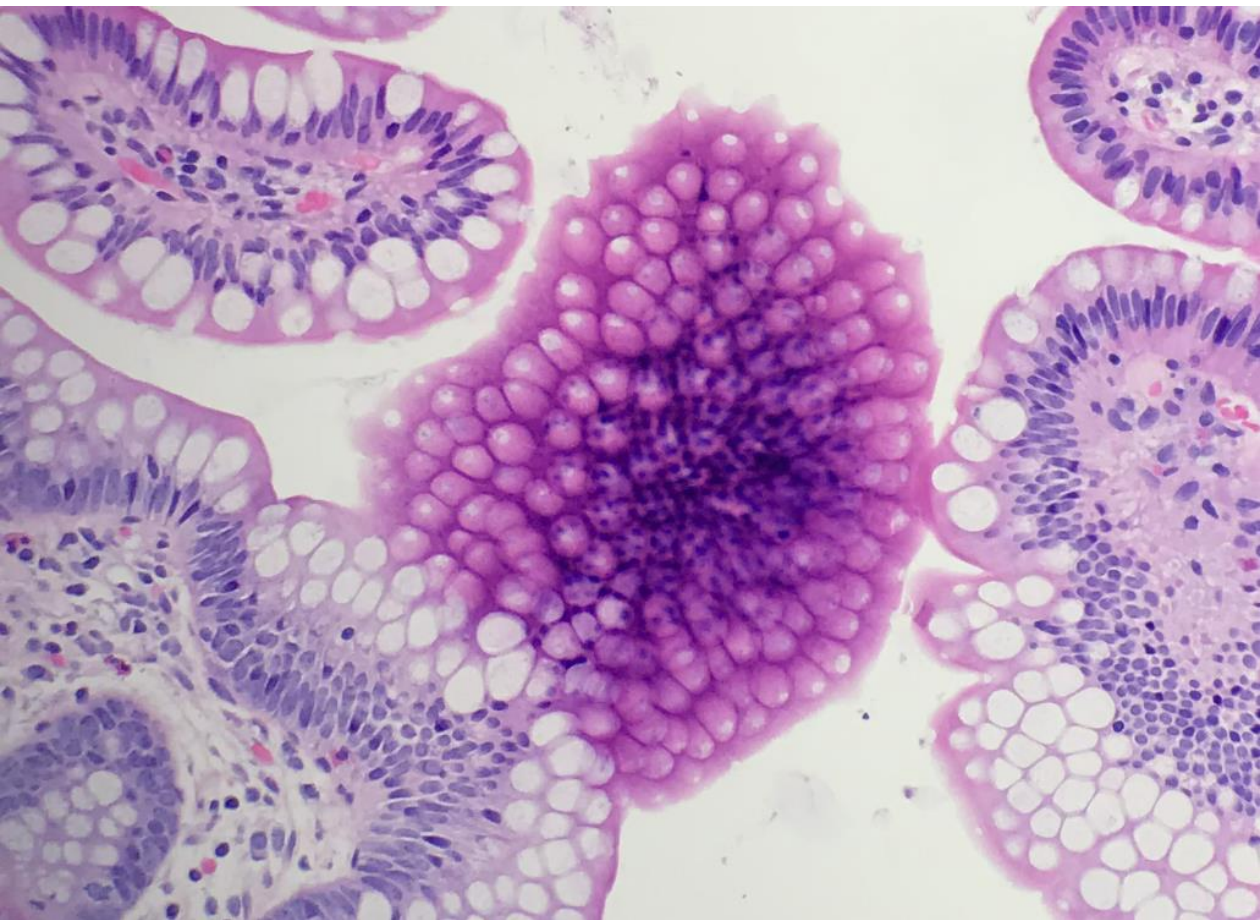




South Bay
Pathology
Society
April 2026

Disclosures

April 6, 2026

The activity planners and faculty listed below have no relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.

Presenters/Faculty:

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Armen Khararjian, MD
George de Castro, MD
Sarah Umetsu, MD
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Greg Rumore, MD

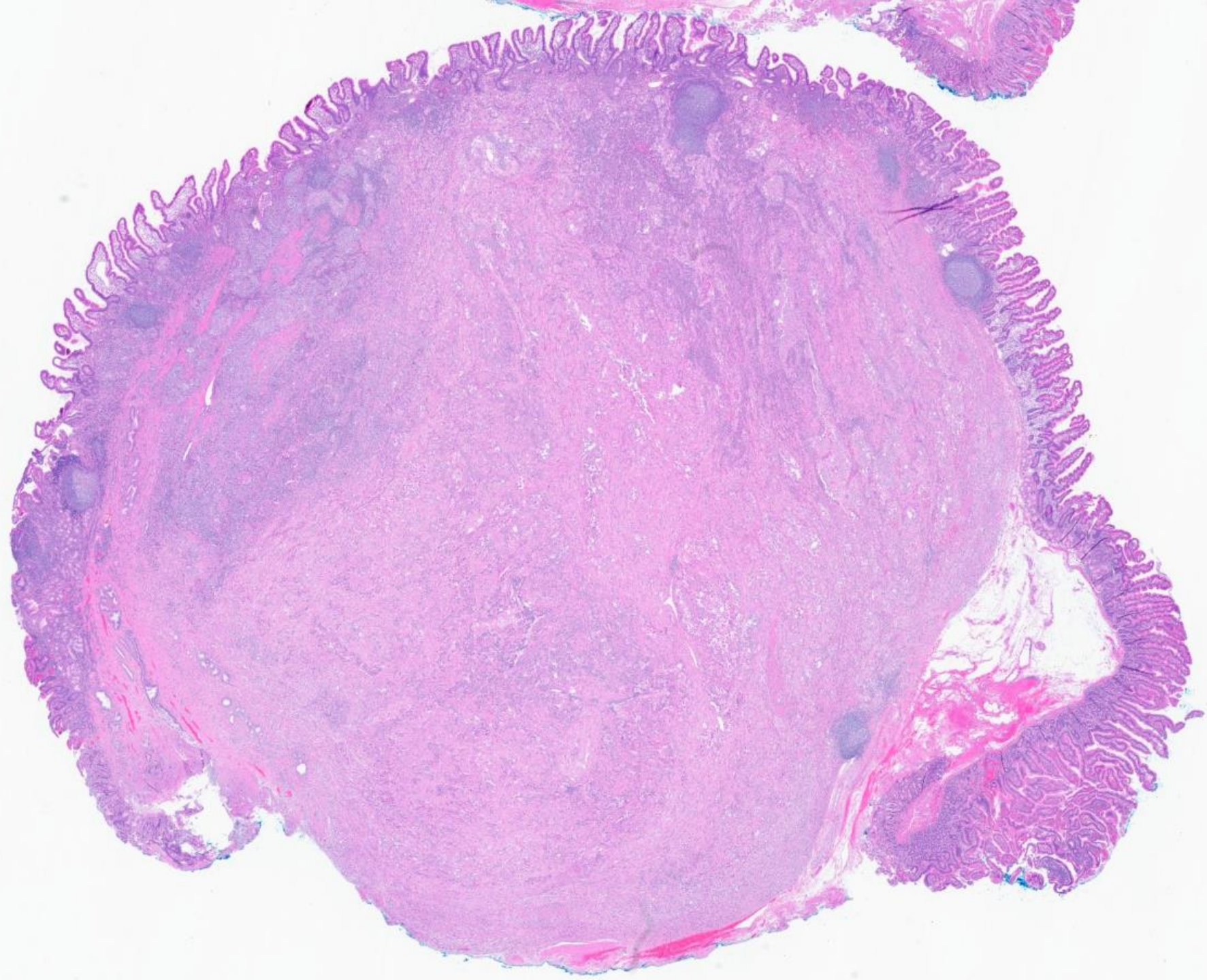
Activity Planners/Moderator:

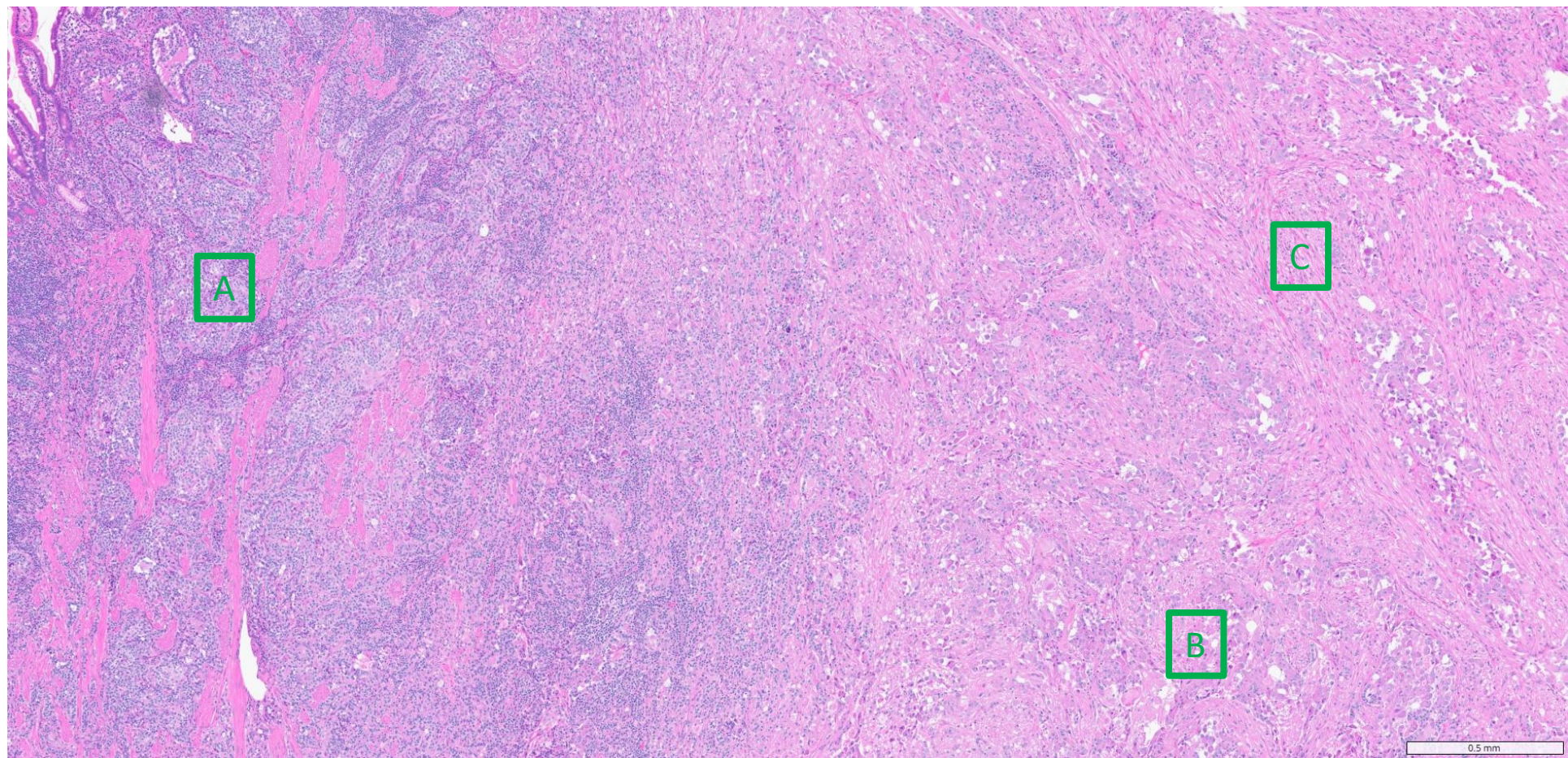
Kristin Jensen, MD
Megan Troxell, MD, PhD
Dave Bingham, MD

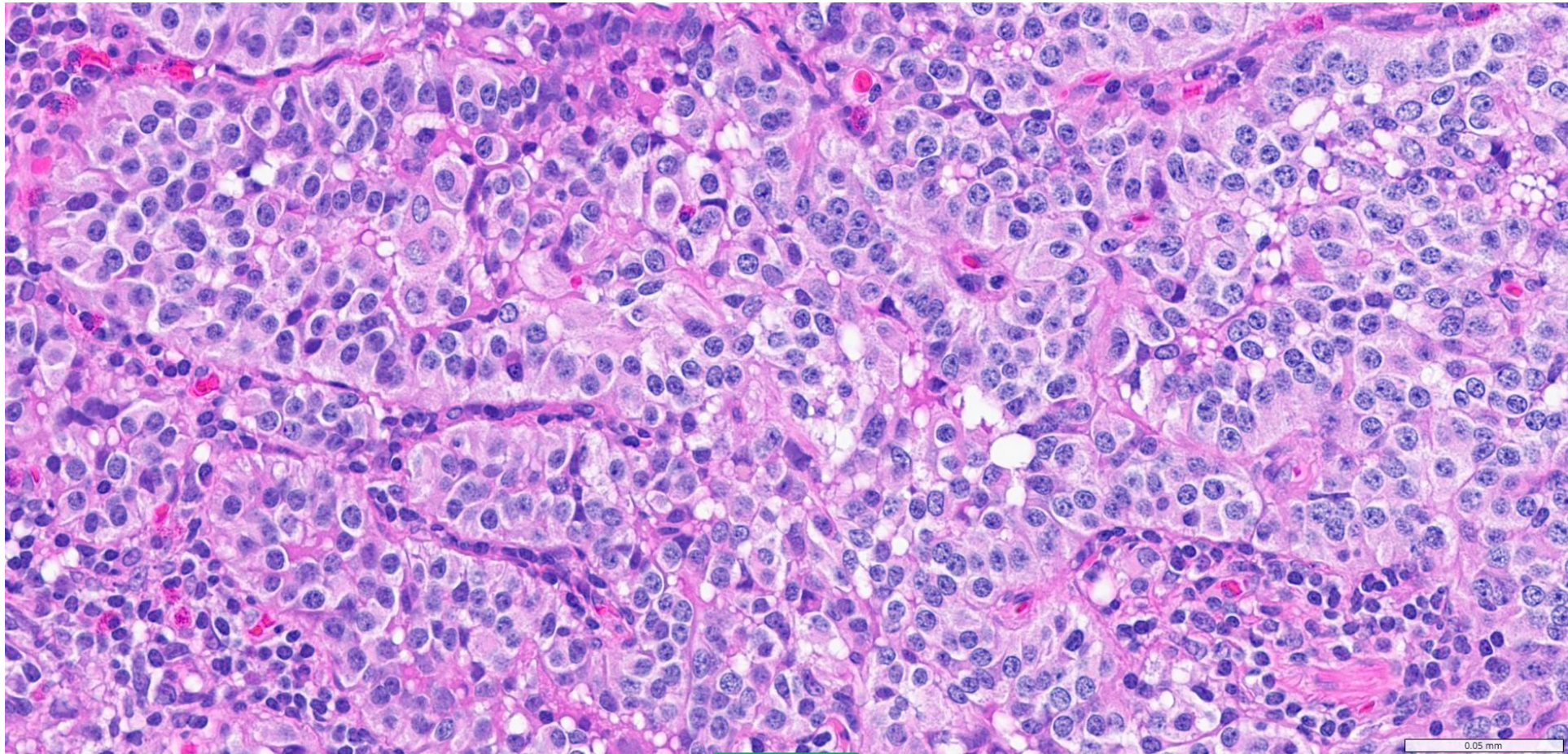
26-0401

Andrew Xiao and John Higgins; Stanford

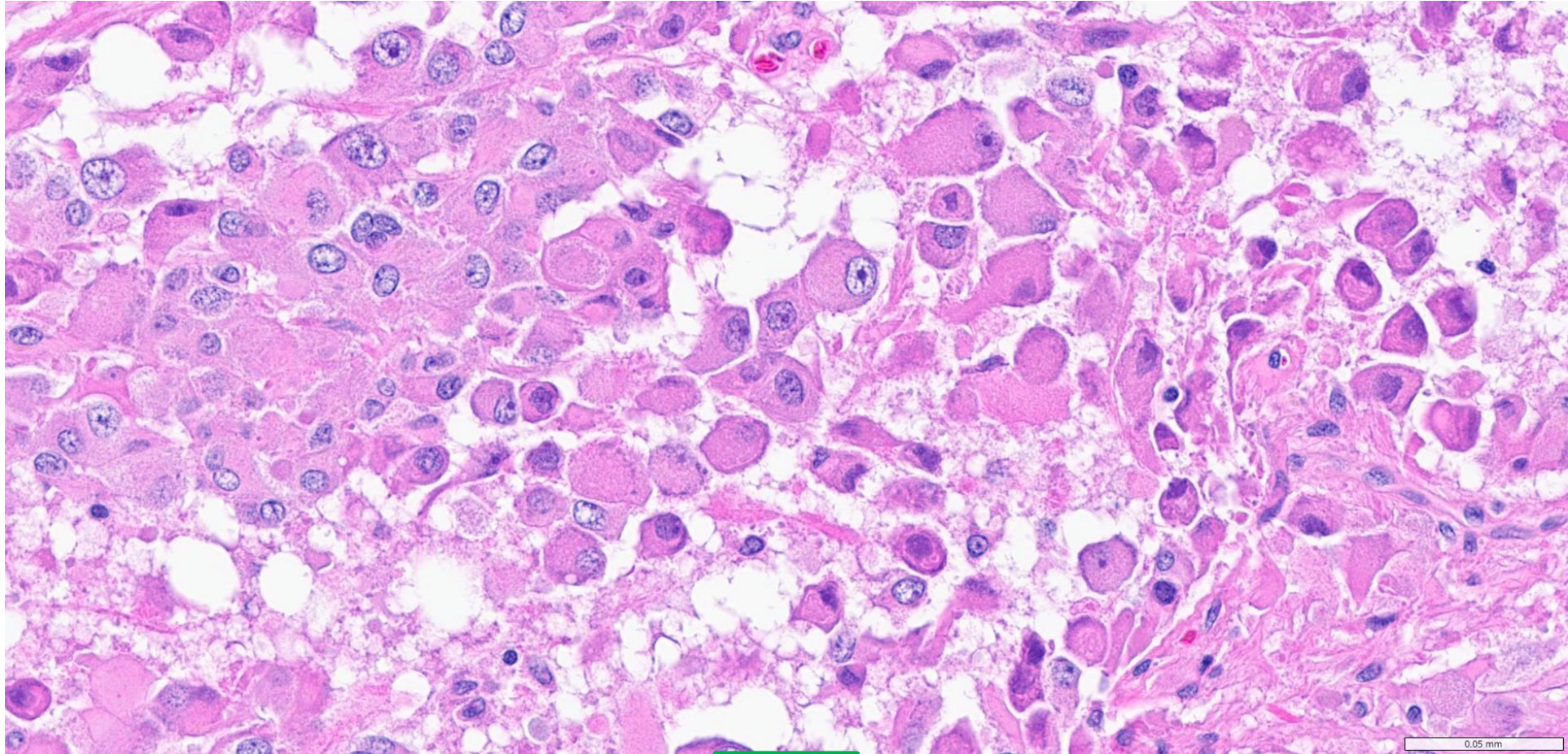
Mid 60-ish female with EGD identifying a ~10 mm subepithelial umbilicated nodule in the duodenum.



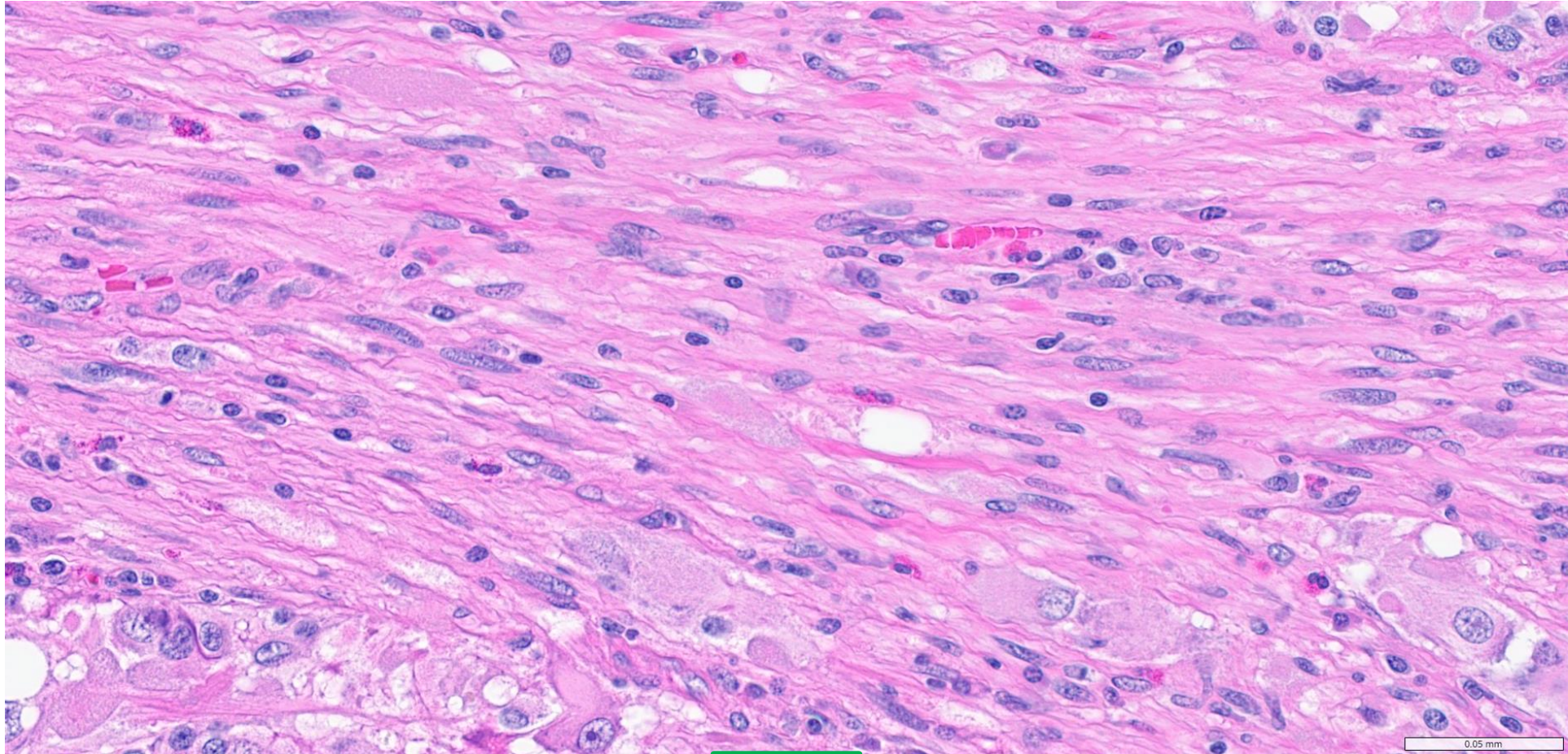




Area A



Area B



Area C

DIAGNOSIS?



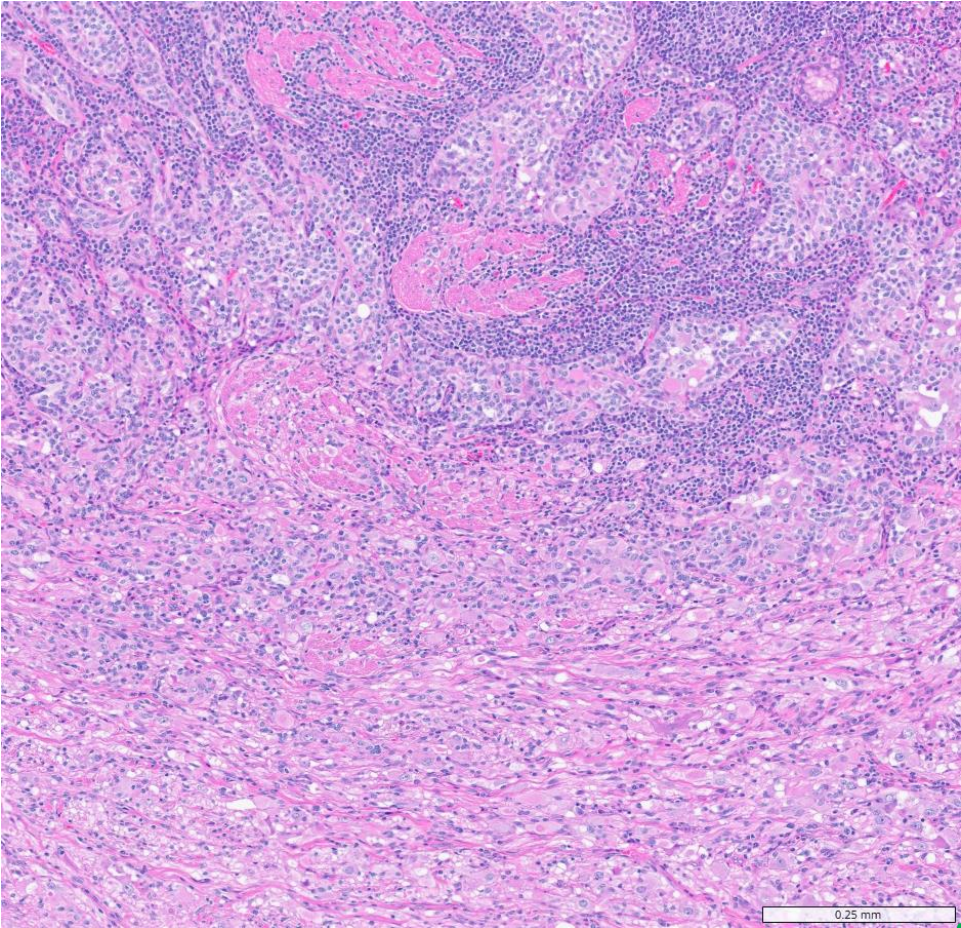
Recap

- Well-circumscribed
- Triphasic components:
 - Nests of epithelioid neuroendocrine-like
 - Spindled cell appearance
 - Ganglion-like
- No necrosis
- Inconspicuous mitotic figures

Differential Diagnoses

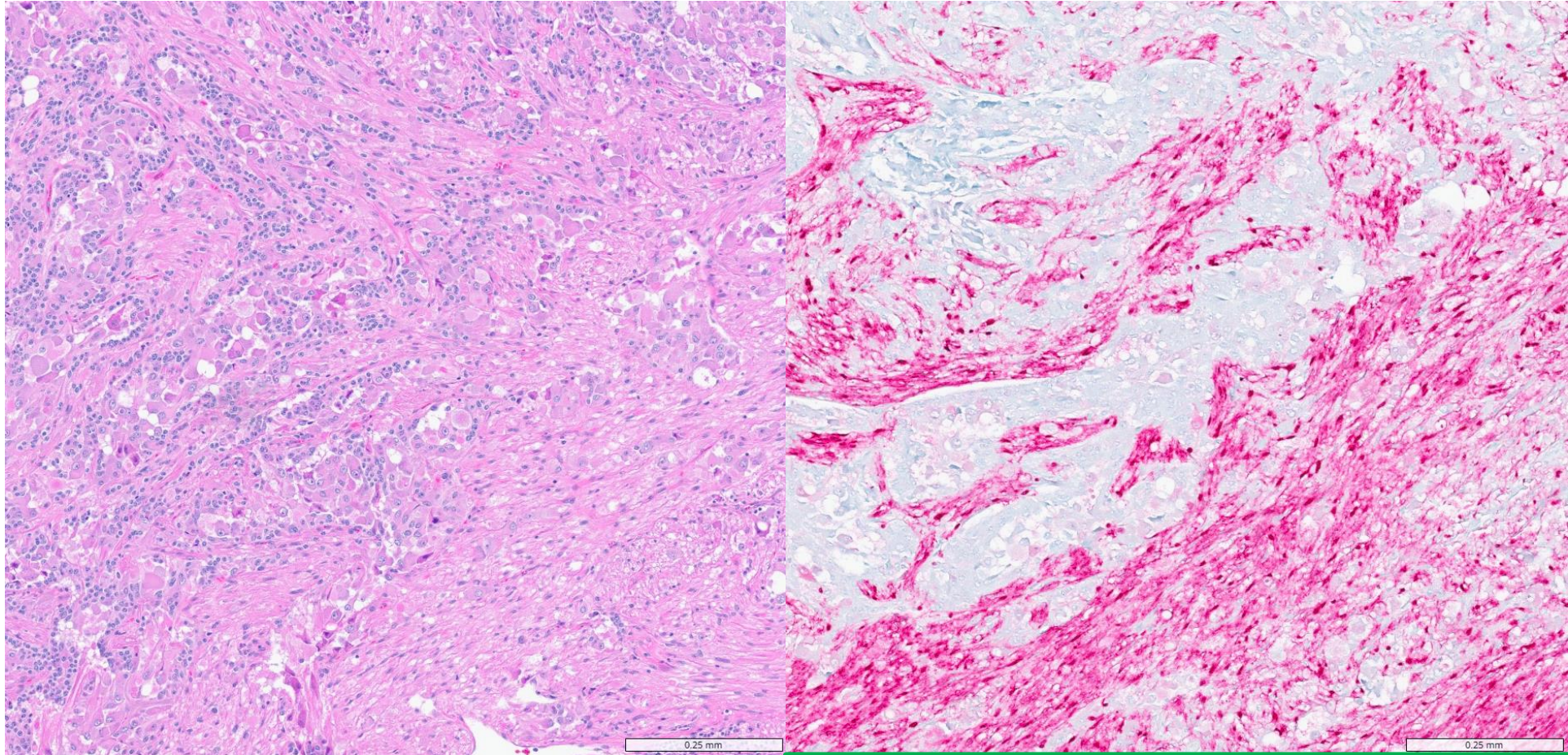
- Neuroendocrine tumor
- GIST
- Ganglioneuroma
- Nerve sheath tumor
 - Schwann cell hamartoma
 - Neurofibroma
- Gangliocytic paraganglioma (Composite gangliocytoma/neuroma and neuroendocrine tumor)
- Leiomyoma

IHC Results



PR: Weak positive in epithelioid component only

IHC Results



S100: Positive in spindled cell component only

IHC Results: All 3 Components

- Synaptophysin: Positive
- Chromogranin: Patchy weak positive
- ER: Negative
- Melan A: Negative
- Ki-67: overall <5% but focally up to 20%

Diagnosis

- Gangliocytic paraganglioma

Gangliocytic Paraganglioma

- 5th Edition WHO, Endocrine and Neuroendocrine Tumors:
 - Updated name: Composite gangliocytoma/neuroma and neuroendocrine tumor (CoGNET)
 - Not a collision of gangliocytoma and/or neuroma coexisting with a NET
- Not actually a paraganglioma
- Unknown pathogenesis; theories present
- Indolent (typically)
- Rare cases of nodal and distant metastasis
 - ~30 cases in literature (~10-15%)
- One reported case of mortality

1. Nova-Camacho LM, Ma C, Abukhiran I, et al. Composite gangliocytoma/neuroma and neuroendocrine tumour: a contemporary analysis of 71 cases shows risk factors for metastasis. *Histopathology*. 2025;87(6):933-942. doi:10.1111/his.15535

2. BlueBooksOnline. Who.int. Published 2026. Accessed February 13, 2026. <https://tumourclassification.iarc.who.int/chaptercontent/53/176/607>

Clinical Profile

- Mean age: 58
- Gender predilection: none or slightly male
- Presenting symptoms: abdominal pain, GI bleeding, dysphagia, diarrhea, incidental
- No syndromic association
- Location:
 - Duodenum; 2nd portion most common
 - Rare primary cases outside duodenum
 - Mediastinum, nasopharynx, ovary, appendix, etc
- Mean tumor size: 2.2 cm

1. Nova-Camacho LM, Ma C, Abukhiran I, et al. Composite gangliocytoma/neuroma and neuroendocrine tumour: a contemporary analysis of 71 cases shows risk factors for metastasis. *Histopathology*. 2025;87(6):933-942. doi:10.1111/his.15535

2. BlueBooksOnline. Who.int. Published 2026. Accessed February 13, 2026. <https://tumourclassification.iarc.who.int/chaptercontent/53/176/607>

Metastatic Profile

- Larger tumors
 - Mean 3.7 cm
- Increased age
 - Mean 68 years
- MP involvement
- LVI
- Pancreatic parenchymal involvement
- Gland formation
- Ki-67
 - Range 3% - 20%

1. Nova-Camacho LM, Ma C, Abukhiran I, et al. Composite gangliocytoma/neuroma and neuroendocrine tumour: a contemporary analysis of 71 cases shows risk factors for metastasis. *Histopathology*. 2025;87(6):933-942. doi:10.1111/his.15535
2. BlueBooksOnline. Who.int. Published 2026. Accessed February 13, 2026. <https://tumourclassification.iarc.who.int/chaptercontent/53/176/607>

IHC Profile

Immunohistochemical staining	Epithelioid cells	Spindled cells	Ganglion-like cells
Keratins (AE1/AE3 or CAM 5.2)	98% (49/50)	2% (1/41)	7% (3/41)
Synaptophysin	96% (54/56)	40% (23/57)	88% (50/57)
Chromogranin A	77% (33/43)	2% (1/44)	36% (16/44)
Somatostatin	85% (22/26)	0% (0/22)	0% (0/22)
S100	4% (2/55)	100% (56/56)	52% (29/56)
Progesterone receptor	92% (11/12)	0% (0/13)	0% (0/13)
Oestrogen receptor	29% (2/7)	0% (0/8)	0% (0/8)
Neurofilament	7% (1/15)	56% (9/16)	44% (7/16)
Calretinin	N/A	N/A	100% (12/12)
SOX10	N/A	100% (4/4)	N/A
Pancreatic polypeptide	67% (4/6)	NA	NA
Ki67 labelling index	<3% (34/39); 3% to 20% (5/39)	NA	NA

IHC Profile

- Epithelioid neuroendocrine cell component
 - Pankeratin (**weak/patchy**; rarely diffuse, strong), synaptophysin, chromogranin, somatostatin, **progesterone**
- Spindled cell component
 - S100, neurofilament, synaptophysin, SOX10
- Ganglion-like component
 - S100, synaptophysin, calretinin
- Ki-67: <3%

Key Points

- Integrate histologic and immunohistochemical findings
- Beware of features associated with metastasis

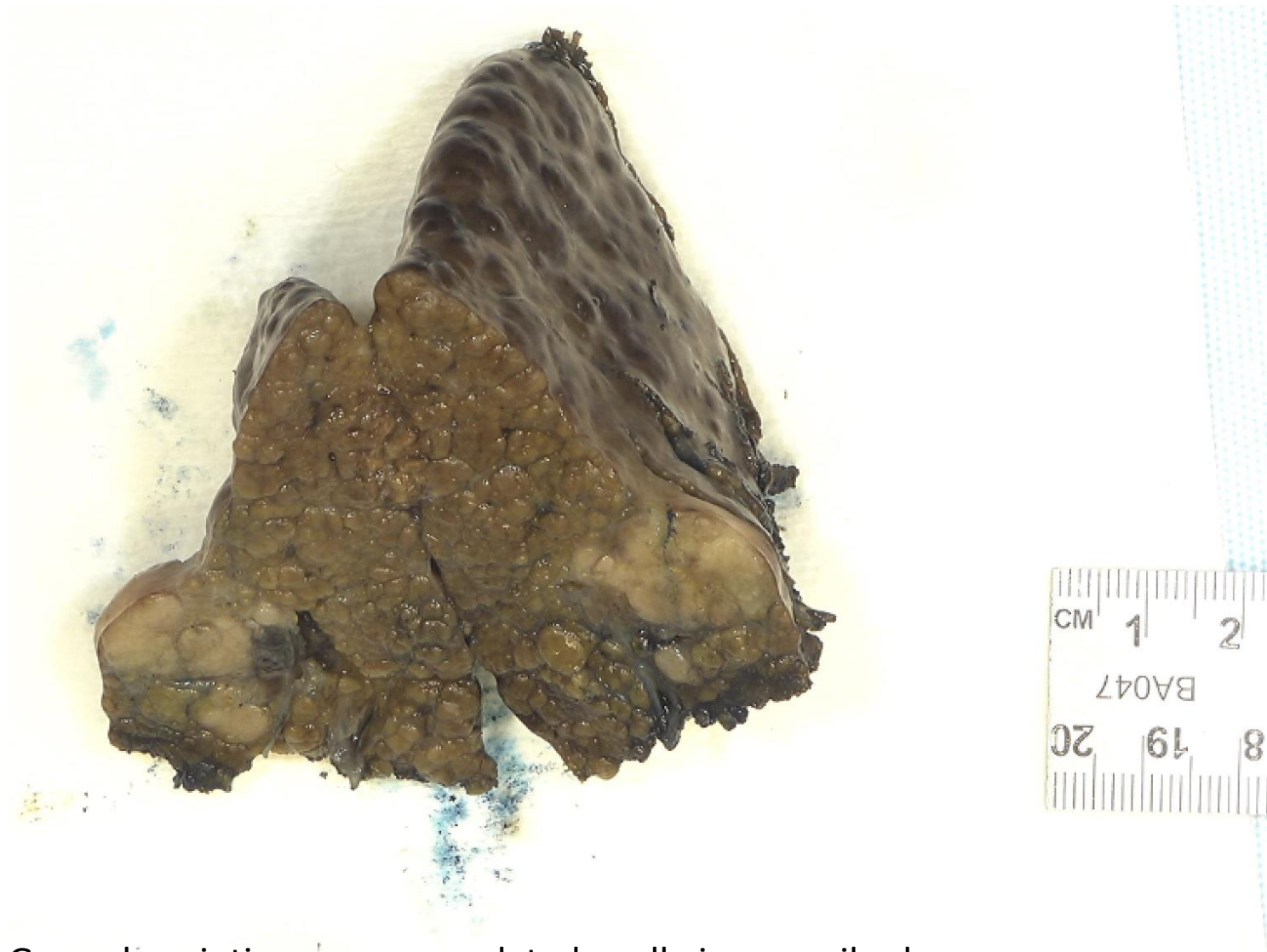
Questions?

- Thank you, Drs. John Higgins, David Gardner, and Jeffrey Keating!

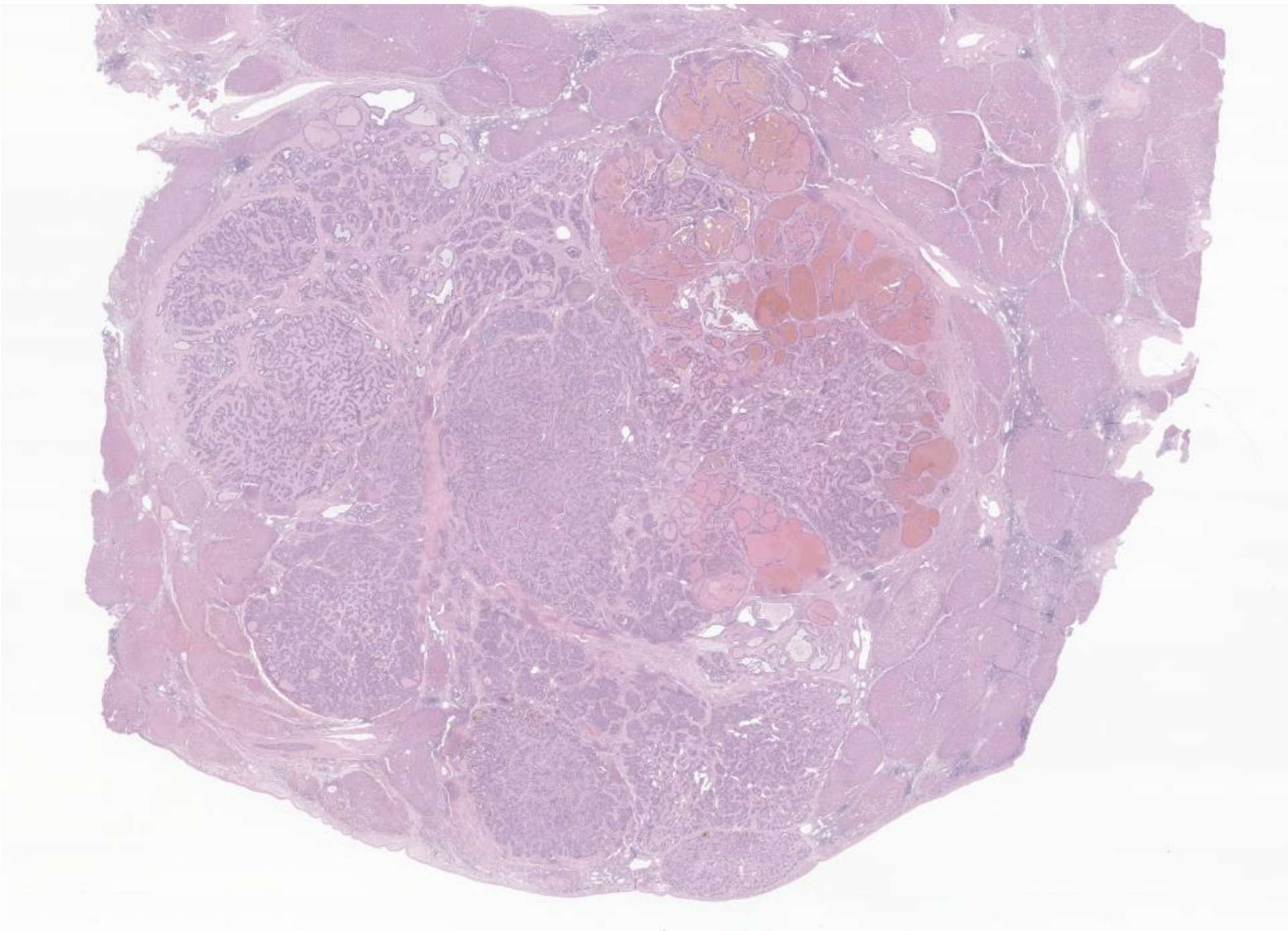
26-0402

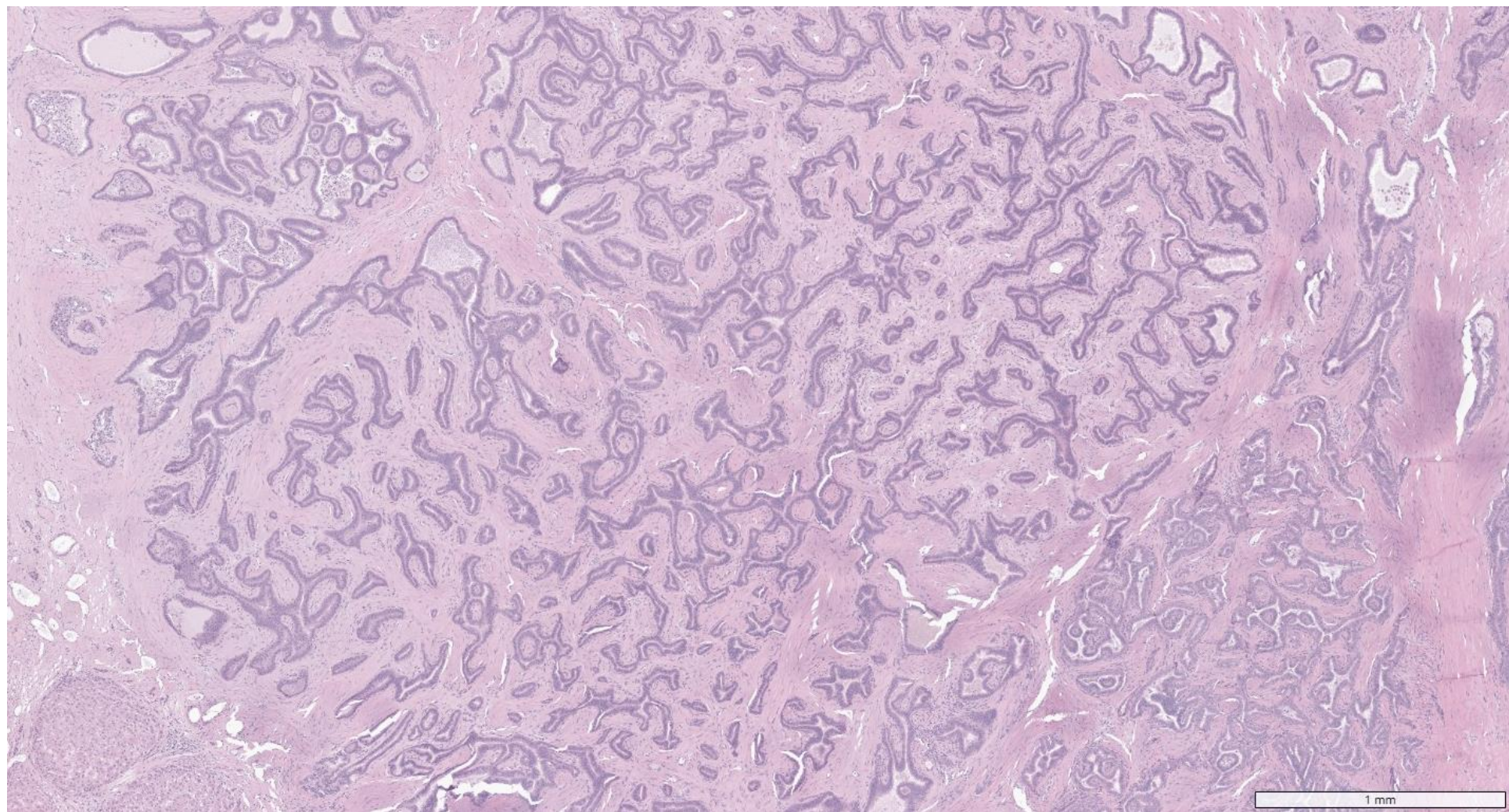
Andrew Xiao and John Higgins; Stanford

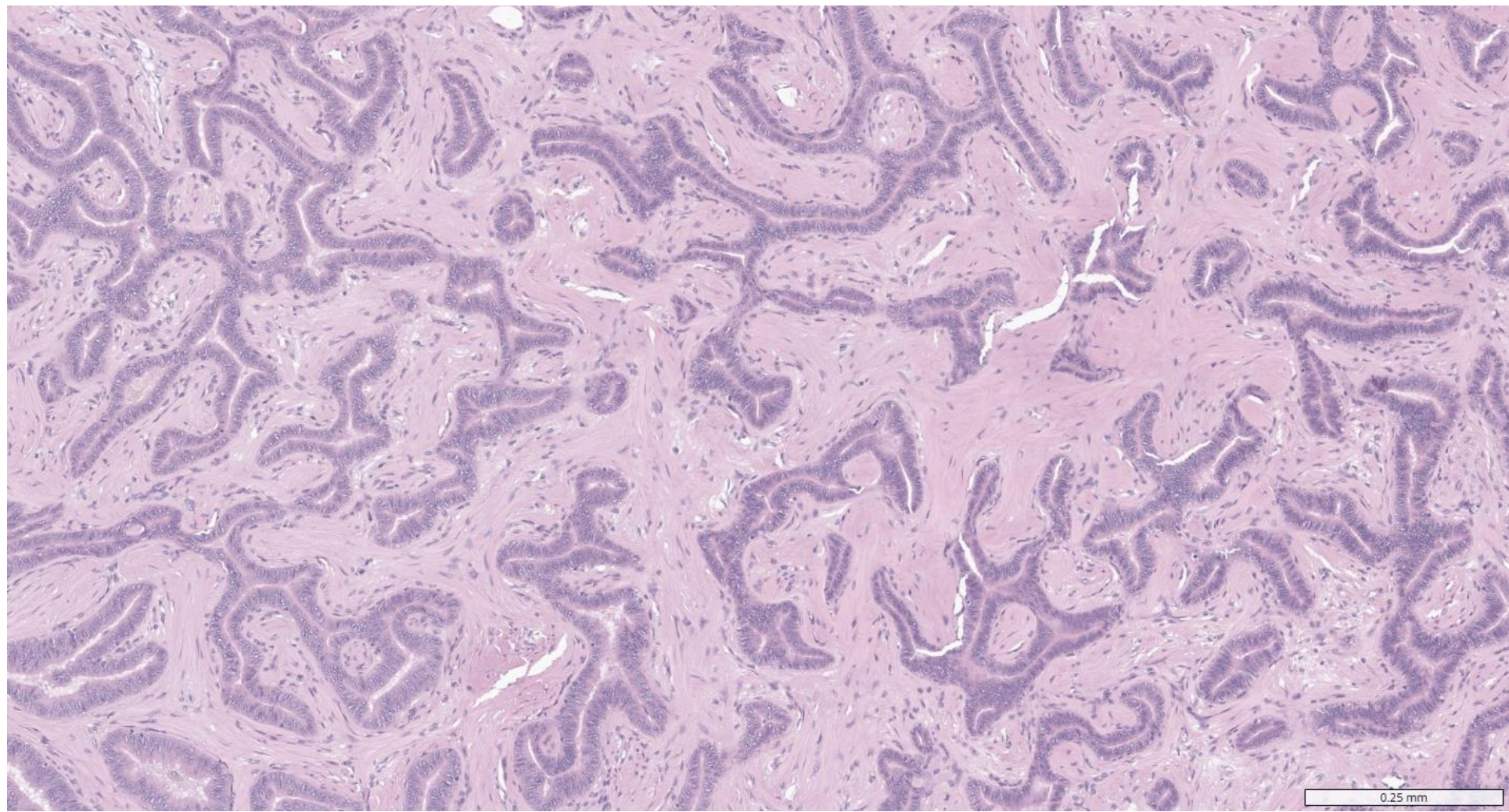
Mid 70-ish male with history of HCV cirrhosis. Screening MRI demonstrated cirrhotic liver morphology with a mass in the left lobe.

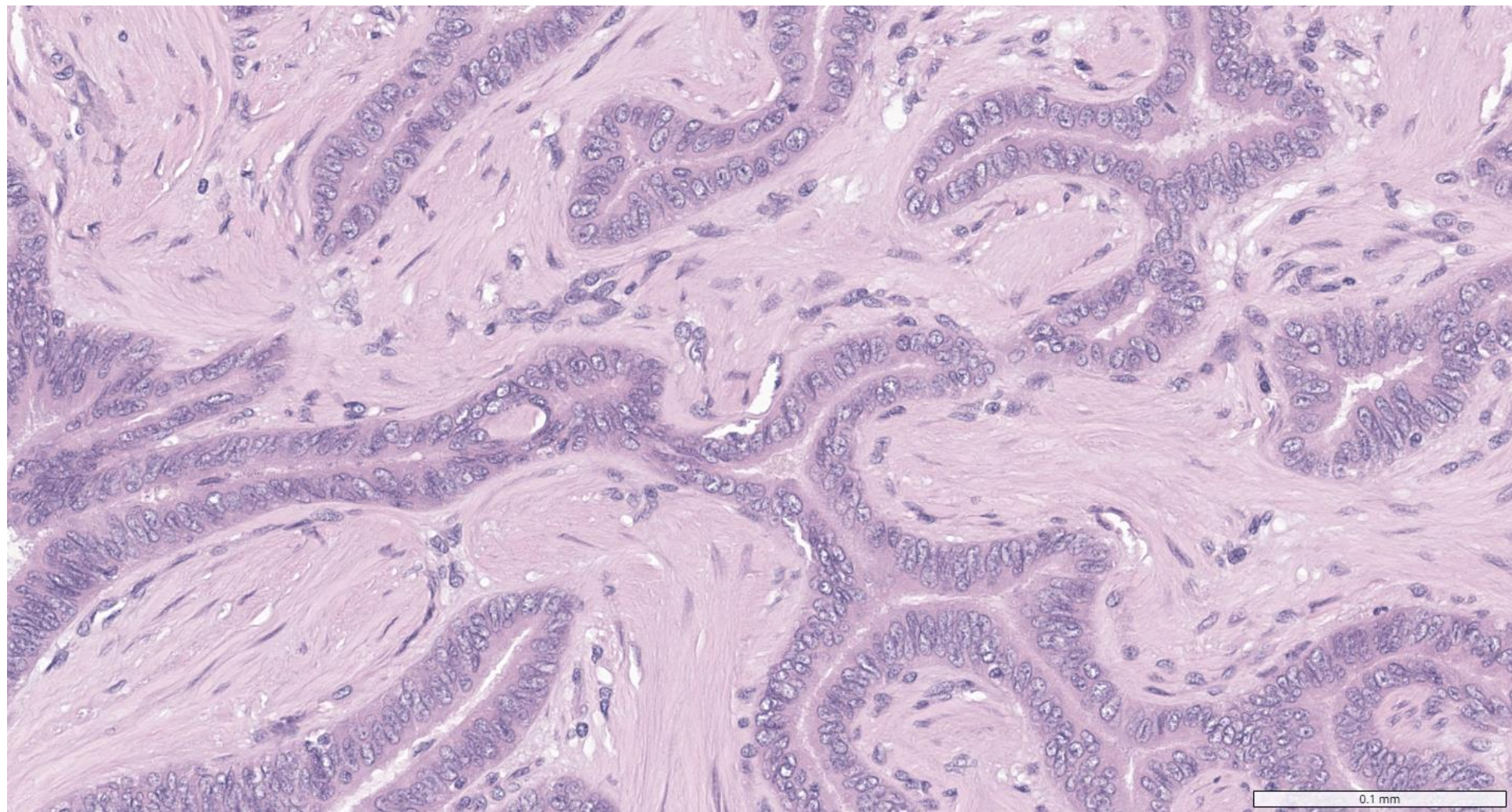


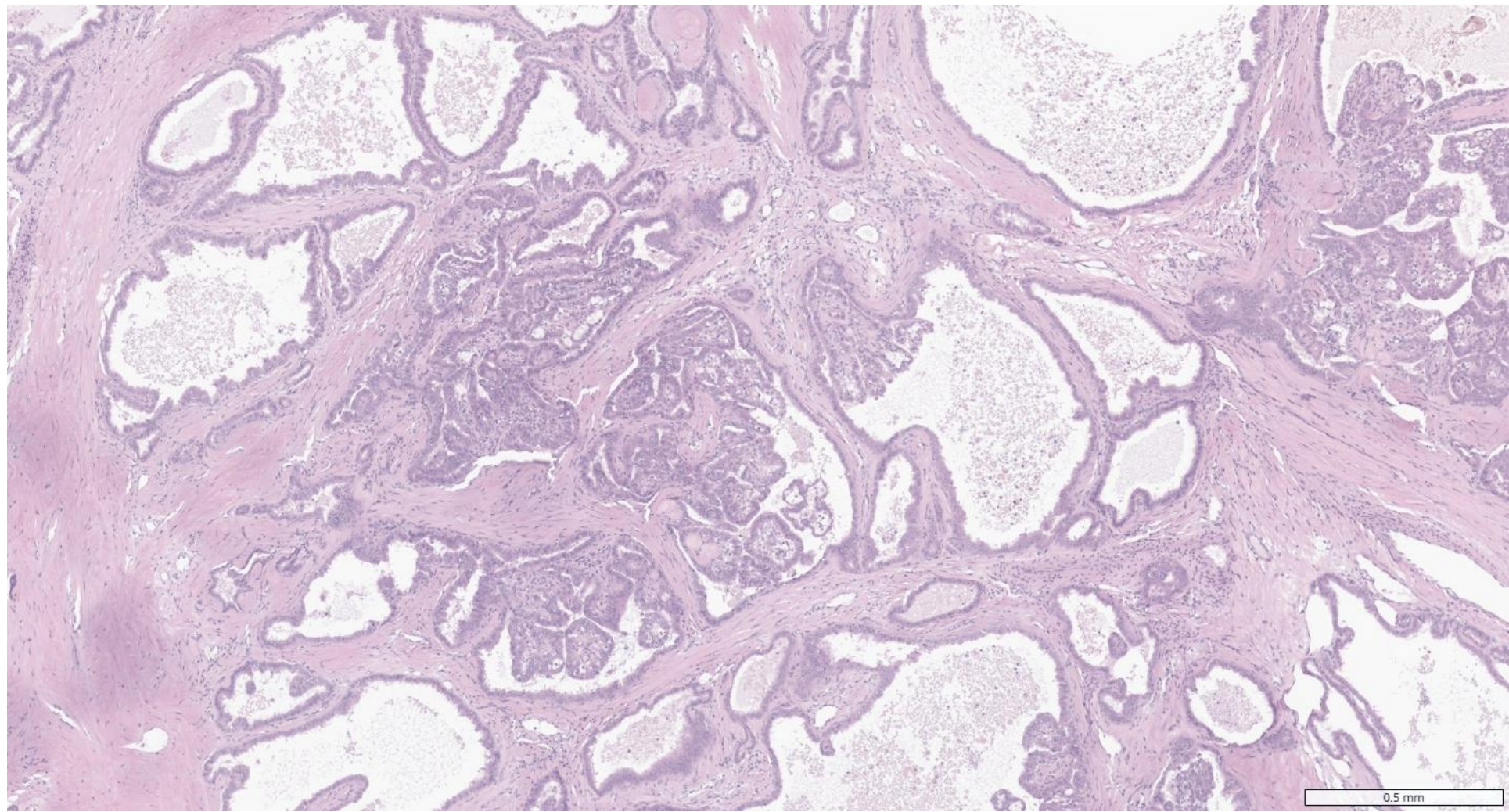
Gross description: unencapsulated, well-circumscribed, lobulated, solid, tan, rubbery mass. Dimensions redacted.

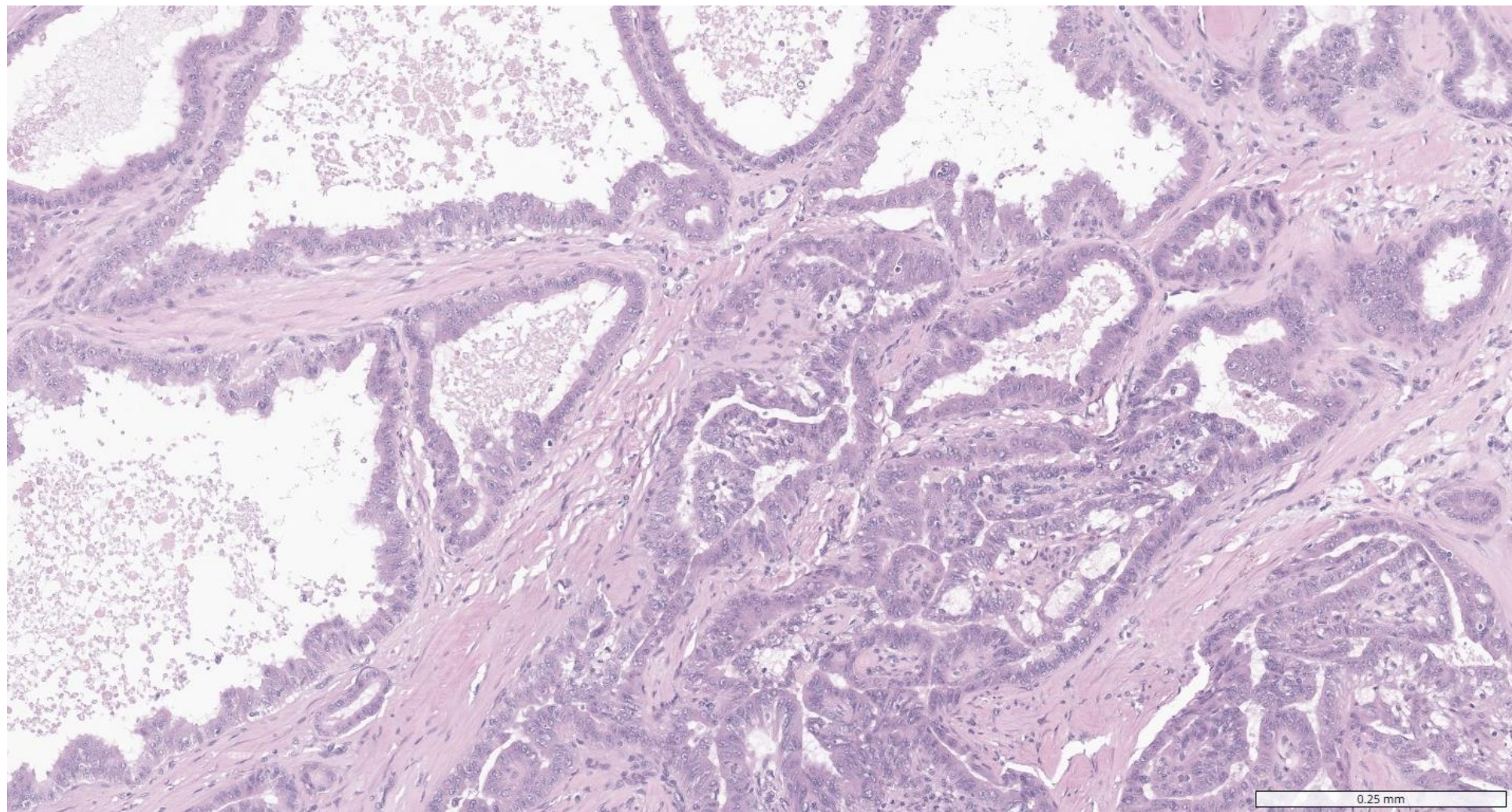


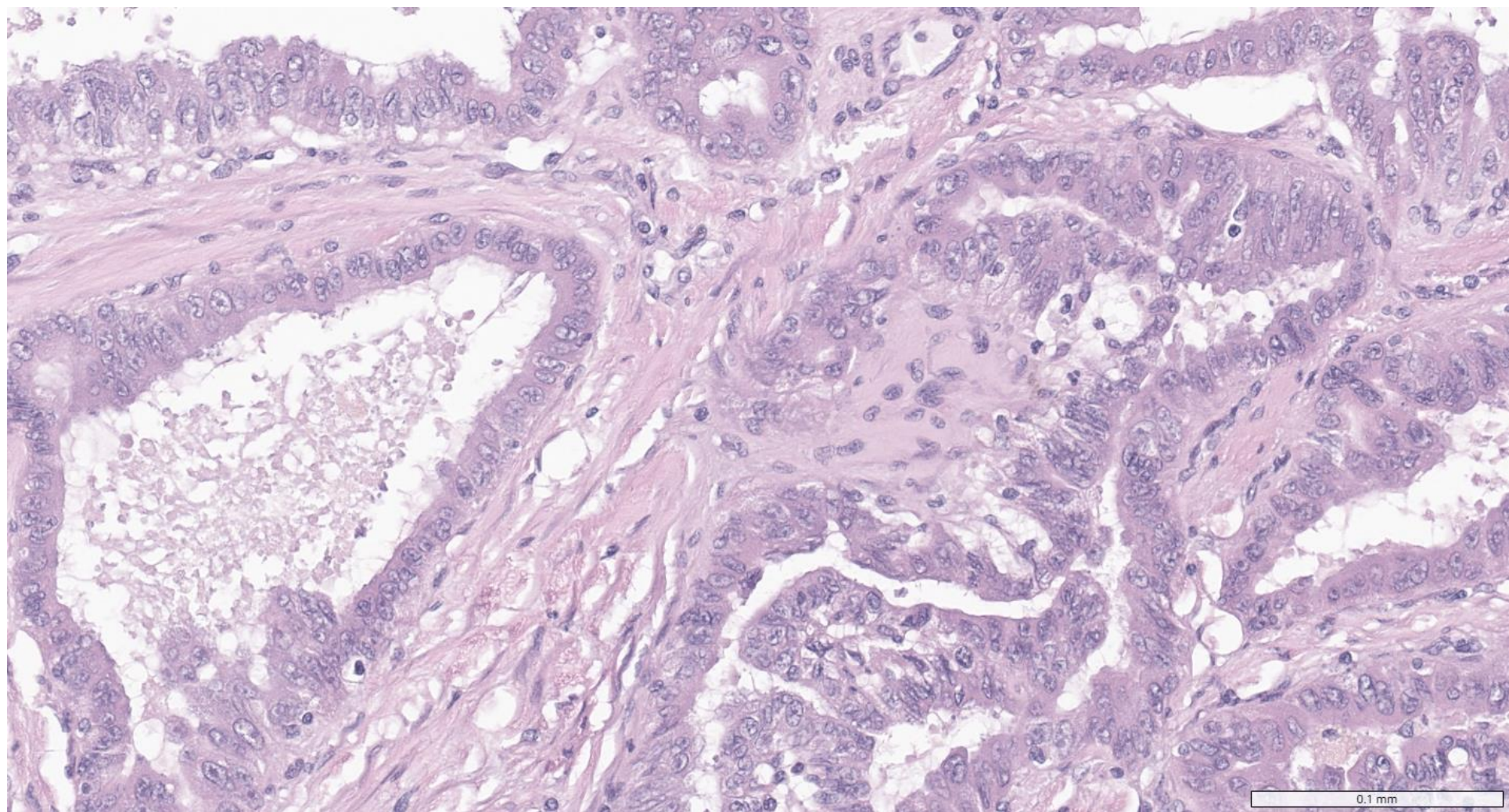


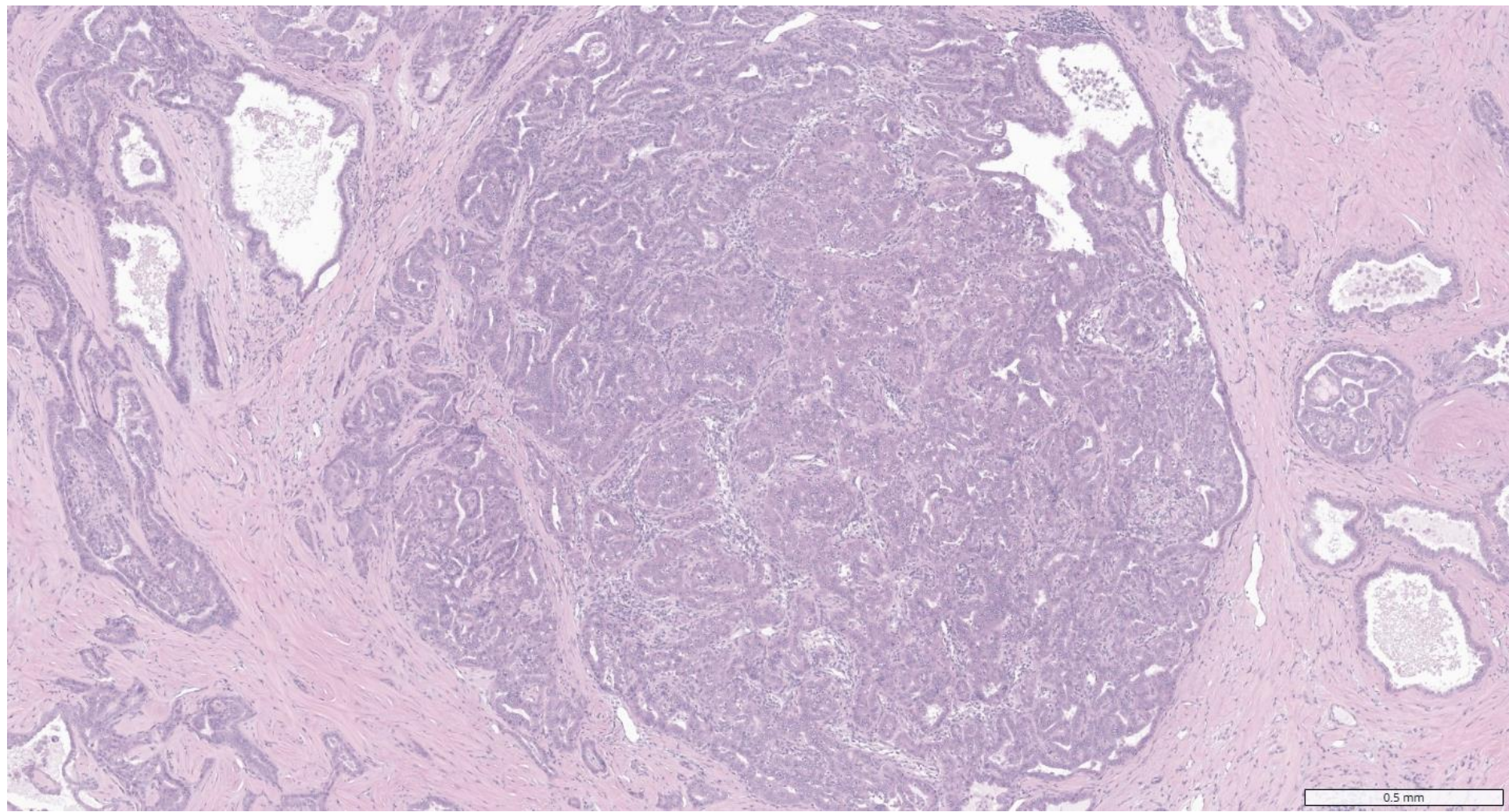


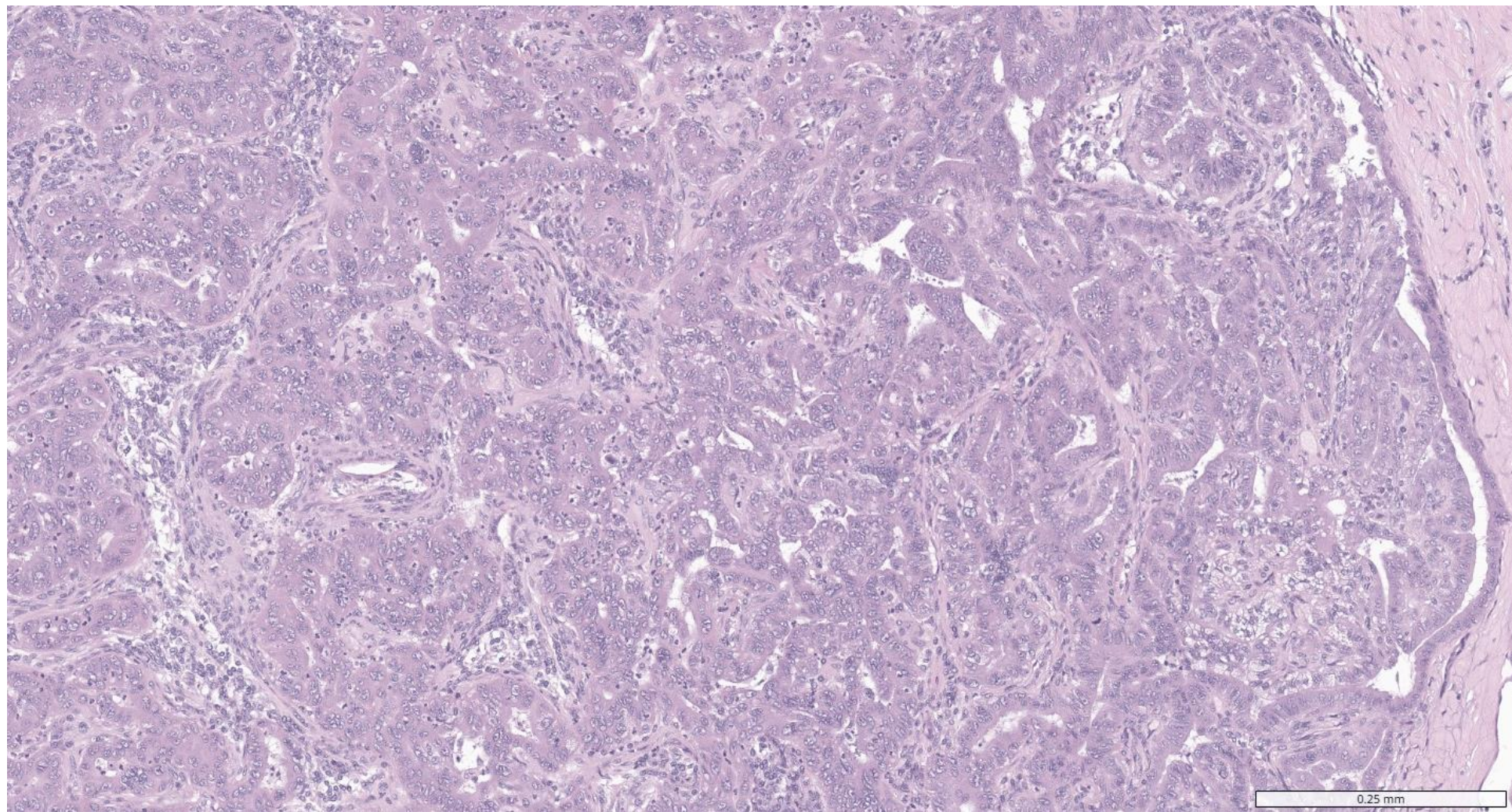


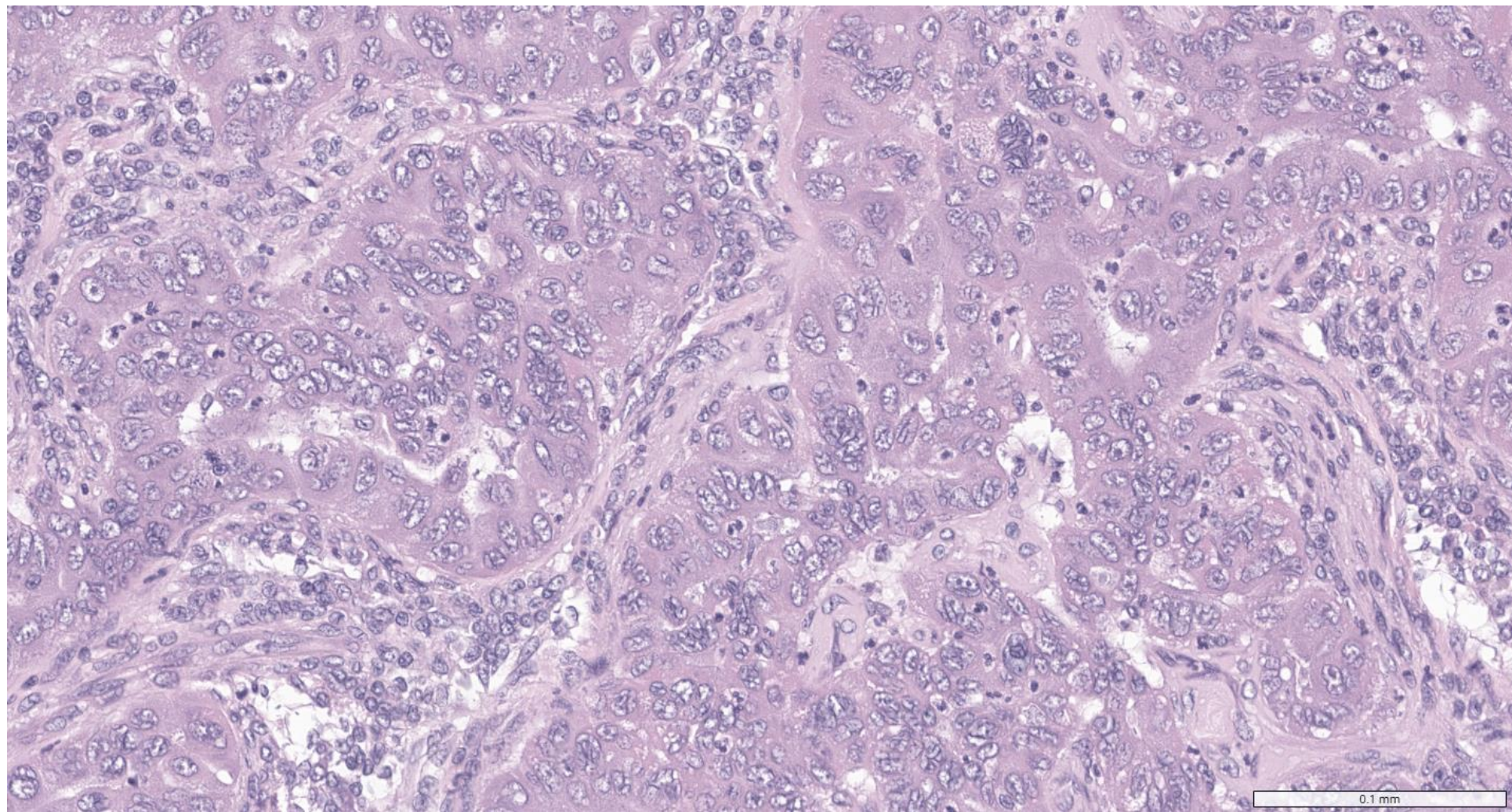












DIAGNOSIS?



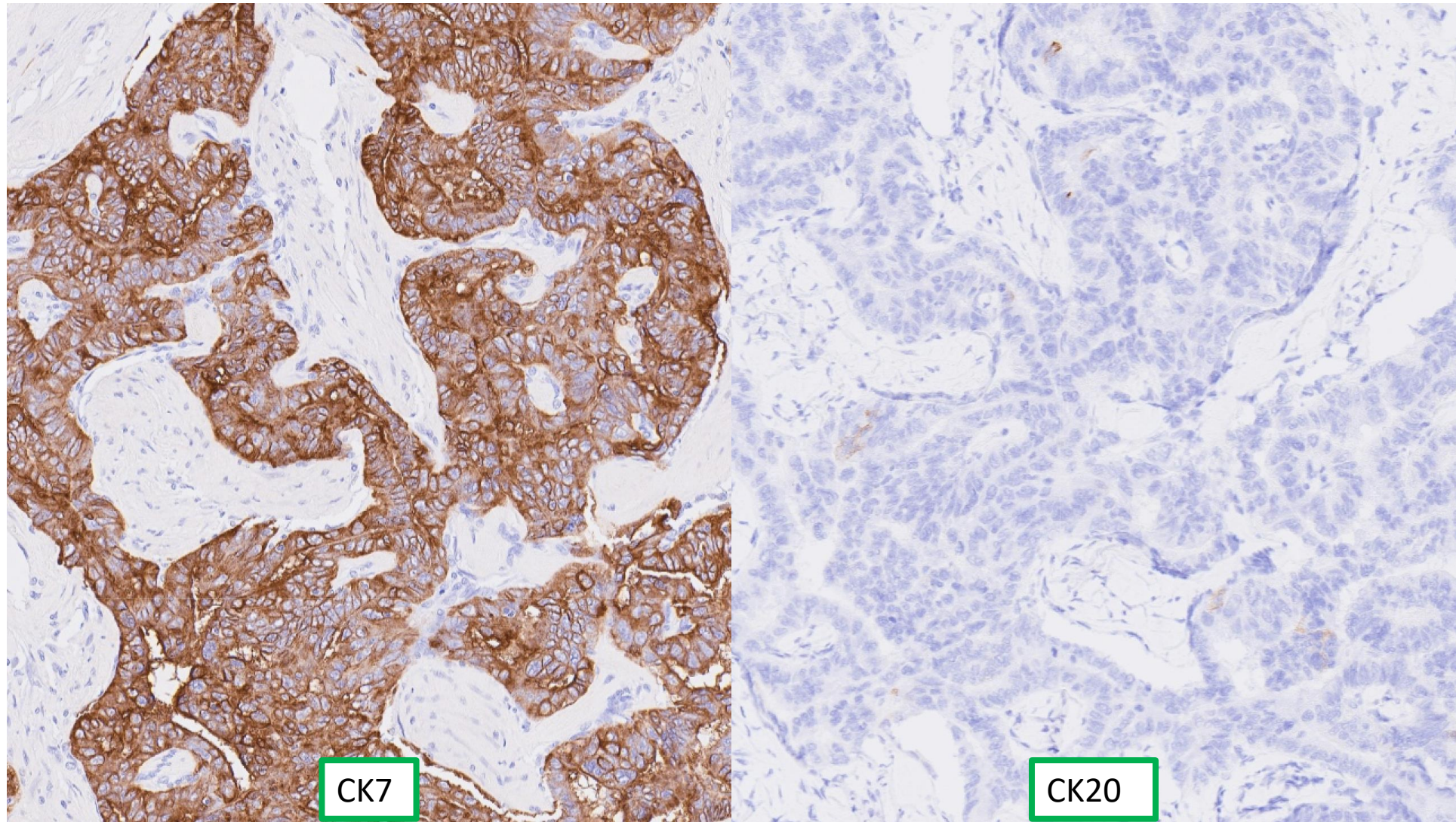
Recap

- Relatively well-circumscribed lesion
- Background fibrous stroma (not desmoplastic)
- Architecture: tubulocystic, cribriform, and papillary architecture
- Cytology:
 - Mildly atypical cellular areas: bland oval-to-round nuclei with inconspicuous nucleoli, minimal contour irregularity, and inconspicuous mitotic activity
 - High-grade dysplasia area: enlarged nuclei with increased contour irregularity and N:C ratio with occasional multi-nucleation and occasional mitotic figures

Differential Diagnoses

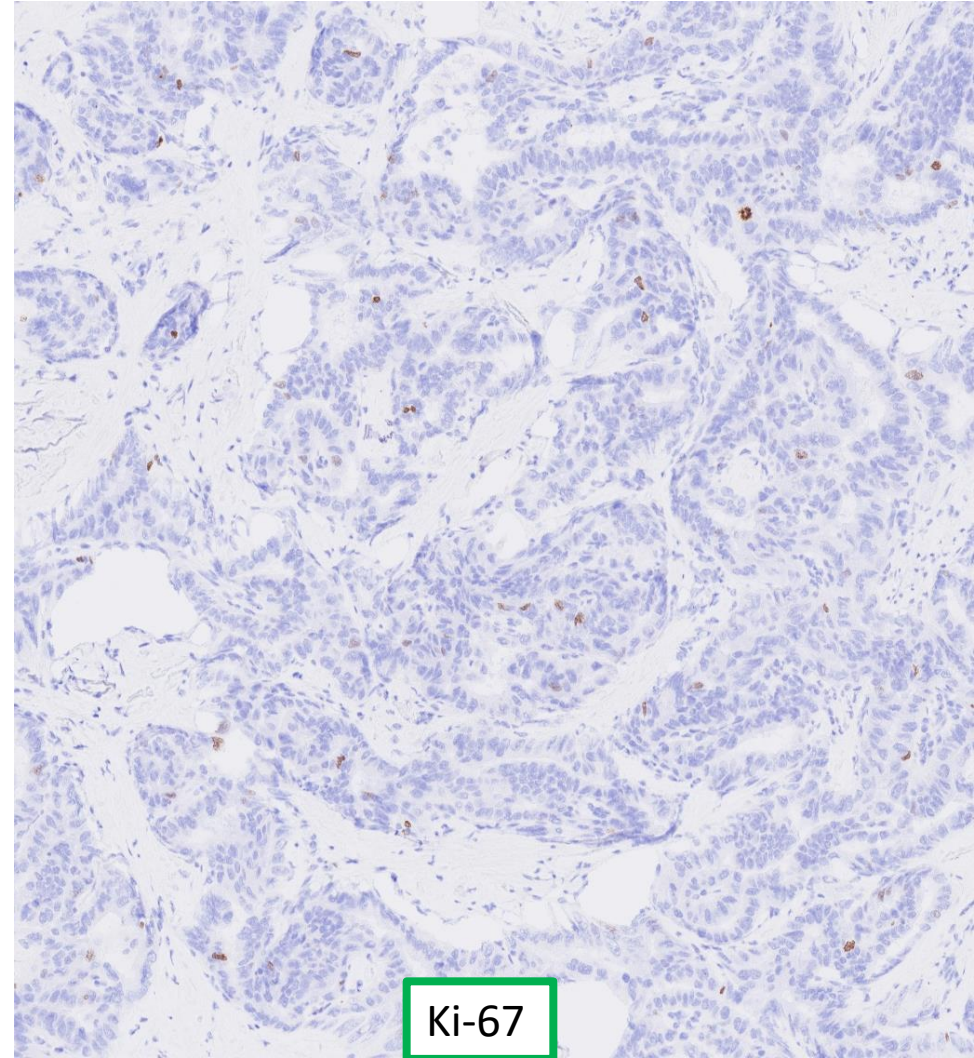
- Intrahepatic cholangiocarcinoma
 - Solid tubulocystic subtype (Cholangioblastic; *NIPBL::NACC1* fusion hepatic carcinoma)
 - Ductal plate malformation-like subtype
- Bile duct adenoma
- von Meyenburg complex (biliary hamartoma, ductal plate malformation)
- Biliary adenofibroma
- Hepatocellular carcinoma (by history)
- Metastatic carcinoma

IHC Results: CK7 and CK20



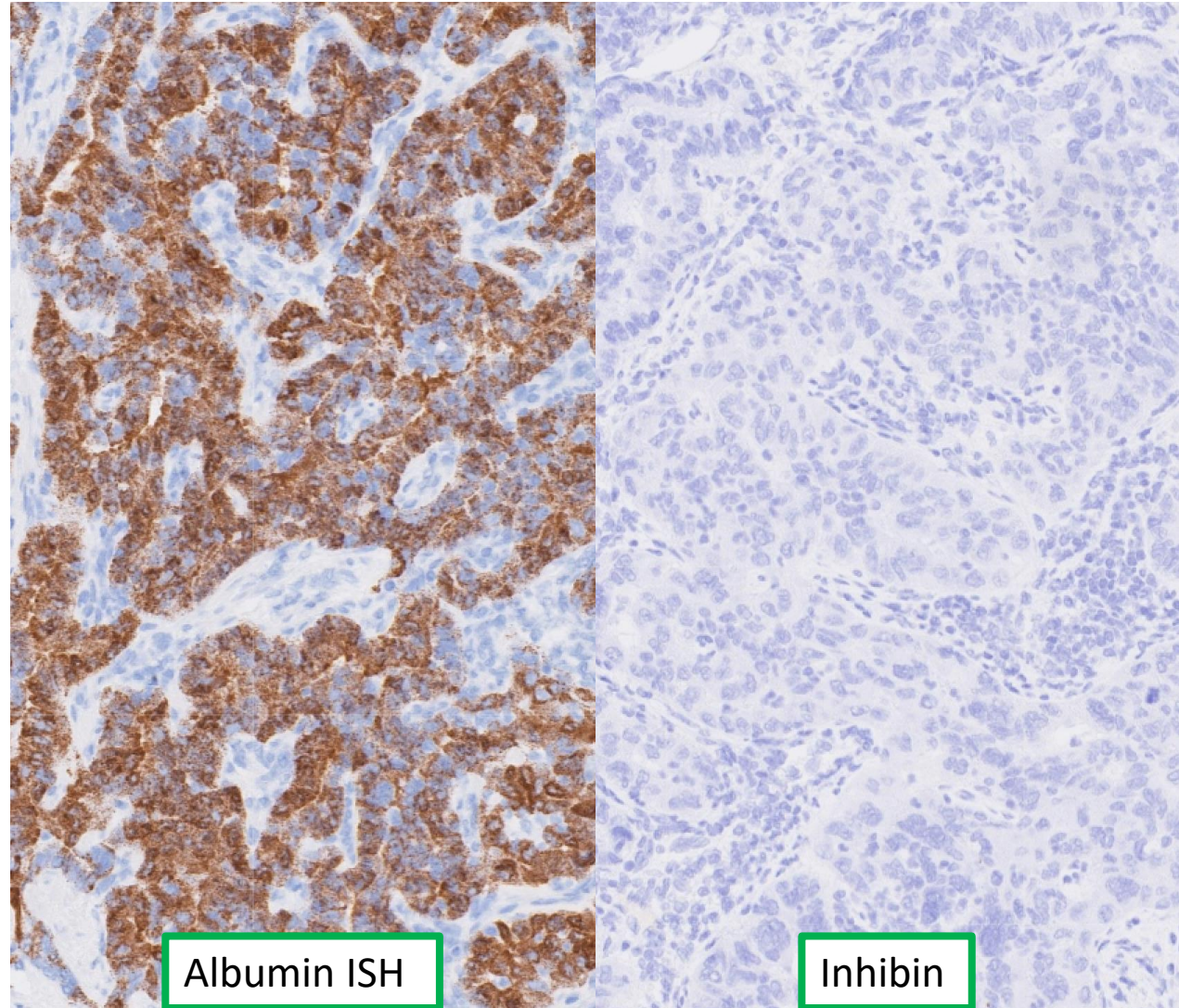
IHC Results: Ki-67

- Epithelial component: 5%
- Stomal component: <1%



IHC Results

- Positive
 - Albumin ISH
- Negative
 - Inhibin
 - Synapto
 - HepPar



Diagnosis

- Biliary adenofibroma with high-grade dysplasia

Biliary adenofibroma

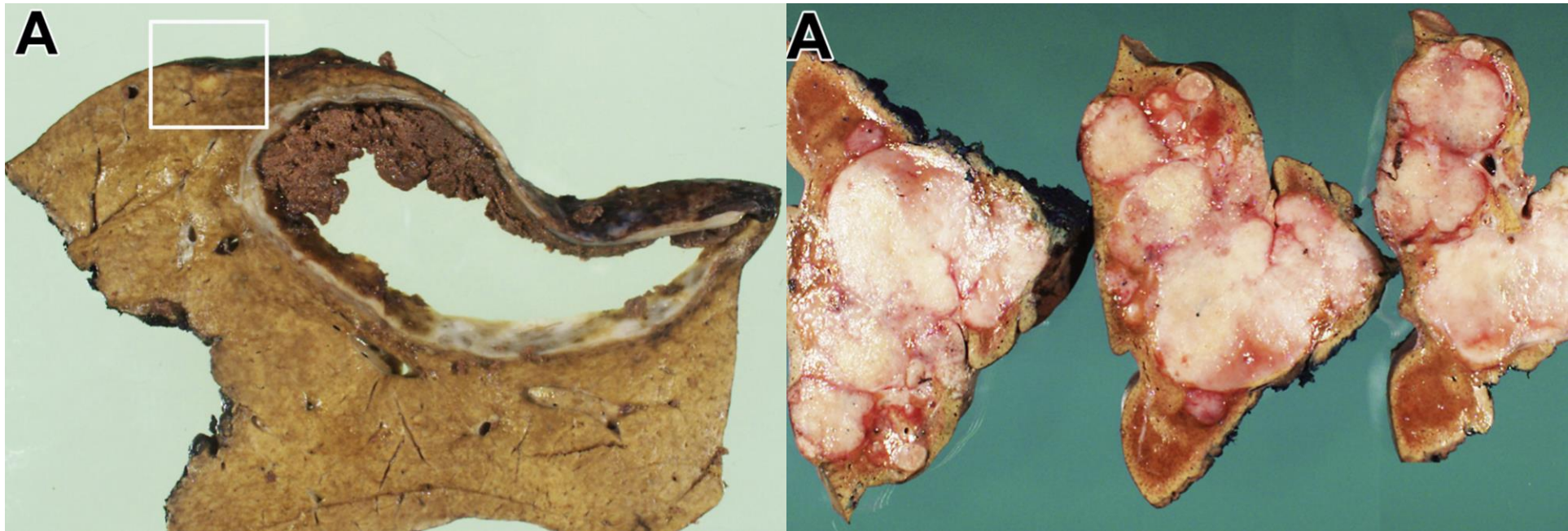
- Epithelial tumor with biliary differentiation and fibroblastic stromal scaffold
- Unknown etiology
- Potential precursor lesion to intrahepatic cholangiocarcinoma
- Malignant potential
 - ~30% of cases associated with invasive carcinoma
 - Well- or moderately-differentiated small duct intrahepatic cholangiocarcinoma

Clinical profile

- Nonspecific presentation: abdominal pain
 - Other: asymptomatic, weight change, jaundice, etc
- Mean age: 59 (range: 21 to 82)
- No gender predominance
- Lab values often normal (CA19-9, LFT, CRP, etc)

Gross findings

- Mean size: 64 mm (range: 15 to 250 mm)
- Gross spectrum: cysts enveloped in fibrous stroma (left) to solid (right)



Microscopic examination

- Spectrum:
 - Tubular
 - Cystic
 - Glandular
 - Acinar
 - Papillary
- IHC:
 - Positive: CK7, CK19, AE1/AE3, EMA, CA19-9
 - Negative: CK20, p53 (wild type)
- Ki-67: <10%
 - With invasive component: >10%

Malignant transformation

- Compelling histologic evidence of true biliary adenofibroma

AND

- Abrupt transition into cholangiocarcinoma

OR

- PNI, LVI, invasion of peri-hepatic soft tissue

1. Mattiolo P, Zen Y, Zhang X, Scarpa A, Luchini C, Graham RP. Biliary adenofibroma and cholangiocarcinoma: neighbors or relatives? A systematic and critical review. Hum Pathol. 2025 Nov;165:105872. doi: 10.1016/j.humpath.2025.105872. Epub 2025 Jul 12. PMID: 40659165.

2. Liao X, Agostini-Vulaj D, Li RX, Zhang X. Characterization of Cholangiocarcinomas With Tubulocystic Morphology Associated With Biliary Adenofibroma or Biliary Adenofibroma-Like Lesions. Mod Pathol. 2025 Oct;38(10):100815. doi: 10.1016/j.modpat.2025.100815. Epub 2025 Jun 13. PMID: 40517815.

Molecular

- Coexistence of same genomic alterations in BAF and invasive component → BAF is precursor lesion
- Frequent loss-of-function ARID1A mutations in Liao et al

Summarizing table of molecular findings of biliary adenofibromas.

Authors, year	n.	Findings from direct molecular investigations	
		Type of analysis	Findings (class*)
Masetto, 2024	3	NGS	<i>IDH2</i> p.R42W (class 5), <i>ARID1A</i> p.D1850Gfs*4 (class 5), <i>BAP1</i> p.H169R (class 4)
		NGS	<i>ARID1A</i> p.Q2209* (class 4), <i>PBRM1</i> p.L342fs*15 (class 4)
		NGS	FUSION <i>FGFR2</i> (exon1-17): <i>MCU</i> (exon 2–8) (class 5)
Alshbib, 2022	1	NGS	<i>CCND1</i> gain (copy number ratio 10.78, locus chr11:69455944), <i>NRAS</i> p.Gln61Lys
Sturm, 2019	2	NGS	<i>TP53</i> c.215C > G (class 3), <i>KIT</i> c.1621A > C (class 3)
Arnason, 2016	4	Multiplex PCR	No mutations detected
	4	aCGH	1q gain; 1p, 2p, 3q, 6q, 8p, 11p, 12q, 14, and 16q loss.
		aCGH	gain of 1p with focal amplifications of <i>CCND1</i> and <i>ERBB2</i> ; loss of 11q, 22q, and Xq loss
		aCGH	gains in chromosomes 1q, 4p, 5, 8, and 12p and losses in 1p, 4q, 6q, 11p, 14q, and 17p with amplification of <i>FGFR1</i>
		aCGH	No alterations detected
Thompson, 2016	1	NGS	<i>CDKN2A</i> Q50*
Varholt, 2003	1	FISH	No karyotypic aberrations detected
Parada, 1997	1	Karyotype	Monosomy 22

1. Mattiolo P, Zen Y, Zhang X, Scarpa A, Luchini C, Graham RP. Biliary adenofibroma and cholangiocarcinoma: neighbors or relatives? A systematic and critical review. Hum Pathol. 2025 Nov;165:105872. doi: 10.1016/j.humpath.2025.105872. Epub 2025 Jul 12. PMID: 40659165.

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Clinical outcomes

- Limited data
 - Less than 60 cases reported in literature
 - Follow-up data for 43 patients
 - Mean follow-up: 38.7 months
- Disease free: ~81%
- Recurrent potential: ~14%
 - Half of these cases had positive margins
- Fatalities: 2 cases

Key Points

- Bland epithelial cells with a spectrum of architectural patterns
- Biliary adenofibromas can be associated with invasive component

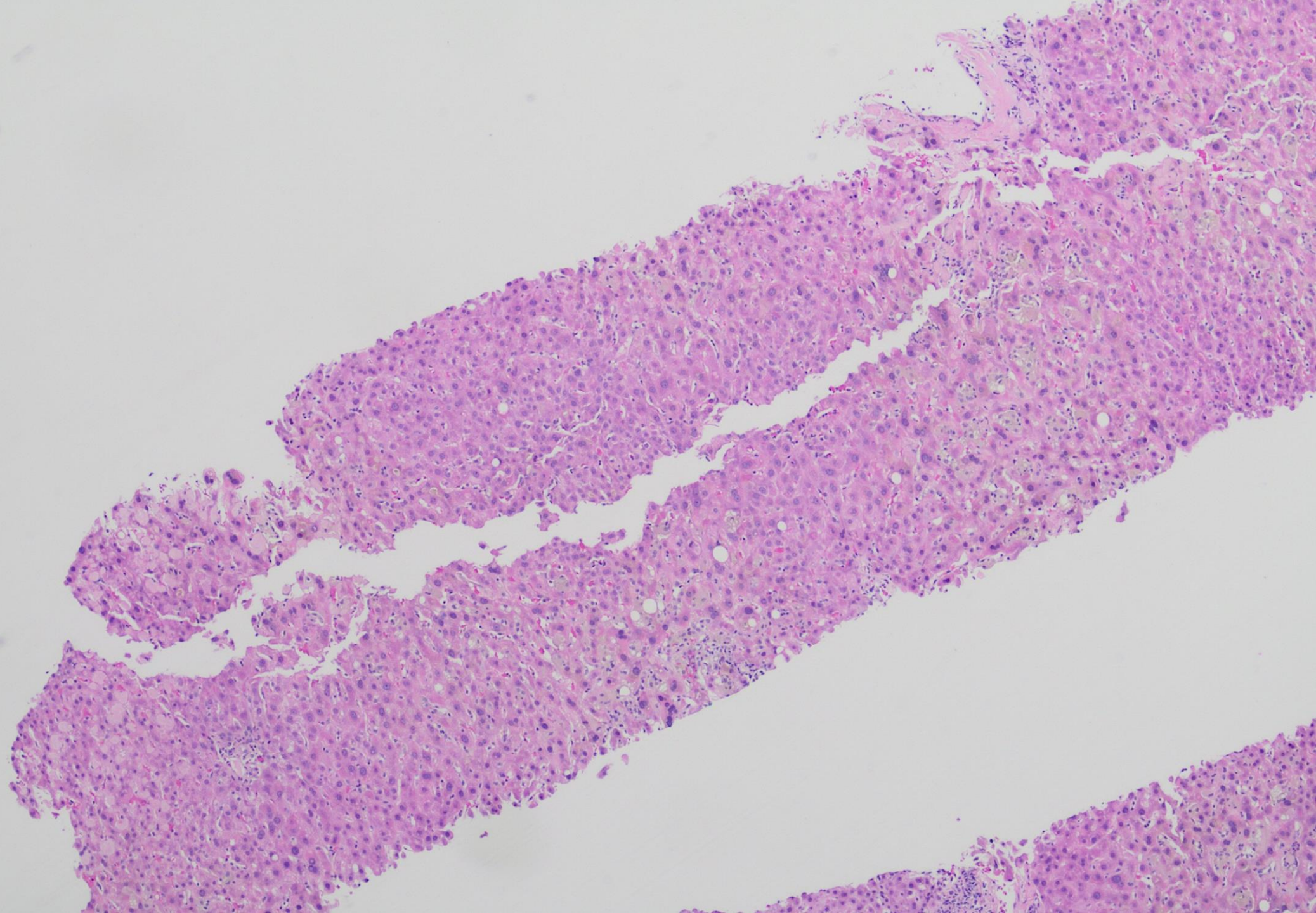
Questions?

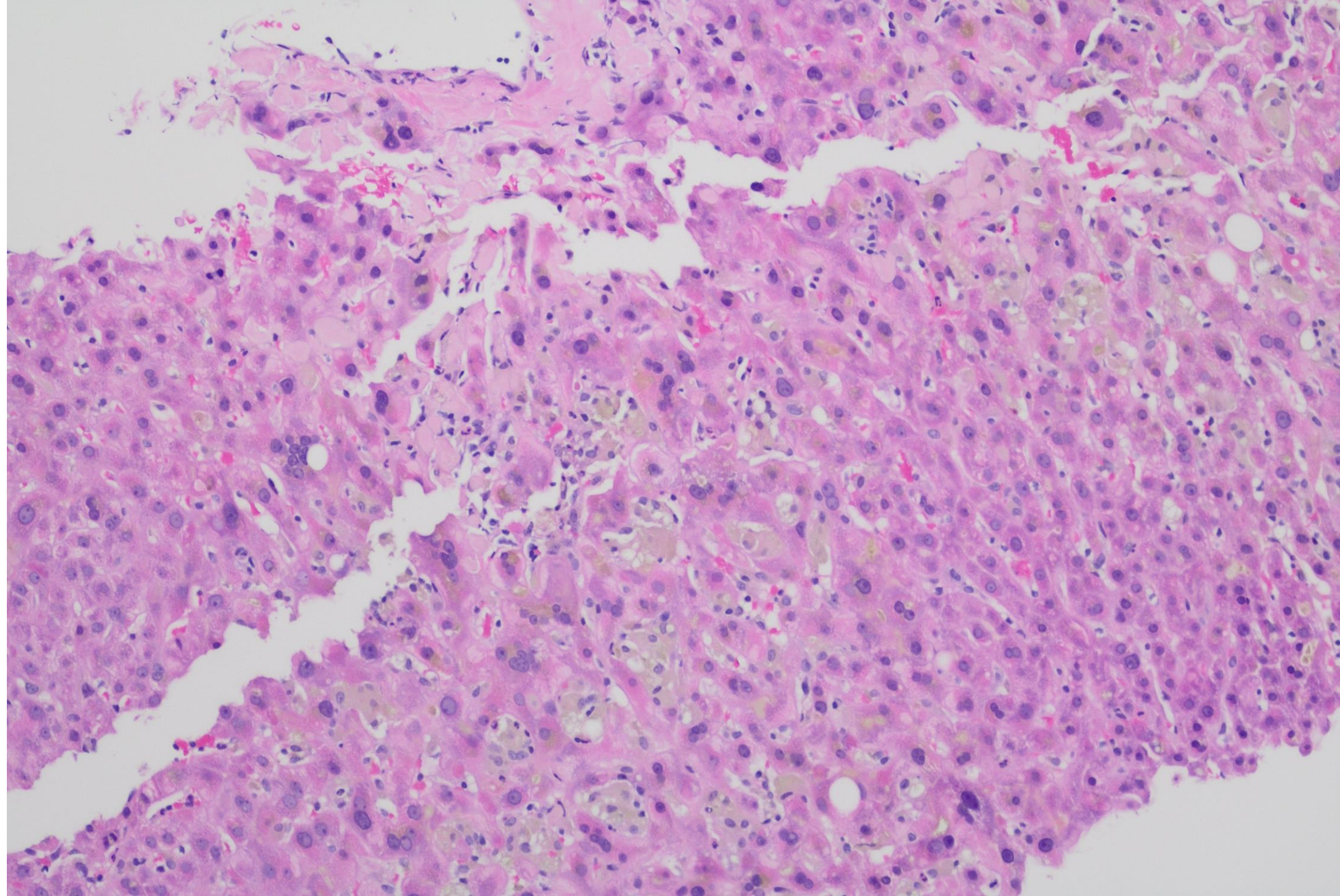
- Thank you, Dr. Higgins!

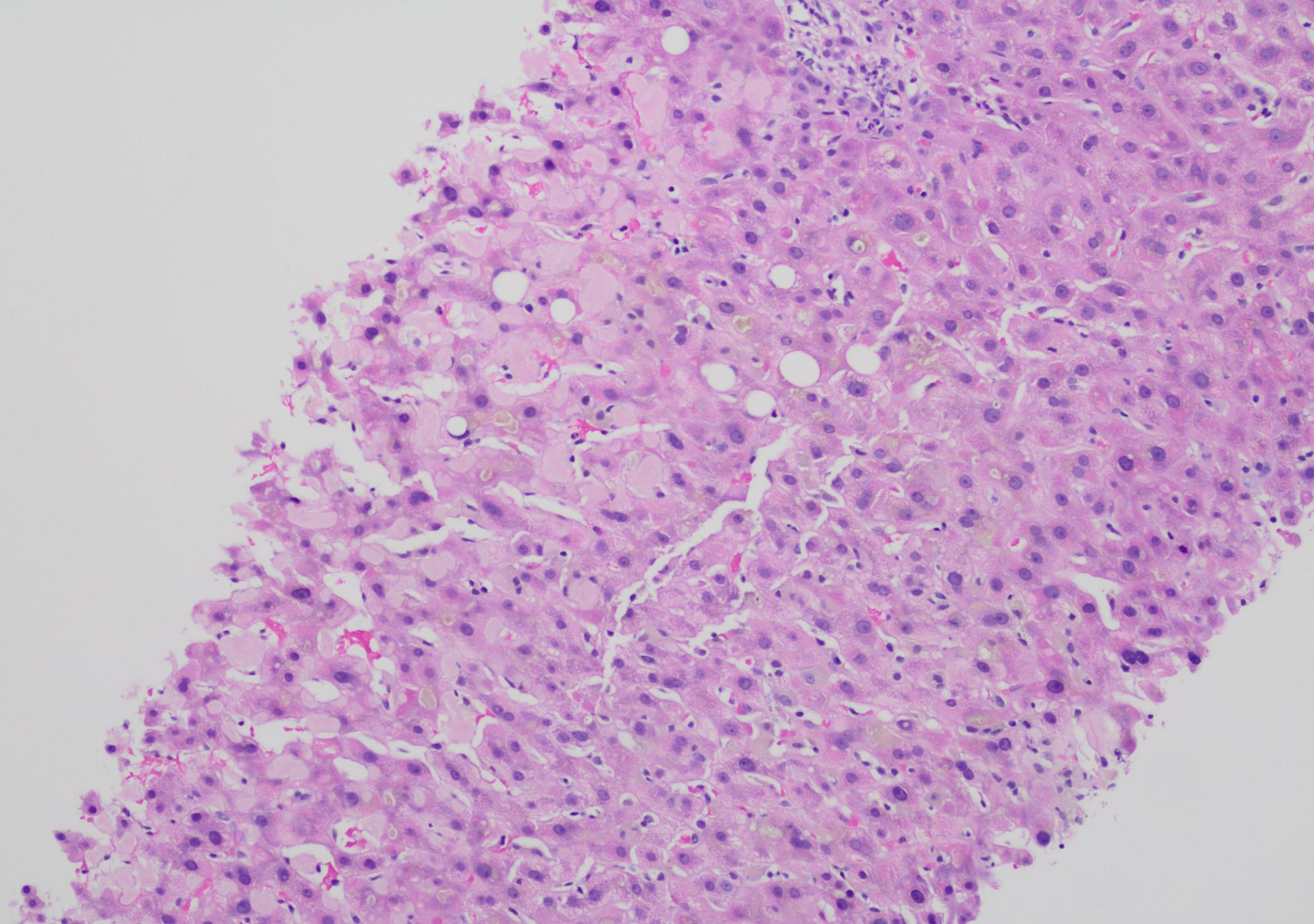
26-0403

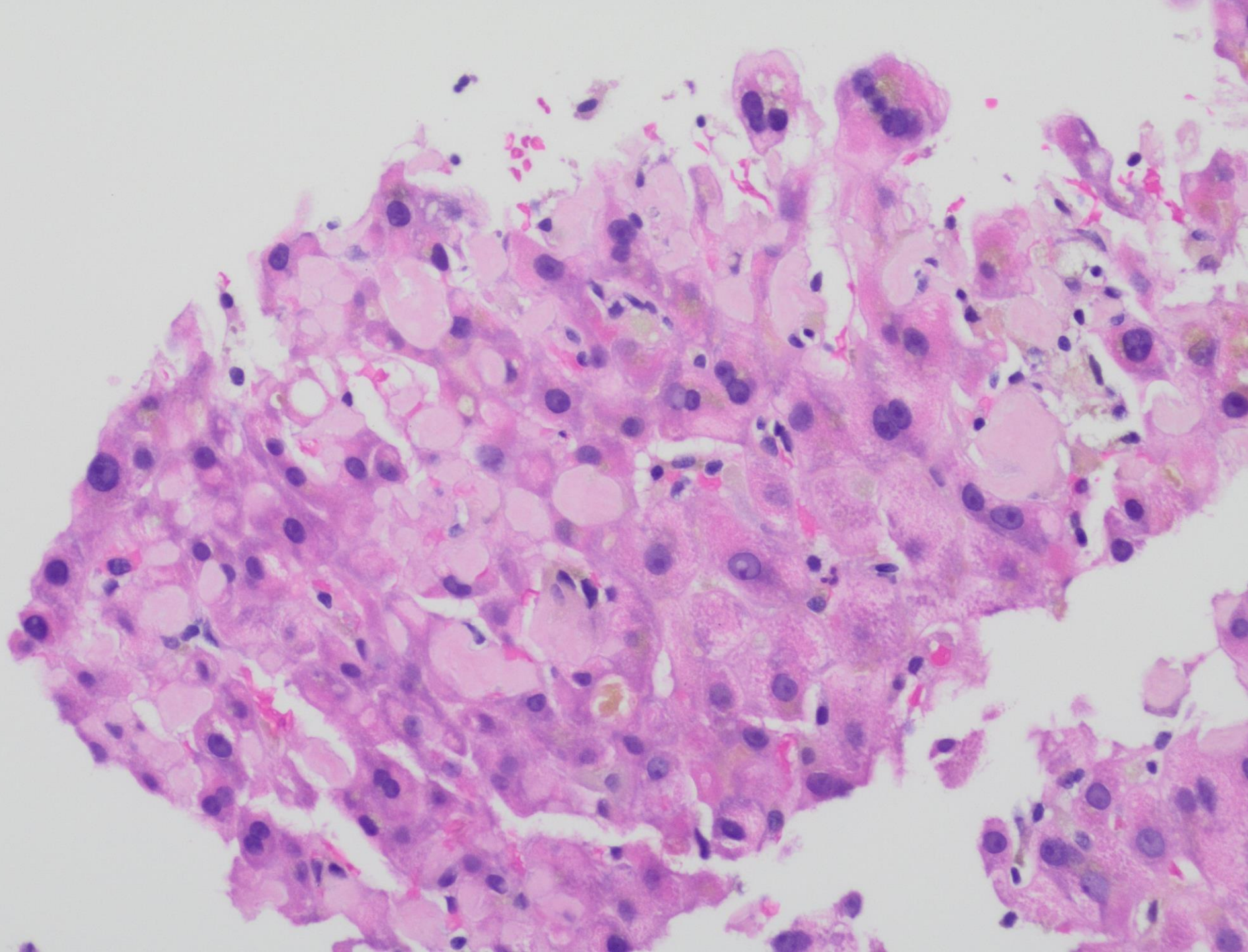
Armen Khararjian; Kaiser Walnut Creek

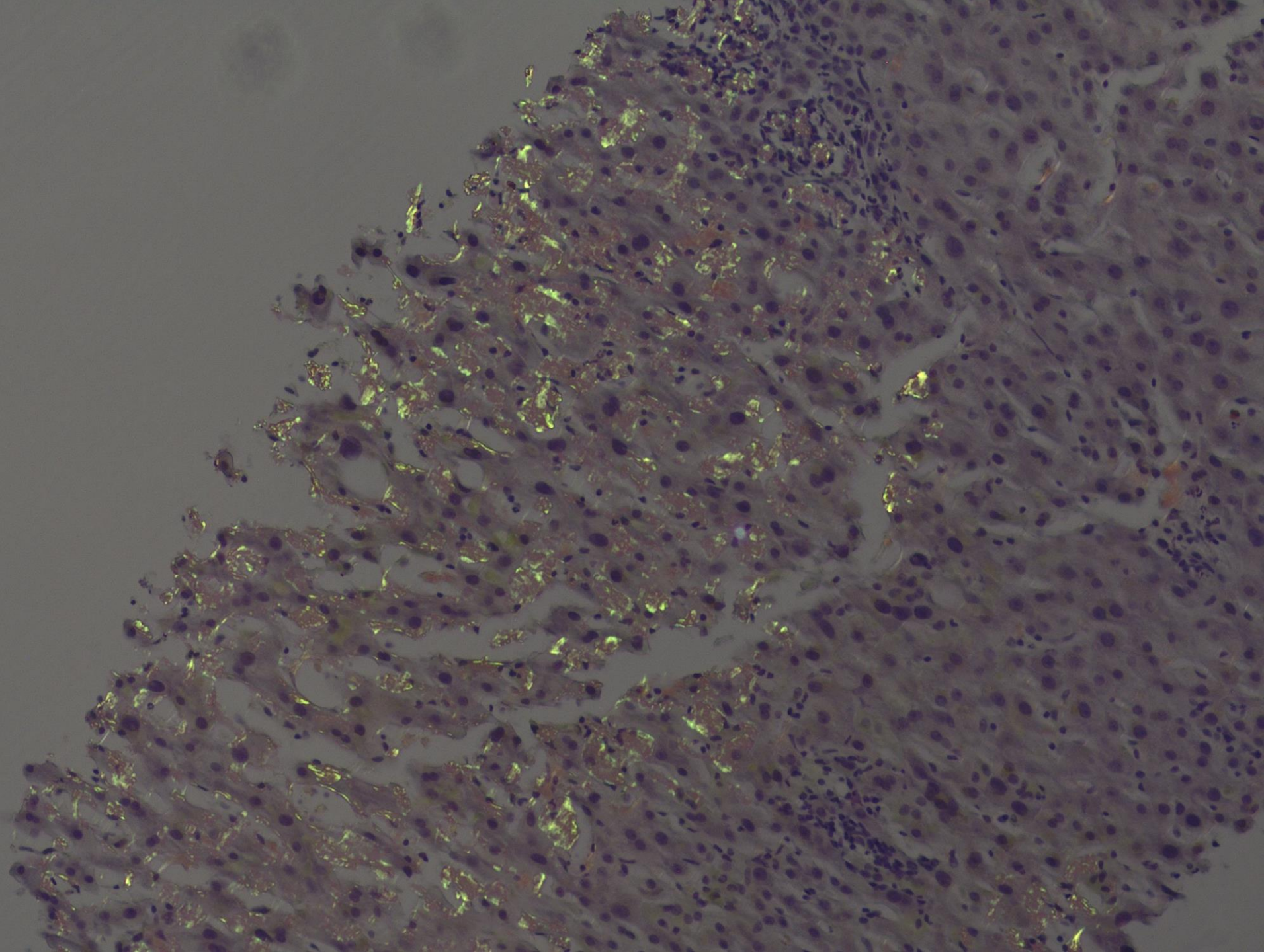
Middle Aged Hispanic Male with Elevated LFTs











DIAGNOSIS?



Amyloid

- Different proteins undergoing abnormal folding leading to deposition in the liver
 - All types demonstrate a beta pleated sheet secondary structure
- >28 precursor proteins identified
- Liver reported to be involved in 90% of cases of amyloidosis

Hepatic Amyloidosis

- Two major histologic patterns
 - Sinusoidal linear pattern
 - Vascular linear pattern
- Rarely: round globular form
 - Classic histologic feature of ALECT2 (leukocyte chemotactic factor-2)
- LC MS/MS confirmed ALECT2 type amyloidosis

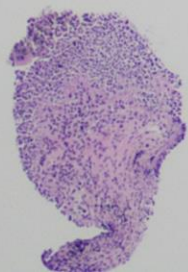
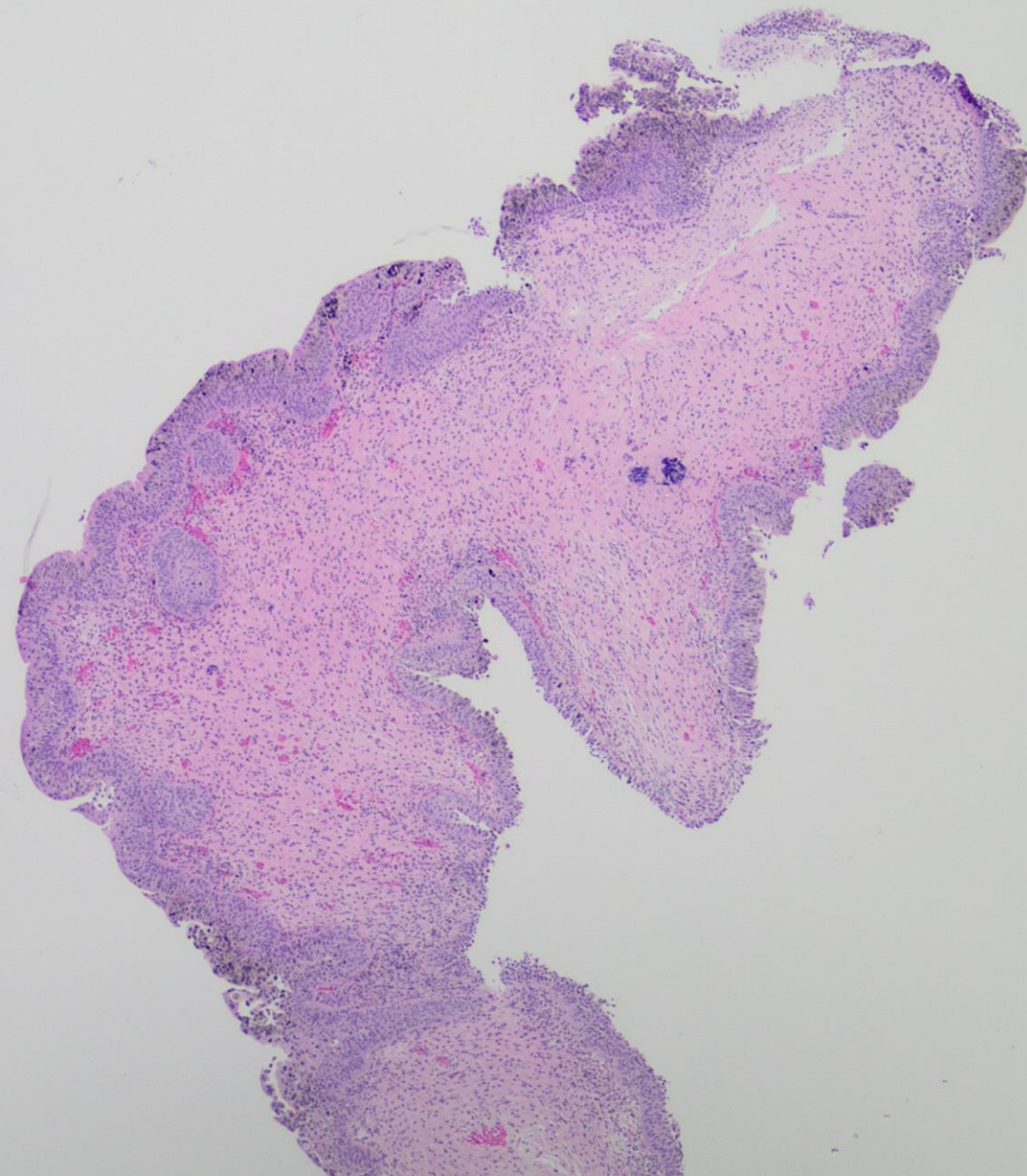
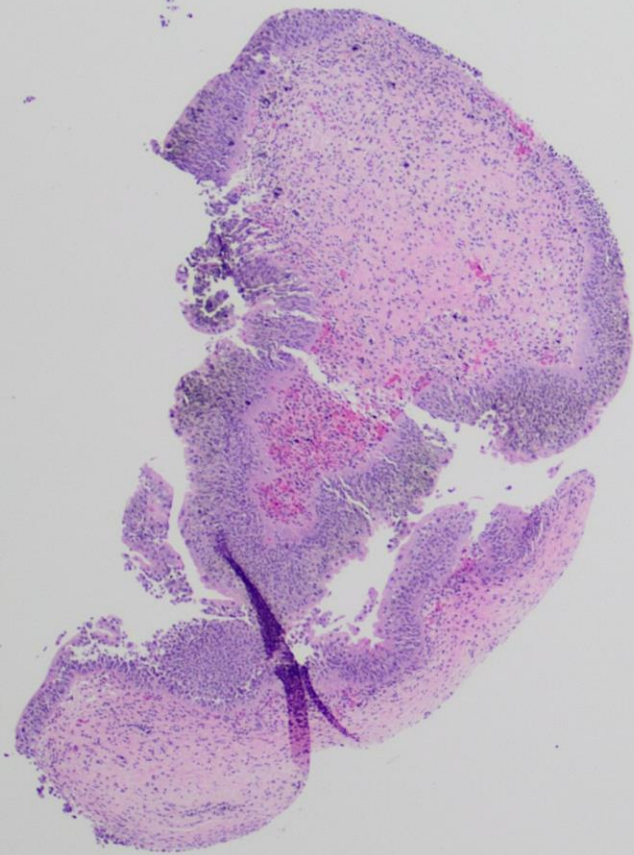
ALECT2-Type Amyloid Deposition

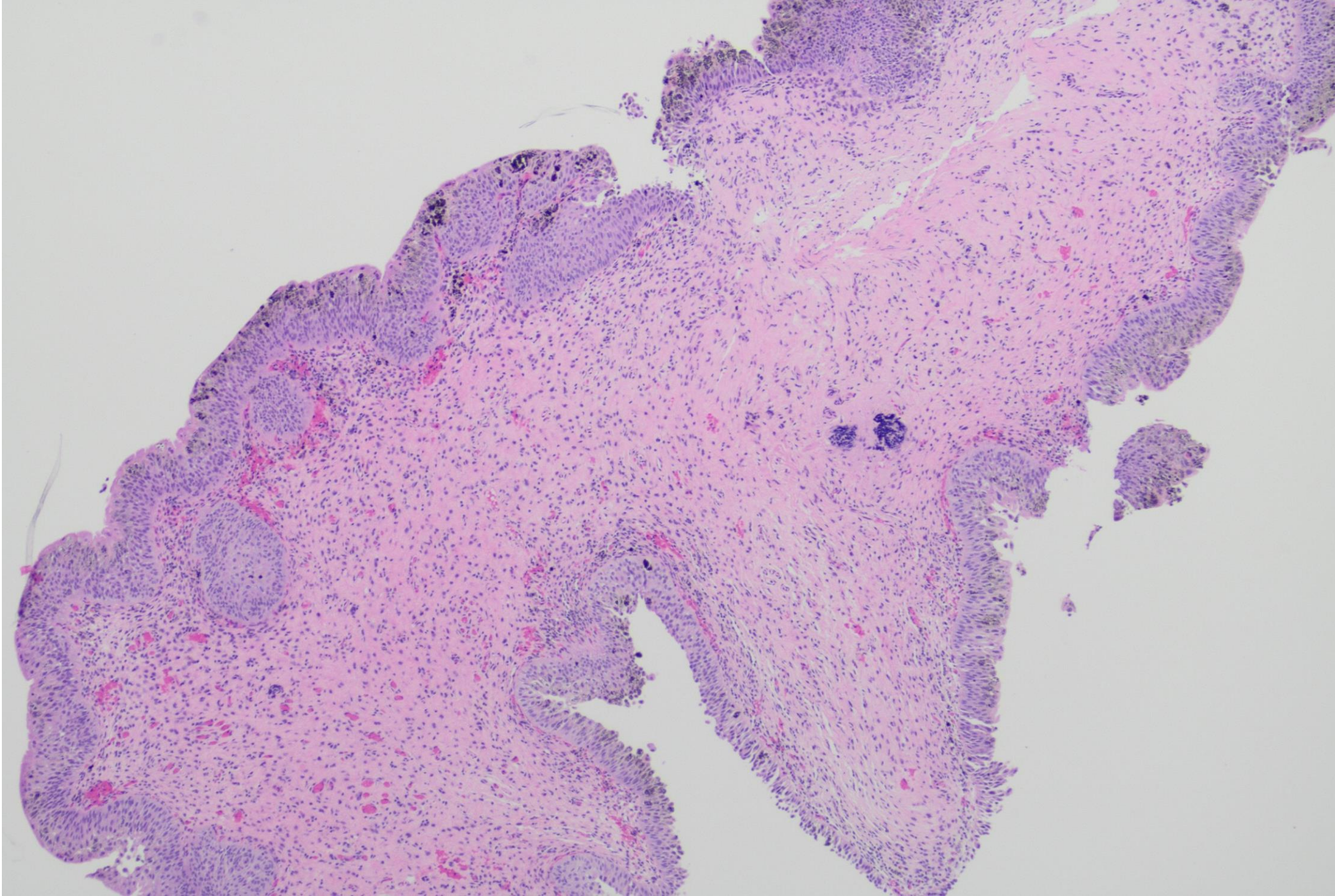
- Type of systemic amyloidosis
- Primarily involves the kidneys, liver, spleen, and adrenal gland
- Most significant clinical feature is slowly progressive renal failure
- Most patients appear to be Hispanic or Middle Eastern
- Not an inherited form of amyloidosis
- No mutations affecting the LECT2 gene have been identified

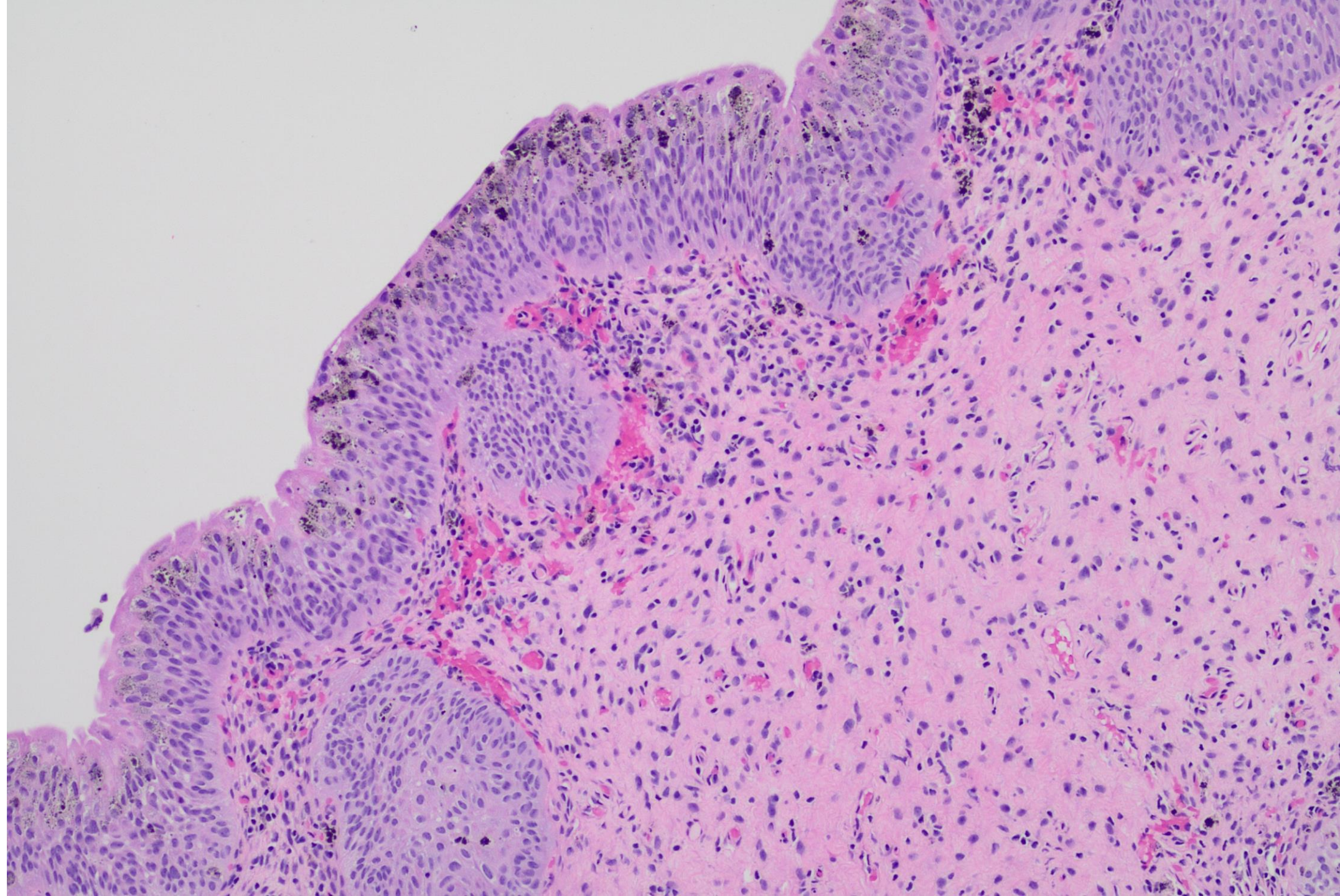
26-0404

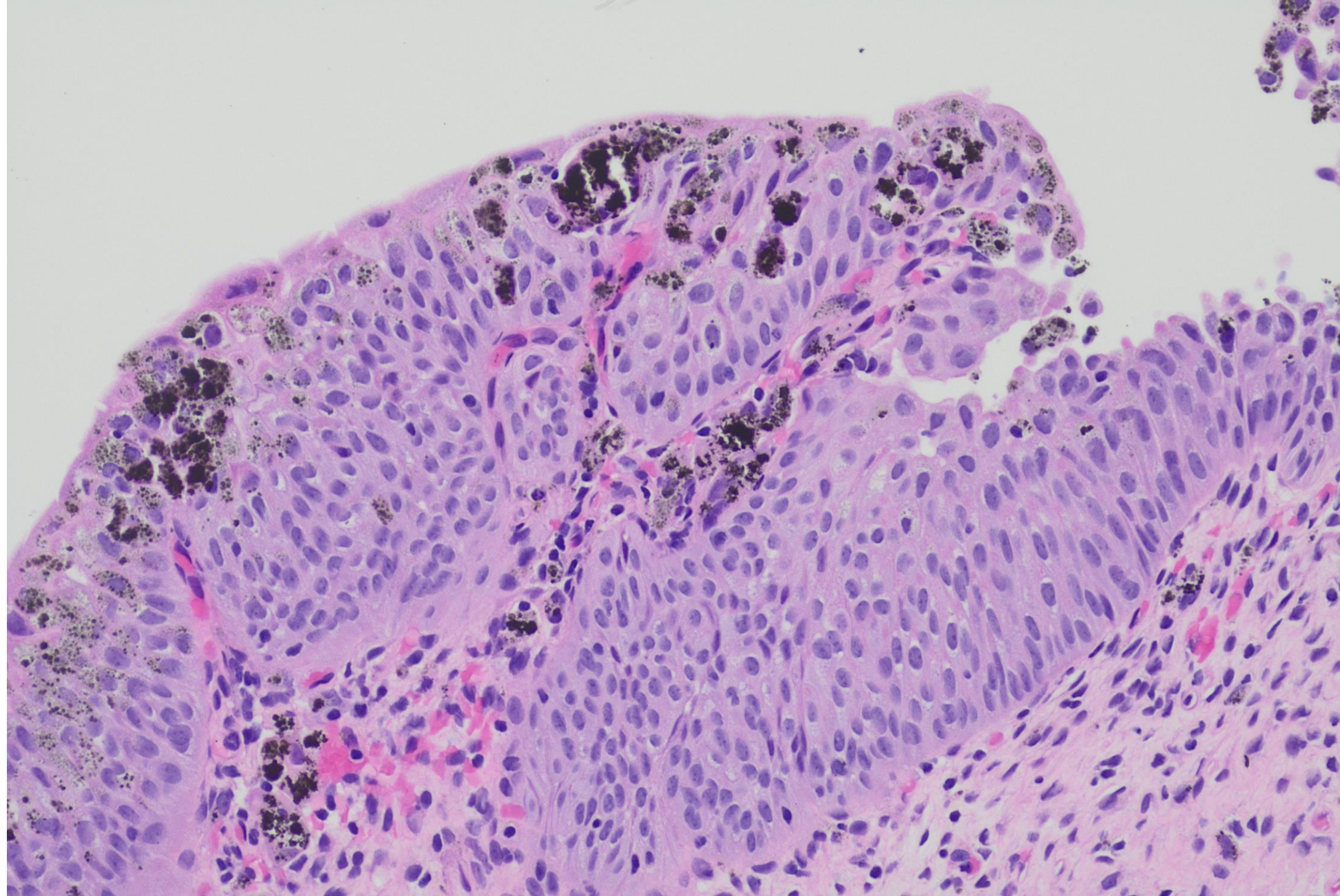
Armen Khararjian; KP Walnut Creek

Older age male with >5 cm dark patch in bladder

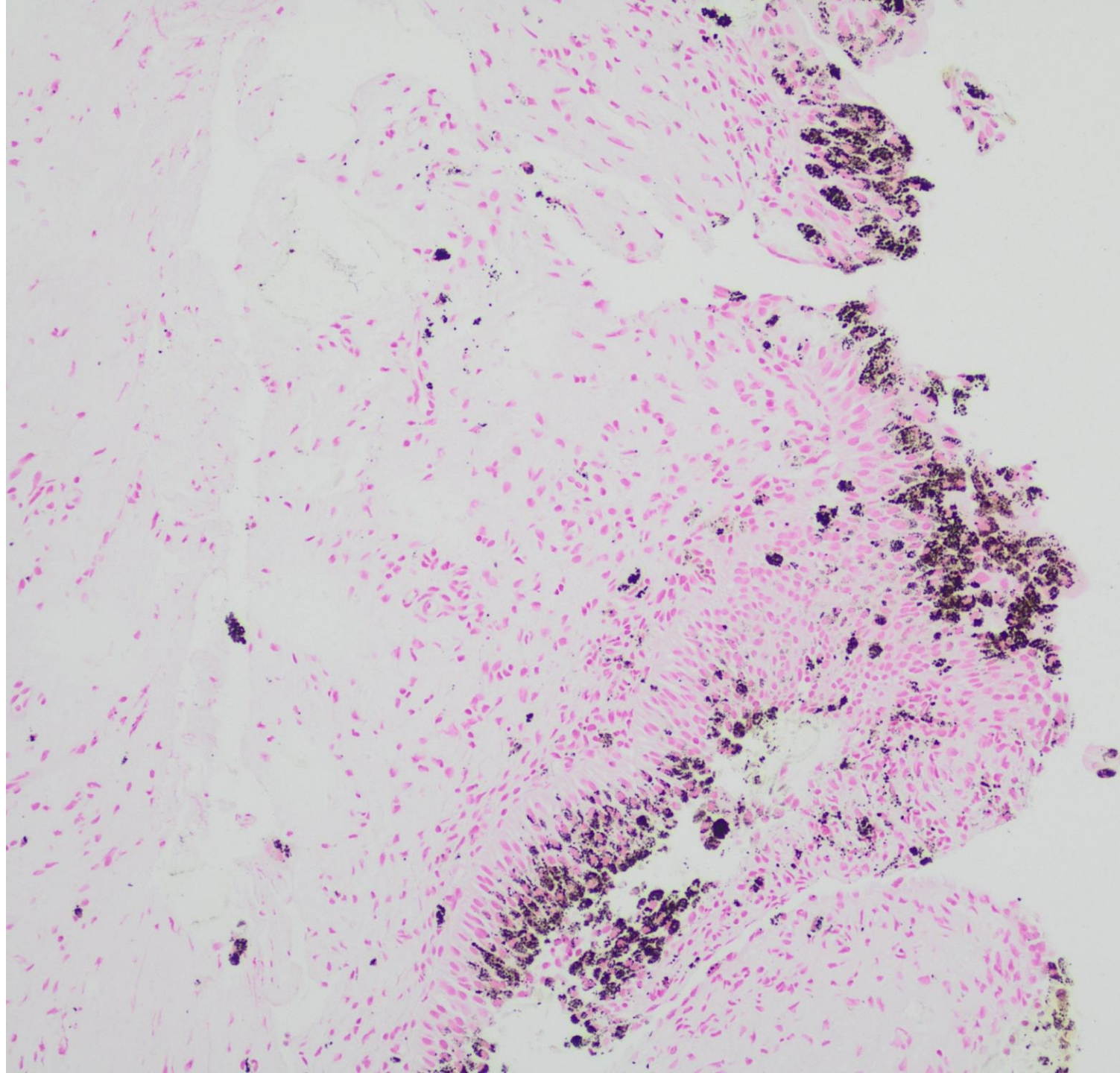




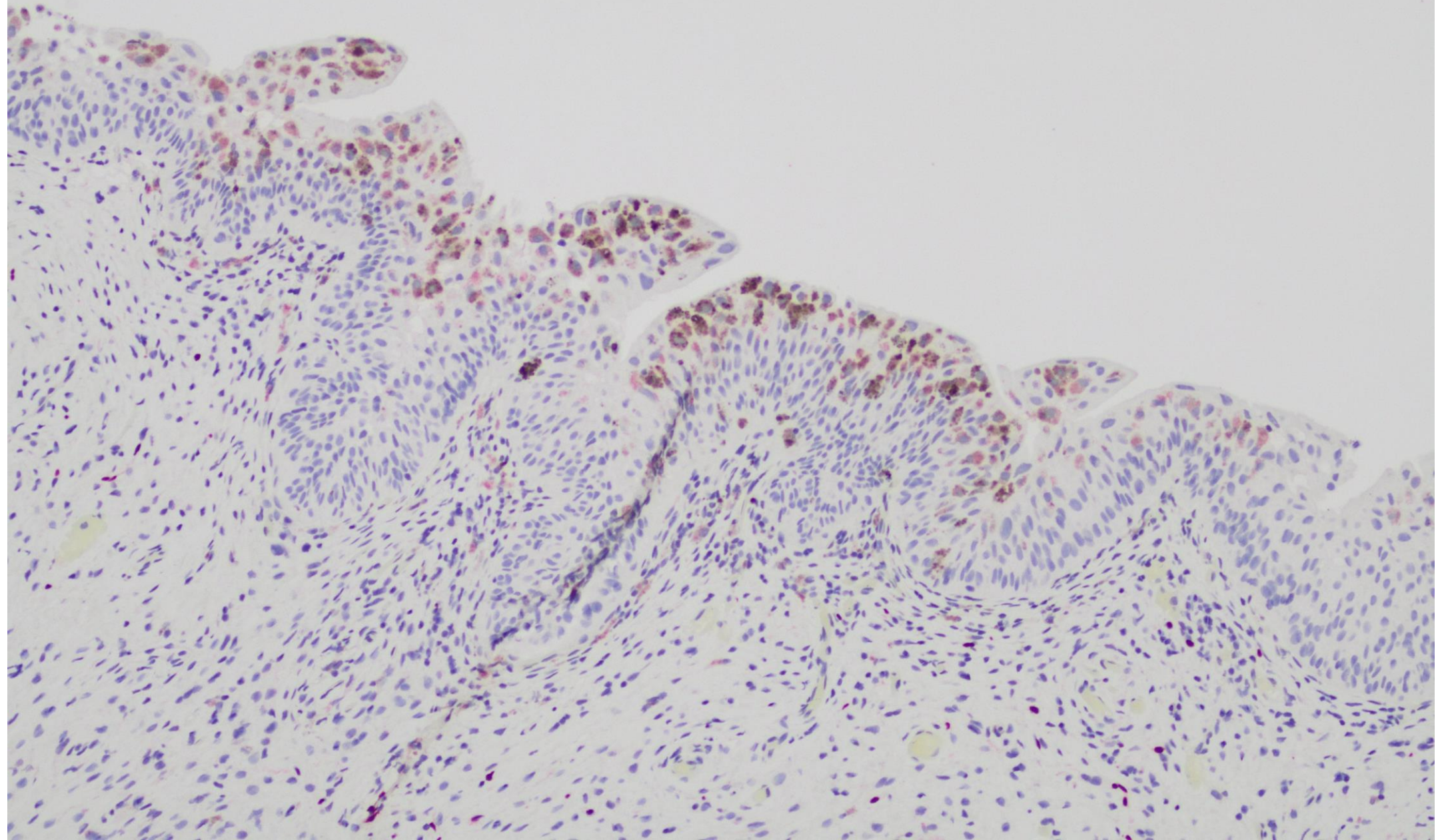




Fontana Masson



SOX10 Red



DIAGNOSIS?



Bladder Melanosis

- Very rare
- Often incidentally seen by cystoscope
 - Dark brown and velvety look
 - Frequently patch and multifocal
- Deposition of black pigments in the urothelium and lamina propria
 - Melanin is one of most common pigments
 - Does not always require the pigment to be melanin
- Pseudomelanosis: accumulations of lipofuscin

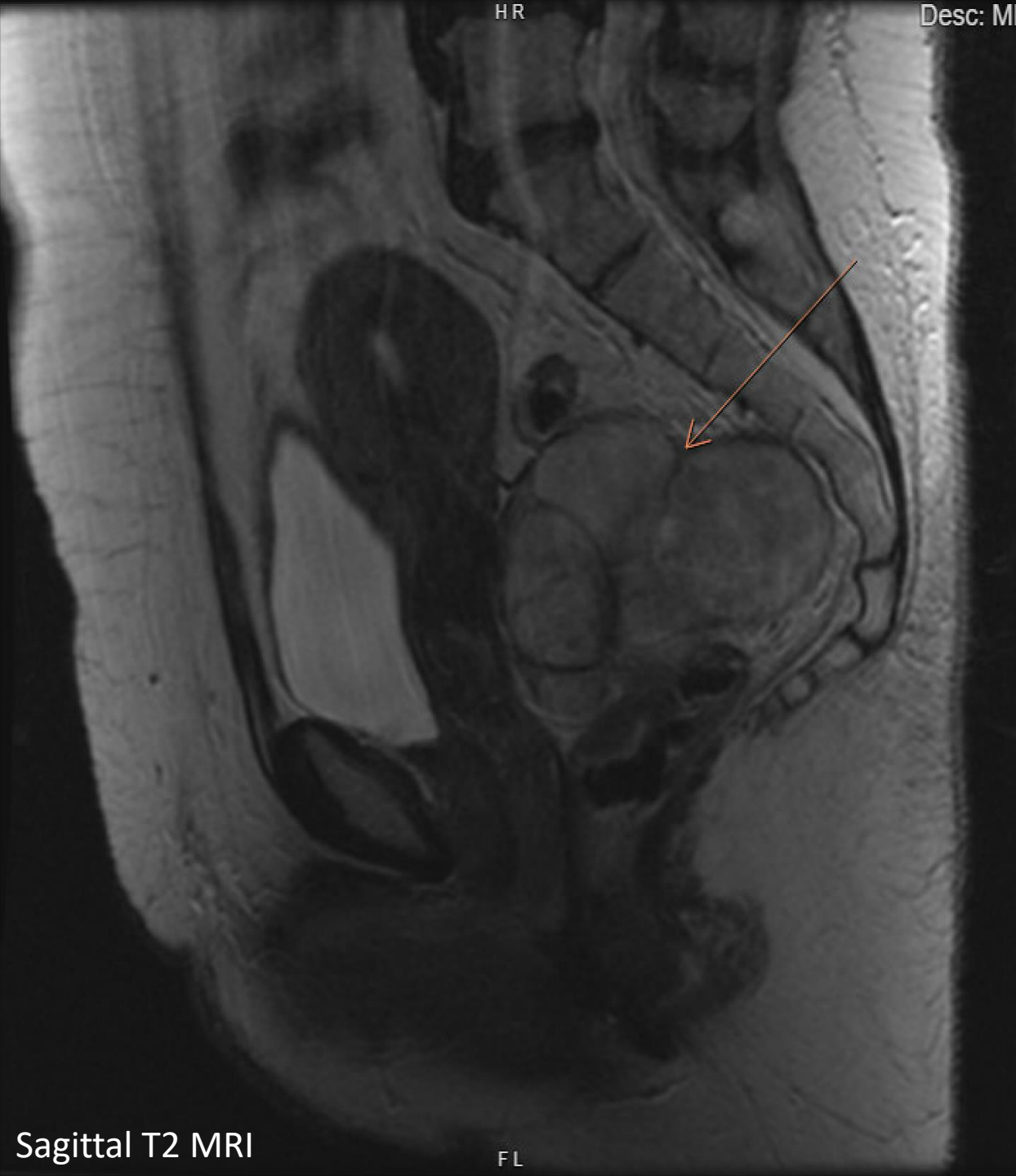
Bladder Melanosis

- 20 reported cases in the literature
 - 41-86 years of age
 - Present with non-specific symptoms
- No clear guidance on management
- Felt to be benign

26-0405

George de Castro and Sarah Umetsu; UCSF Pathology

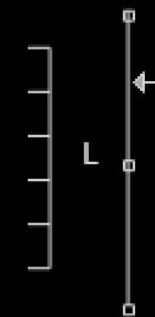
48-year-old woman with an 8.3 cm mass in the rectouterine space. Colonoscopy previously revealed an abnormality in the rectum ~10 cm from the anal verge that appeared consistent with external compression, spanning ~4 cm on the anterior wall of the rectum. The overlying rectal mucosa appeared normal. Biopsies were obtained from the area of the bulge and showed scattered atypical cells within the lamina propria. She now undergoes endoscopic ultrasound with FNA of perirectal mass.



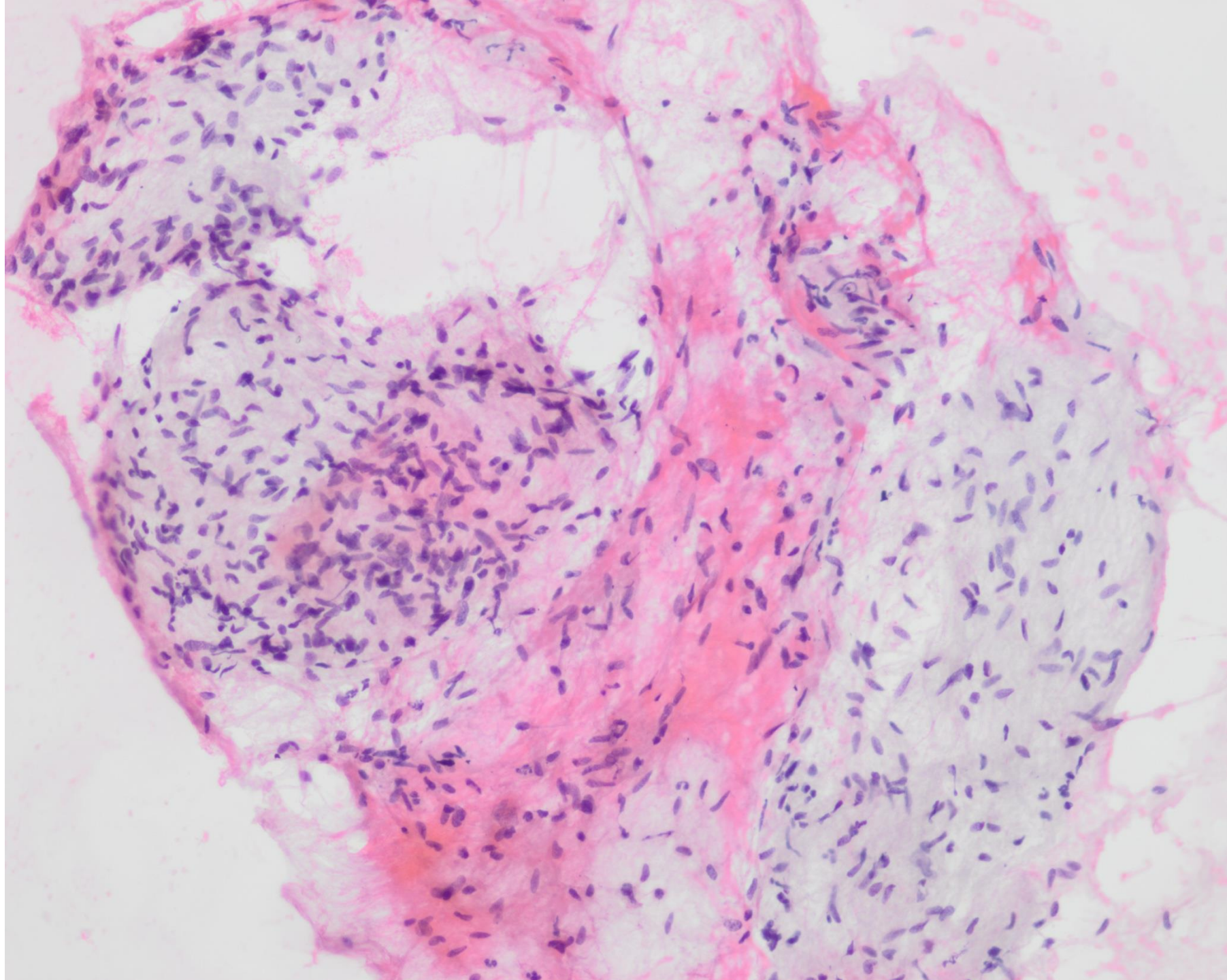
R

A

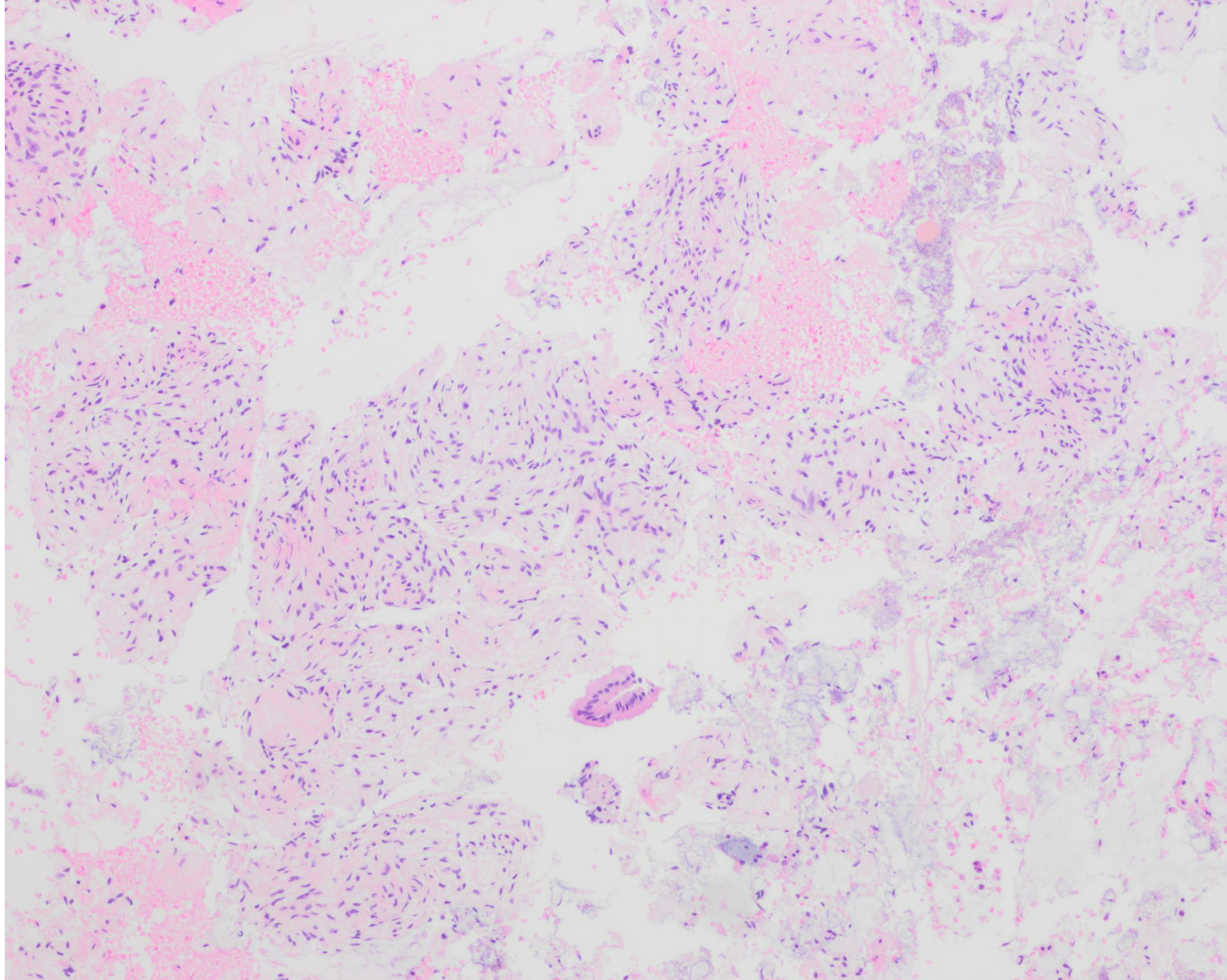
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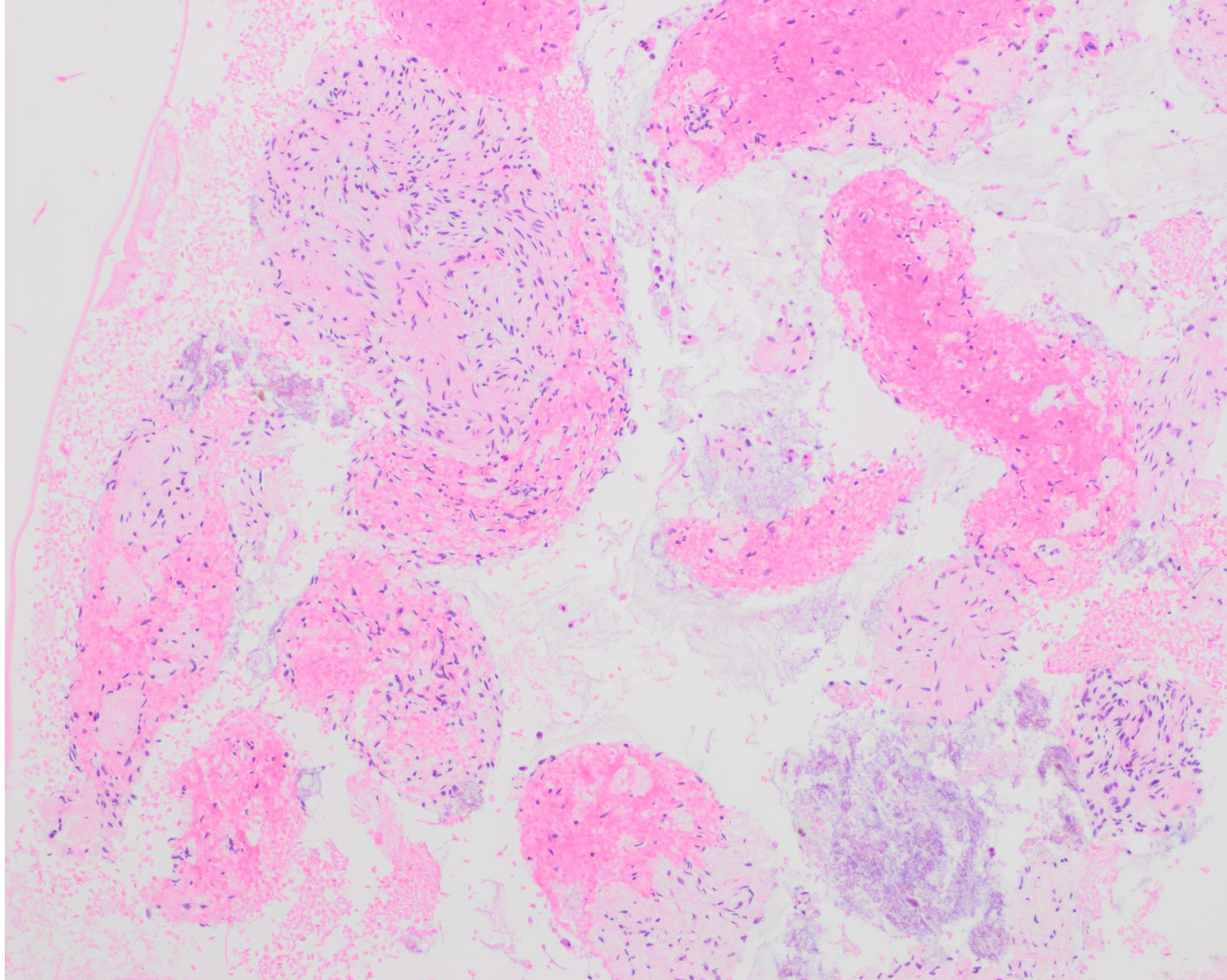
Axial DWI



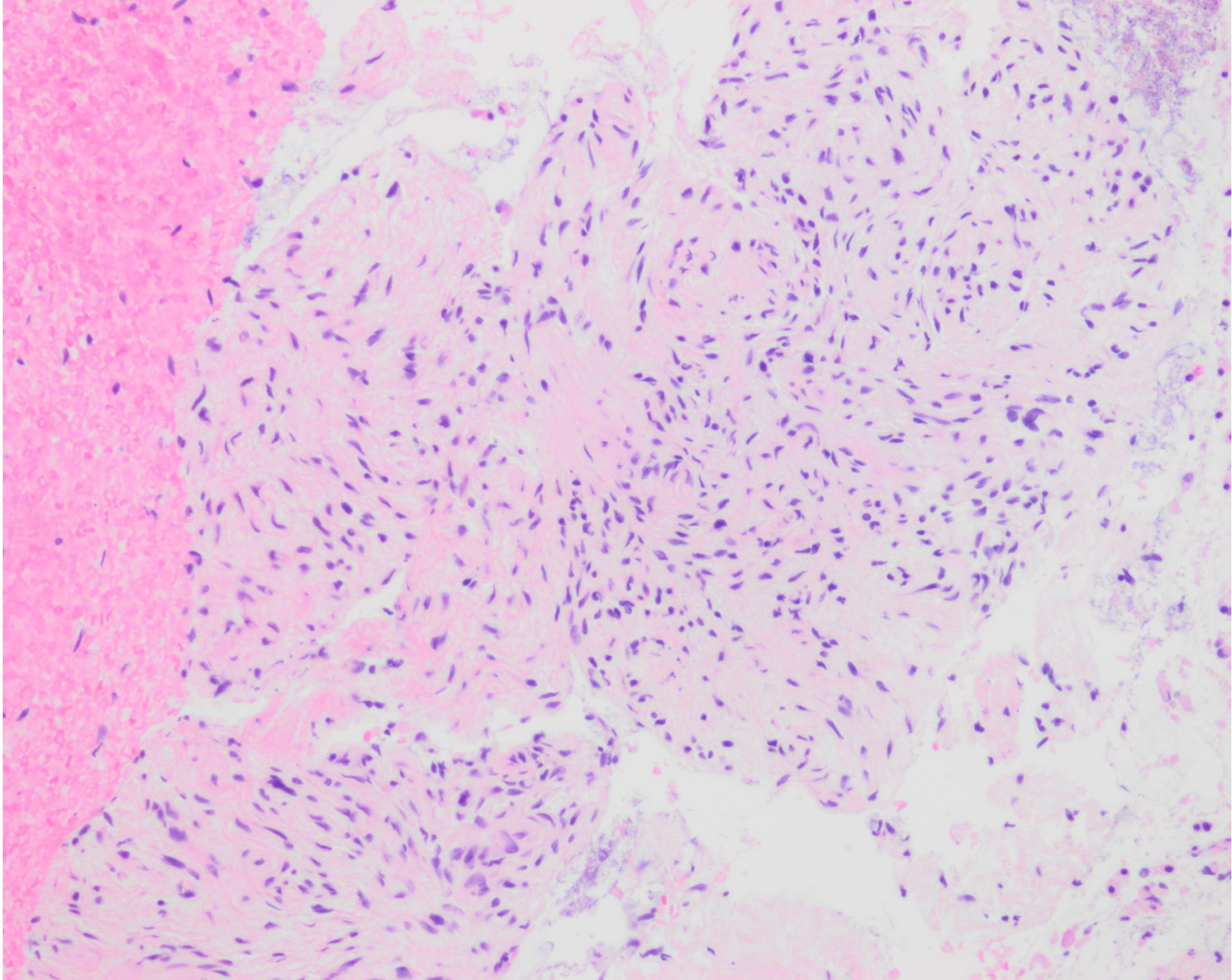
FNA: Cell Block

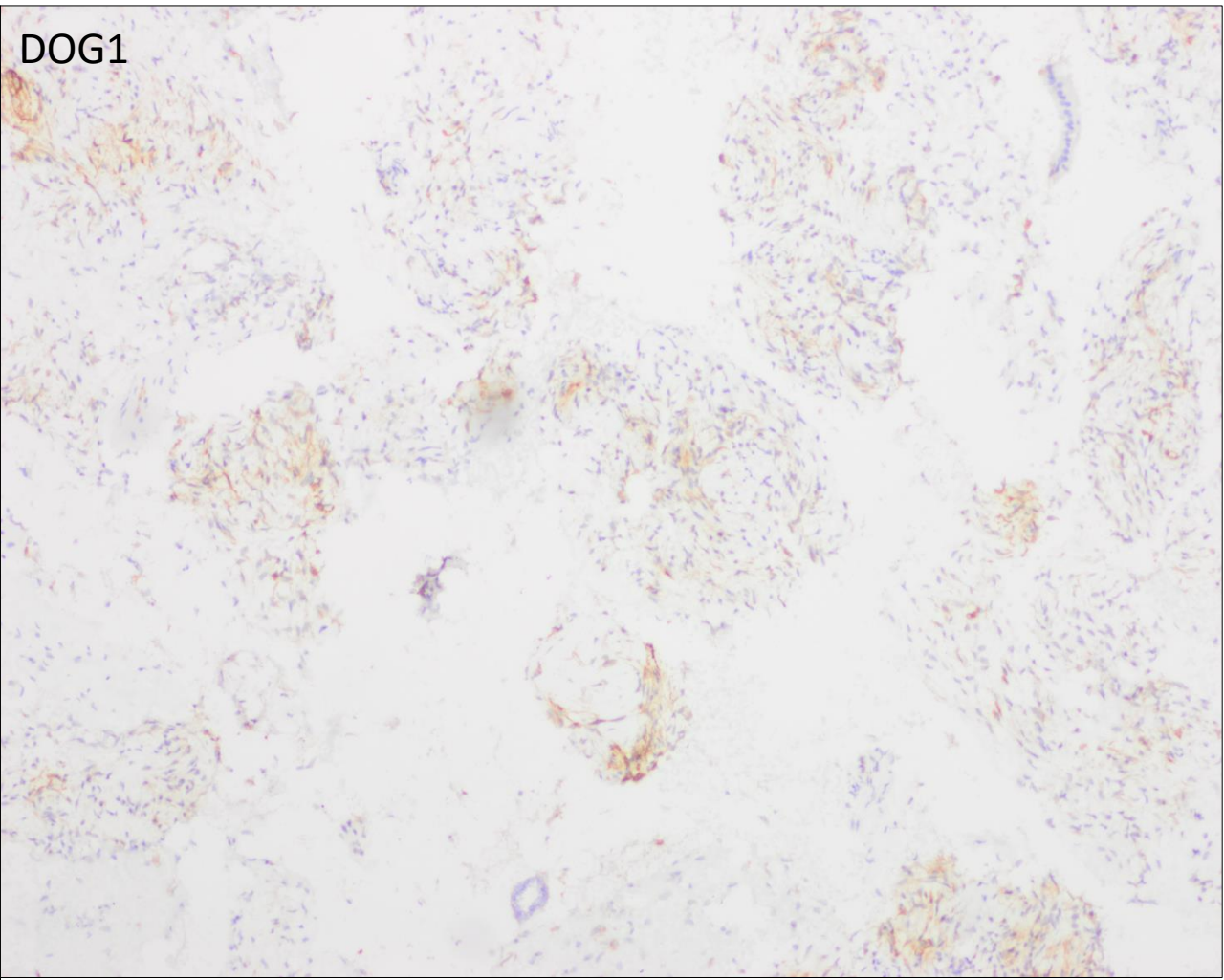
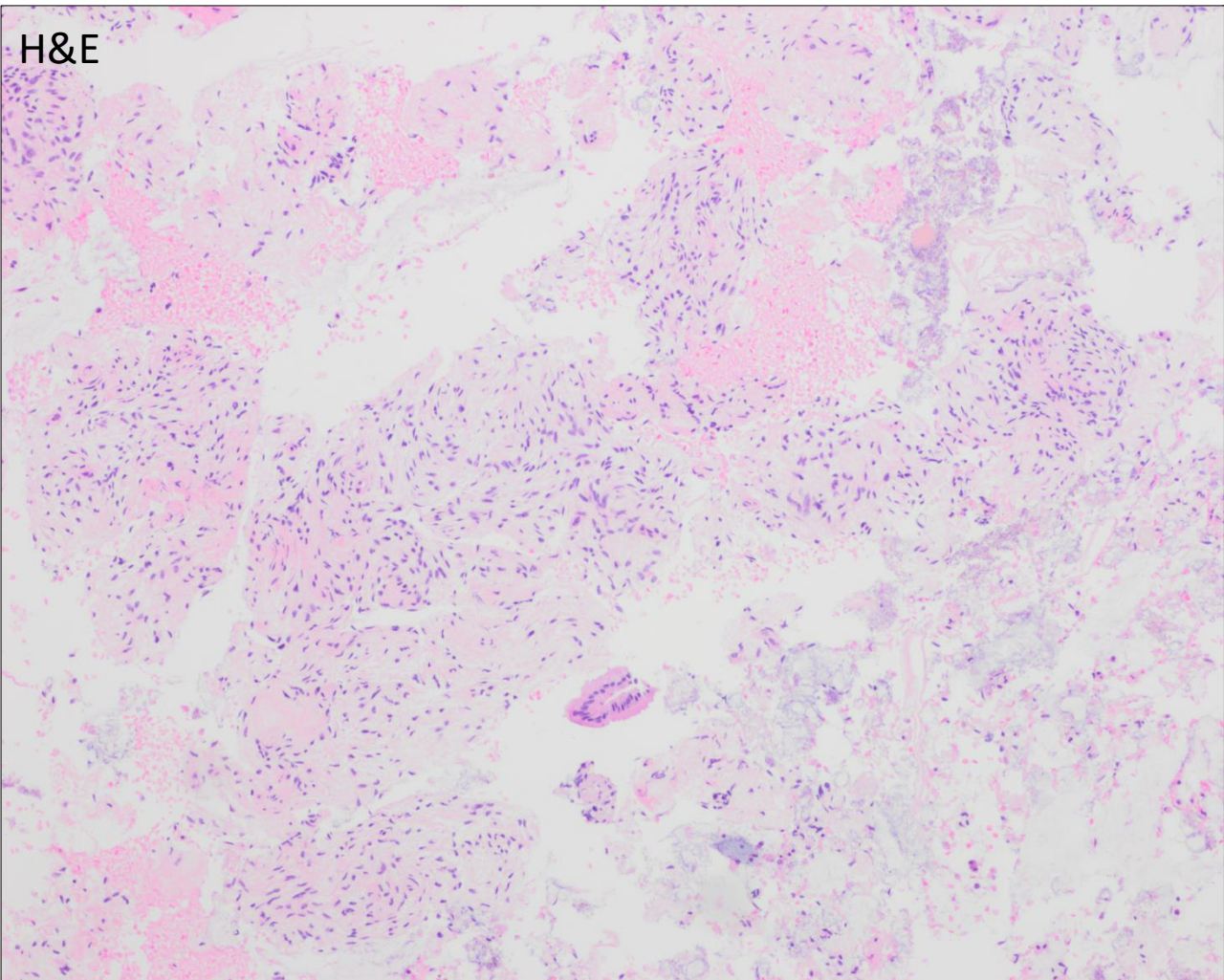


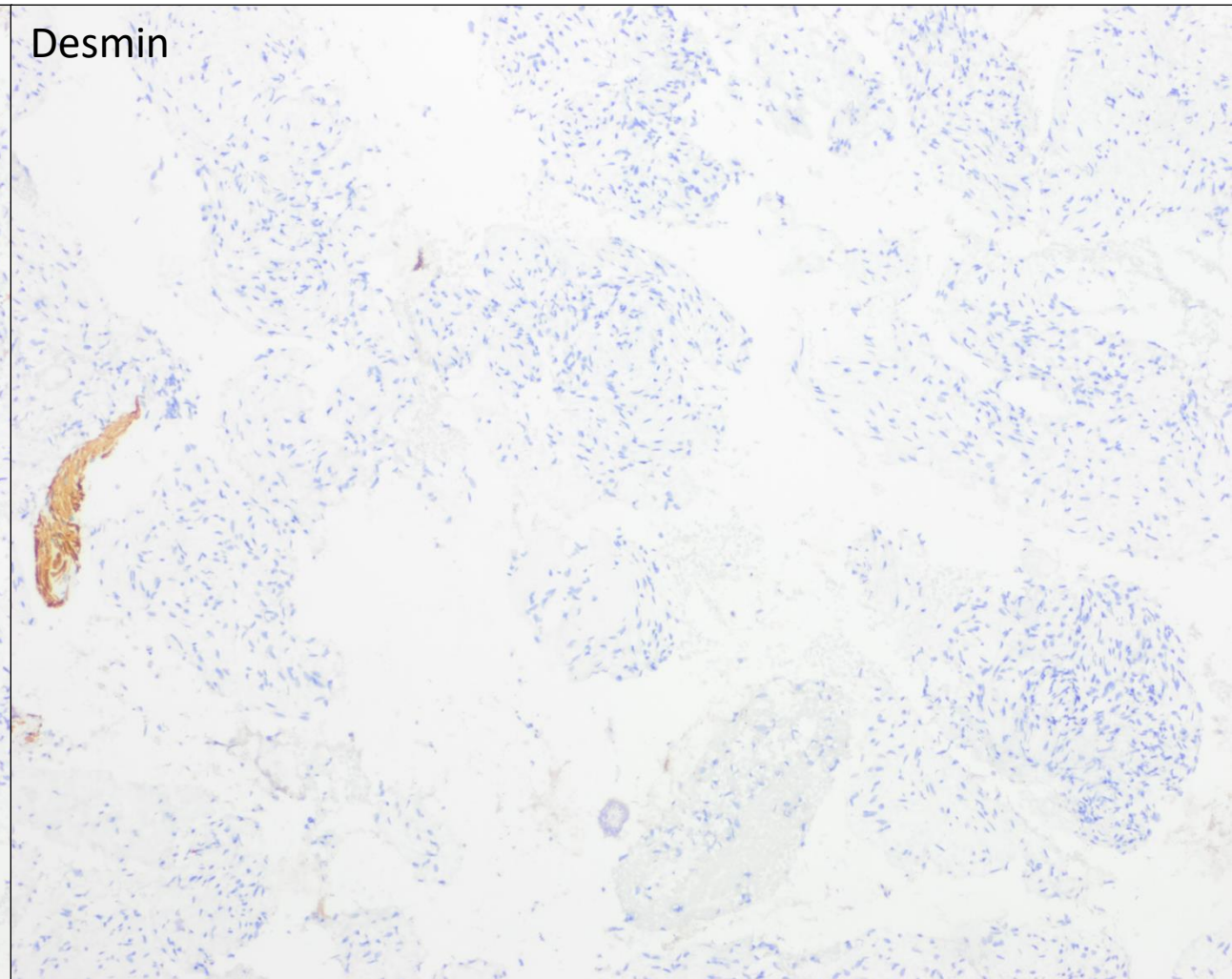
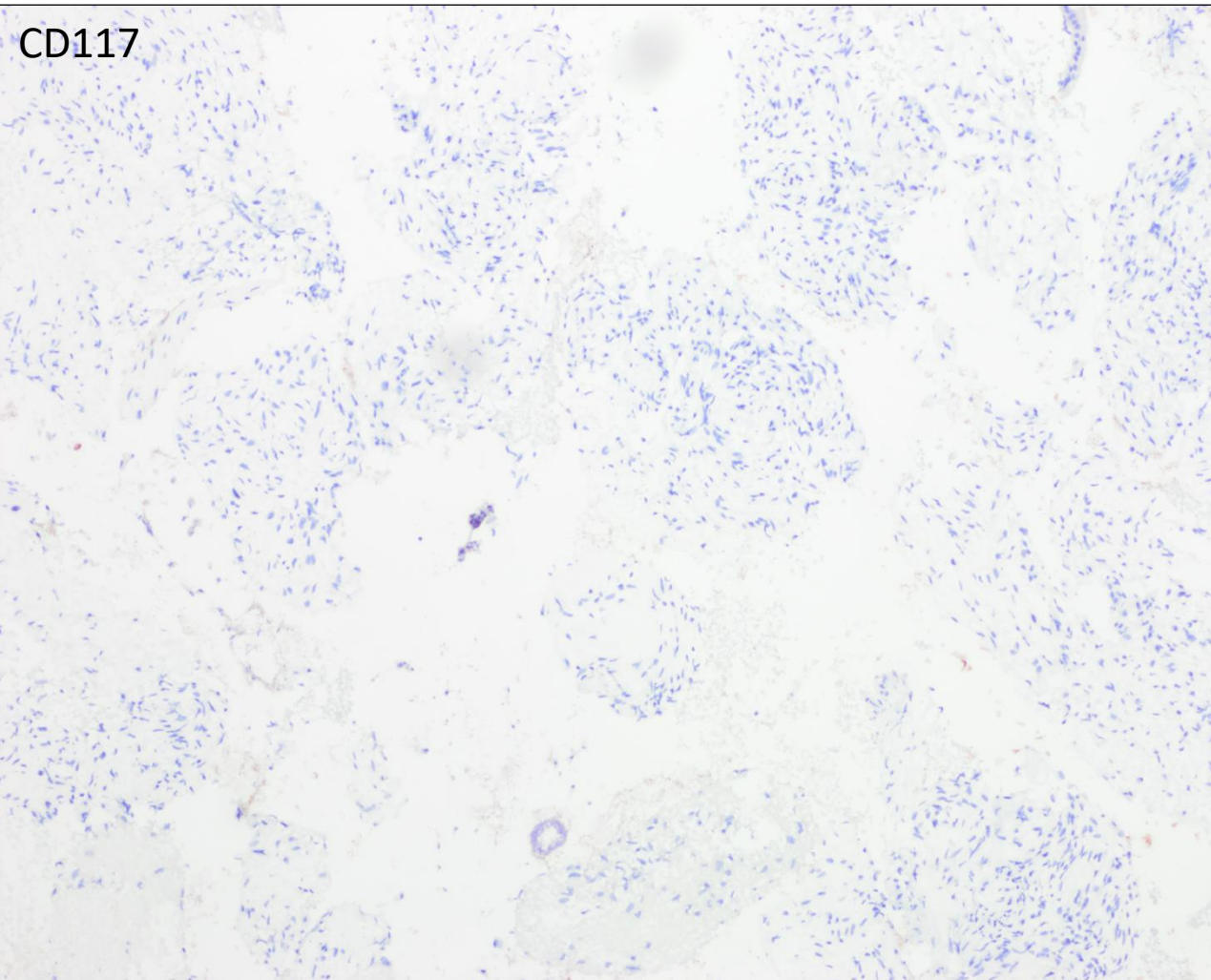
FNA: Cell Block



FNA: Cell Block





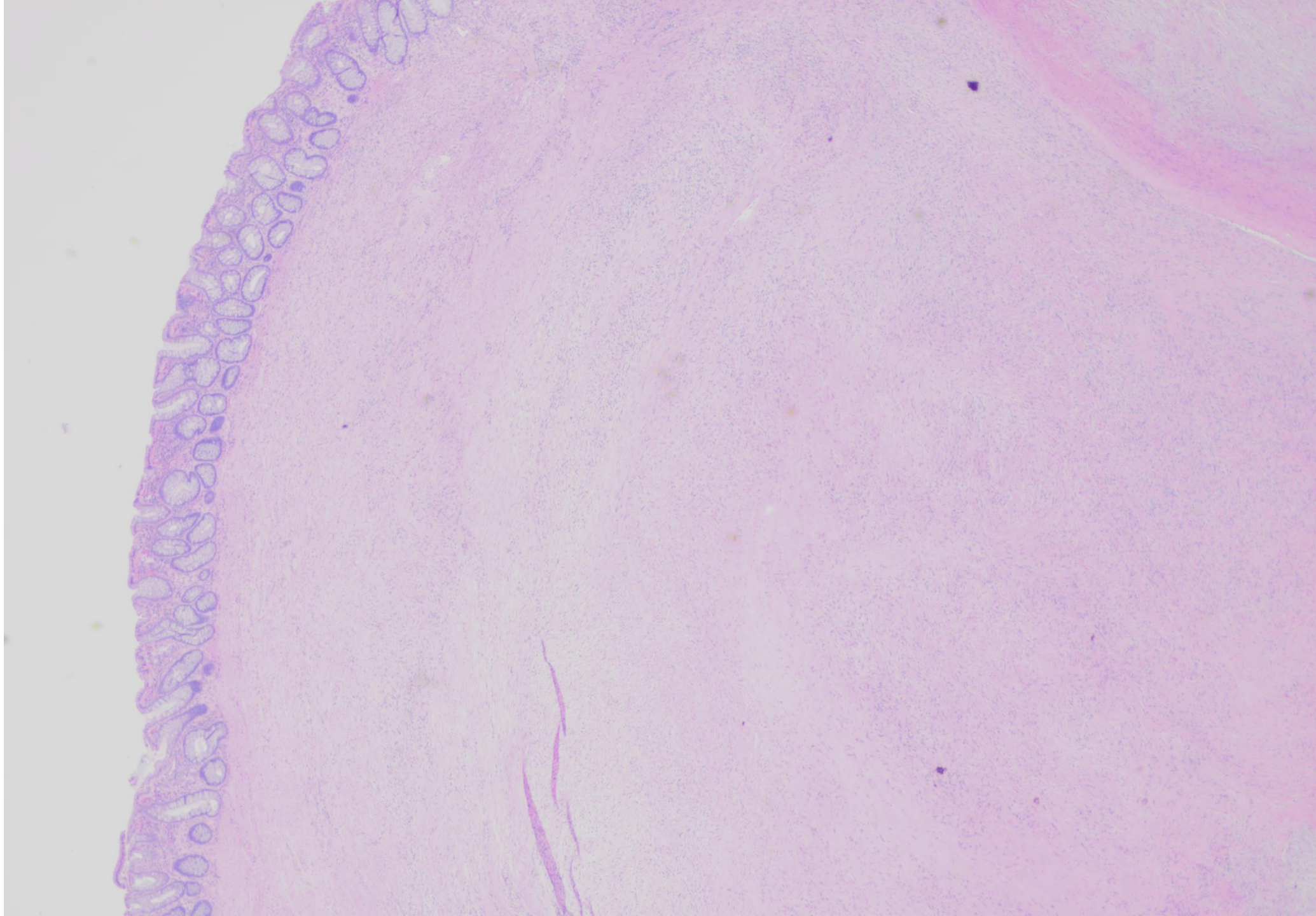


DIAGNOSIS?

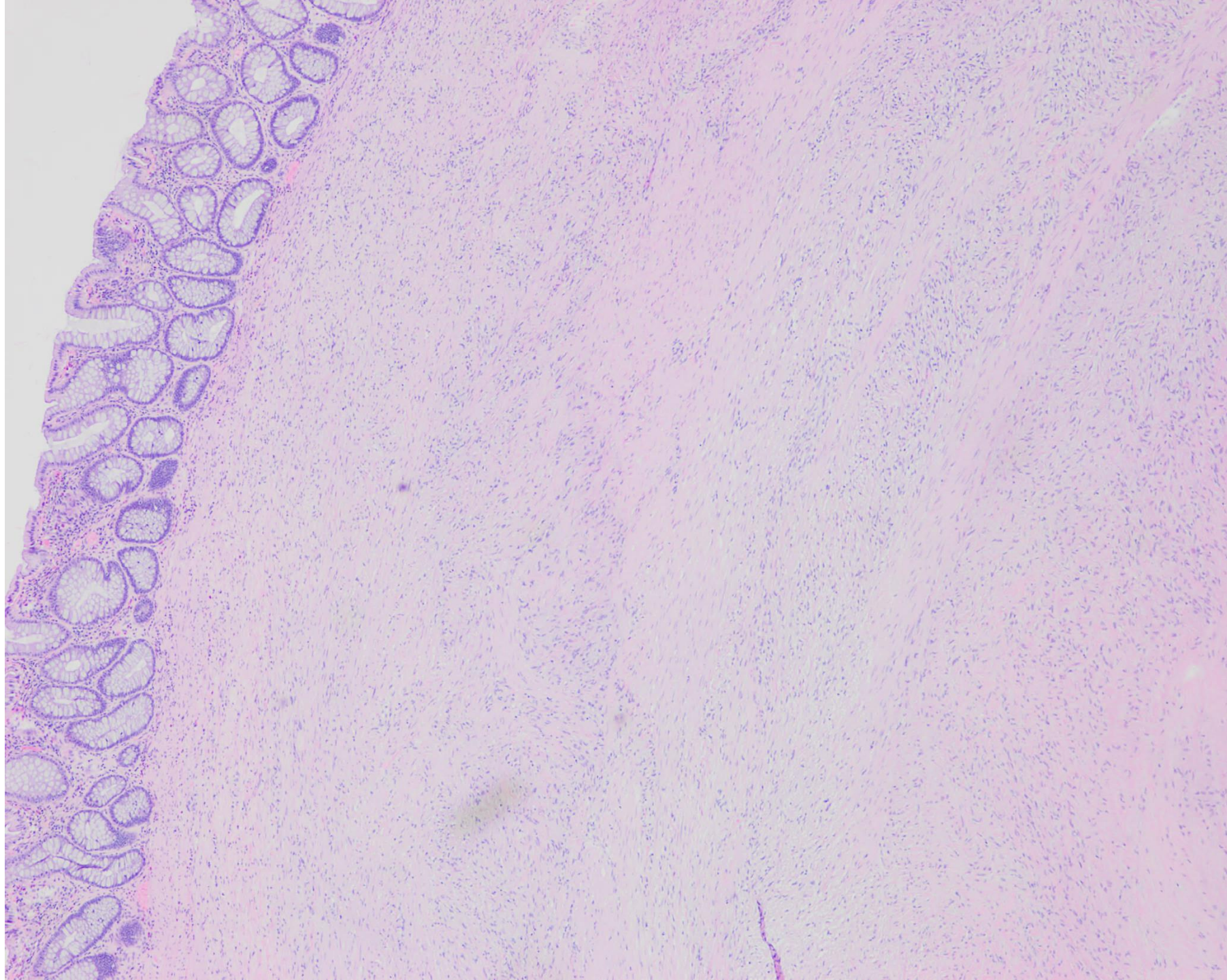


The patient subsequently
underwent low anterior resection

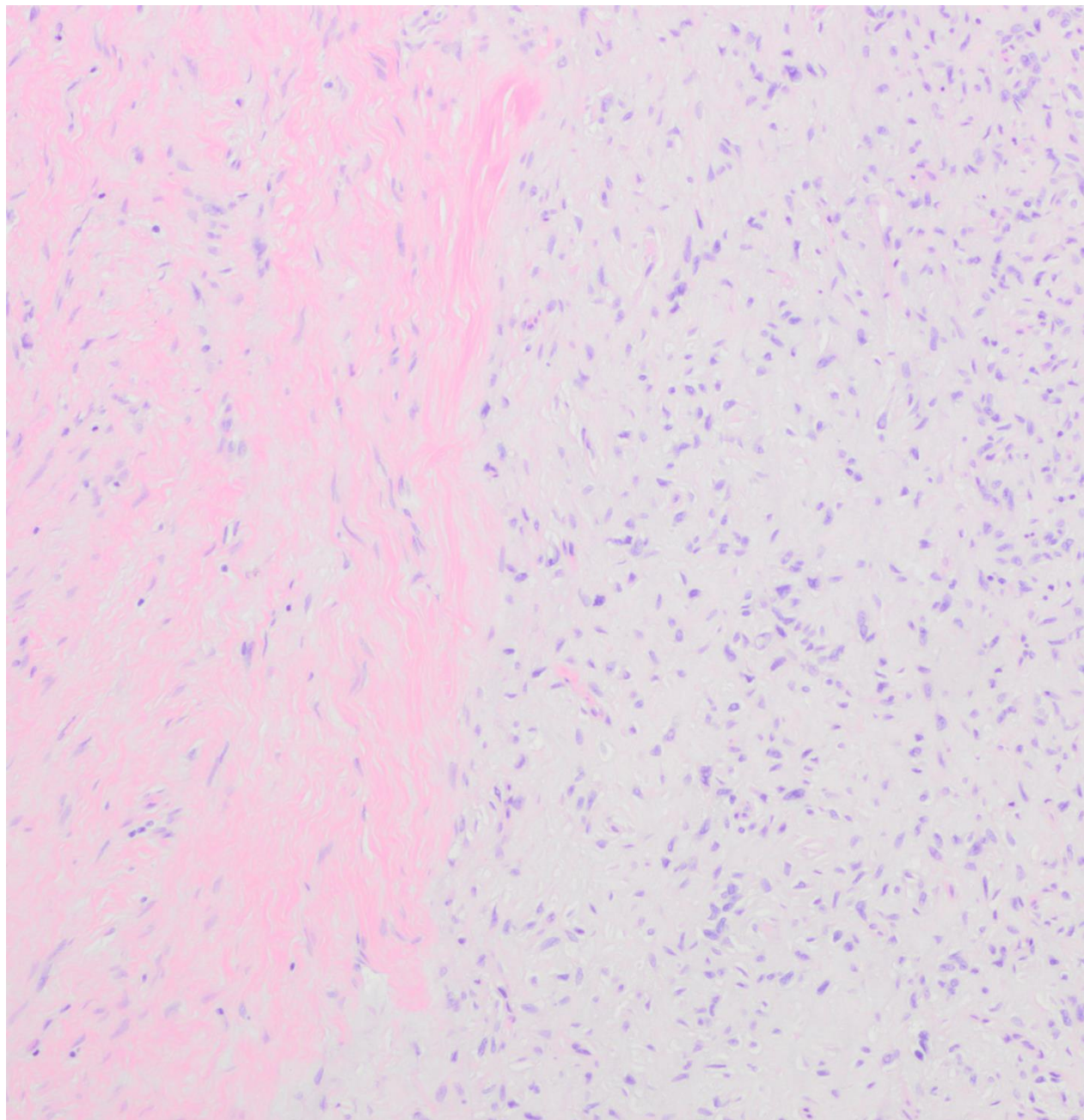
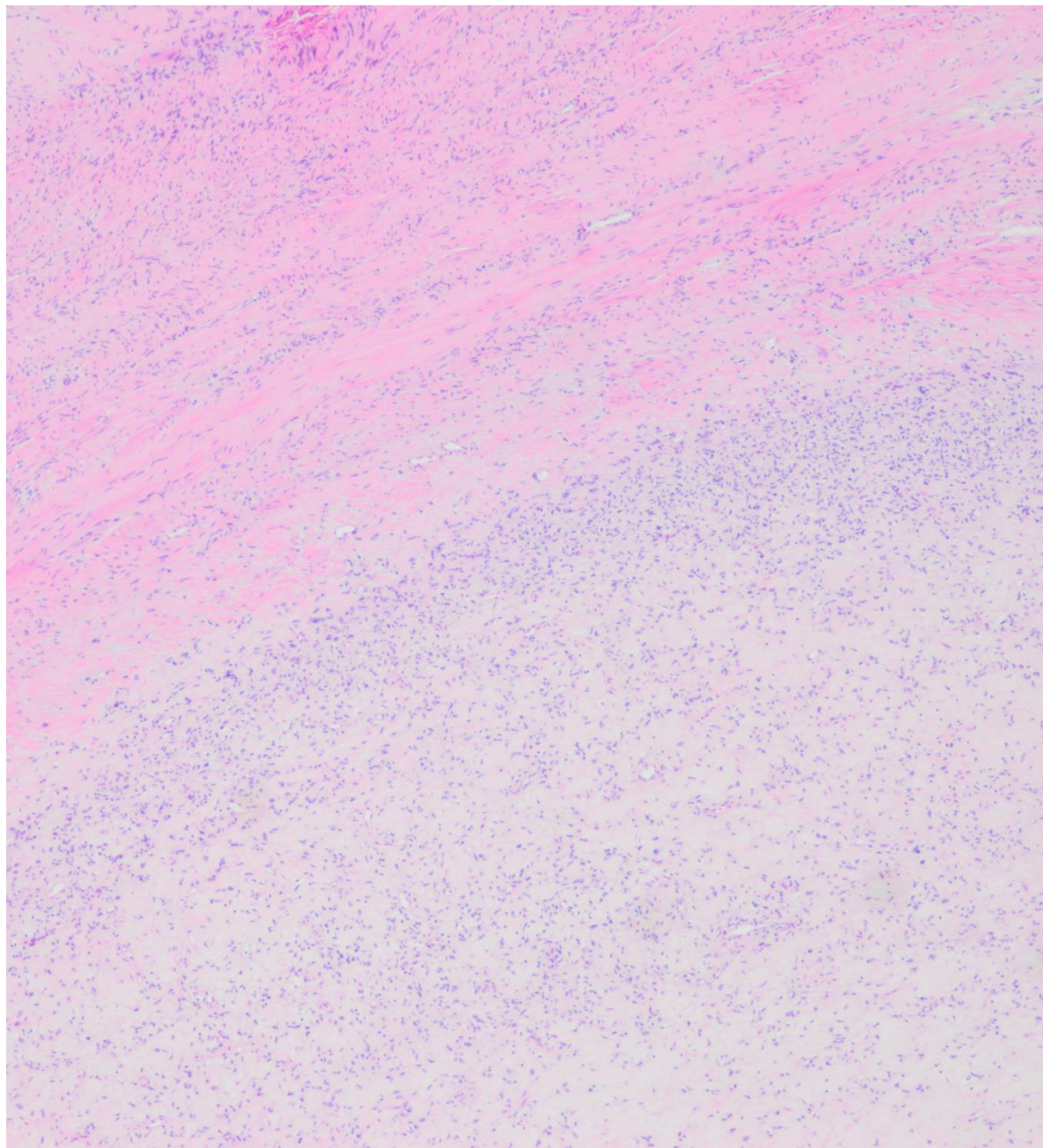
Resection



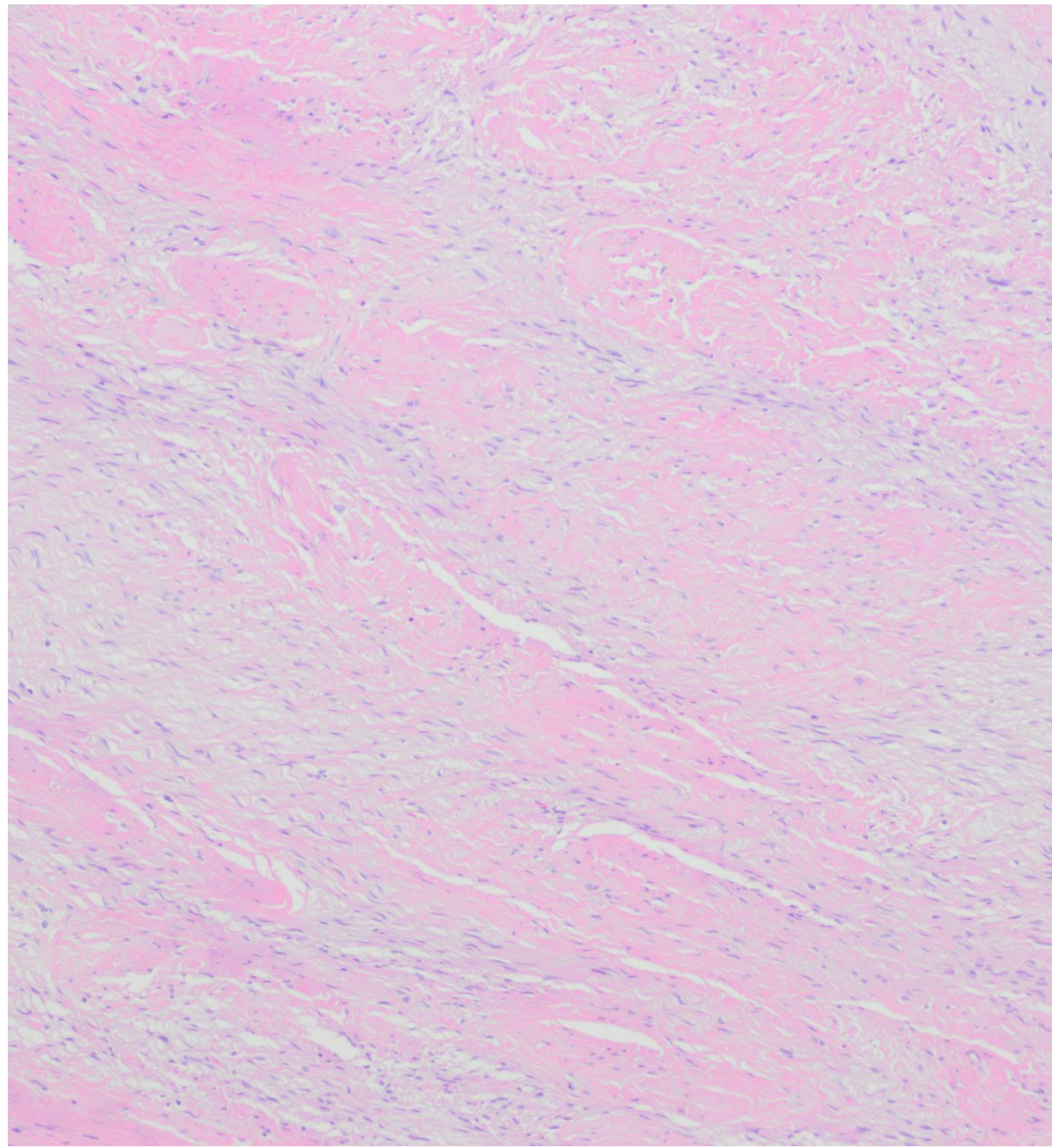
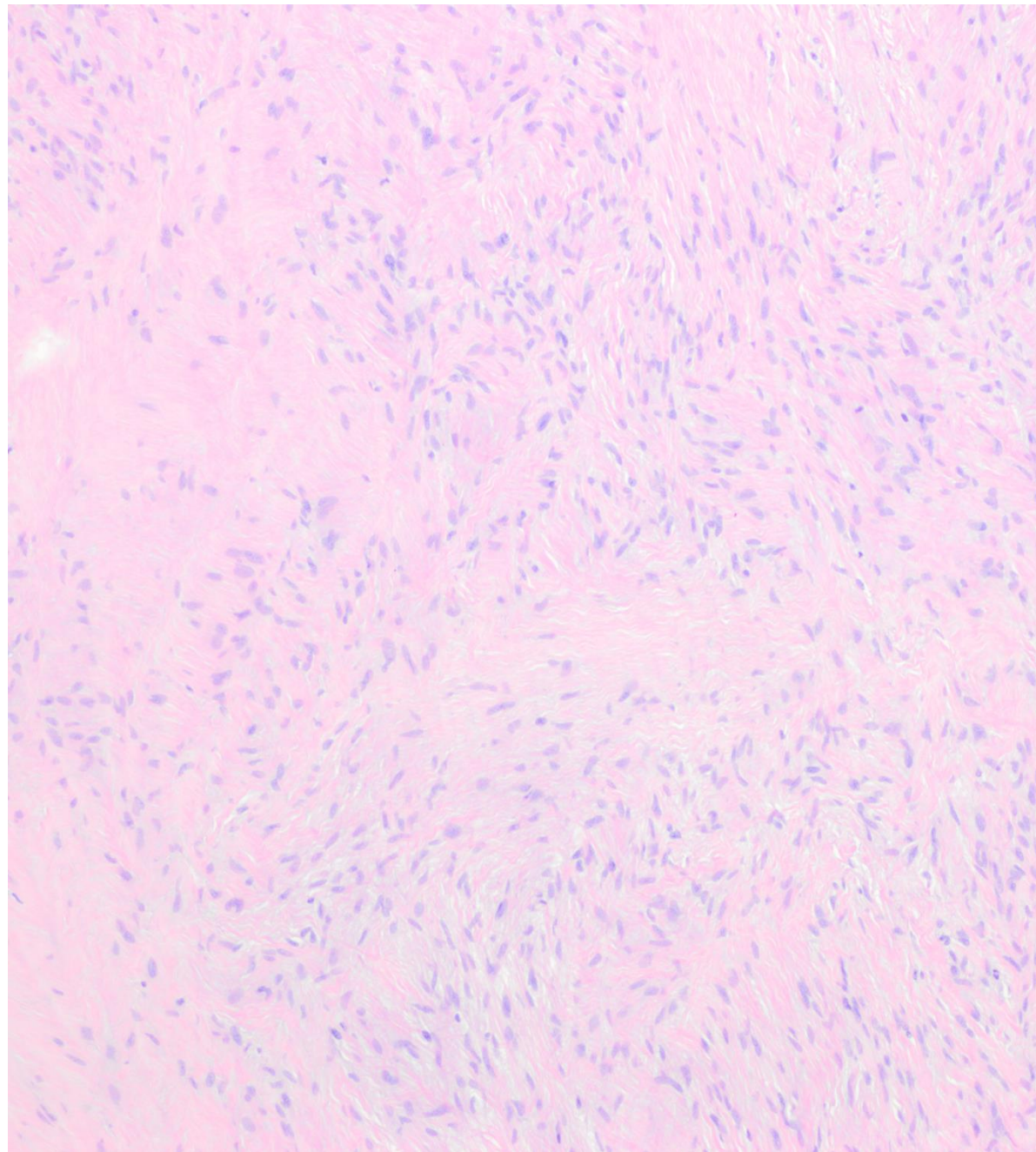
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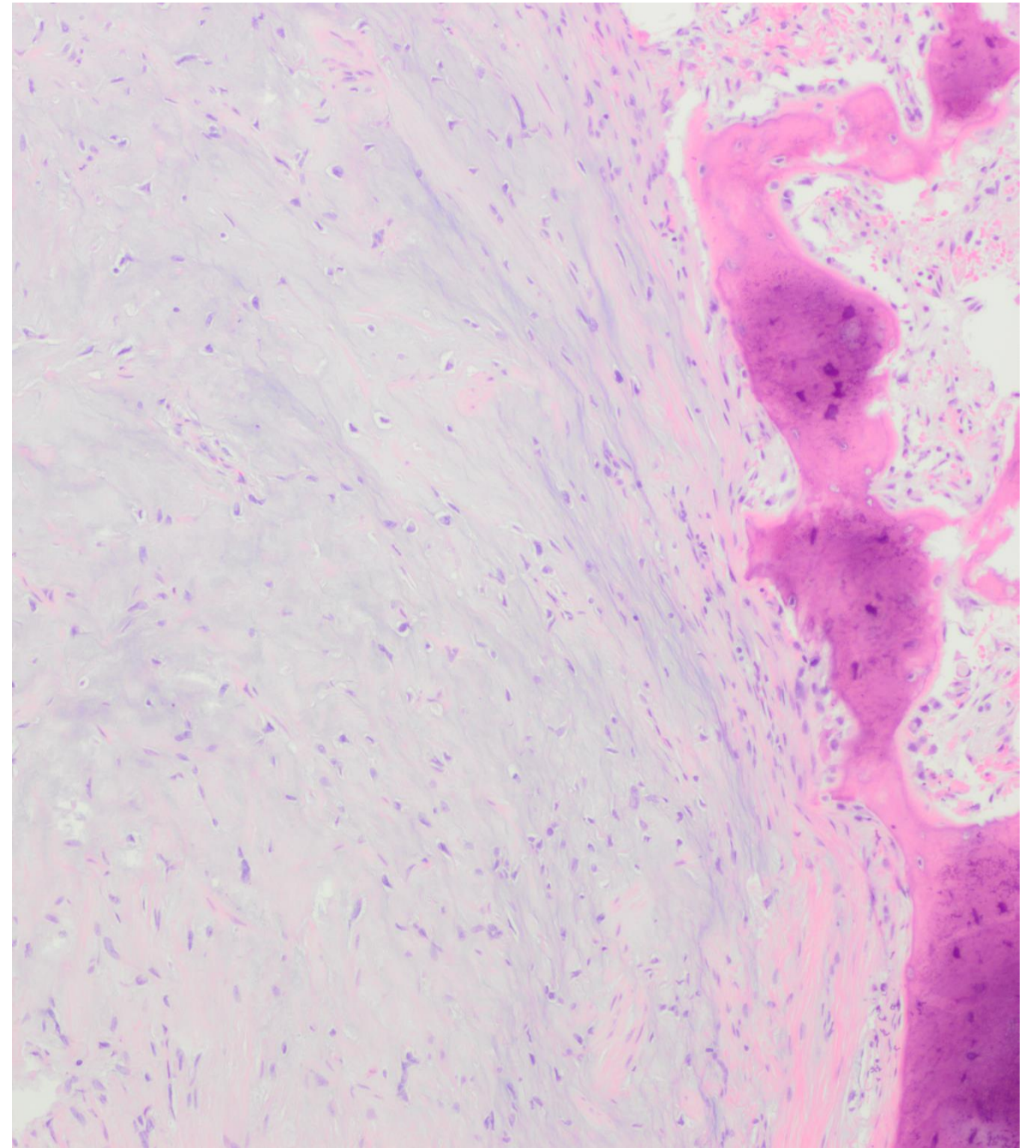
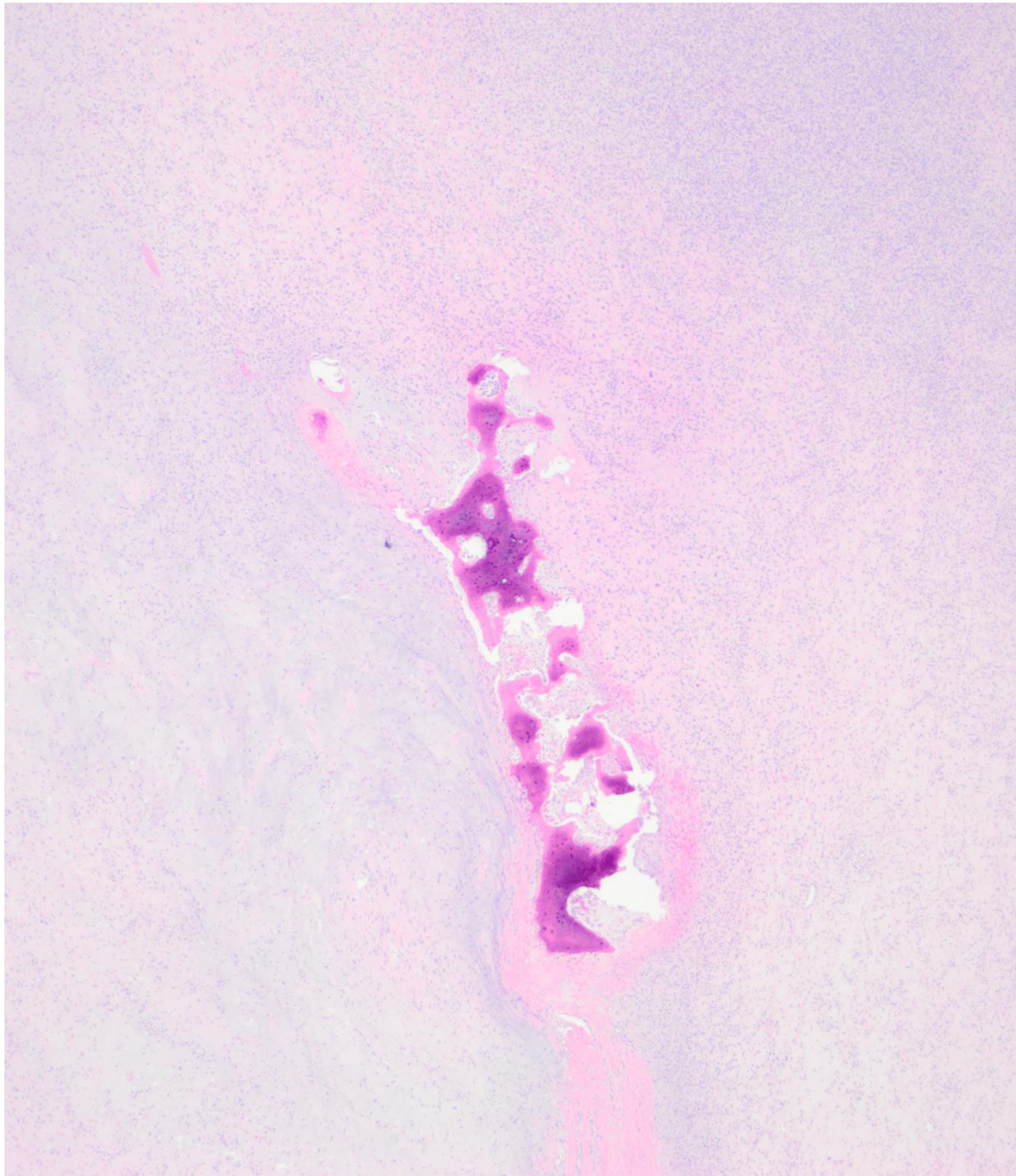
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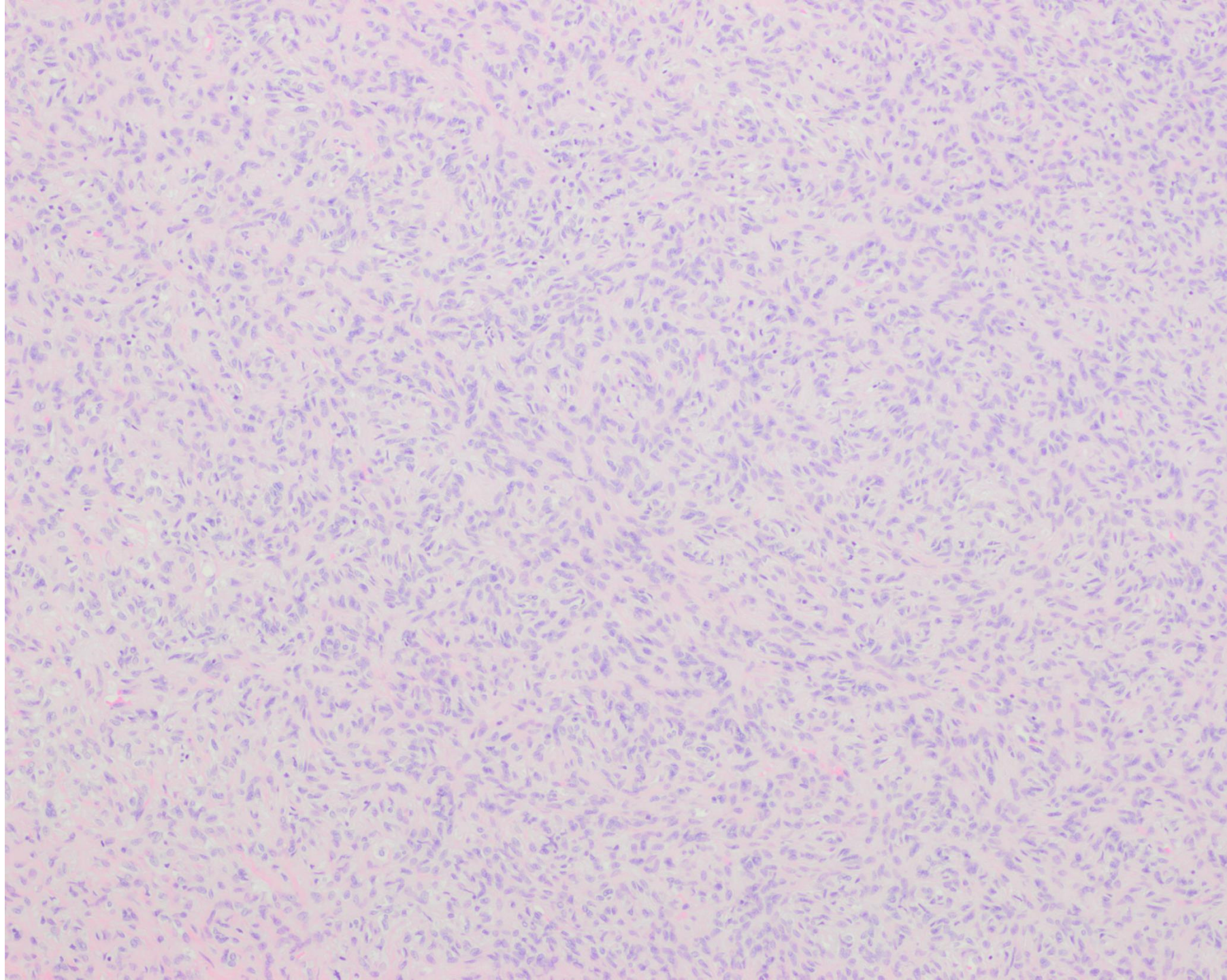
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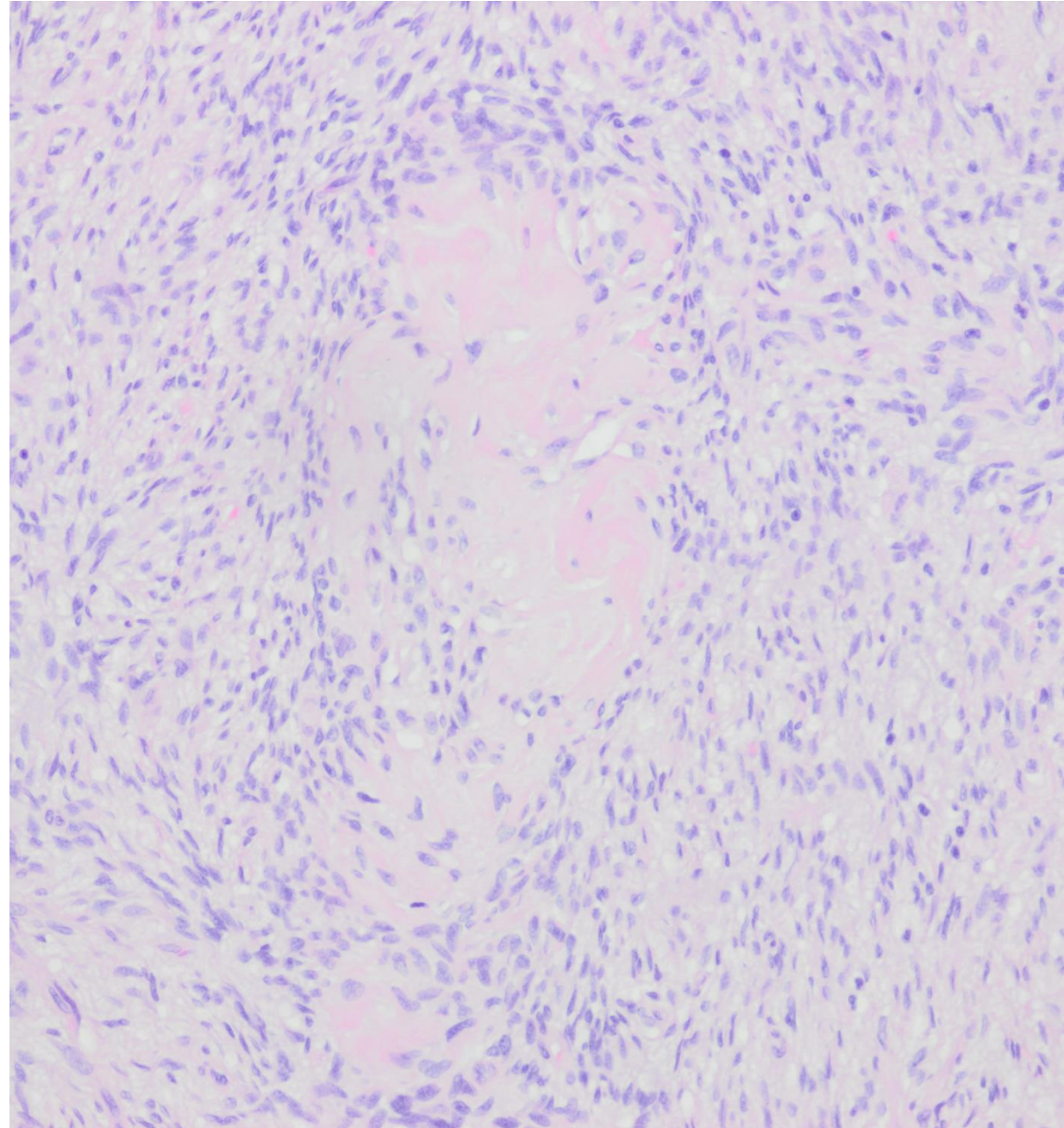
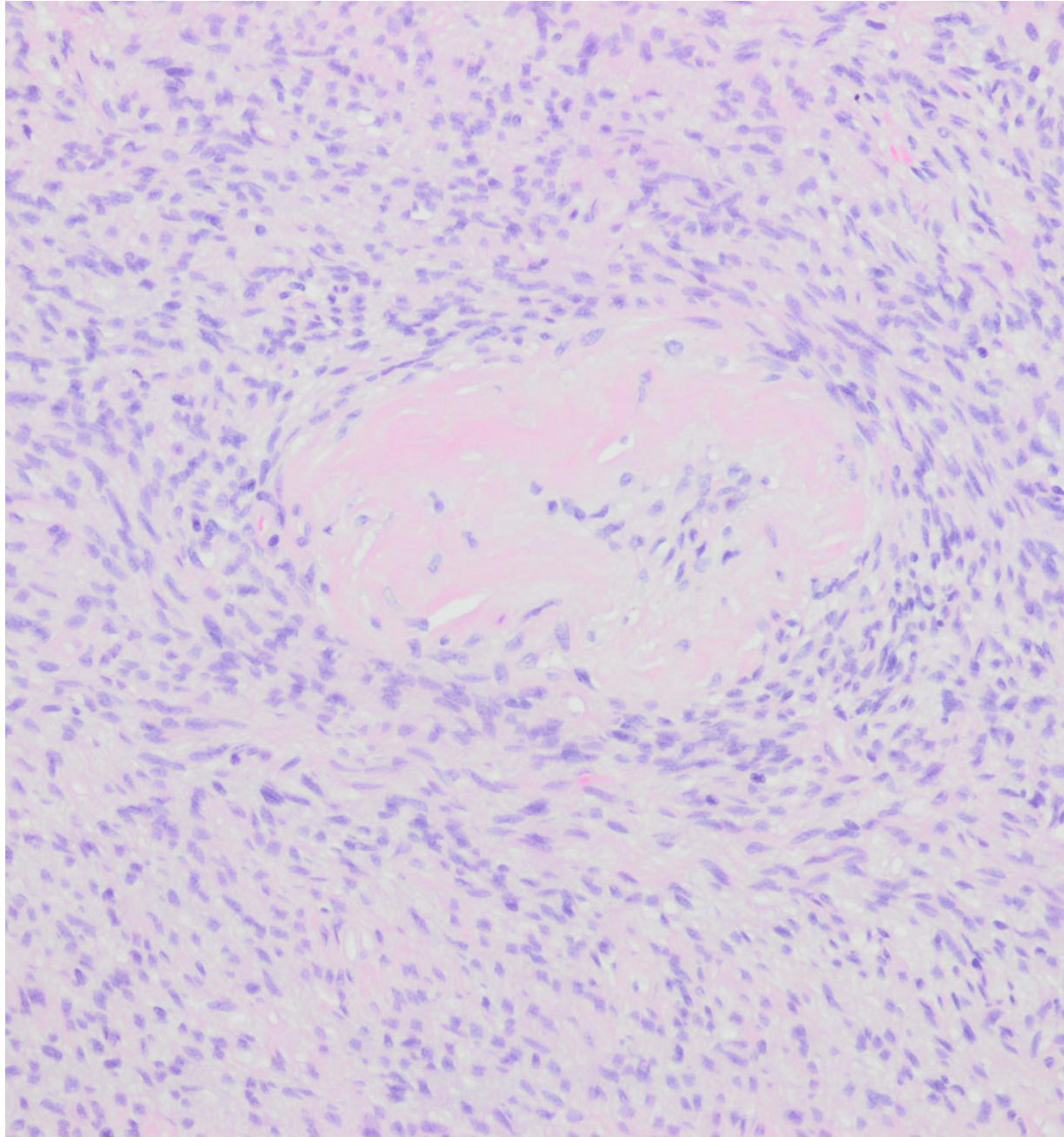
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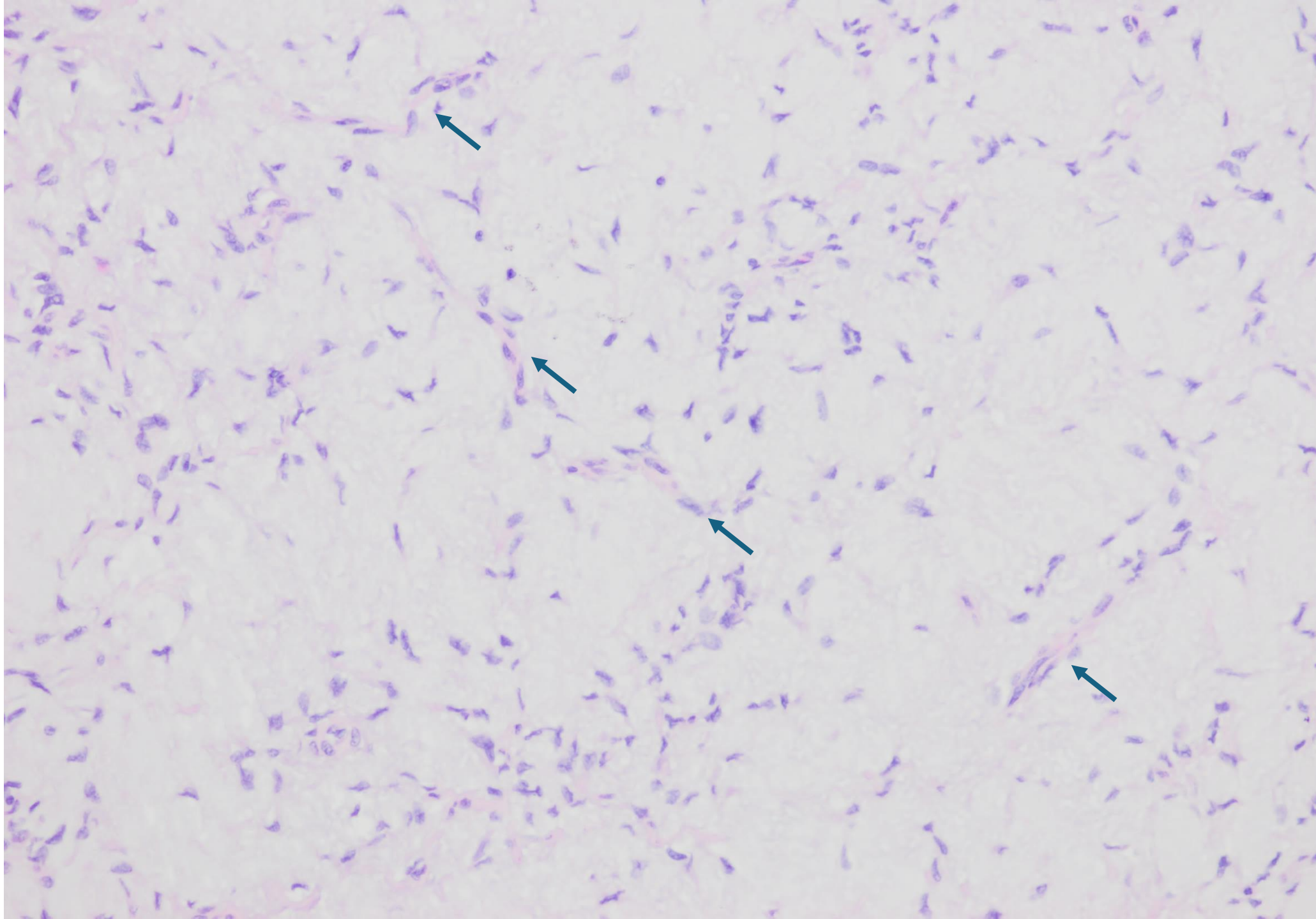
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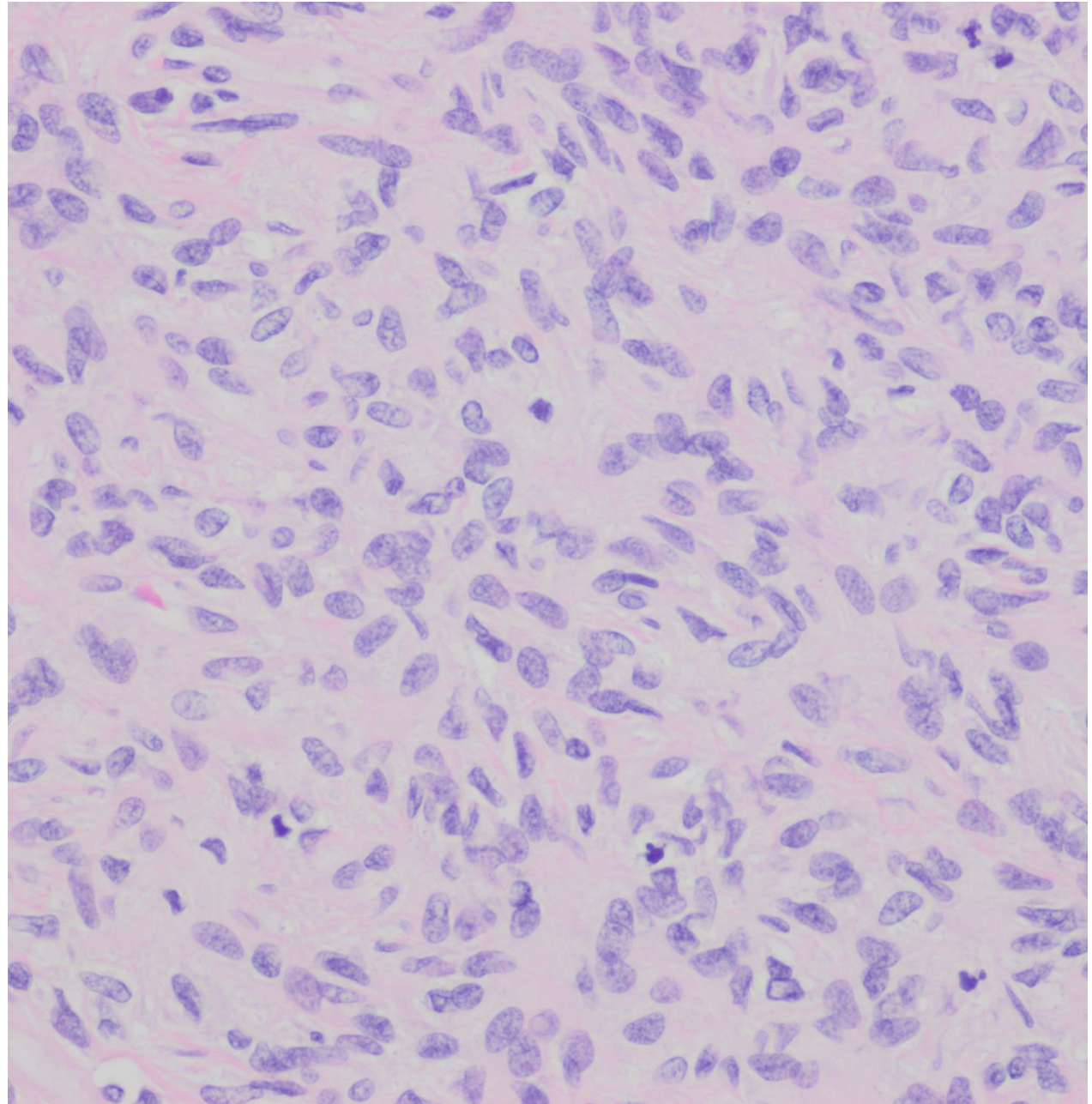
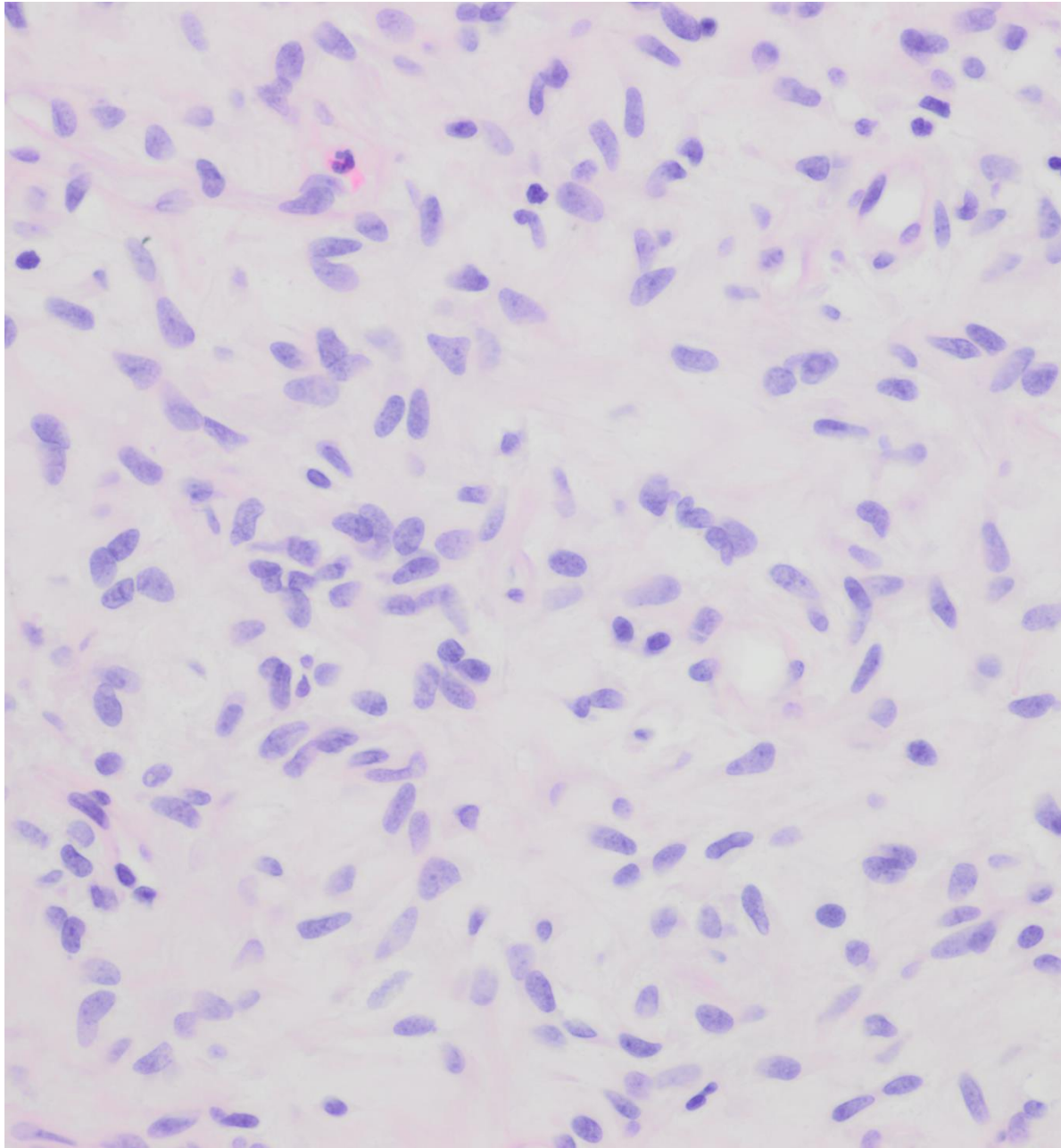
Resection



Resection

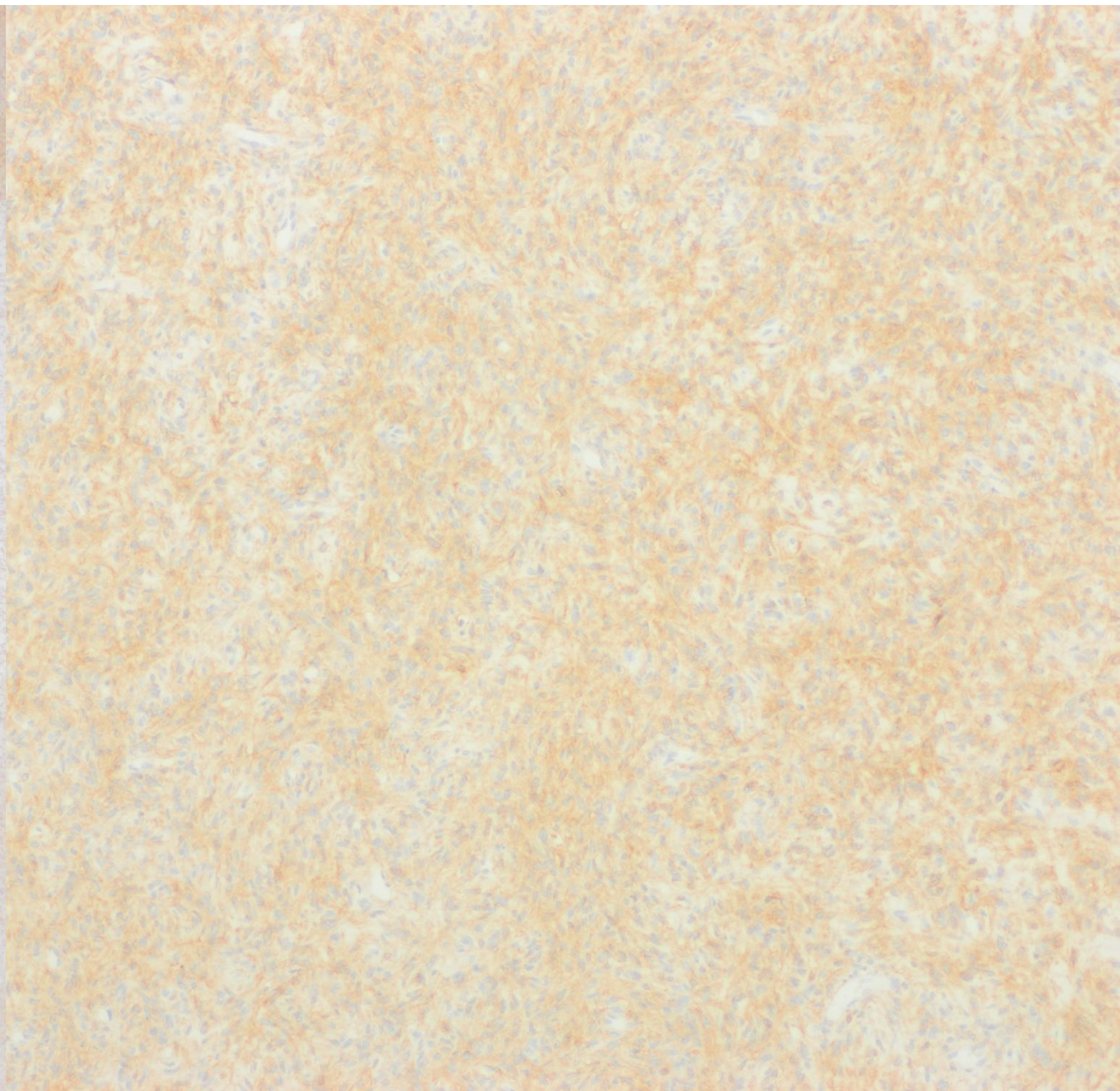
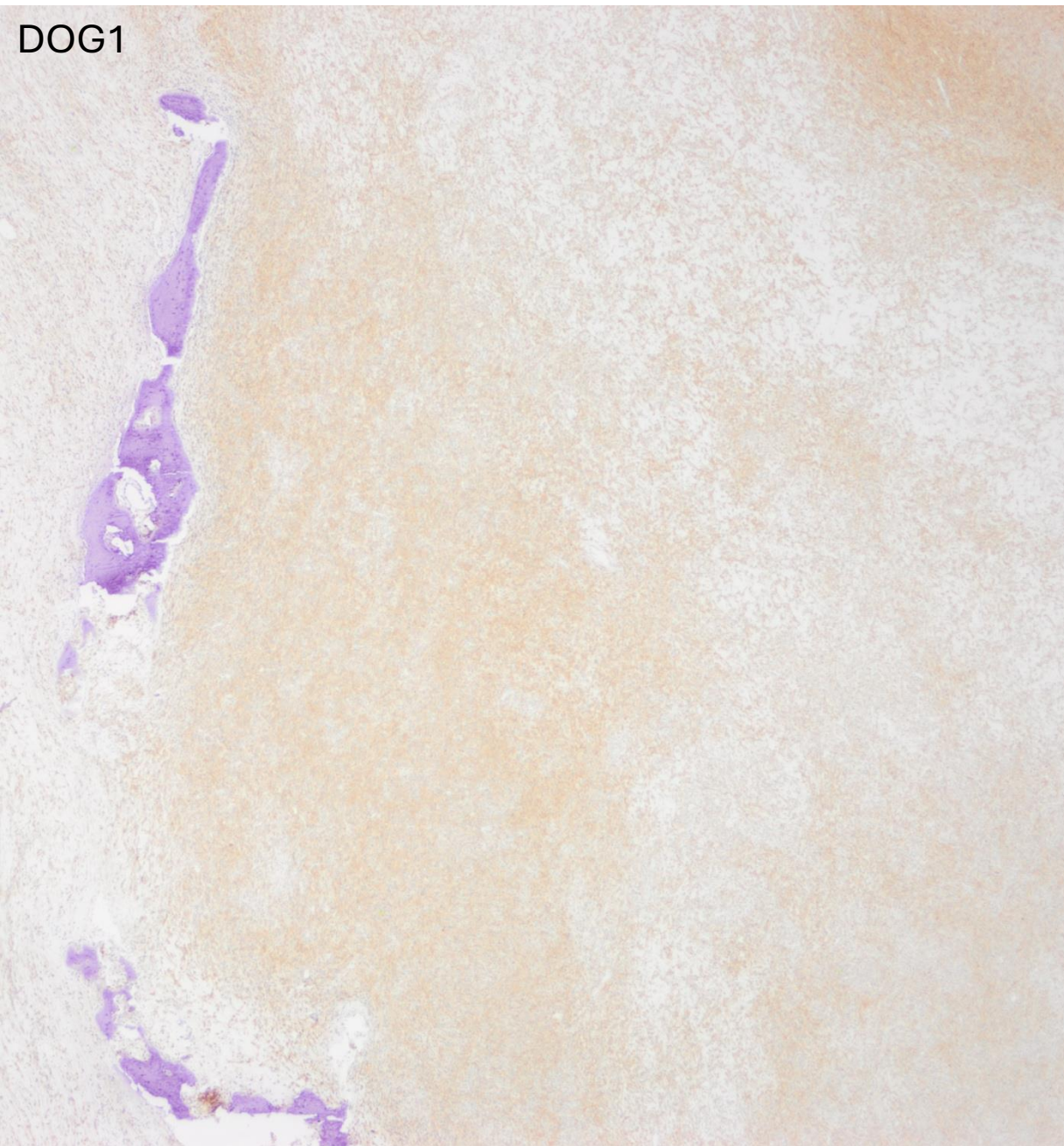


Resection

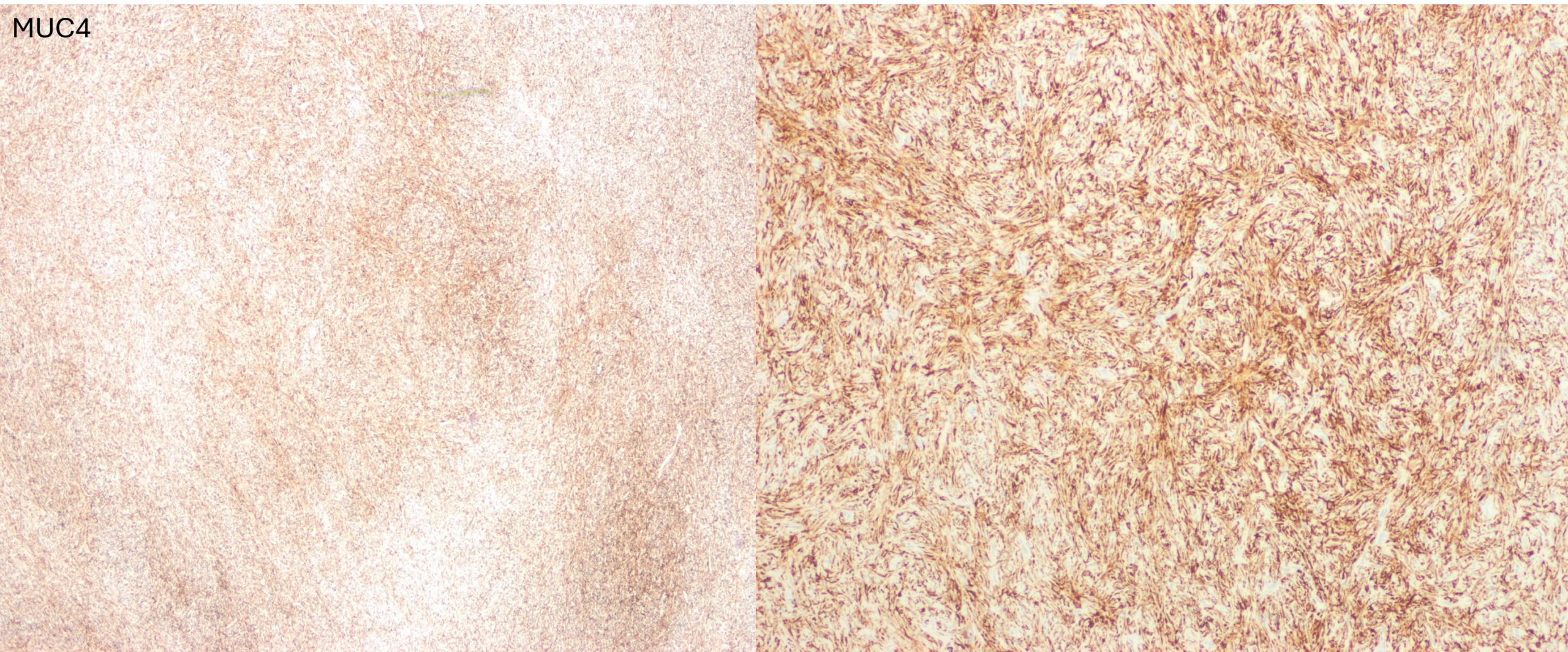


Diagnosis?

DOG1



MUC4



Other IHC:

- CD117: Negative.
- S100: Negative.
- Pan-Keratin: Negative.
- SMA: Negative, highlights vessels only.
- CD34: Negative, highlights vessels only.
- Desmin: Negative.

Final Diagnosis:

Low-grade fibromyxoid sarcoma (LGFMS)

LGFMS

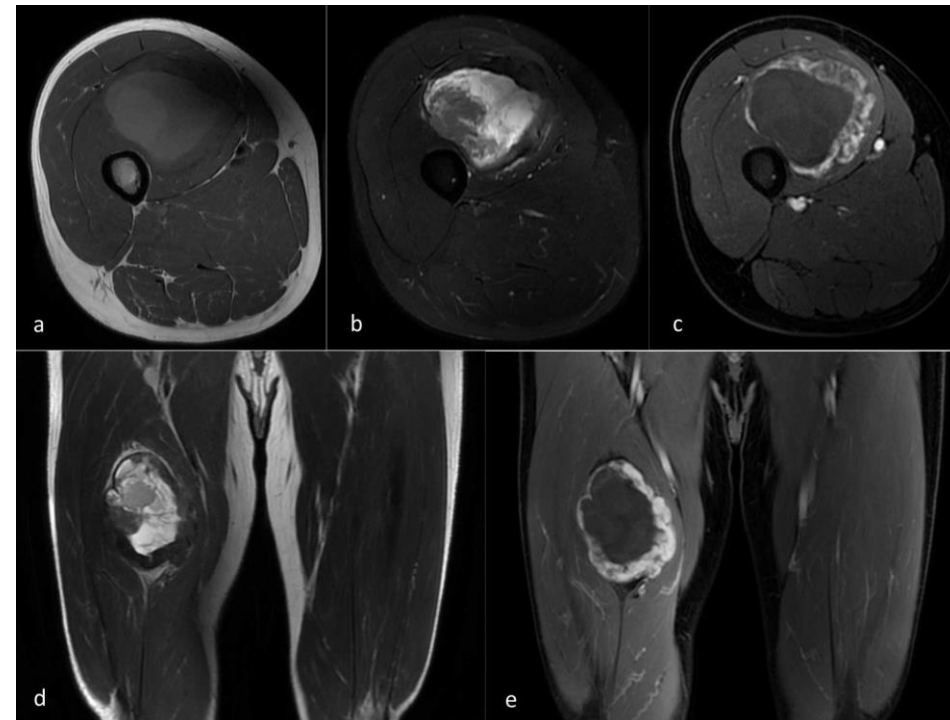
- **Deceptively bland, malignant spindle cell neoplasm often arising in the deep soft tissues of the proximal extremities or trunk of young adults.**
- First described by Dr. Harry Evans in 1987 (Evans tumor).
- Rare tumor with incidence of ~0.18 per million.
- Wide age range reported, but peak incidence in young adults (~35 years).
- Up to 20% of cases in patients age <18 years, but extremely rare in children <5.
- Majority of cases present as painless, slow growing deep tumors within proximal extremities and trunk.
- **Rare occurrences in other sites reported:**
 - Head and neck
 - Retroperitoneum
 - **Abdominopelvic visceral organs**

Brief Scientific Reports

Low-Grade Fibromyxoid Sarcoma

A Report of Two Metastasizing Neoplasms Having a Deceptively Benign Appearance

Am J Clin Pathol 1987; 88: 615–619 HARRY L. EVANS., M.D.



LGFMS

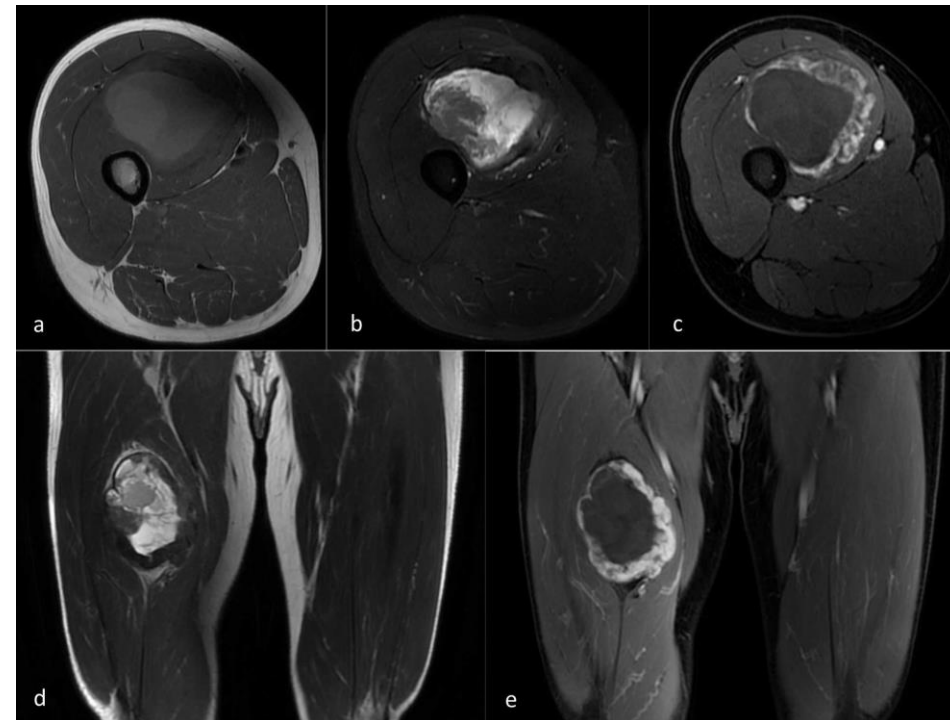
- Treatment: Wide surgical resection with clear margins.
 - Minimal impact from systemic therapy.
- Prognosis: **Long-term follow-up is critical.**
 - Initial studies demonstrated relatively indolent course in short-term follow-up after resection.
 - Contemporary studies with longer follow-up periods show higher rates of recurrence and metastasis.
 - Krebbekx et al, 2026: Systemic review of 773 cases
 - Local recurrence in 19% (median 3 years)
 - Metastasis in 21% (median 4 years)
 - Evans, 2011: 33 cases with longitudinal follow-up
 - Local recurrence in 62% (median 3.5 years, range 0-15 years)
 - Metastasis in 45% (median 5 years, range 0–45 years)
 - Death from disease in 42% (median 15 years, range 3-42 years)
- **Most common metastatic sites include lungs, pleura.**
- Recurrence primarily occurred after incomplete or marginal excisions.

Brief Scientific Reports

Low-Grade Fibromyxoid Sarcoma

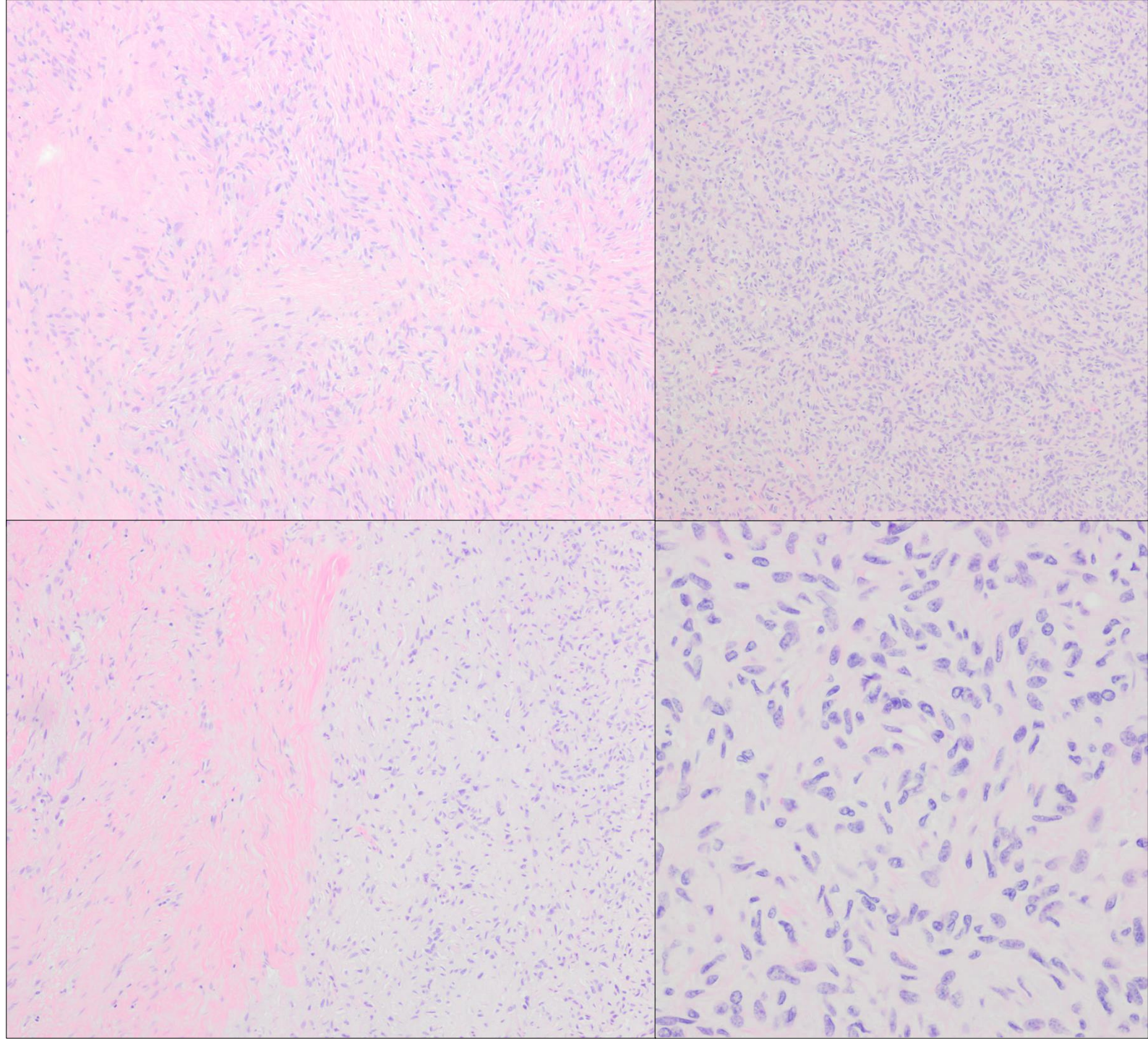
A Report of Two Metastasizing Neoplasms Having a Deceptively Benign Appearance

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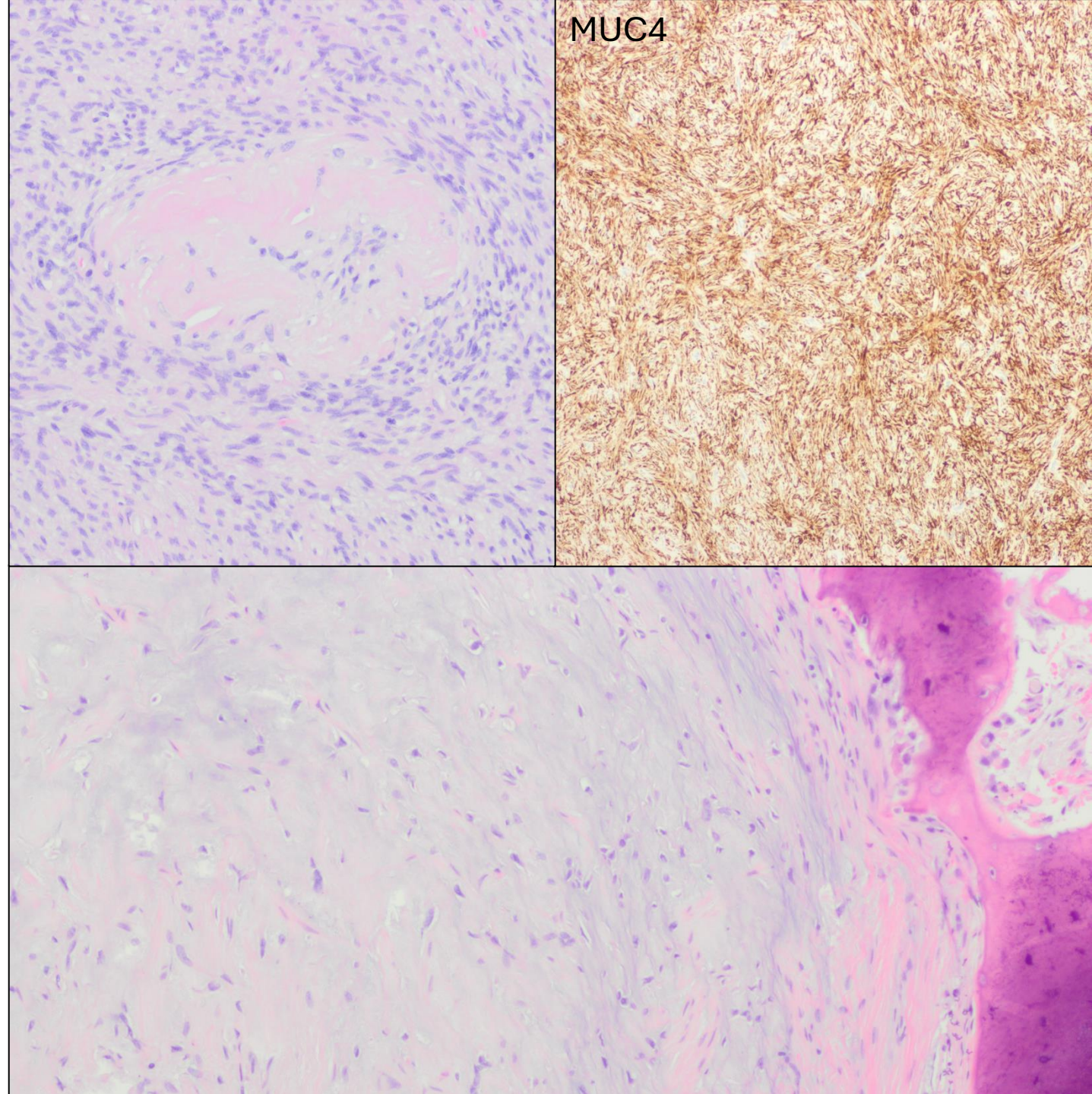
LGFMS

- Characterized by variable, alternating fibrous/collagenous areas and myxoid areas, often with abrupt transitions.
- Heterogeneous areas of cellularity.
- Storiform, whorled growth patterns, short fascicles.
- Composed of bland spindle cells with indistinct cytoplasm.
 - Mitoses and necrosis rare.
- Distinct curvilinear vessels.
- Abundant fibrillary stromal collagen.



LGFMS

- Collagenous rosettes present in ~30% of cases.
- Occasional hypocellular myxoid foci.
- Osseous metaplasia rare.
- **Strong, diffuse MUC4(+) in ~99% cases**
 - Variable EMA+ (~80%)
 - **Variable DOG1**
 - Negative: CD34, MDM2, SMA, S100, Desmin, Caldesmon, Keratins, CD117
- Cytogenetic hallmark: t(7;16)(q33;p11) → ***FUS::CREB3L2* fusion gene**
 - **>90% cases**
 - *FUS::CREB3L1* fusion gene (5%)
 - Rare cases with *EWSR1::CREB3L1* fusion



LGFMS: GI Tract

- Exceptionally rare, occurrence limited to case reports:
 - Small bowel (n=6)
 - Stomach (n=1)
 - Colon (n=3)
 - External anal sphincter (n=1)
- Risk of misdiagnosis when occurring in abdominopelvic cavity given unusual location, overlap with other mesenchymal neoplasms:
 - Desmoid-type fibromatosis
 - Gastrointestinal stromal tumors (GIST)
 - Peripheral nerve sheath tumors.
 - Solitary Fibrous Tumor

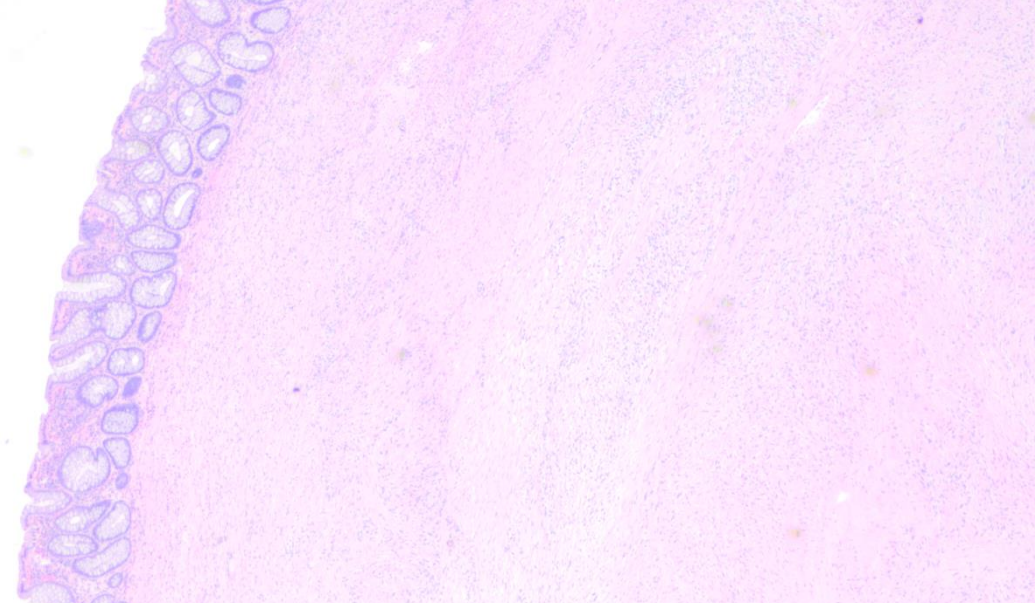


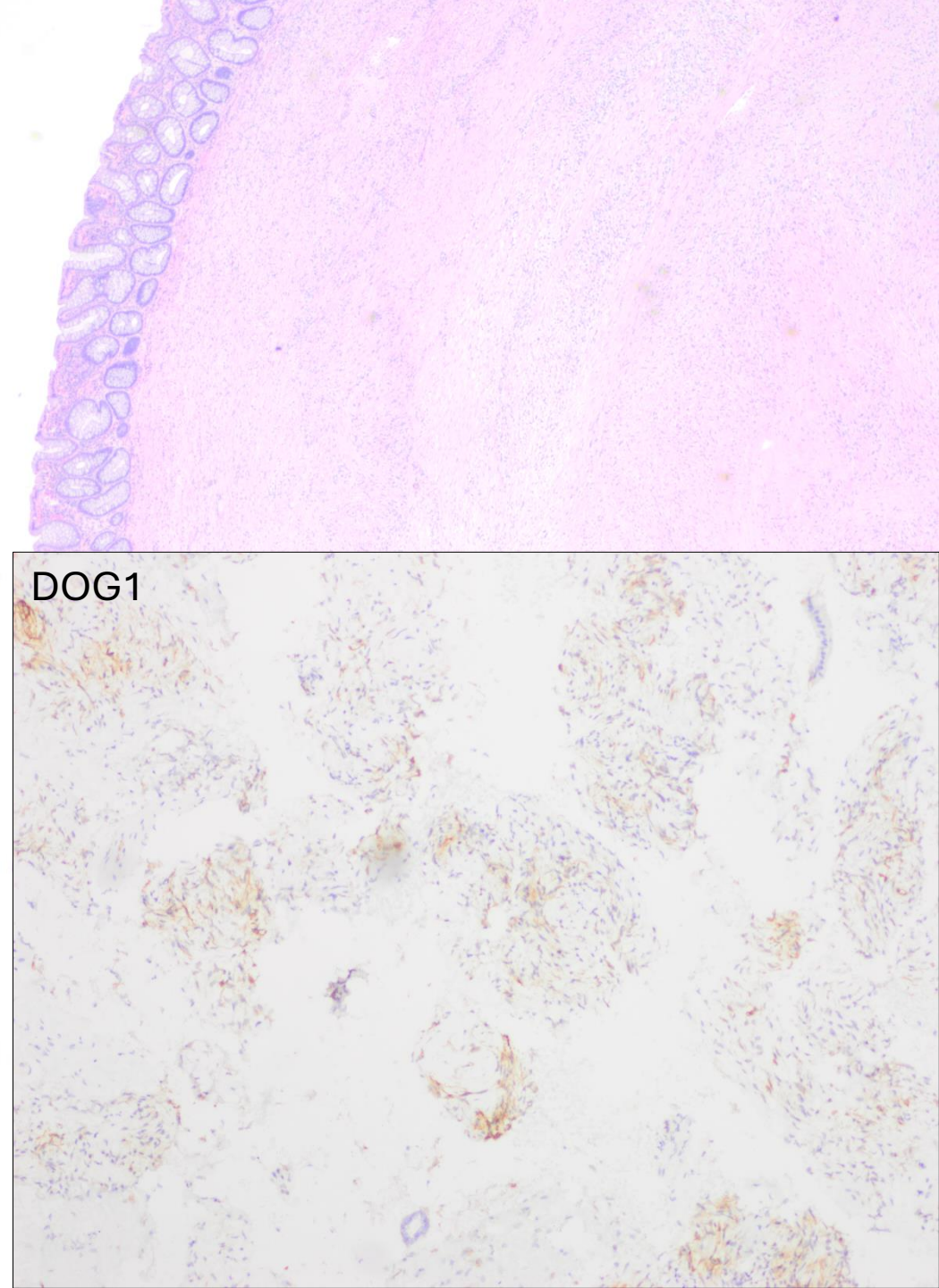
Table 1. Reported cases of LGFMS arising from GI tract.

Case	Author [ref. no.]	Year	Age/sex	Location	Maximal size	Tx	Outcome
1	Park [16]	2007	43/M	Colon	8.0cm	S	NED, 2y
2	Laurini [17]	2011	53/F	Small intestine	14.5cm	S	NED, 2m
3	Laurini [17]	2011	71/M	Small intestine	4.5cm	S	NED, 9m
4	Laurini [17]	2011	52/F	Small intestine	unknown	S	DOD, 7y
5	Laurini [17]	2011	69/F	Small intestine	11.0cm	S	LFU
6	Kim [18]	2014	21/F	Transverse colon	7.0cm	S	NED ^a
7	Mendoza [19]	2015	48/F	Sigmoid colon	12.0cm	S	NED ^a
8	Our case	2017	54/F	Stomach	8.0cm	S	NED, 3y

9m

LGFMS: DOG1

- Din et al., 2018: 13 abdominopelvic and retroperitoneal cases
 - Intra-abdominal/abdominal wall (n=4), retroperitoneum (n=3), pelvis (n=3), small bowel (n=2) and kidney (n=1)
 - **Positive DOG1 in 4/10 cases**
- Thway et al., 2015:
 - **Positive DOG1 in 5/10 cases, varying in amount (5-75%) and intensity (weak-strong)**
- Vallejo-Benítez et al., 2017:
 - 2x DOG1 commercial clones
 - **Positive DOG1 in 8/19 cases with clone K9**, focal (10–30%) and varying intensity (weak-moderate)
 - No positive staining observed with clone SP31



Summary

- LGFMS is a relatively bland, malignant spindle cell neoplasm usually arising in the deep soft tissues of the proximal extremities or trunk of young adults.
- Long-term follow-up following primary surgical resection is critical, as recurrence and metastasis can occur late in disease course.
- LGFMS has been shown to rarely occur in other sites such as head and neck, retroperitoneum, and abdominopelvic visceral organs.
- When arising in these unusual locations, there is risk of misdiagnosis given the rare location and histologic overlap with other mesenchymal tumors.
 - ***Not all histologic features of LGFMS may be captured on biopsy or FNA.***
 - DOG1 expression can be variably positive in LGFMS and thus overlap with GIST, though CD117 is typically negative and MUC4 remains a highly sensitive and specific marker.
 - Consider other rare differential diagnoses for spindle cell neoplasms, such as LGFMS, in GI tract when morphology and IHC results do not add up entirely.

Thanks for listening!

Credit:

- Dr. Sarah Umetsu
- UCSF Pathology

References

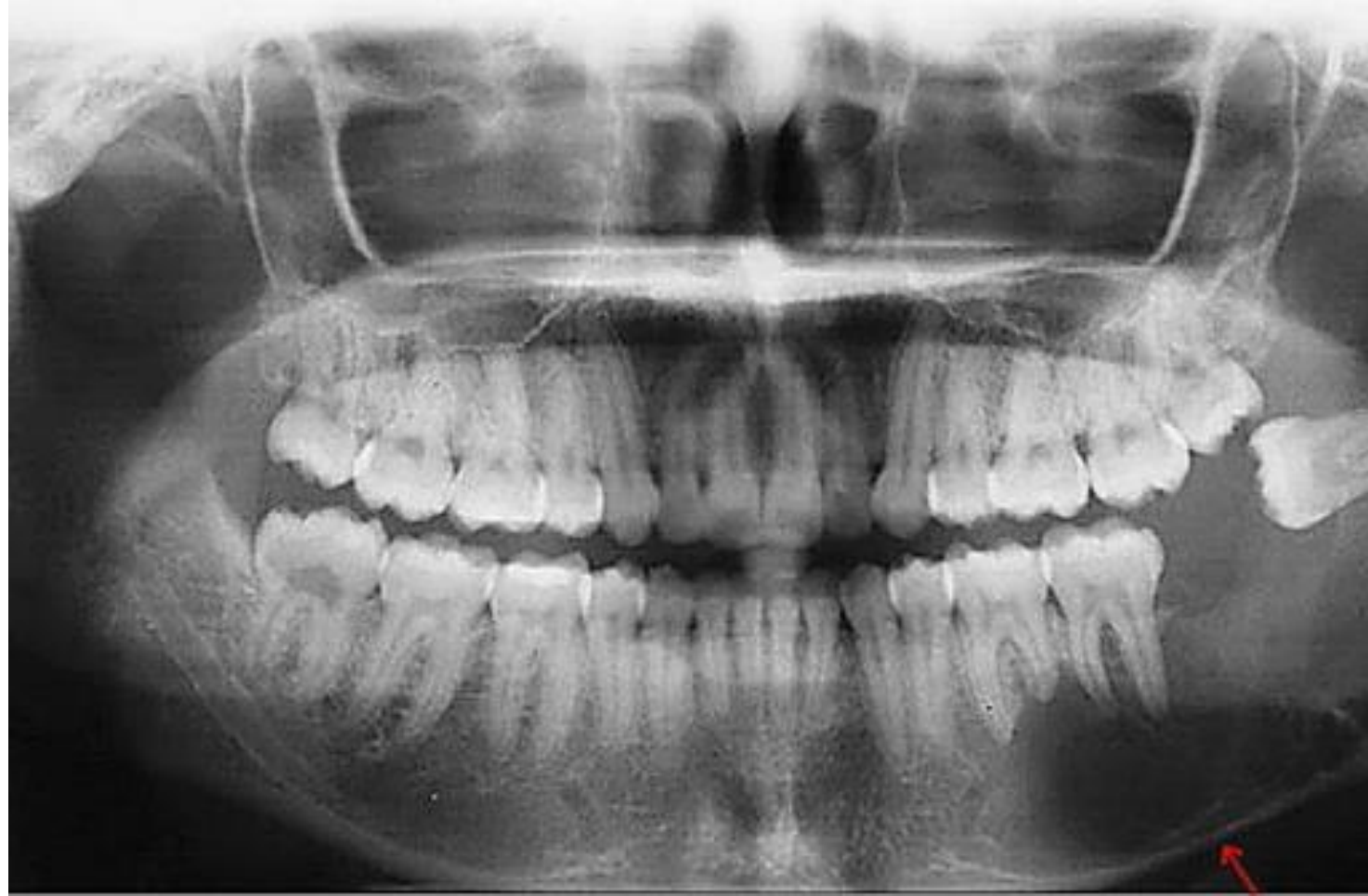
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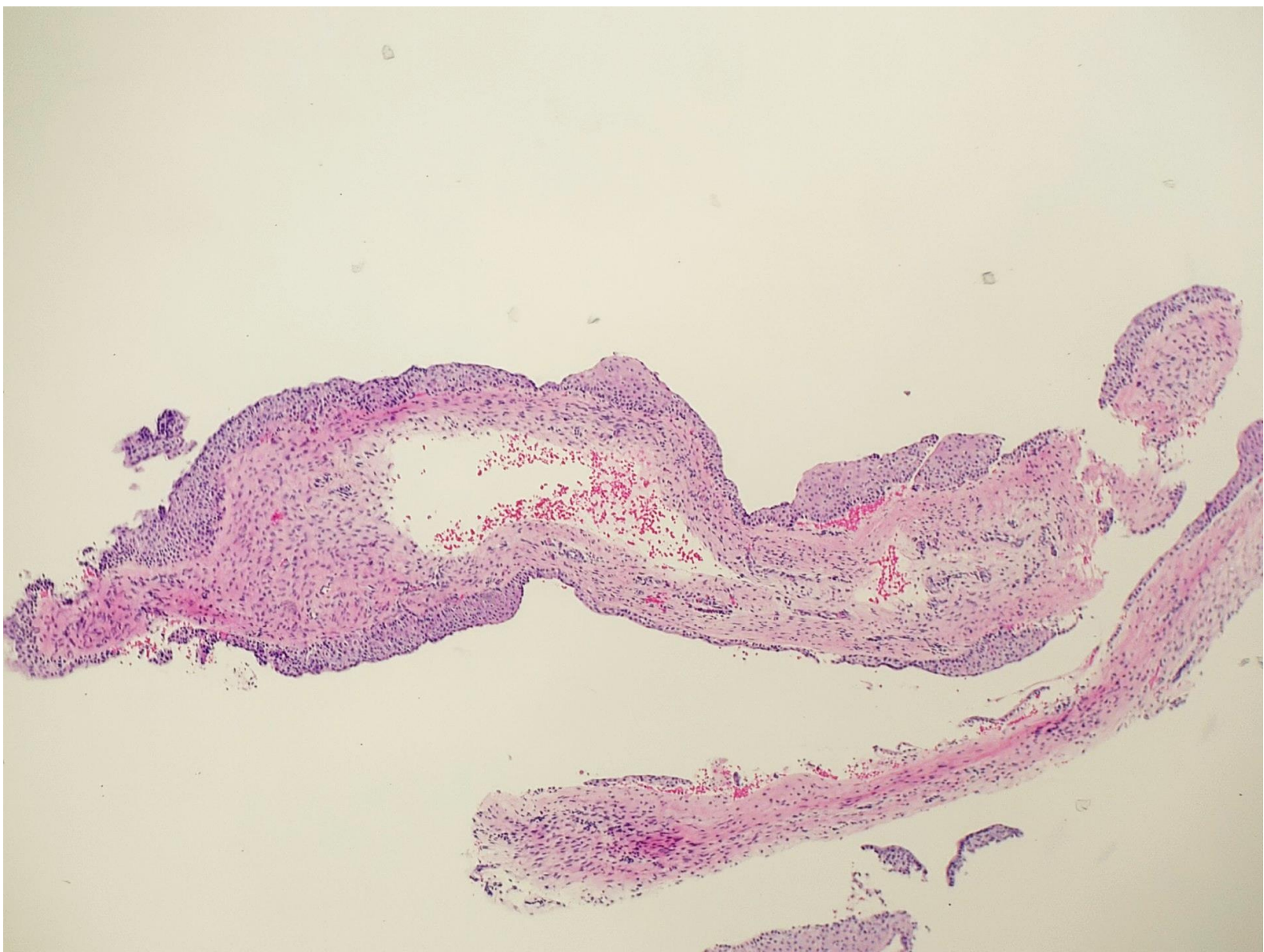
26-0406

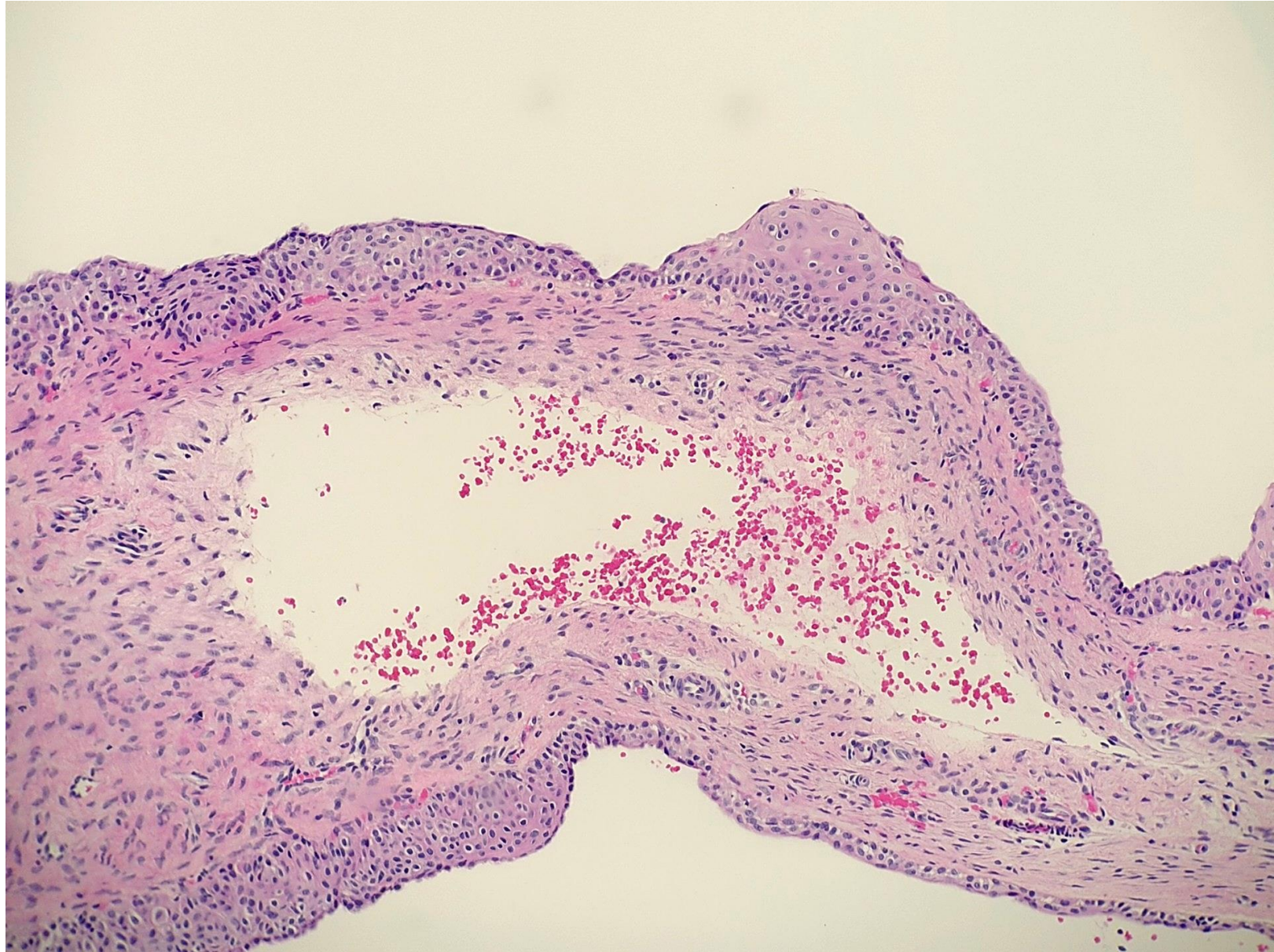
Harris Goodman; Alameda Health System

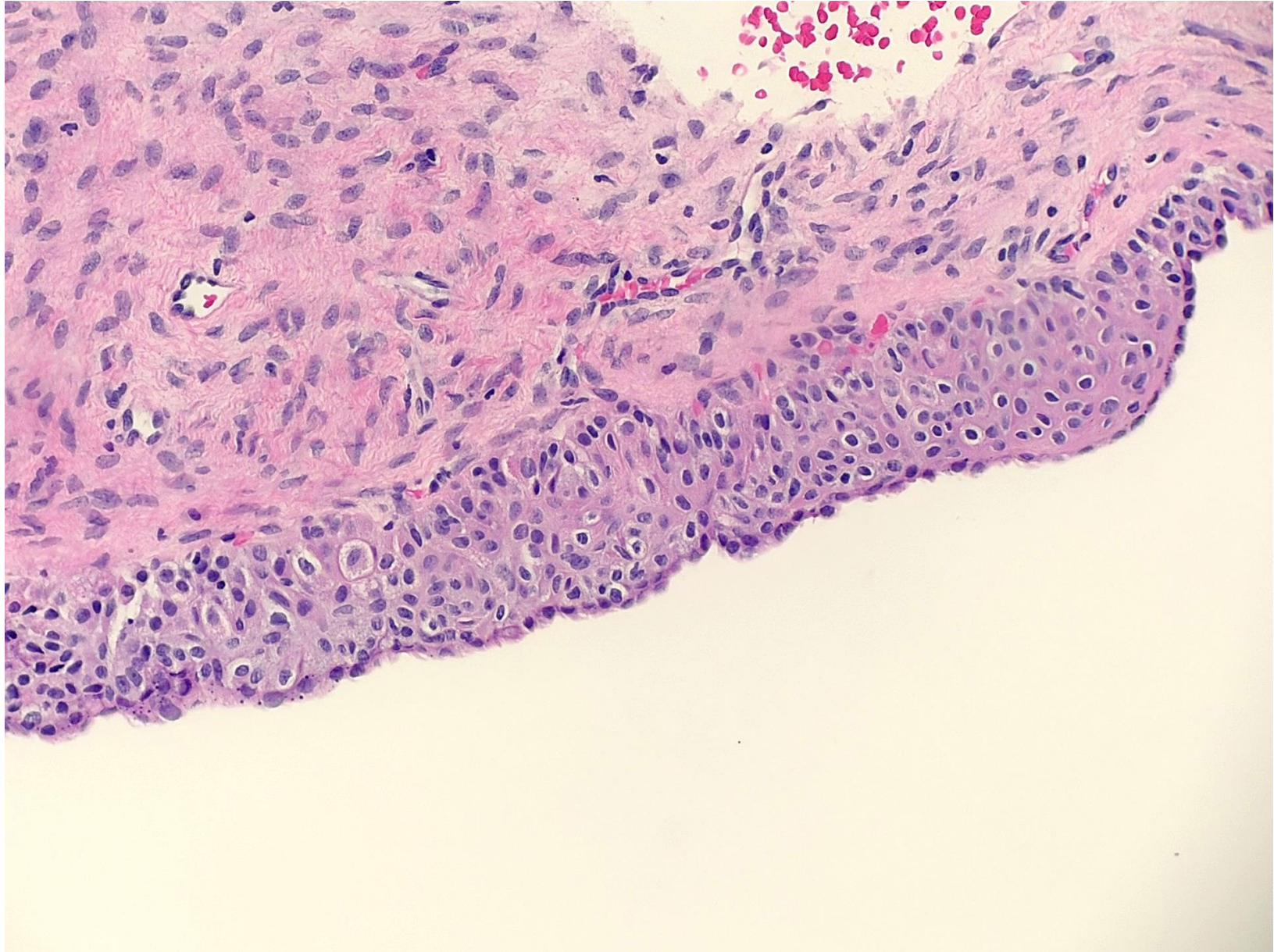
62 year old woman who, while undergoing routine dental radiographs, was found to have a radiolucency of the left anterior mandible. Hemoglobin A1c: 11.2%. Panoramic radiograph (PAN) and cone beam computed tomography (CBCT) show a lesion in the anterior mandible that is multilocular, with a soap-bubble appearance.

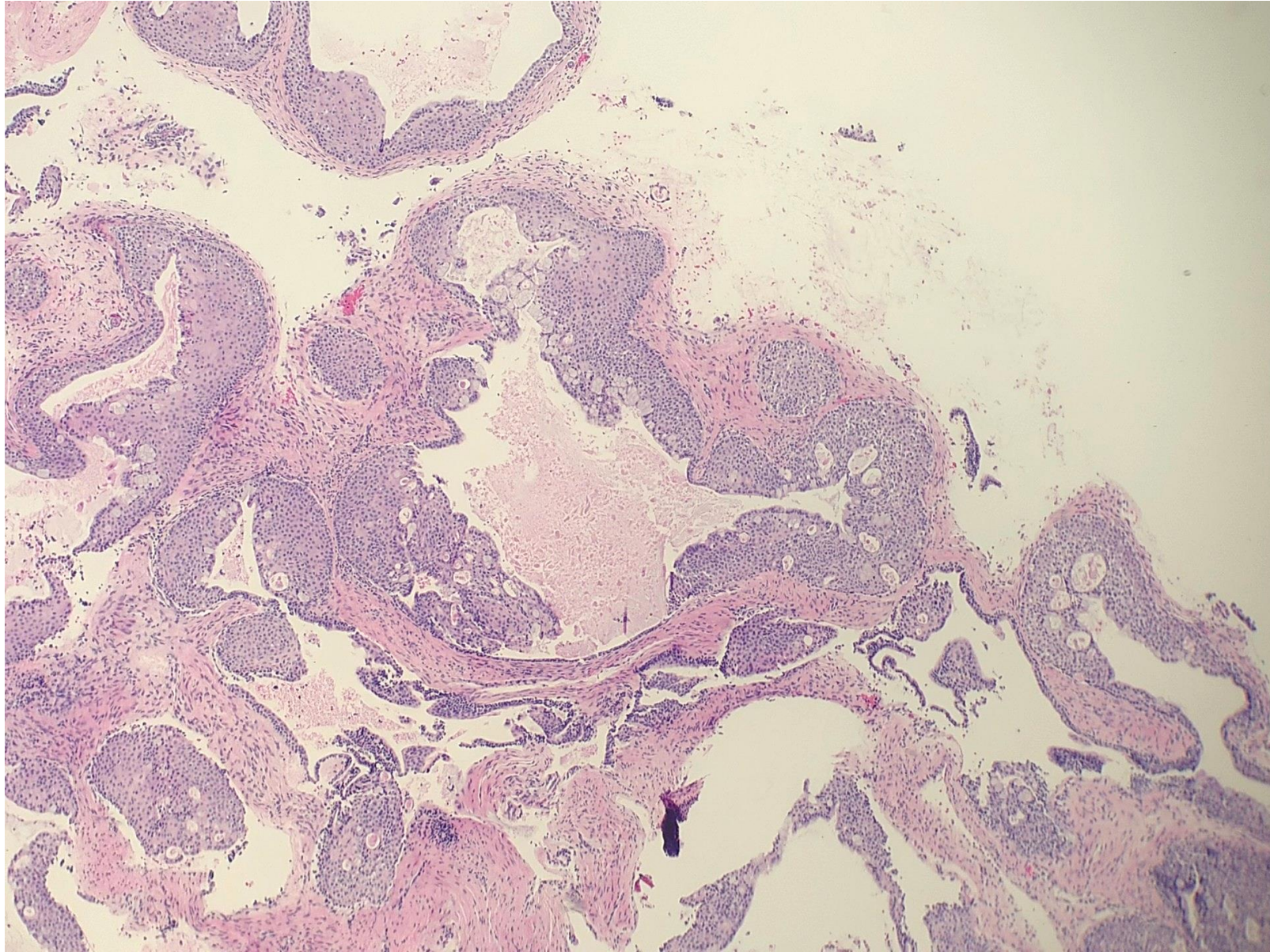


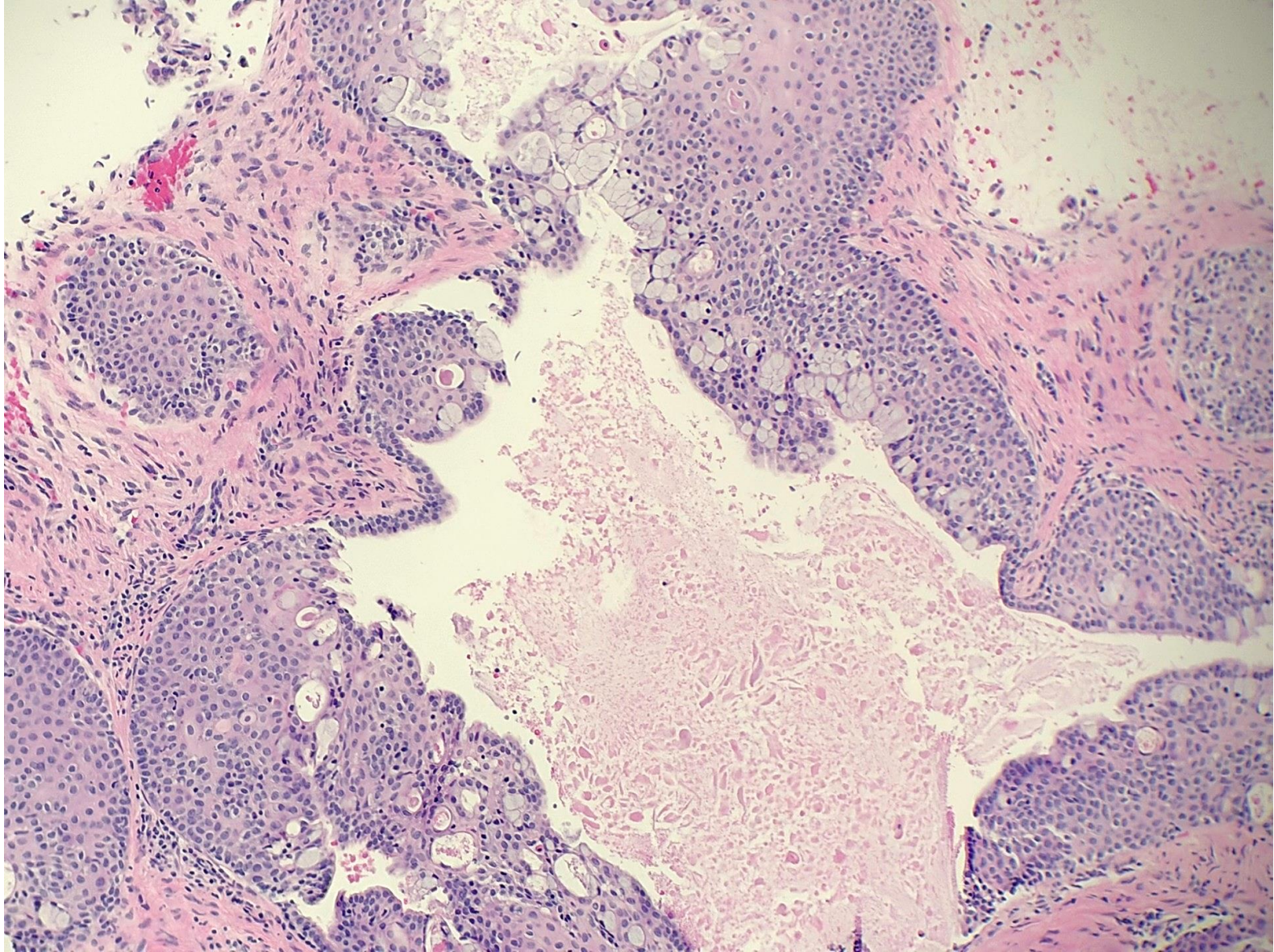


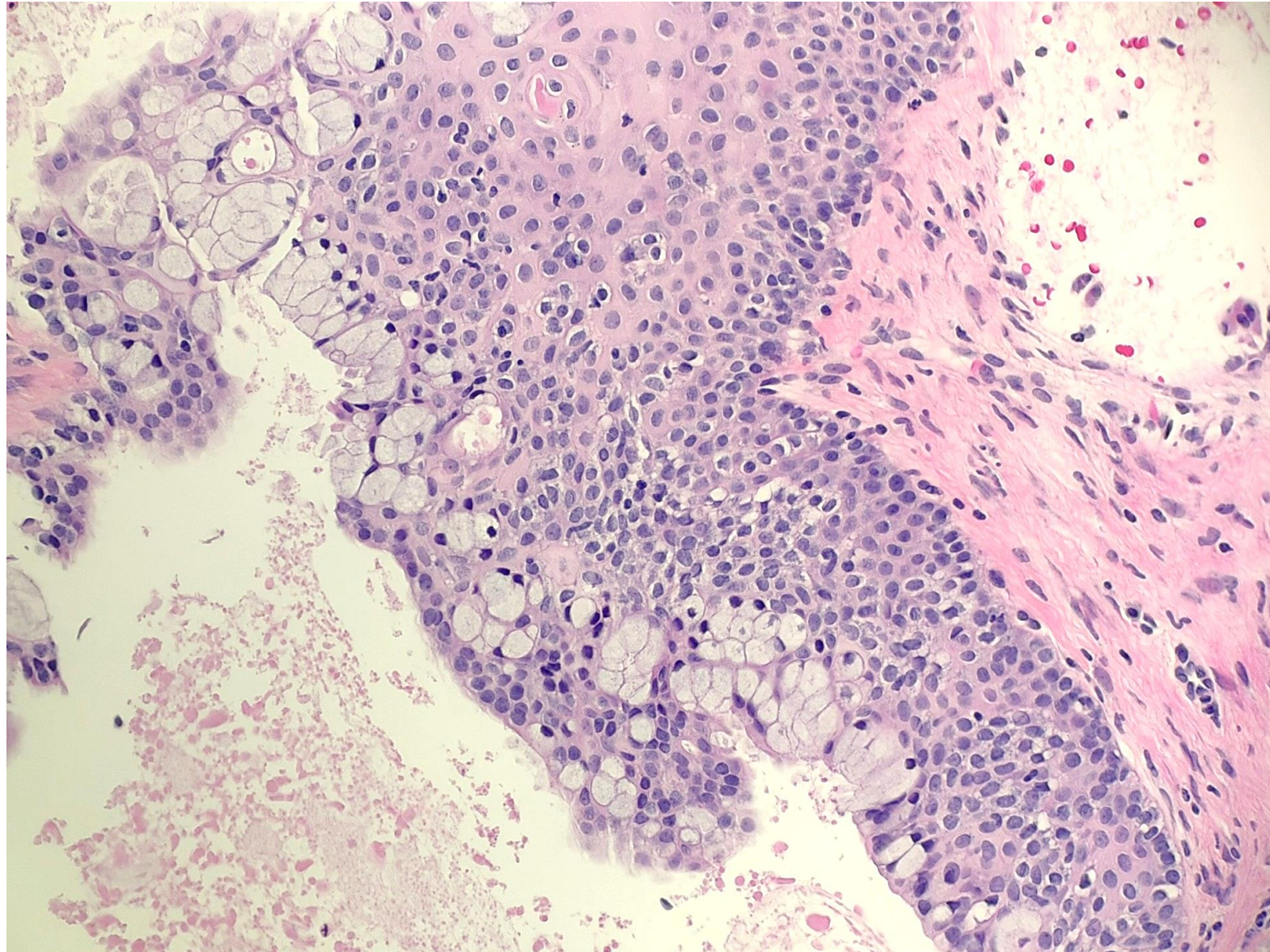


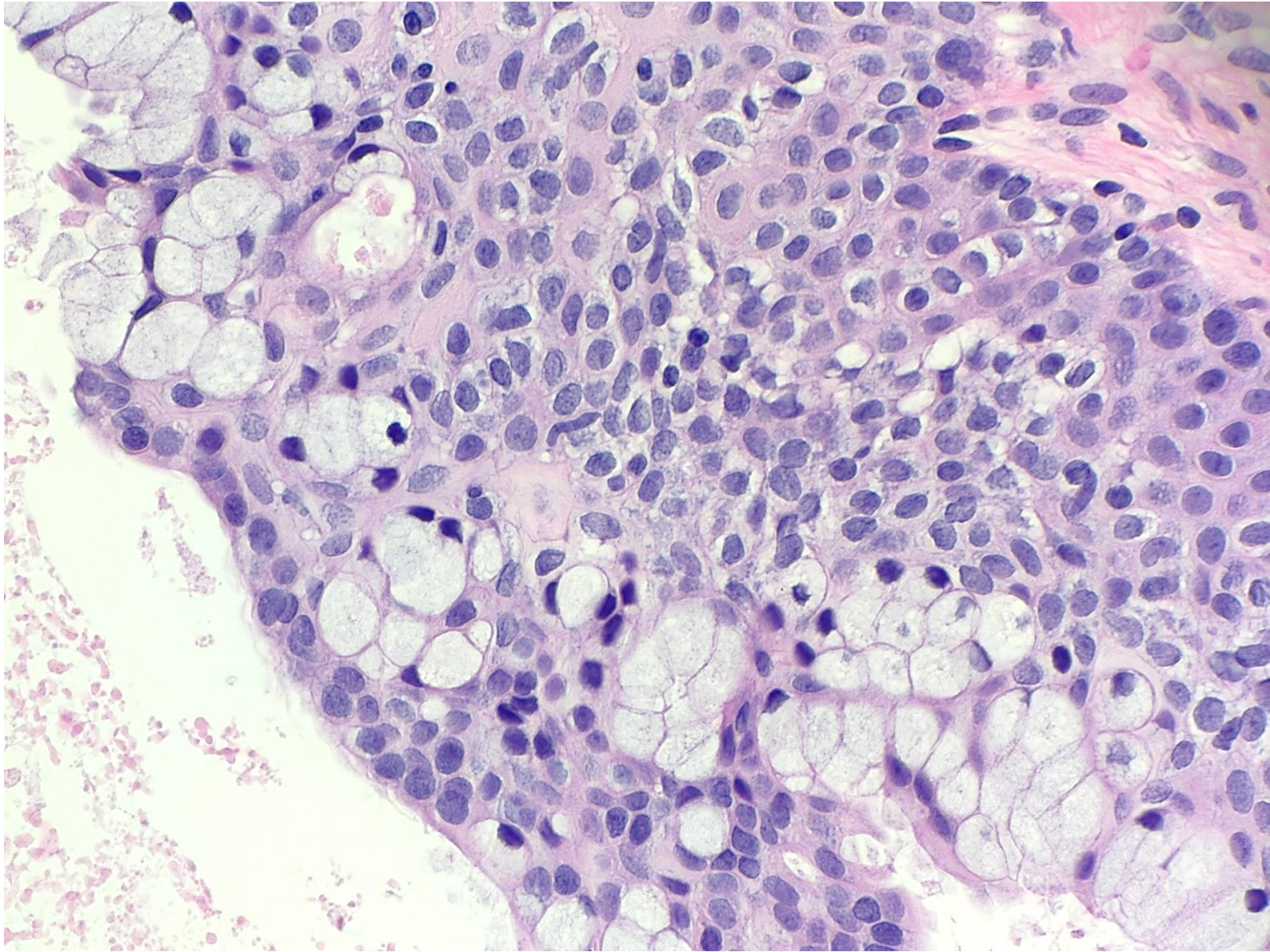












DIAGNOSIS?



Diagnosis:

Glandular Odontogenic Cyst

Differential diagnosis:

- Helpful to consider microscopic parameters in combination with radiographic and clinical / historical data:
 - **Associated with unerupted tooth / teeth, no prior history of cyst removed from same area, no prior history of major oral surgery in same anatomic area:**
 - Odontogenic keratocyst
 - Dentigerous cyst
 - Central mucoepidermoid carcinoma
 - **Associated with the root of erupted tooth / teeth, no prior history of odontogenic cyst removed from same area:**
 - Radicular cysts: can have mucous cell metaplasia
 - Odontogenic keratocyst
 - Central mucoepidermoid carcinoma
 - Botryoid cyst/lateral periodontal cyst
 - Surgical ciliated cyst
 - **Edentulous area or associated with the root of erupted tooth / teeth, positive history of odontogenic cyst removed from same area:**
 - Odontogenic keratocyst
 - Central mucoepidermoid carcinoma
 - Botryoid cyst
 - Recurrent glandular odontogenic cyst

Diagnosis:

Glandular Odontogenic Cyst

Locally aggressive developmental cyst occurring within the jaws, recognized by WHO in 1992 as odontogenic in origin

- Rare lesion, 0.2% of all odontogenic cysts
- Average age at diagnosis is 51 years
- Peak occurrence in 5th to 7th decades
- No gender predilection
- Distinct peak frequency in sixth decade, particularly in men
- Mandible is most common location, 80%
 - 55% occur in anterior mandible
- Maxilla affected in 20% cases
 - 88% in anterior maxilla, usually canine area

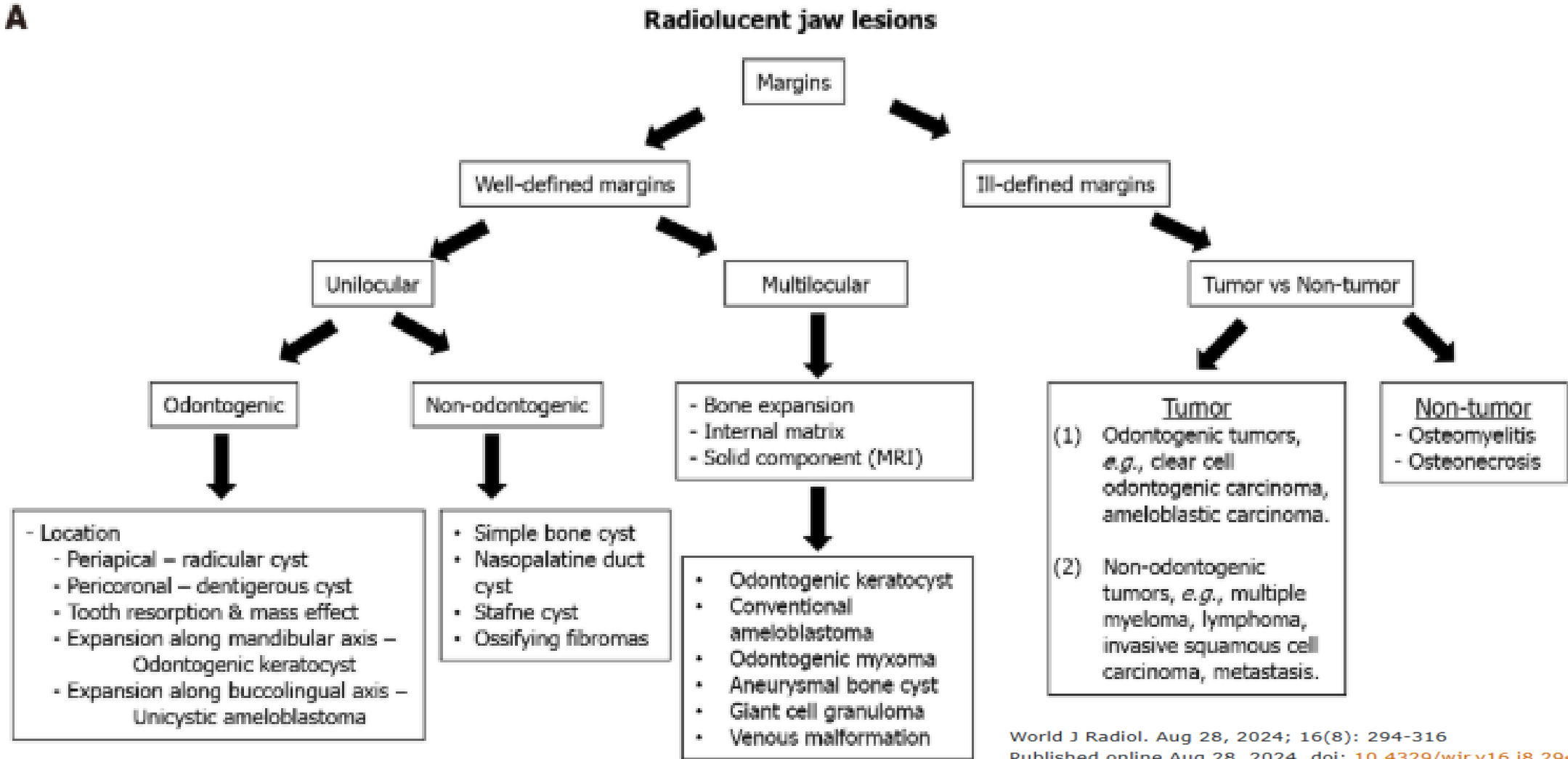
Prognostic factors

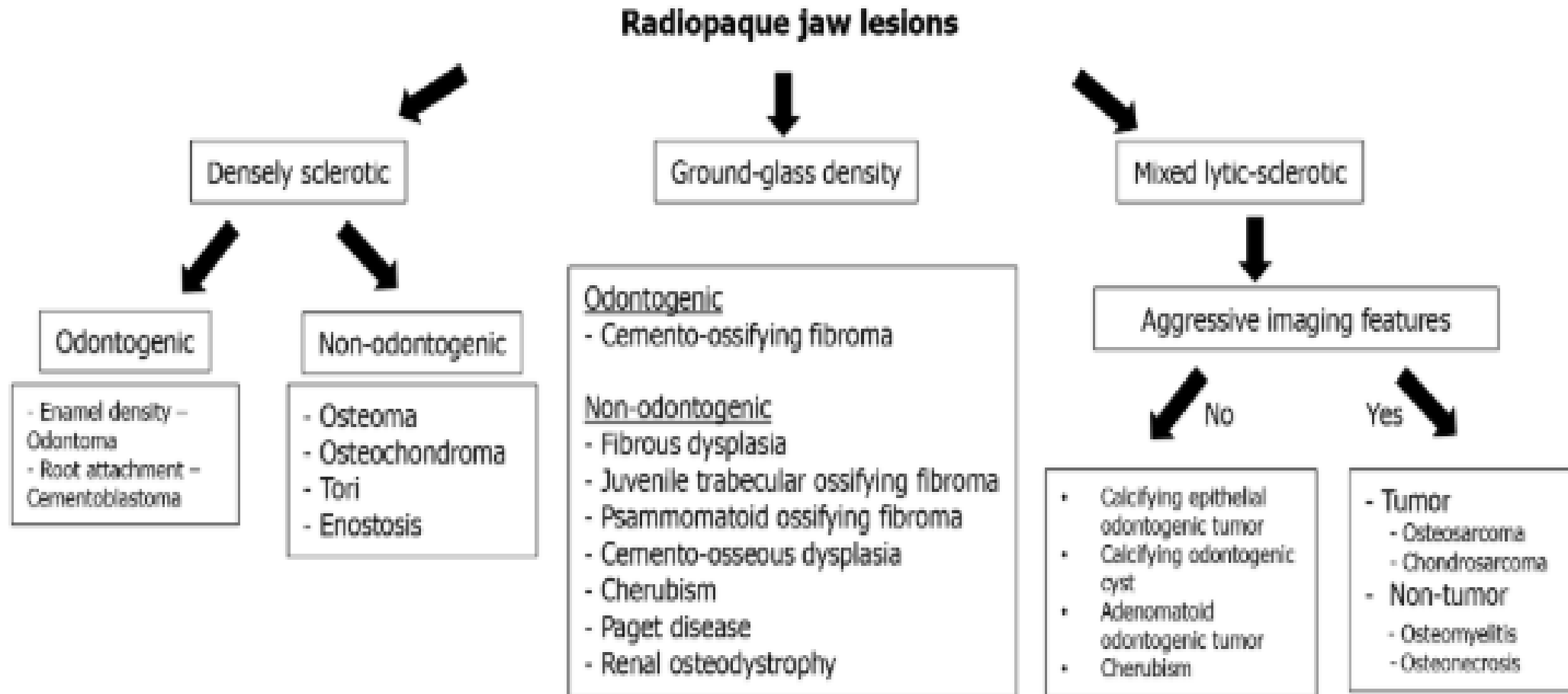
- In some series, 20 - 50% recurrence rate; multiple recurrences possible.
- Time to recurrence variable: may depend on initial size of lesion, method of treatment, method of postoperative surveillance (plain radiography vs cross sectional imaging).

Treatment

- Range of interventions described: enucleation, curettage, +/- peripheral ostectomy, marsupialization segmental mandibulectomy, marginal mandibulectomy.
- More aggressive initial surgery may reduce rate of recurrence.
- Treatment influenced by size of lesion, involvement of teeth, bone compromise present, cortical bone perforation, history of recurrence, proximity to vital anatomic structures, other patient related variables.

A



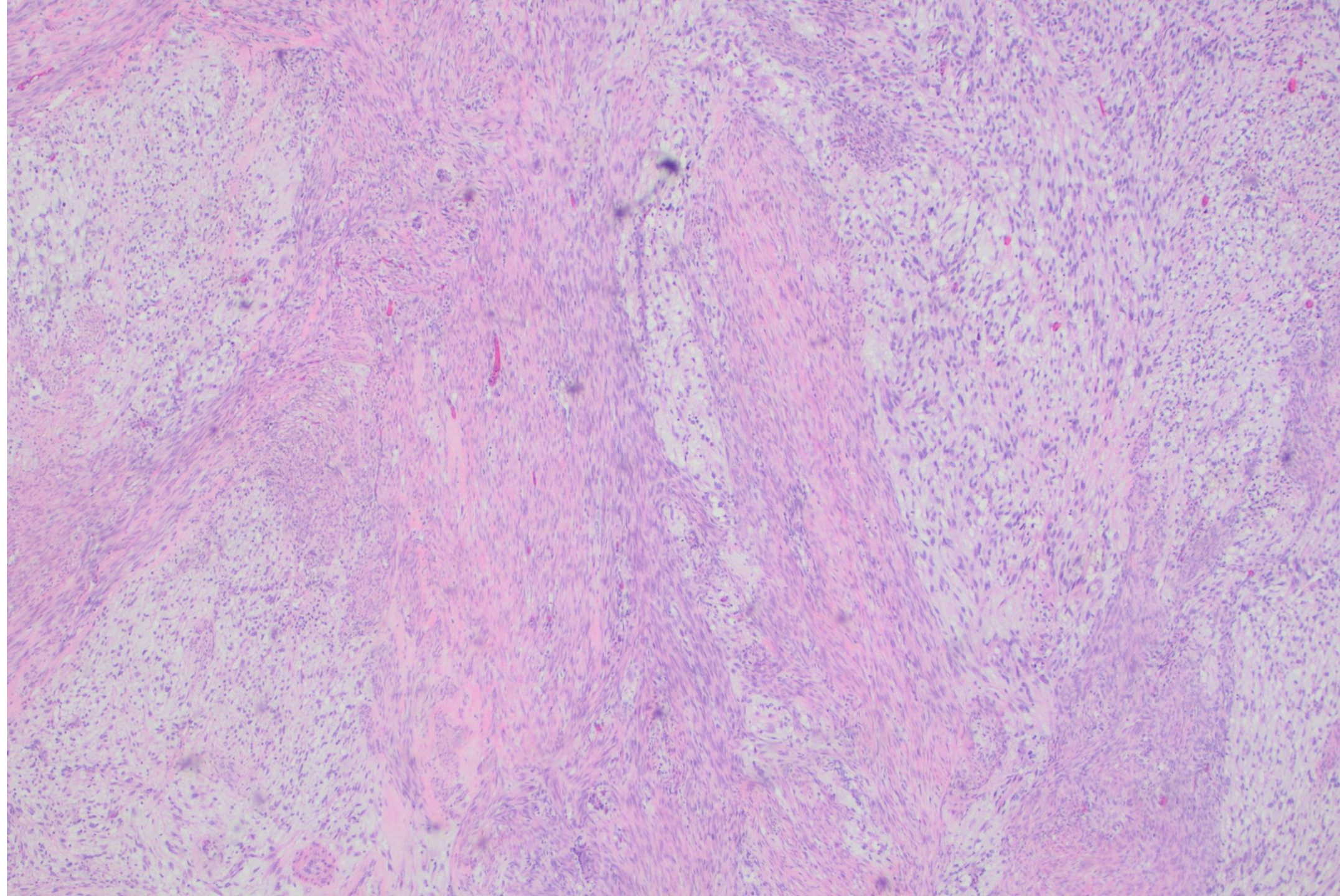
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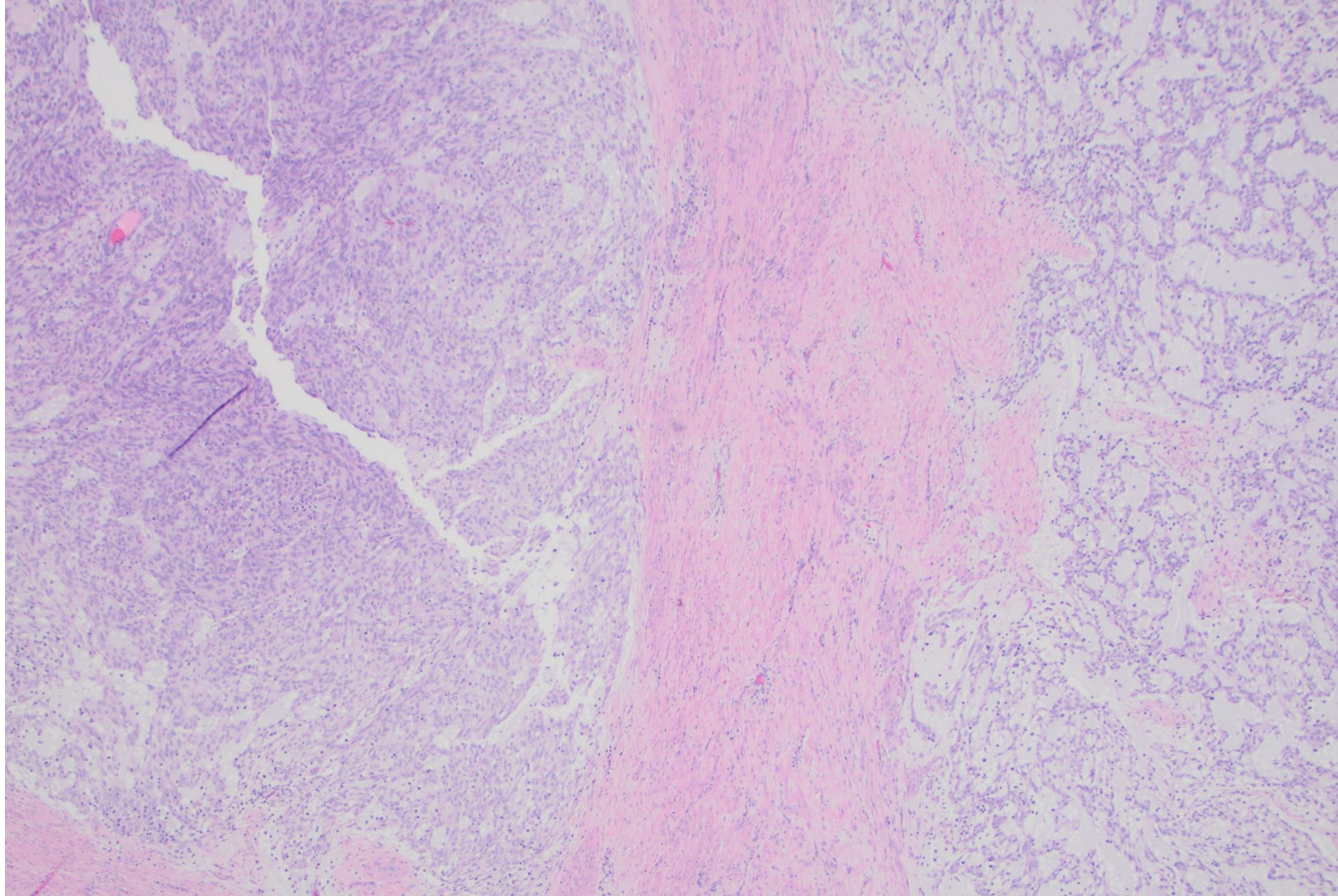


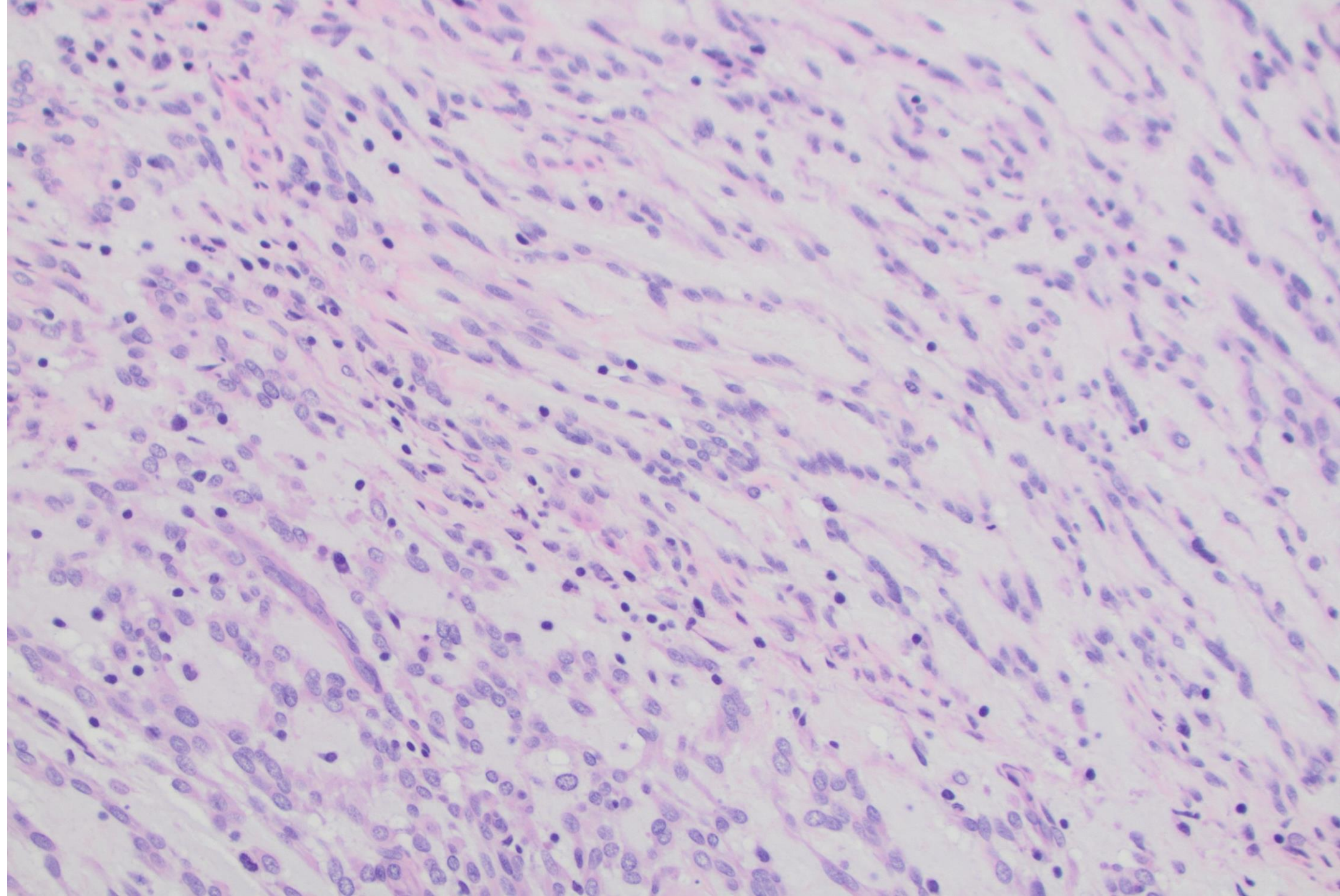
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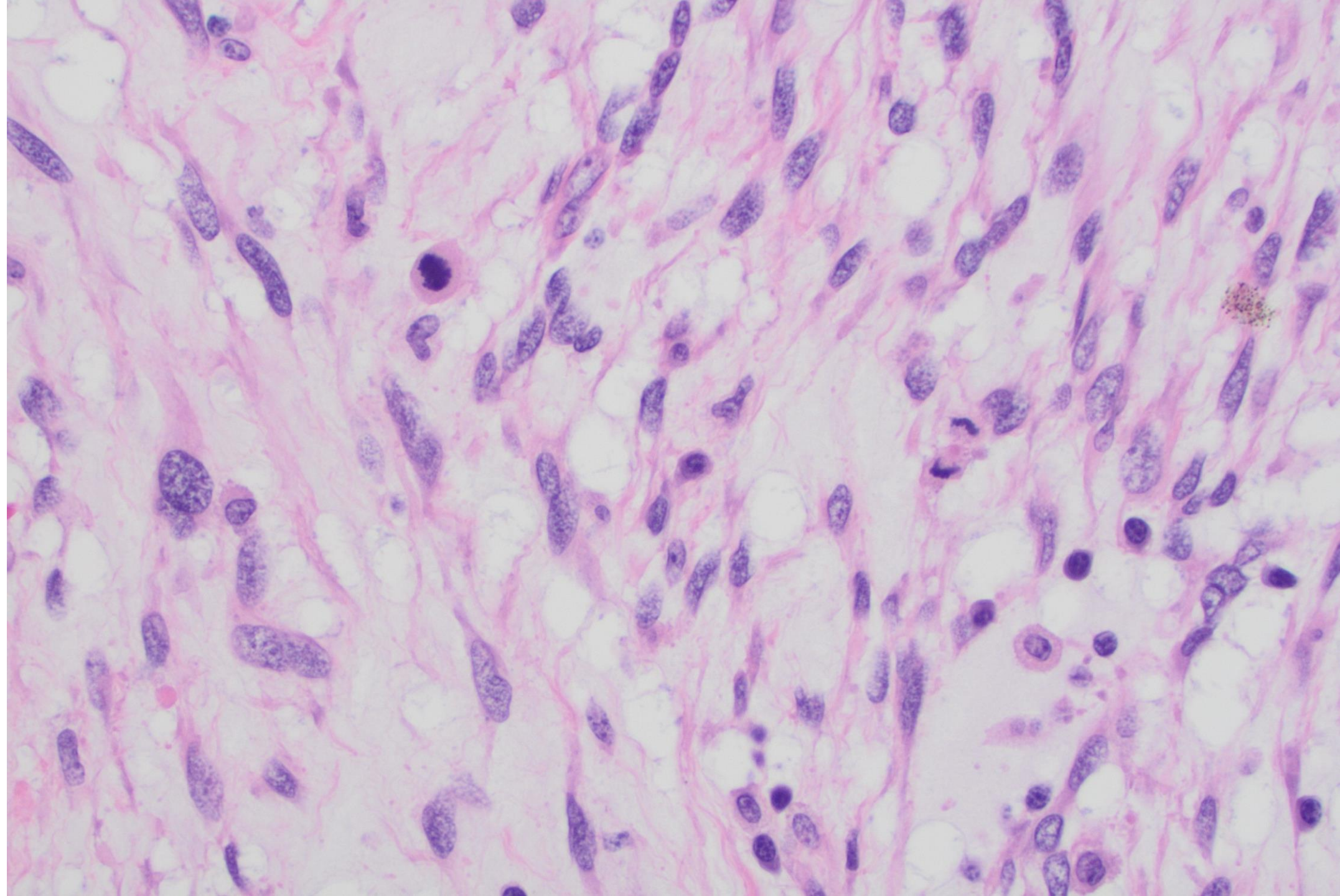
Greg Rumore; Kaiser Walnut Creek

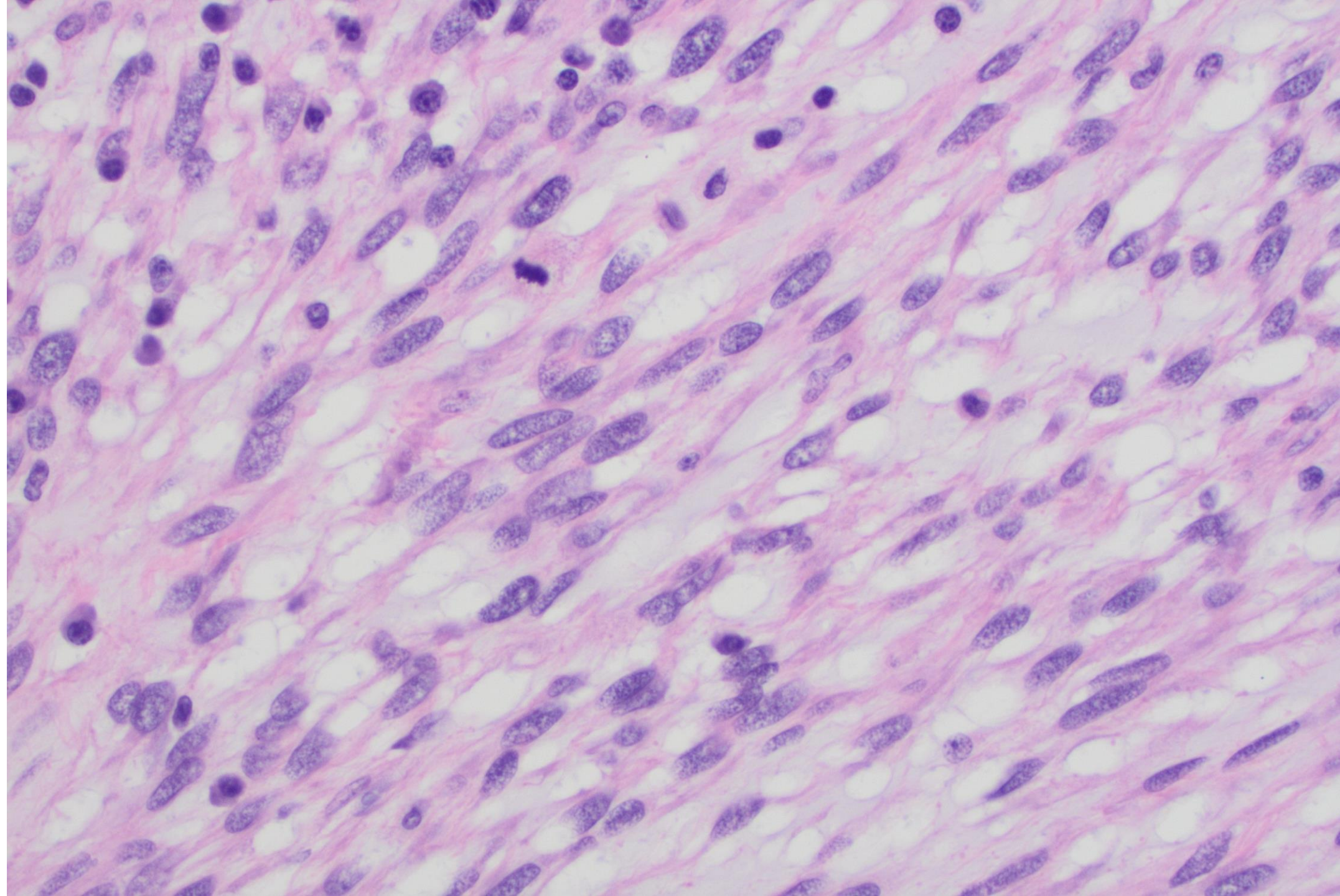
70's female with 9cm uterine mass







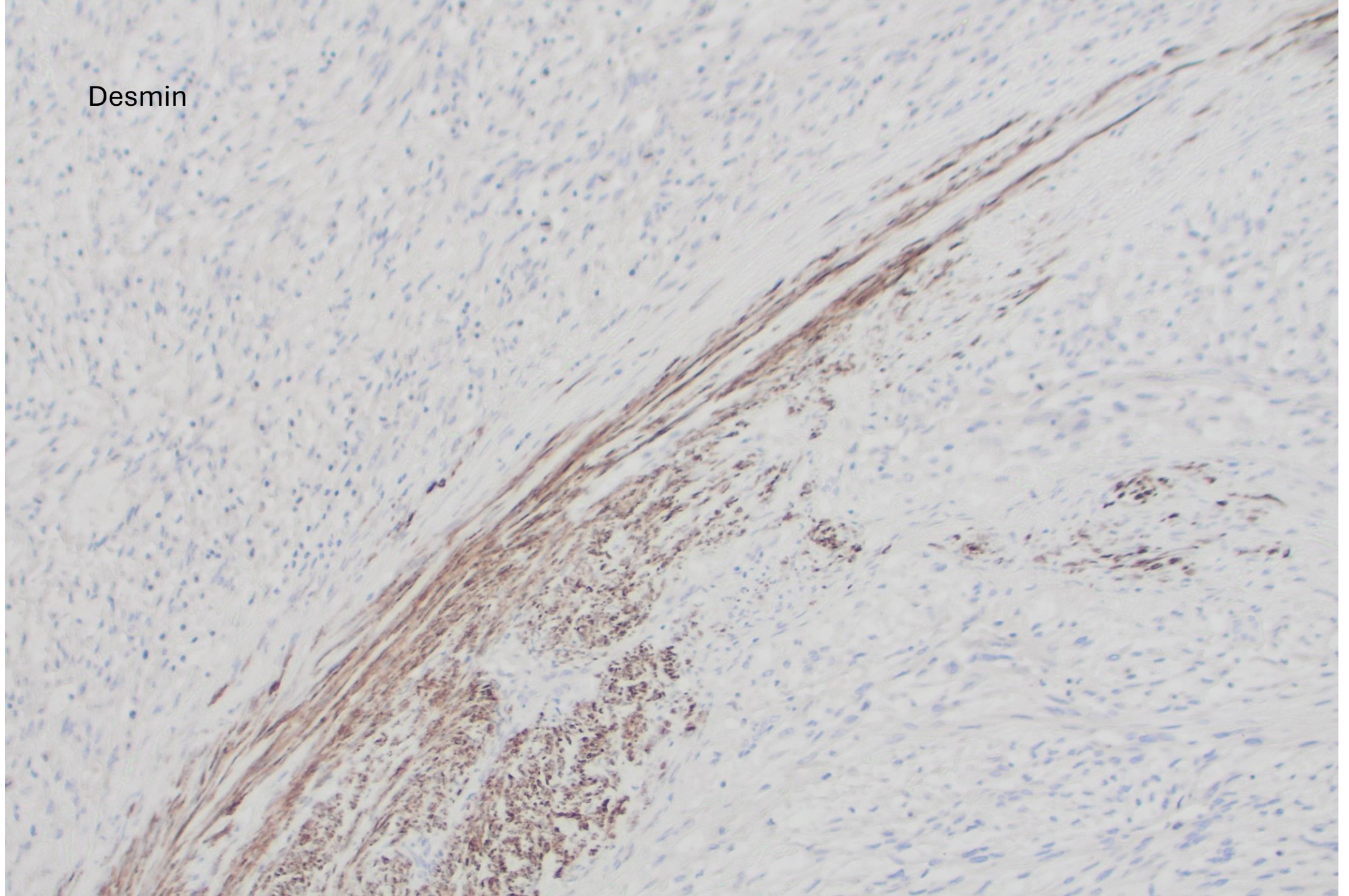




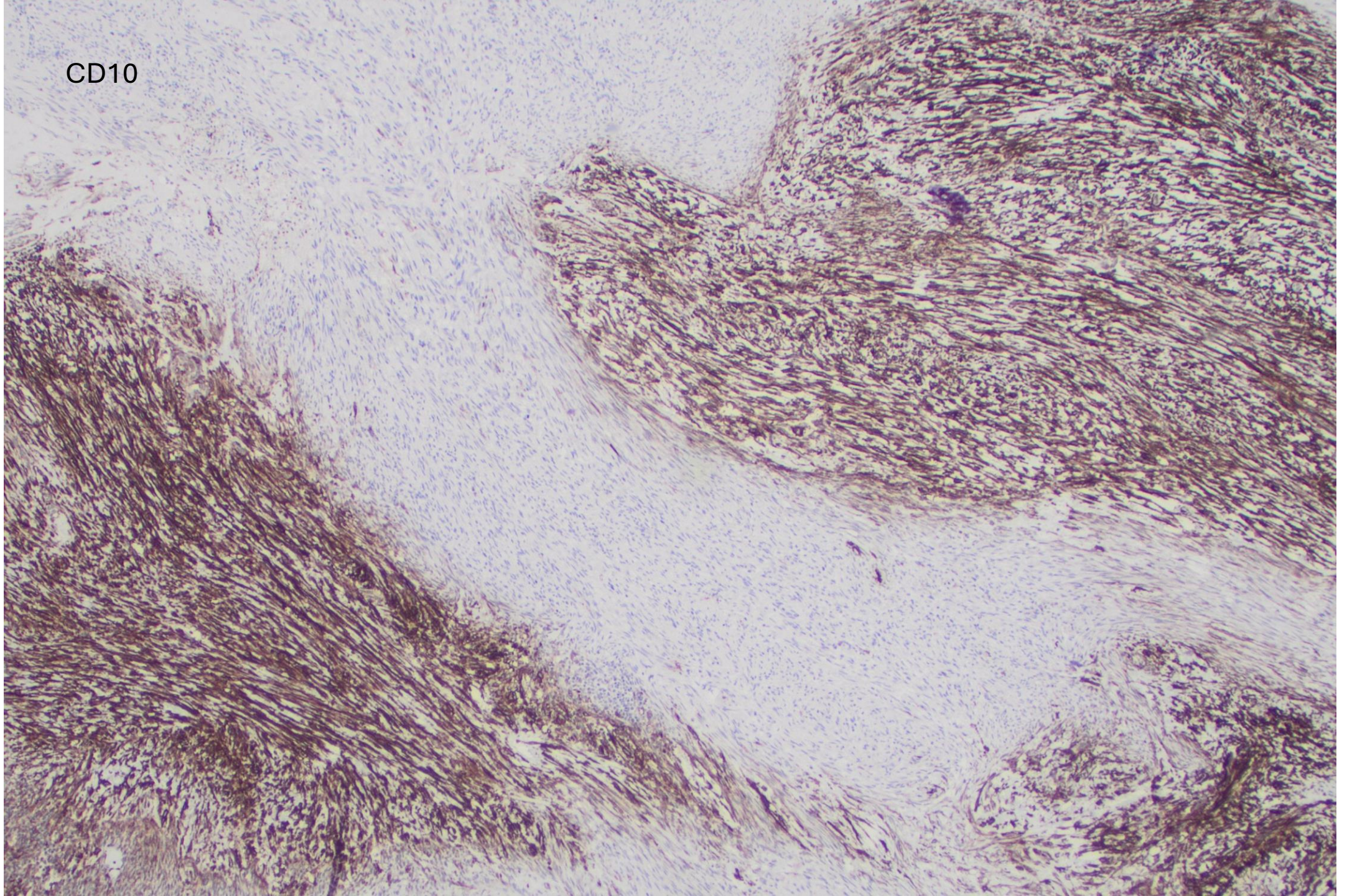
DIAGNOSIS?



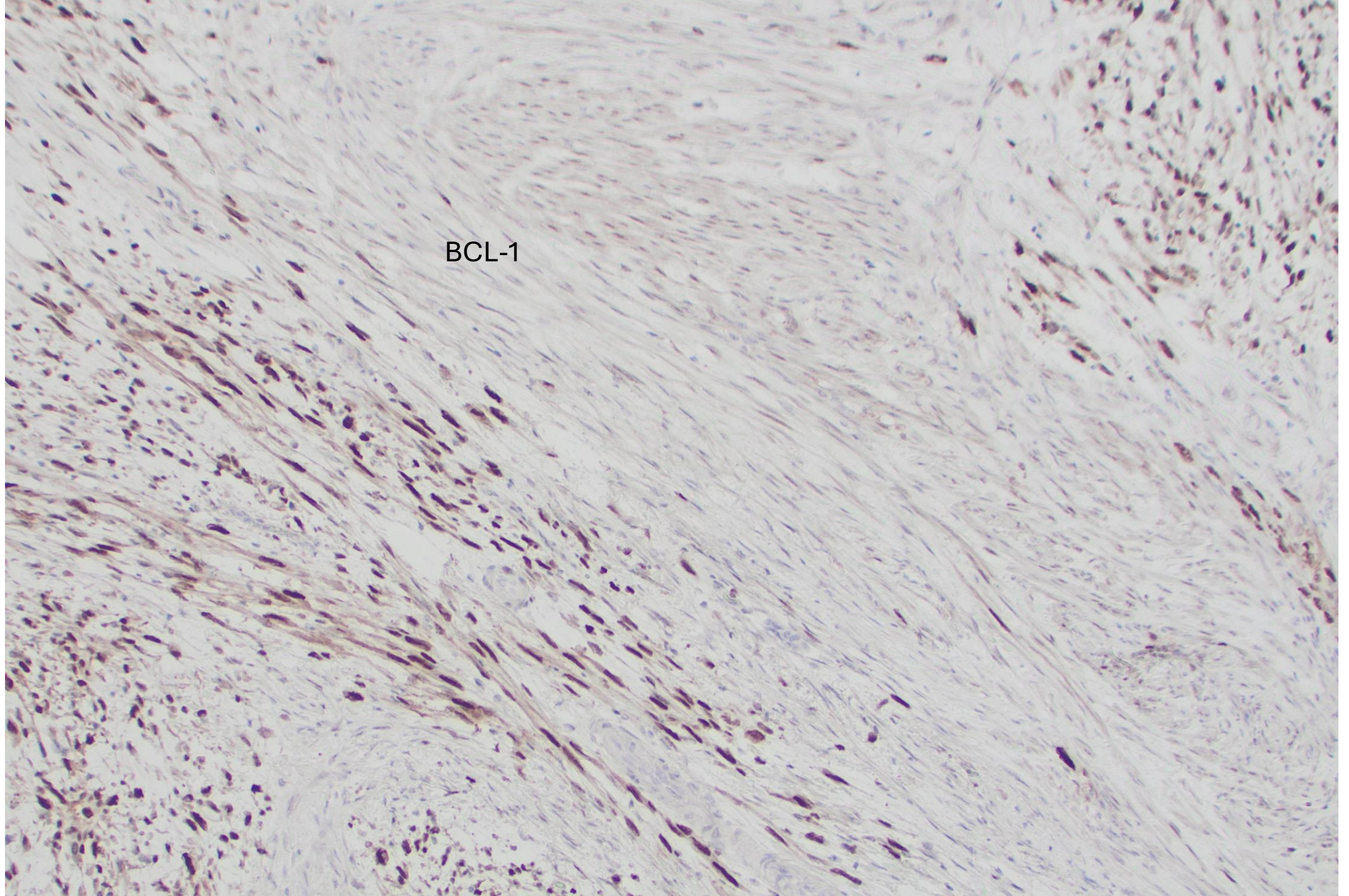
Desmin



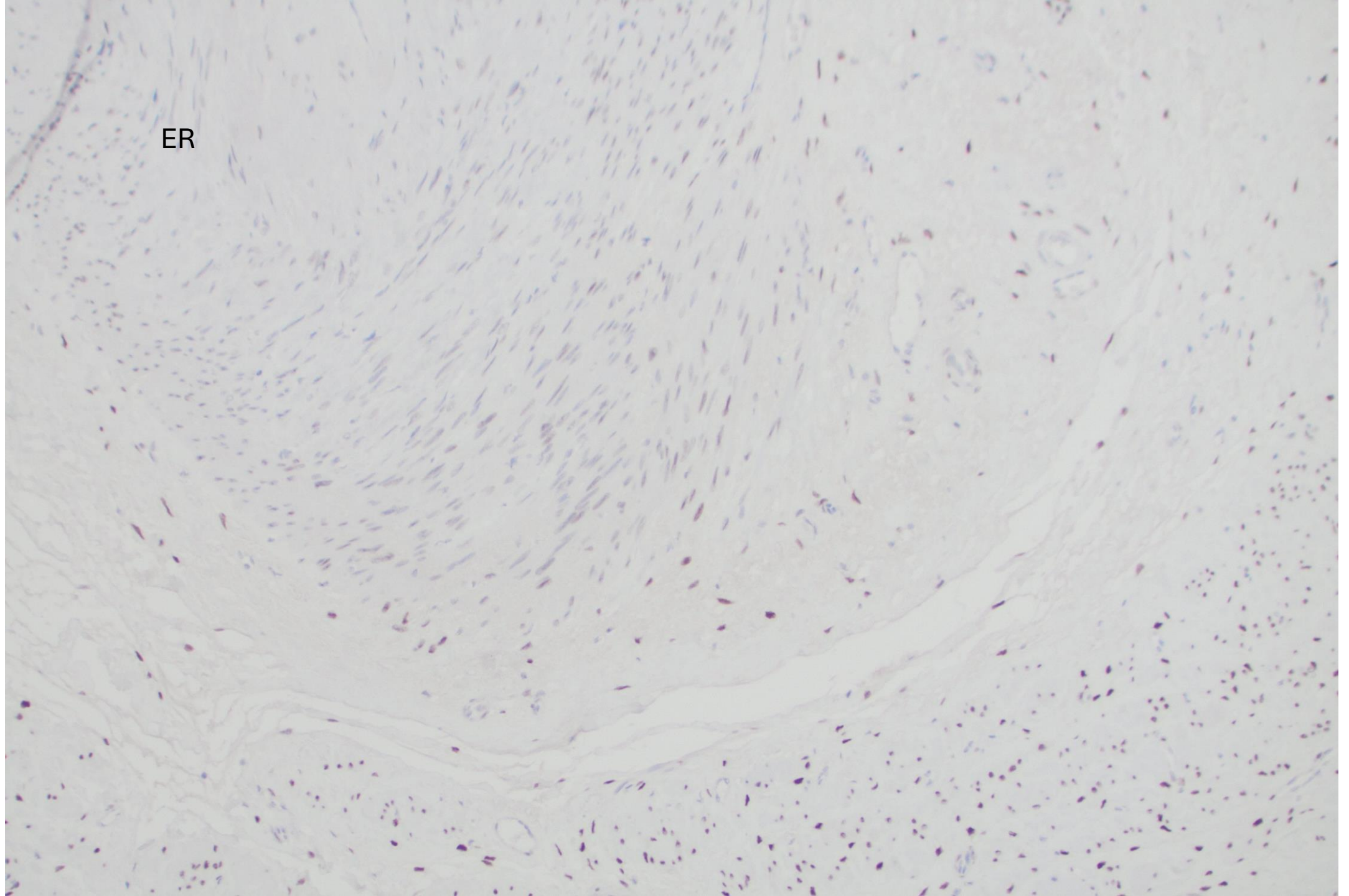
CD10



BCL-1



ER



High Grade Endometrial Sarcoma with BCOR Alterations

- ZC3H7B:BCOR Exon 10 Pathogenic Fusion detected

HGESS (BCOR fusion)

- Large bulky tumor
- soft, fleshy, hemorrhagic, gelatinous appearance
- Broad pushing borders, tongue-like invasion
- Haphazard fascicles of moderately atypical but uniform spindle cells
- Variable amounts of myxoid stroma
- Most >10 mitoses/10 HPF
- Necrosis, LVI frequent
- No LG ESS component

IHC

- CD10 +
- BCL-1/Cyclin D1 + (85%)
- Desmin – (focal SMA+ in up to 30%)
- ER/PR + in 25%

Molecular-BCOR alterations

- Fusions
- Internal tandem duplication (ITD)
- Inversions and mutations
- ZC3H7B-BCOR fusion most common (Exon10 ZC3H7B&Exon 7 BCOR most frequent)

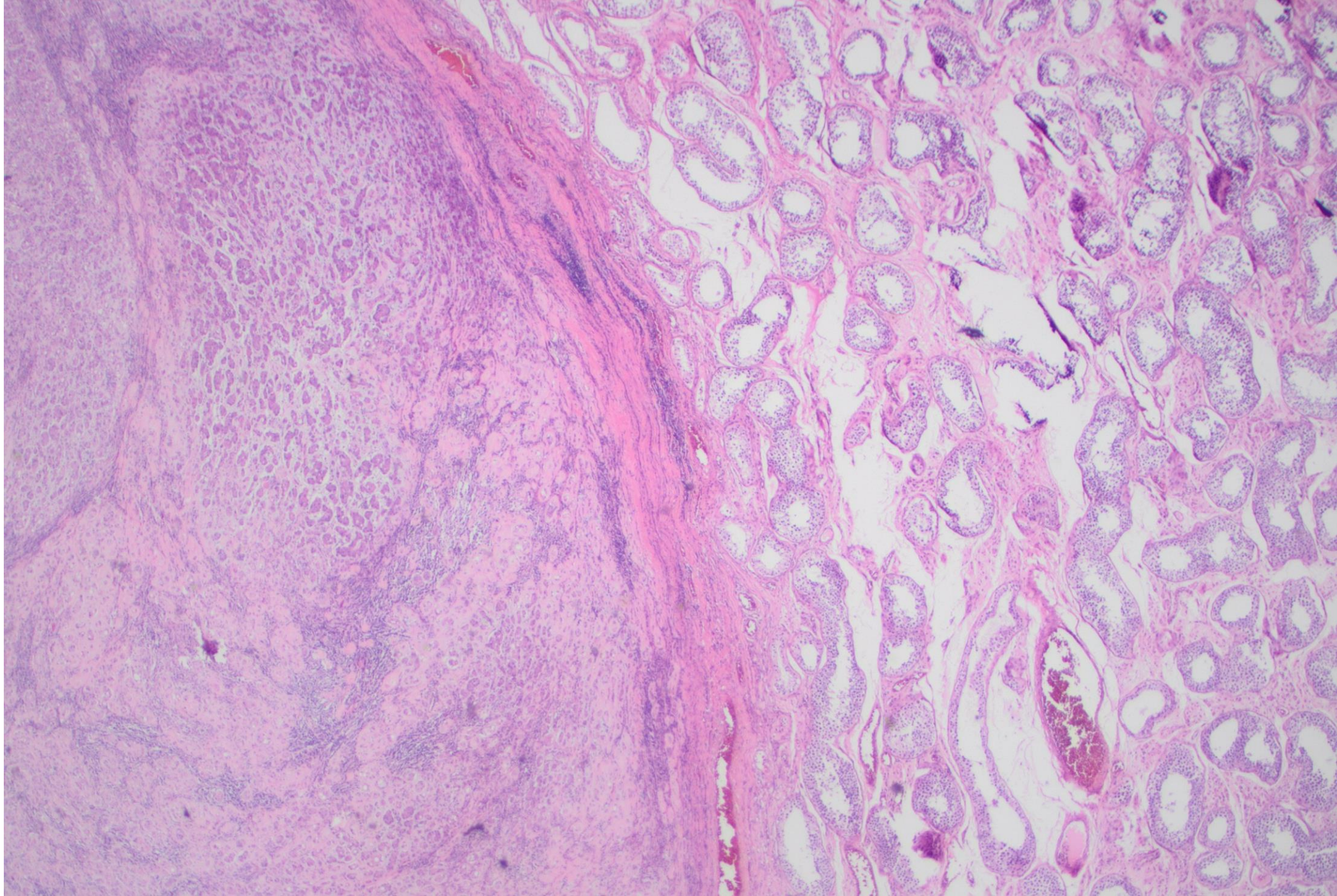
Features/Prognosis

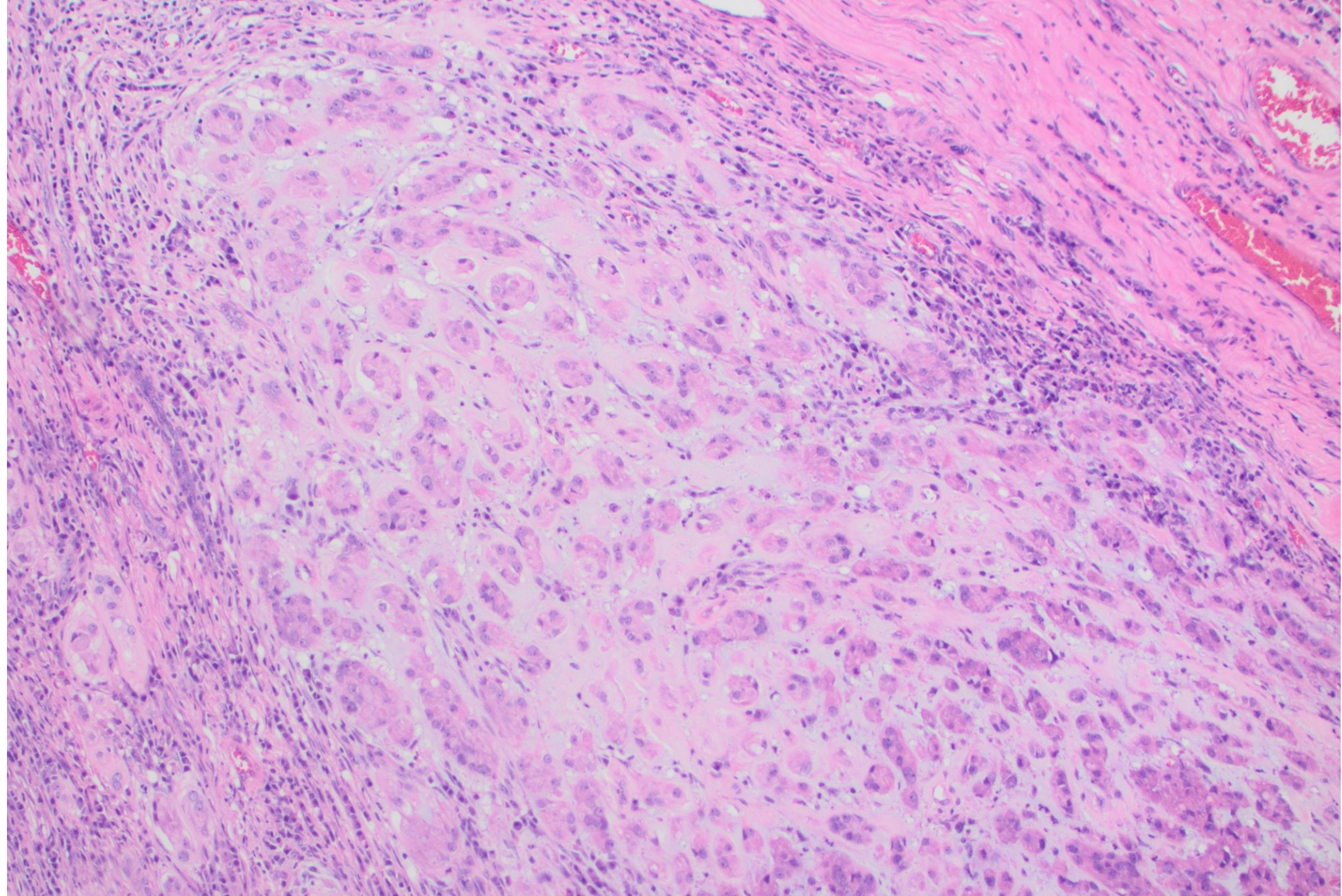
- Previously diagnoses as myxoid leiomyosarcoma or undifferentiated uterine sarcoma
- Growth pattern, morphology, IHC, and molecular are diagnostic
- Recurrences frequent-most within 3 years
- Other HGESS-
- YWHAE-NUTM2A/B HGESS-round cells, eos. cyto, HG nuclei-may have low grade component
- HGESS NOS-HG sarcoma assoc. with LGESS

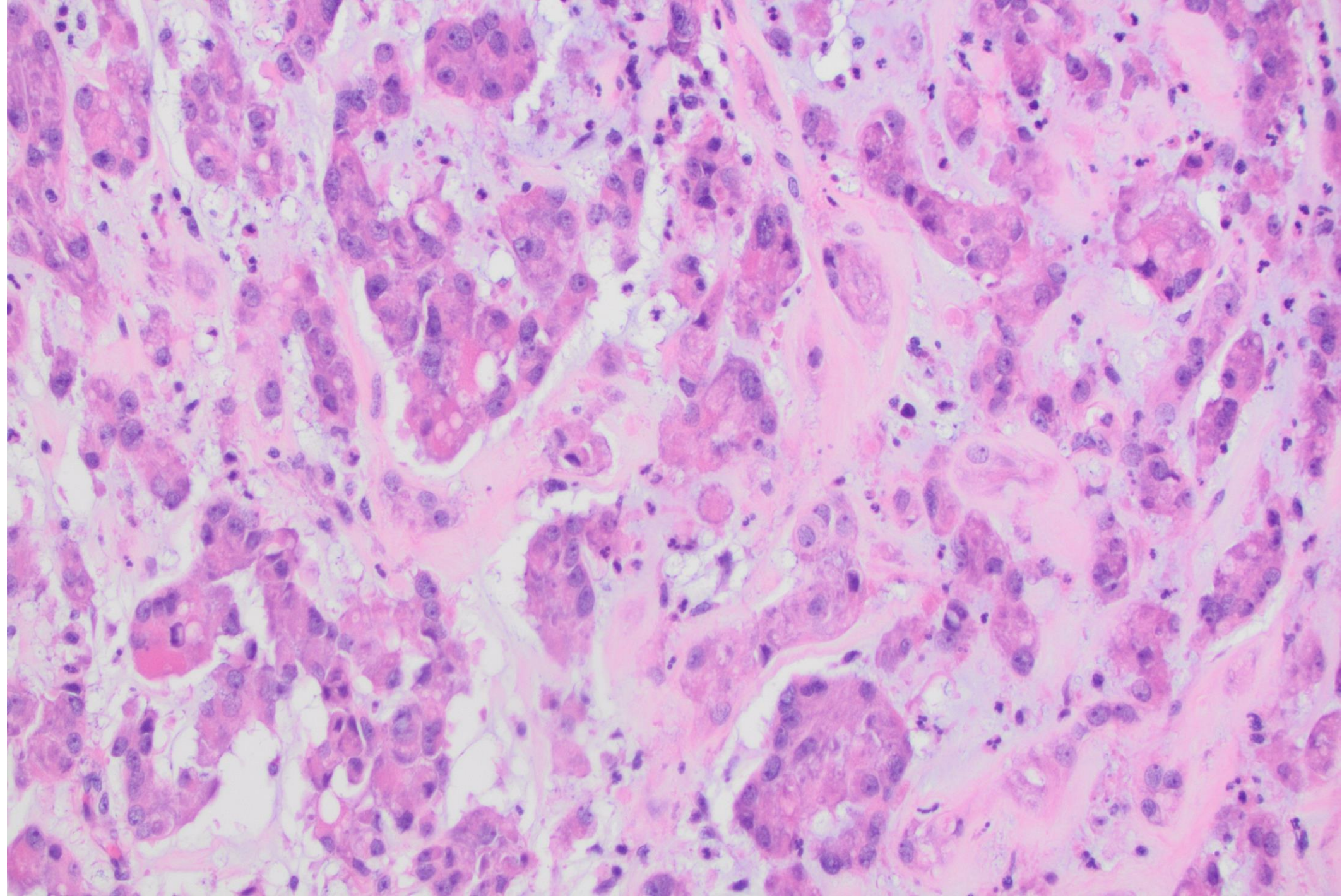
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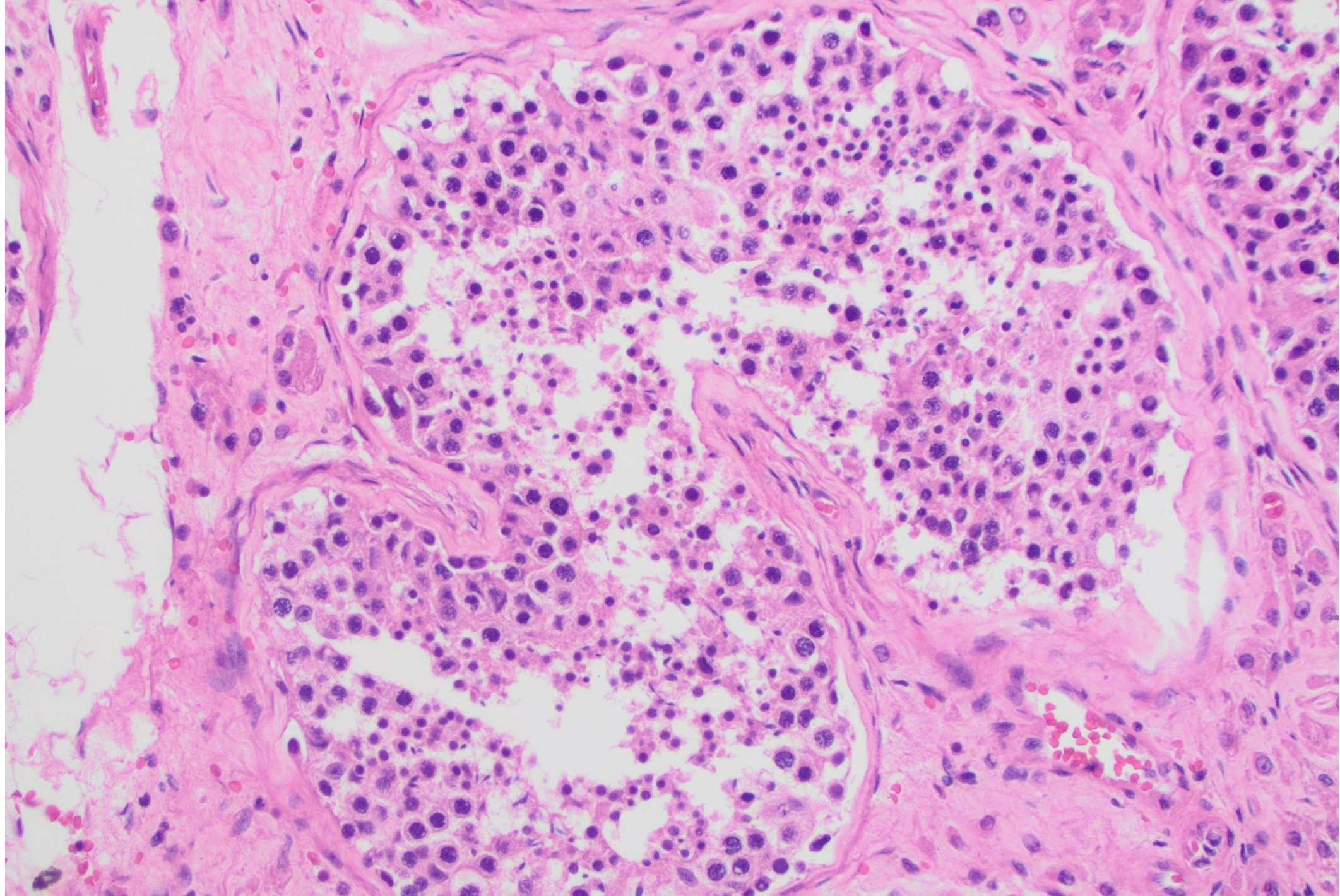
Greg Rumore: Kaiser Walnut Creek

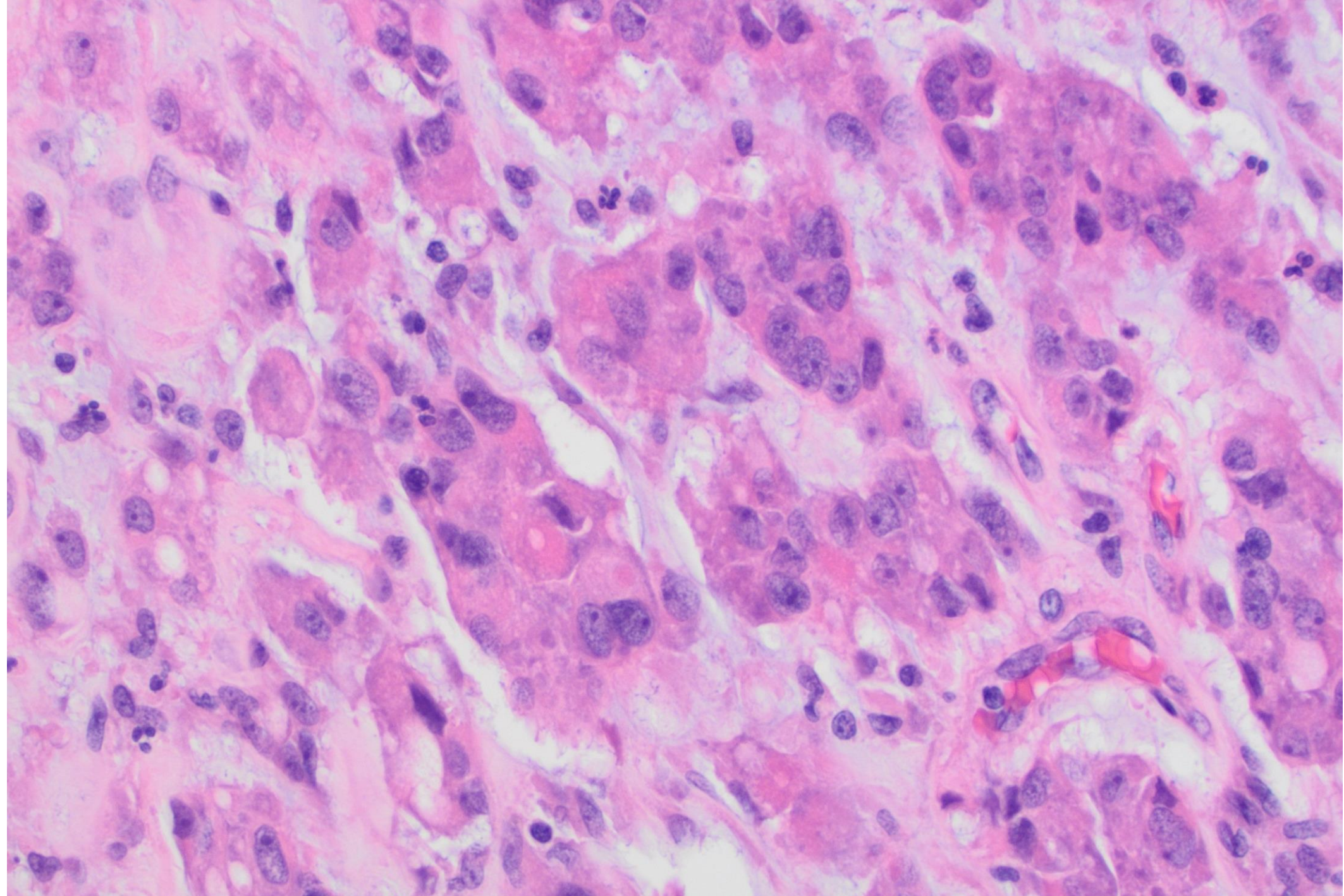
19 y.o. with testicular mass

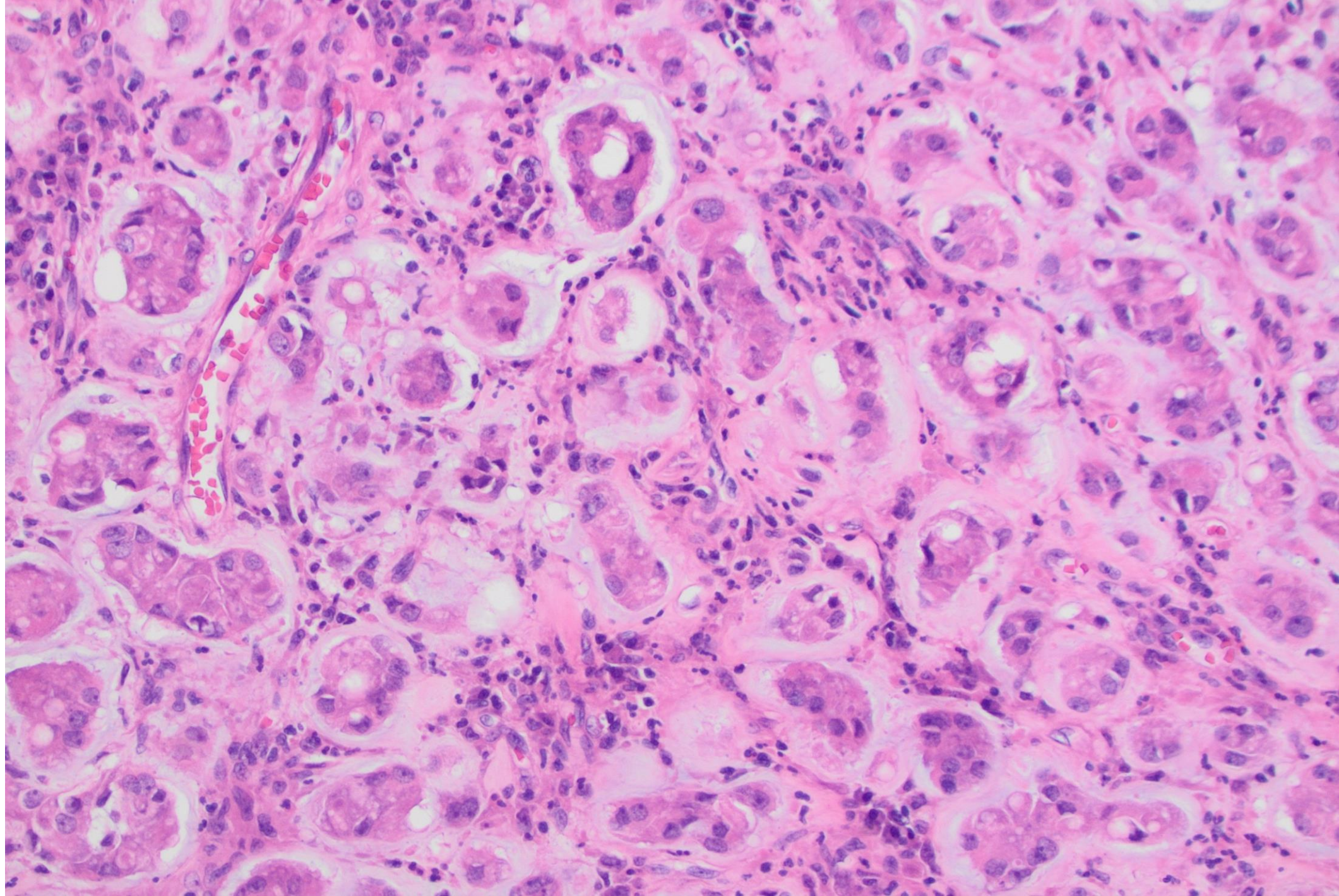


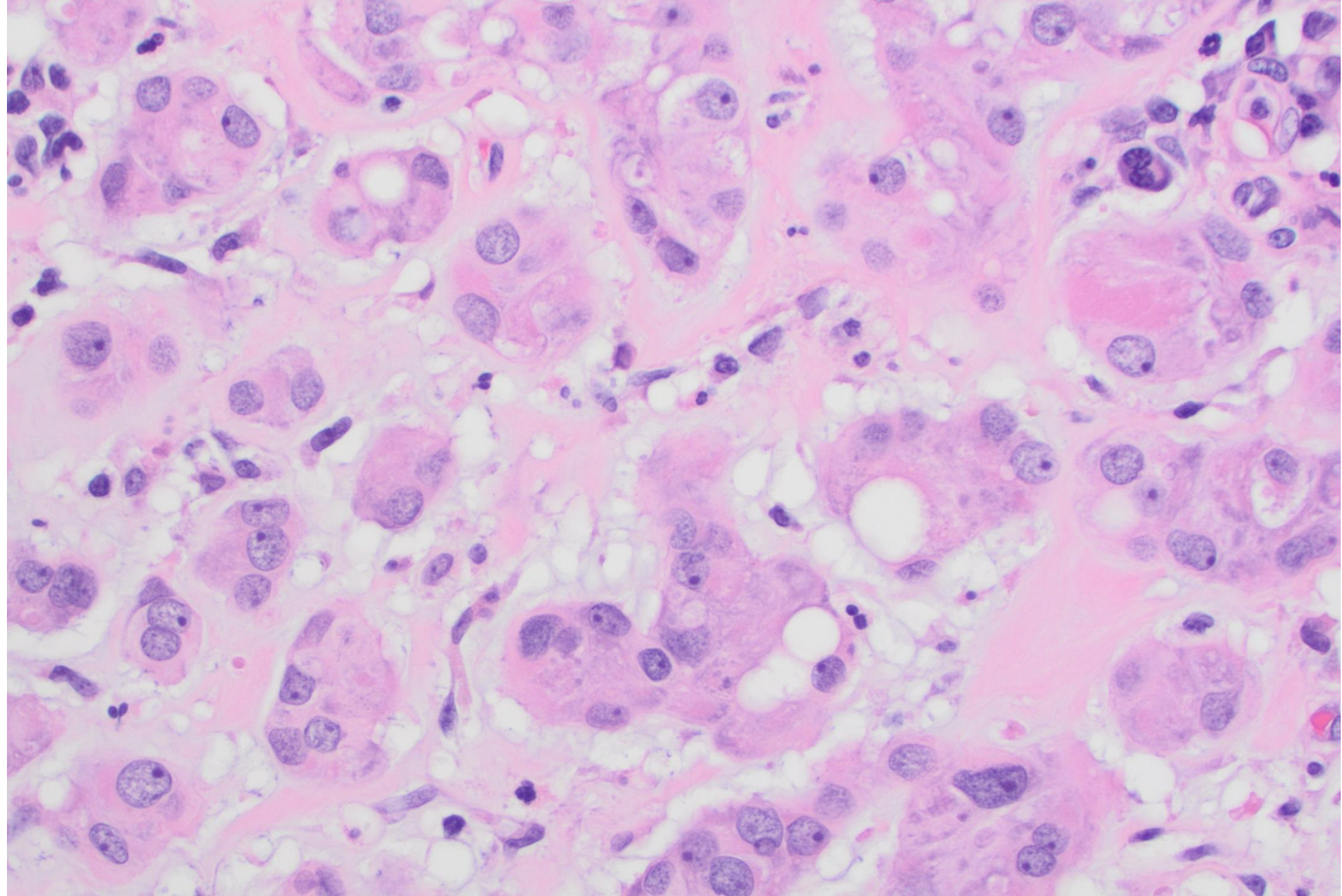






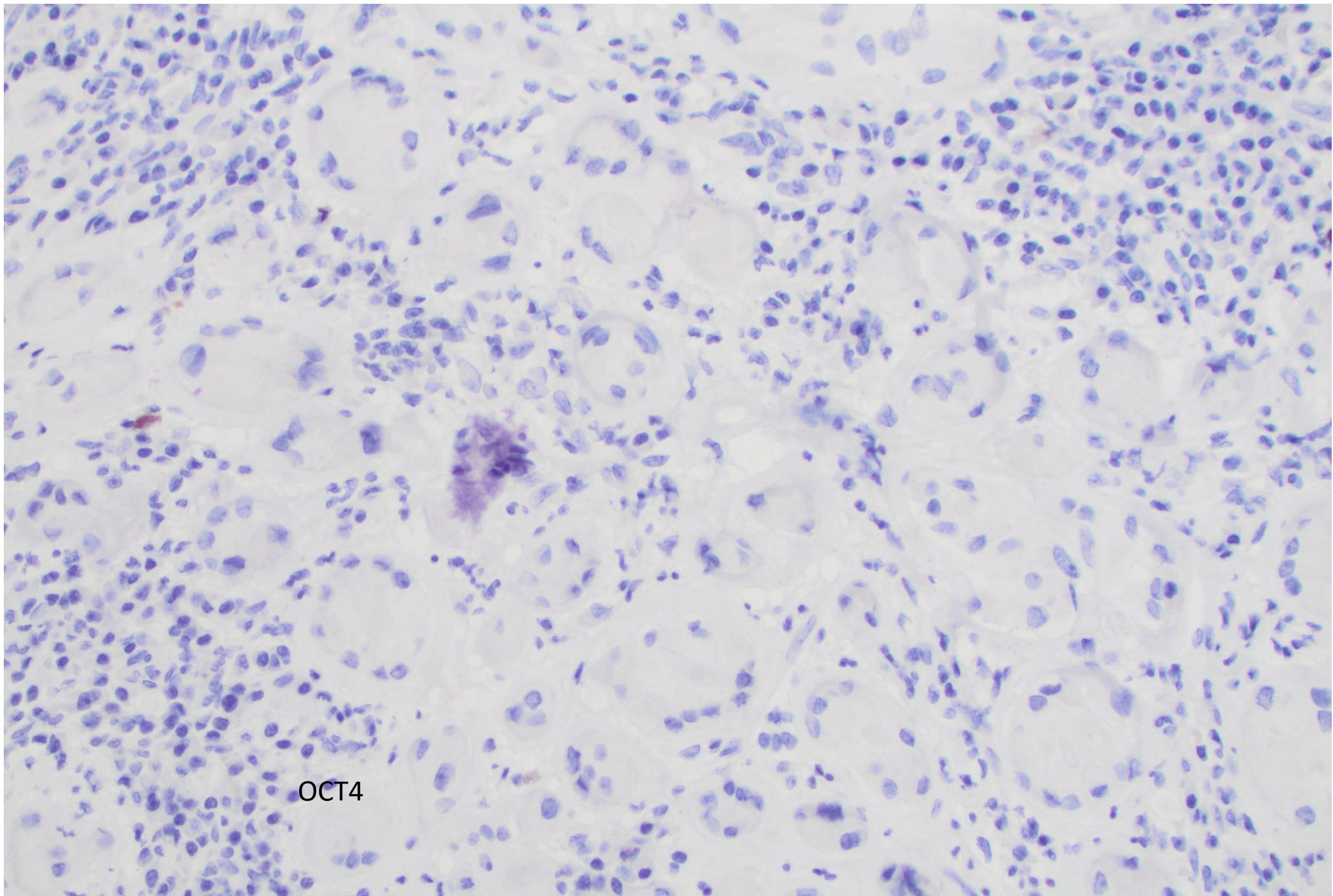




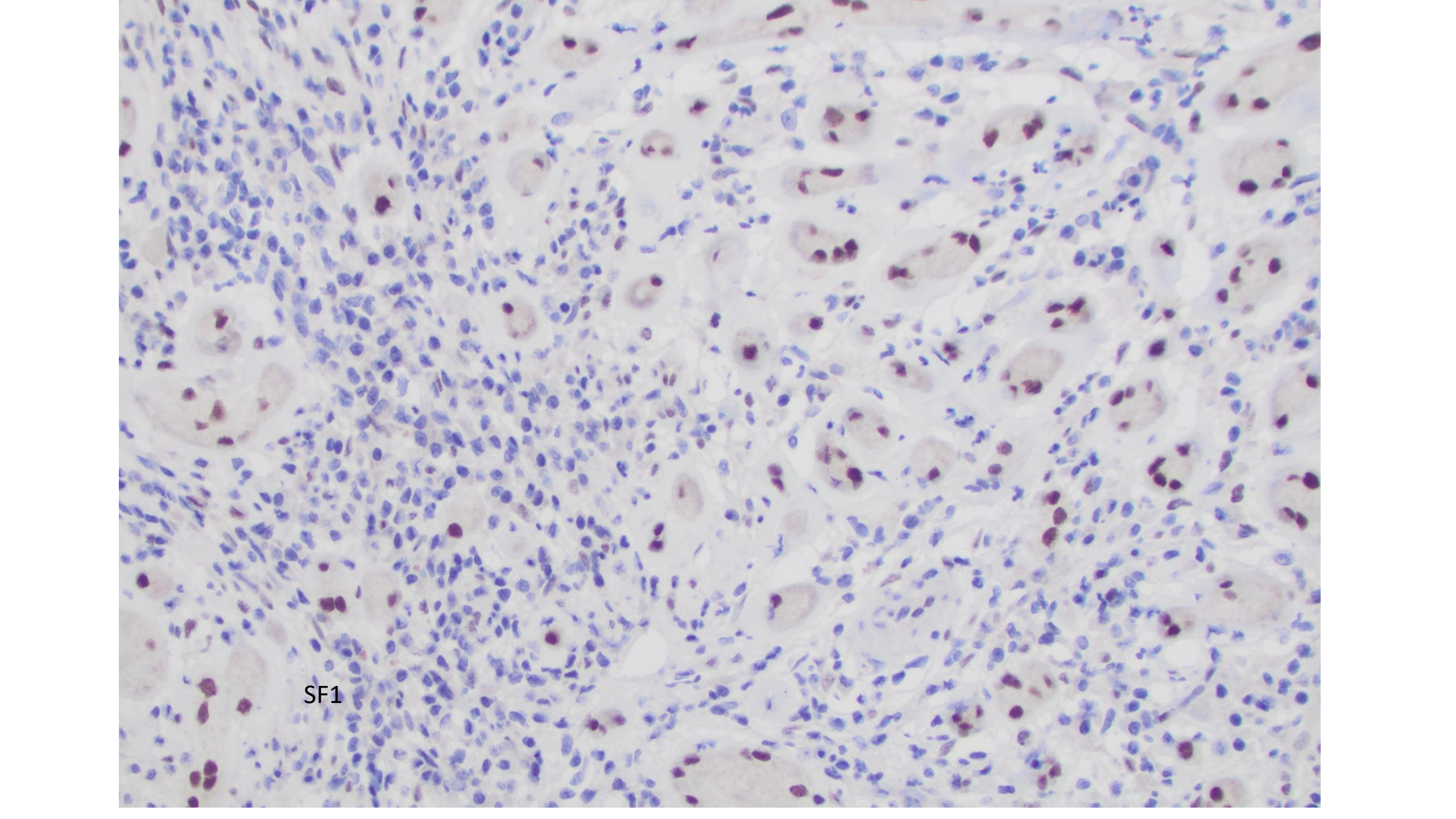


DIAGNOSIS?





OCT4



A high-magnification microscopic image of a tissue section, likely a histological slide. The tissue is stained with hematoxylin and eosin (H&E). The background is a light pink color, representing the cytoplasm and extracellular matrix. Numerous small, dark blue/purple nuclei are scattered throughout the field of view, indicating a high cellular density. Some nuclei are larger and more prominent, while others are smaller and more numerous. The overall appearance suggests a dense cellular population, possibly from a tumor or a highly proliferative tissue.

SF1

Leydig Cell Tumor

- Most common pure sex cord-stromal tumor
- 2% of testicular tumors
- 20% -first decade
- 25%-10-30 yrs.
- Children-pseudopuberty, adults-mass
- Gynecomastia in 30% of cases
- Cryptorchidism may predispose

Pathology

- Well circumscribed solid, yellow-tan nodule
- Diffuse, trabecular, corded, pseudoglandular/tubular, cystic
- Polygonal cells with abundant eosinophilic to vacuolated cytoplasm
- Reinke crystals in up to 1/3 of cases
- Globular eosinophilic inclusions-"precystalline"?
- <5% malignant (size, mitoses, atypia, necrosis, extratestis spread, LVI)
- Inhibin, SF-1, AR-positive
- FOXL2, OCT3/4, Nuclear B-Catenin-negative

Differential diagnosis

- Leydig cell hyperplasia (lack of discrete mass, atrophic tubules admixed)
- Testicular tumor of adrenogenital syndrome (bilateral, multifocal, brown, seminiferous tubules interspersed)
- Yolk sac tumor
- Malakoplakia
- Sertoli Cell Tumor (Lg cell calcifying)

