with a red-brown cut surface, measuring up to 1 cm in greatest dimension, was identified in the central portion of the left testis. Grossly, the tunica vaginalis, tunica albuginea, epididymis, and rete testis appeared uninvolved.
- Site: Lt.Testis

مرکز تصویربرداری پزشکی تمام دبیرستان شفا

SHAHAB.SALEKI
Dear Dr.A.FOTOVAT

1404/01/21
NO. 158746

SONOGRAPHY OF SCROTUM:

Both testes are equal and normal in size, with uniform echogenicity.
RT= 40x22 mm , LT= 42x21 mm

There is an oval well defined heteroechoic solid mass about 12.4x8.4 mm in the left testis beneath the anterior capsule with internal vascularity, in favor of a neoplasm.

No testicular S.O.L is present on the right side.

The right epididym is enlarged, heterogeneous and hypervascular, in favor of epididymitis.

Left epididym appears normal. No varicocele or hydrocele is seen.

Impression:

- Left testicular mass
- Right epididymitis

SONOGRAPHY OF SOFT TISSUE:

In sonographic evaluation of inguinal canal in right side:

No evidence of inguinal hernia is seen in rest and valsalva maneuver.

No mass lesion is noted.

Hypervascularity in spermatic cord is most likely due to epididymitis.

Impression:

No inguinal canal hernia

دکتر احسان امینی
متخصص رادیولوژی - سونوگرافی
سی تی اسکن و ام آر آی
بورده تخصصی - تمام پزشکی ۱۳۶۶۲۱

Best Regards
DR.EHSAN AMINI

اصفهان، دروازه شیراز، چهارراه شیخ صدوق
ابتدای شیخ صدوق شمالی، بن بست شماره ۵۶ (تدا)
پلاک ۳۹۲، تلفن: ۰۳۱۱-۶۶۳۶۰۰۱-۲



شماره پرونده: 31313 نام بیمار: شهاب سالکی سن: 51 ساله تاریخ: 1404/02/06

همکار محترم جناب آقای دکتر محمد ابراهیم اردستانی

در بررسی اولتراسوندک به عمل آمده بینه ها:

بینه راست بهبعاد نرمی 47x22 میلیمتر و بینه چپ بهبعاد نرمی 17x37 میلیمتر بوده و سینه راست دارای اکوی پارانشیمال هموزن می باشد ضایعه هموزنال و باکسیک درون سینه راست منبسط است

ضایعه هیپو اکونیک به ابعاد 12x9 میلیمتر درون پارانشیم بینه چپ دیده می شود که حدود کمی نامعبله دارد نظر به اینتراستیکولار بودن ضایعه انجام آزمایشات تکمیلی ضروری است.

این دیدیم دو طرف تعداد و اکوی منجمی دارند

علائمی از وجود هیدورس و واریکوسل ملاحظه نمی گردد

با سکتور
دکتر ازلی

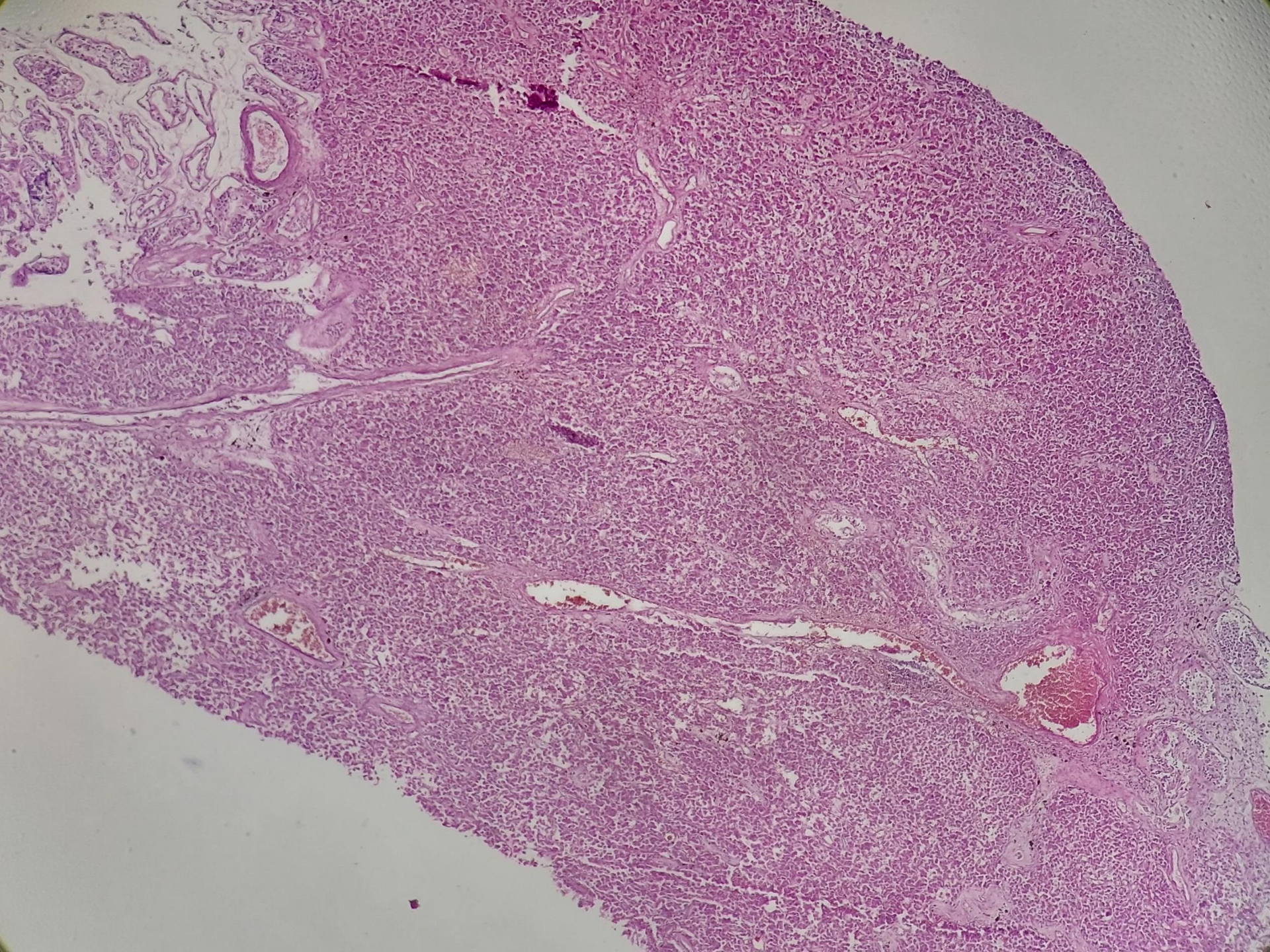
Gross (Macroscopic) Findings:

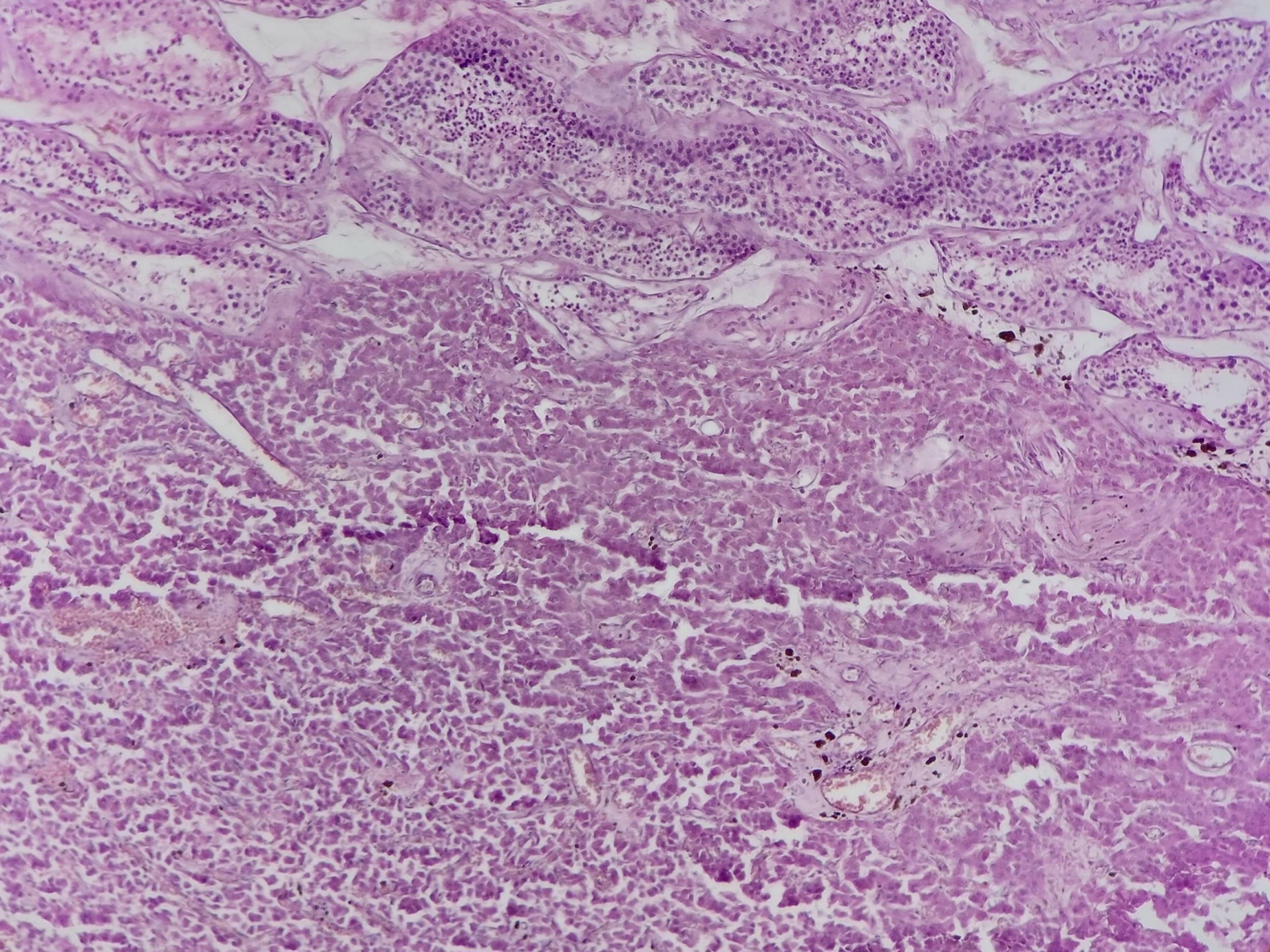
1. A 1 cm solid red-brown mass in the center of the left testis
2. Tunica vaginalis and tunica albuginea: grossly unremarkable
3. Epididymis and rete testis: grossly unremarkable
4. Distance to rete testis: 1.5 cm

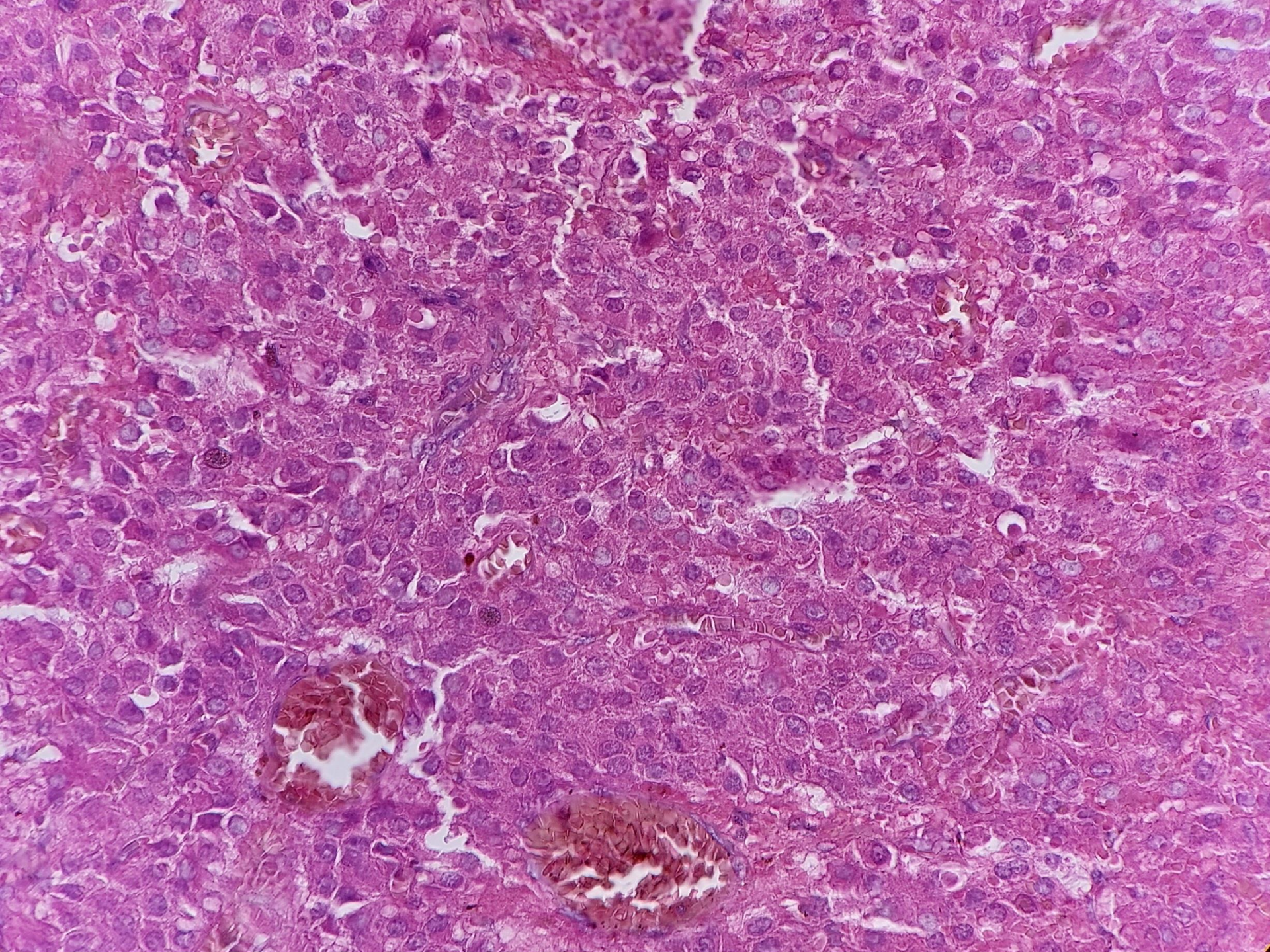


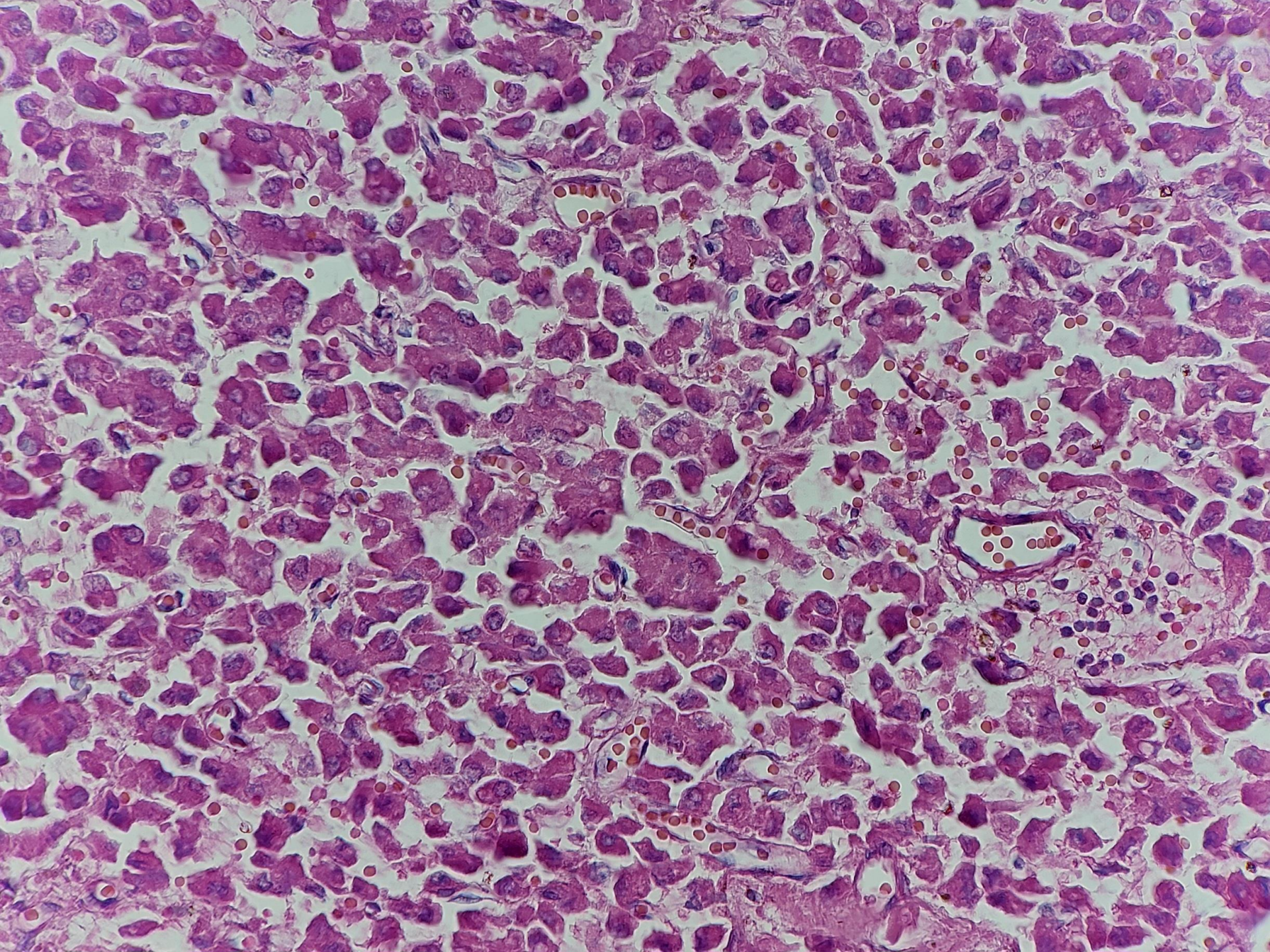
Microscopic Findings:

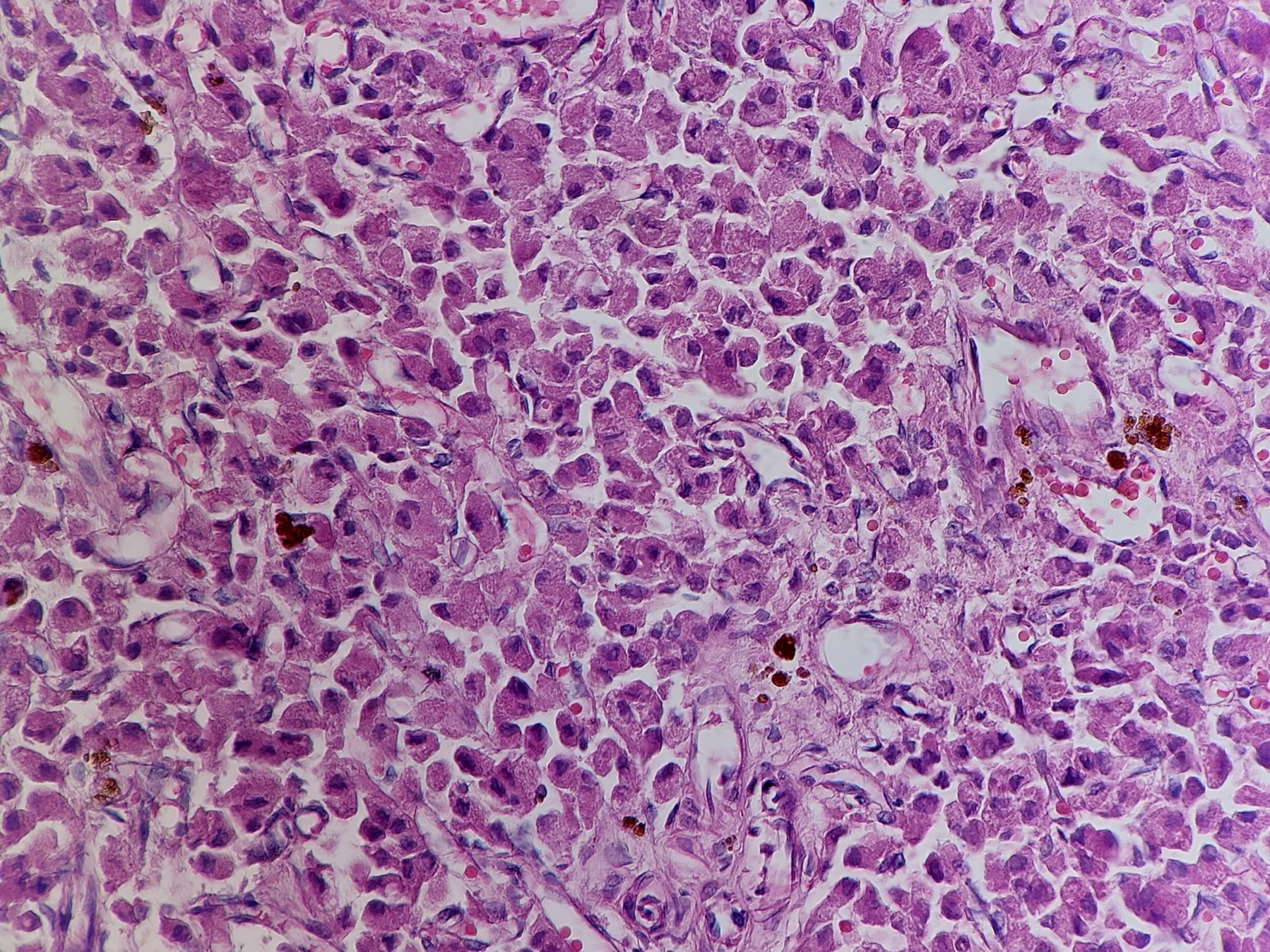
1. **Nodular** with fibrous bands architecture.
2. **Polygonal cells** with abundant **eosinophilic granular cytoplasm**, uniform round nuclei and prominent central nucleoli.
3. **Lipofuscin** pigment
4. **Rare mitosis**

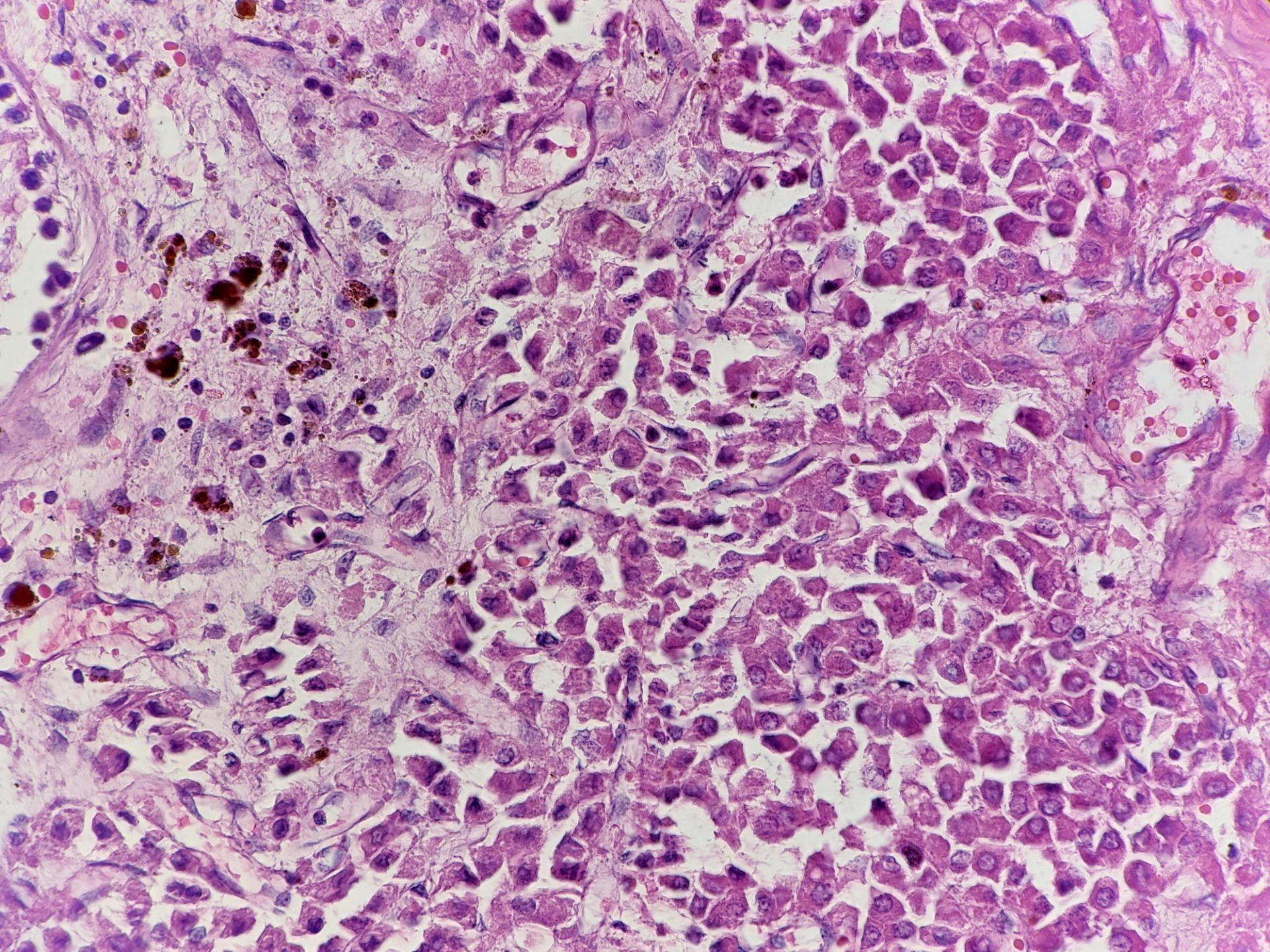


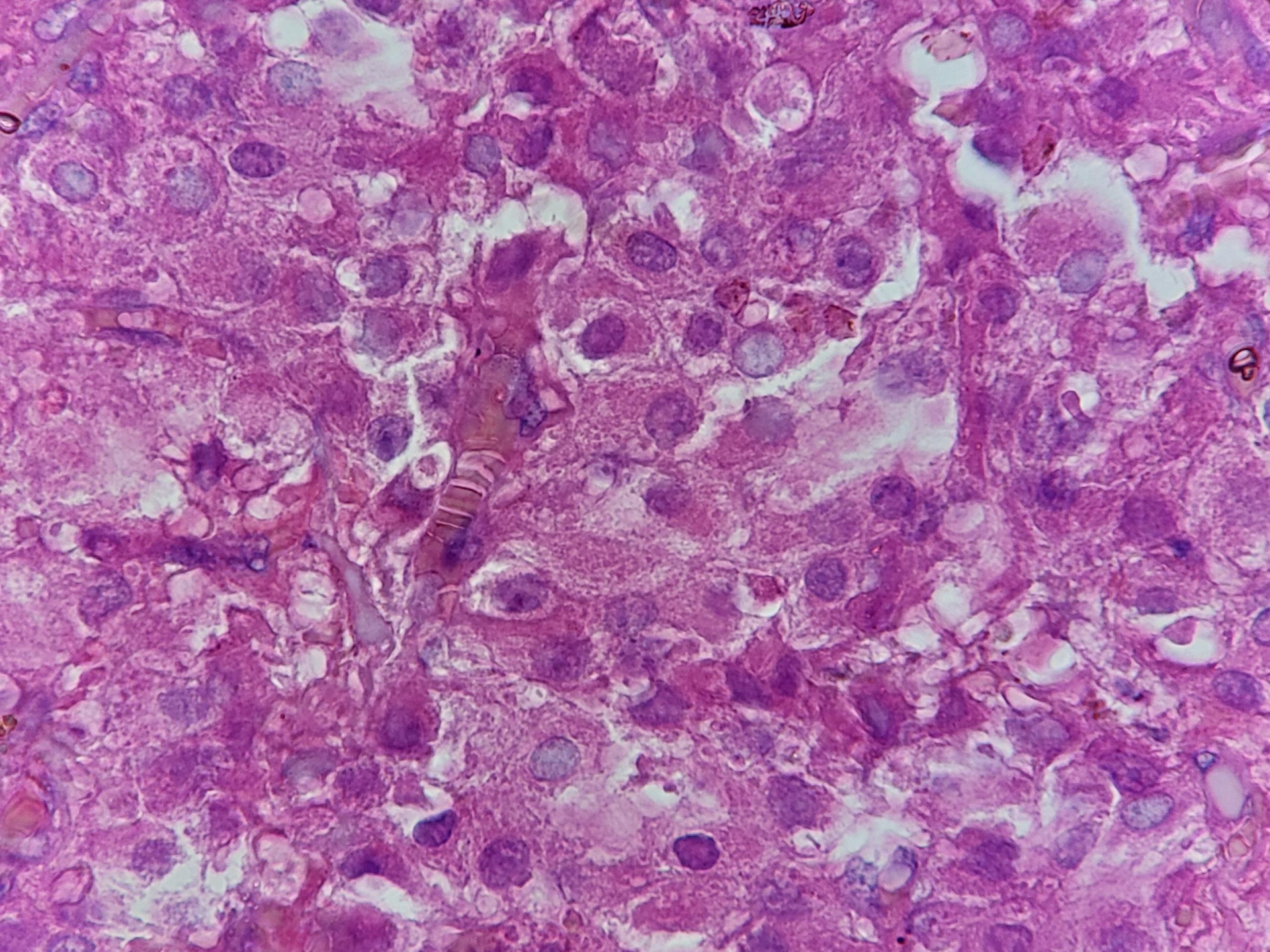


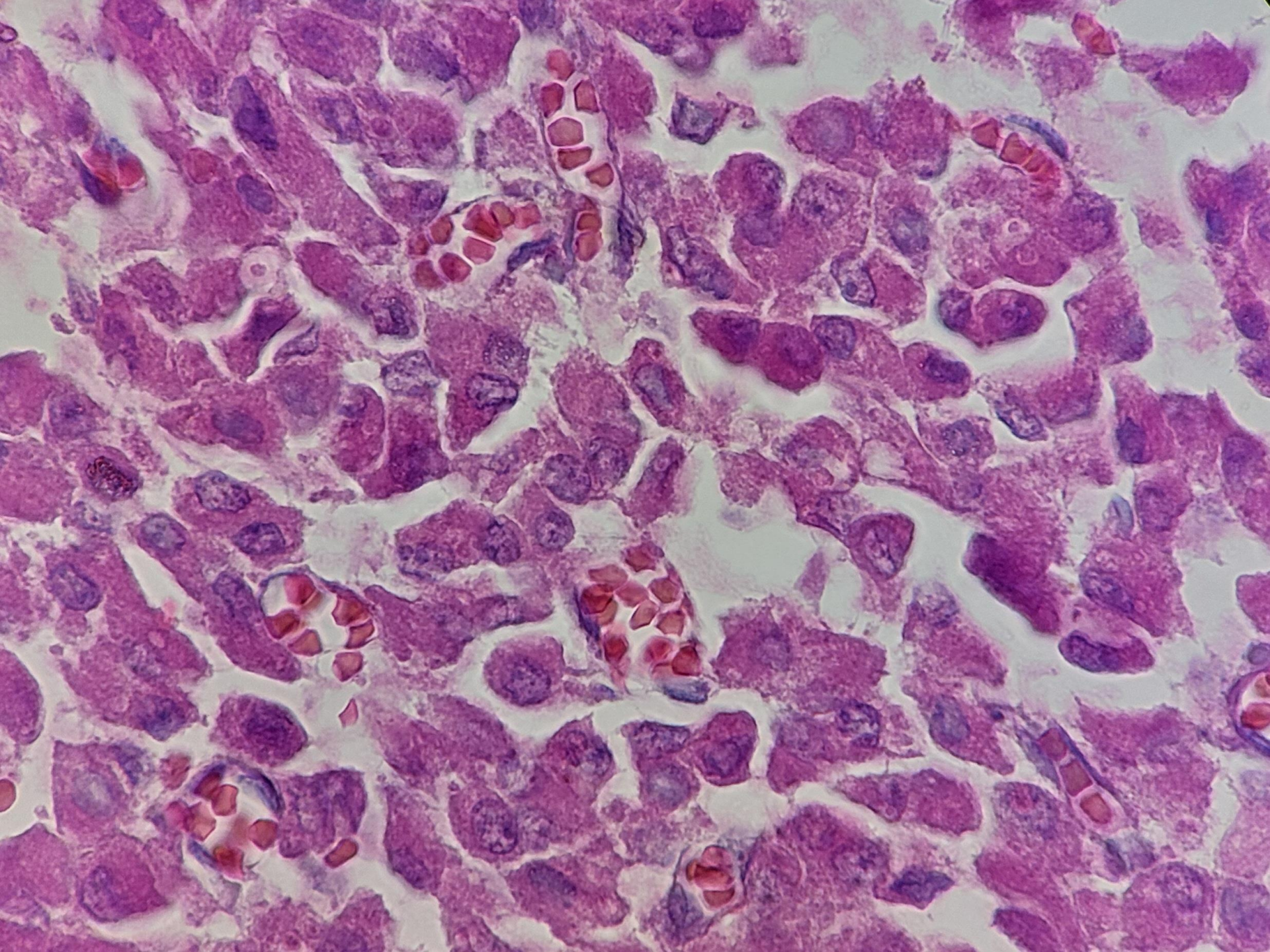


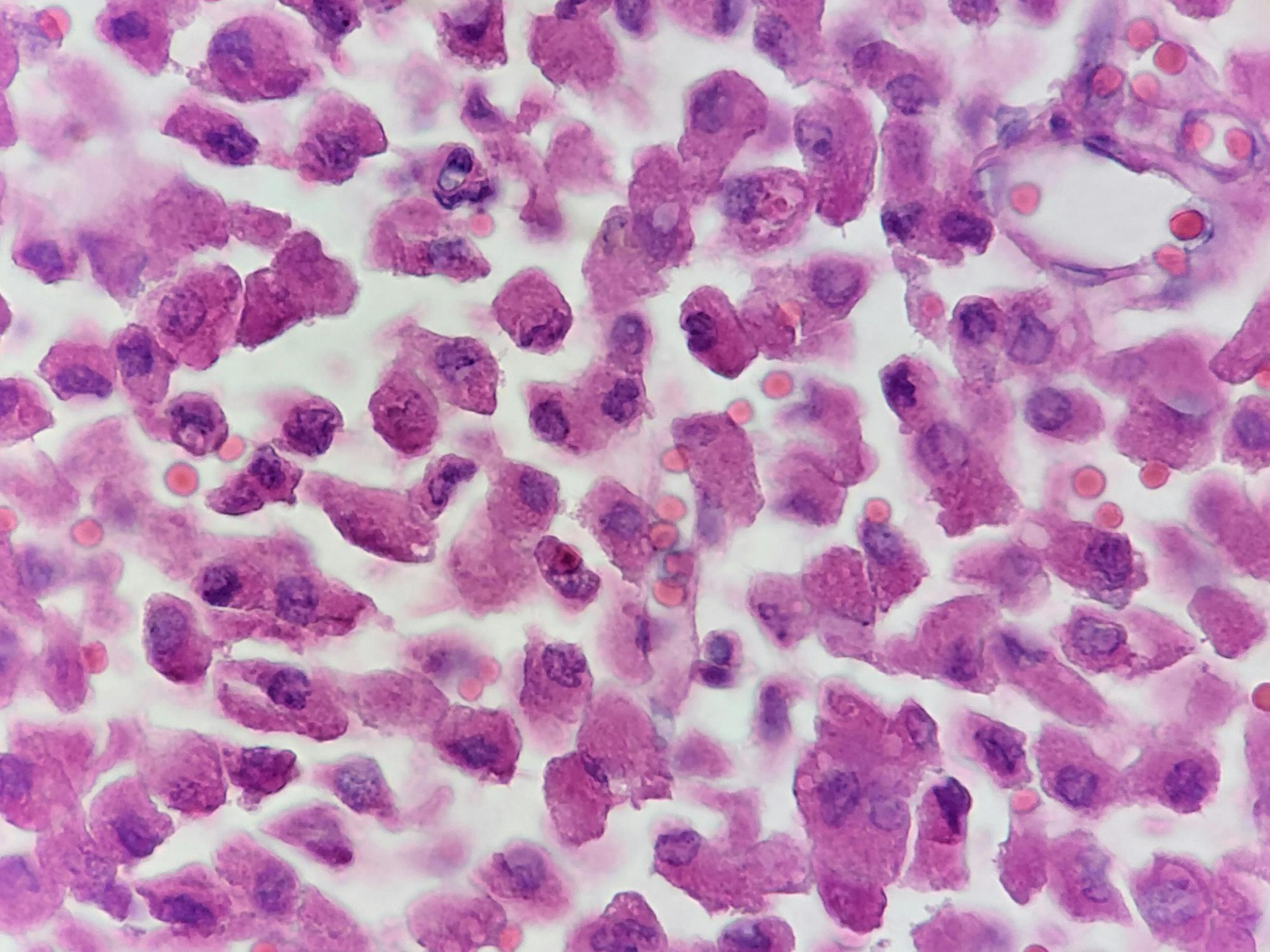






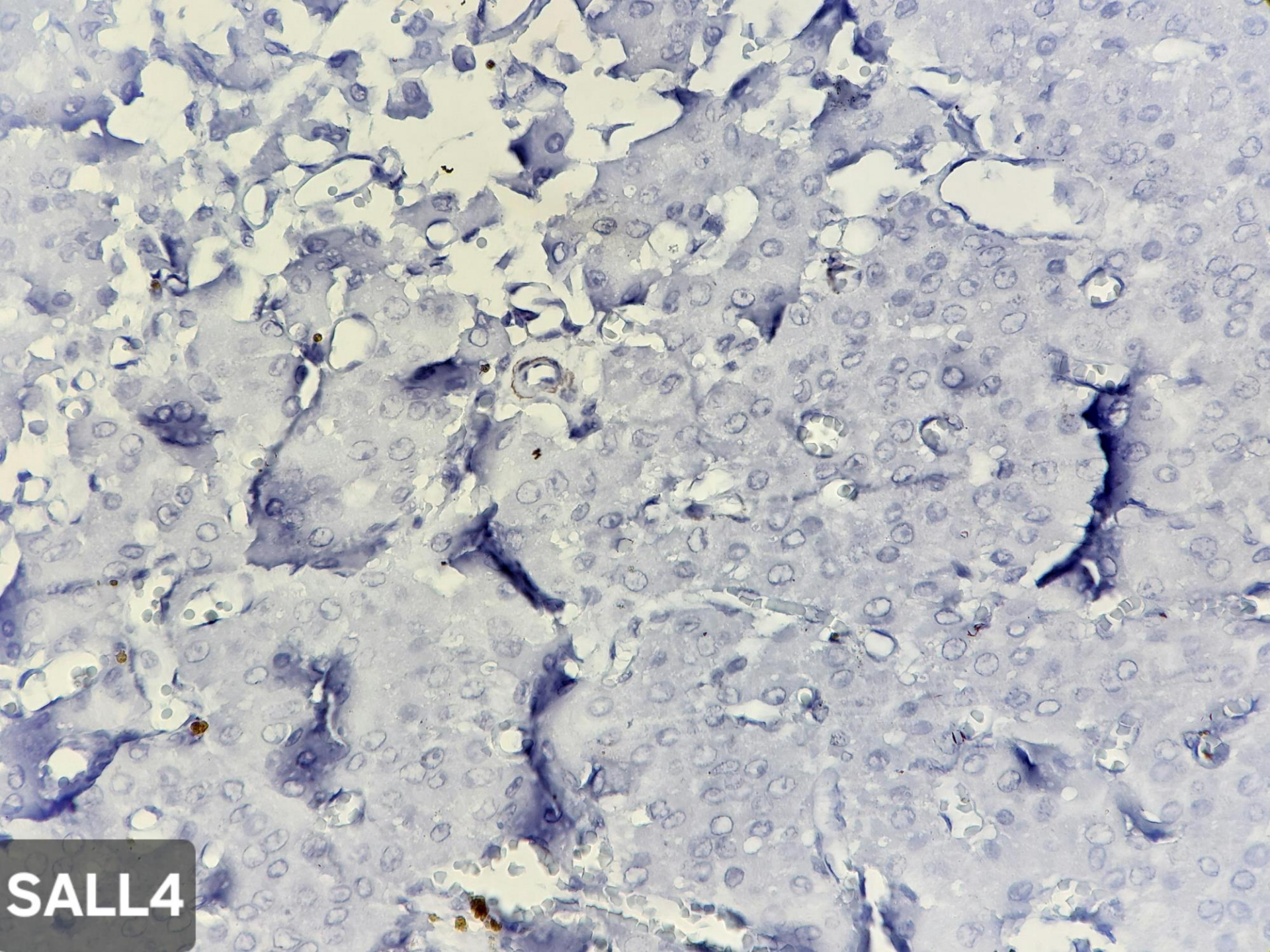




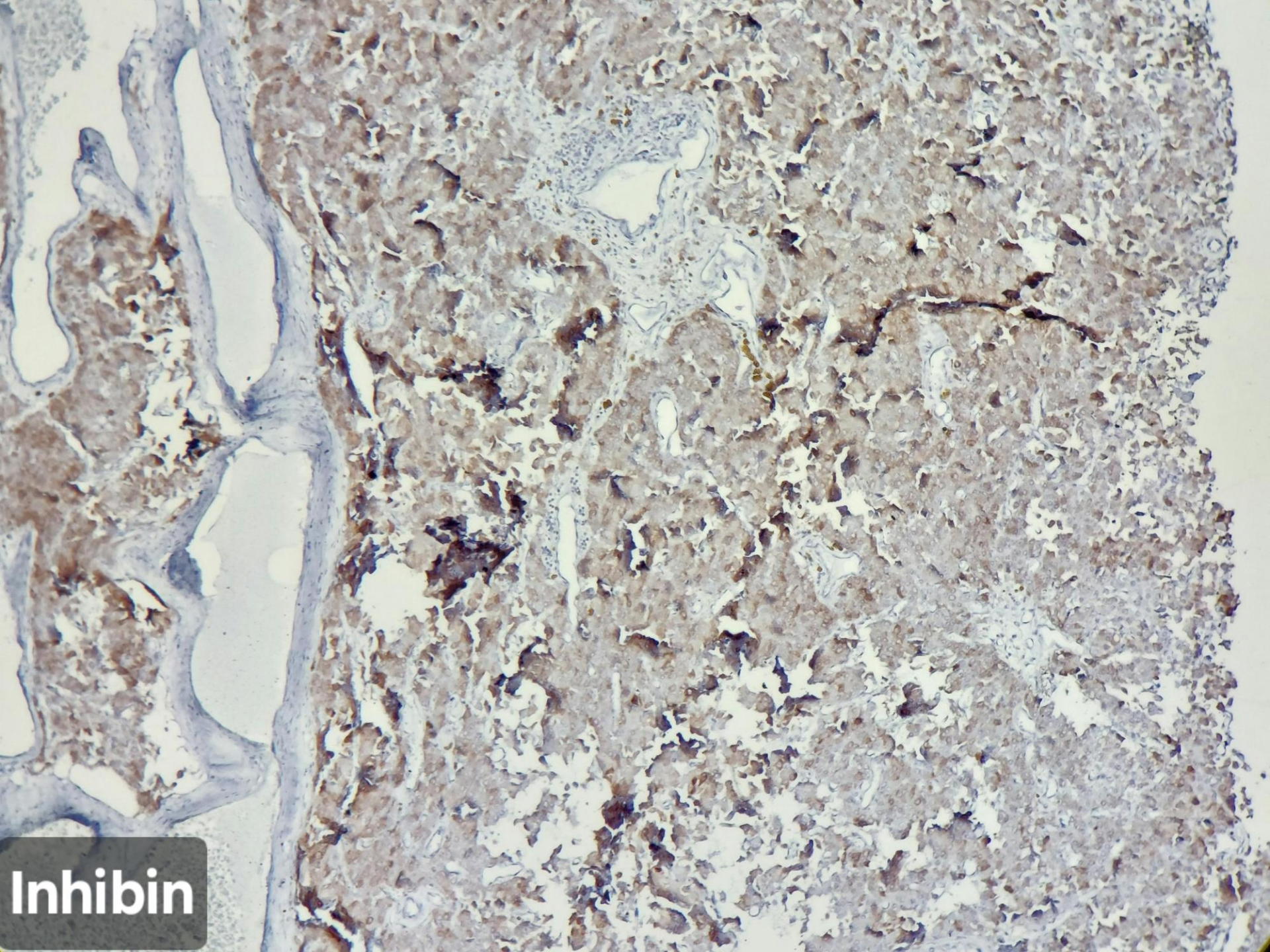


IHC:

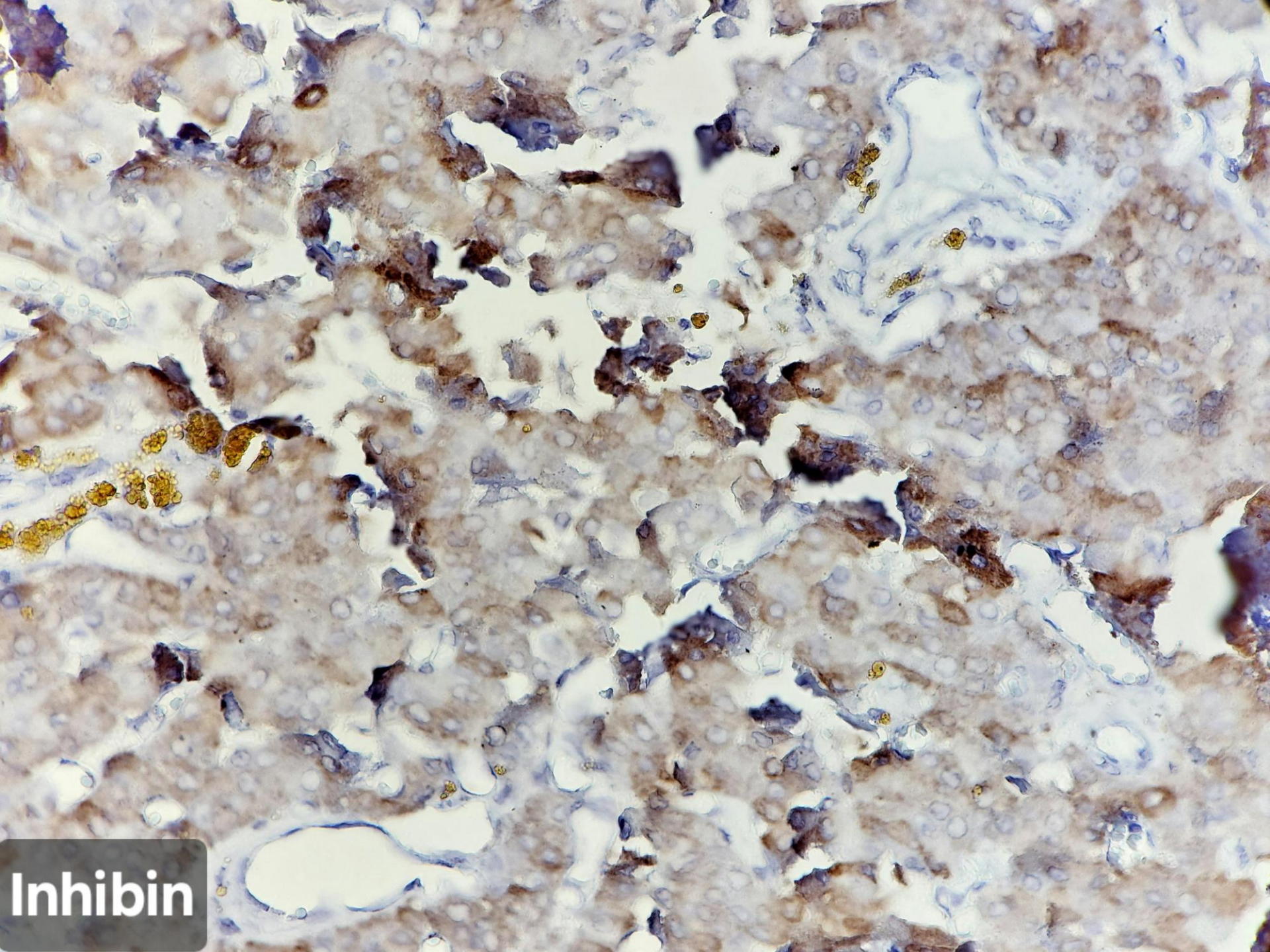
- IHC staining No.234 on block No.1168 results as following:
- SALL4: Negative
- Inhibin: Positive
- Calretinin: Positive
- CD20: Negative
- CD99: Negative
- PLAP: Negative
- CD30: Negative
- CD138: Negative



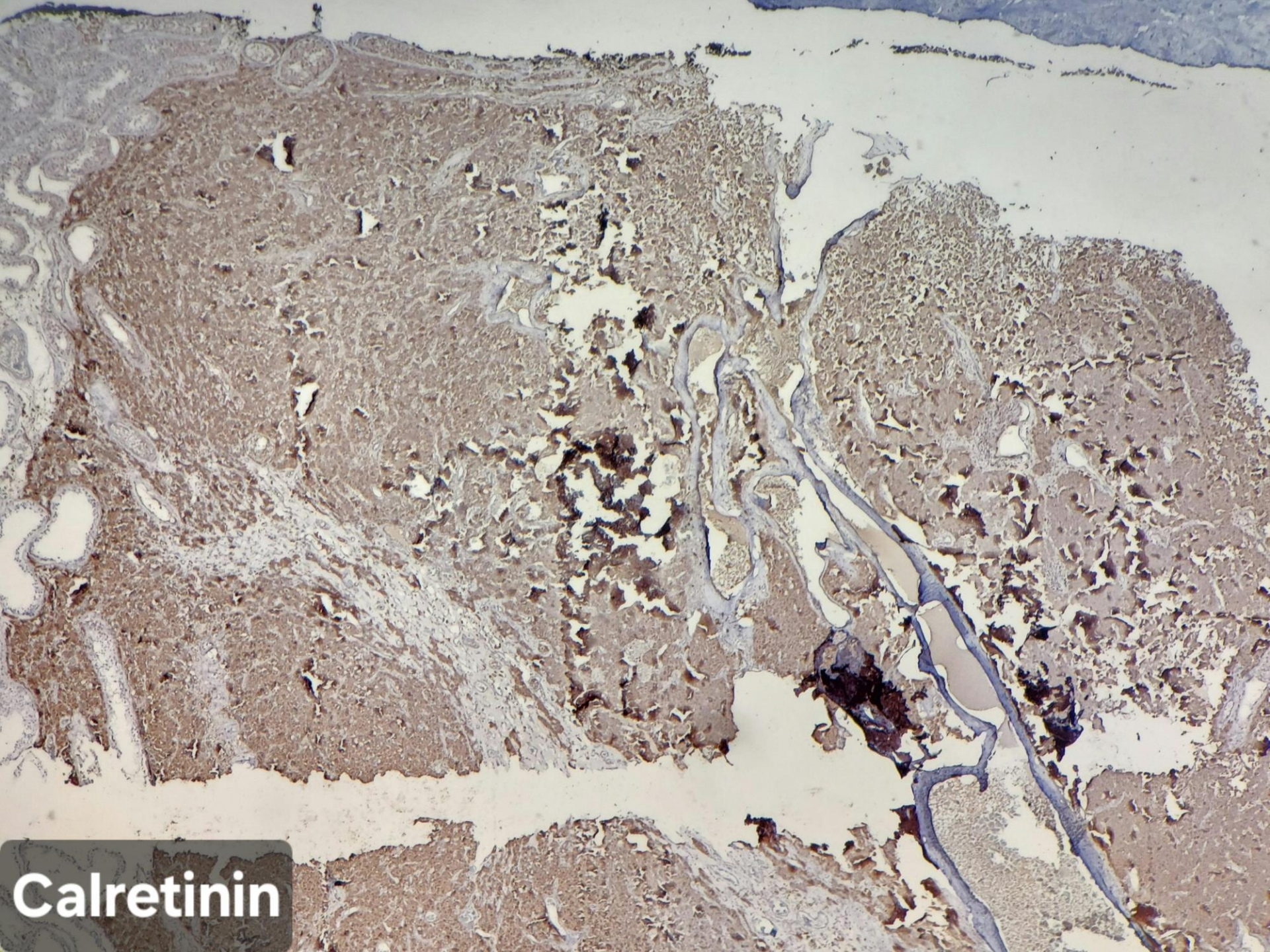
SALL4



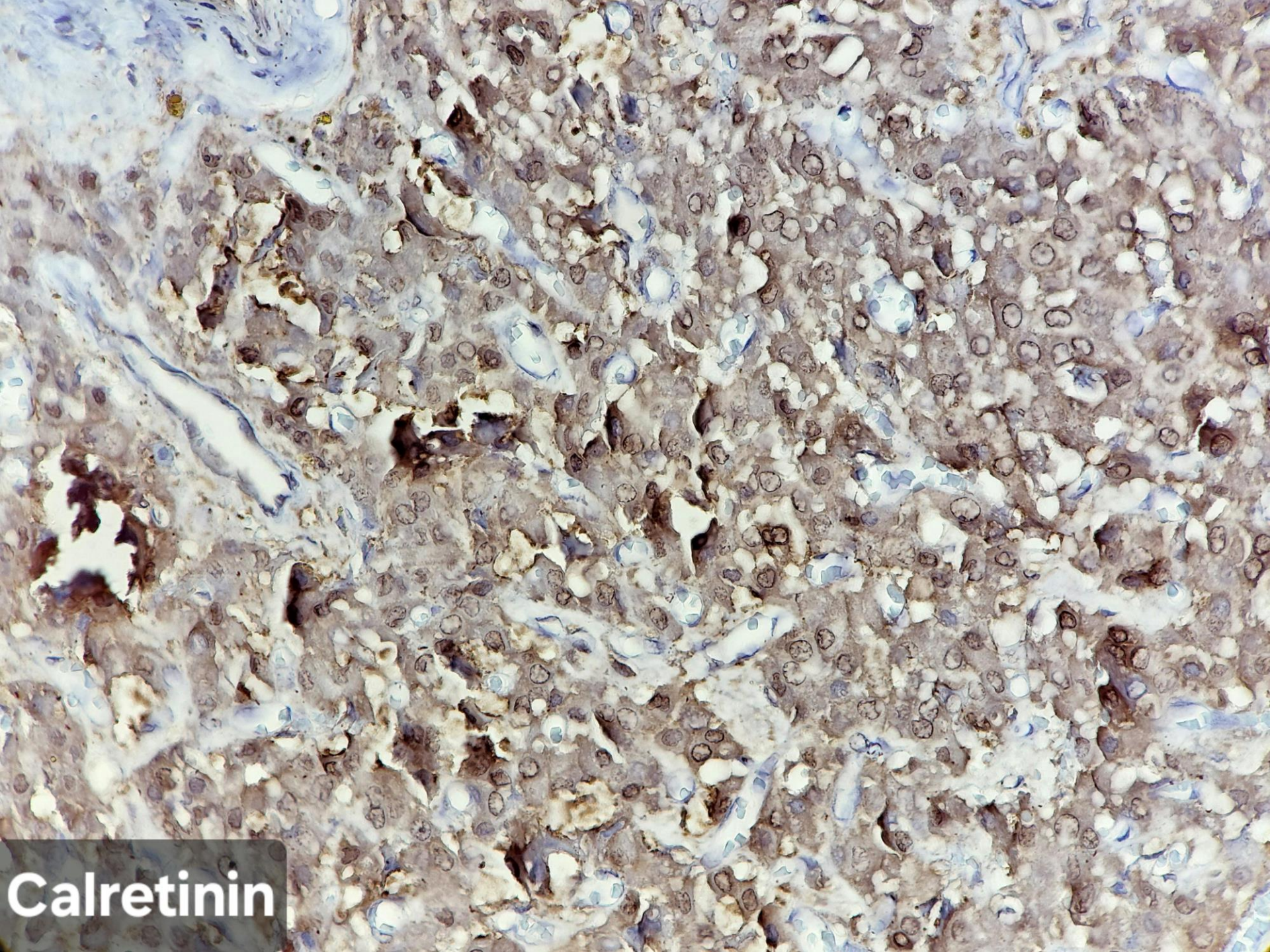
Inhibin



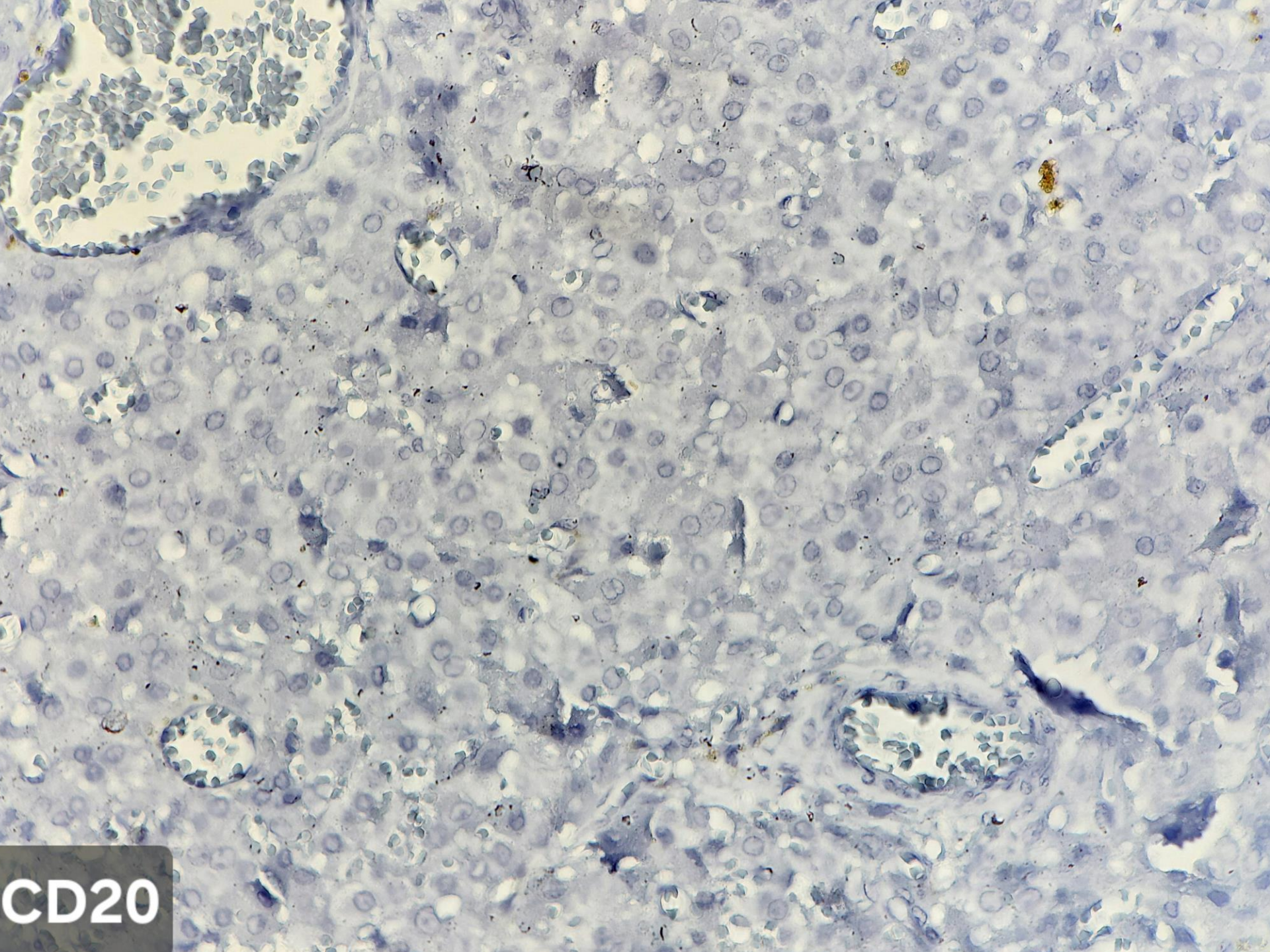
Inhibin



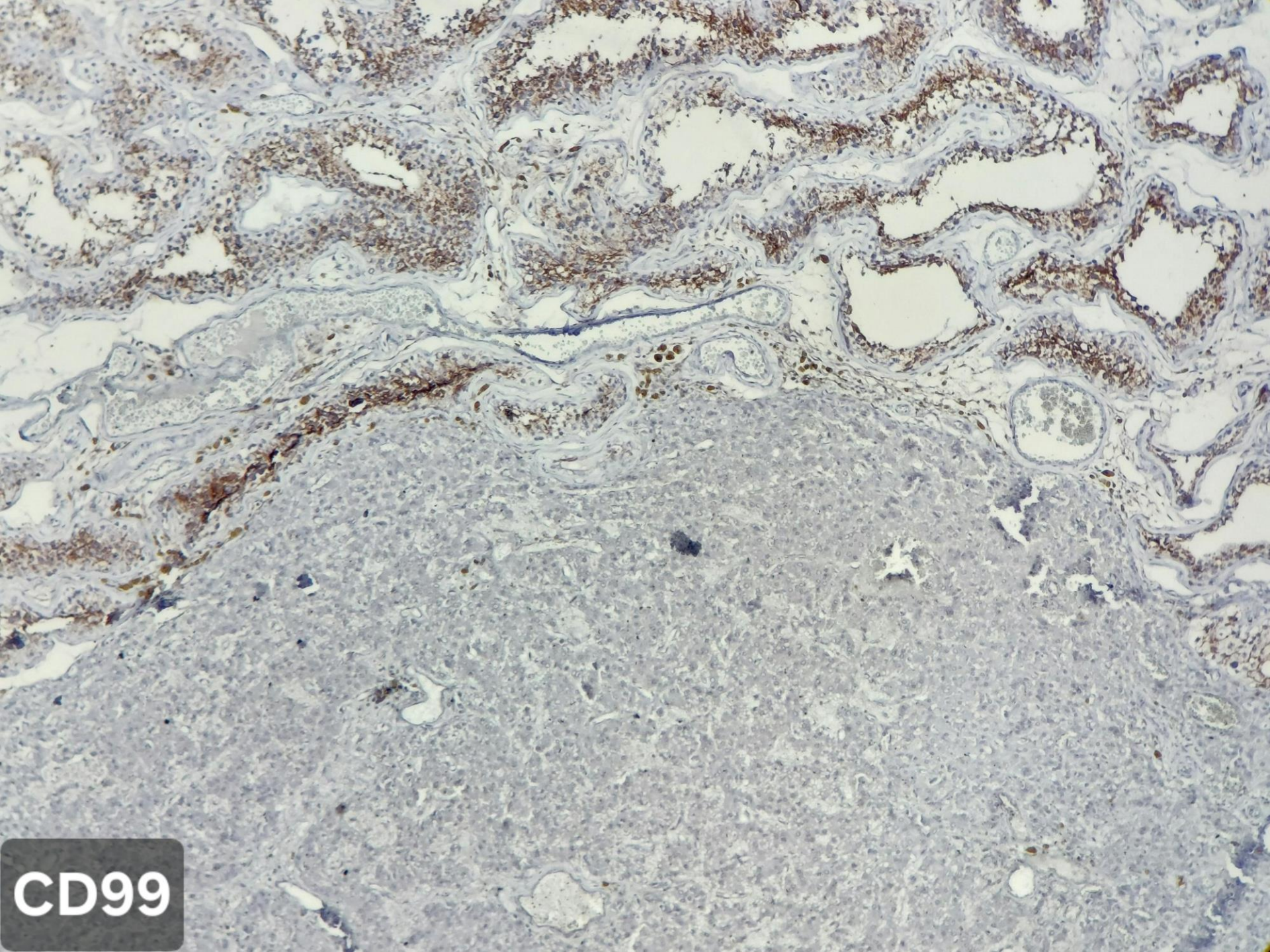
Calretinin



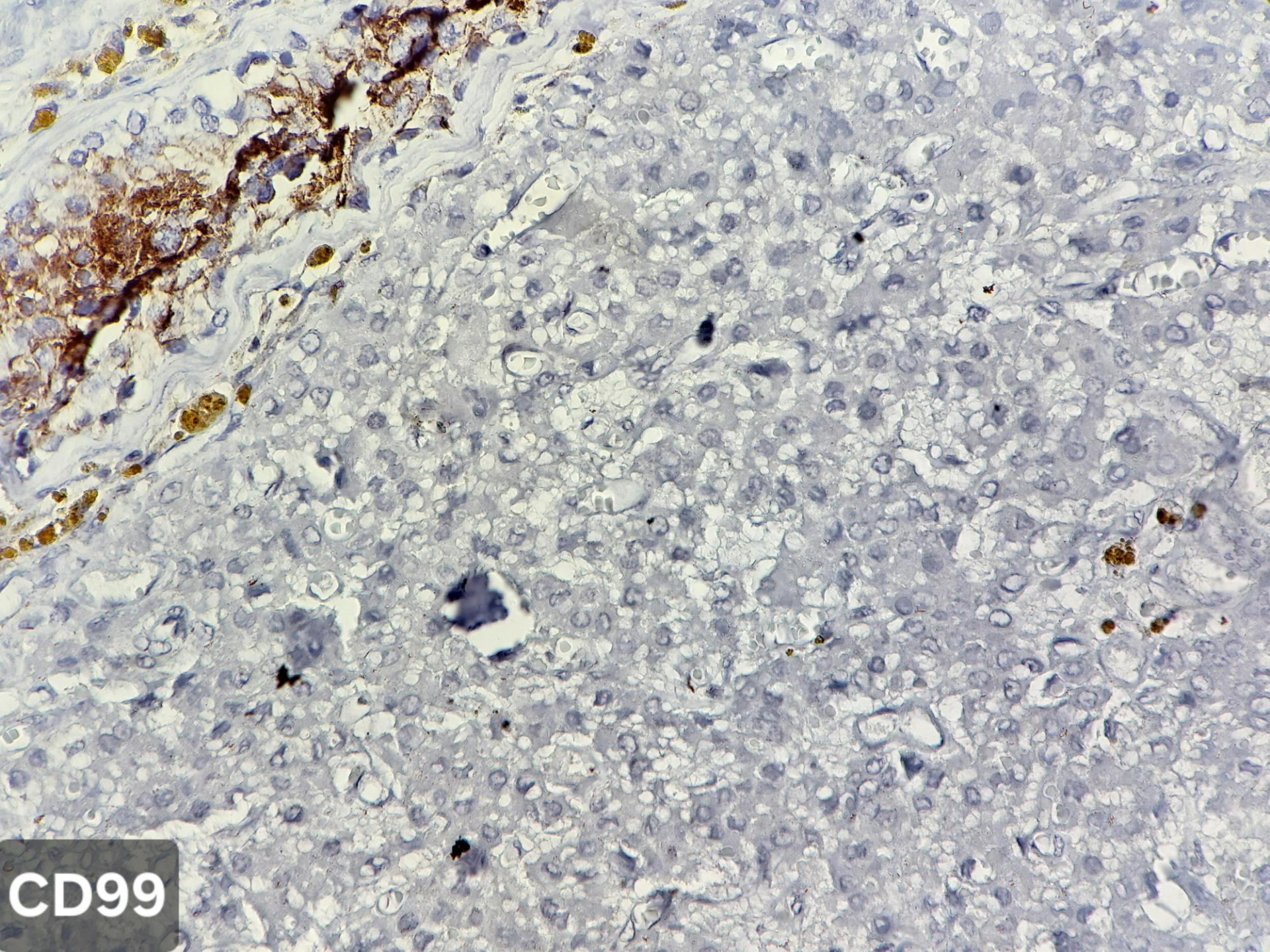
Calretinin



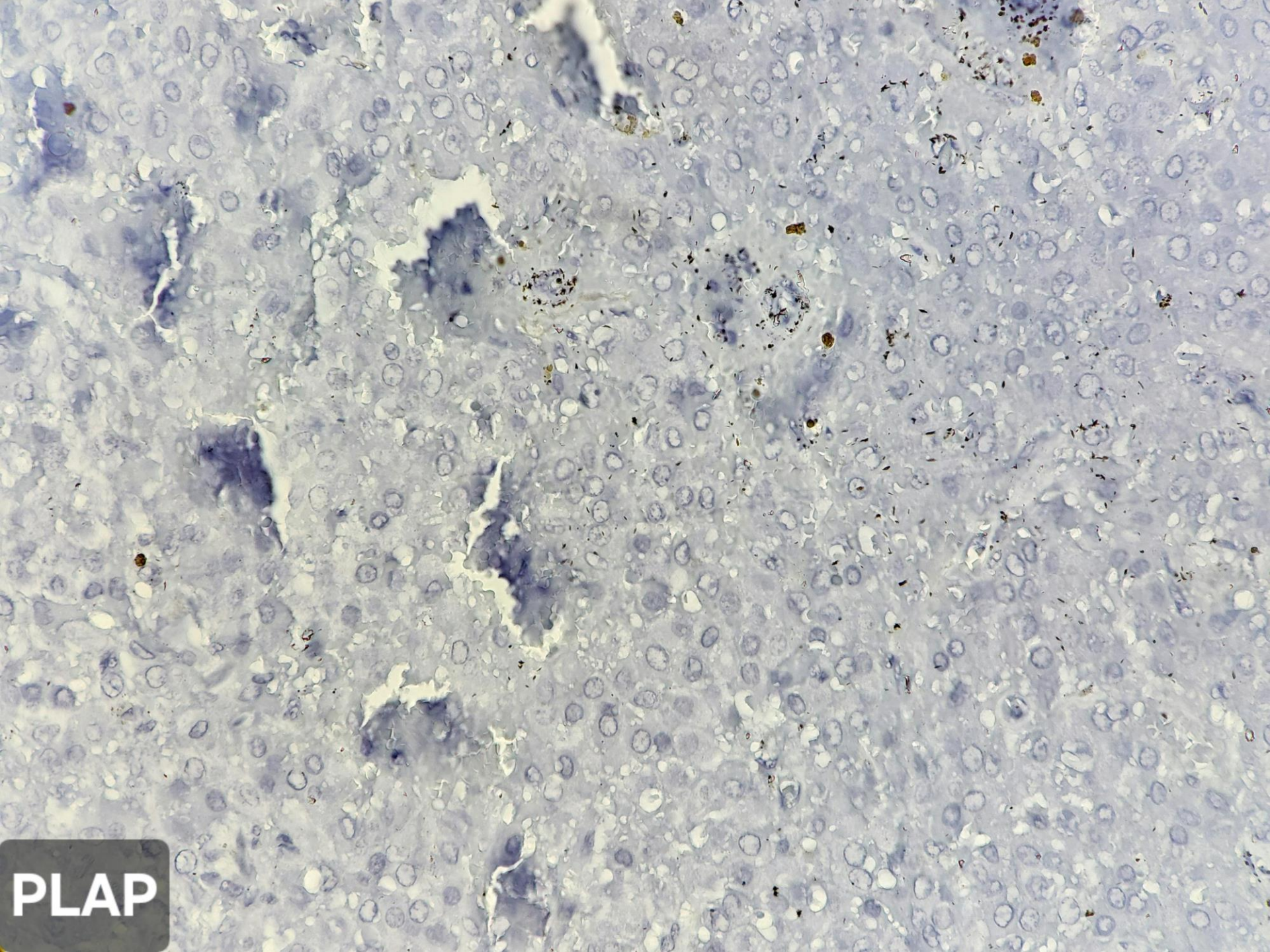
CD20



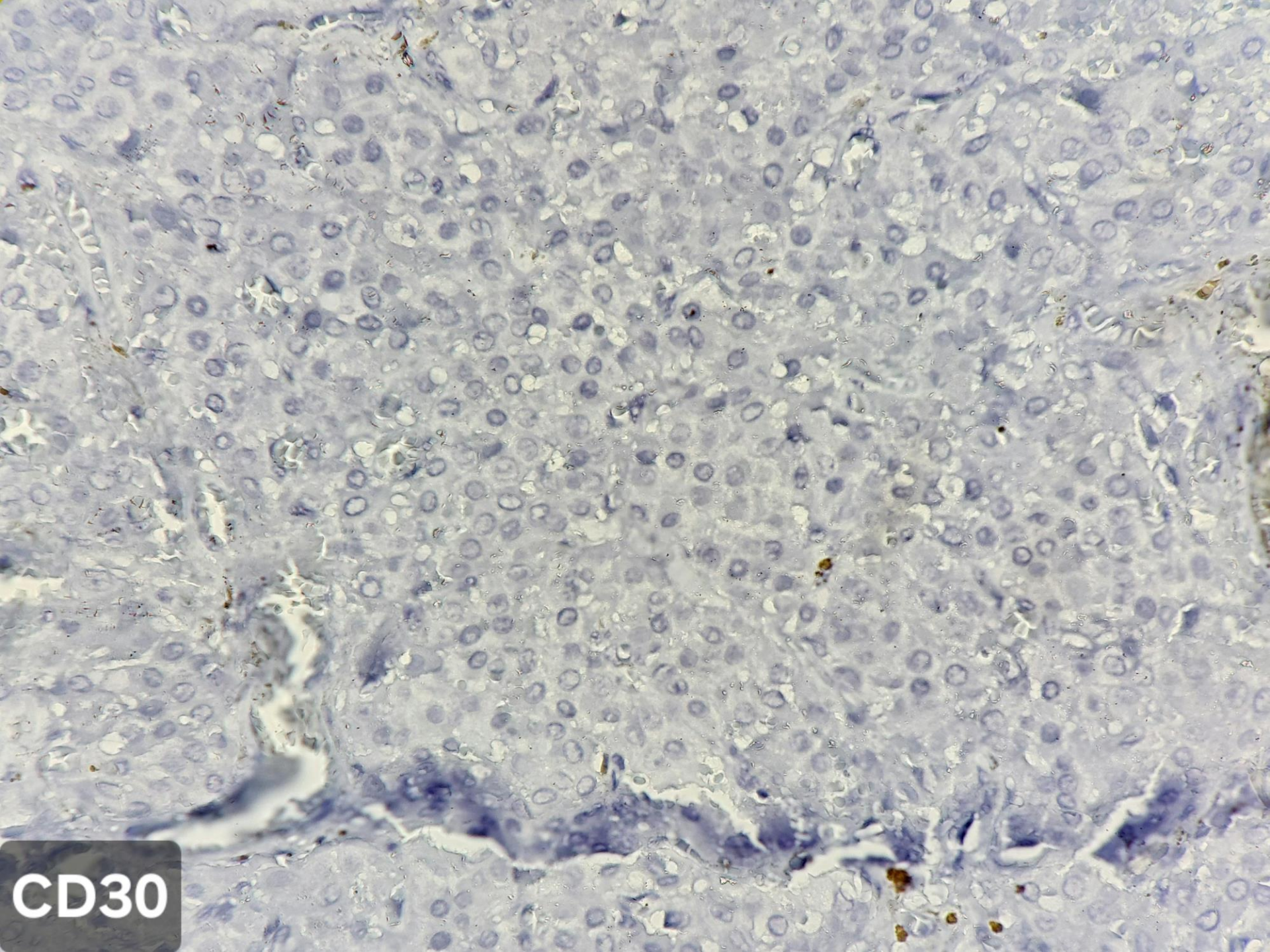
CD99



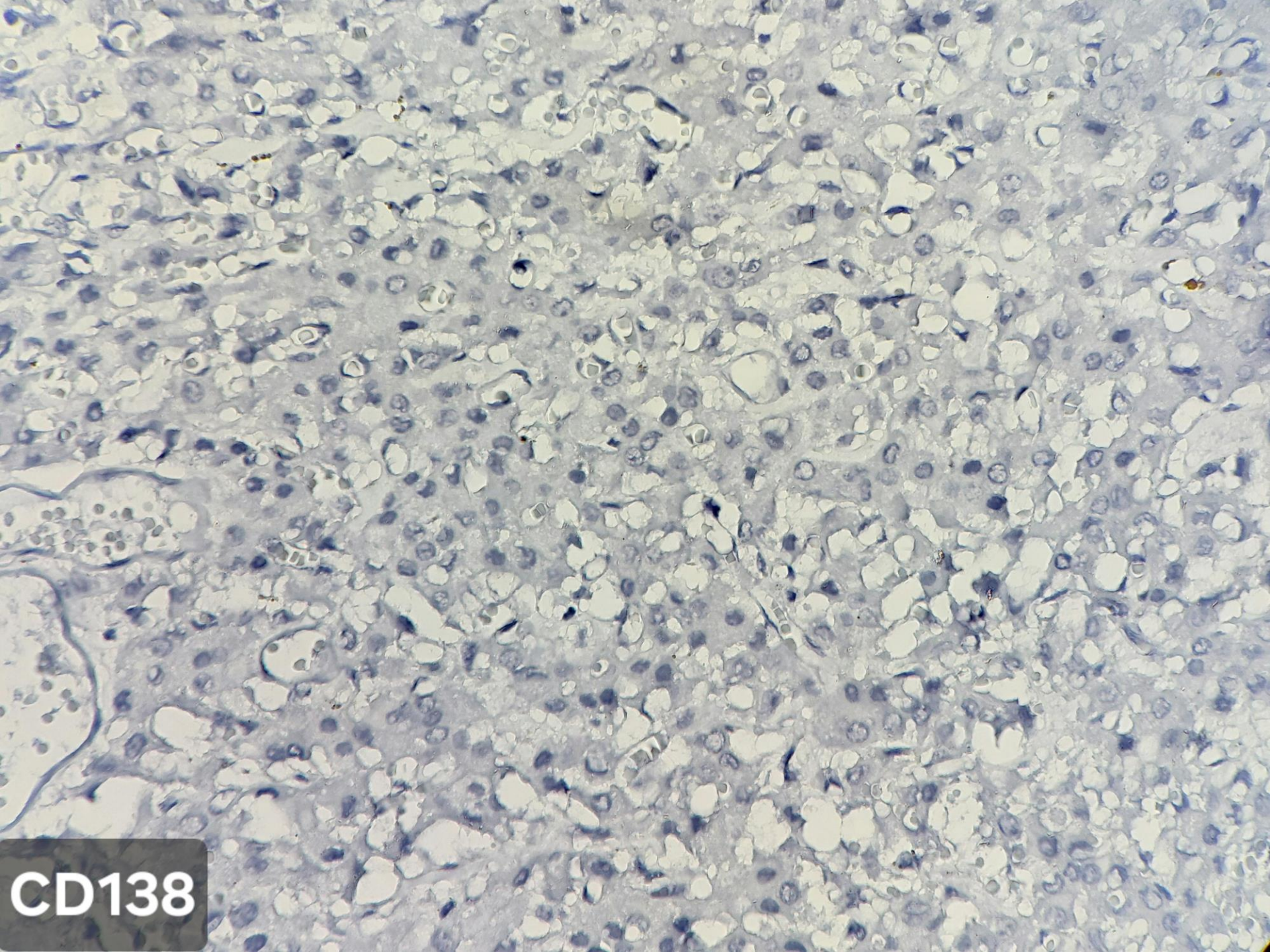
CD99



PLAP



CD30



CD138

DDX:

- 1. Leydig cell hyperplasia**
- 2. Leydig cell tumor**
- 3. Spermatocytic tumor**
- 4. Large cell calcifying Sertoli cell tumor**
- 5. Testicular adrenal rest tumor**
- 6. Granular cell tumor**
- 7. Seminoma**



Leydig cell tumor



واحد آزمایشگاه پاتولوژی

تاریخ پذیرش:

۱۴۰۴/۰۲/۰۹ - ۰۶:۵۶

شماره برگه: ۴۹۲۸۷ - ۷ نام: شهاب - سالکی
 کد پذیرش: ۹۵۰۱۵۲ نام پدر: محمدجواد
 شماره پاتولوژی: s04-1168 جنس: مرد

بزرگ ارجاع: بهنام فرامیر
 تاریخ نسخه: ۱۴۰۴/۰۲/۰۹
 تاریخ جواب: ۱۴۰۴/۰۲/۲۱
 کد ملی: ۱۲۸۸۰۳۰۶۲۲
 سن: ۵۱
 بزرگ پاتولوژیست: برادران - آذر

pT Category: pT1a (Tumor smaller than 3 cm in size)

pN Category: pN: Not assigned (No nodes submitted or found)

PM Category : Not applicable

Additional findings:

IHC staining No.234 on block No.1168 results as following:

CD138: Negative

SALL4: Negative

Calretinin: Positive

CD99: Negative

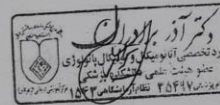
CD30: Negative

PLAP: Negative

Inhibin: Positive

CD20: Negative

نام رزیدنت: دکتر رویا رستمی



واحد آزمایشگاه پاتولوژی

تاریخ پذیرش:

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 کد ملی: ۱۲۸۸۰۳۰۶۲۲
 سن: ۵۱
 بزرگ پاتولوژیست: برادران - آذر

Macroscopic:

Specimen: Left testis

Measurement of specimen: 12 x 6 x 3 (cm)

Size of testis (without tunical sac): 6 x 4.5 x 3 (cm)

Length of spermatic cord: 7 (cm)

Abnormalities of the spermatic cord: No

Abnormalities of the surface of tunica vaginalis: No

Tumor: Present

Tumor size: Maximum diameter: 1 (cm)

Multi-nodularity: Absent

Heterogeneity: Uniform

Color: Red-brown

Consistency: Solid

Hemorrhage: Absent

Necrosis: Absent

Macroscopic extent of tumor: Confined to testis

Microscopic:

Procedure: Radical orchiectomy

Specimen Laterality: Left

Tumor Focality: Unifocal

Tumor Size: Greatest dimension of main tumor mass in centimeters: 1 cm

Additional Tumor Nodule: Not identified

Histologic Type: Leydig cell tumor

Tumor Extent: Limited to testis

Lymphovascular Invasion: Not identified

Margins: All margins negative for tumor

Regional Lymph Nodes:

- Number of Lymph Nodes Examined: Not applicable (No regional lymph nodes submitted or found)

Distant metastasis : Not applicable

PATHOLOGIC STAGE CLASSIFICATION (pTNM, AJCC 8th Edition) :

Definition:

- Interstitial cell tumor of the testis, one of the **most common sex cord-stromal tumors**.
- Predominantly **benign (>90%)**, occurs in both adults and children.
- **Obsolete term:** Interstitial cell tumor
- **Location:** Usually testicular parenchyma, rarely in extratesticular Leydig cell rests (epididymis).
- May **produce hormones:** testosterone (common), estradiol (rare) → clinical manifestations.

Epidemiology:

- **Incidence:** 1–2% of testicular tumors in adults, 3–6% in children.
- **Age:** Two peaks: 5–10 years and 30–60 years.
- **Mostly sporadic**, rarely associated with **Hereditary Leiomyomatosis and Renal Cell Carcinoma (HLRCC)**.

Clinical Features:

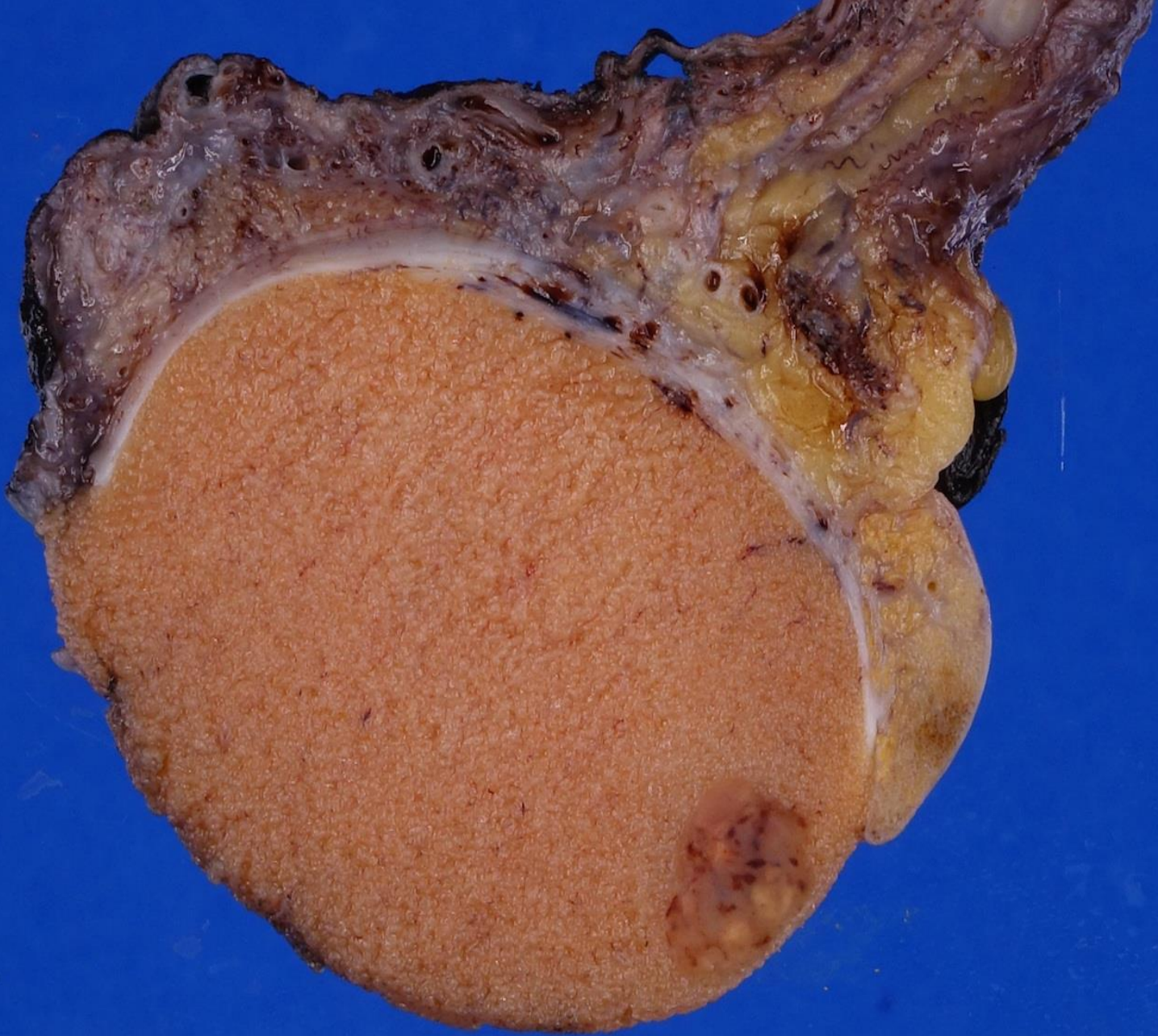
- **Children**
 - Painless testicular enlargement
 - **Precocious puberty** due to androgen production
 - Gynecomastia and breast tenderness due to estrogen
- **Adults**
 - Gynecomastia
 - Fertility issues (low sperm count, low libido, erectile dysfunction)
 - Rarely Cushing syndrome
- **Rare in Malignant Cases**
 - Metastases → commonly retroperitoneal

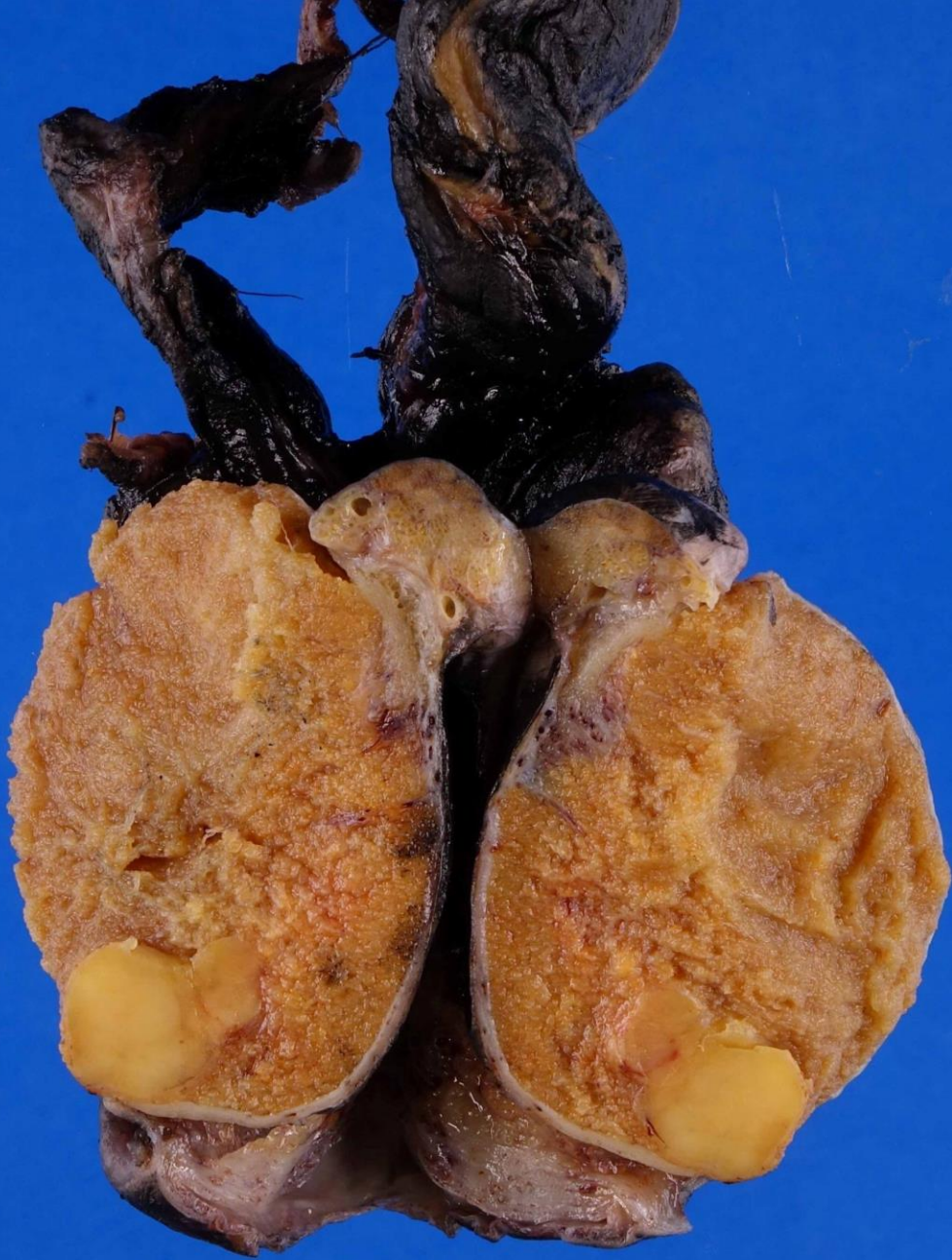
Laboratory and Radiology:

- **Hormones:** Testosterone and estradiol may be elevated
- **Ultrasound:** Small, well-defined, homogeneous hypoechoic masses with hypervascularity, may show cystic areas
- **CT/MRI:** Solid, well-circumscribed, enhancing mass

Gross Description:

- Solid, round, golden-brown or brownish-green mass
- Usually < 5 cm (tumors > 5 cm and ill-defined margins → risk of malignancy)
- Sometimes **calcification and hyalinization**
- **Features suggesting malignancy:** large size, infiltrative borders, hemorrhage, necrosis, extratesticular extension

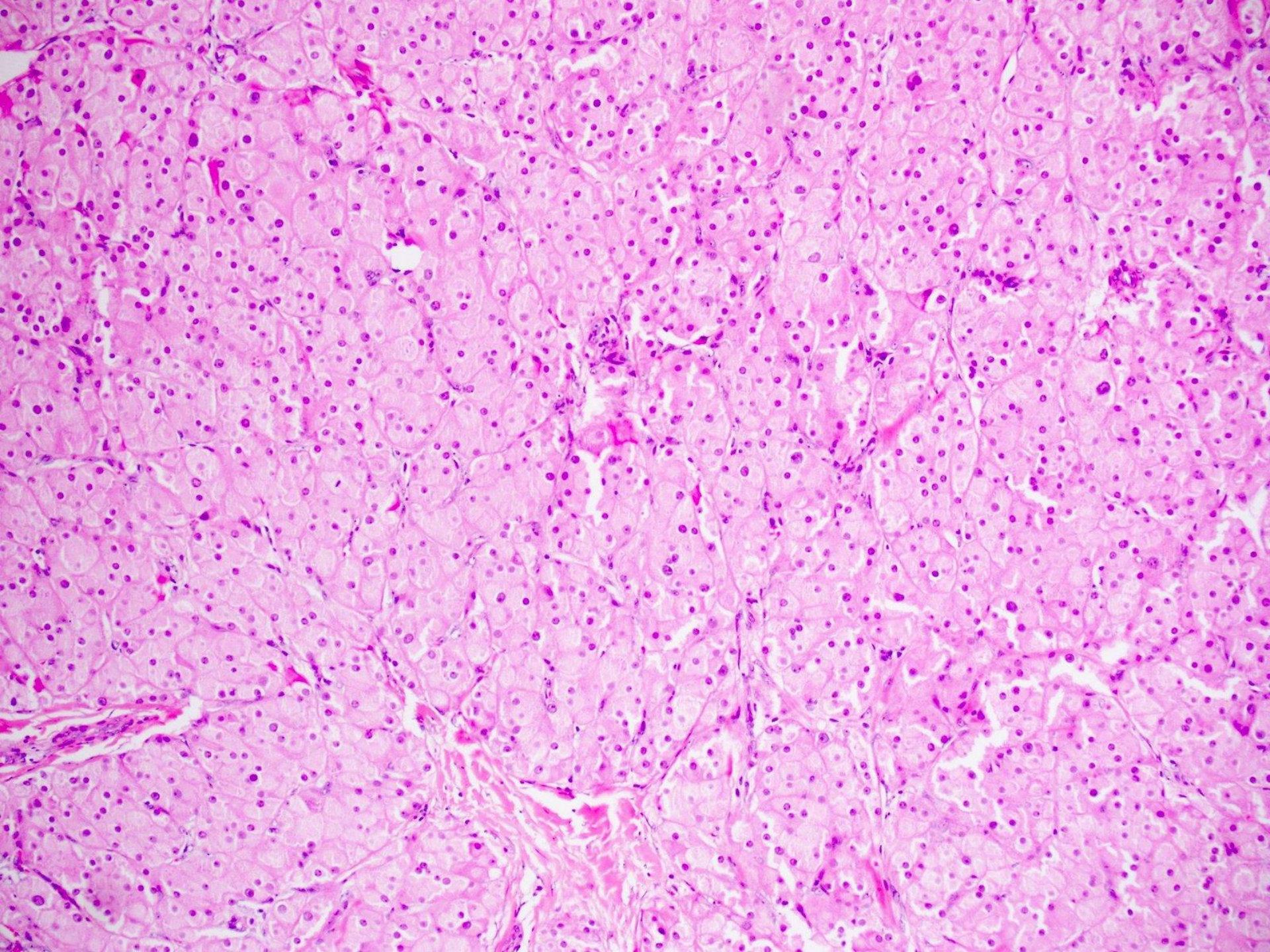


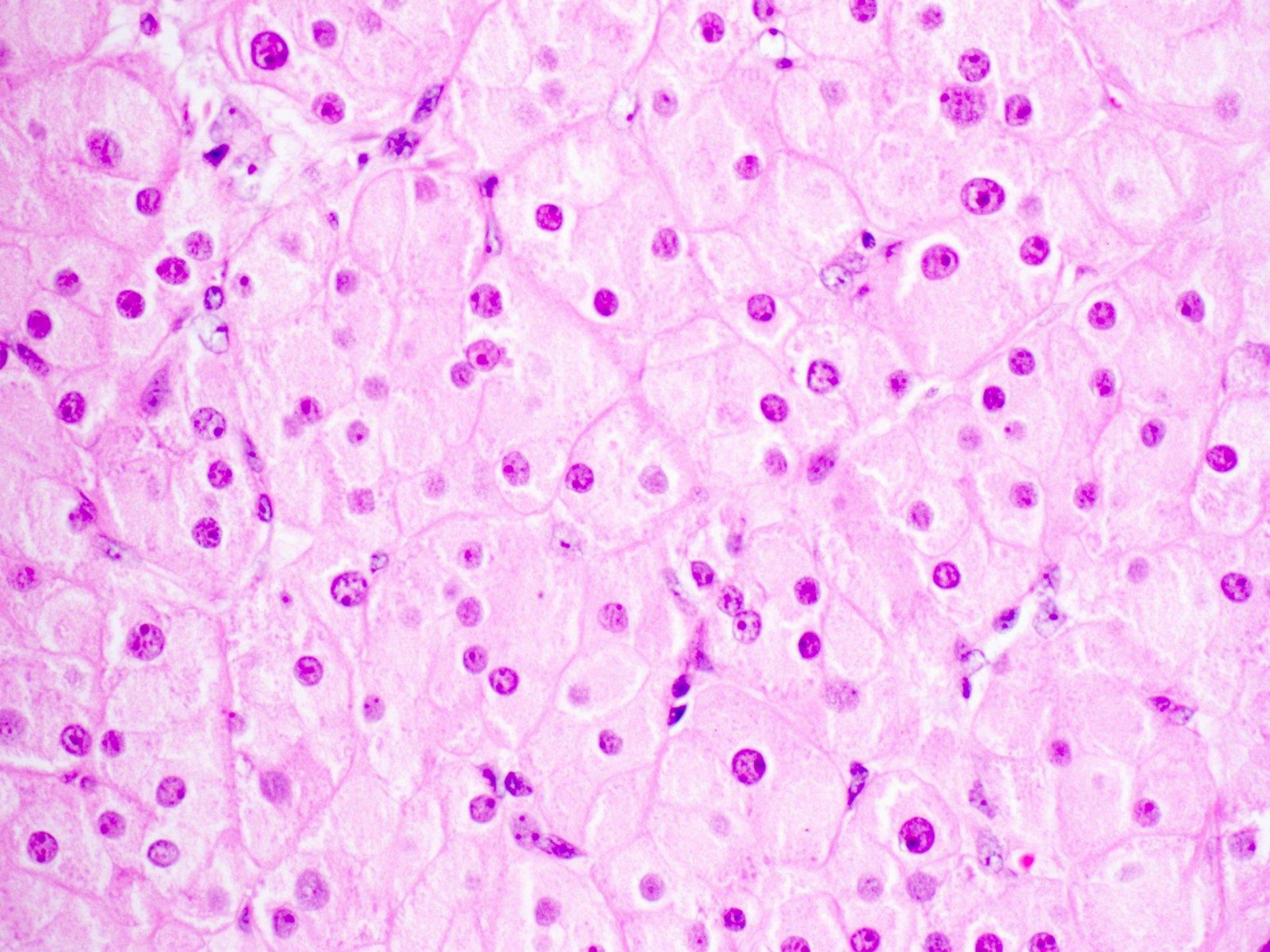


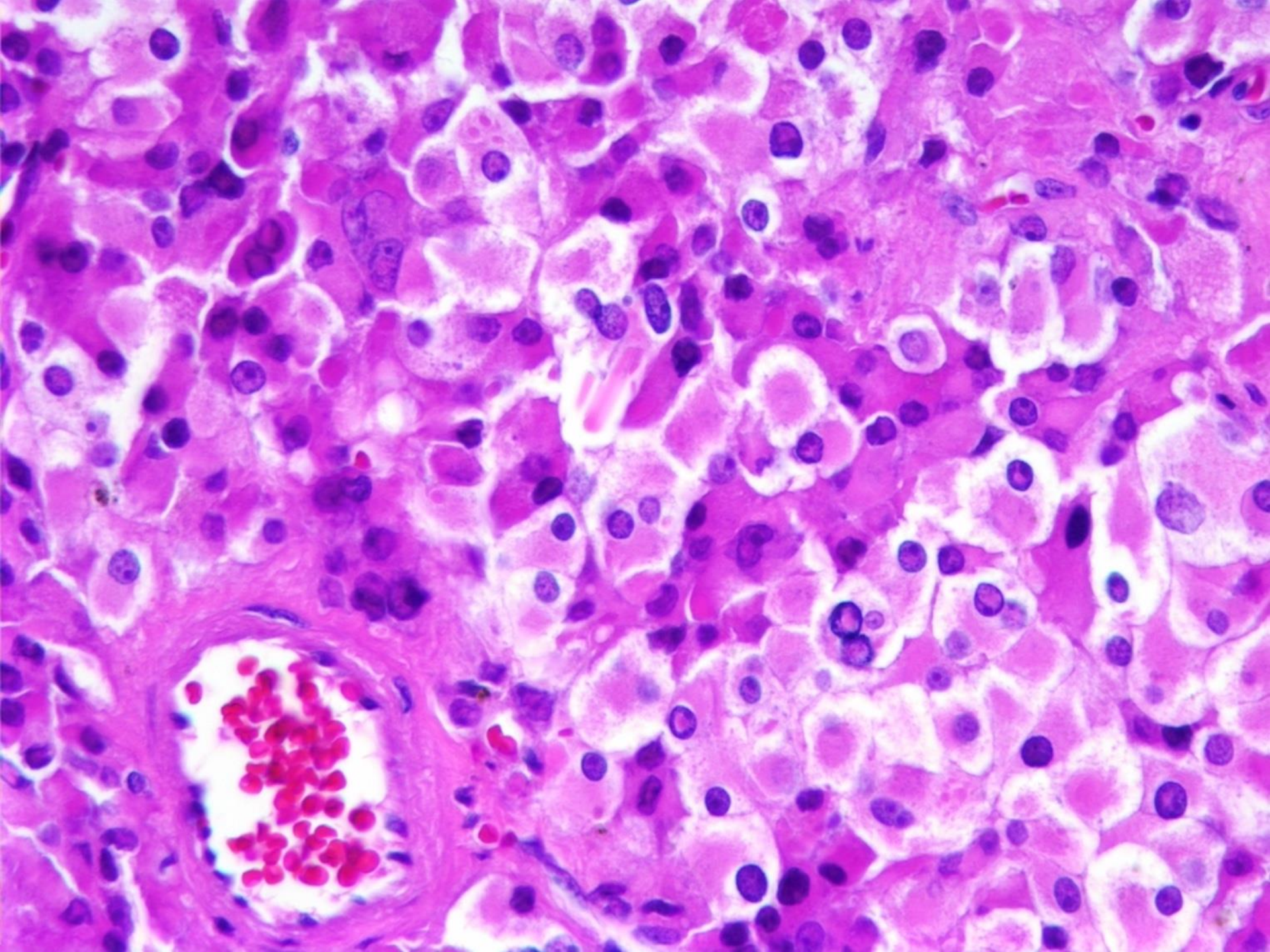


Microscopic (Histology):

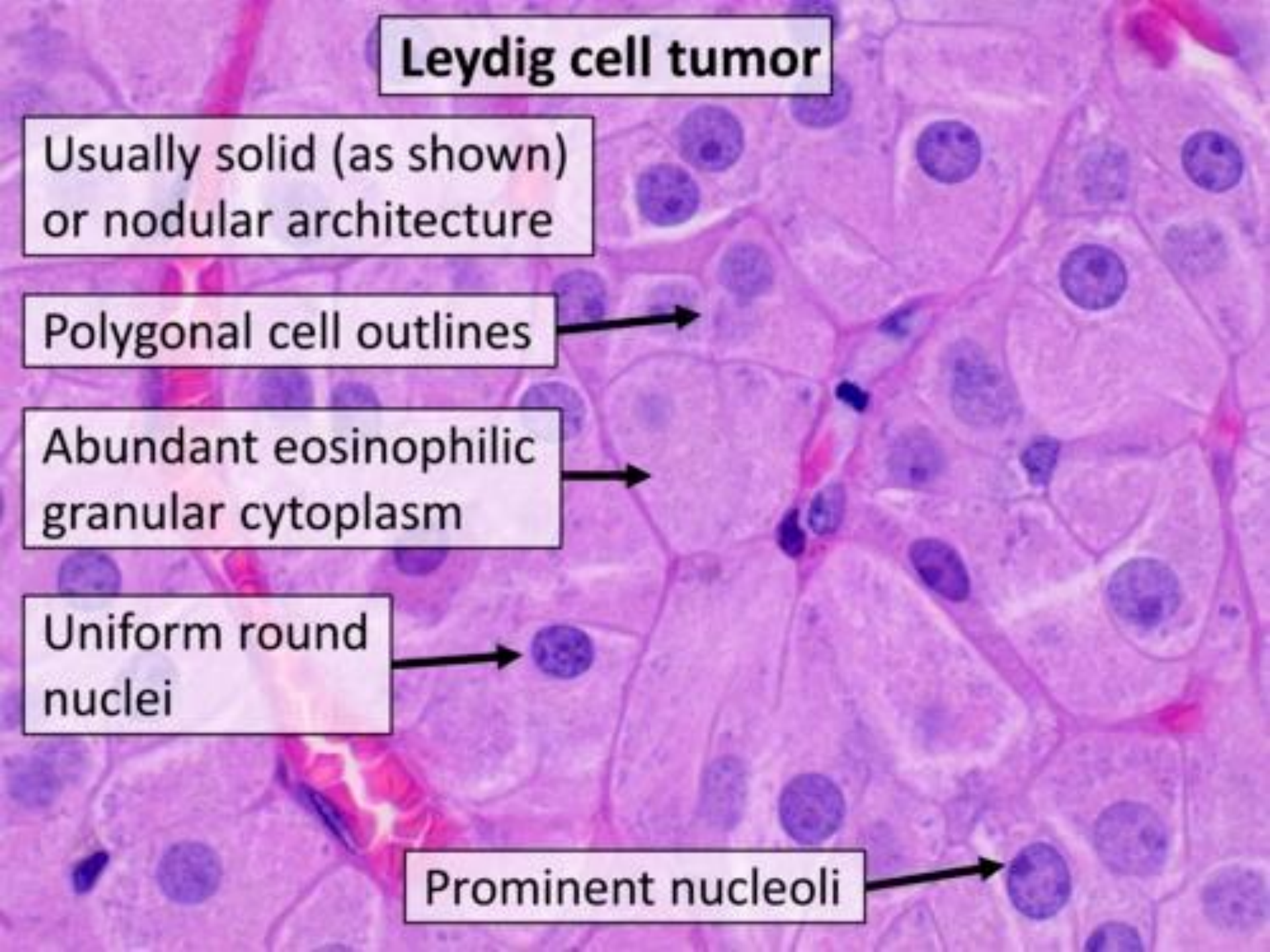
- **Cells:** Polygonal with **abundant eosinophilic granular cytoplasm**, round nuclei, prominent nucleoli
- **Reinke crystals:** pathognomonic, observed in up to 30%
- **Growth patterns:** diffuse or nodular, fibrous bands; rare patterns: trabecular, insular, pseudotubular
- **Malignant features:** >5 cm, infiltrative borders, nuclear atypia, frequent mitoses (>3/10 HPF), necrosis, vascular invasion







Leydig cell tumor

A high-magnification photomicrograph of a Leydig cell tumor. The image shows a dense population of cells with distinct polygonal outlines. The cytoplasm is filled with fine, eosinophilic granules. The nuclei are generally round and uniform in size, with some showing prominent nucleoli. The overall architecture is solid and nodular.

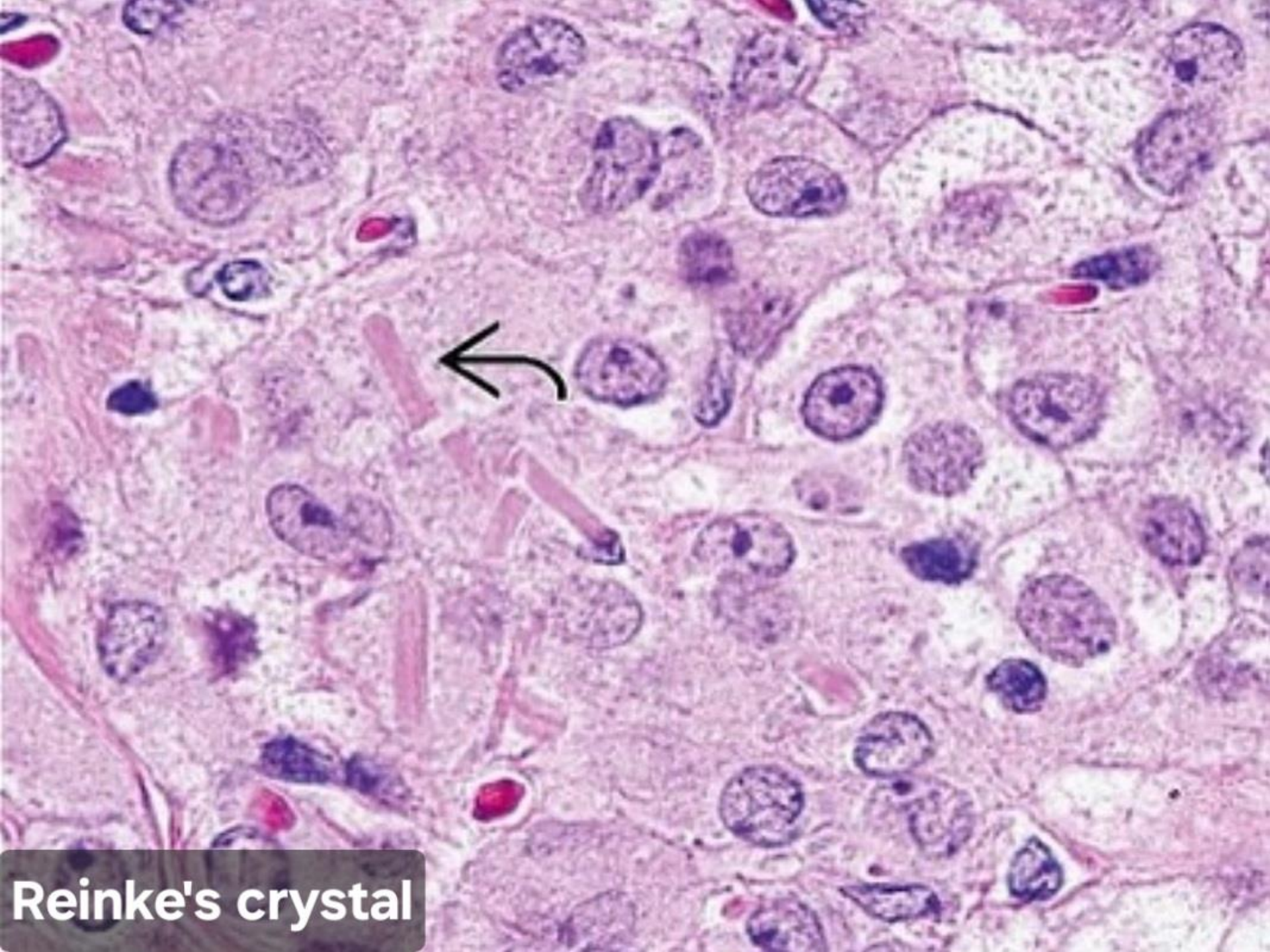
Usually solid (as shown) or nodular architecture

Polygonal cell outlines

Abundant eosinophilic granular cytoplasm

Uniform round nuclei

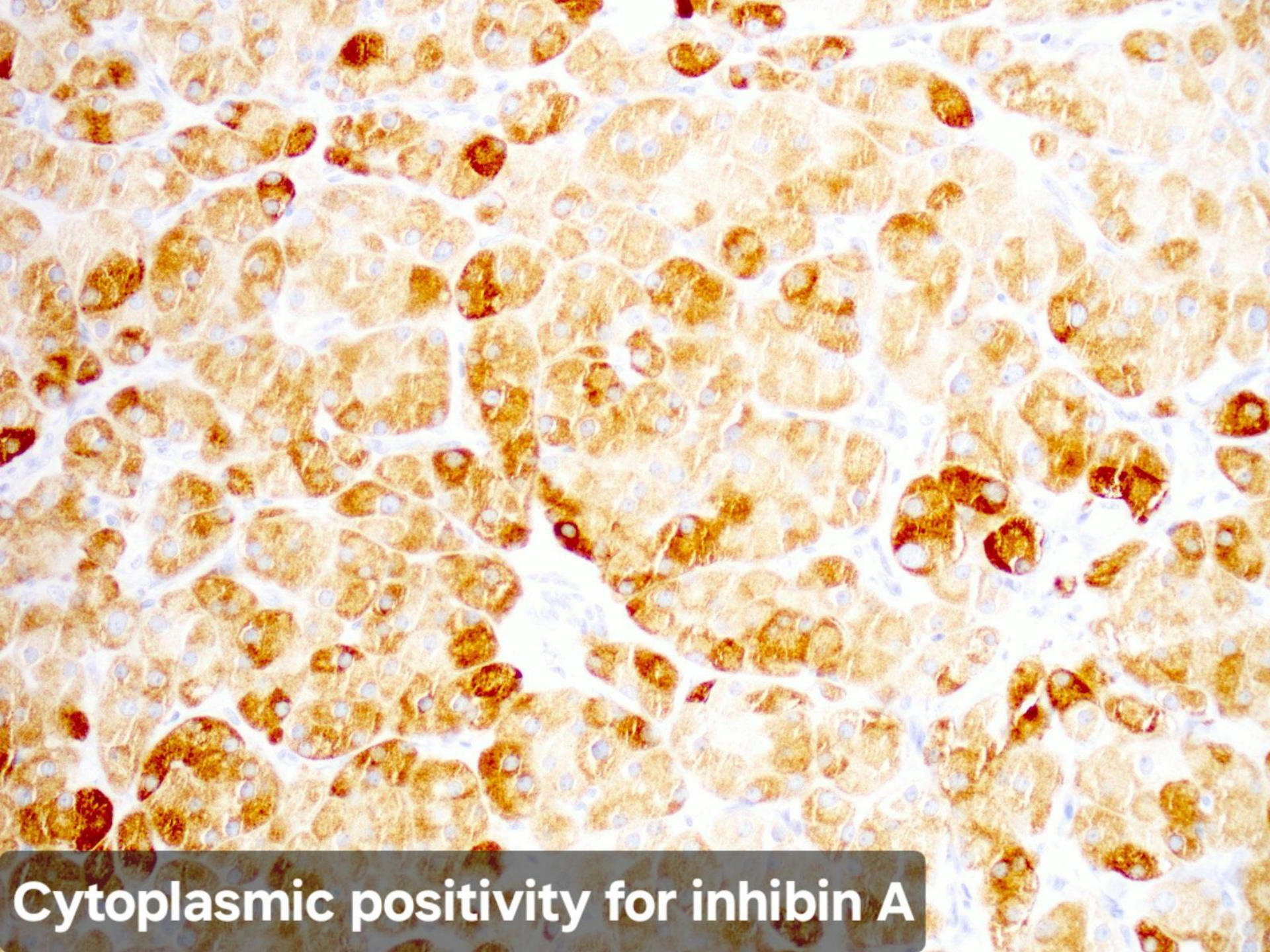
Prominent nucleoli



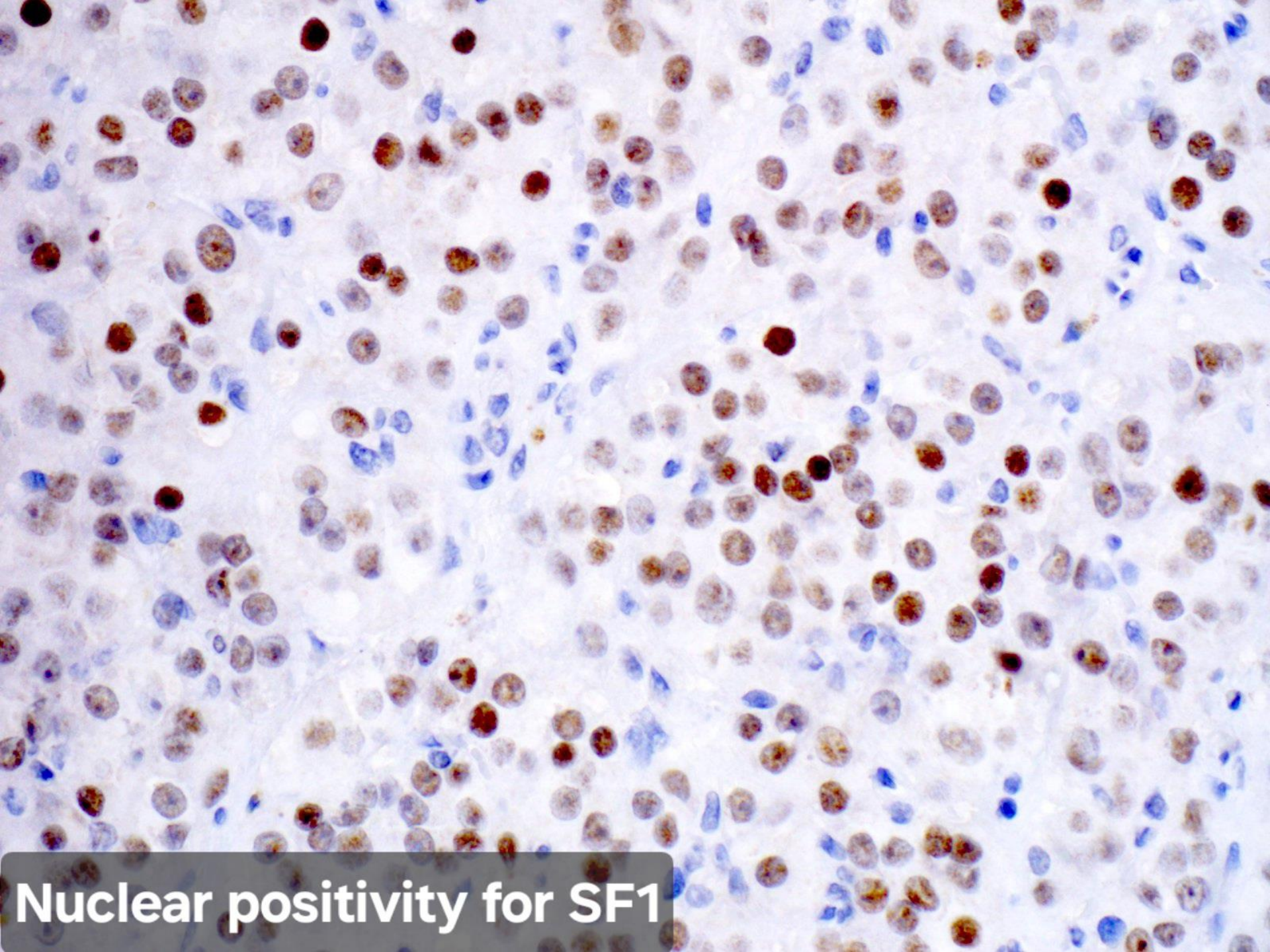
Reinke's crystal

Immunohistochemistry (IHC):

- **Positive:** Inhibin-alpha, Calretinin, MelanA (MART-1), SF1, Androgen Receptor, Vimentin (variable: INSL3, CD99)
- **Negative:** SALL4, OCT4, Cytokeratin, Chromogranin, Synaptophysin, S100, PLAP



Cytoplasmic positivity for inhibin A



Nuclear positivity for SF1

DDx1:Leydig Cell Hyperplasia

- **Definition:** Benign proliferation of Leydig cells, often nodular
- **Epidemiology:** Usually bilateral, small nodules (<0.5 cm), often incidental
- **Histology:** Small nodules of polygonal eosinophilic cells, low mitotic activity, no atypia
- **IHC:** Inhibin+, Calretinin+, INSL3+
- **Key Distinction from LCT:**
 - Smaller size, multifocal, usually bilateral
 - No mass effect or symptoms
 - Rare Reinke crystals, no malignant features

DDx2:Spermatocytic Tumor

- **Definition:** Previously called spermatocytic seminoma; germ cell tumor variant in older men
- **Epidemiology:** Usually >50 years, rare in children
- **Histology:** Large cells with eosinophilic or pale cytoplasm, often multinucleated; lacks Reinke crystals
- **IHC:** SALL4+, OCT4+ (germ cell markers), Inhibin-, Calretinin-
- **Key Distinction from LCT:**
 - Germ cell origin (not stromal)

DDx3: Large Cell Calcifying Sertoli Cell Tumor

- **Definition:** Sex cord-stromal tumor, associated with Carney Complex in some cases
- **Histology:** Sertoli cells with abundant eosinophilic cytoplasm, extensive **calcification**, variable tubular/intratubular growth, stroma myxoid, neutrophil-rich
- **IHC:** SMA+, Desmin+, variable S100+, Inhibin-, MelanA-
- **Key Distinction from LCT:**
- Calcification extensive (rare in LCT)

DDx4: Testicular Adrenal Rest Tumor (TART)

- **Definition:** Ectopic adrenal tissue in testis, associated with congenital adrenal hyperplasia (CAH)
- **Epidemiology:** Often bilateral, may regress with glucocorticoid therapy
- **Histology:** Nodular dark brown tissue, abundant lipofuscin, spotty cytologic atypia, broad hyalinized stroma, **no Reinke crystals**
- **IHC:** AR-, INSL3-, sometimes neuroendocrine markers (synaptophysin+, CD56+)
- **Key Distinction from LCT:**
 - Bilateral and endocrine-driven
 - Reinke crystals absent
 - Responds to steroid therapy (LCT does not)

DDx4:Granular Cell Tumor

- **Definition:** Rare stromal tumor with granular cytoplasm, sometimes in testis
- **Histology:** Abundant granular cytoplasm, polygonal cells, no Reinke crystals
- **IHC:** S100+, CD68+, Inhibin-
- **Key Distinction from LCT:**
 - S100 positive (LCT negative)
 - Reinke crystals absent
 - Usually smaller, indolent

DDx6:Seminoma

- **Definition:** Classic germ cell tumor of testis
- **Histology:** Large clear cells with central nuclei, fibrous septa, lymphocytic infiltrate, sometimes granulomas
- **IHC:** SALL4+, OCT4+, PLAP+
- **Key Distinction from LCT:**
 - Germ cell origin, not stromal
 - Reinke crystals absent
 - Inhibin-, Calretinin-, MelanA-

