Disclosures
January 4, 2016

Dr. Keith Duncan has disclosed that he receives an hourly fee for slide review from Abbvie Biotherapeutics and Oxford Biotherapeutics. The planners have determined that this financial relationship is not relevant to the case being presented and does not present a conflict of interest.

The following planners and faculty had no financial relationships with commercial interests to disclose:

Presenters:

David Levin, MD
Mahendra Ranchod, MD
Christine Louie, MD
Roger Warnke, MD
Sharon Wu, MD
Teri Longacre, MD
Allison Zemek, MD
John Higgins, MD
Peyman Samghabadi, MD
Hannes Vogel, MD
Donald Born, MD
Jenny Hoffmann, MD
Susan Atwater, MD

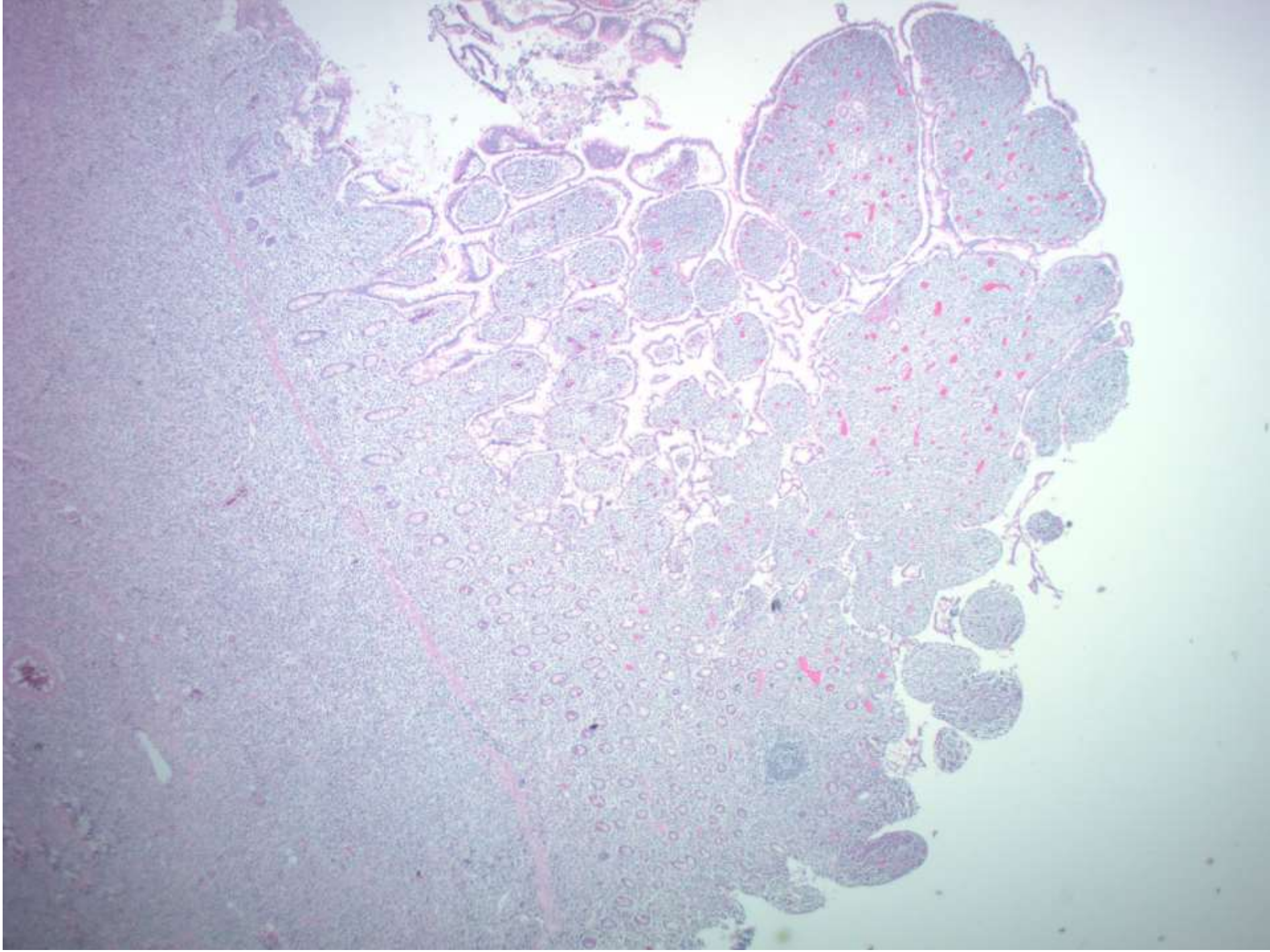
Activity Planners:

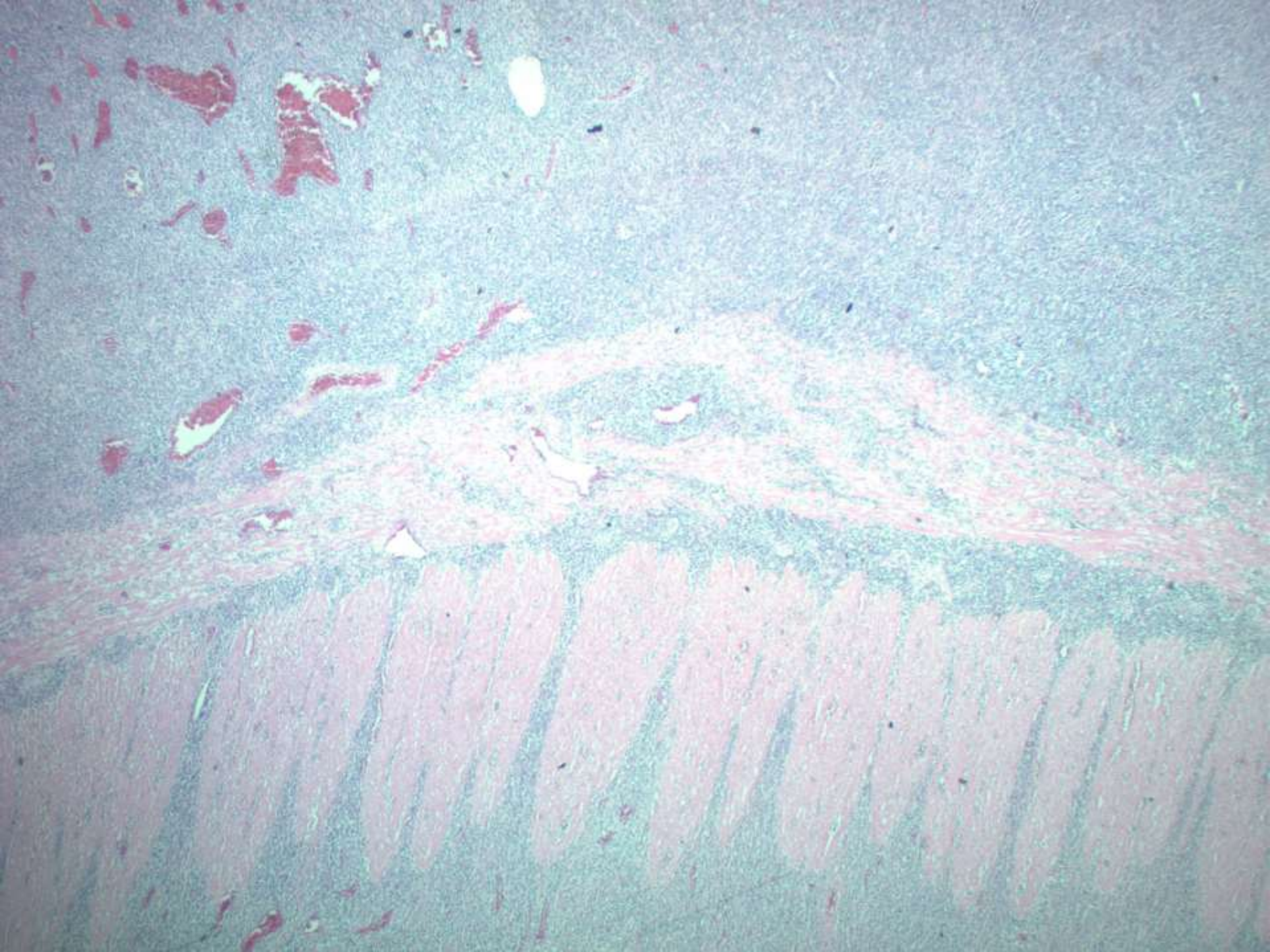
Kristin Jensen, MD
Ankur Sangoi, MD
William Rogers, MD

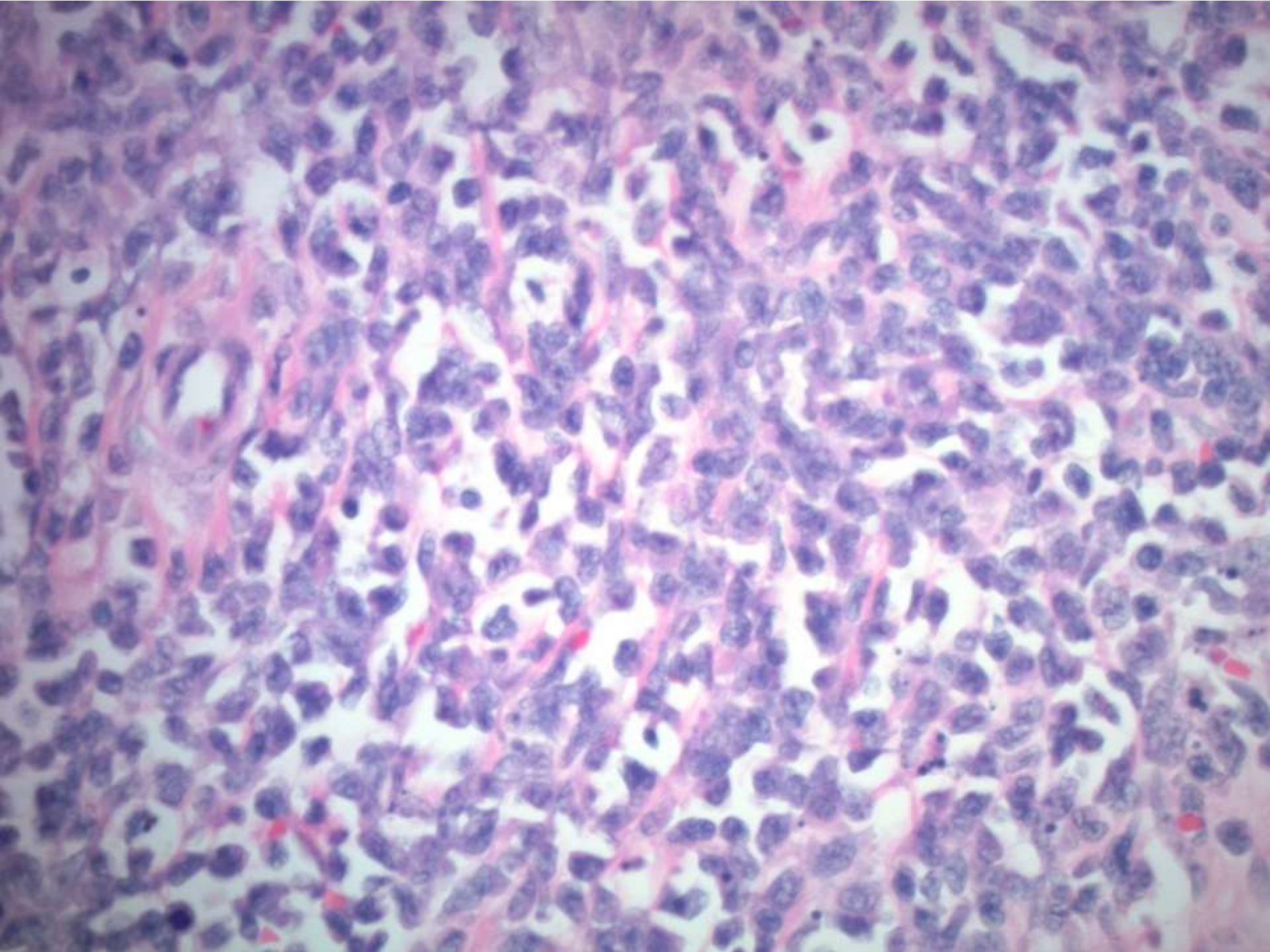
SB 6011

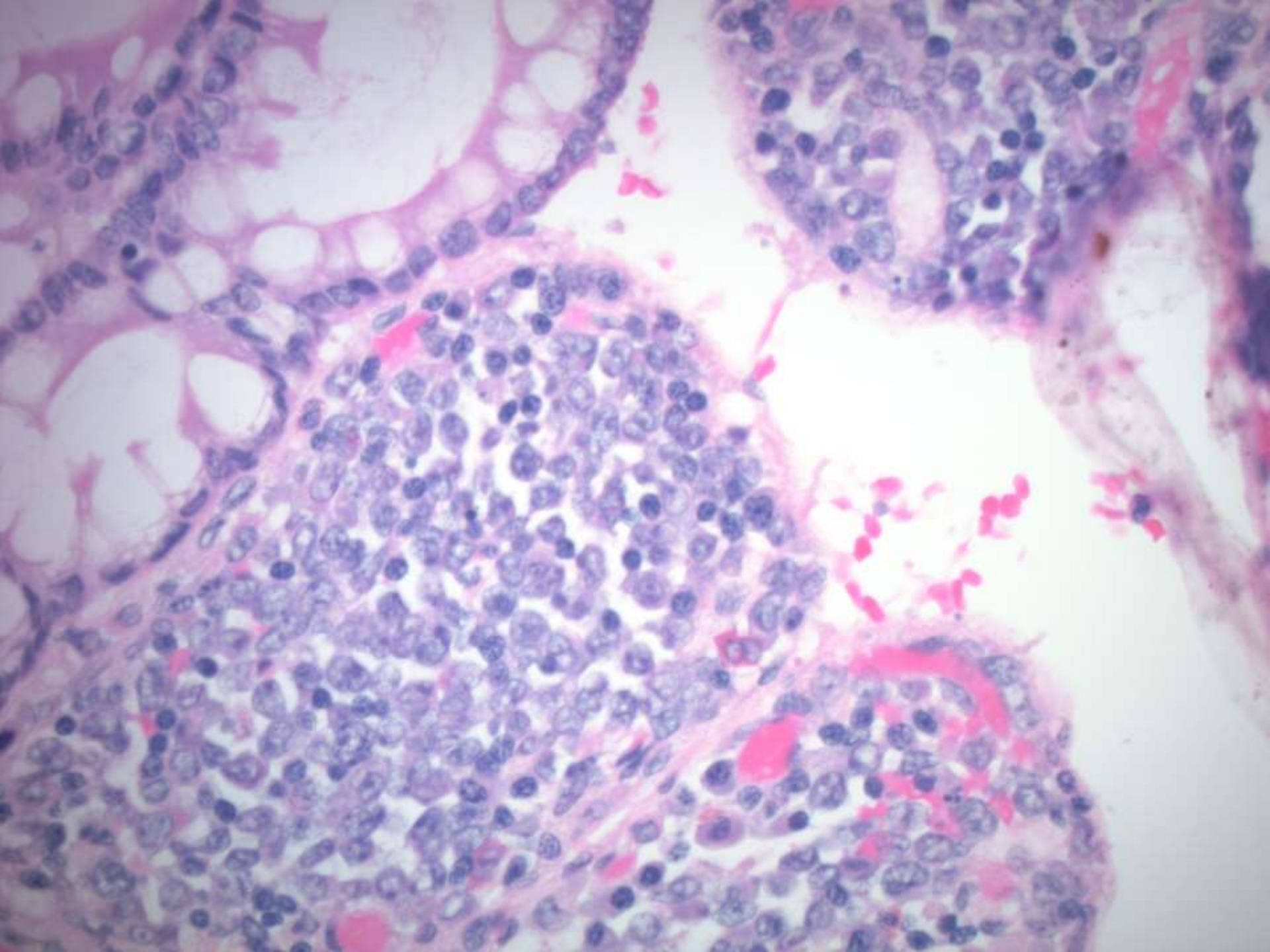
David Levin; Washington Hospital

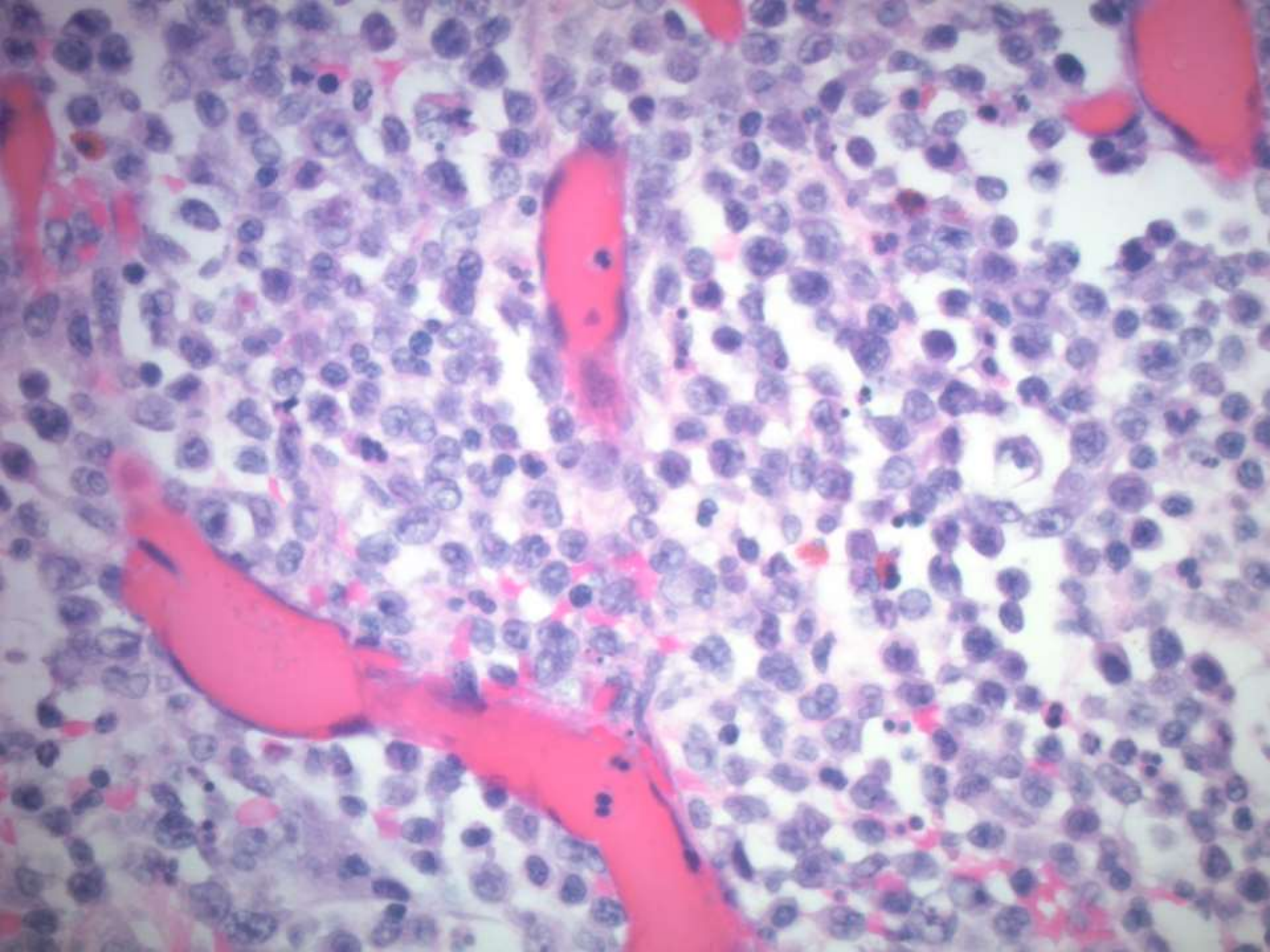
39-year-old woman with SBO.



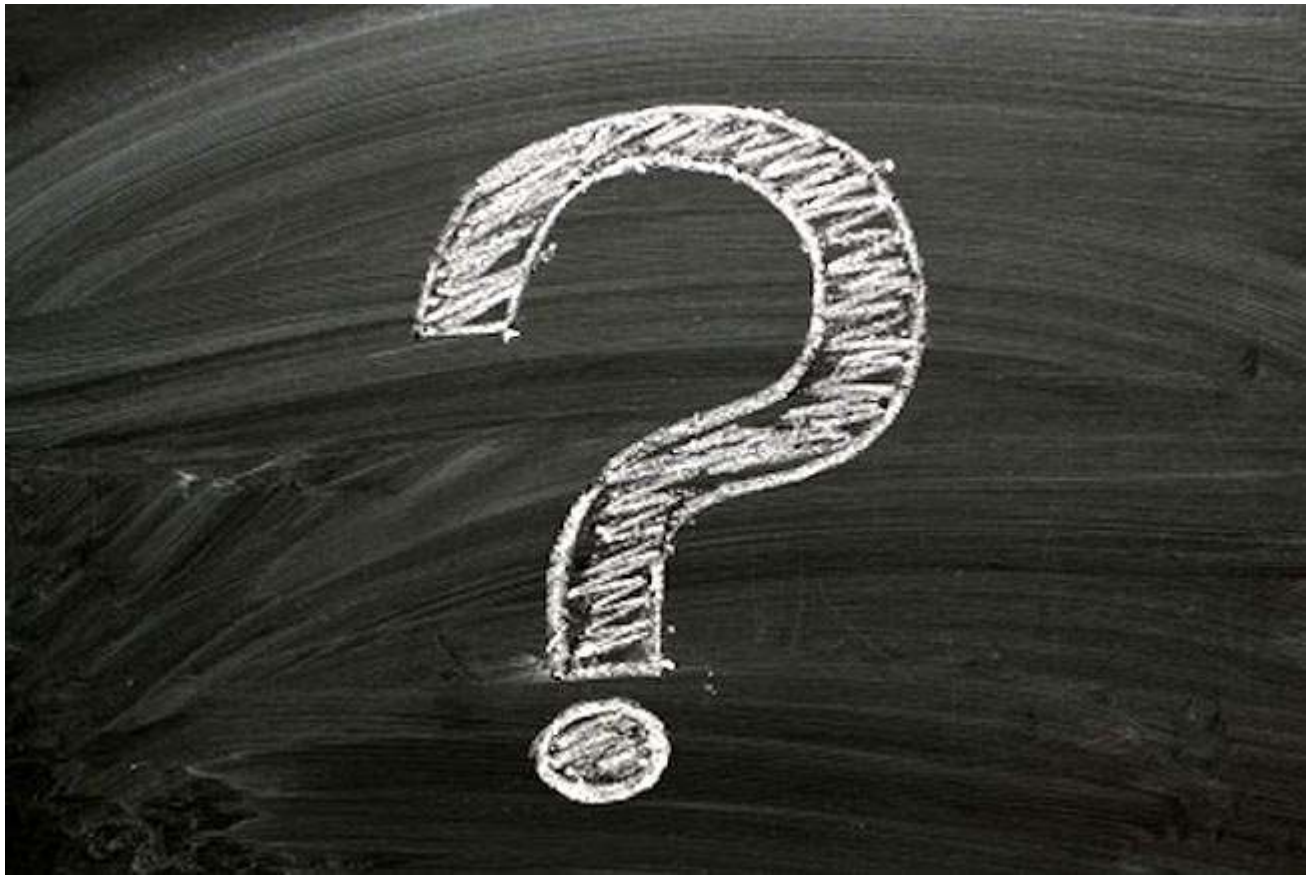








DIAGNOSIS?



Myeloid Sarcoma

Reference: Wilson, CS and Medeiros, LJ. Extramedullary Manifestations of Myeloid Neoplasms. Am J Clin Pathol 2015:144:219-239

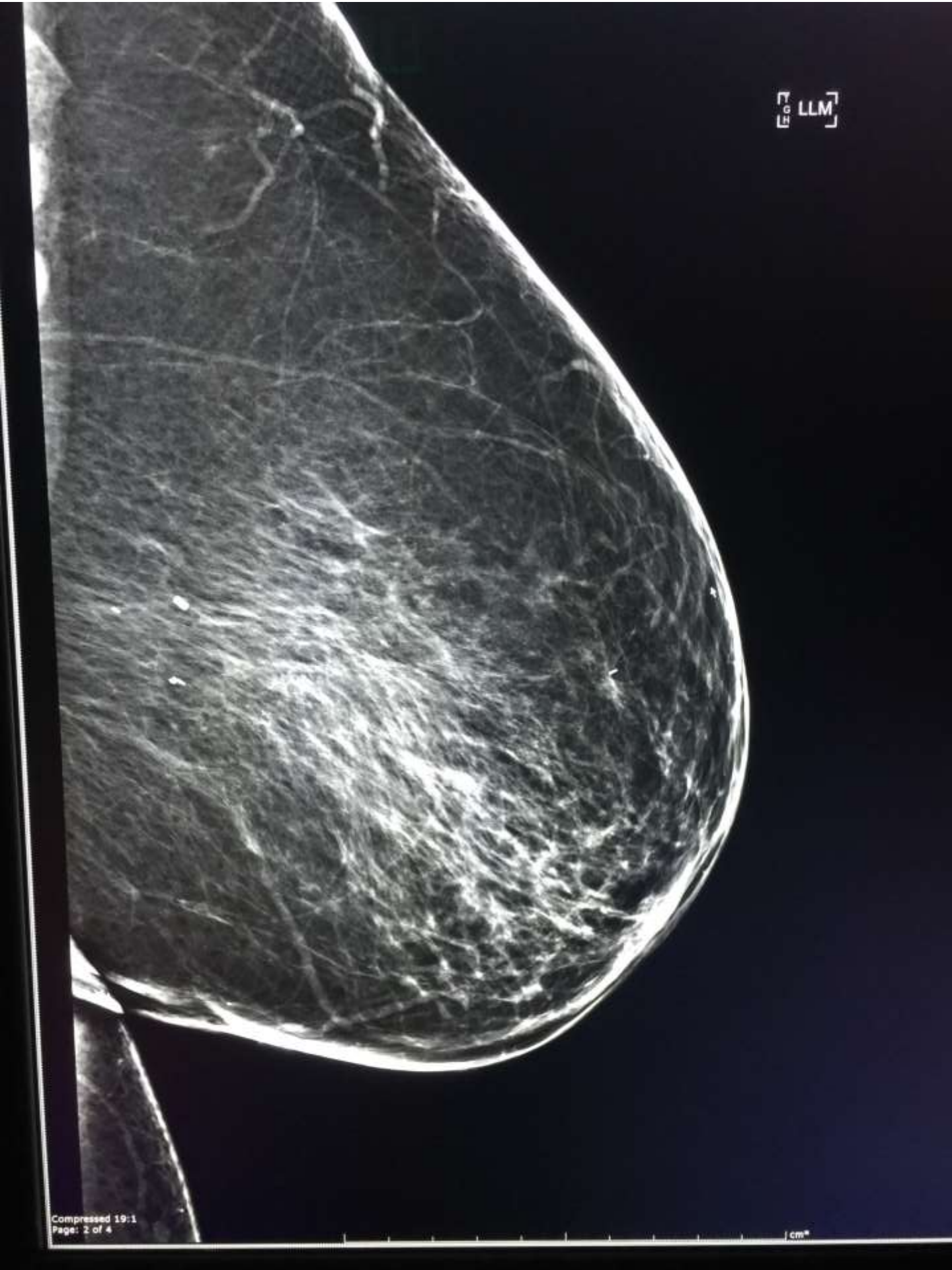
Myeloid Sarcoma

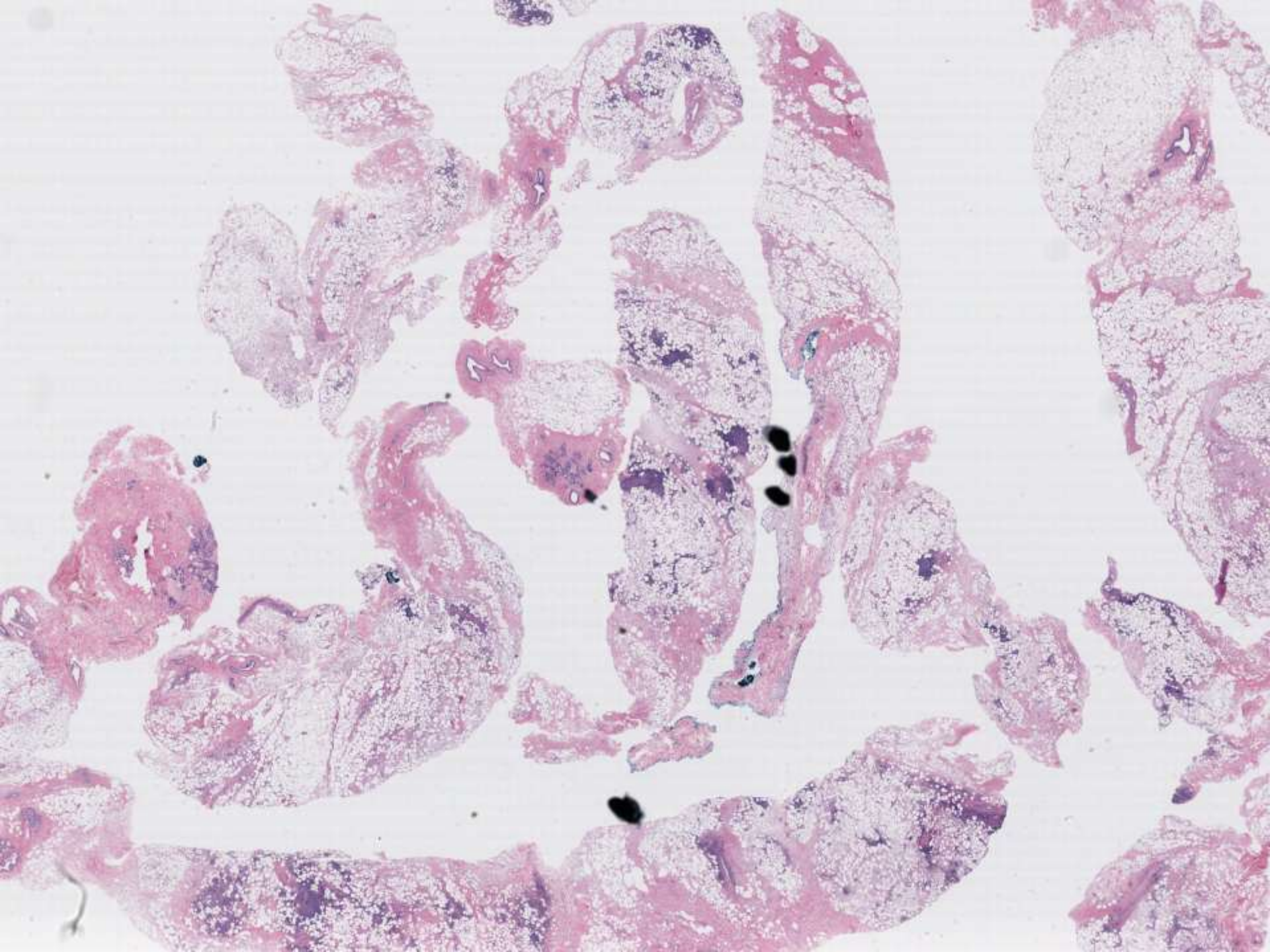
- The 2008 WHO definition "a tumor mass consisting of myeloid blasts with or without maturation occurring at an anatomic site other than the bone marrow."
- Isolated MS approx 27% of pts with de novo MS
- Prognosis:
  - No large prospective studies.
  - 2 of 3 pts without SCT survived >5 yr
  - A 71 woman had relapse MS and survived 12yr after dx

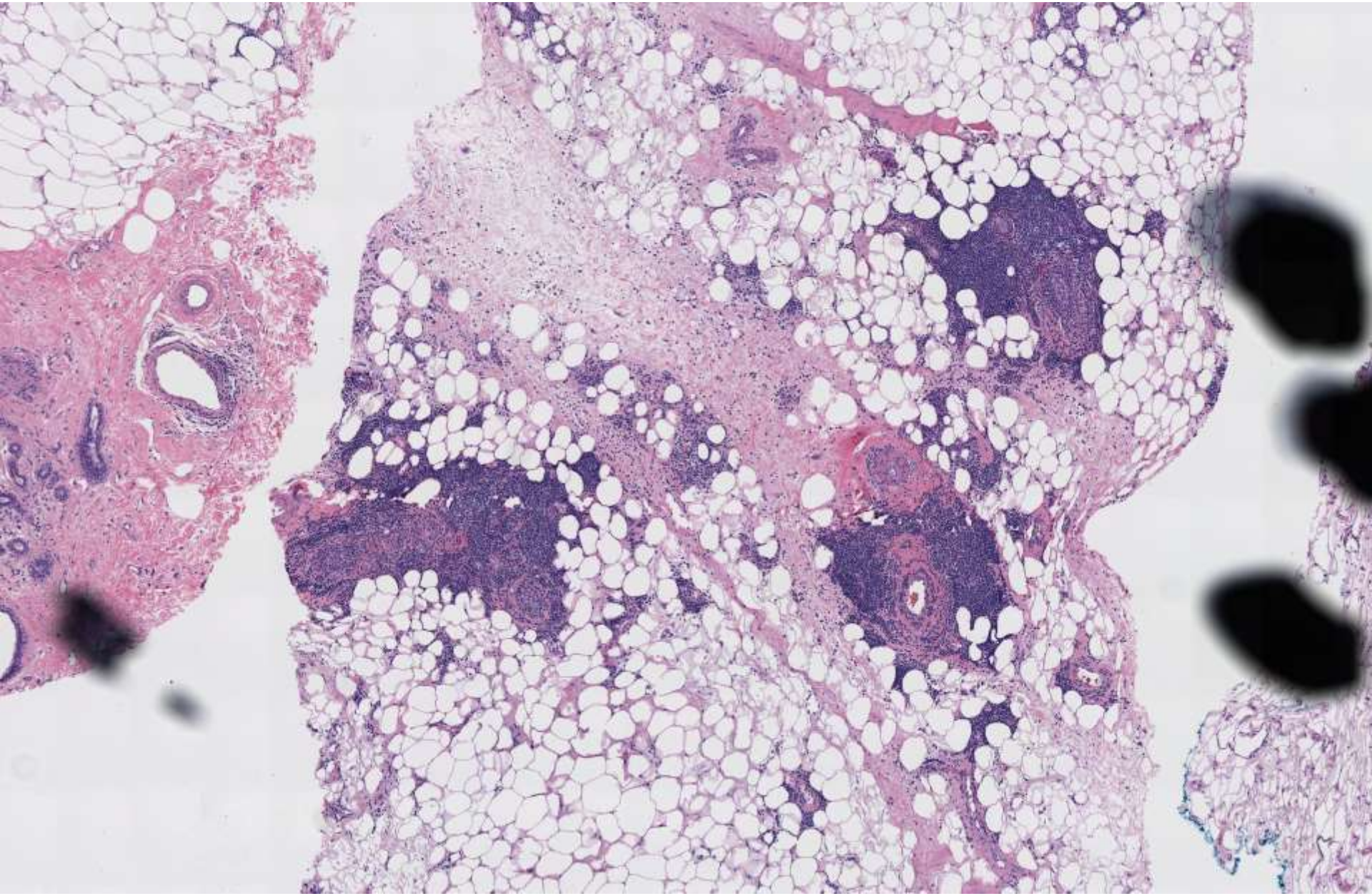
SB 6012

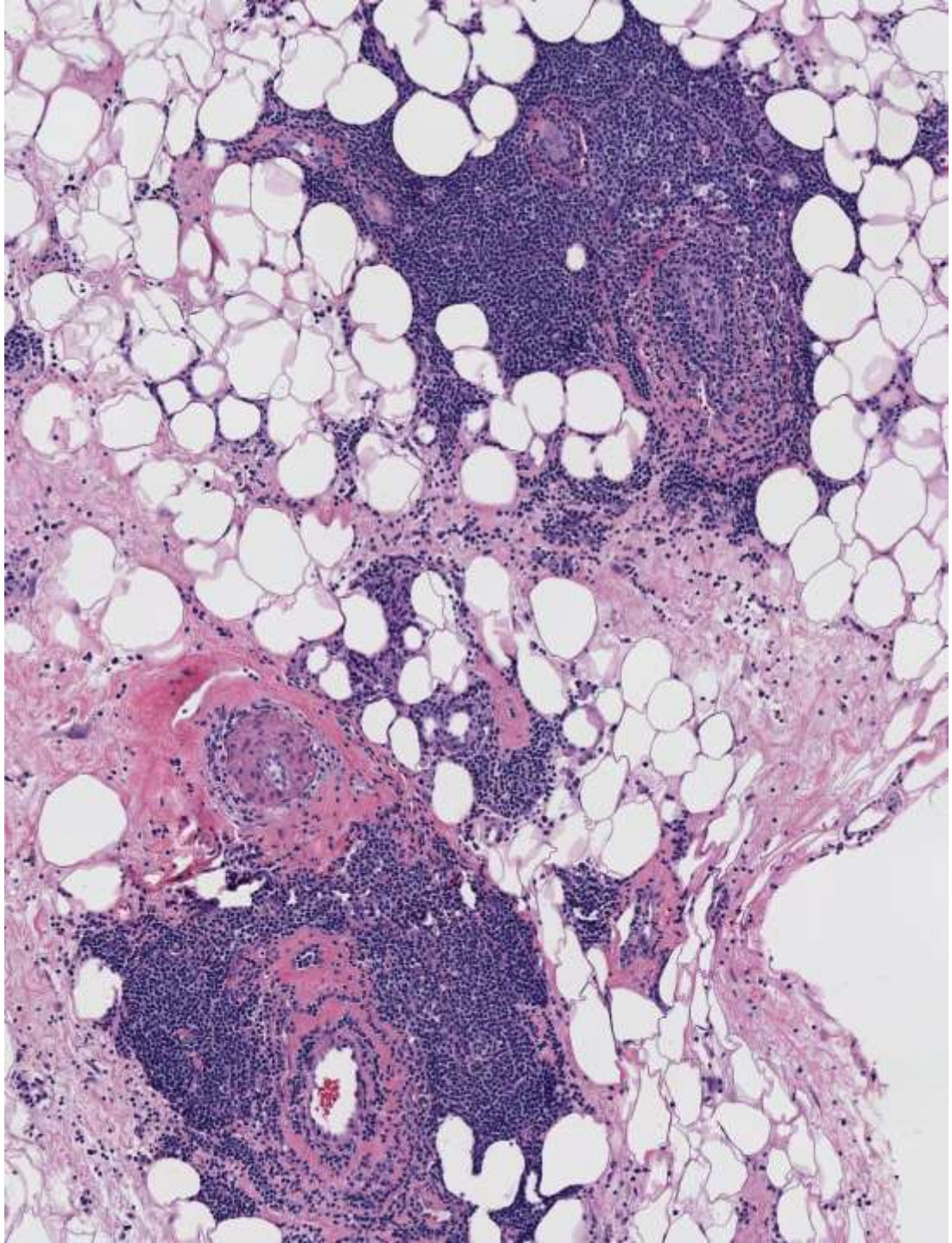
Mahendra Ranchod; Calpath

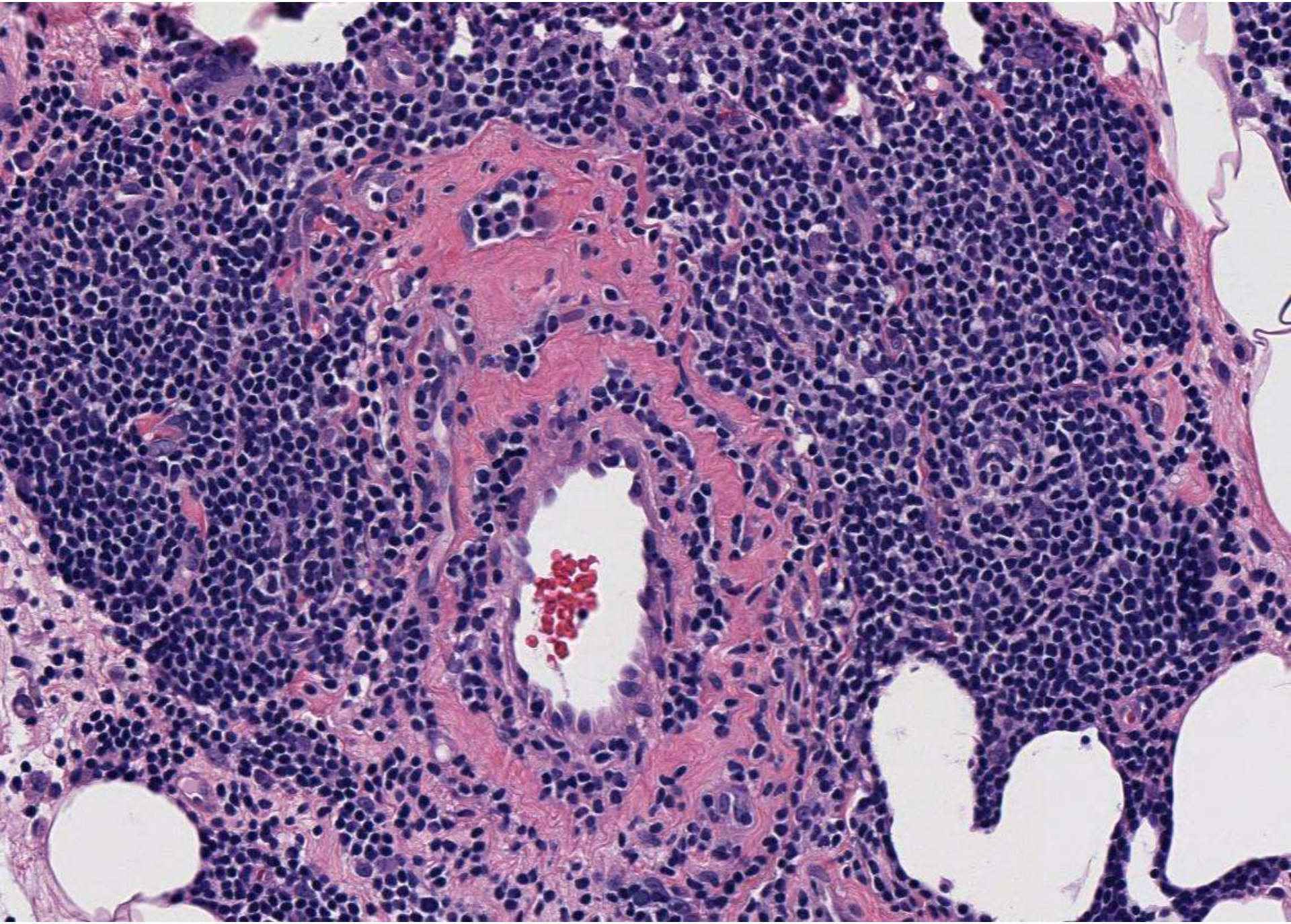
68-year-old female had a breast biopsy for a mammographic abnormality. No other diseases of note.

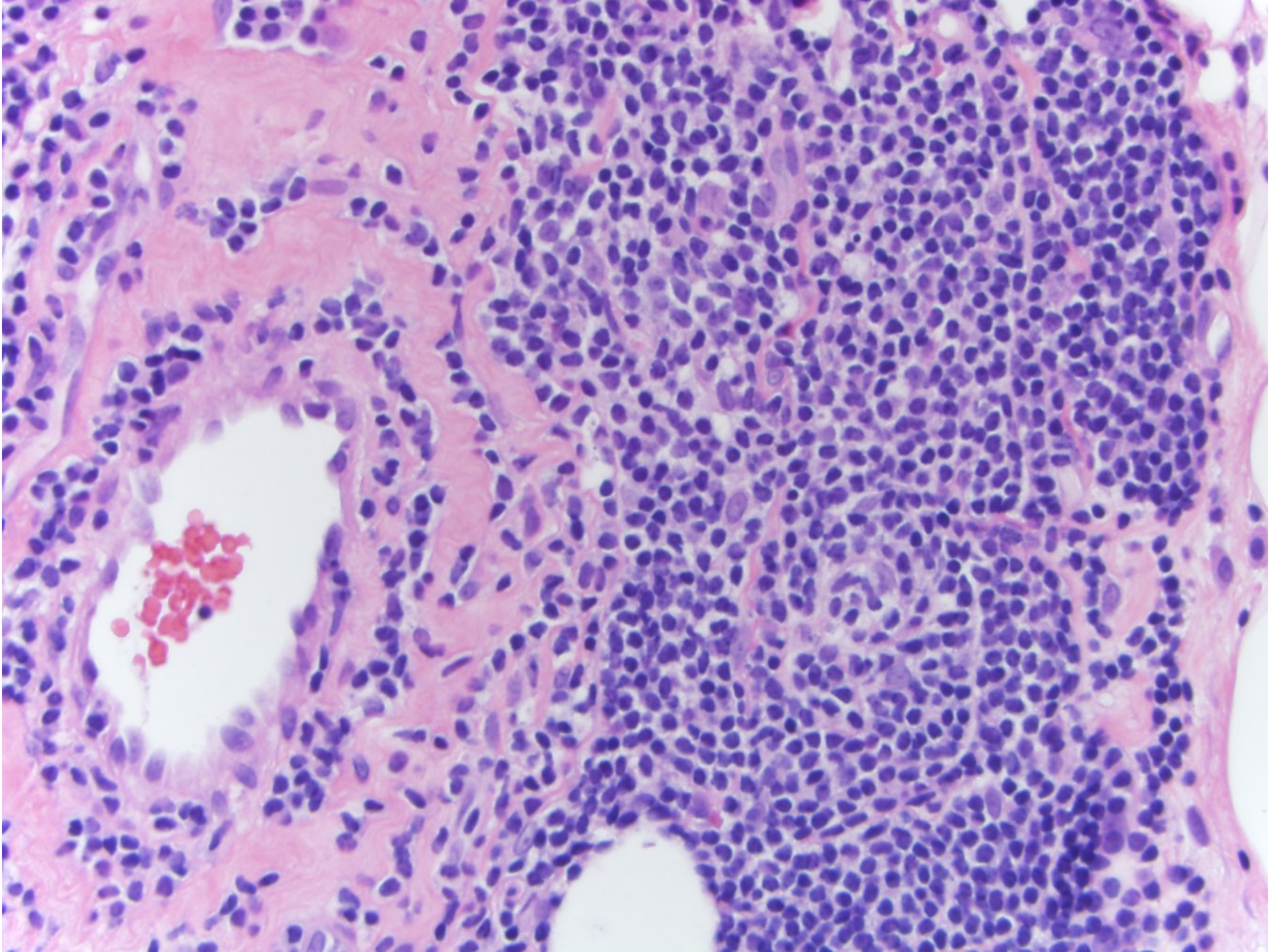

LLM
Compressed 19:1
Page: 2 of 4
cm

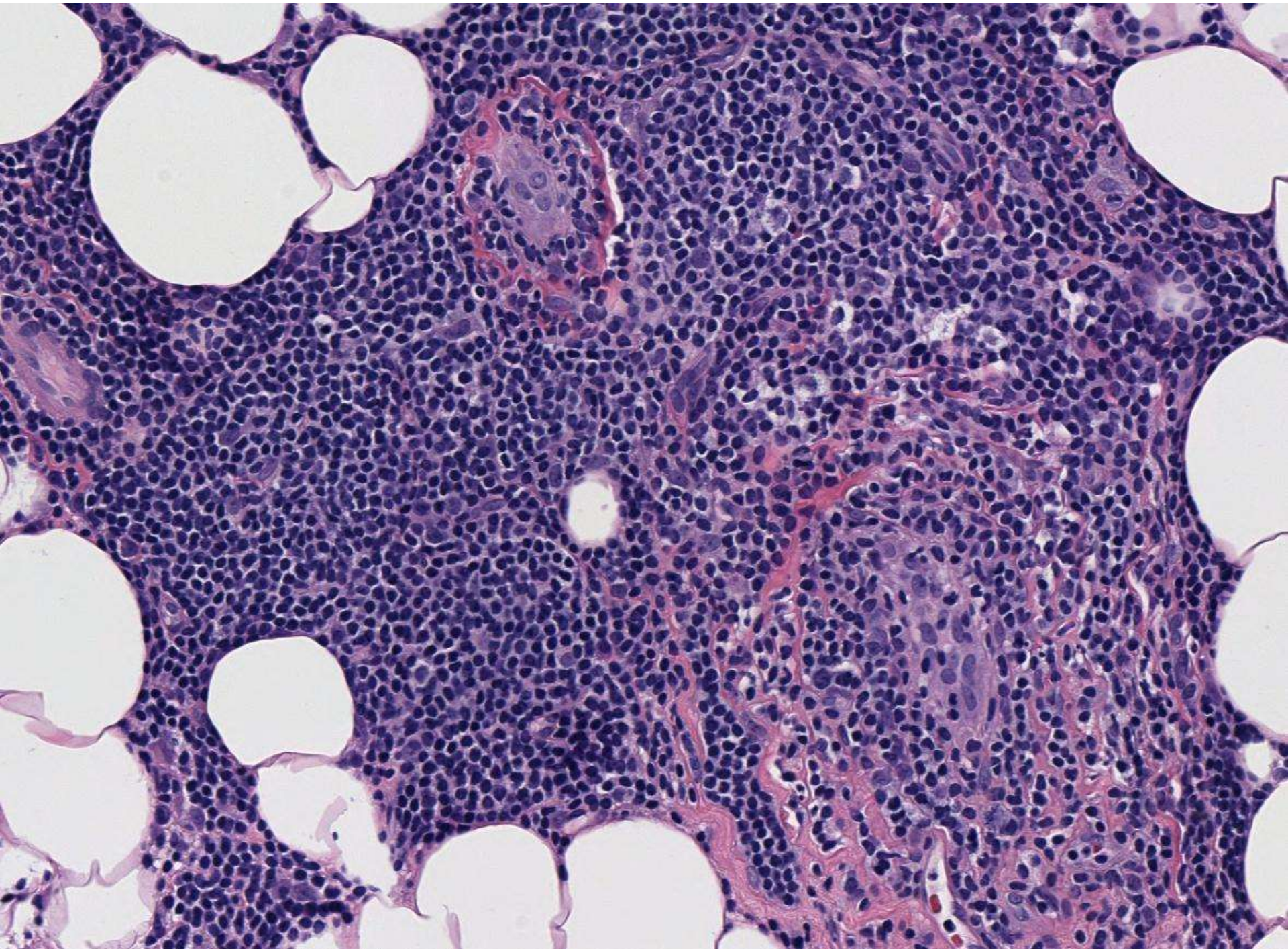


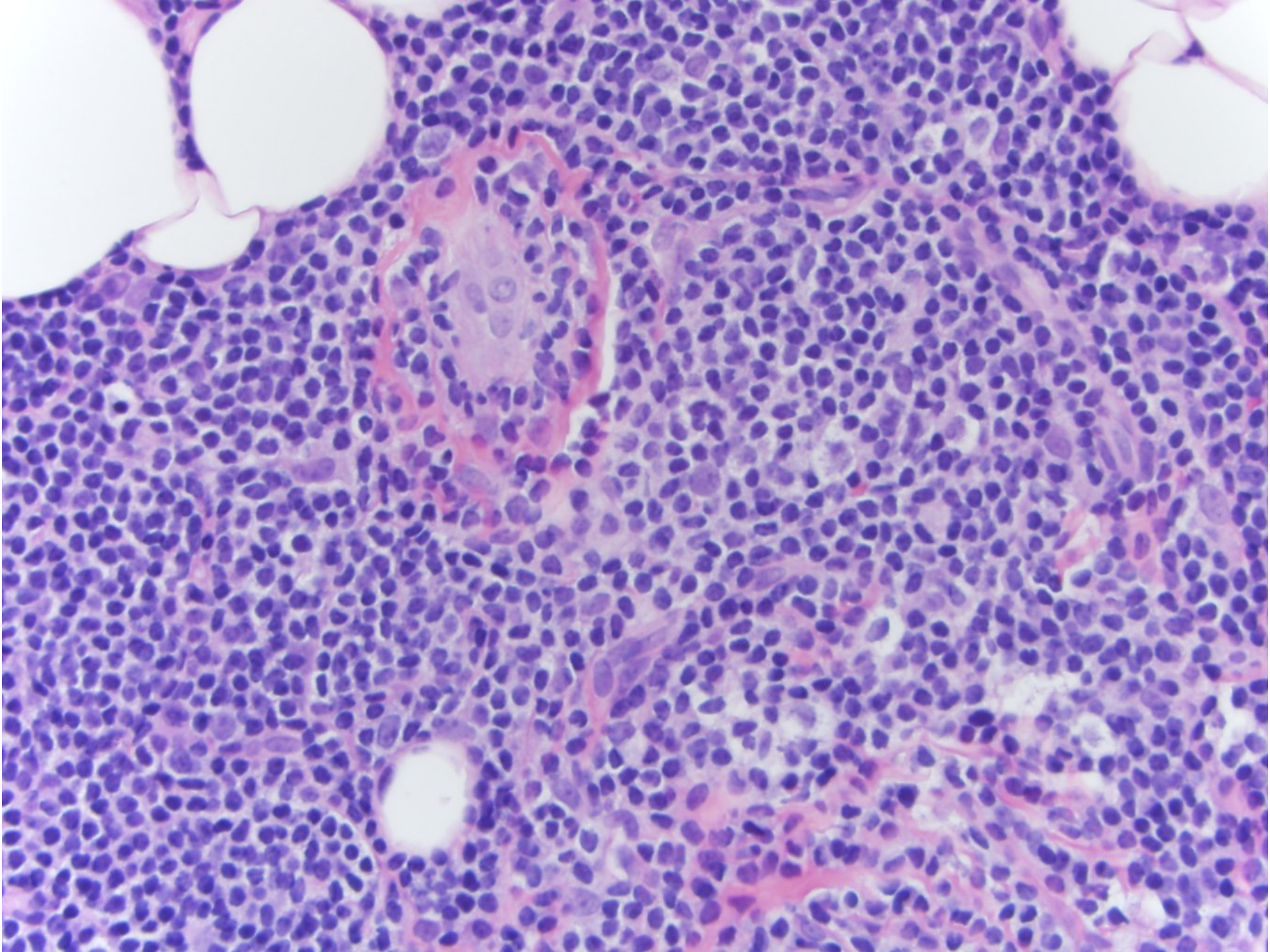


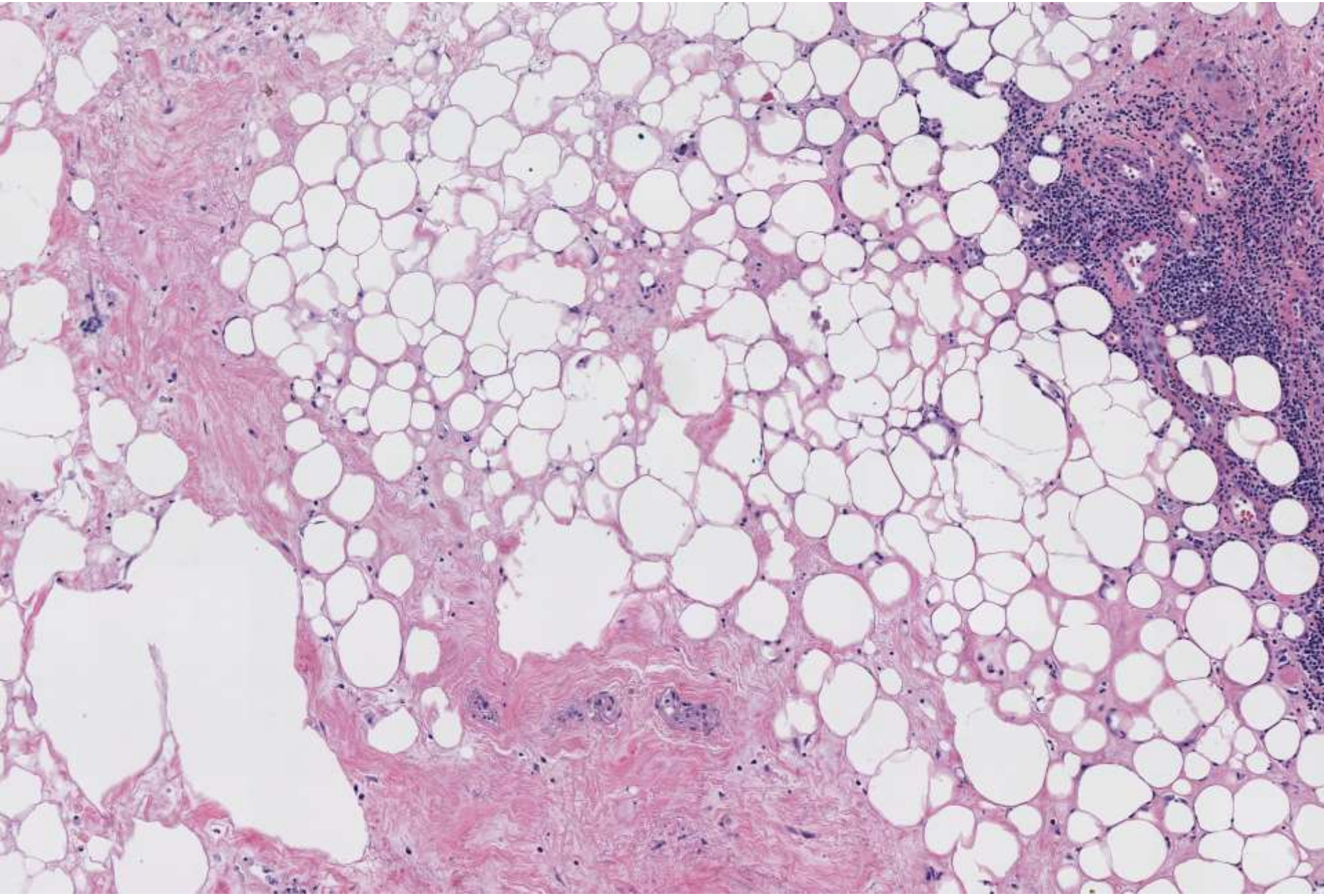


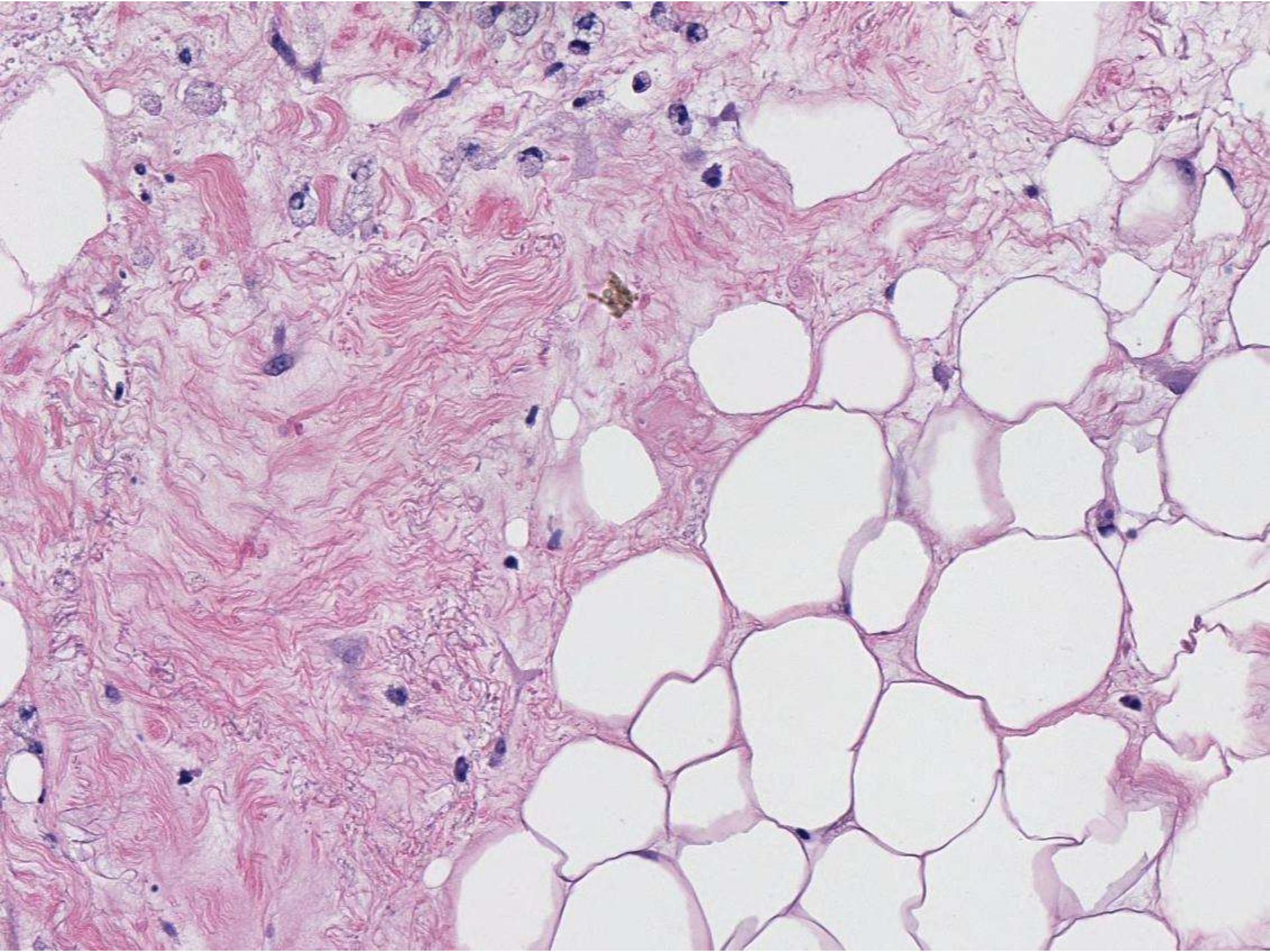




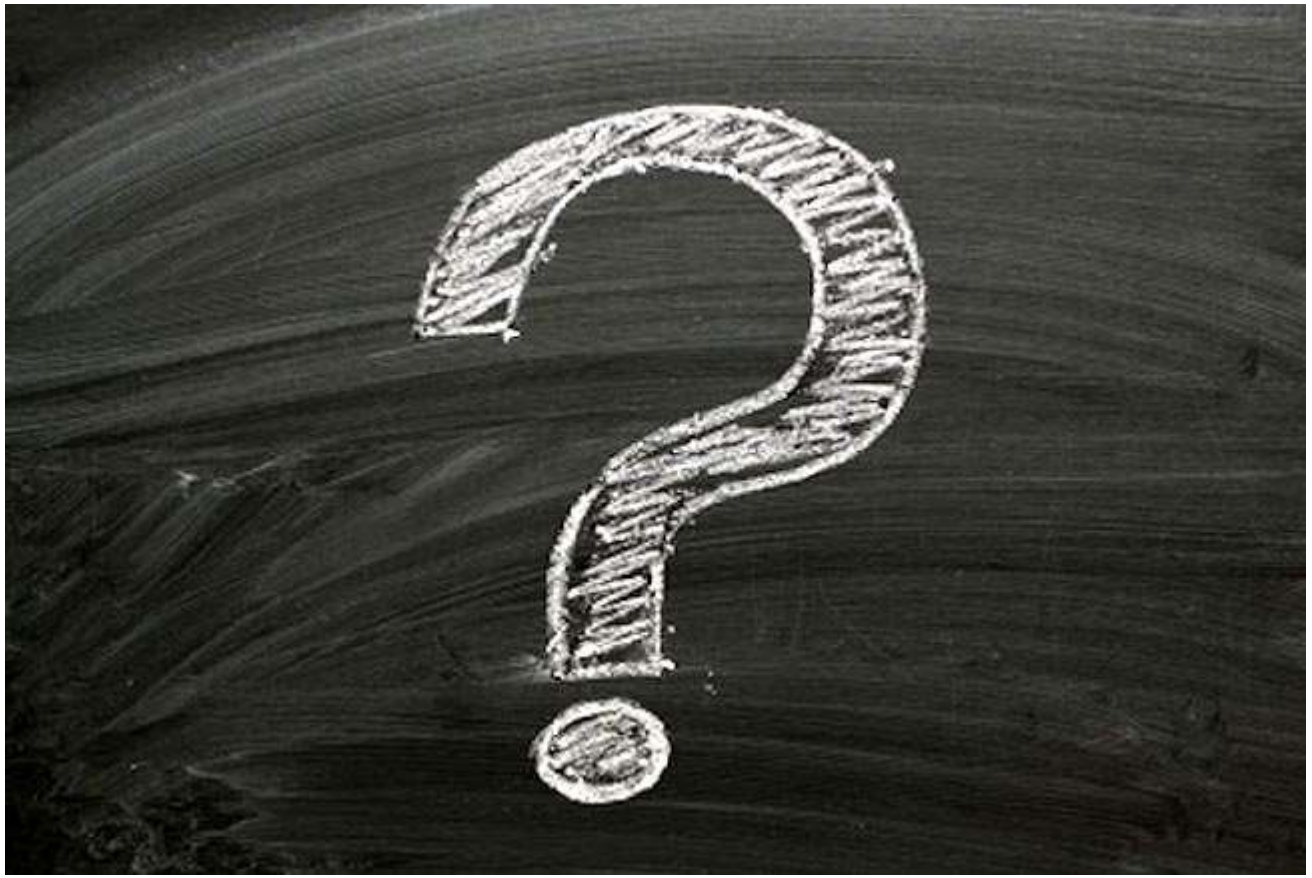








DIAGNOSIS?



Lymphocytic Mastitis

Treated infection

Diabetes mellitus, type 1
Hashimoto's thyroiditis

Lupus erythematosus
Dermatomyositis

SBPS 6012

- 68 y.o. with mammographic abnormality in 2010. Bx interpreted as lymphocytic mastitis.
- Mammographic abnormality more pronounced. Repeat bx in 2015.
- ? SLE, but no systemic symptoms.
- 6 months later, heliotrope rash on face and breast.
- Dermatomyositis with proximal muscle weakness and elevated muscle enzymes

Lymphocytic mastitis due to SLE & DM

Mastitis usually occurs in patient with known disease

Mammographic changes simulate malignancy

Inflammation may be lobular, septal, periductal, perivascular or diffuse

Lymphocytic vasculitis

Lymphoid follicles with germinal centers

Hyaline fat necrosis

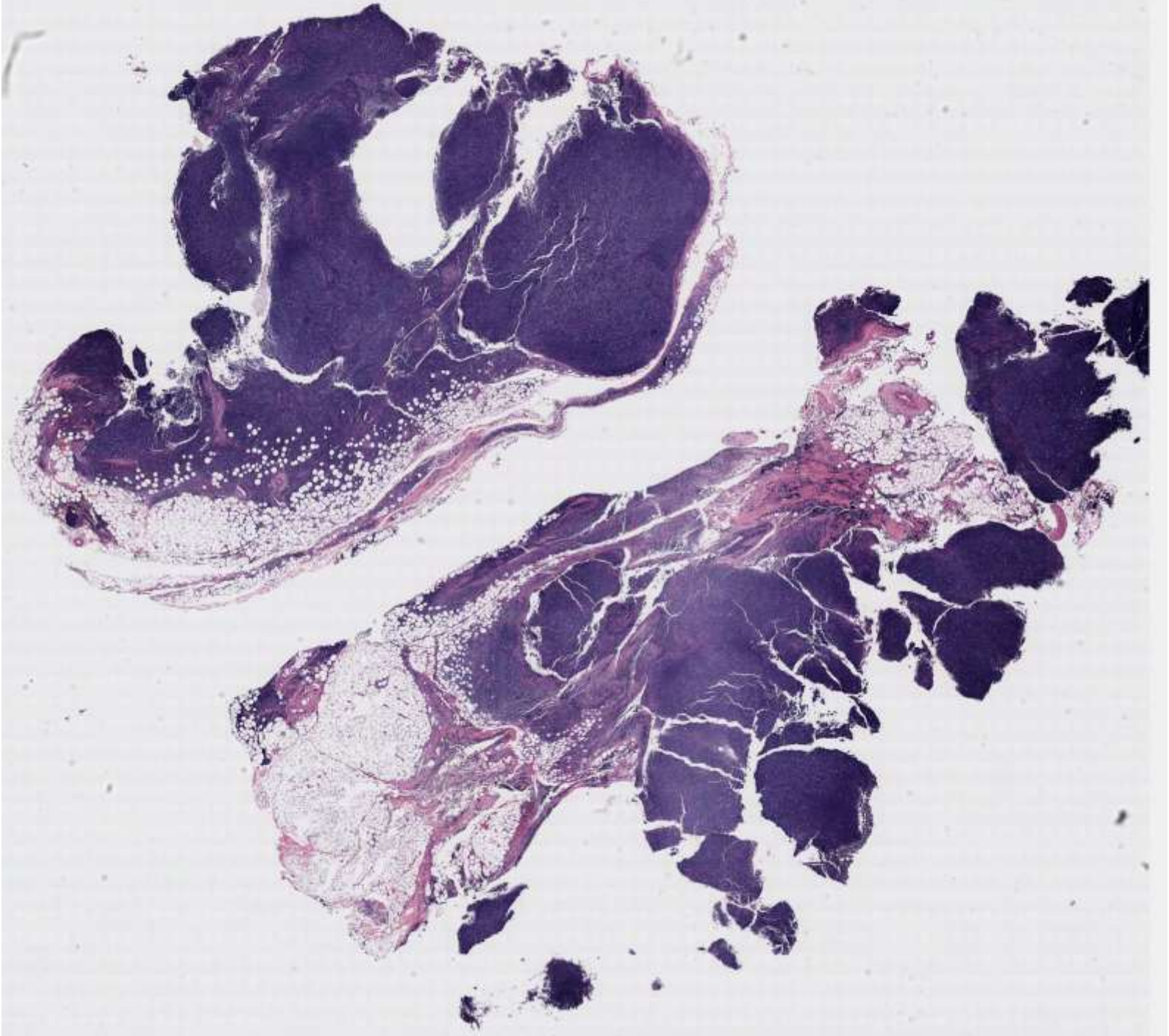
Mixed B and T cells, predominantly T- cells

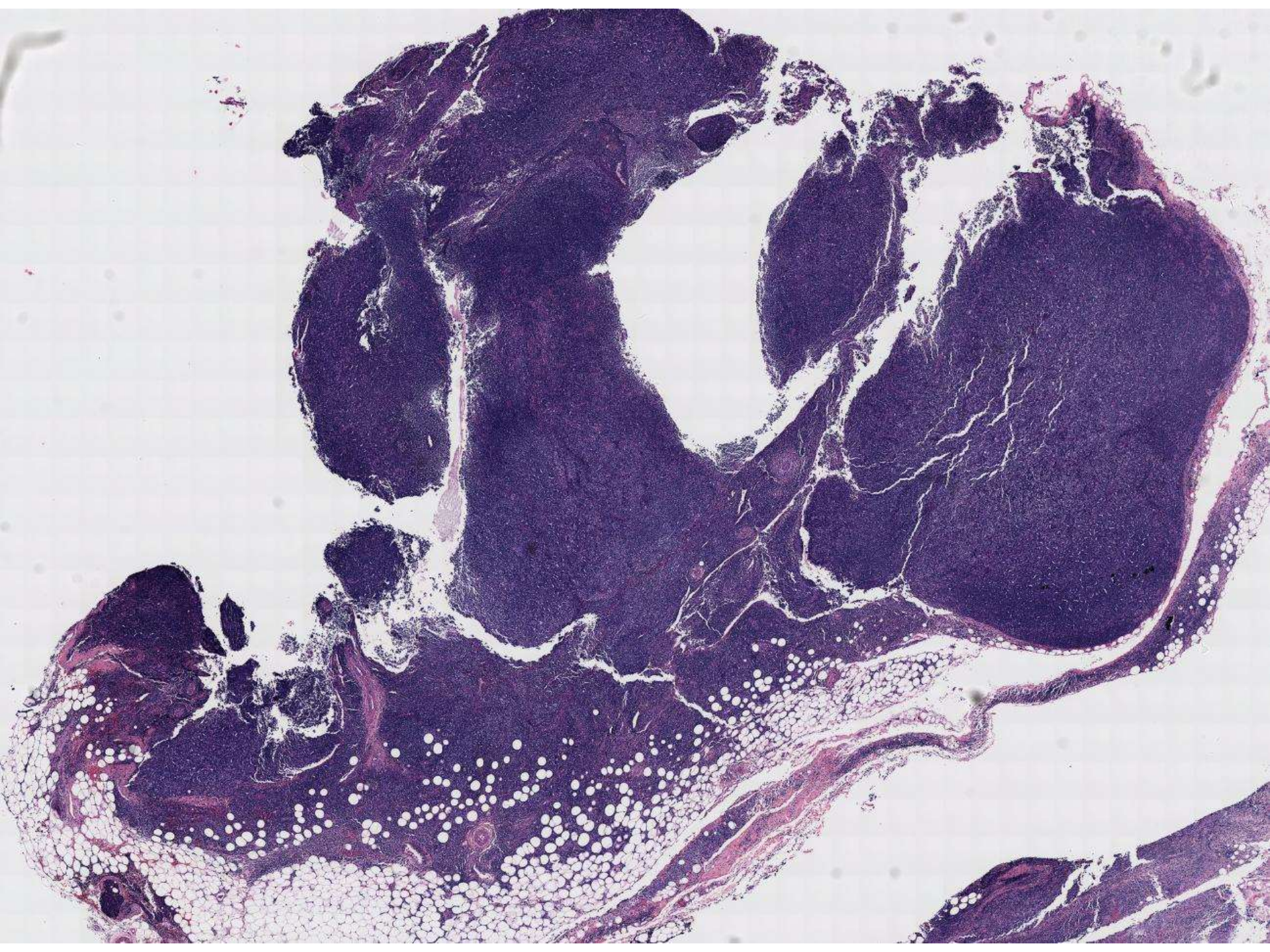
Equivalent to lupus profundus

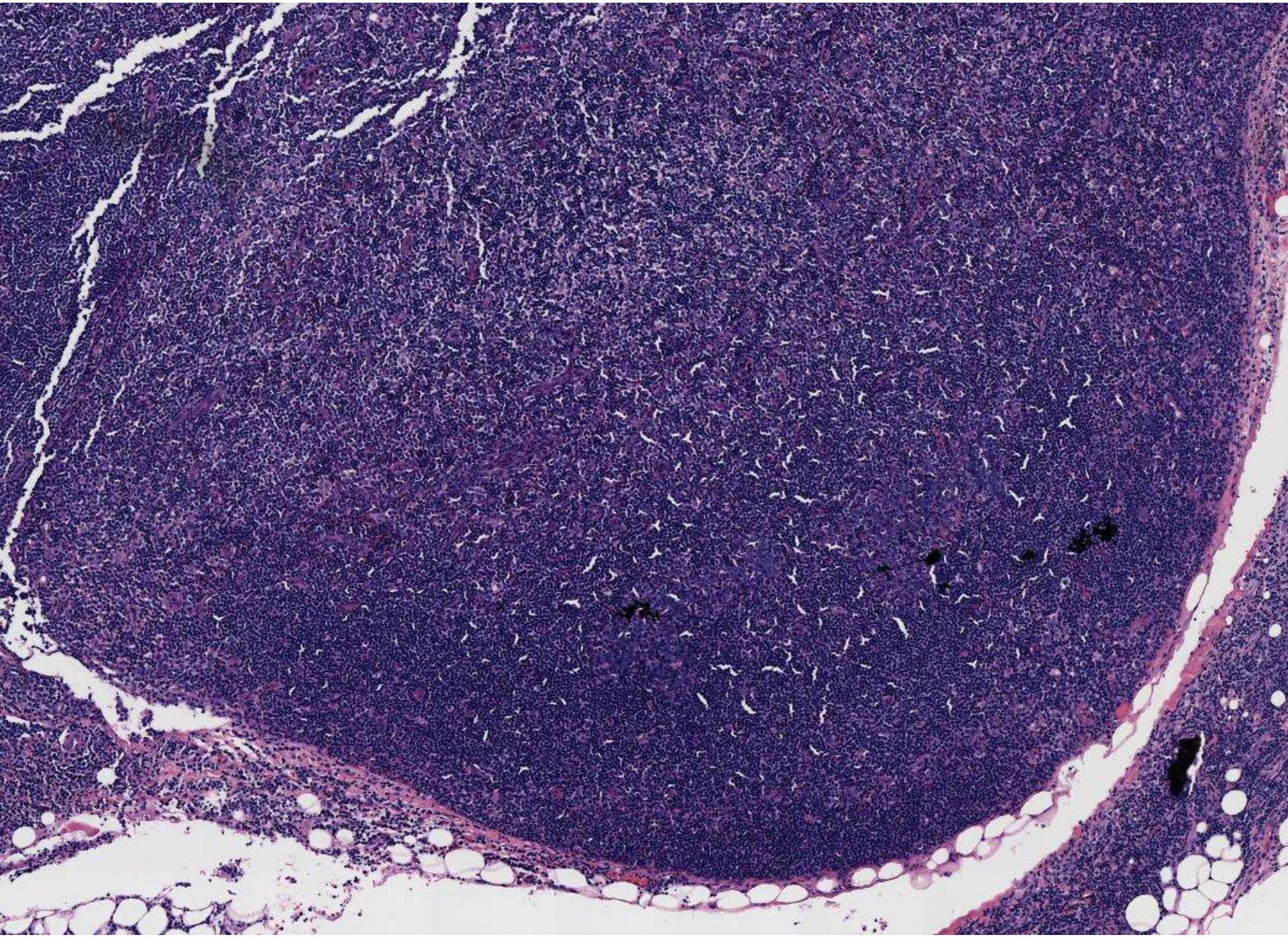
SB 6013

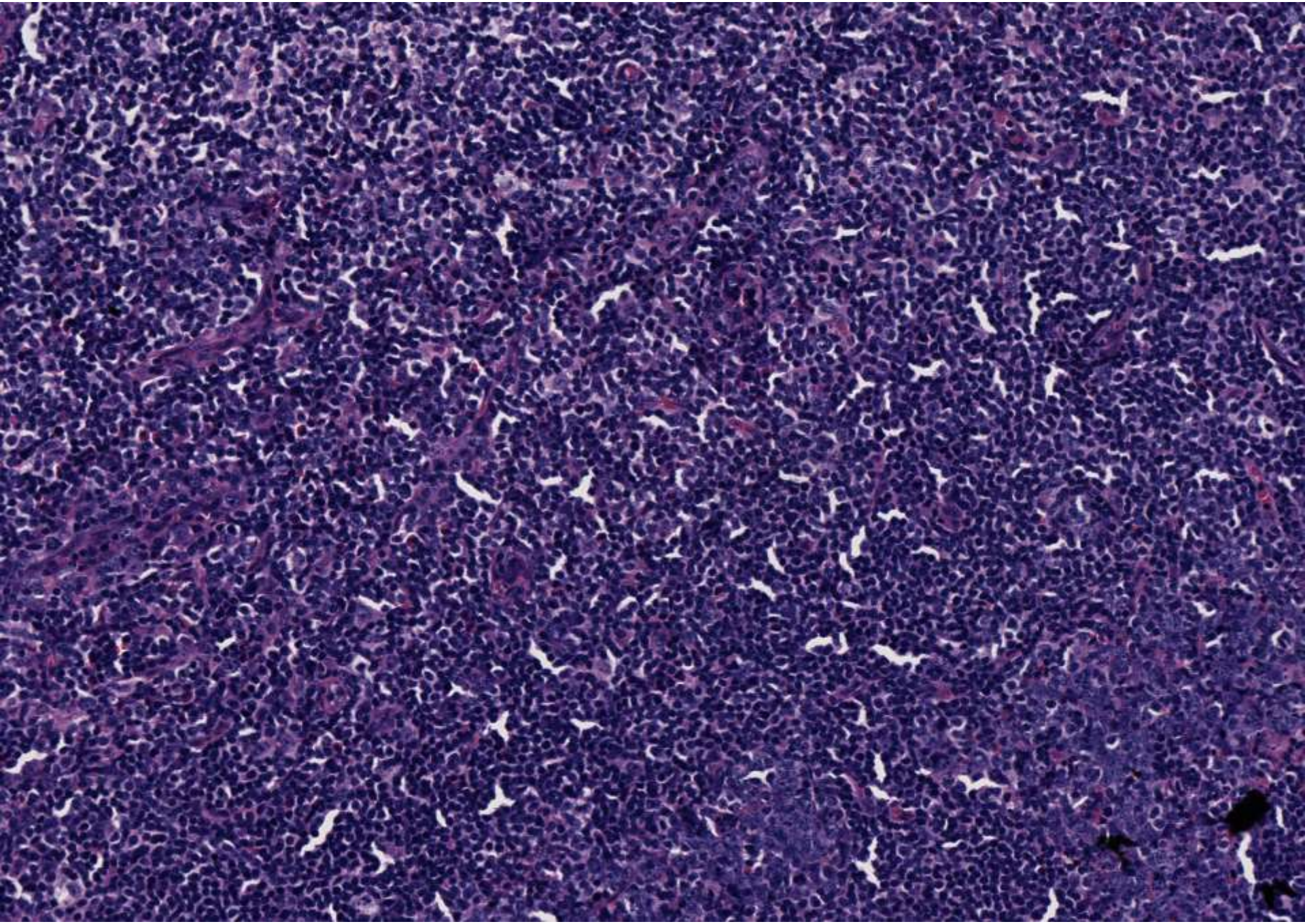
Keith Duncan; Mills-Peninsula

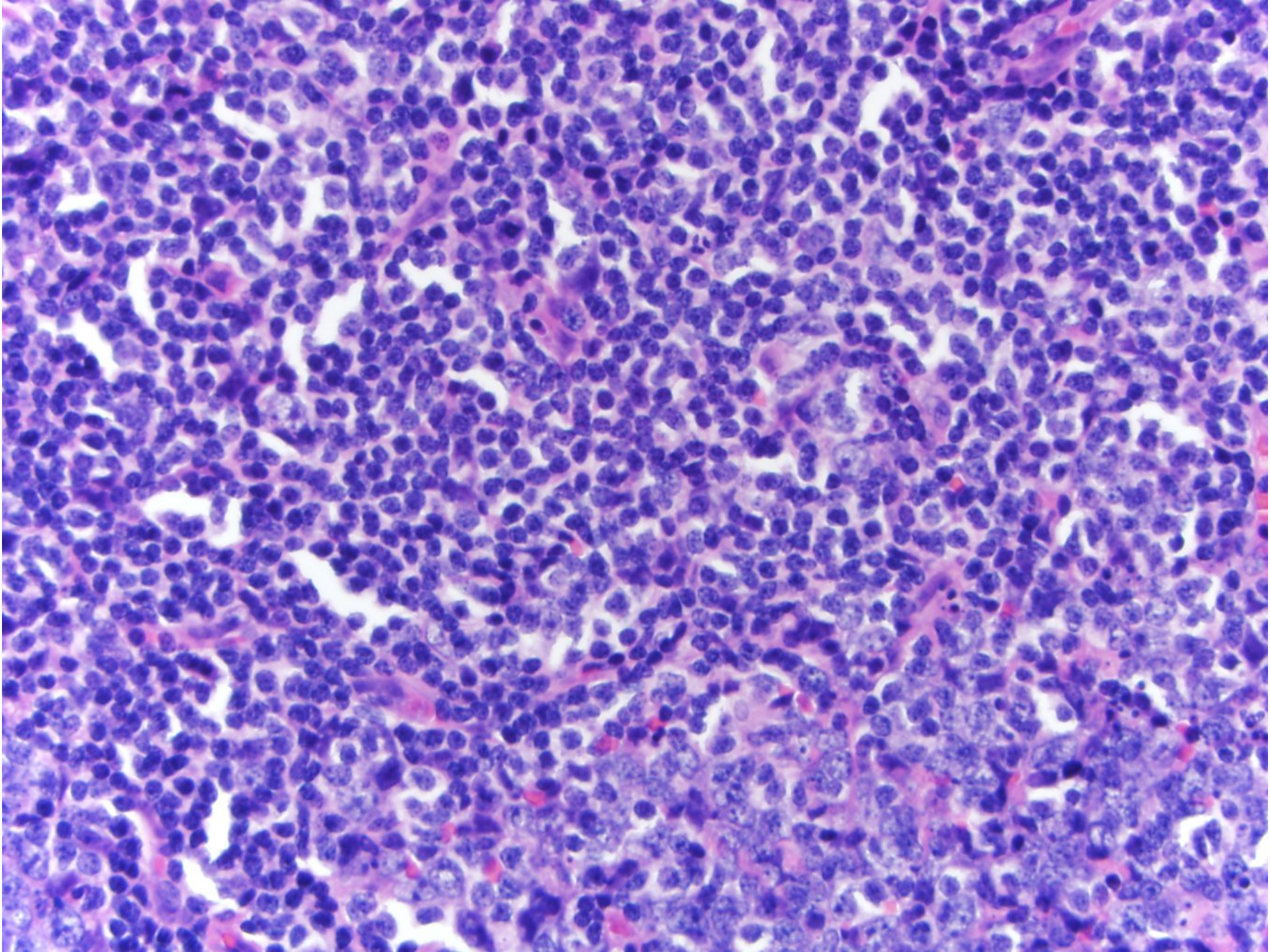
67-year-old female with 2cm left posterior neck mass excision.

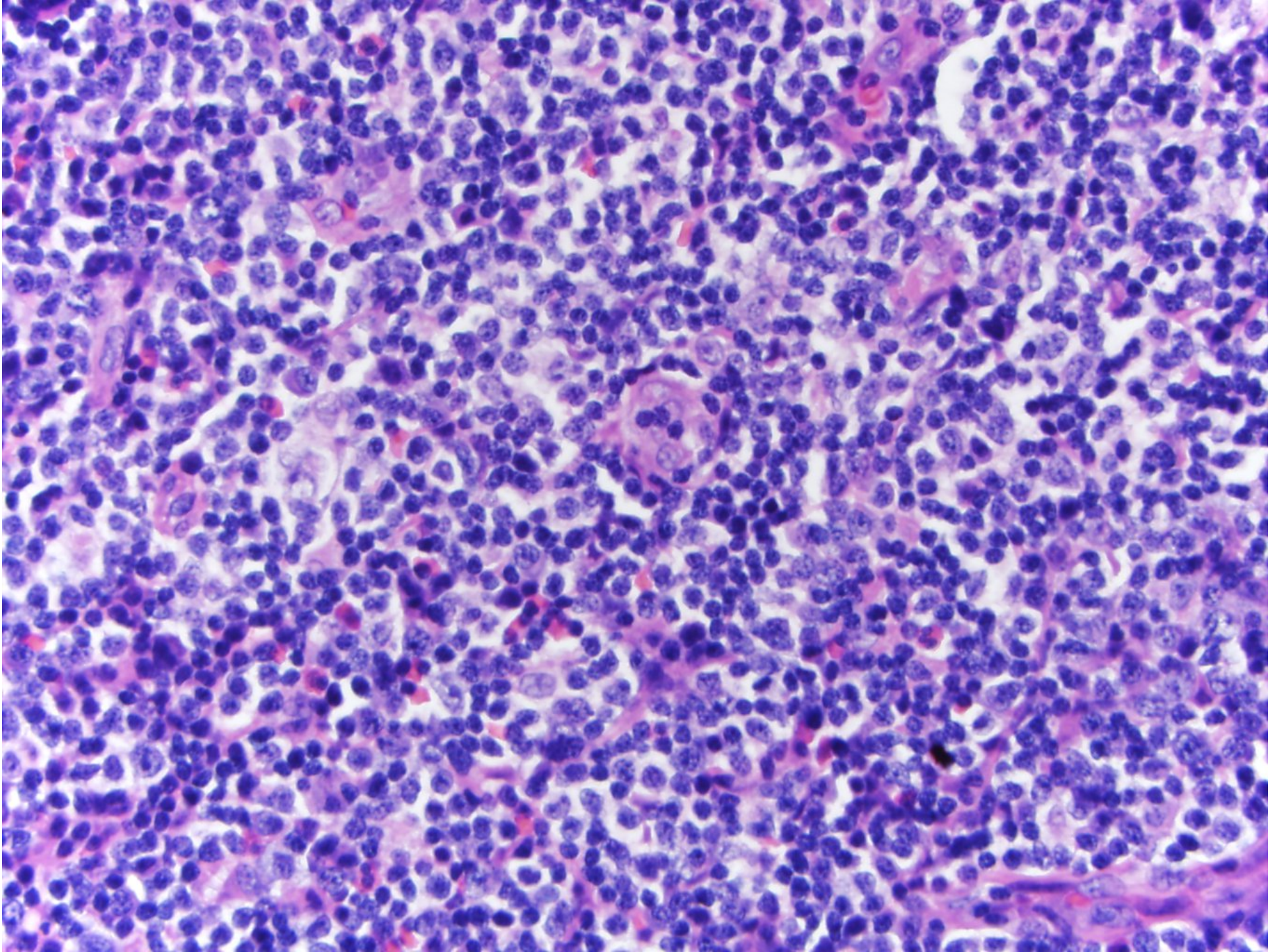


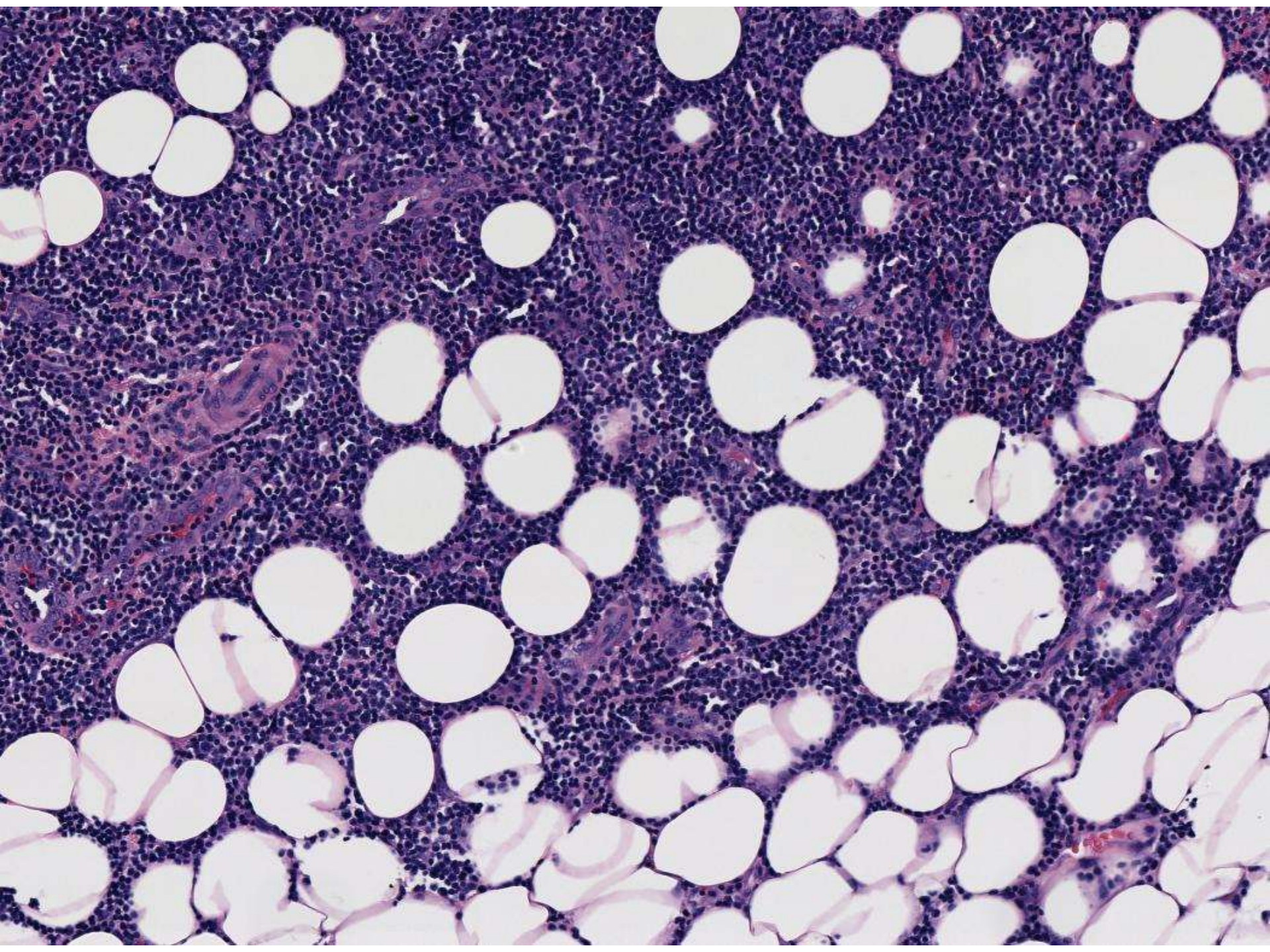


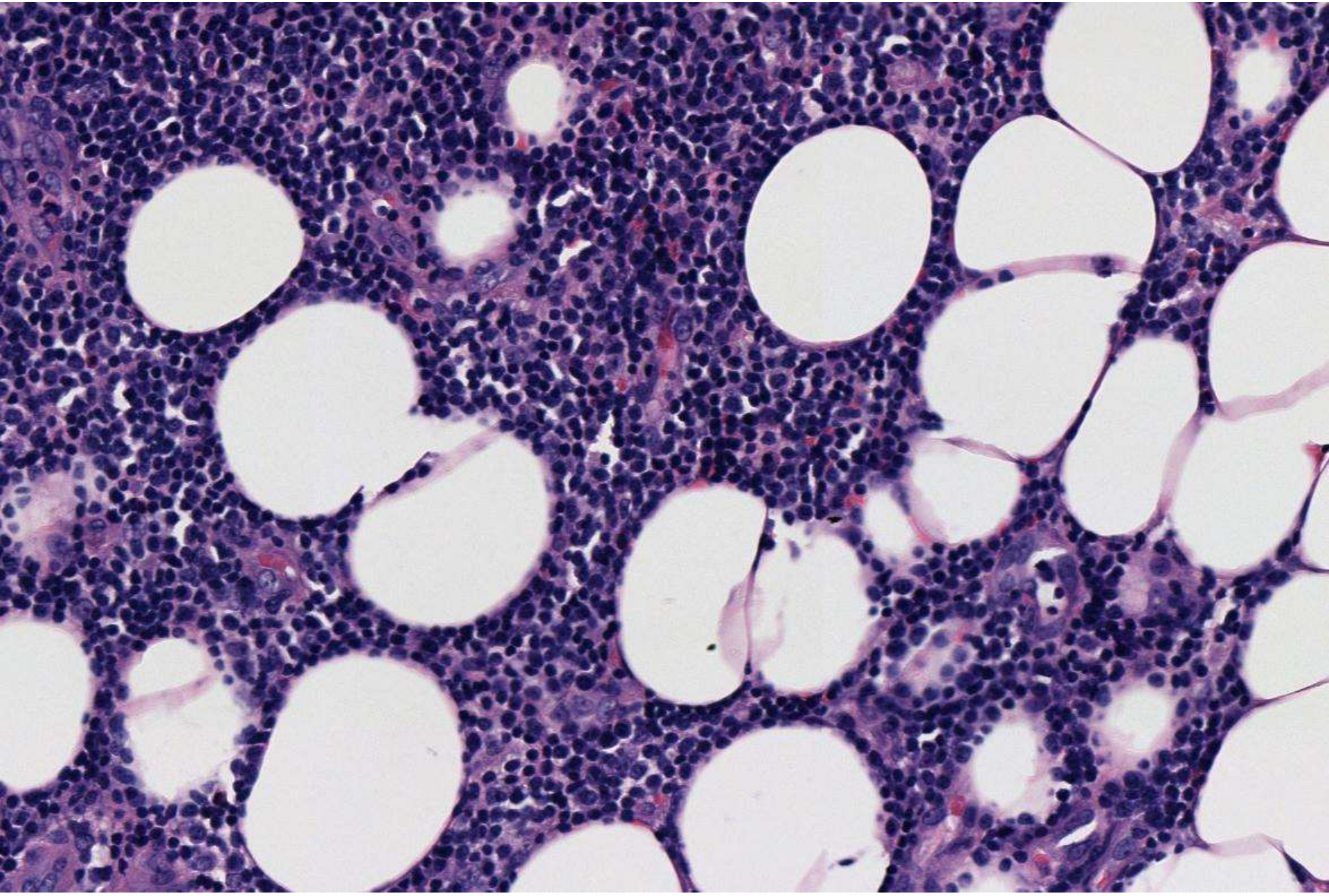


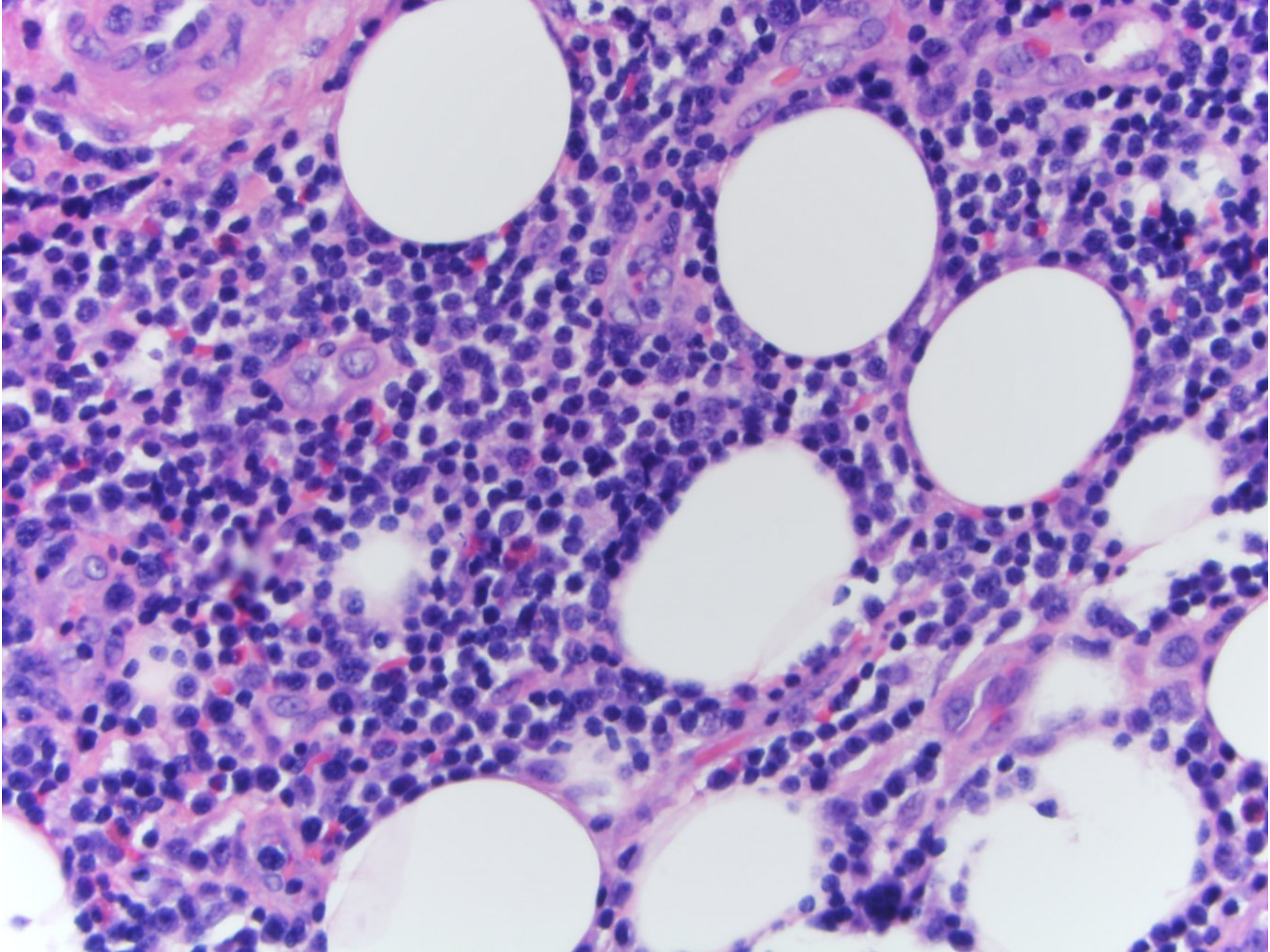


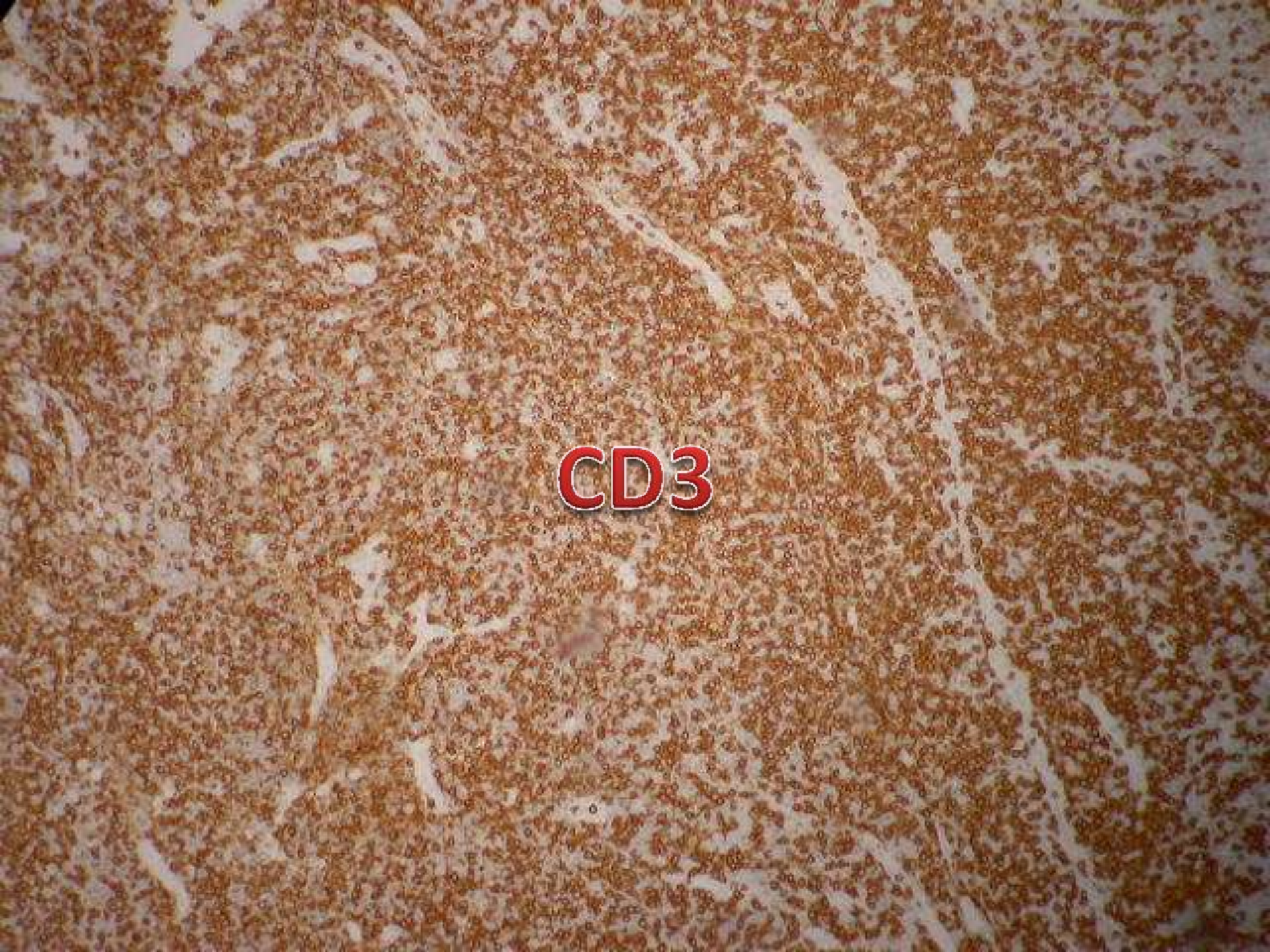










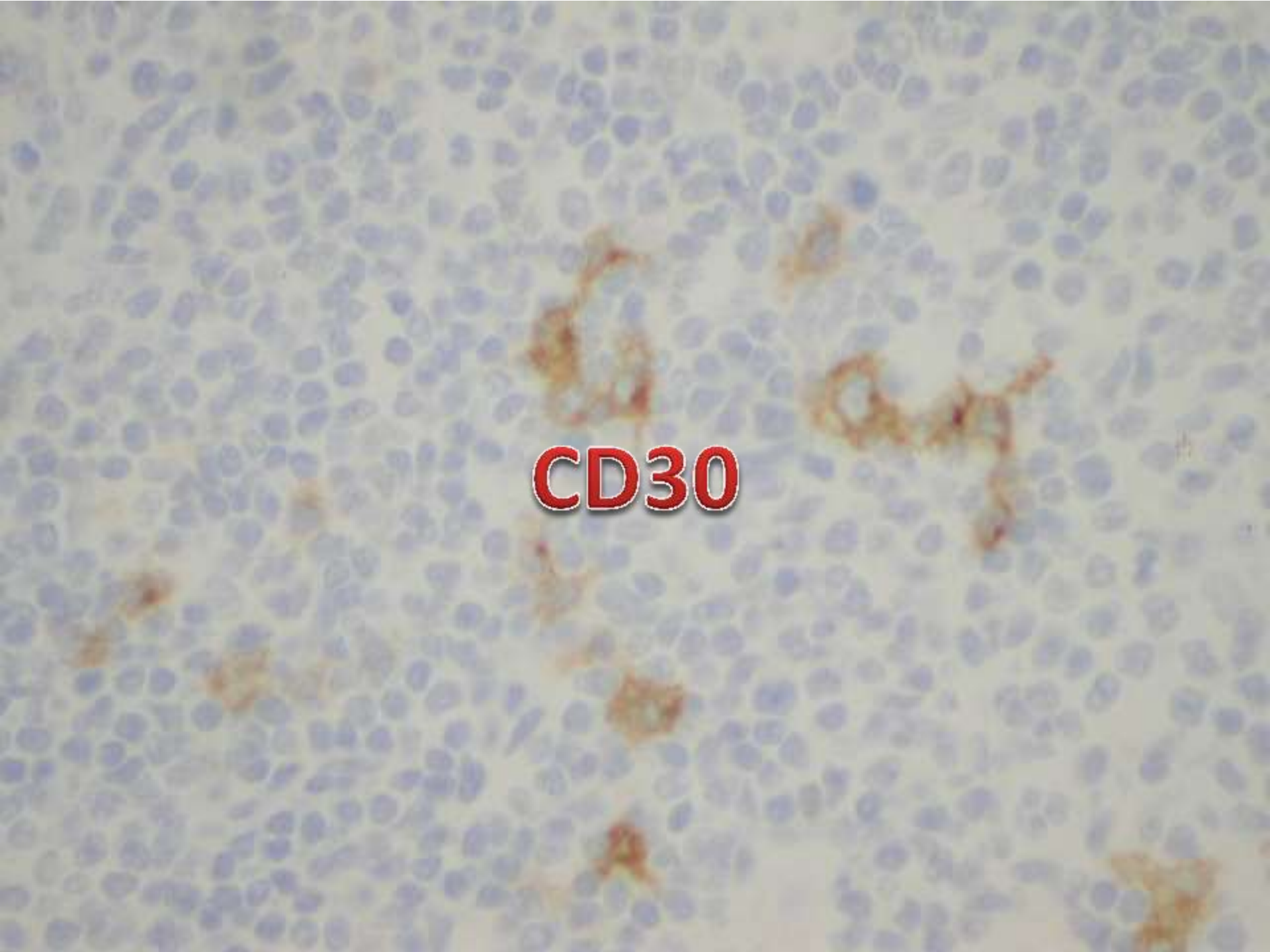

CD3


CD5

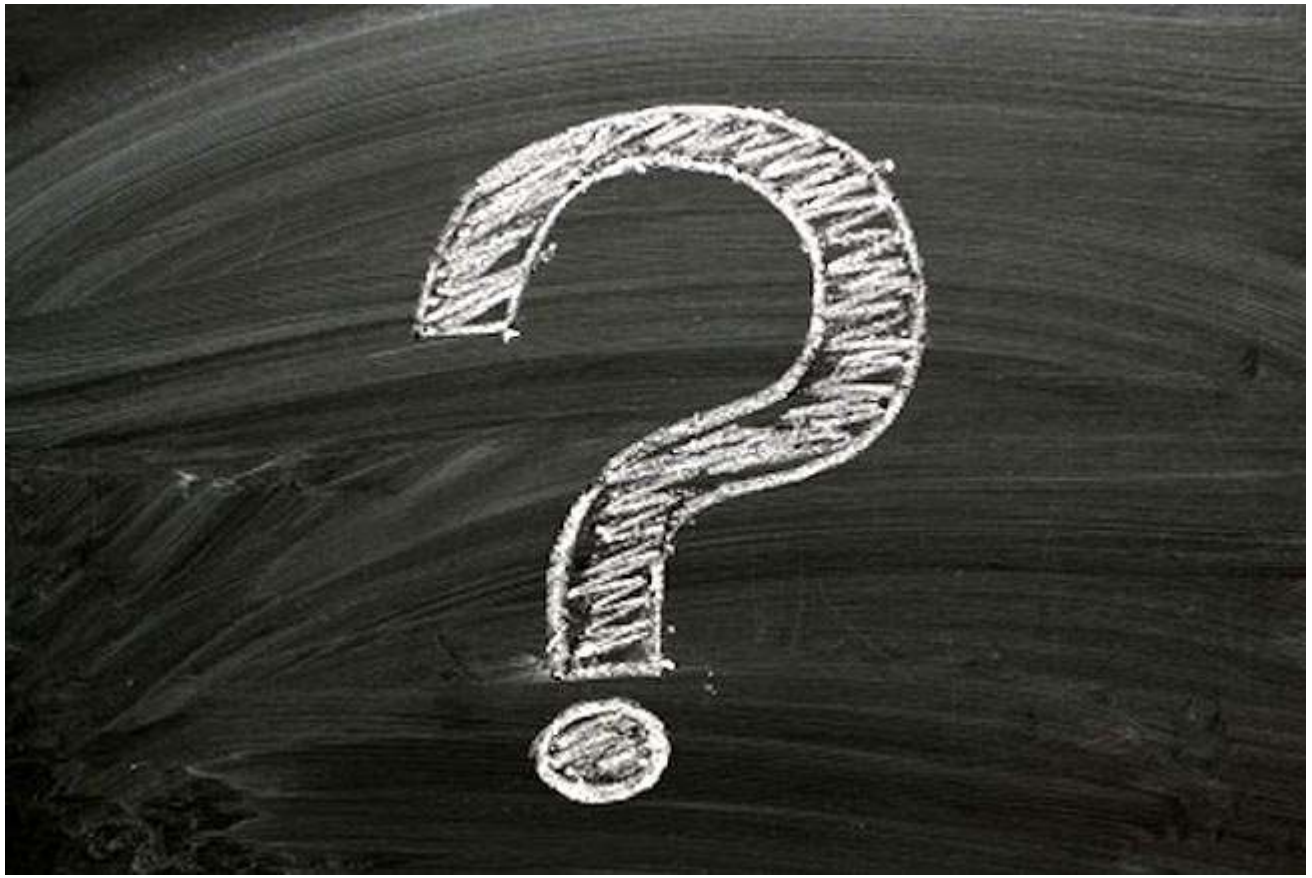

CD20


BCL-2


PAX-5


CD30

DIAGNOSIS?



HISTOLOGICAL FINDINGS

- NORMAL ARCHITECTURE EFFACED-
- DIFFUSE MIXED INFILTRATE WITH BACKGROUND EOS & PLASMA CELLS.
- FEW LARGE ATYPICAL CELLS WITH PROMINENT NUCLEOLI.
- CD3 & CD5 STAIN BACKGROUND SMALL CELLS AND SOME LARGER CELLS
- CD20 GROUPS OF B CELL AND SCATTERED LARGE CELLS

IPOX FINDINGS

- LARGER CELLS CD30 POS & CD15 NEG
- BCL-2 DIFFUSELY POS
- FLOW ANALYSIS: NO IMMUNOPHENOTYPIC ABNORMALITIES
- EBV POS IN LARGER AND SMALL LYMPHS
- KAPPA/LAMBDA POLYTYPIC

STANFORD DX

- ATYPICAL T-CELL PROLIFERATION, FAVOR PERIPHERAL T-CELL LYMPHOMA (NOS) WITH EBV-POSITIVE LARGE CELLS
- MOLECULAR STUDIES:
- + FOR TCR GAMMA GENE REARRANGEMENT
- - FOR IgG HEAVY & LIGHT CHAIN GENE REARANGEMENT
- NCI AGREED NOTING ANGIOIMMUNOBLASTIC FEATURES & POSIBILITY OF EBV REACTIVATION

DIFF DX DISCUSSION STANFORD

- PERIPHERAL T-CELL LYMPHOMA VS ANGIOIMMUNOBLASTIC LYMPHOMA-
- CD21 SHOWED FOCAL FOLLICULAR DISRUPTION BUT PATTERN IS NOT SUPPORTIVE OF AITL.
- ALSO SEVERAL EBV POSITIVE LARGE CELLS WERE DETECTED.

Peripheral T cell lymphoma, not otherwise specified

- Heterogeneous category of nodal and extranodal mature T cell lymphomas which do not correspond to any of the specifically defined entities of mature T cell lymphoma in the current WHO classification
- ● More aggressive than most B cell lymphomas; 5 year survival of 25% (20-30%)
  ● Treatment: chemotherapy, autologous stem cell transplant
  ● Usually highly aggressive with poor response to therapy and frequent relapses
  ● Factors consistently associated with prognosis: stage and IPI score
  ● Other negative prognostic factors: bone marrow involvement, EBV+,

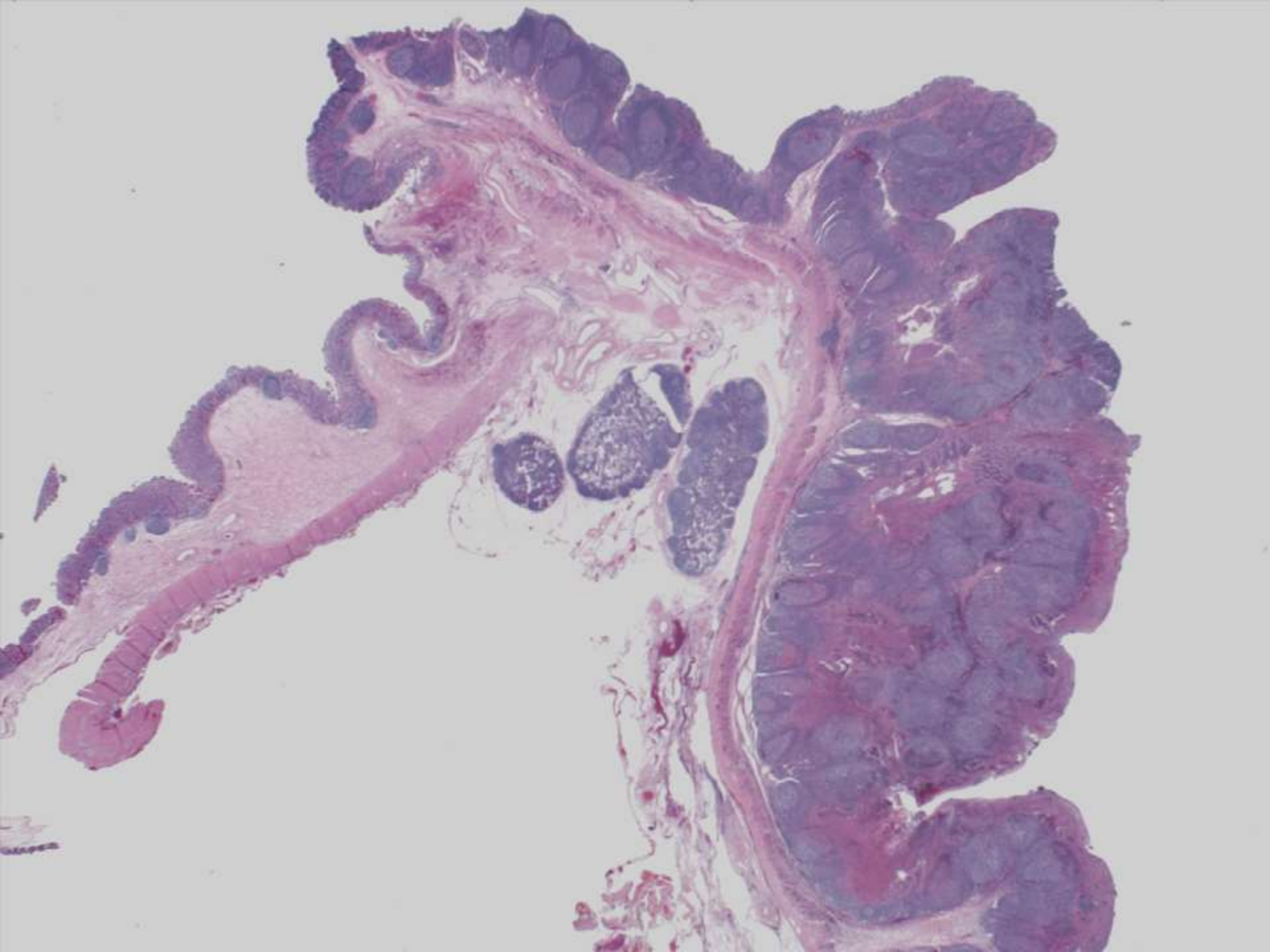
Differential diagnosis

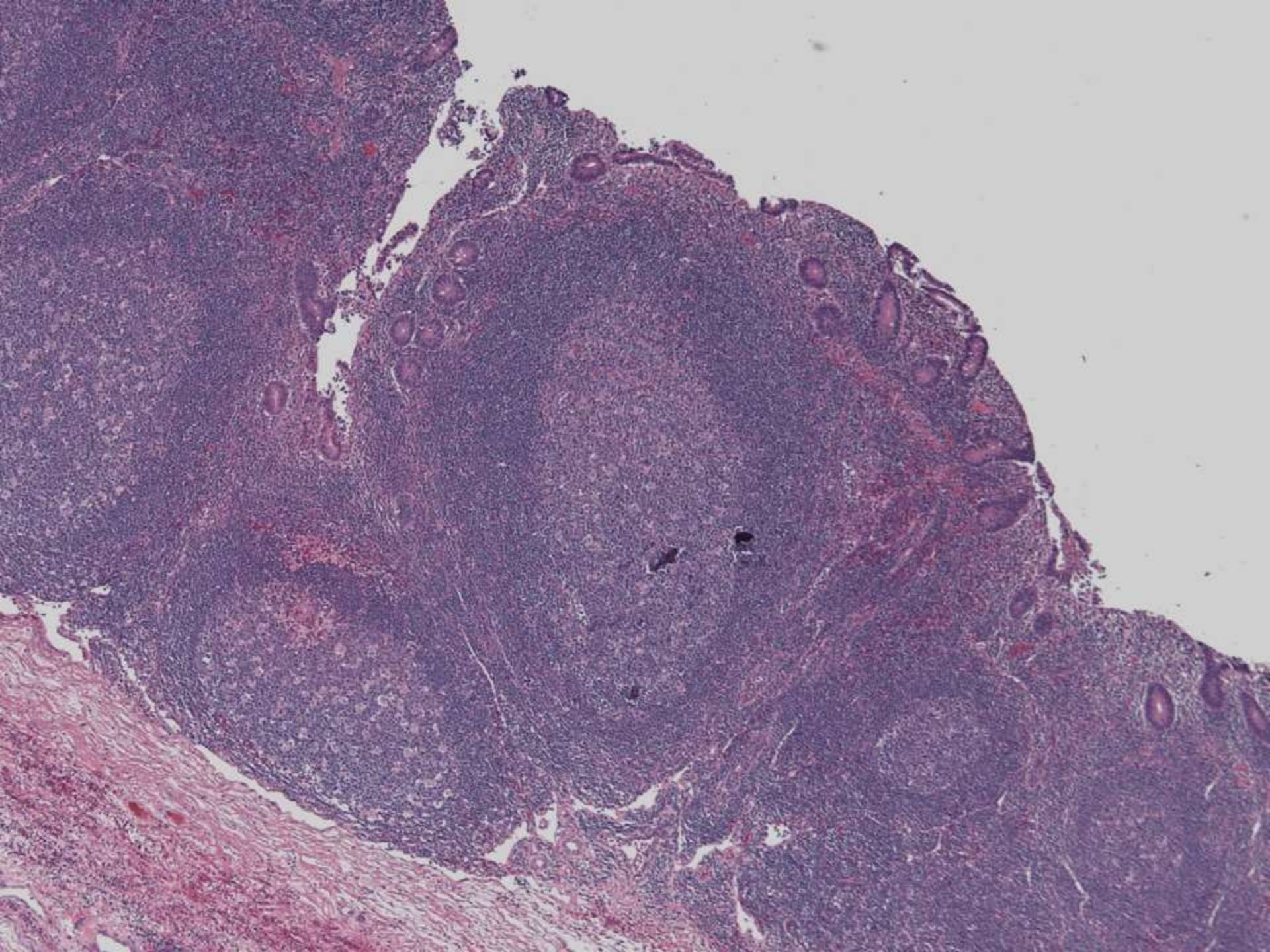
- Hodgkin lymphoma: classic Reed-Sternberg cells are CD15+, CD30+, no atypia in lymphocytes
- Reactive lymphoid hyperplasia: usually no marked atypia, no T cell receptor clonality
- Angioimmunoblastic T cell lymphoma: follicular T-helper phenotype, different gene signature
- Anaplastic large cell lymphoma: different immunophenotype, different gene signature

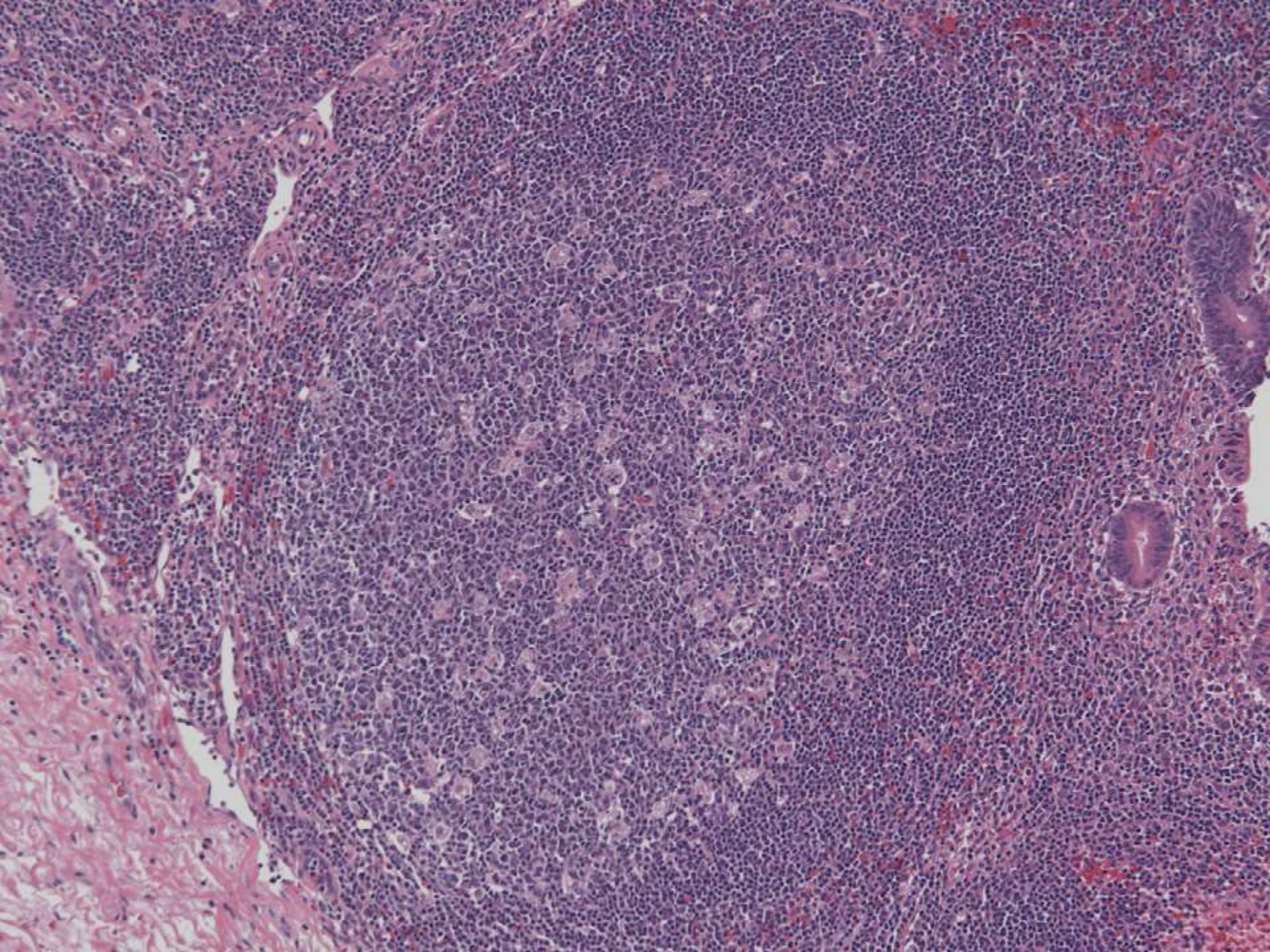
SB 6014

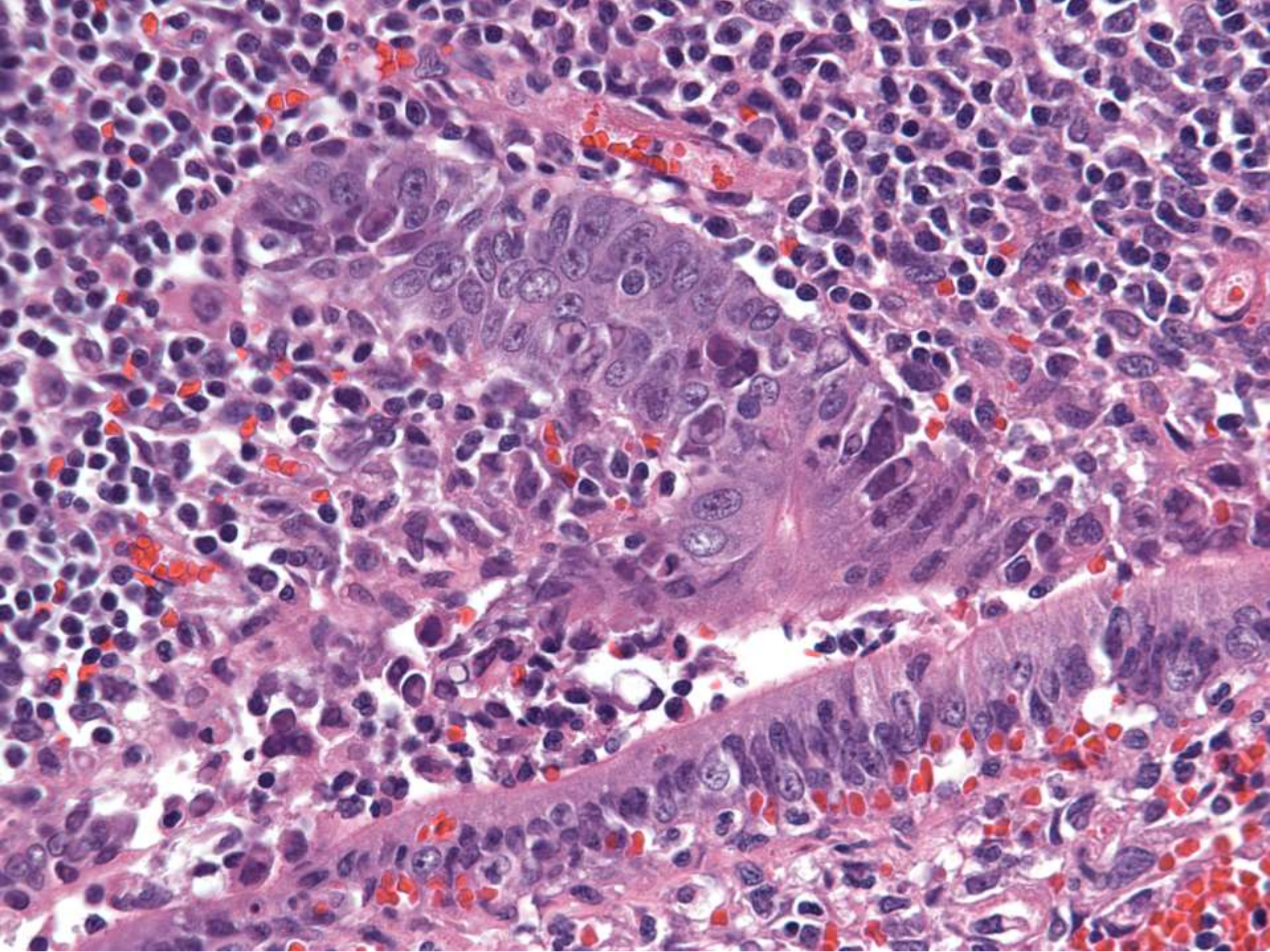
Christine Louie/Roger Warnke; Stanford

6-month-old male presenting with vomiting and blood stools found to to have intussusception.

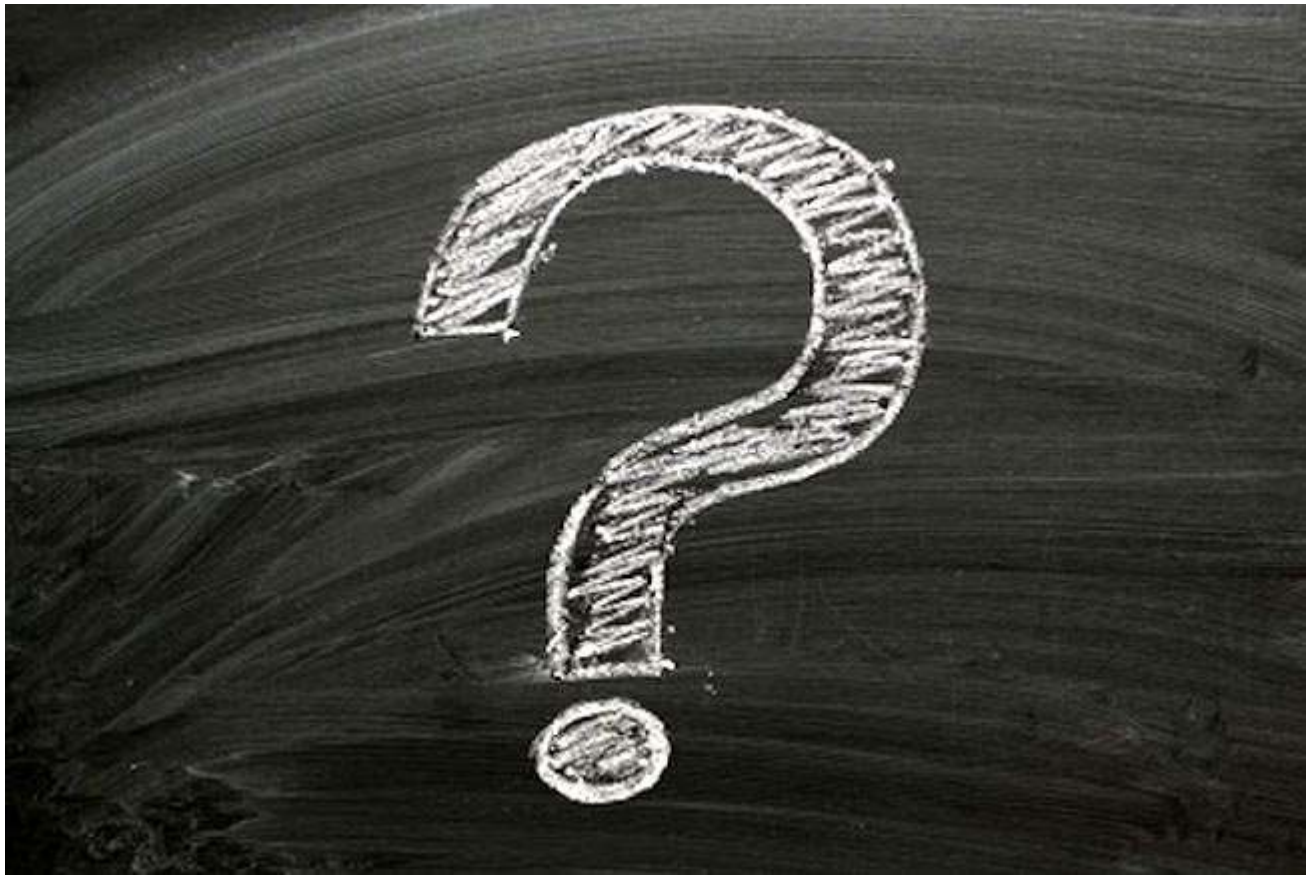


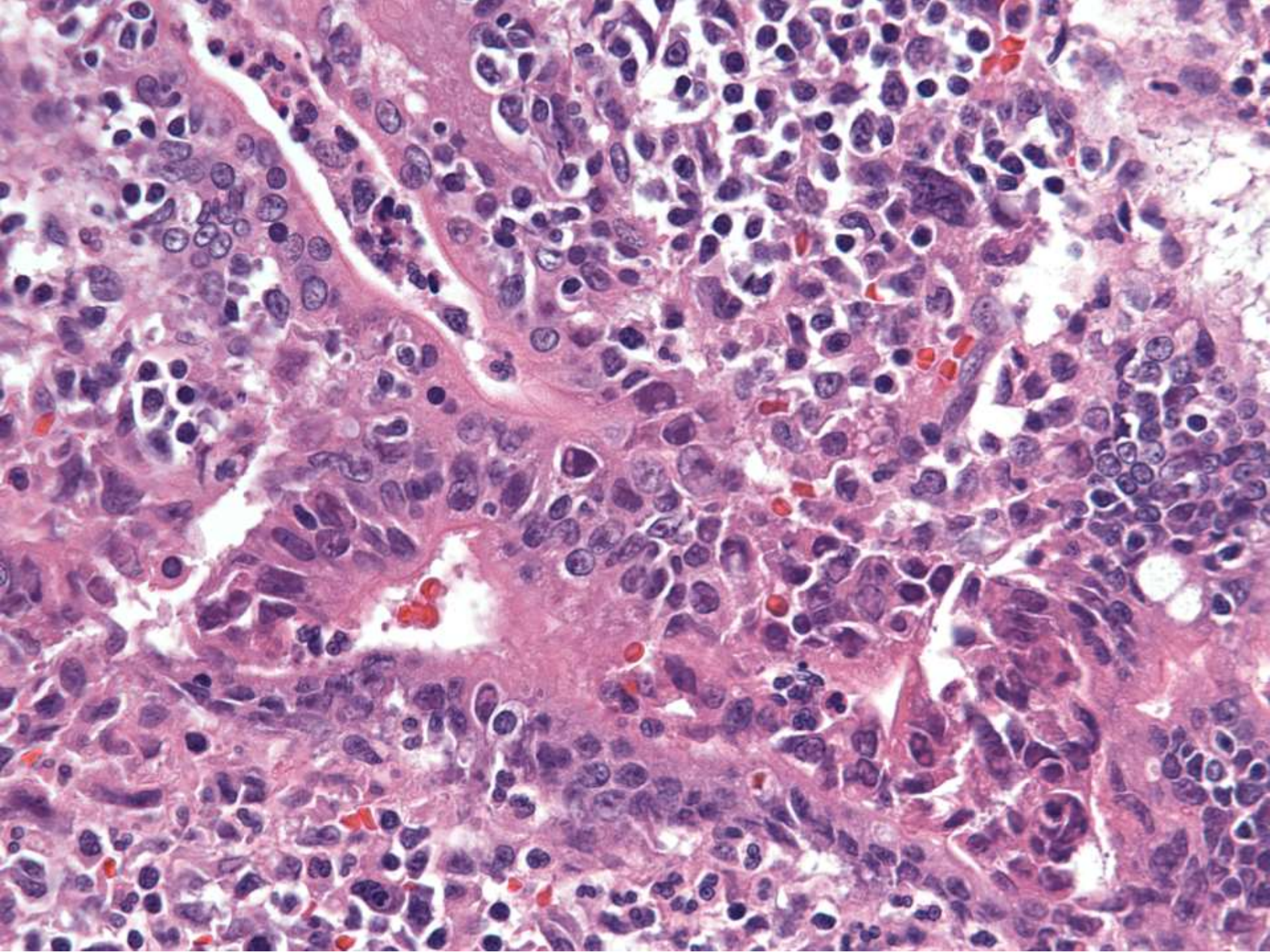


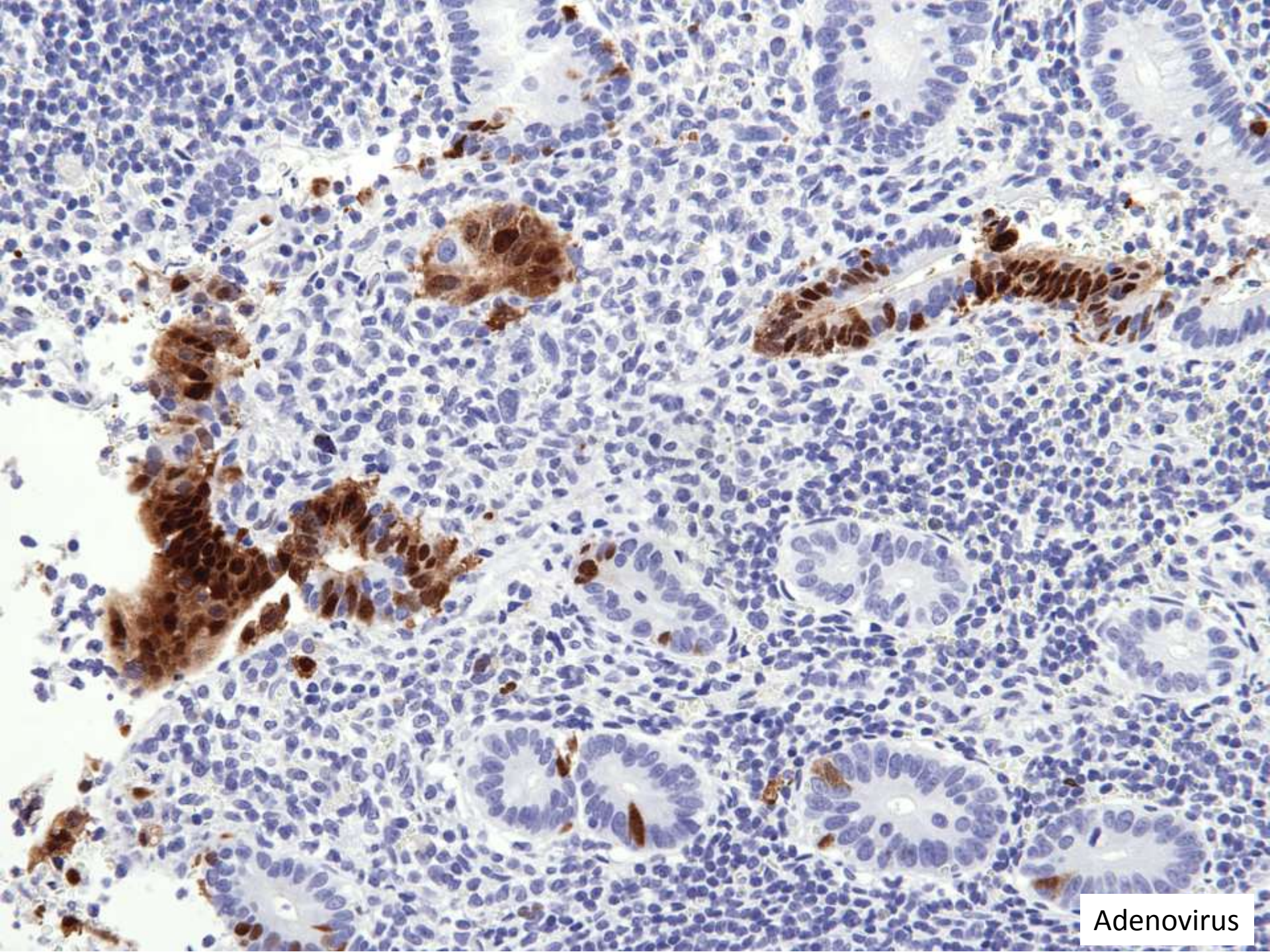




DIAGNOSIS?

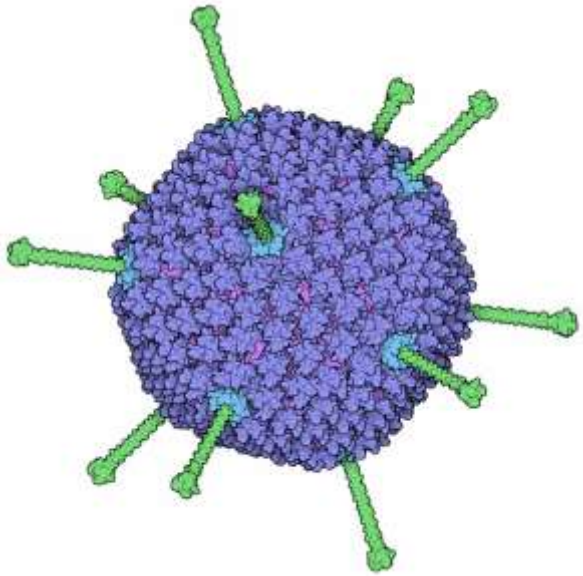





Adenovirus

Intussusception in Pediatric Patients

- Associations with adenovirus, enterovirus, rotavirus reported
- Adenovirus detected most often



http://pdb101.rcsb.org/motm/132

Intussusception and Adenovirus

- Up to 1/3 of cases of intussusception in children may be associated with adenovirus
- Viral infection causes a reactive follicular hyperplasia
- Inclusions can usually be seen on H&E
- Inclusions most frequently seen at the lead point or in appendix

Intussusception, Adenovirus, and Children:

A Brief Reaffirmation

ELIZABETH A. MONTGOMERY, MD, AND EDWINA J. POPEK, DO

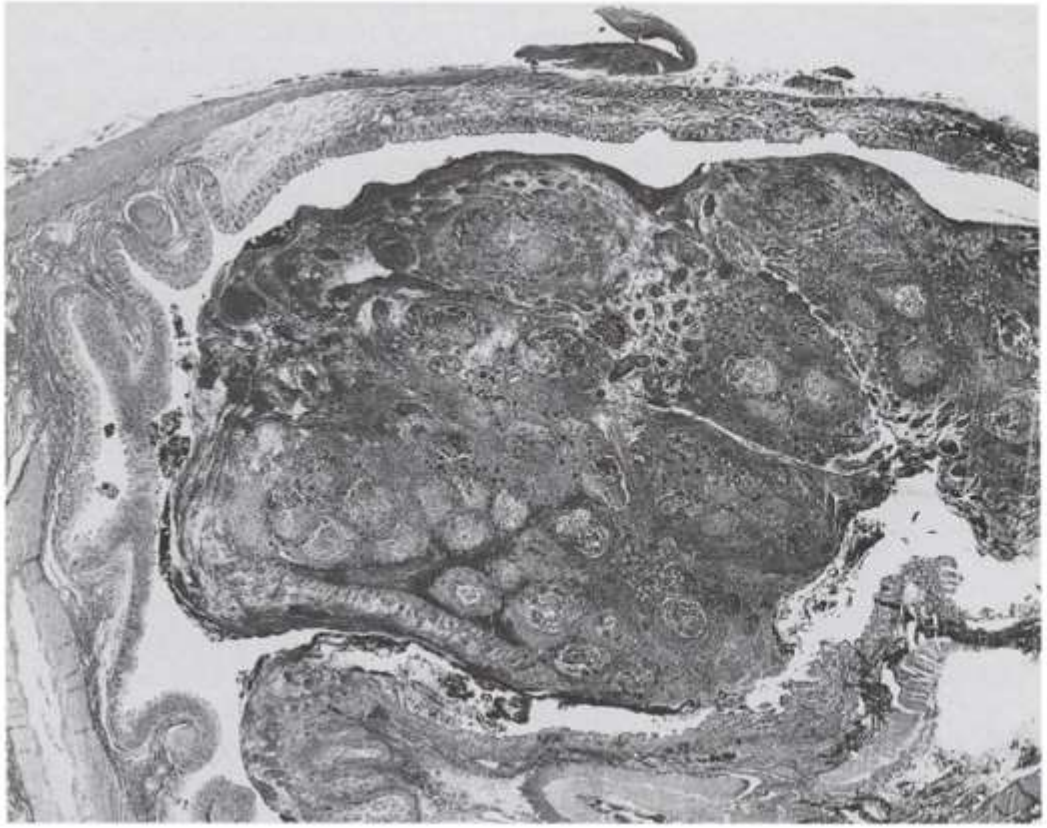


FIGURE 1. Ileocecal intussusception showing marked lymphoid hyperplasia at the lead point with associated hemorrhage and necrosis. (Magnification ×30.)

Hum Pathol, 1994;25:169-174.

Journal of Clinical Virology 61 (2014) 579–584

Contents lists available at ScienceDirect

Journal of Clinical Virology

journal homepage: www.elsevier.com/locate/jcv

Intussusception is associated with the detection of adenovirus C, enterovirus B and rotavirus in a rotavirus vaccinated population

Cara A. Minney-Smith[a,*], Avram Levy[a,b], Meredith Hodge[a,b], Peter Jacoby[c], Simon H. Williams[a,1], Dale Carcione[d], Susie Roczo-Farkas[e], Carl D. Kirkwood[e,f], David W. Smith[a,b]

[a] PathWest Laboratory Medicine WA, Nedlands, Western Australia, Australia
[b] School of Pathology and Laboratory Medicine, University of Western Australia, Nedlands, Australia
[c] Telethon Institute for Child Health Research, Subiaco, Western Australia, Australia
[d] Communicable Disease Control Directorate, Perth, Western Australia, Australia
[e] Enteric Virus group, Murdoch Childrens Research Institute, Parkville, Victoria, Australia
[f] Department of Microbiology, La Trobe University, Bundoora, Victoria, Australia

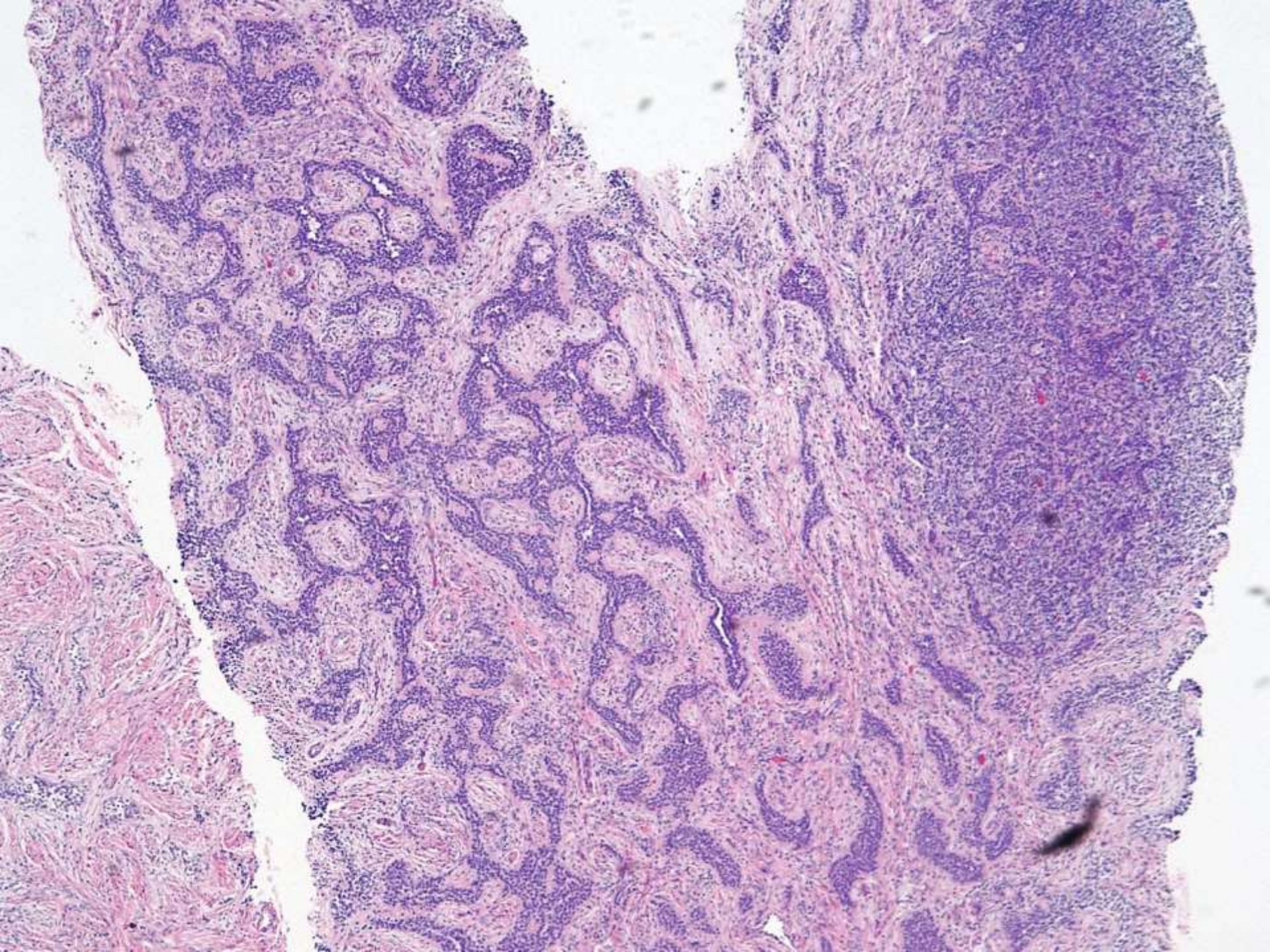
Key Points

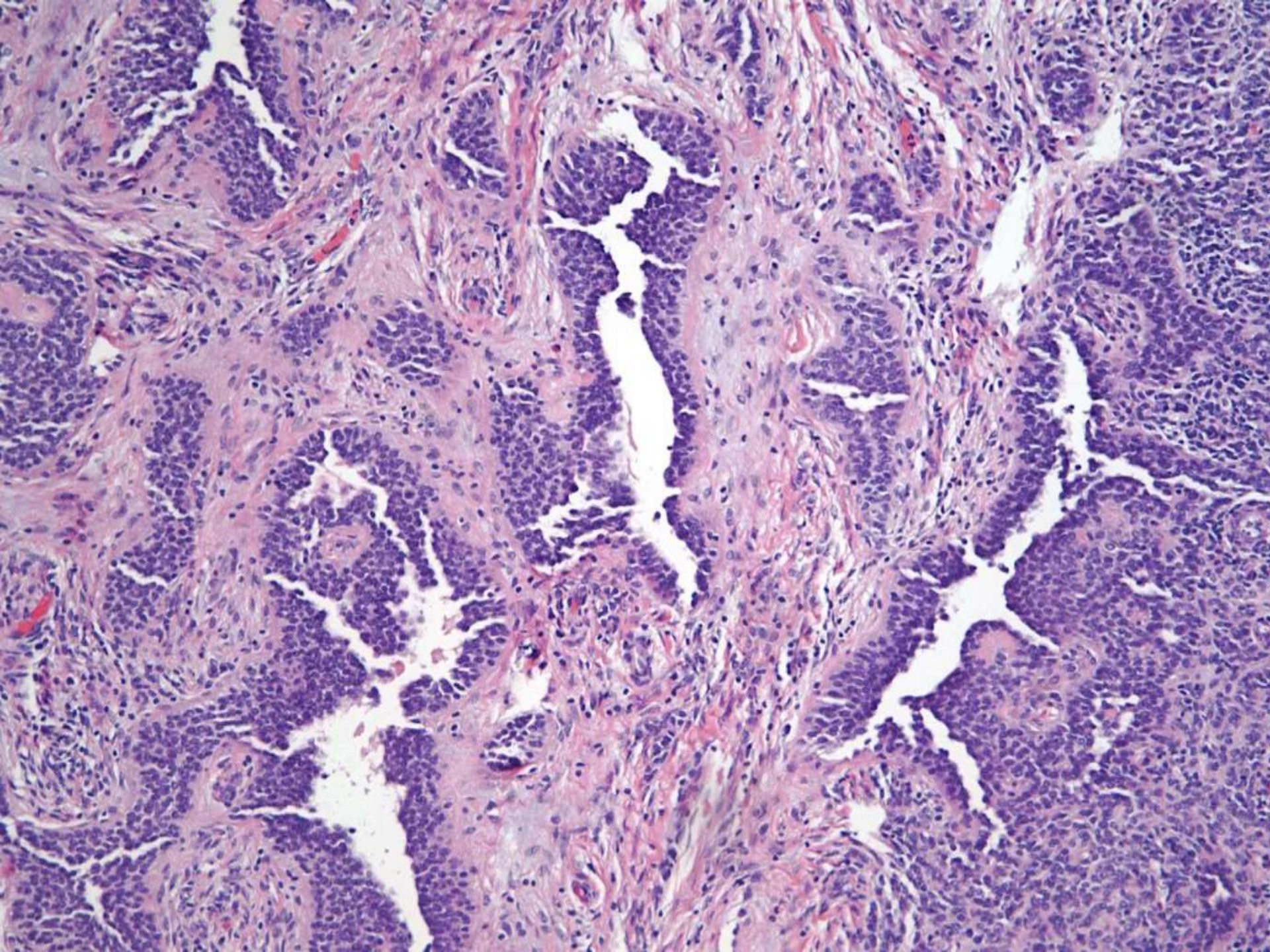
- In intussusception cases in pediatric patients – if RFH is noted, check for adenovirus
- Viral inclusions often found in areas showing loss of nuclear polarity, reduction in goblet cells

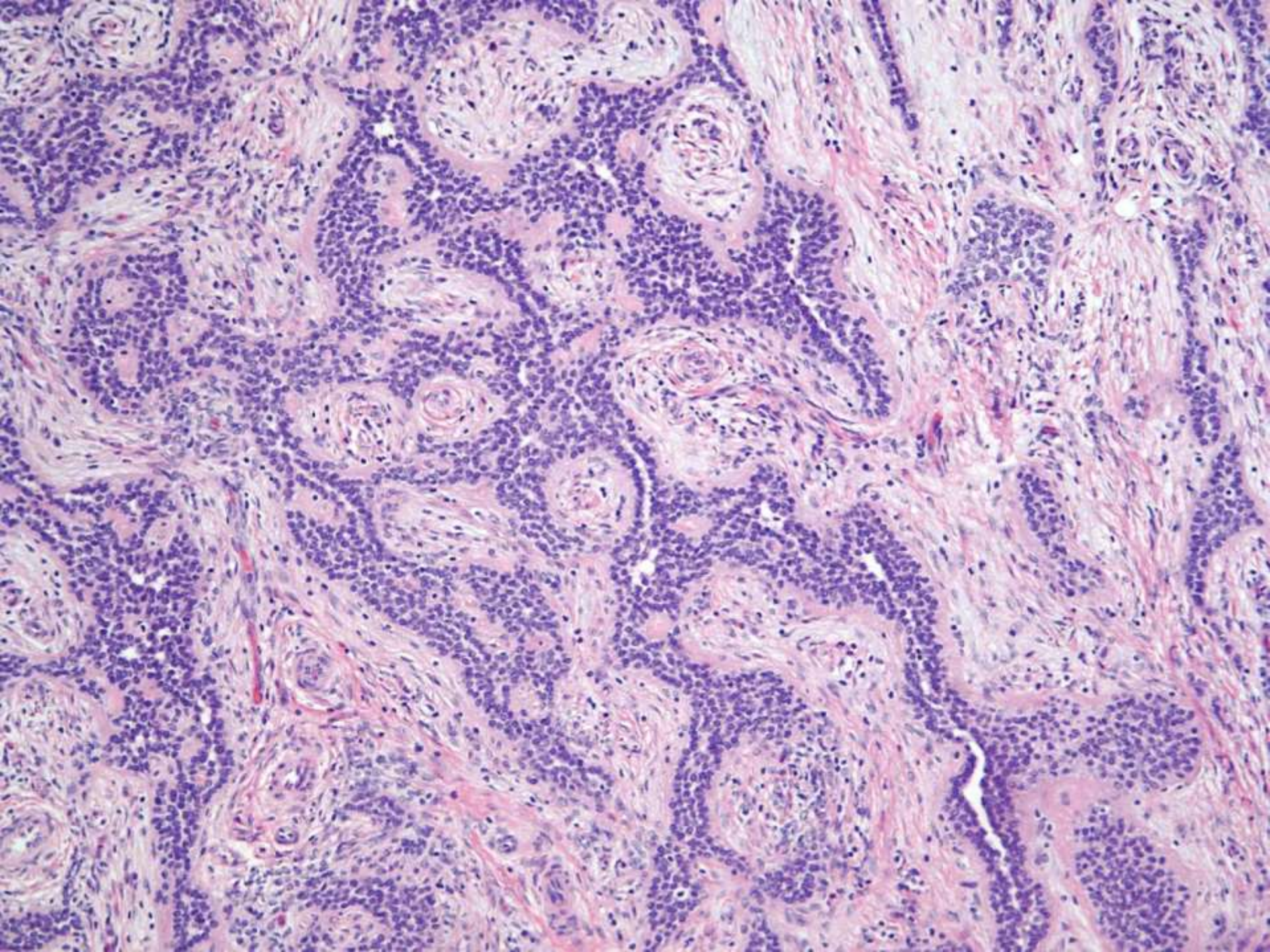
SB 6015

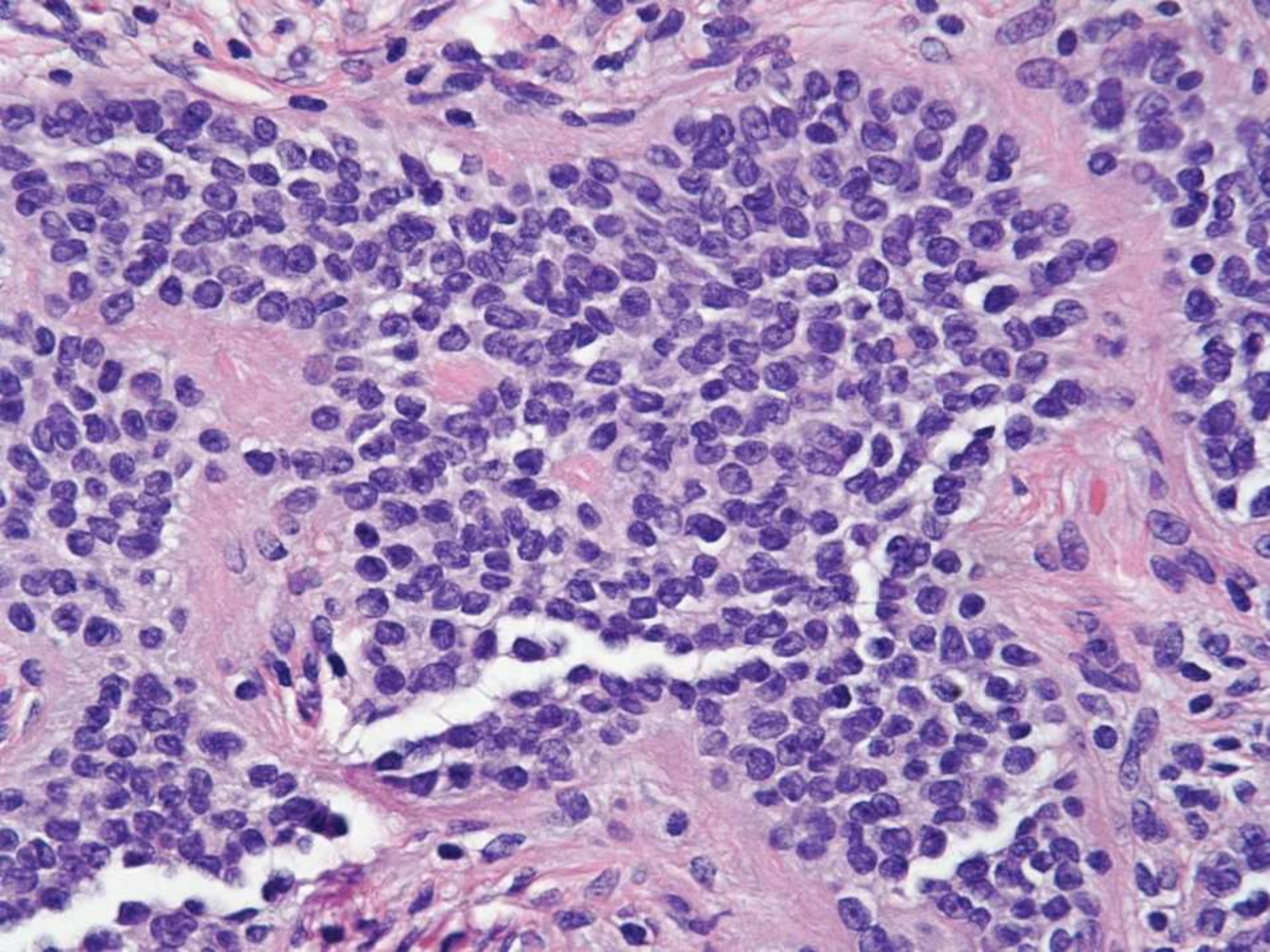
Sharon Wu/Teri Longacre; Stanford

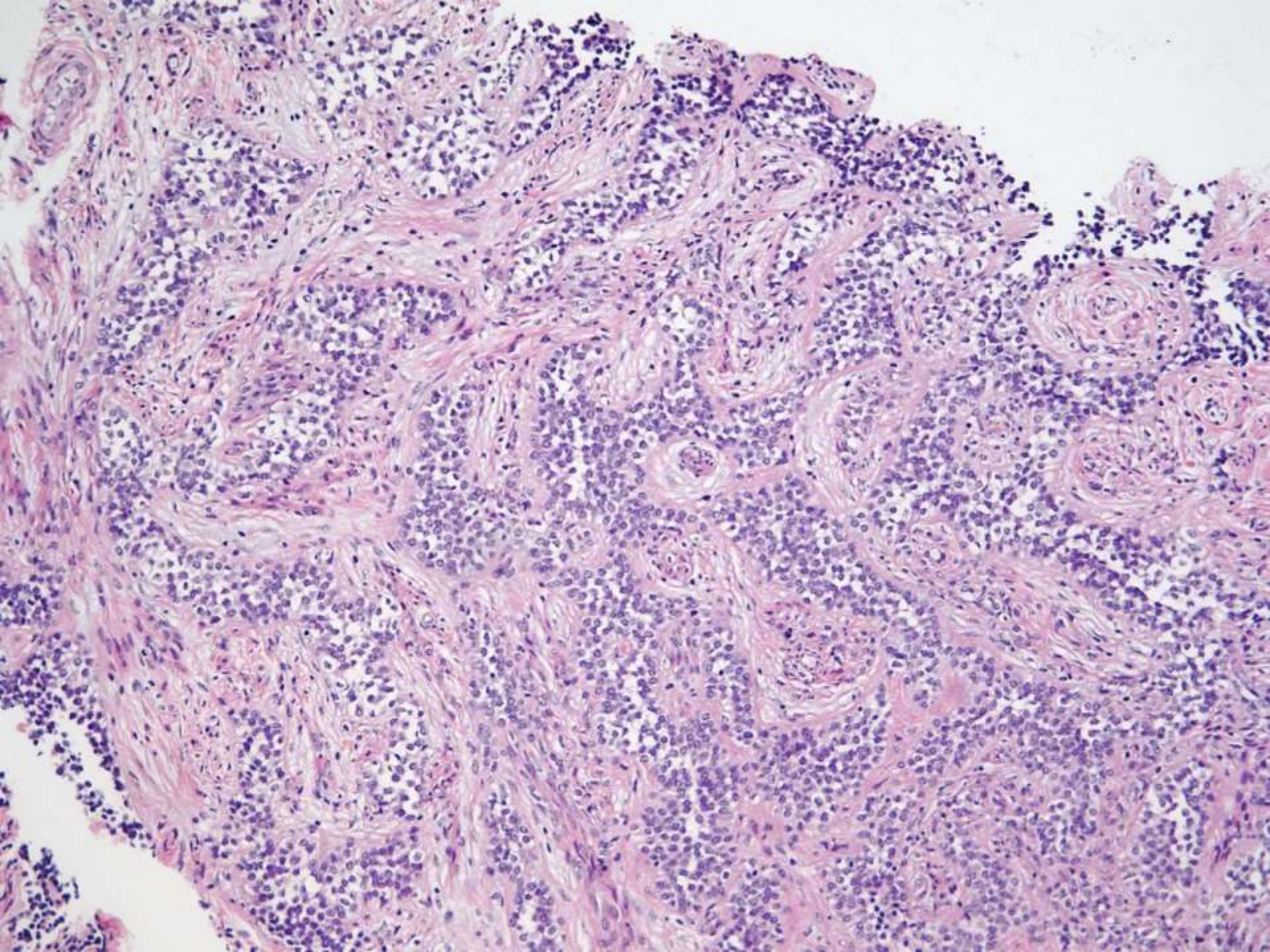
55-year-old female with post-menopausal bleeding, found to have 1.4cm mass within fundic endometrium.

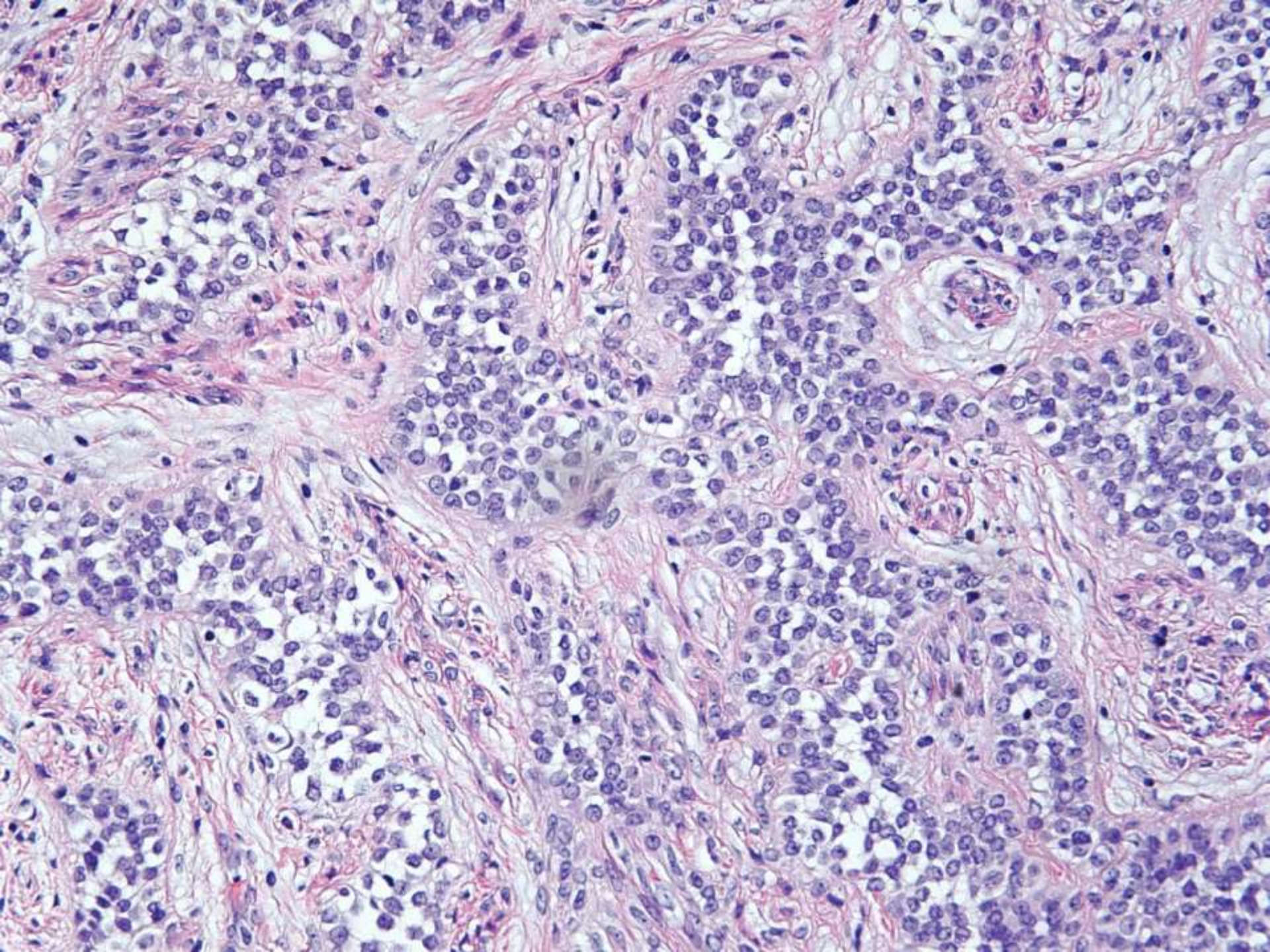


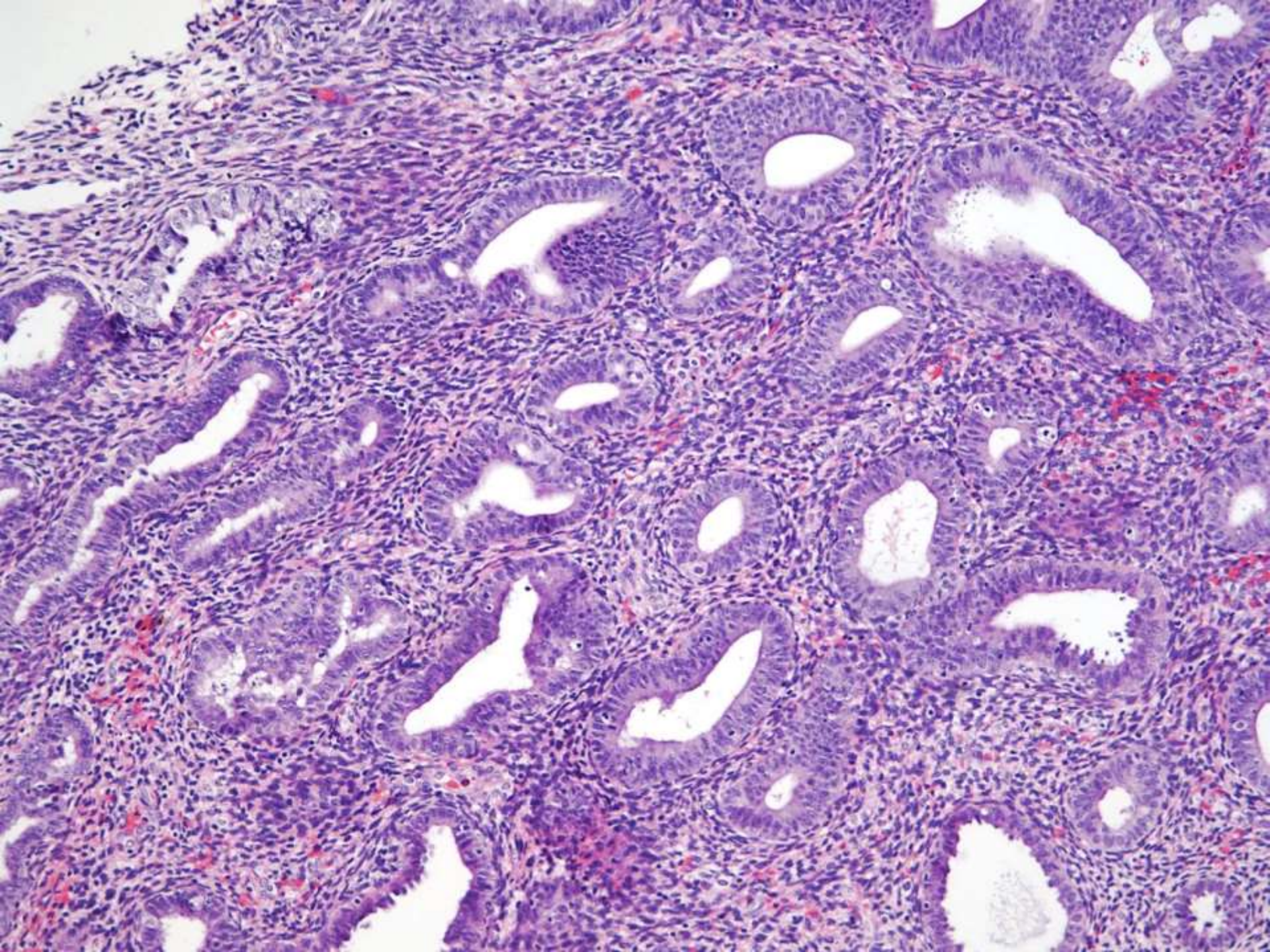




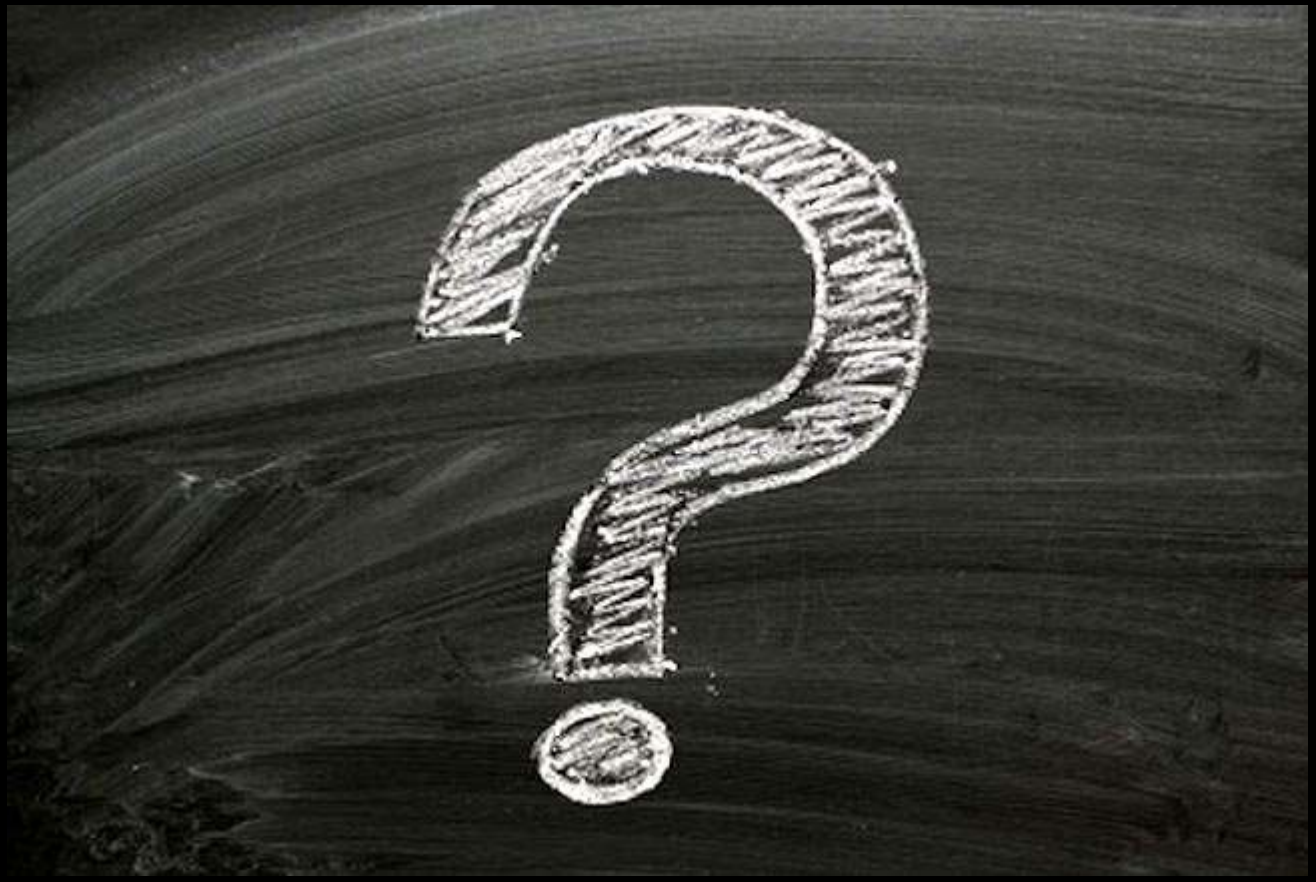


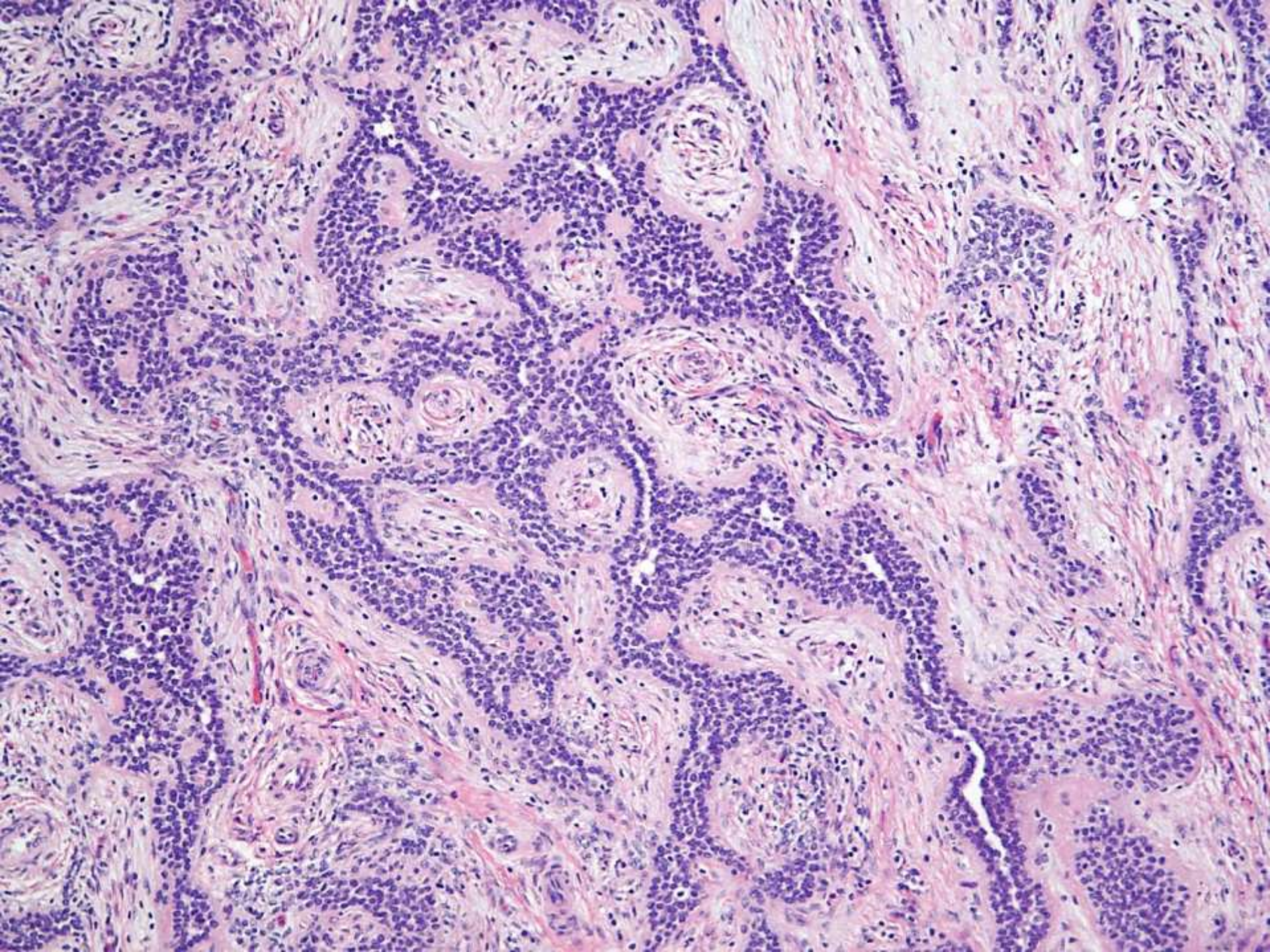






DIAGNOSIS?





Differential Diagnosis

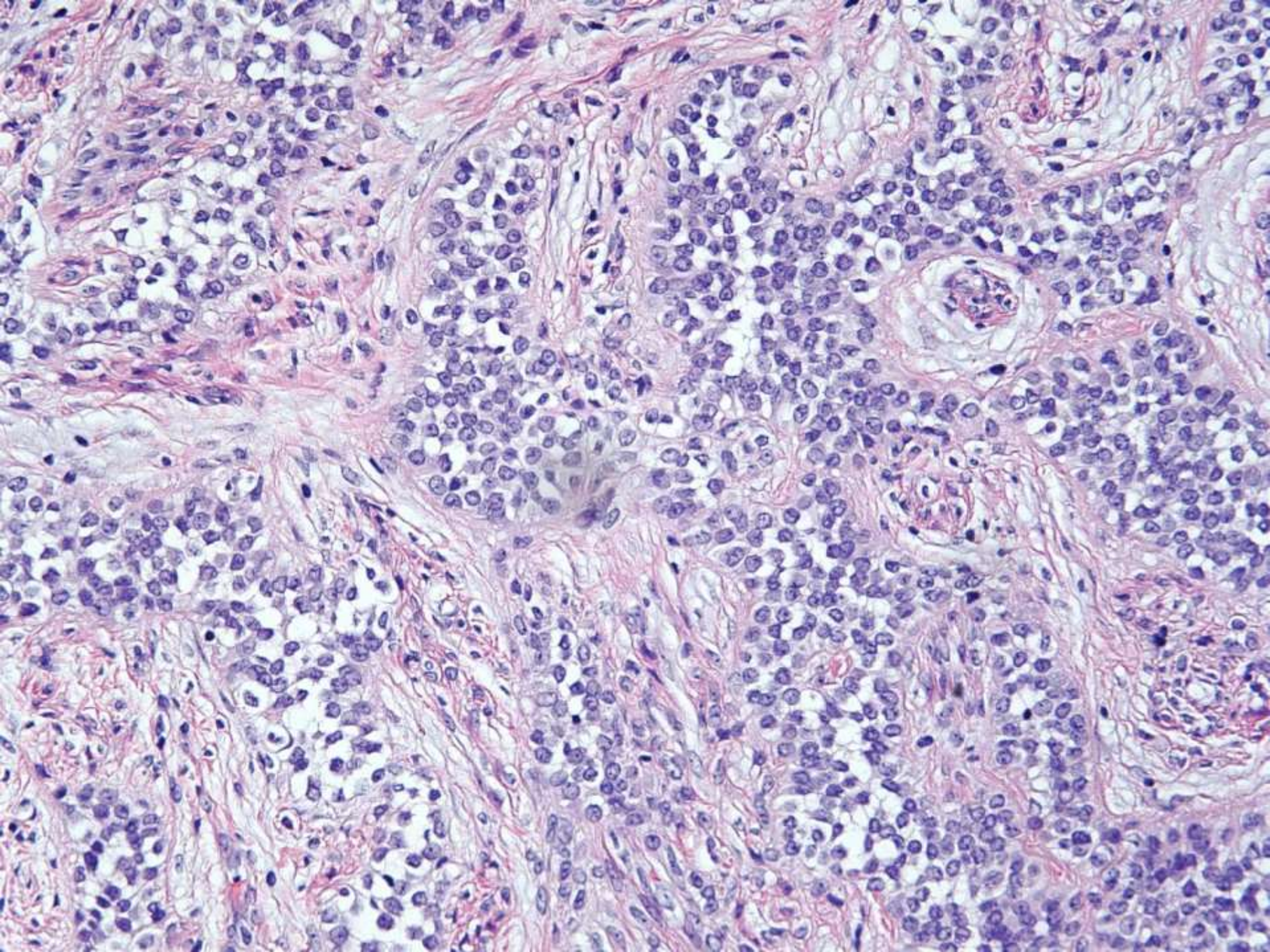
- Low grade cytology
  - Endometrial stromal tumors
    - Endometrial stromal nodule
    - Low grade endometrial stromal sarcoma
    - Endometrial stromal tumor with sex cord-like elements (ESTSCLE)
  - Uterine tumor resembling ovarian sex cord stromal tumor (UTROSCT)
  - Endometrioid adenocarcinoma with corded elements
  - Mesonephric adenocarcinoma with SCLE
  - Epithelioid leiomyoma with plexiform pattern
  - Adenosarcoma

Differential Diagnosis

- High grade cytology
  - Myoinvasive endometrioid adenocarcinoma
  - Undifferentiated endometrial stromal sarcoma
  - Carcinosarcoma

Immunohistochemical Findings

- **Positive**
  - Inhibin
  - SF-1
  - ER
- **Patchy, weak**
  - AE1/AE3
  - p63
- **Negative**
  - Calretinin
  - CK7
  - PAX8
  - CD10
  - Desmin



UTROSCT

- **Uterine tumor resembling ovarian sex cord tumor**
- Reproductive or postmenopausal women
- AUB and pain
- Well-circumscribed uterine mass with pushing border ranging from 2-15 cm
- Intramural, submucosal, subserosal
- Polypoid mass from the fundus is common
- Gross: fleshy and yellow, no necrosis or hemorrhage

Workup

- Show ovarian sex cord differentiation
- Exclude endometrial stromal neoplasia
- Exclude epithelial, smooth muscle, squamous or heterologous differentiation
- IHC Panel:
  - Sex cord: **inhibin, calretinin, Melan-A, SF-1**
  - Stromal: **CD10**
  - Smooth muscle: **desmin, caldesmon, SMA**
  - Endometrial: **CK, EMA, ER, PR**
- Growth pattern: well-circumscribed, multinodular
- Biphasic architecture:
  - Cells: Sertoliform, trabecular, corded, follicular, glandular
  - Stroma: fibroblastic, hyalinized, may resemble smooth muscle
- Cytology: low grade, nuclear grooves, few mitoses

See Comment

- Should be a focal lesion
- Extensive sampling required to make the diagnosis
  - Descriptive diagnosis with biopsies / curettings
- Considered Low Malignant Potential
- Features associated with recurrence:
  - serosal rupture, vascular invasion, atypia, mites
- Lesions without those features have excellent survival with tumor resection alone or hysterectomy

References

Nucci MR. Practical issues related to uterine pathology: endometrial stromal tumors. Mod Pathol. 2016 Jan;29 Suppl 1:S92-S103

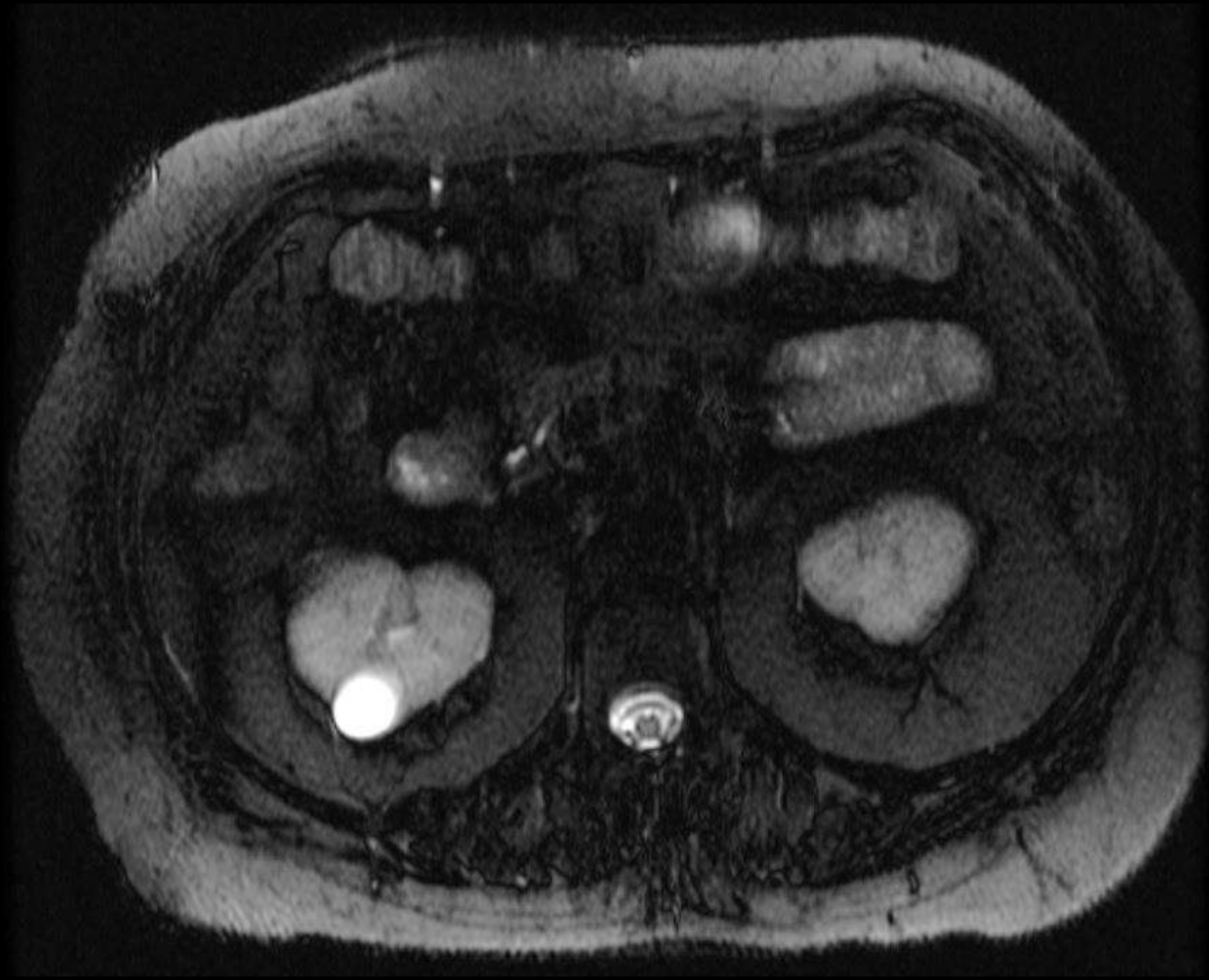
Blake EA, Sheridan TB, Wang KL, Takiuchi T, Kodama M, Sawada K, Matsuo K. Clinical characteristics and outcomes of uterine tumors resembling ovarian sex-cord tumors (UTROSCT): a systematic review of literature. Eur J Obstet Gynecol Reprod Biol. 2014 Oct;181:163-70

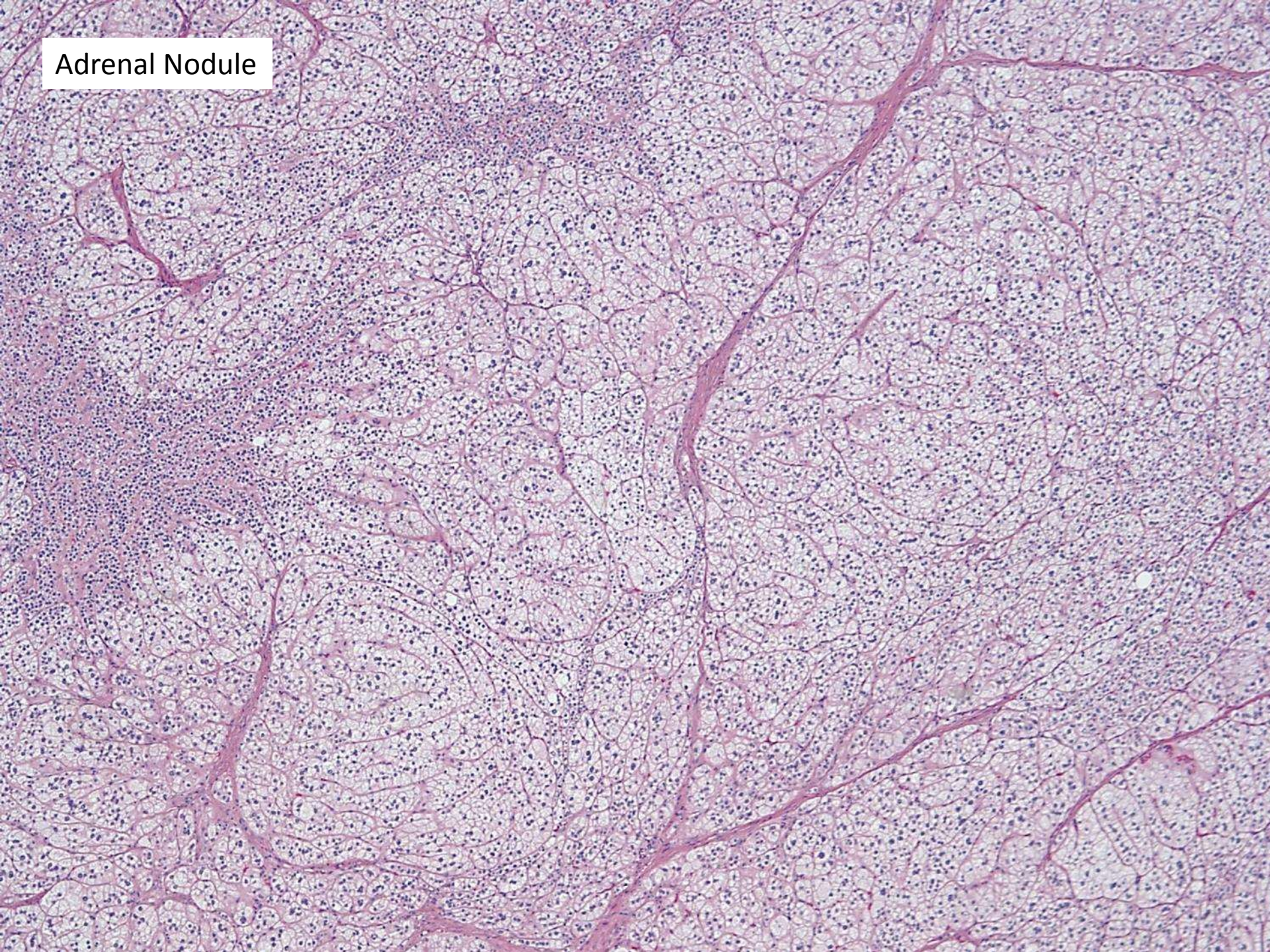
Soslow RA, Longacre TA. Uterine Pathology: Cambridge illustrated surgical pathology. 2012. Cambridge University Press, New York.

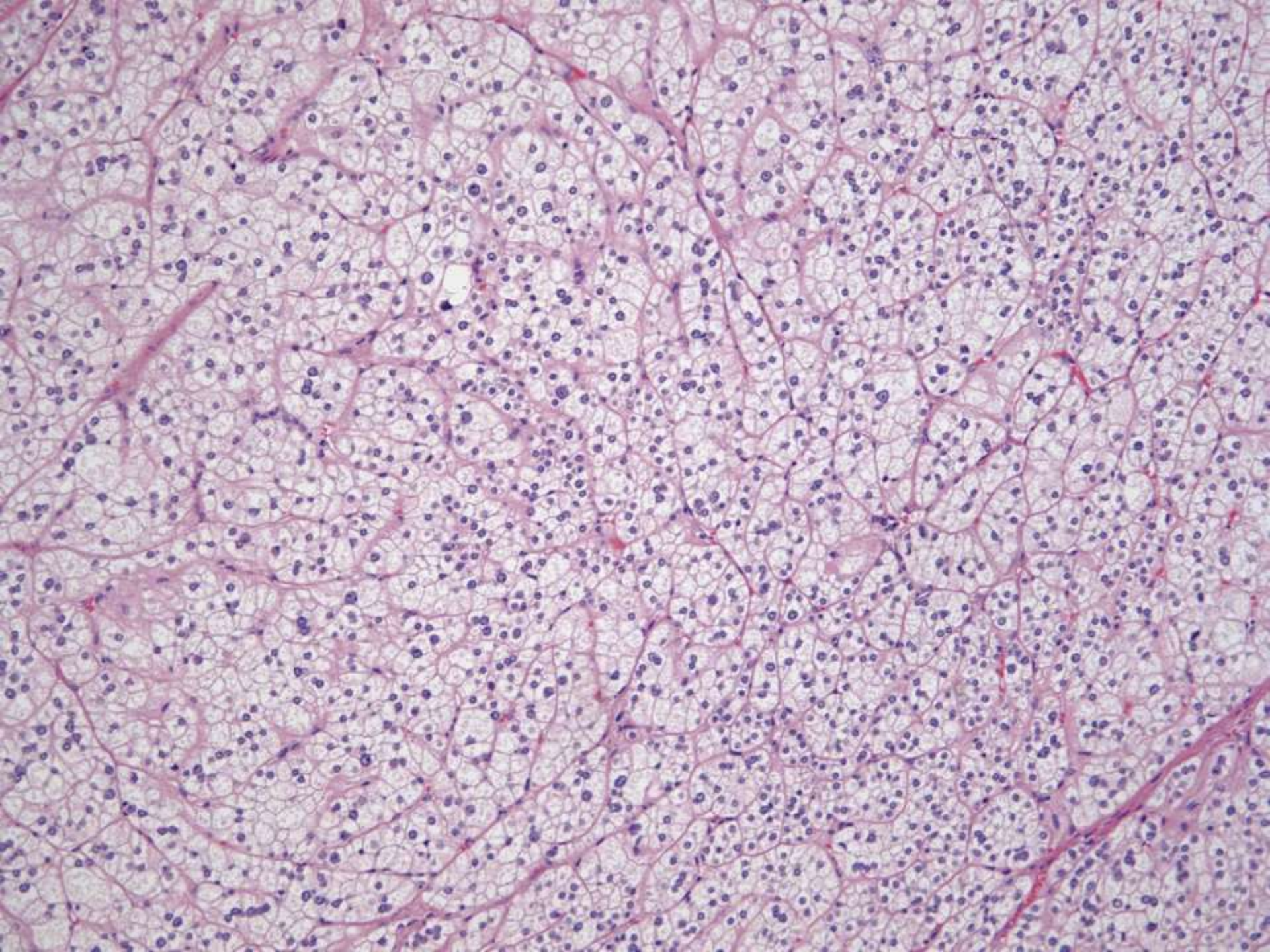
SB 6016

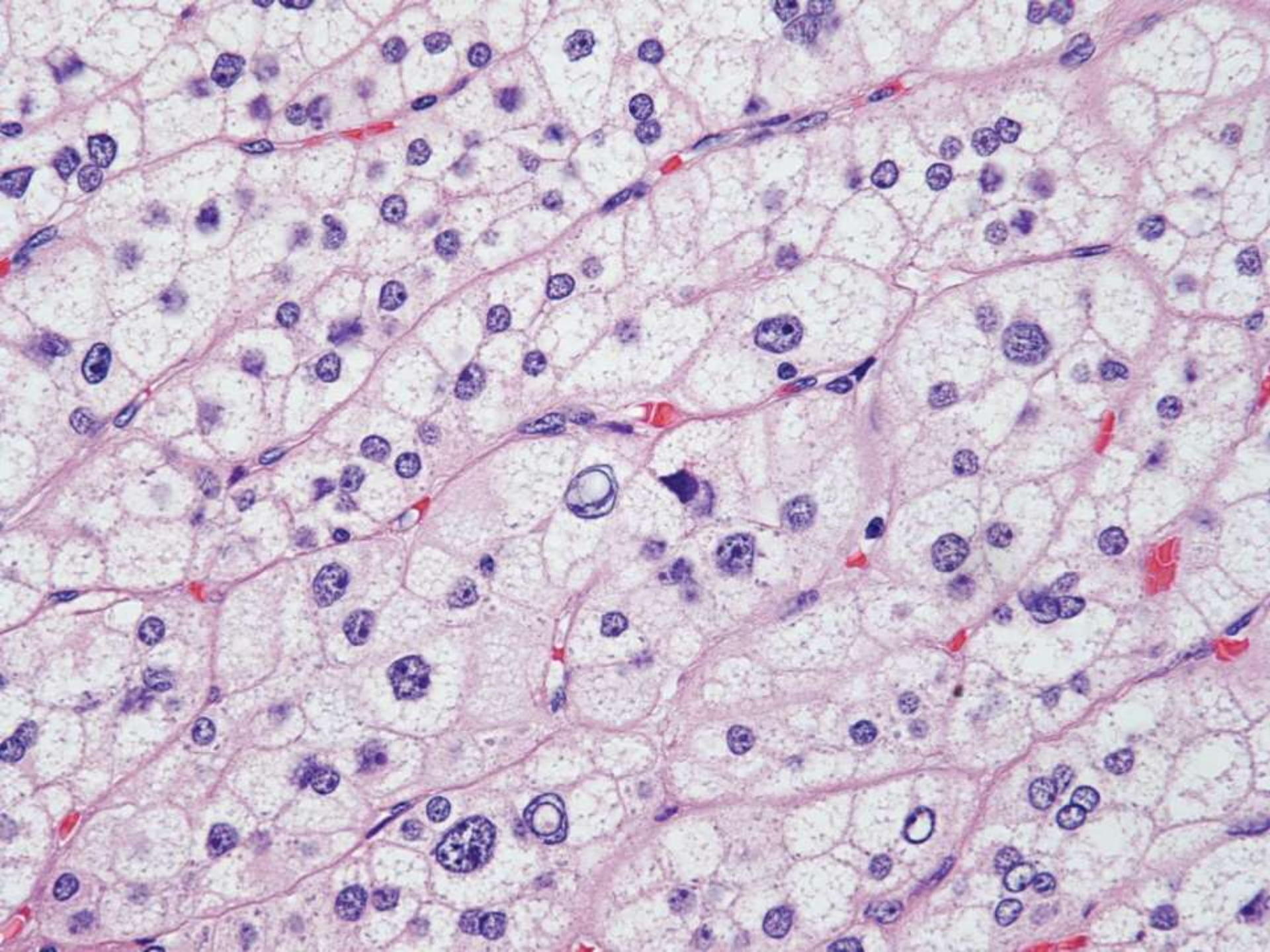
Allison Zemek/John Higgins; Stanford

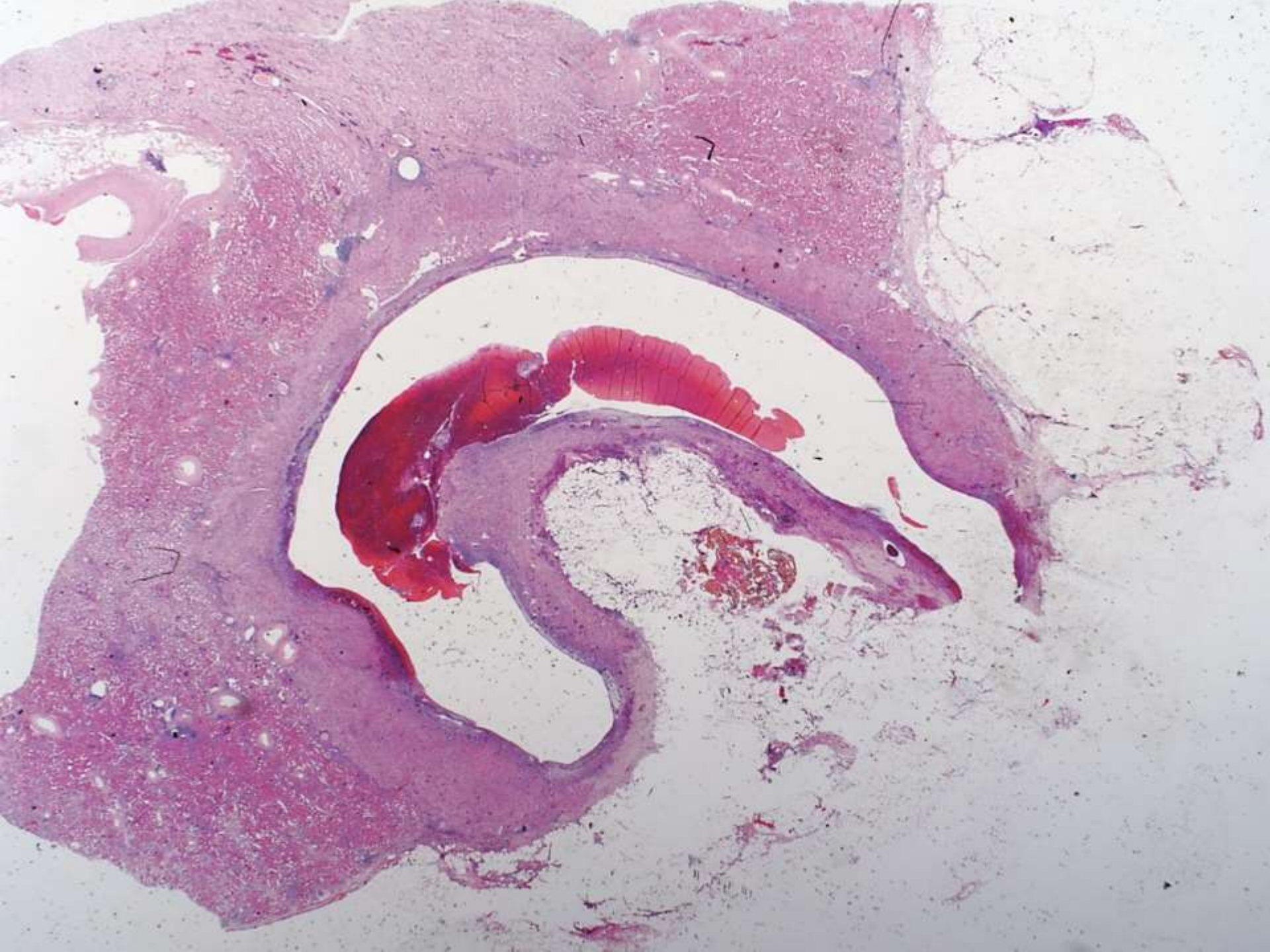
58-year-old female with 2.3cm cystic lesion in right kidney with mural nodular components (concerning for cystic renal cell carcinoma) and adrenal nodules.

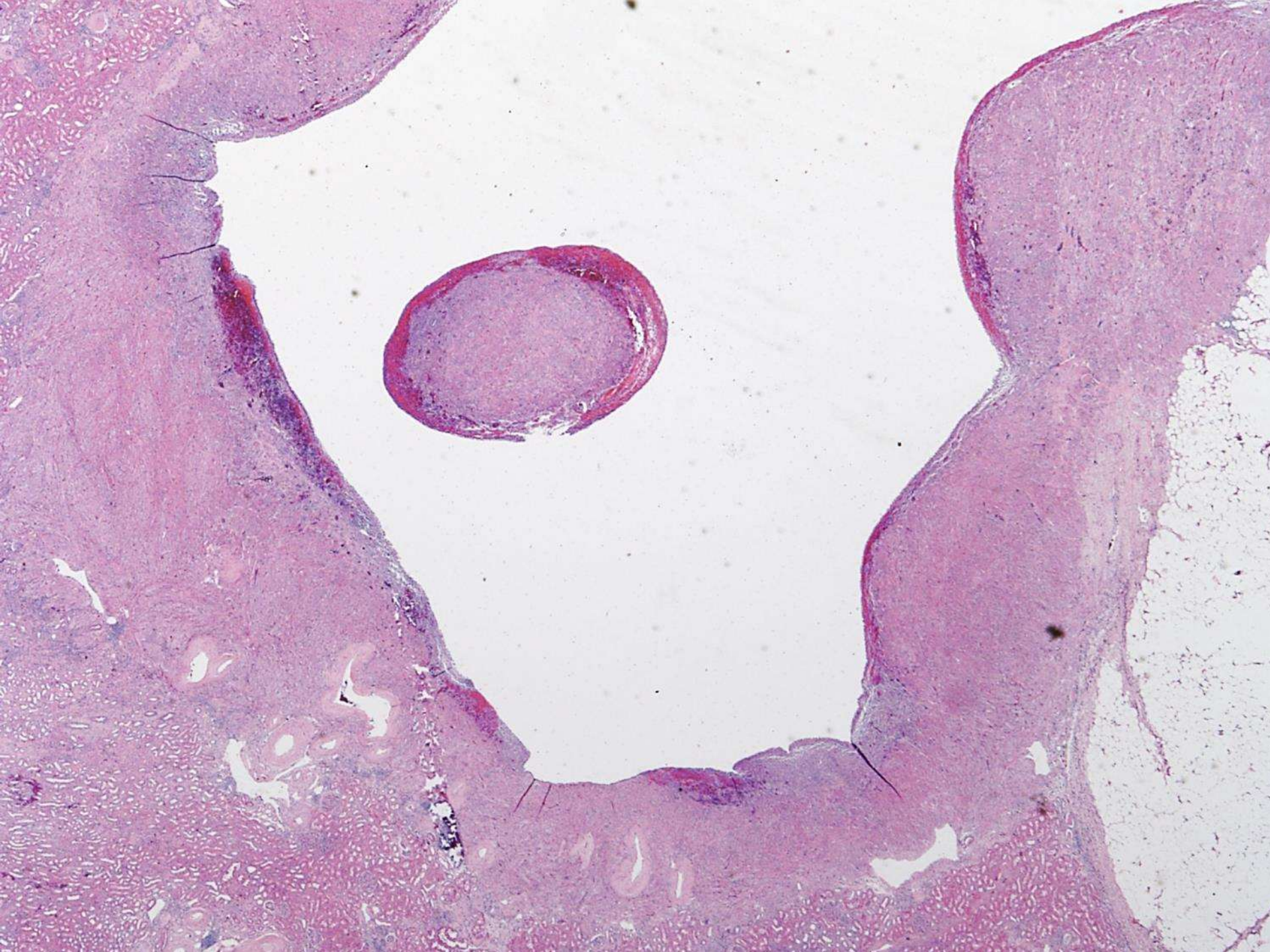


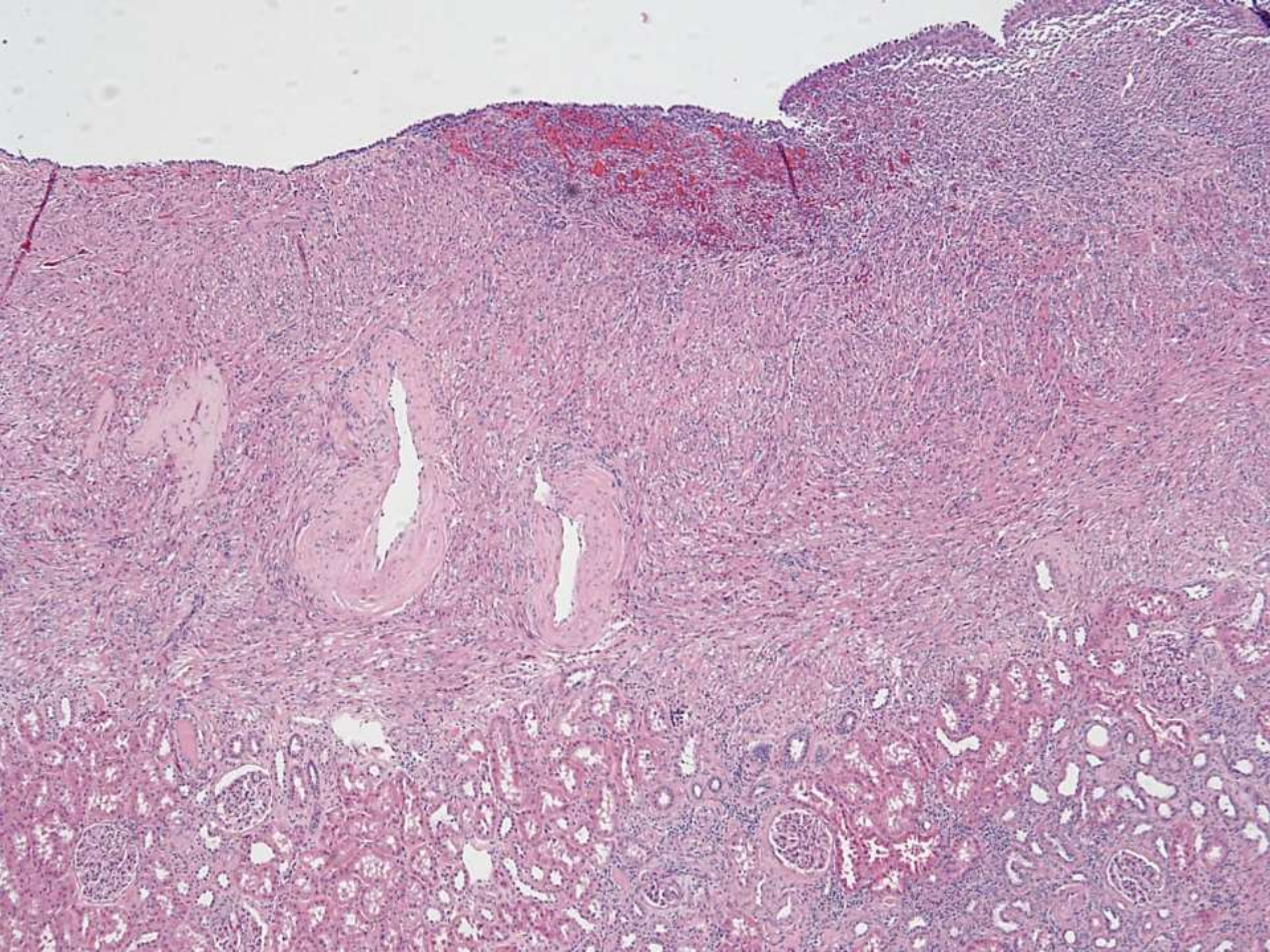

Adrenal Nodule

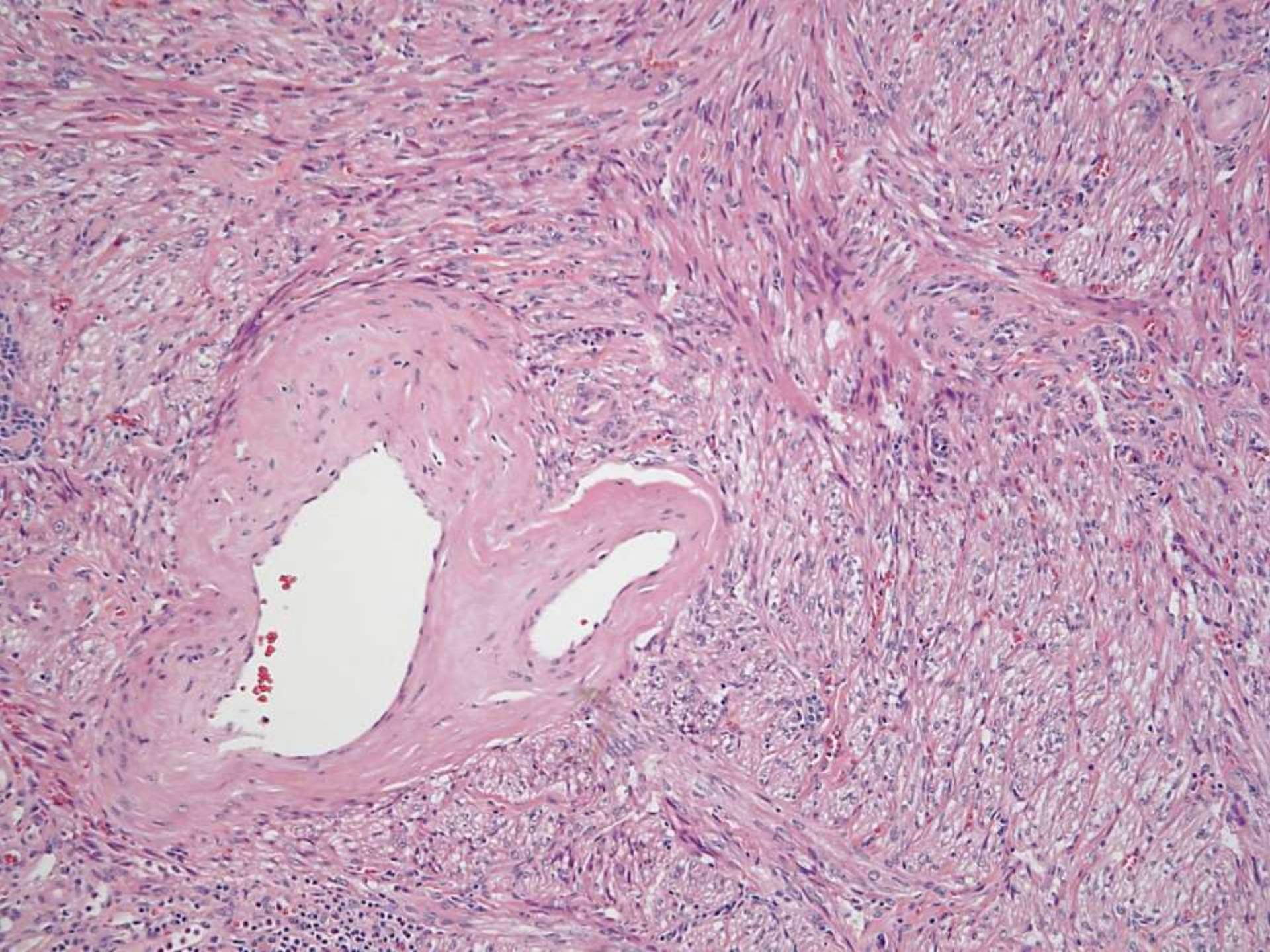


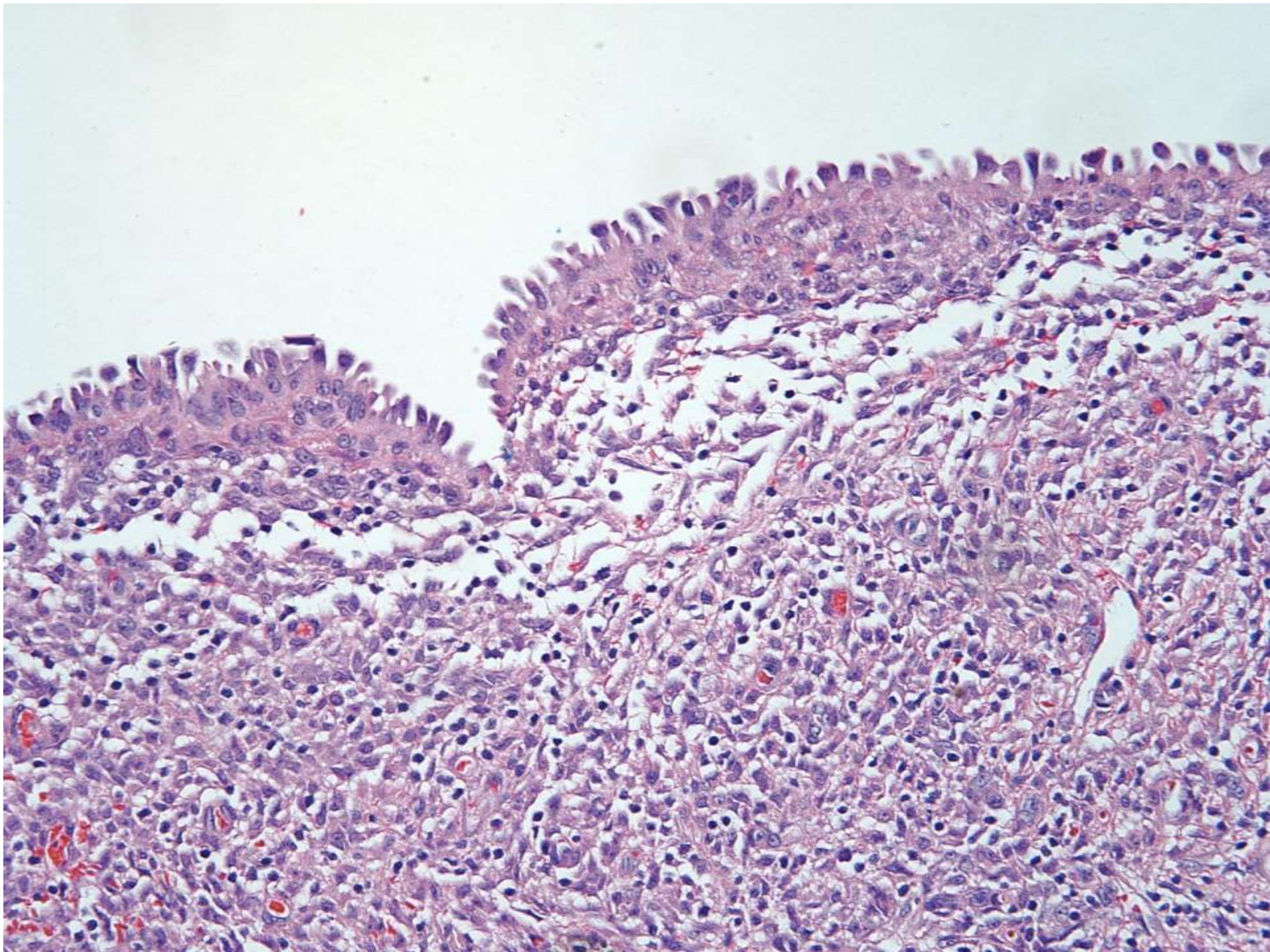




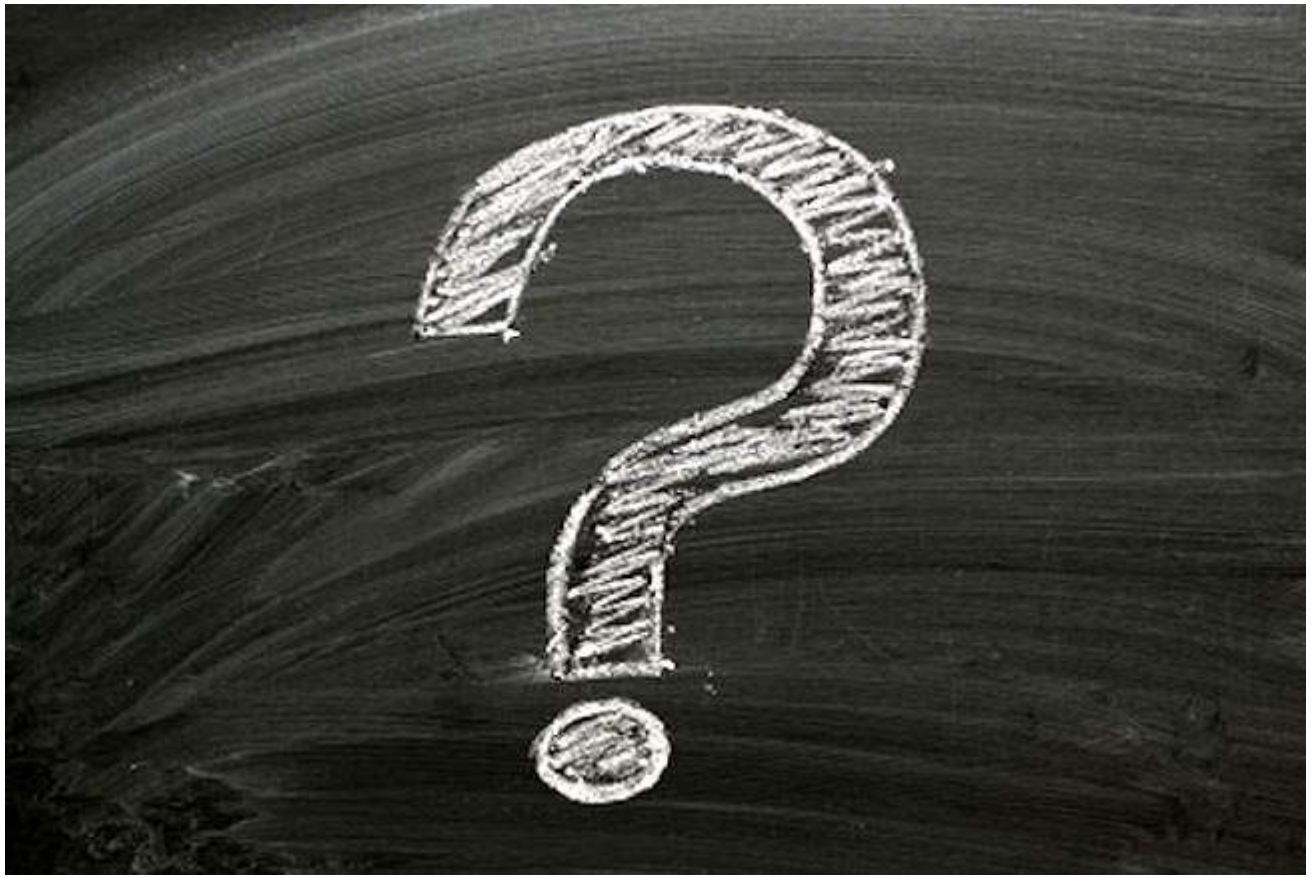


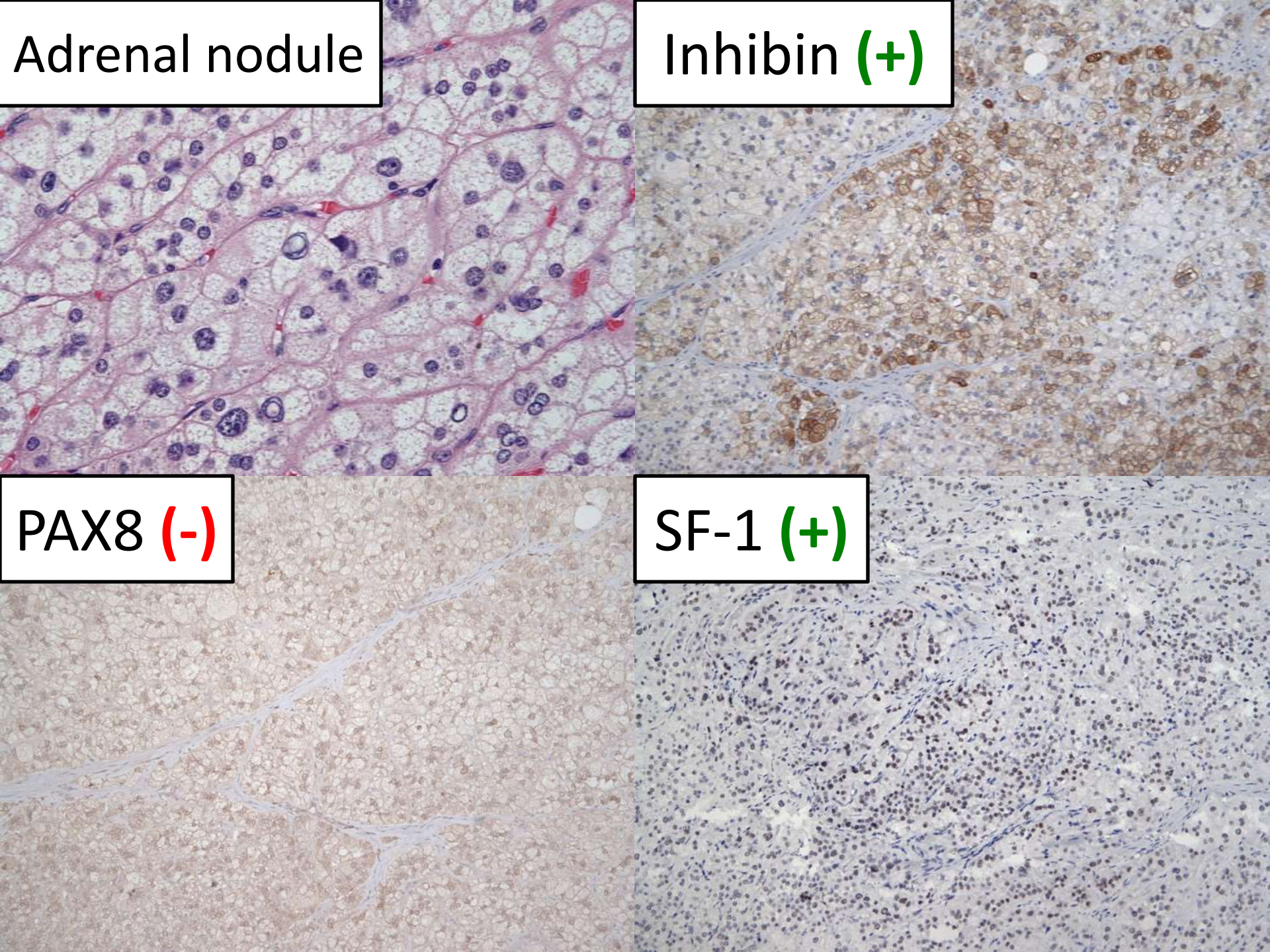




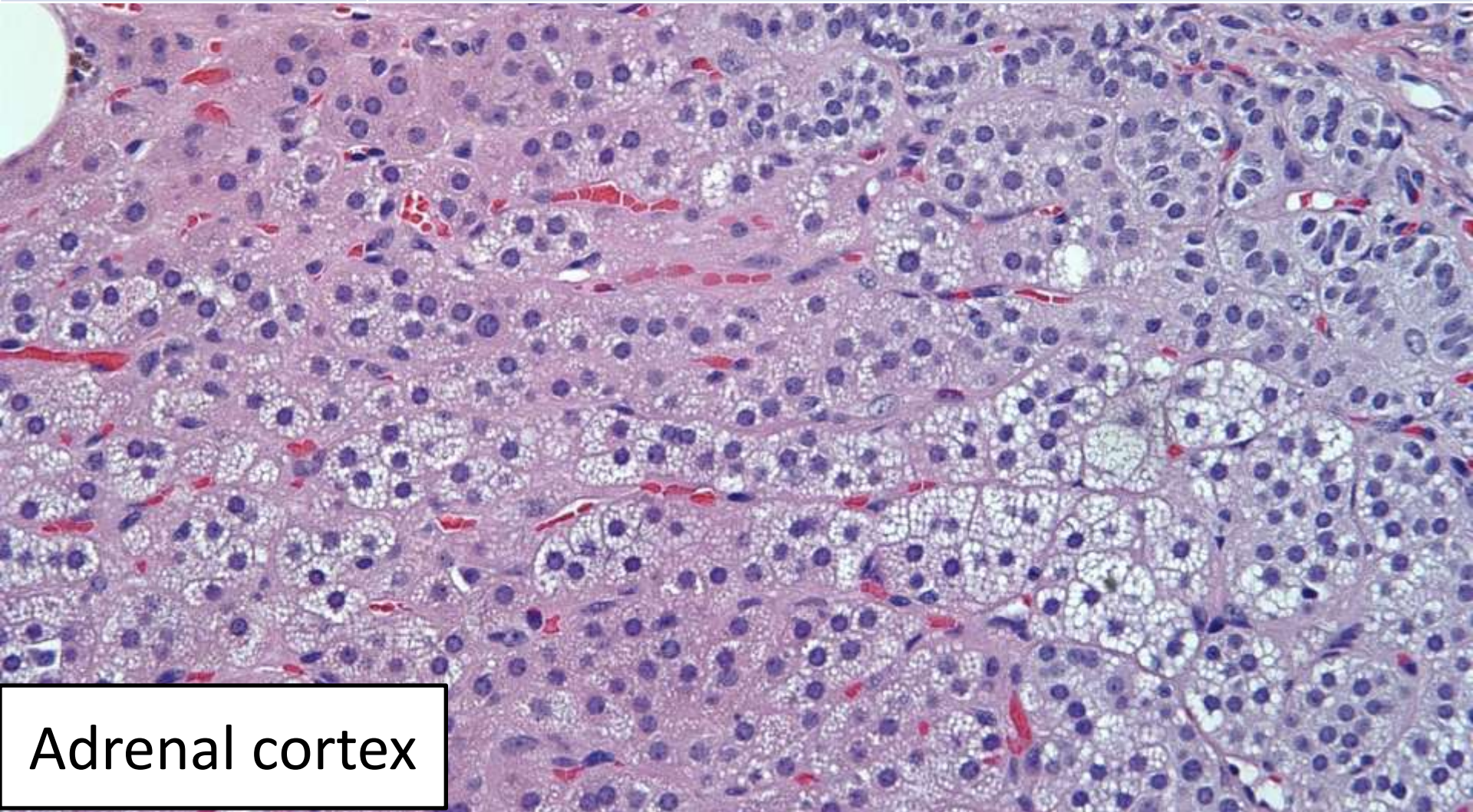


DIAGNOSIS?




Adrenal nodule
Inhibin (+)
PAX8 (-)
SF-1 (+)

Normal cell type		Malignant
Adrenal Cortex	Adrenocortical adenoma	Adrenocortical carcinoma
Adrenal Medulla	Pheochromocytoma	Malignant pheochromocytoma
Paraganglia	Paraganglioma	Malignant paraganglioma



Adrenocortical adenoma

Clinical features:

- Most sporadic and incidental, some familial (MEN I)
- Hypercortisol (Cushing) or hyperaldosterone (Conn)

Histologic features:

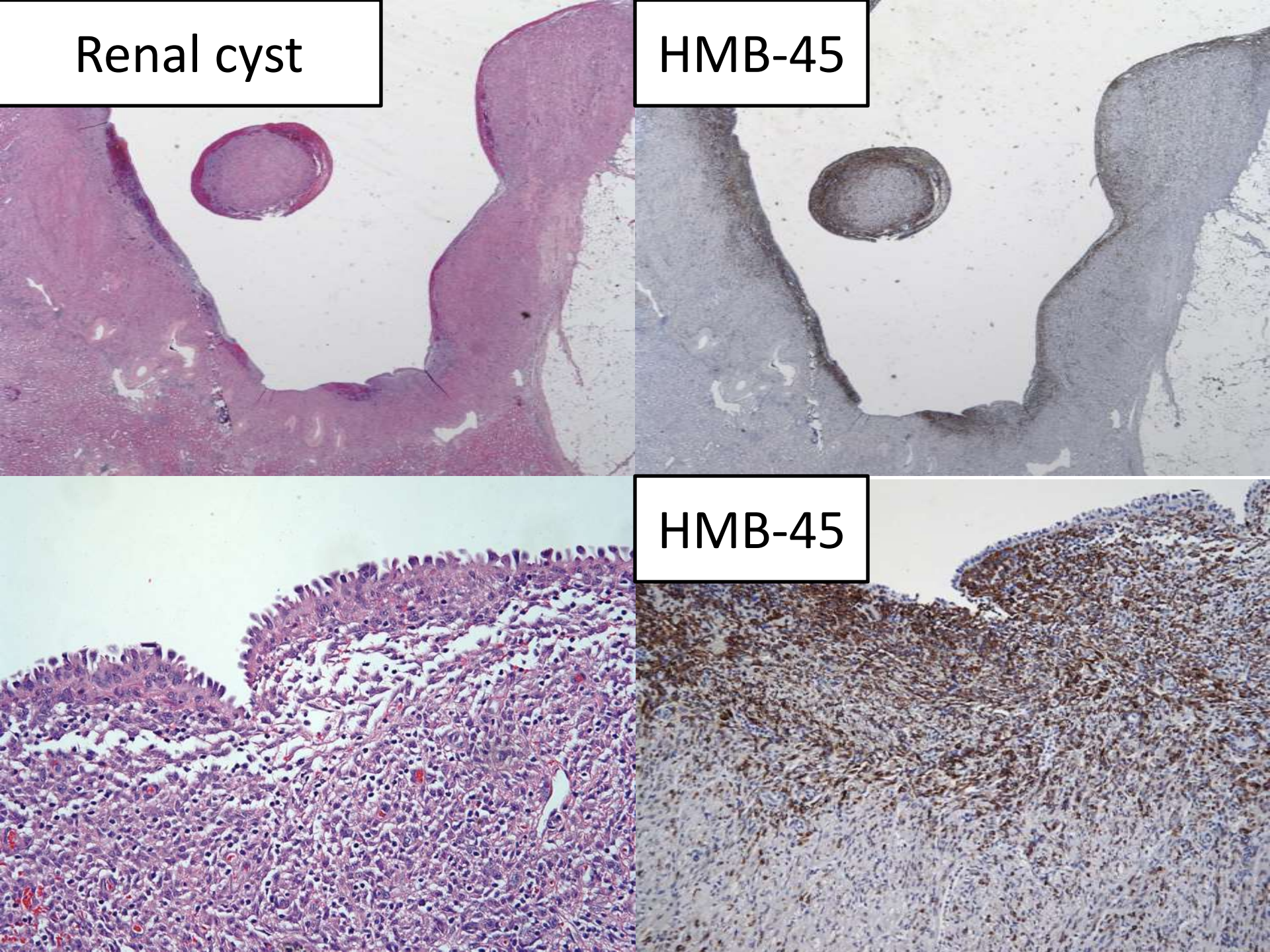
- Circumscribed, lacks true capsule, nested
- Focal pleomorphism and large nucleoli

Immunohistochemical features:

- **Inhibin+ Calretinin+ MelanA+ SF1+ Vimentin-**

Treatment/Prognosis:

- Surgical removal, Benign


Renal cyst
HMB-45
HMB-45

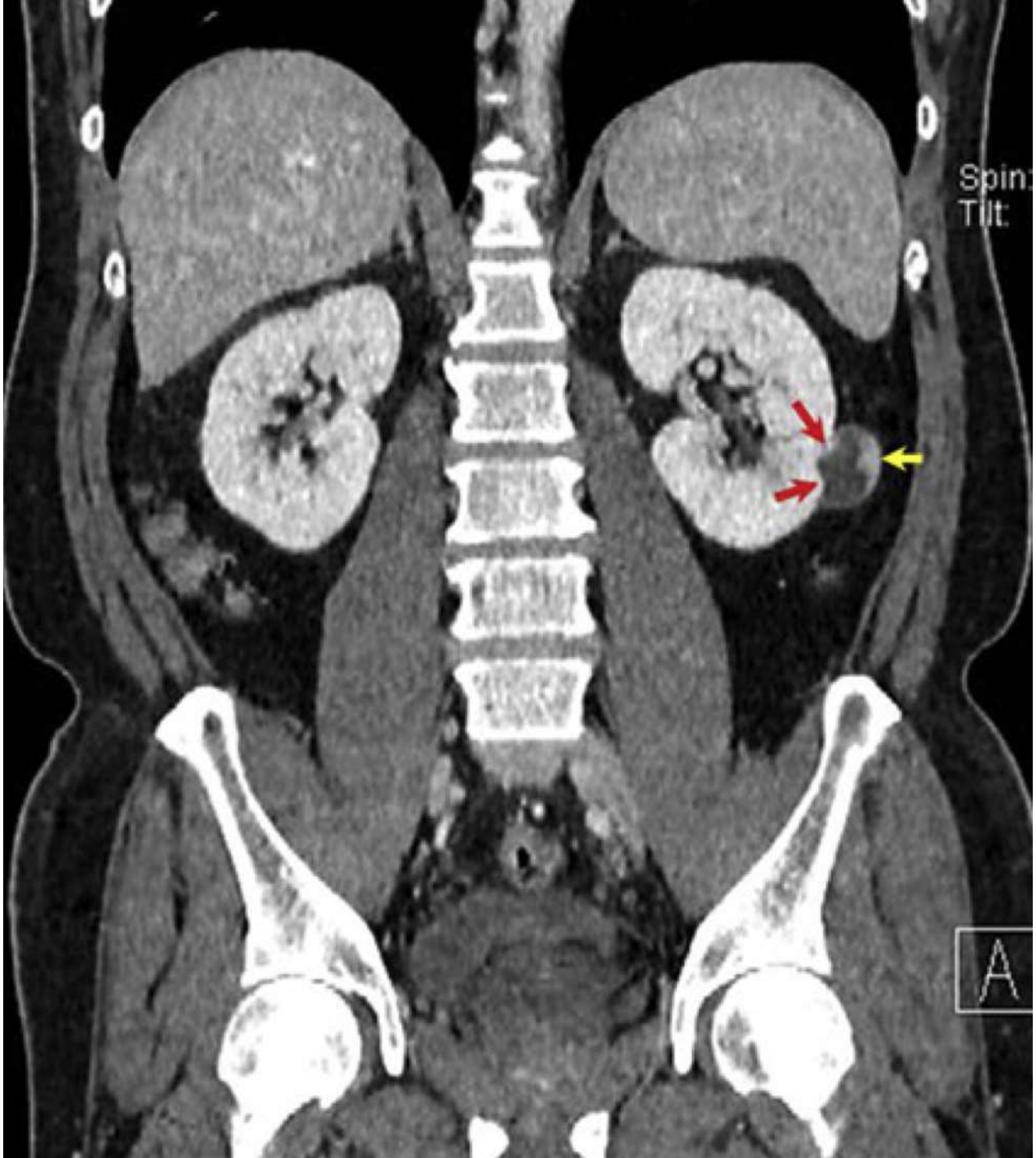
Angiomyolipoma with Epithelial Cyst (AMLEC)

Clinical features:

- Reported in 2006, rare (~20 reported cases)
- Slight female predominance (11:8)
- Young (20-76, mean age 44)

Imaging features:

- Hyper-attenuating on unenhanced CT
- Non-cystic component hypointense on T2
- Angular interface “ice cream cone”


Spin:
Tilt:
A

Angiomyolipoma with Epithelial Cyst (AMLEC)

Histopathologic features:

- Myomatous component, spindled or epithelioid
- Hyalinized thick-walled blood vessels
- Mullerian-like subepithelial compact stroma
- Cysts ranging from 1.0-6.0 cm, no capsule
- Lacking fat component

Immunohistochemical features:

- Epithelial lining: **Cytokeratin+ CD10- ER- PR-**
- Subepithelial stroma: **ER+ PR+ HMB-45+**

Angiomyolipoma with Epithelial Cyst (AMLEC)

Differential diagnosis:

- Cystic renal cell carcinoma
- Cystic nephroma (CN)
- Mixed epithelial and stromal tumor (MEST)

Angiomyolipoma with Epithelial Cyst (AMLEC)

Treatment:

- Potentially non-operative follow up
- Surgical removal

Prognosis:

- Benign (NED 6-108 mo)

Take home points:

- Morphology and clinical features → IHC screening
- High grade (ISUP 3-4) or necrosis → metastases

References

T. Acar et al. **Angiomyolipoma with epithelial cyst (AMLEC): a rare variant of fat poor angiomyolipoma mimicking malignant cystic mass on MR imaging.** Diagnostic and Interventional Imaging (2015) 96, 1195—1198

J Wei et al. **Renal angiomyolipoma with epithelial cysts: a rare entity and review of literature.** Int J Clin Exp Pathol (2015) 8(9):11760-11765

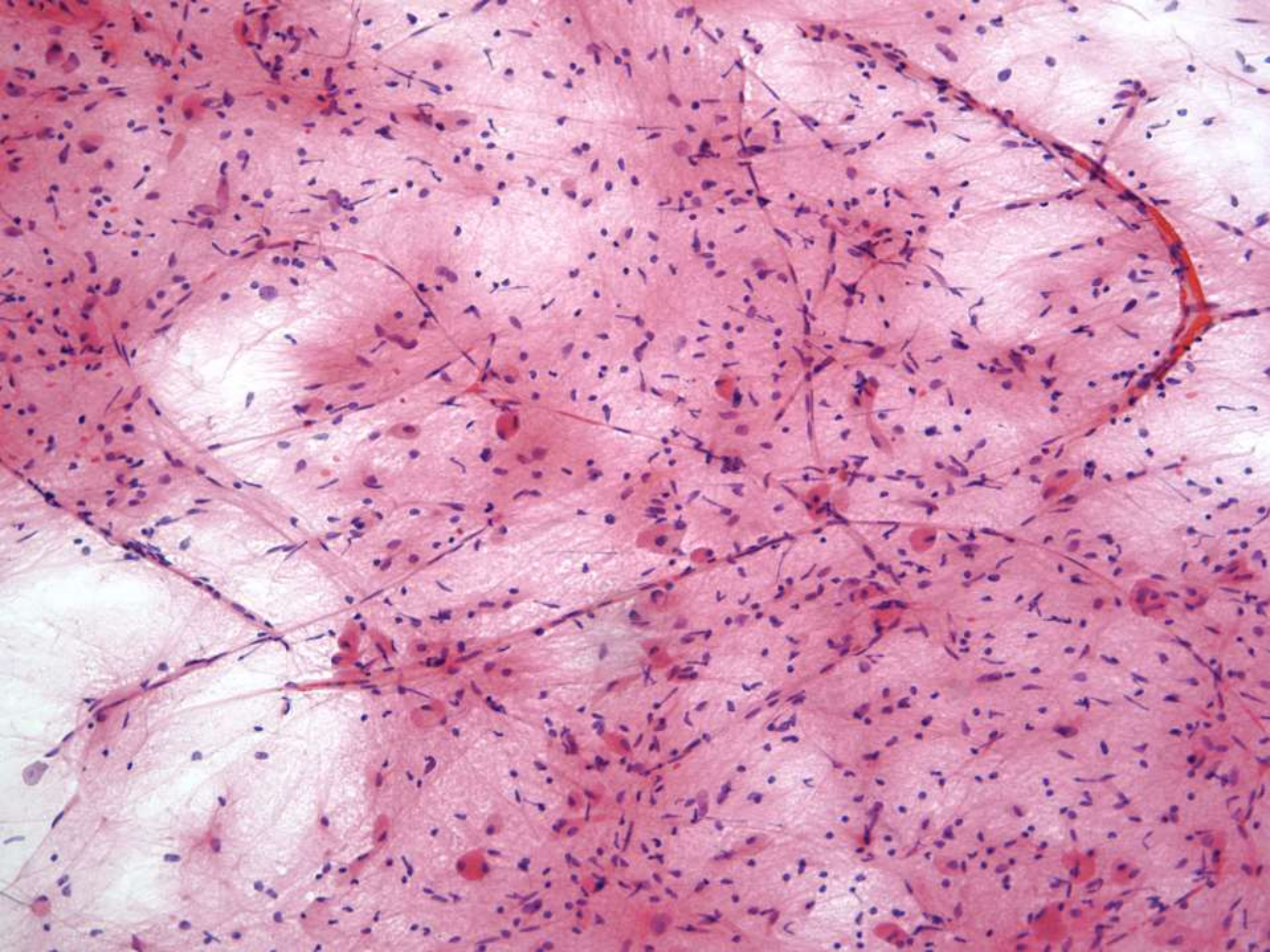
H Park et al. **Cystic Angiomyolipoma Mimicking Cystic Renal Cell Carcinoma on Computed Tomography Image.** Images in Clinical Urology. UROLOGY 85: e43ee44, 2015.

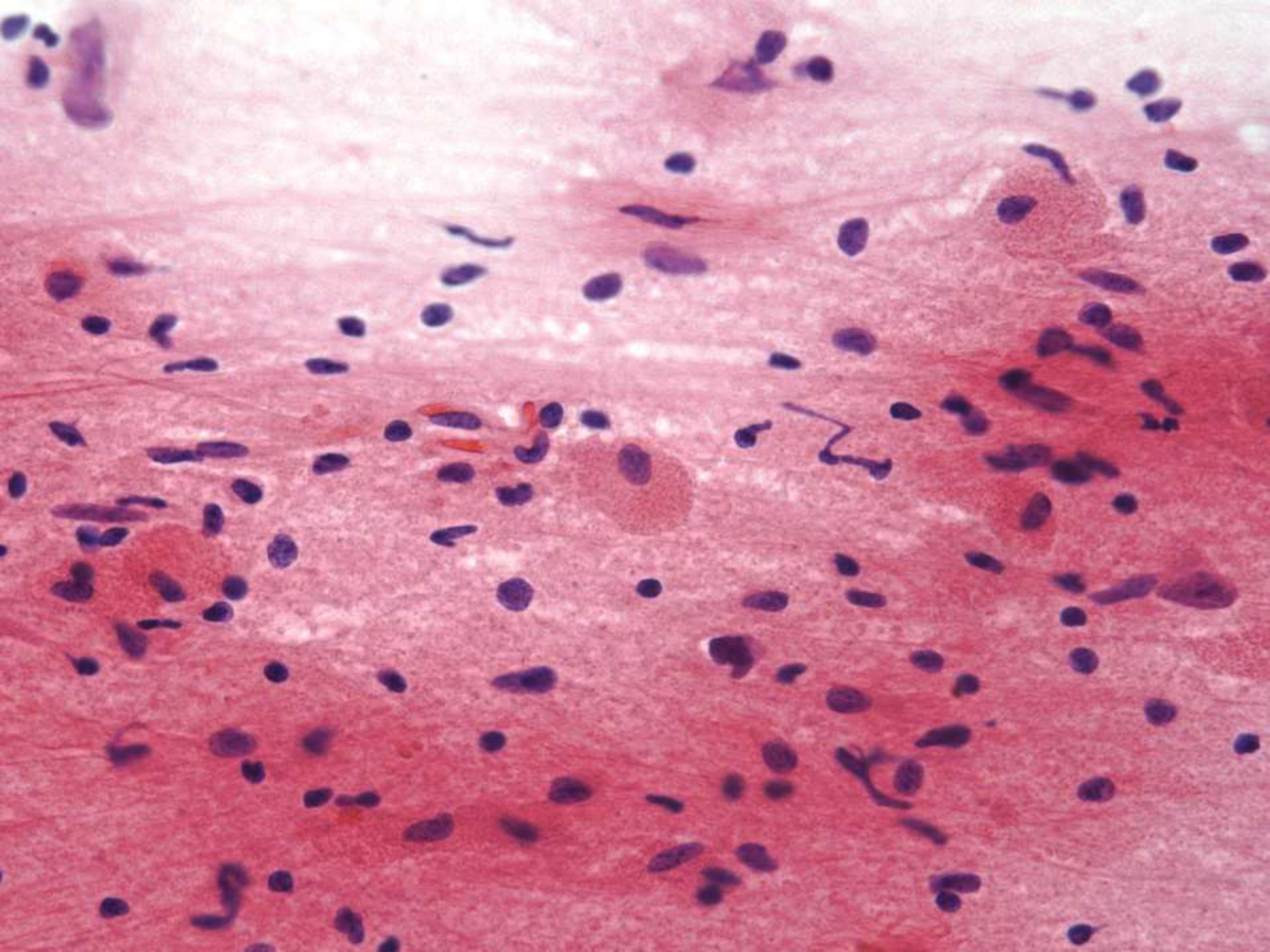
Y Kobari et al. **Fat-poor angiomyolipoma with cyst-like changes mimicking a cystic renal cell carcinoma: a case report**. World Journal of Surgical Oncology (2015) 13:251

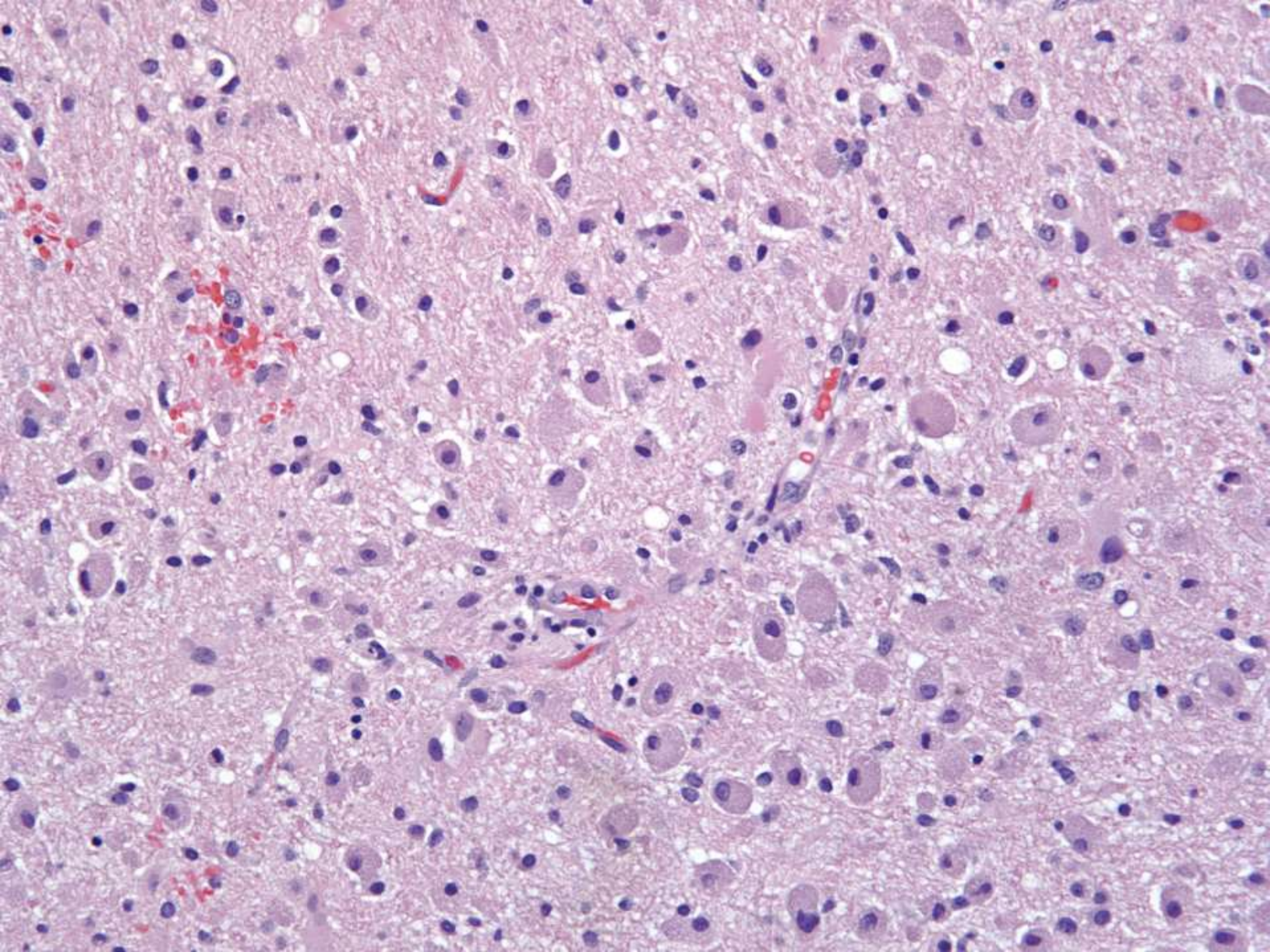
SB 6017

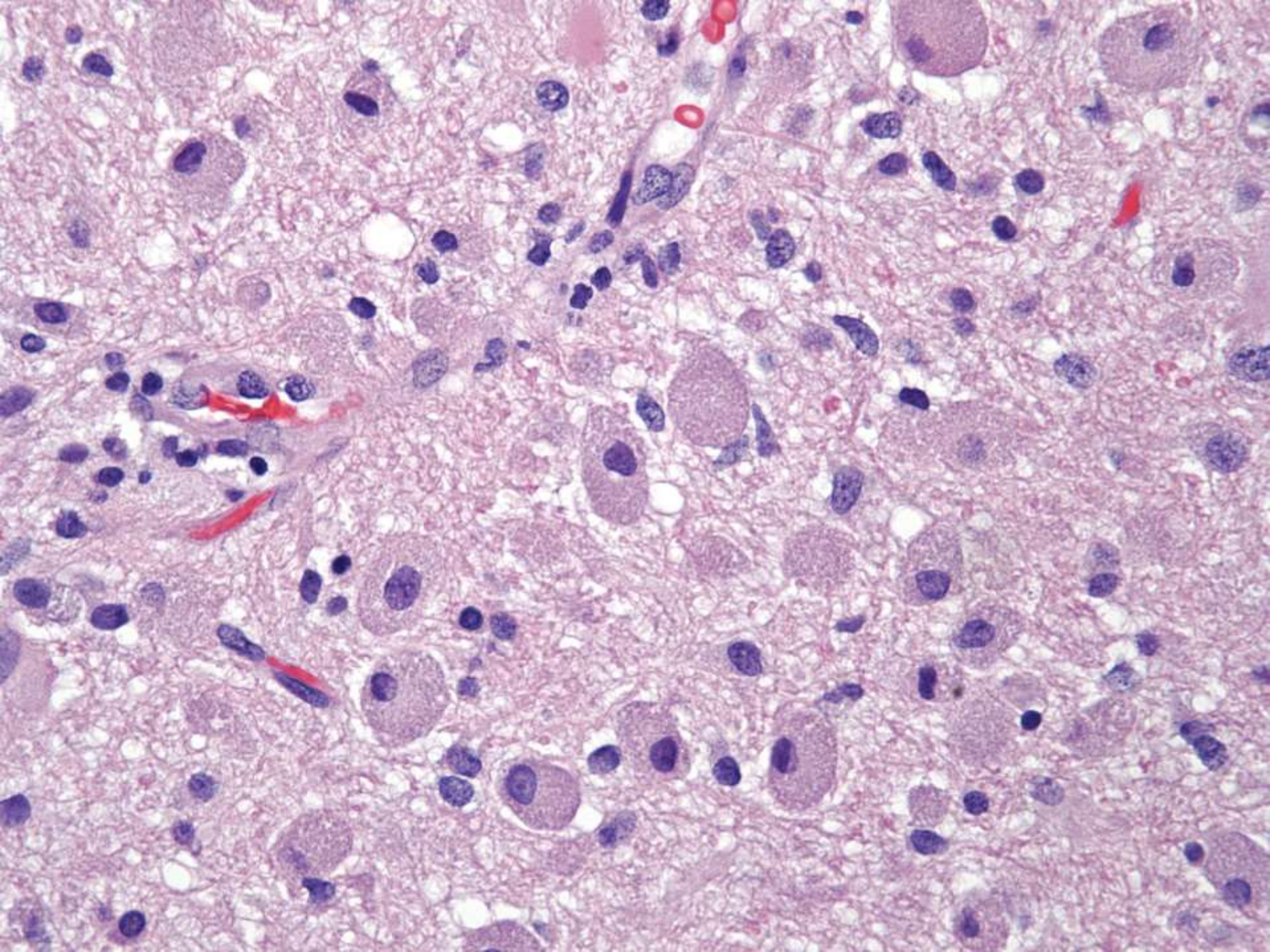
Peyman Samghabadi/Hannes Vogel/Donald Born; Stanford

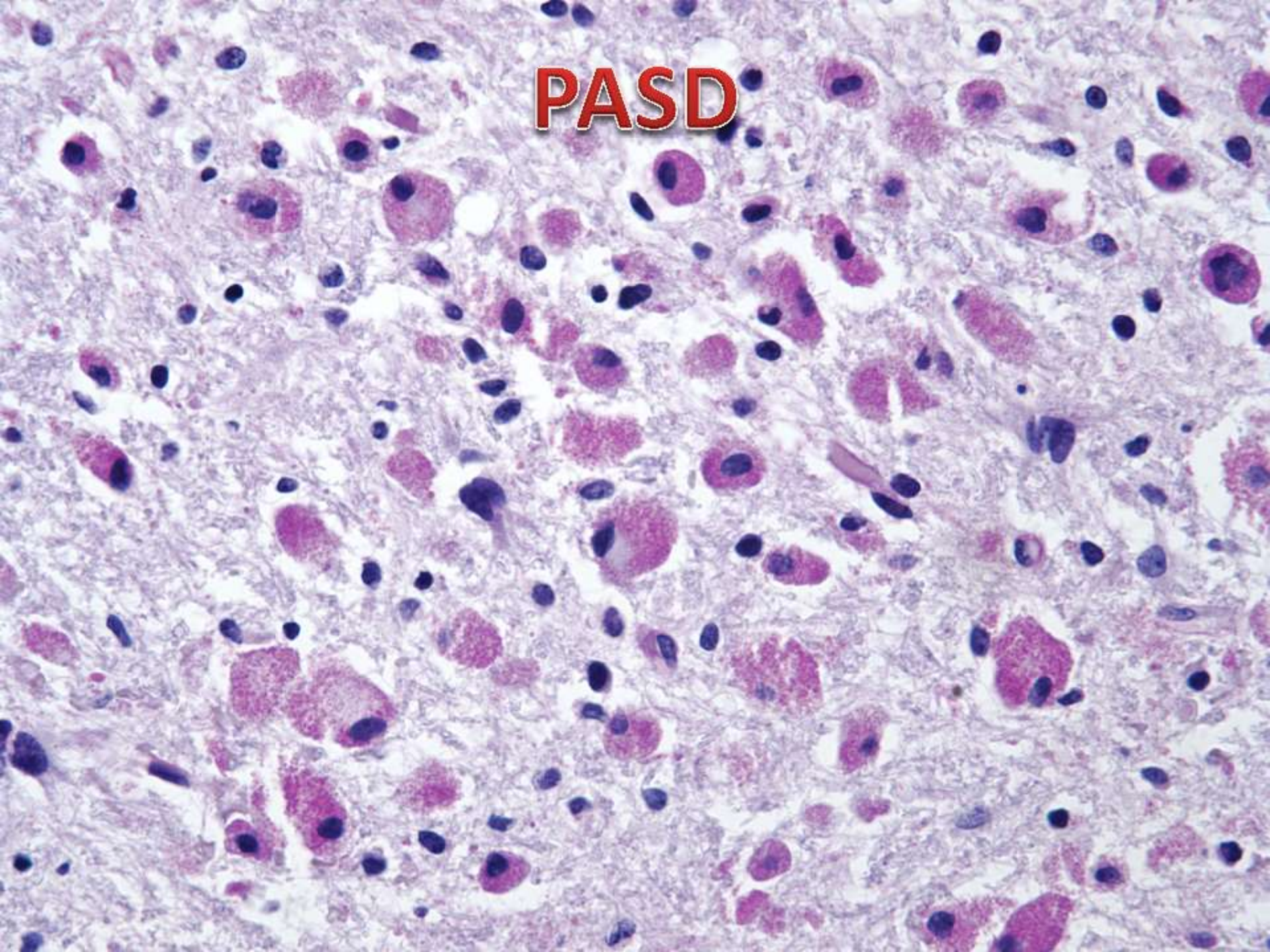
57-year-old male with history of partial seizures and syncope developed acute onset of cognitive changes, confusion, disorientation, and headaches with black-out episodes. MRI with contrast revealed diffuse expansion of left parahippocampal gyrus with patchy, nodular contrast enhancement, most consistent with primary neoplasm.



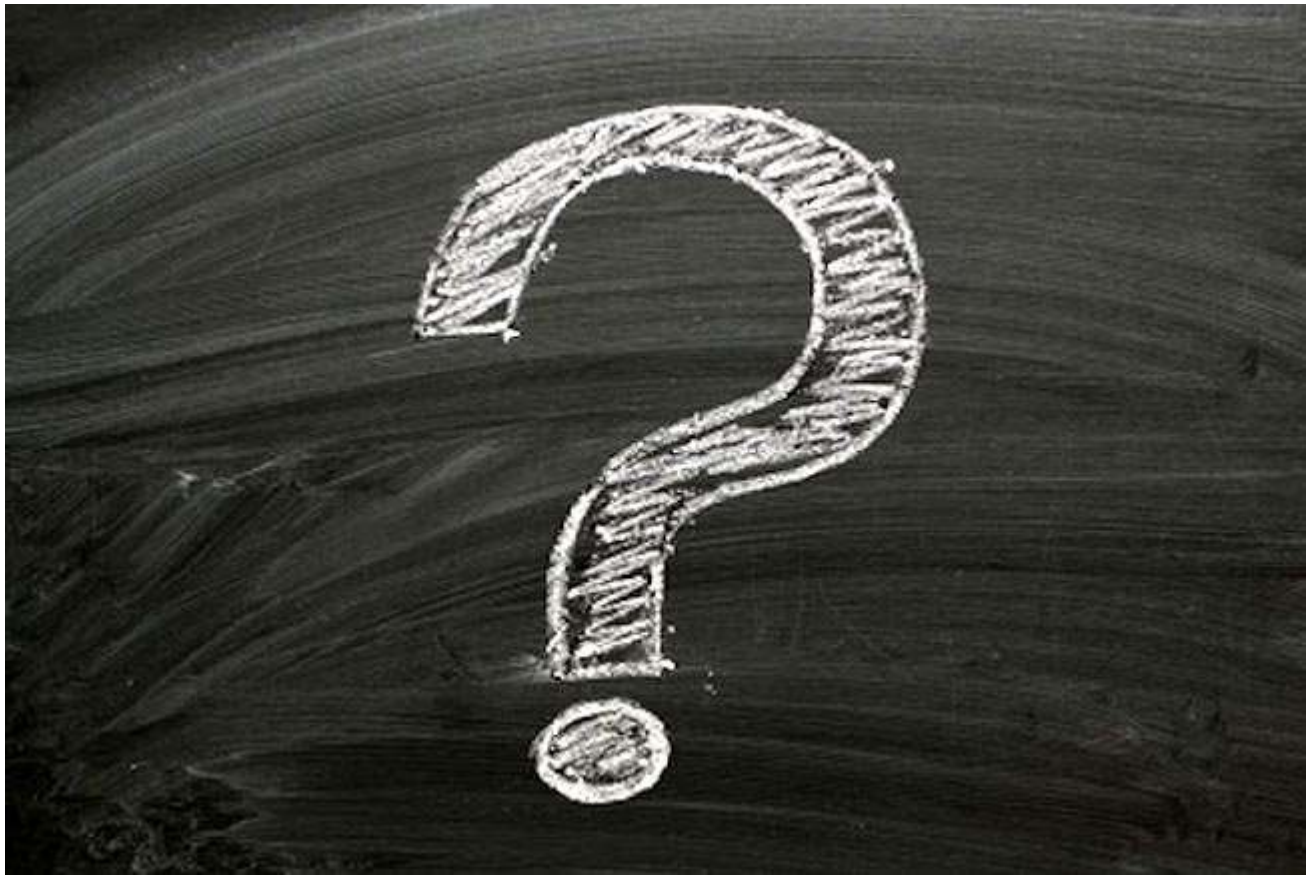




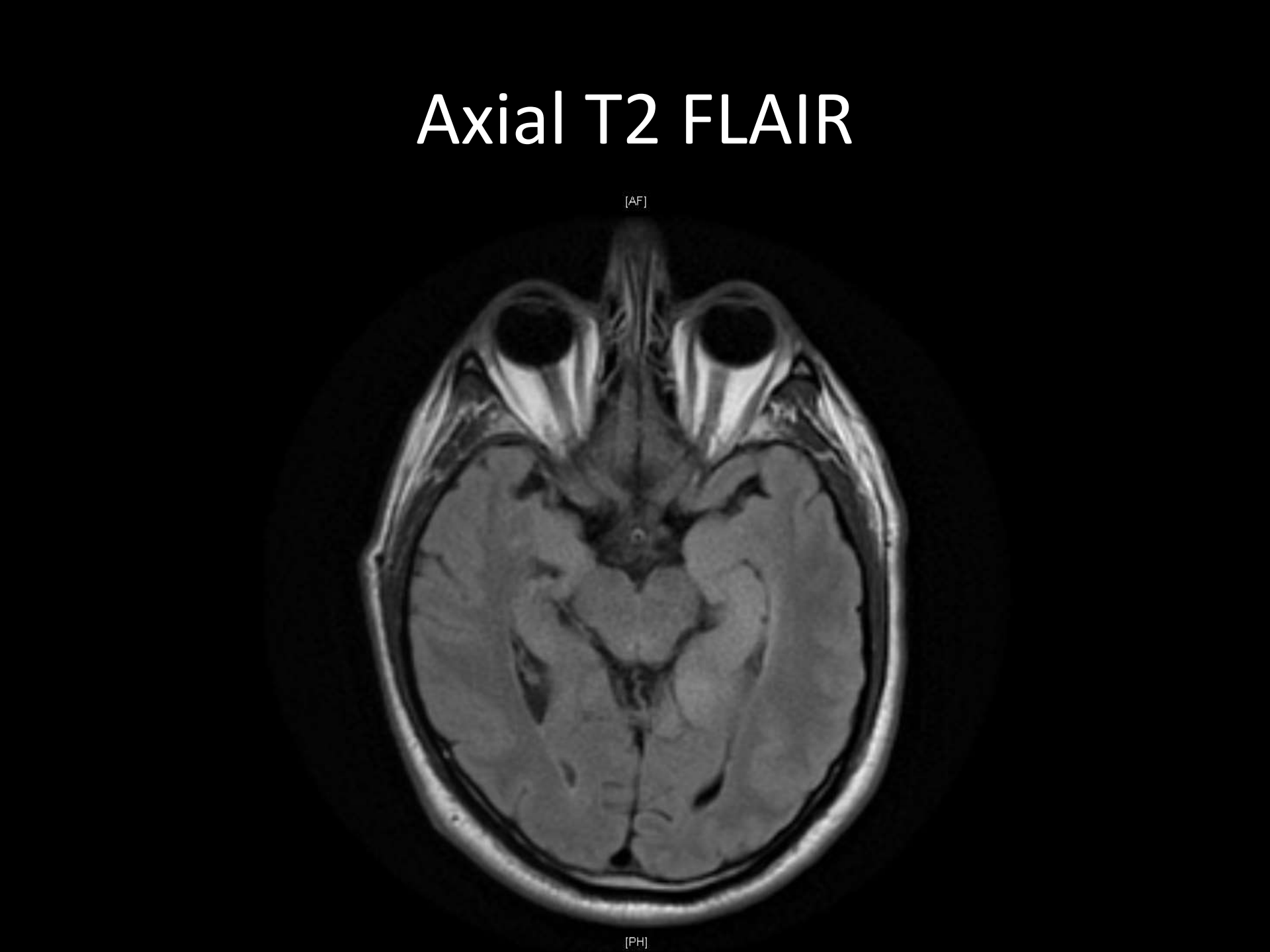



PASD

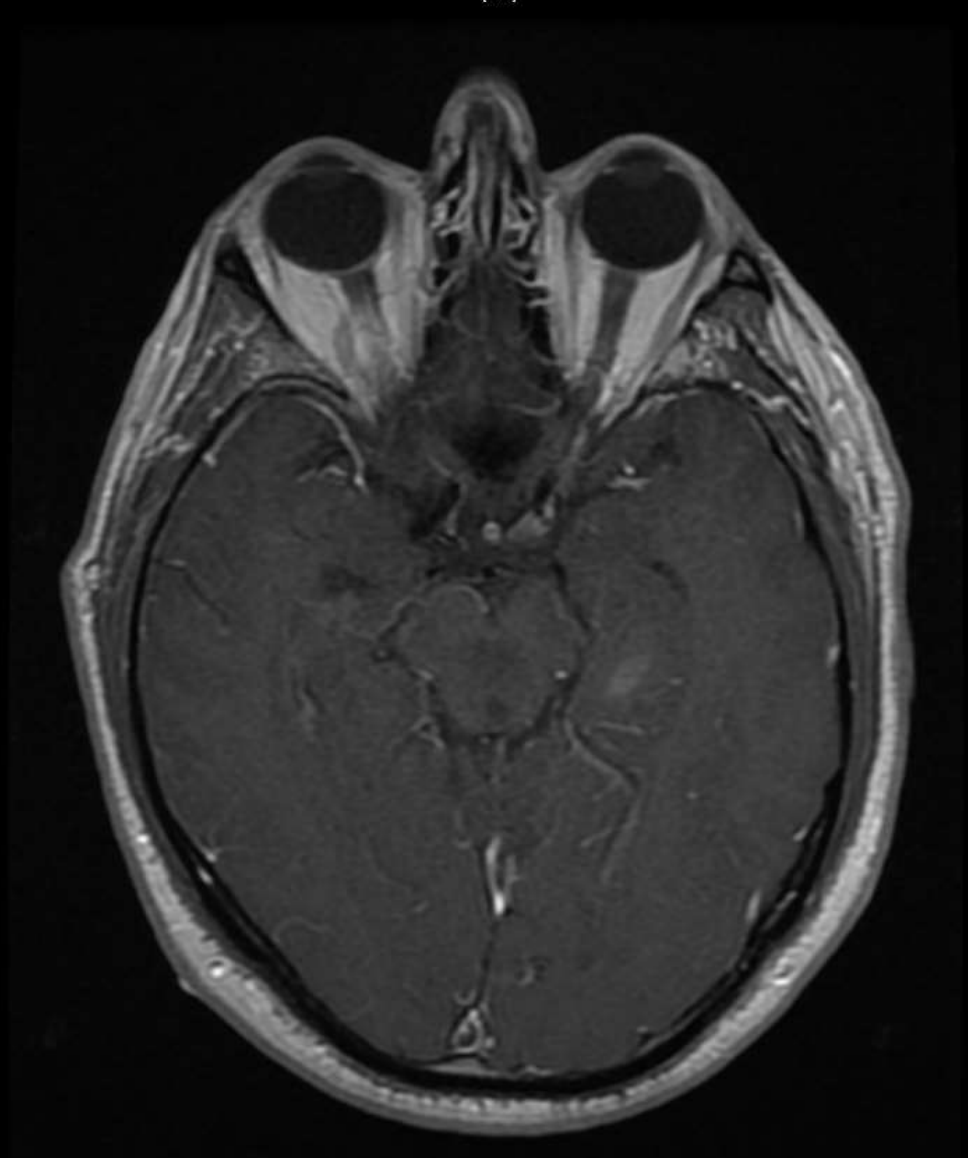
DIAGNOSIS?



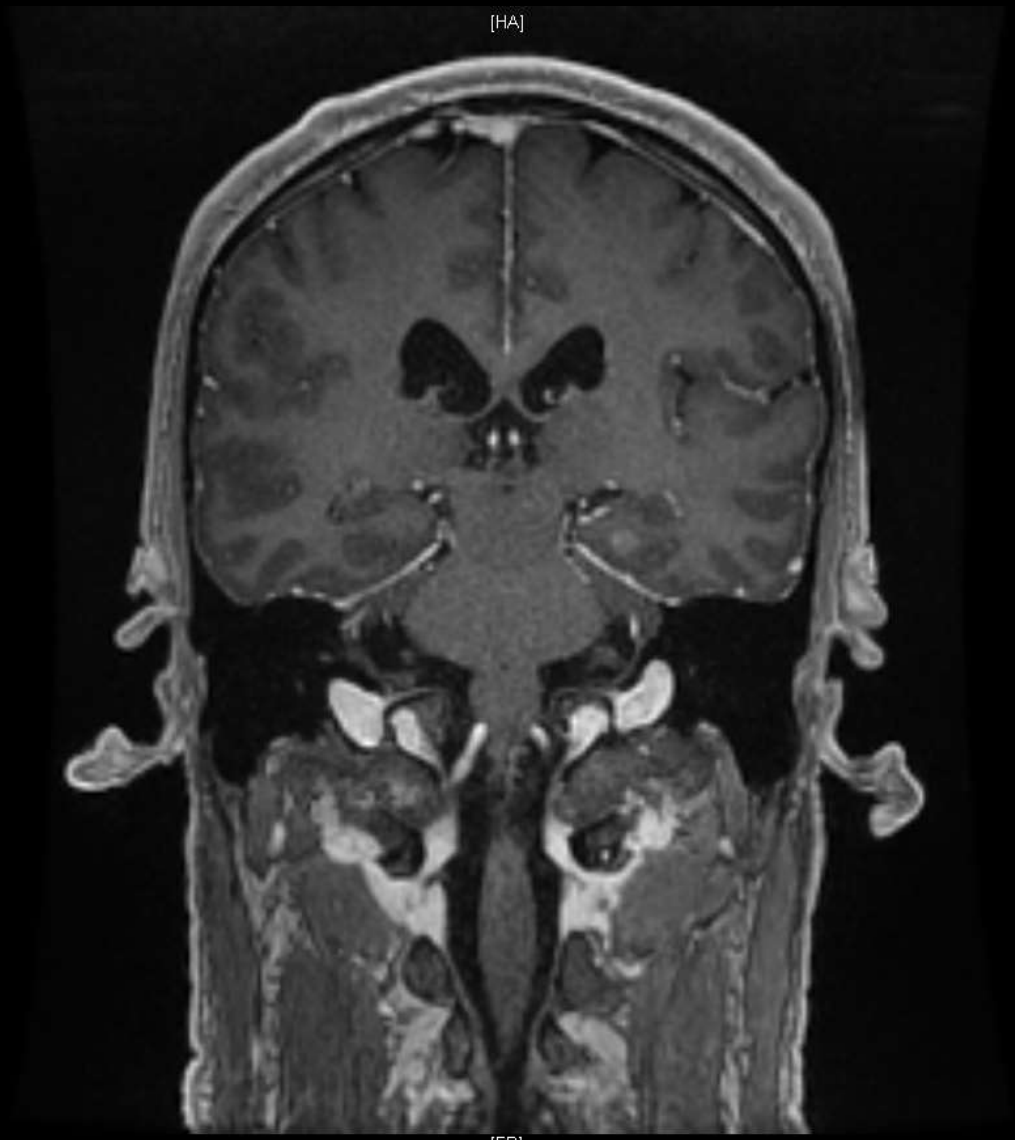
Axial T2 FLAIR

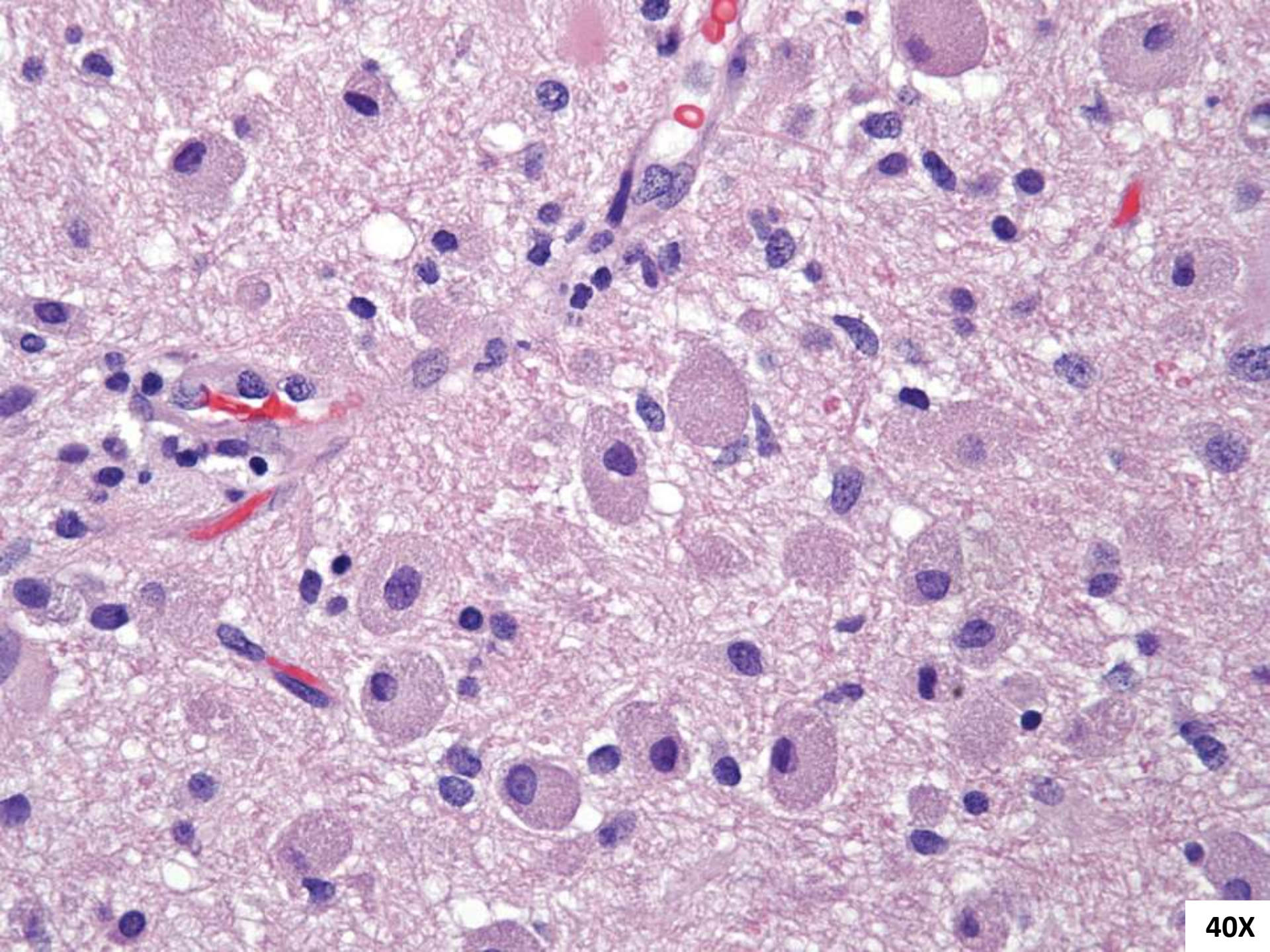


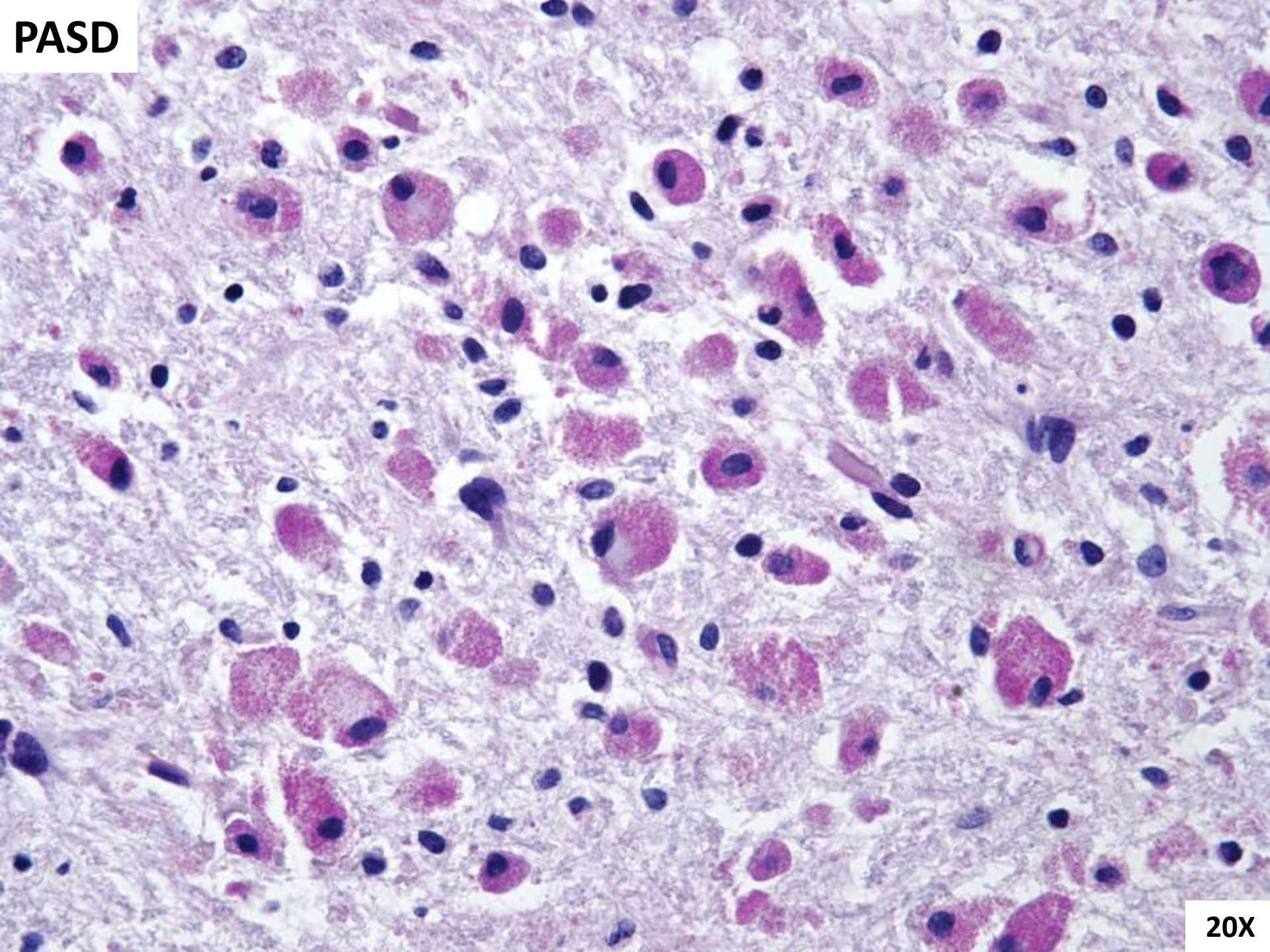
Axial T1 Post Contrast

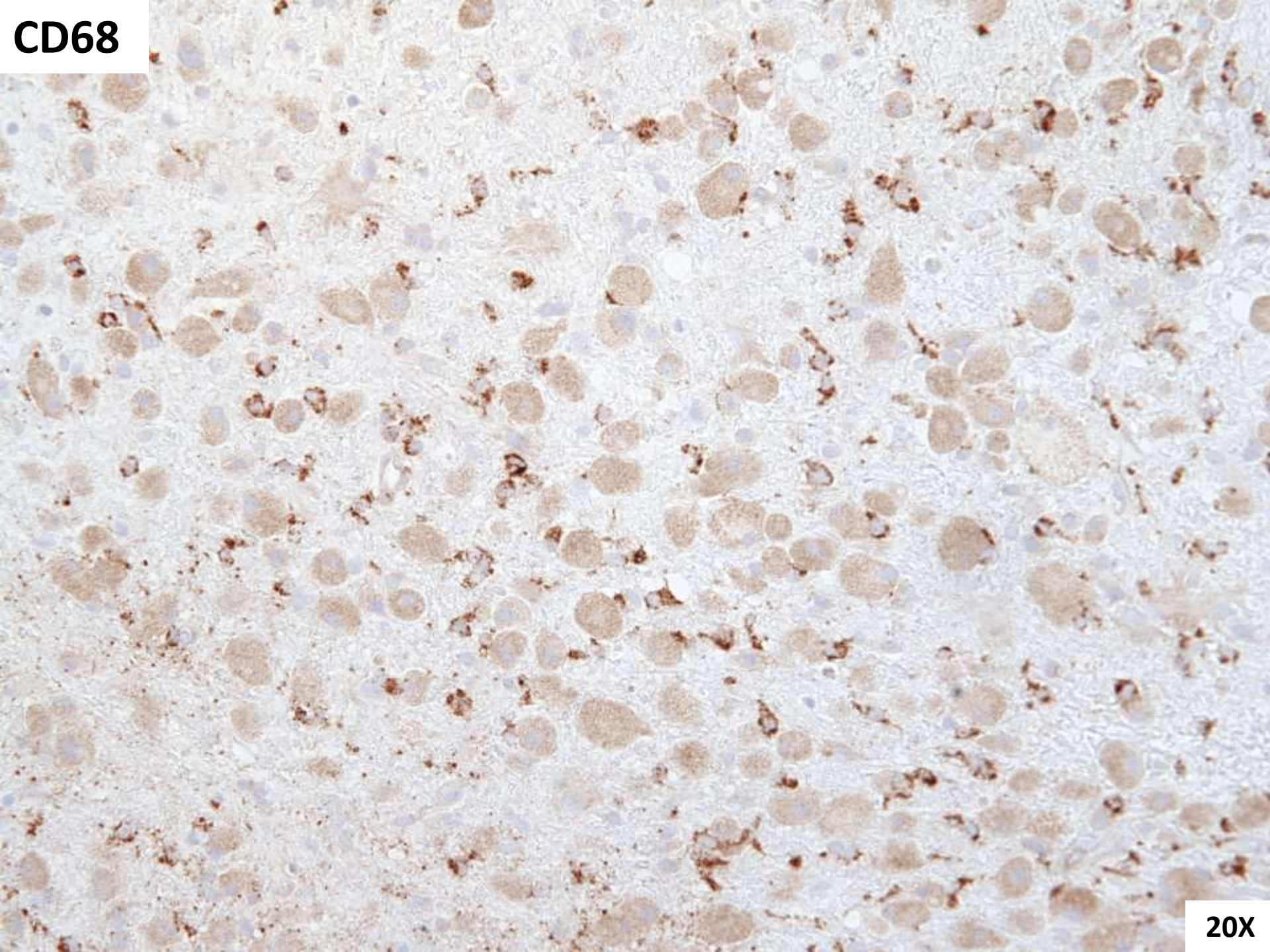


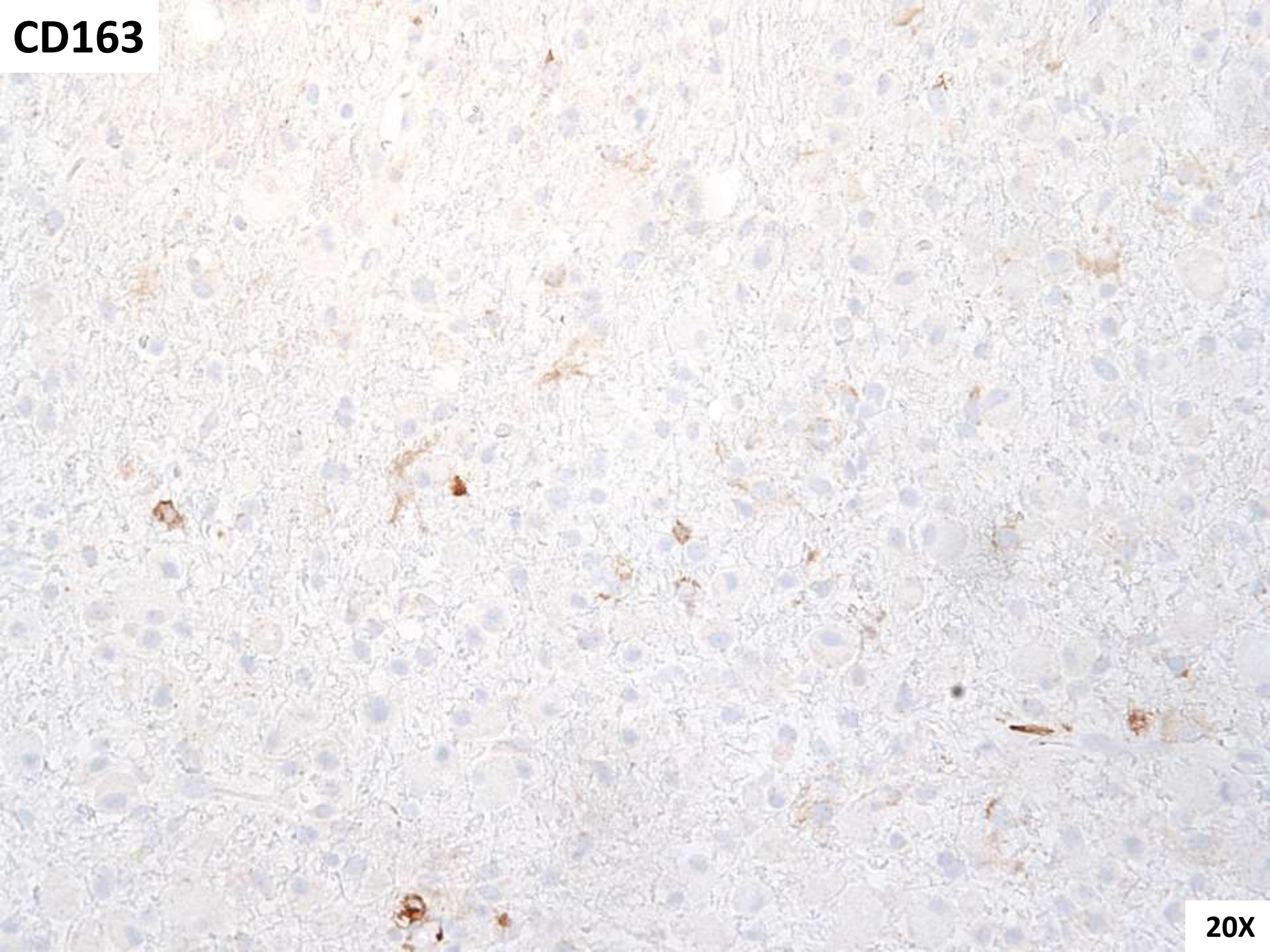
Coronal Post Contrast

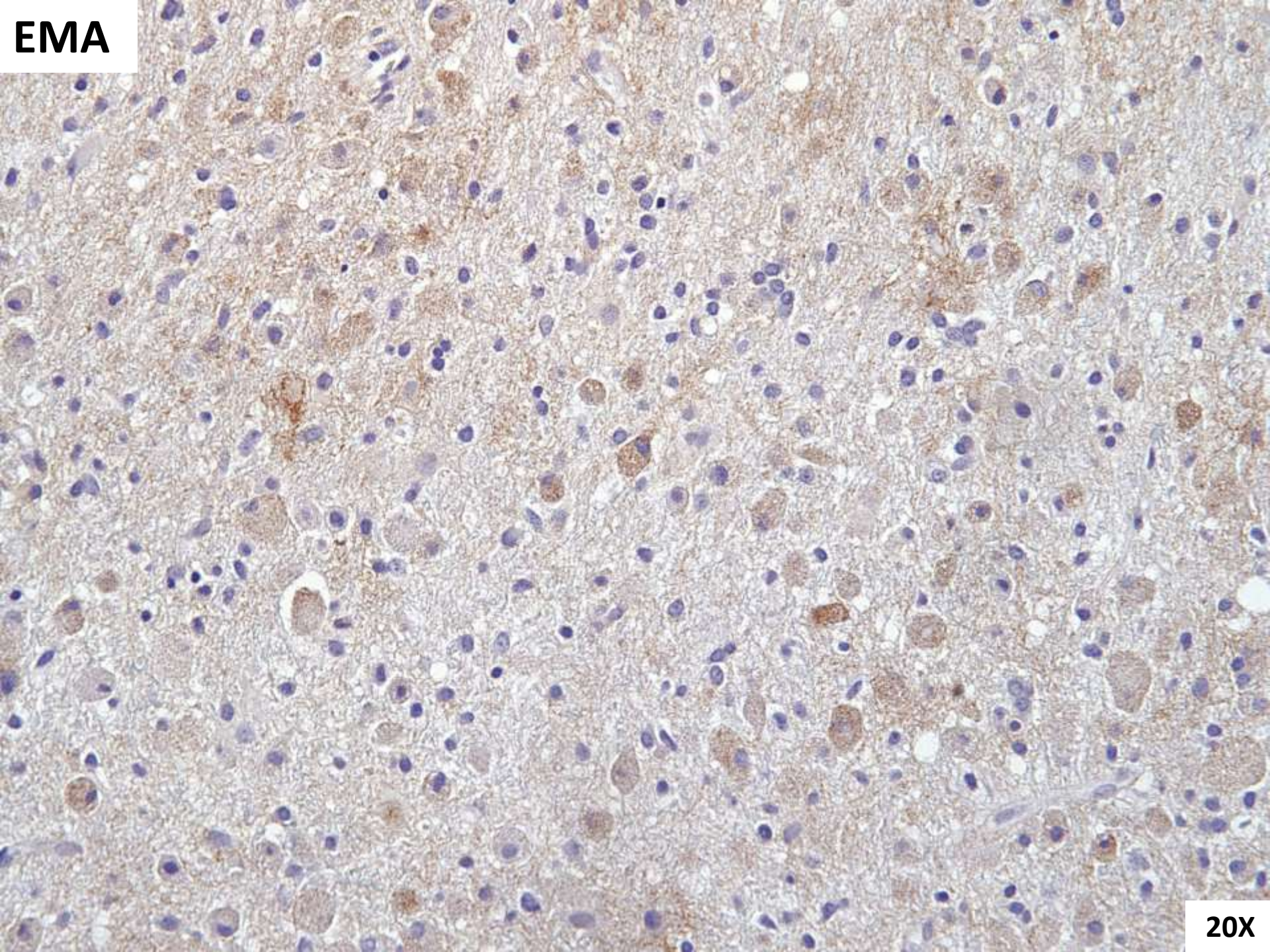


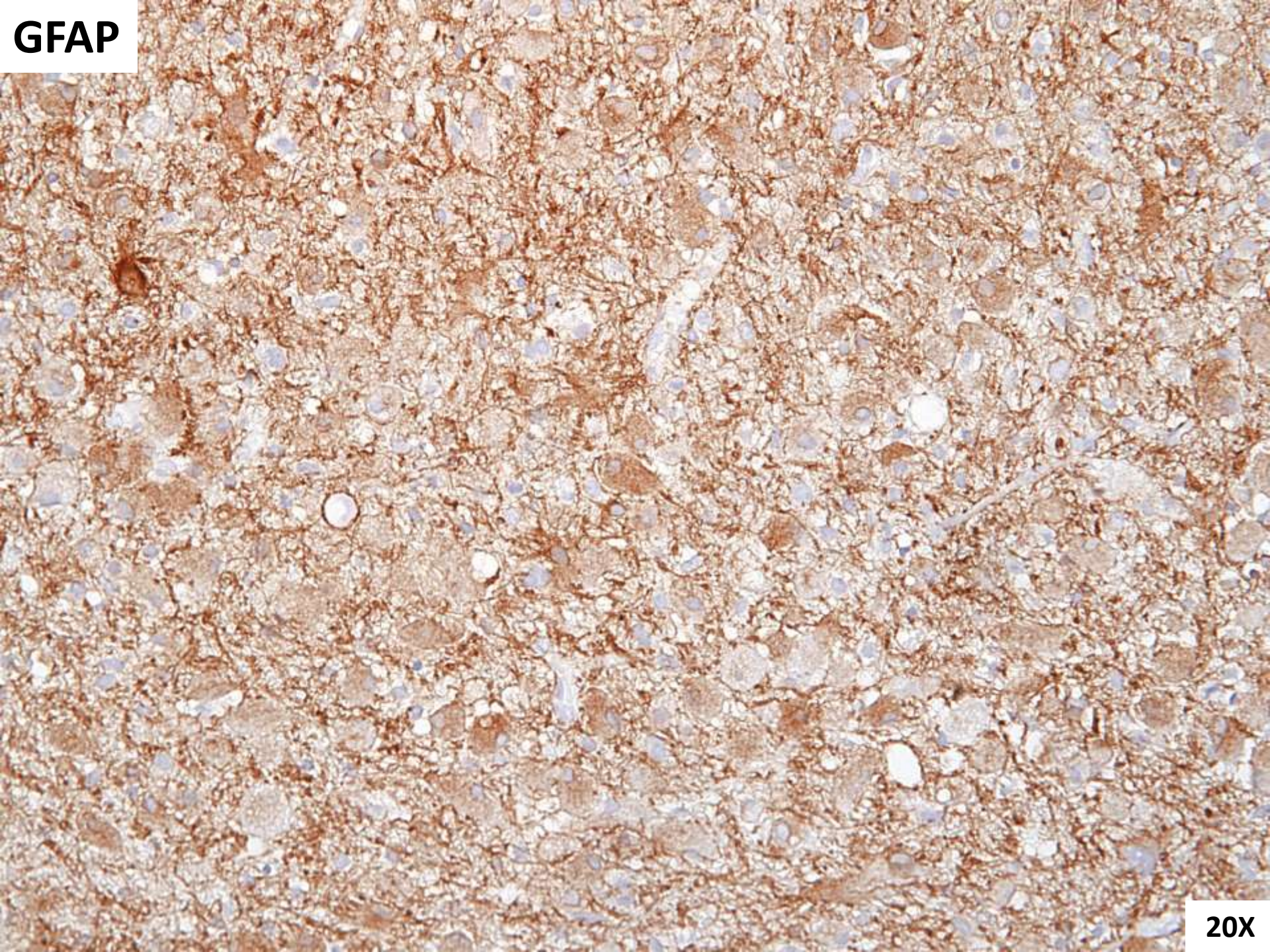

40X


PASD
20X


CD68
20X


CD163
20X


EMA
20X


GFAP
20X

ADDITIONAL IMMUNOHISTOCHEMISTRY

Ki-67 3-5%

IDH1 (R132H) NEGATIVE

ATRX POSITIVE (RETAINED)

P53 NEGATIVE (NOT OVER EXPRESSED)

Granular Cell Astrocytoma, WHO Grade III

IDH1 WILD TYPE

P53 WILD TYPE

ATRX WILD TYPE

Granular Cell Astrocytoma

- Rare morphologic variant of infiltrating Astrocytoma
- Supratentorial, M: F=4:1; 9-83 y/o, median 58
- Pure or mixed/transitional histology
- Low mitotic rate/Ki-67%
- Poor prognosis compared to conventional astrocytoma

Brat D.J., Scheithauer B.W., Medina-Flores R., et al: Infiltrative astrocytomas with granular cell features (granular cell astrocytomas): a study of histopathologic features, grading, and outcome. Am J Surg Pathol 2002; 26: pp. 750.

Schittenhelm J, Psaras T. Glioblastoma with granular cell astrocytoma features: a case report and literature review. Clinical Neuropathology, Vol. 29 – No. 5/2010 (323-329).

Mimics

- Histiocytosis*
- Infarction
- Demyelinating Process

Campbell R et al. Mistaken identity: Granular cell astrocytoma masquerading as histiocytosis of the central nervous system. Case Reports / Journal of Clinical Neuroscience 21 (2014) 1457–1459.

Immunophenotype/Special Stains

Immunostain	Immunoreactivity	Pattern
GFAP	+ (usually)	Cytoplasmic
CD68	+ (usually)	Granular
CD163	-	
EMA	+ (usually)	Granular
PASD	+	Granular
S100	+ (usually)	Cytoplasmic

Brat D.J., Scheithauer B.W., Medina-Flores R., et al: Infiltrative astrocytomas with granular cell features (granular cell astrocytomas): a study of histopathologic features, grading, and outcome. Am J Surg Pathol 2002; 26: pp. 750.

Molecular Findings

Molecular Alteration	Infiltrating Glioma	Granular Cell Astrocytoma
IDH1/IDH2	+/-	-
P53	+/-	+/-
ATRX	+/-	?
EGFR	+++/-	+/- - - *
Co-del 1p/19q	+/-	+/- **
LOH **9p**, **10q**	+/-	+++/-
MGMT	+/-	+/-

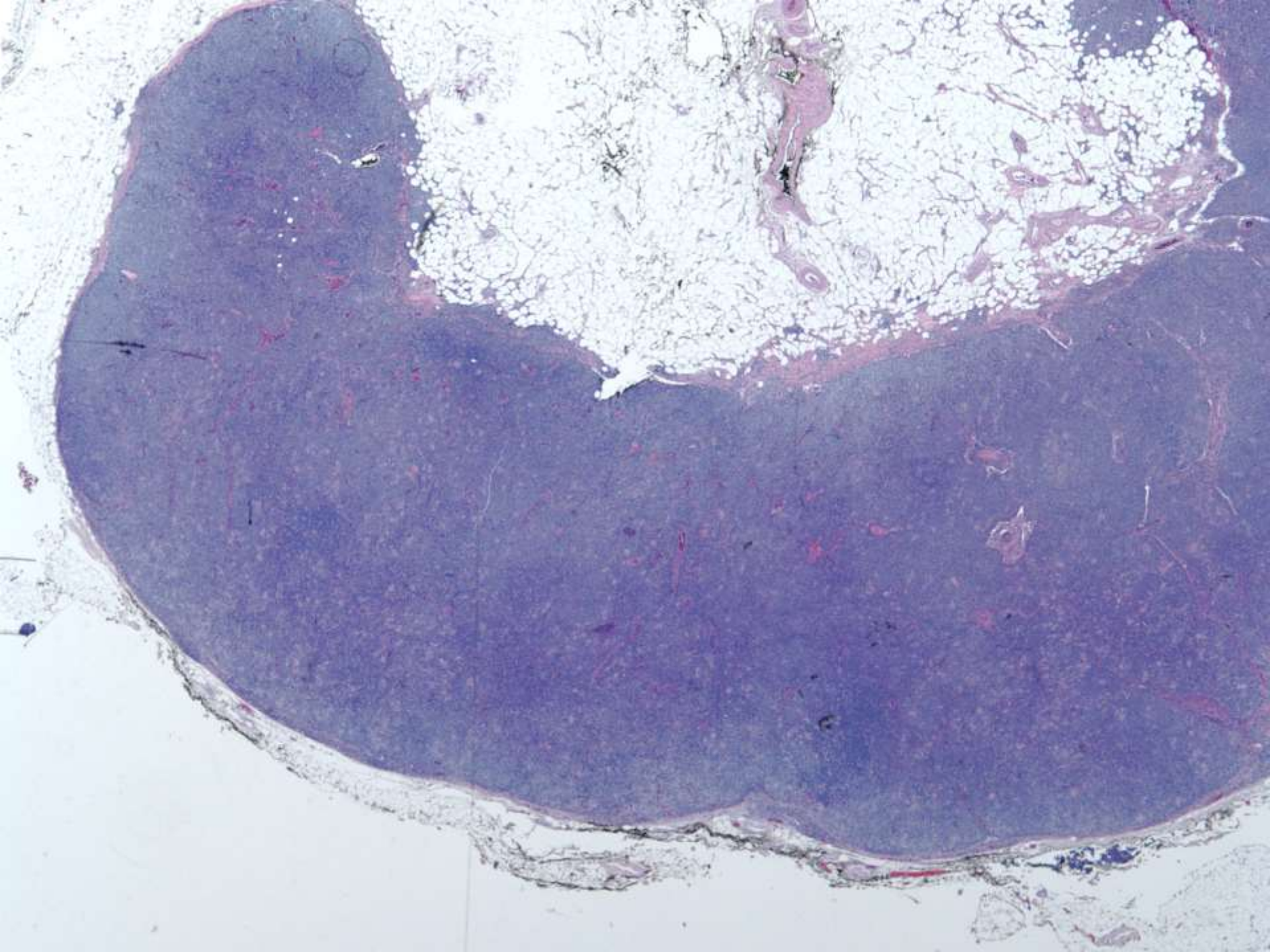
Castellano-Sanchez A.A., Ohgaki H., Yokoo H., et al: Granular cell astrocytomas show a high frequency of allelic loss but are not a genetically defined subset. Brain Pathol 2003; 13: pp. 185-194.

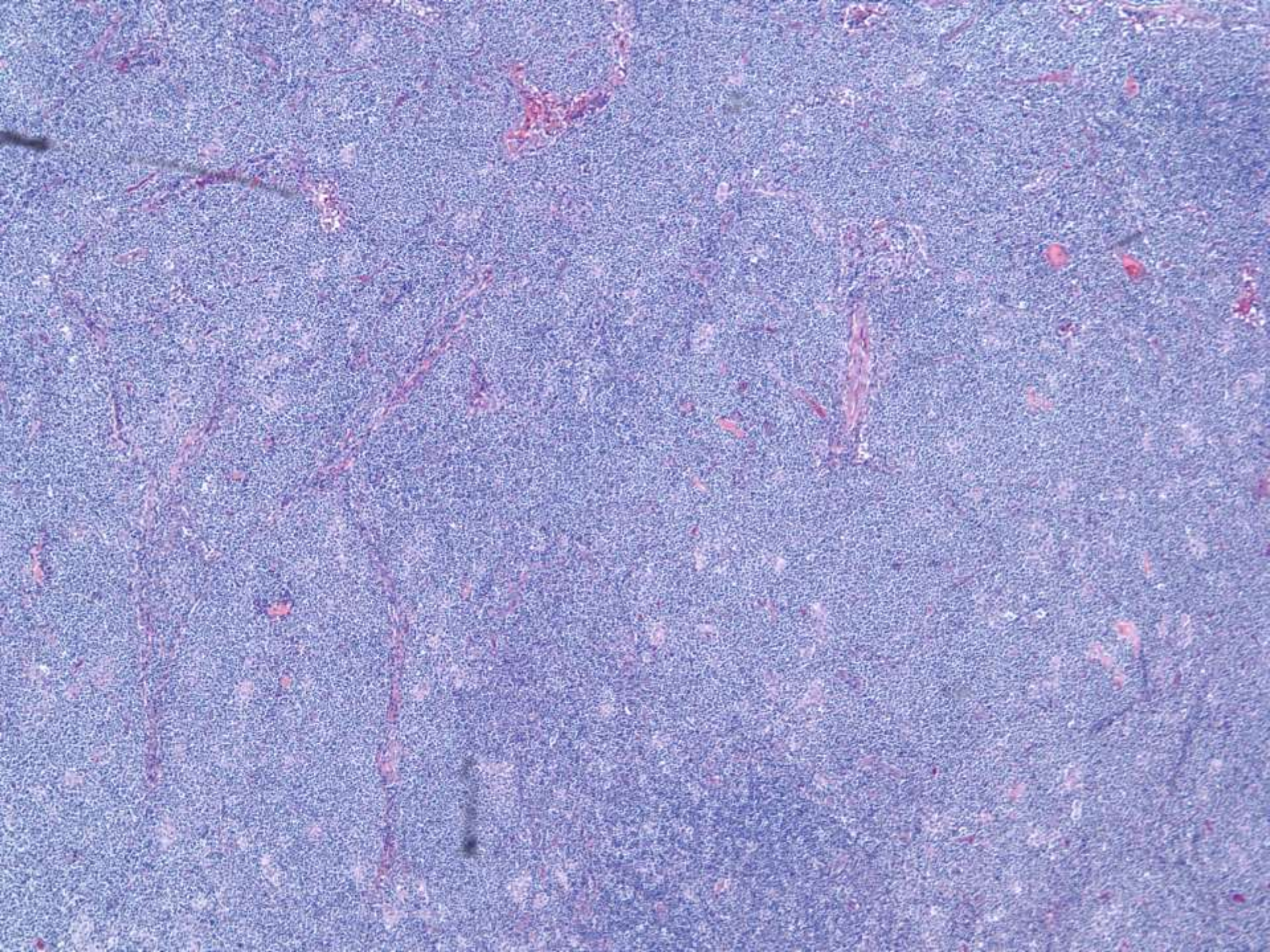
Joo Mee et al. Cytogenetic and molecular genetic study on granular cell glioblastoma: a case report. Human Pathology (2013) 44, 282–288.

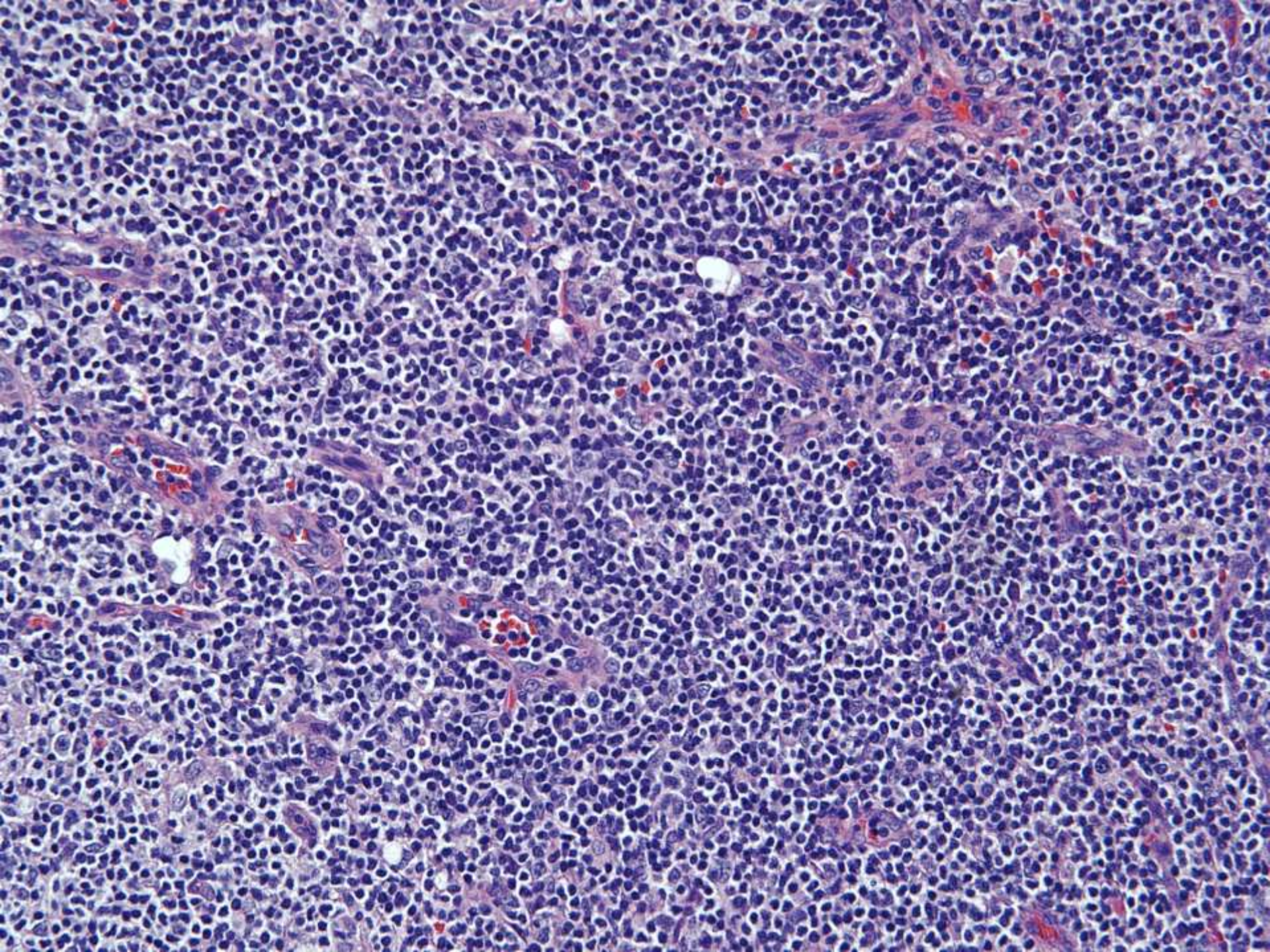
SB 6018

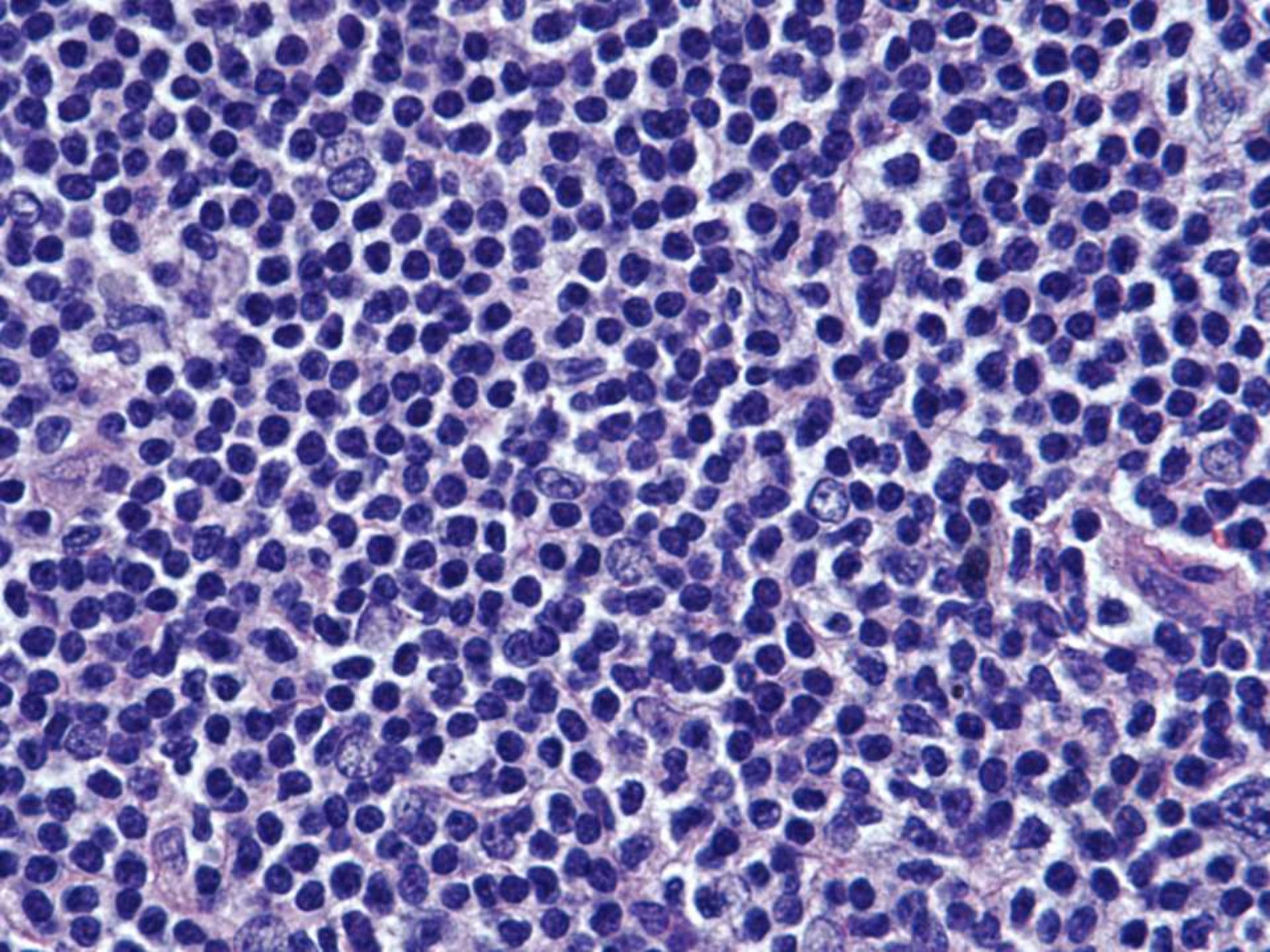
Jenny Hoffman/Susan Atwater; Stanford

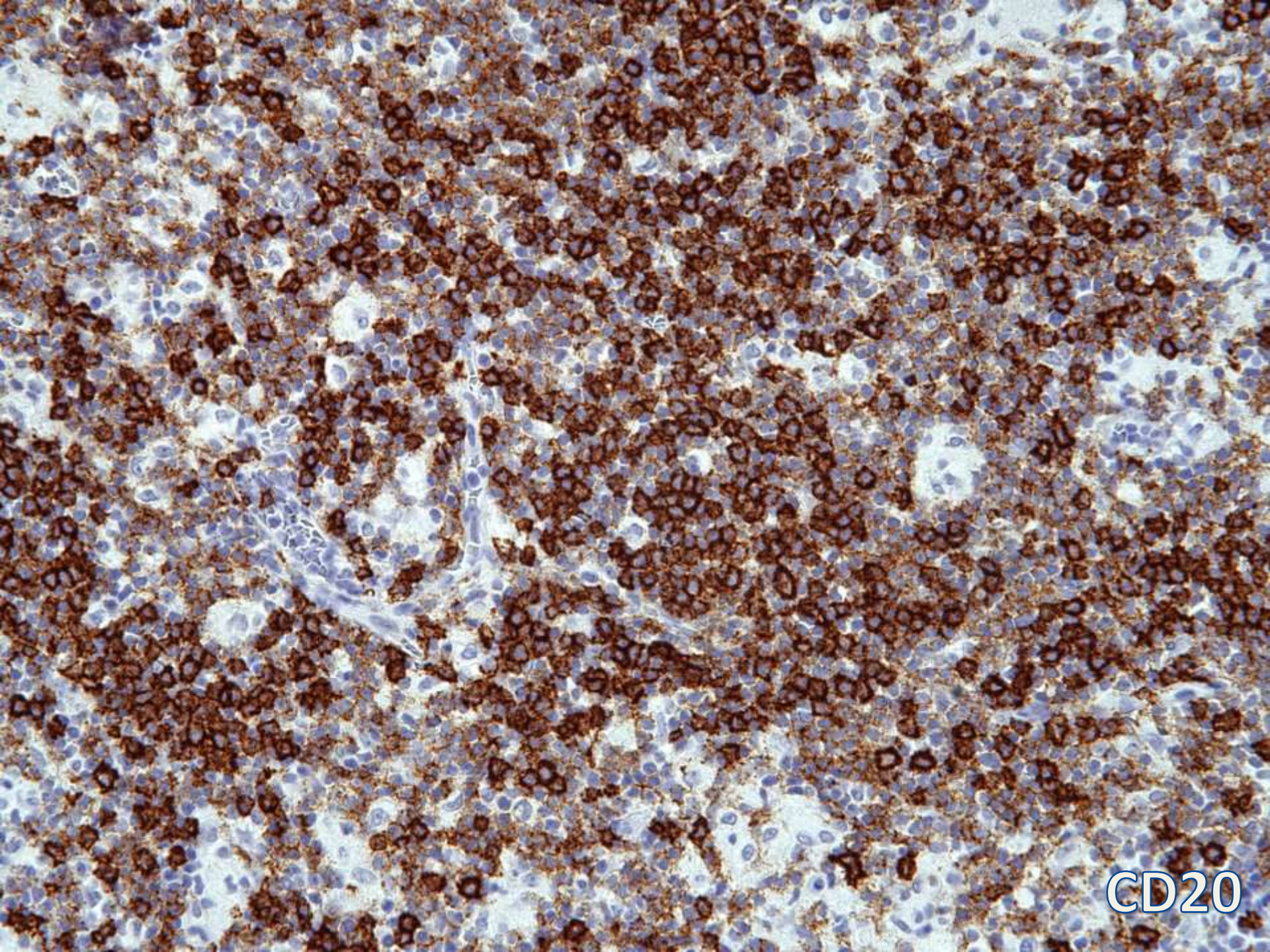
65-year-old male with 1-year history of fever and night sweats. Subsequent imaging showed splenomegaly and left axillary lymphadenopathy.

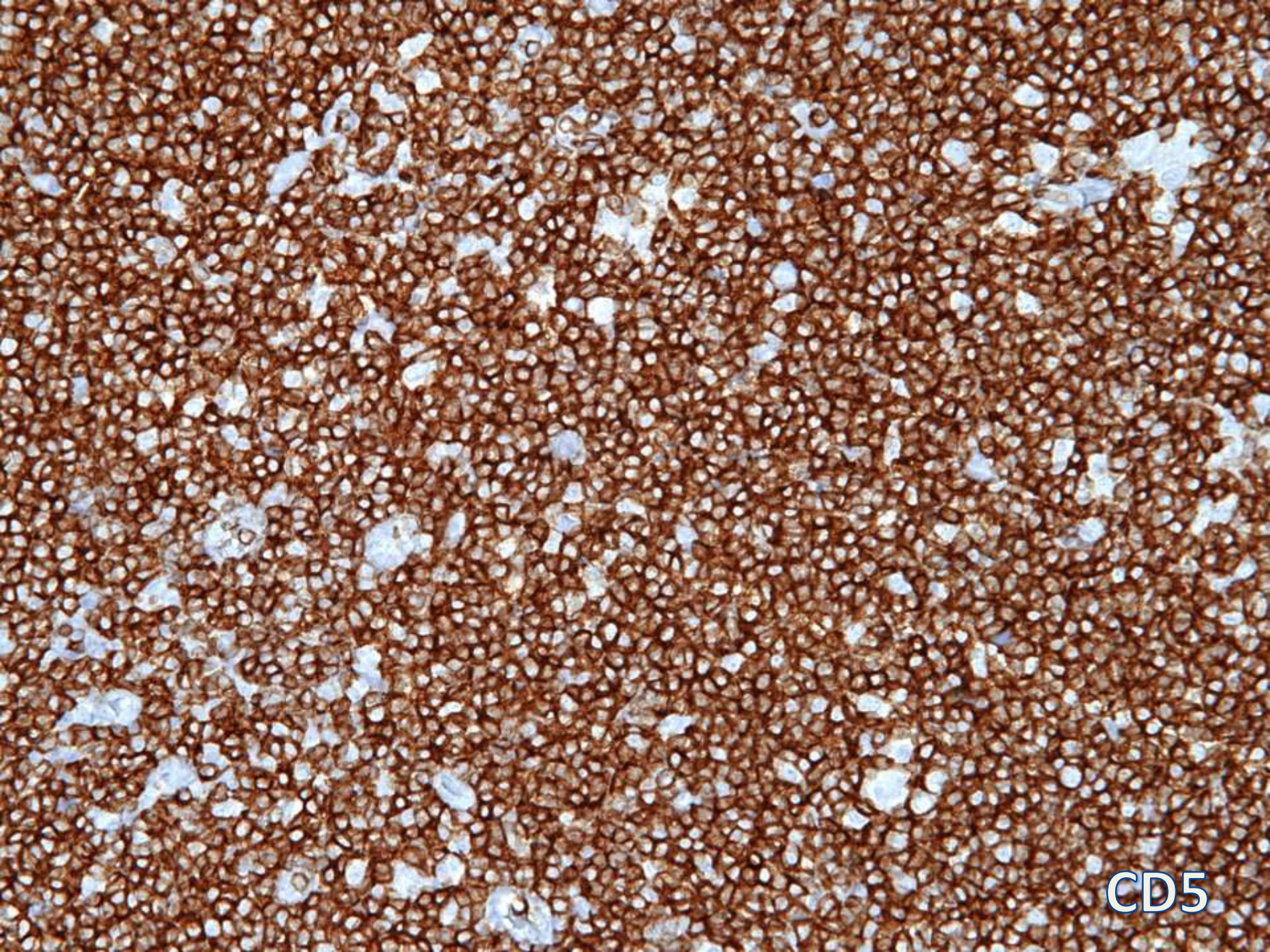


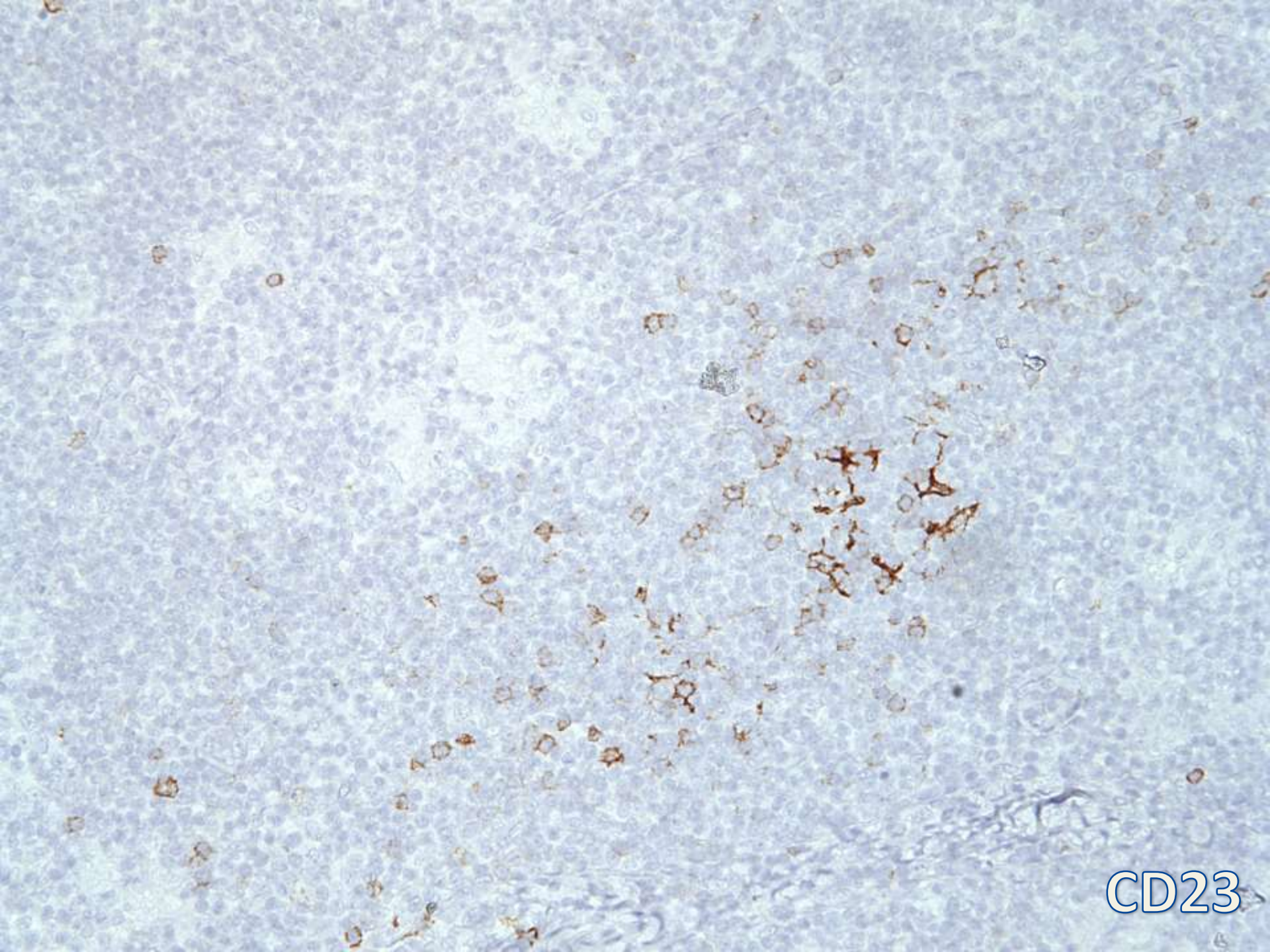


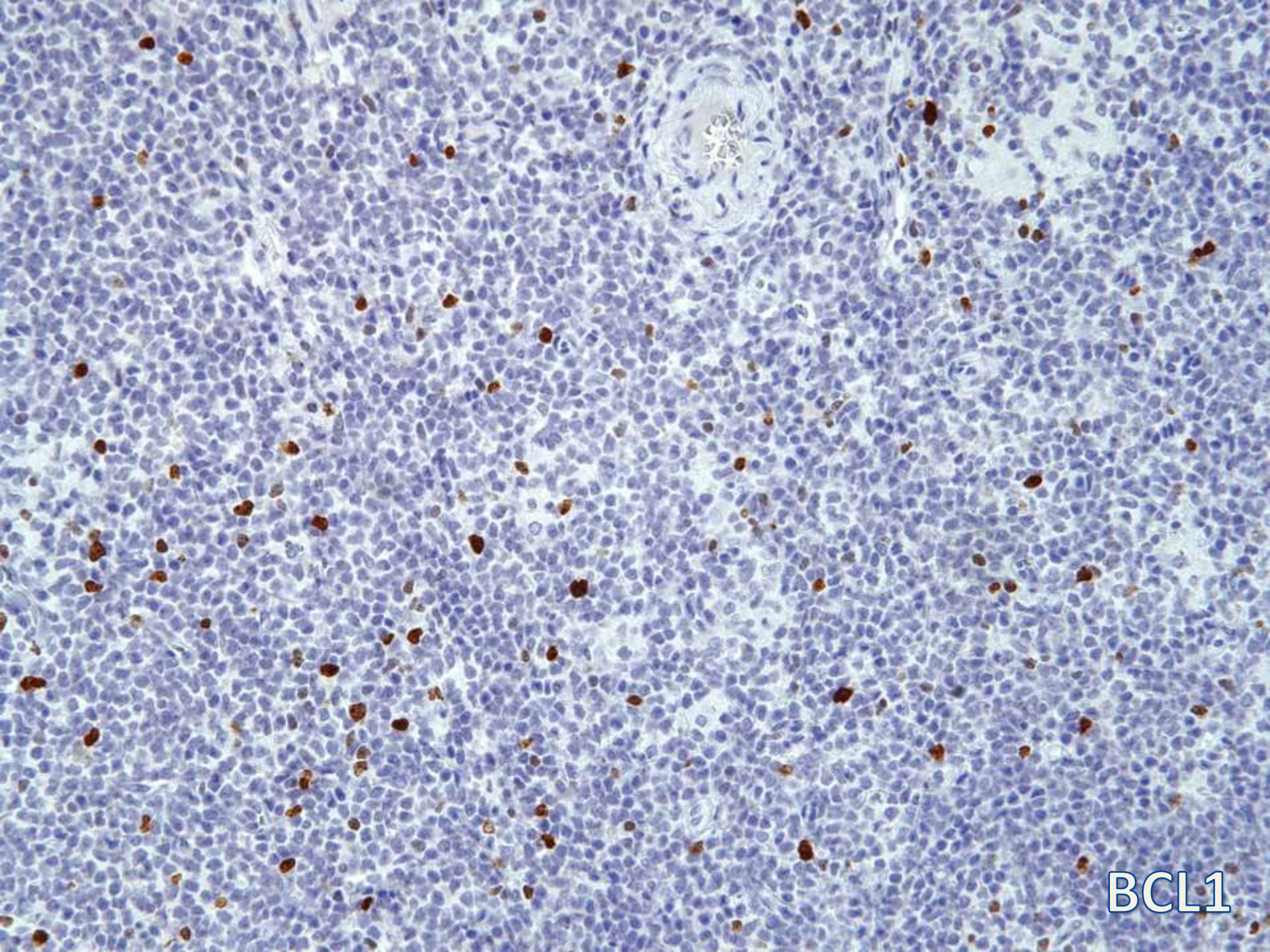


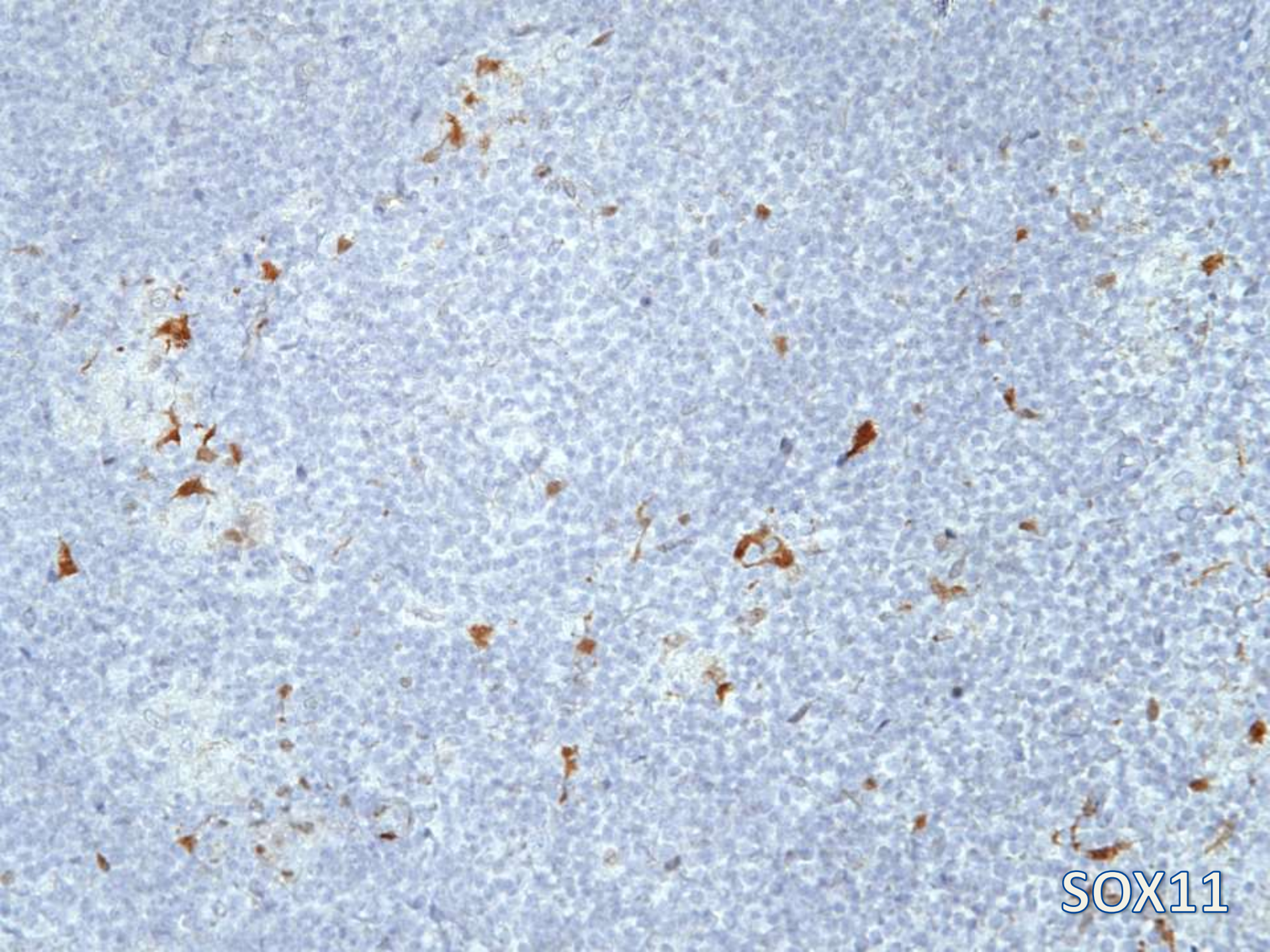



CD20

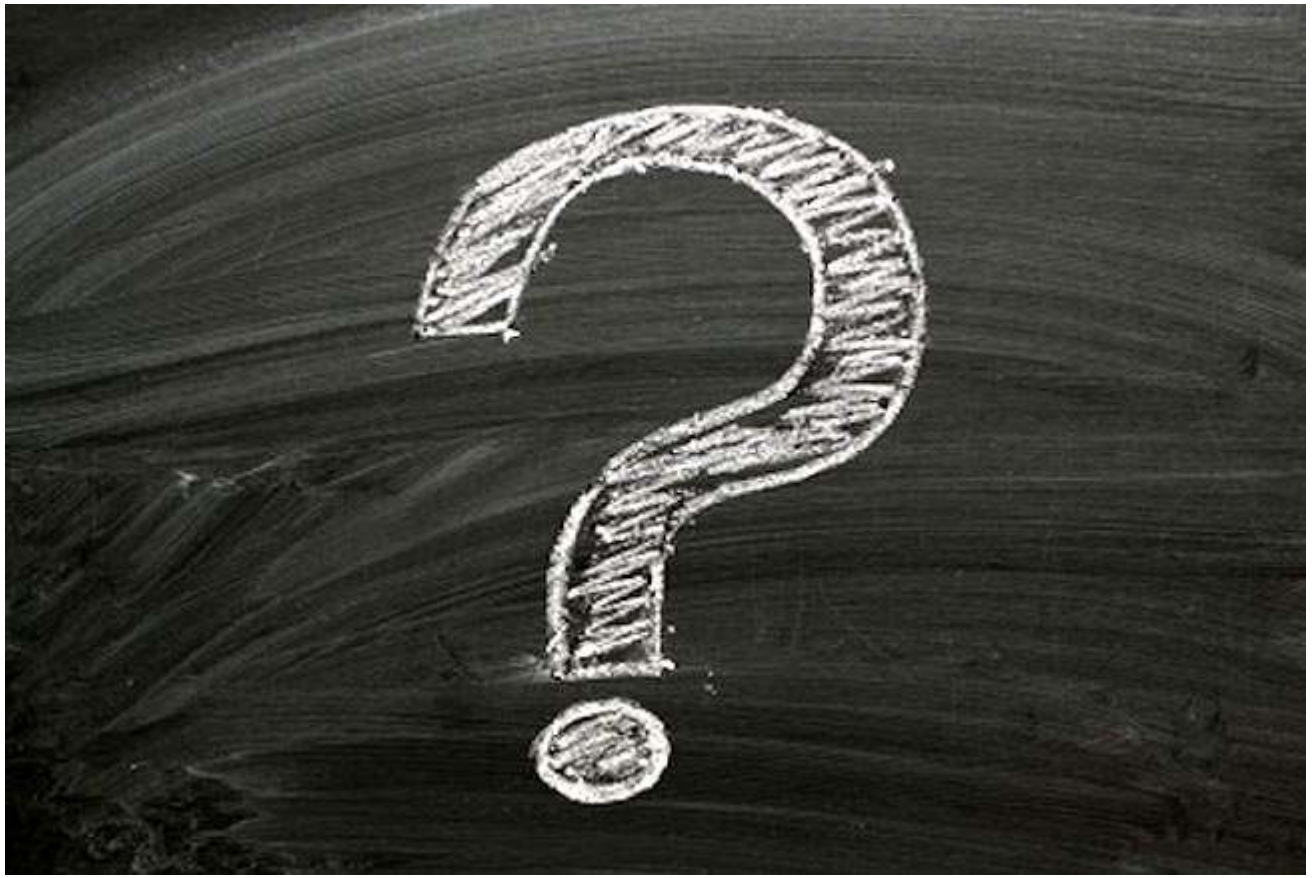

CD5

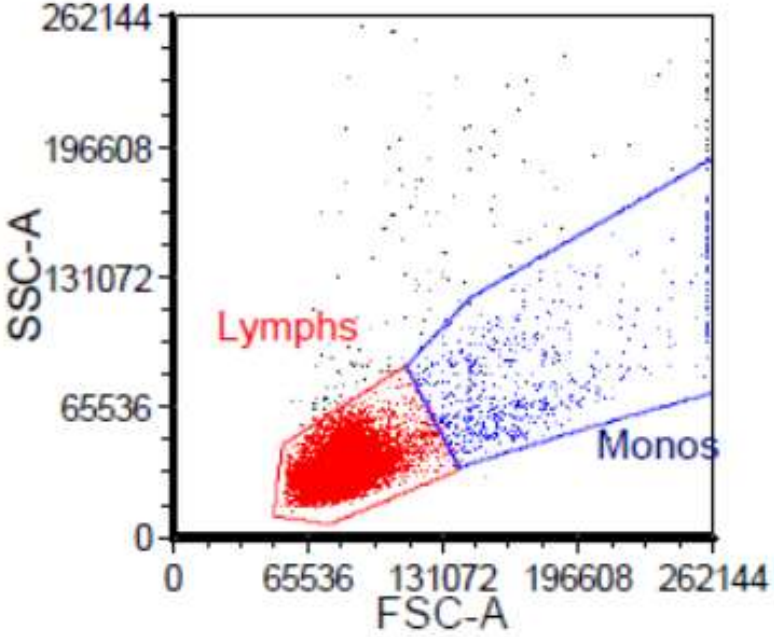

CD23

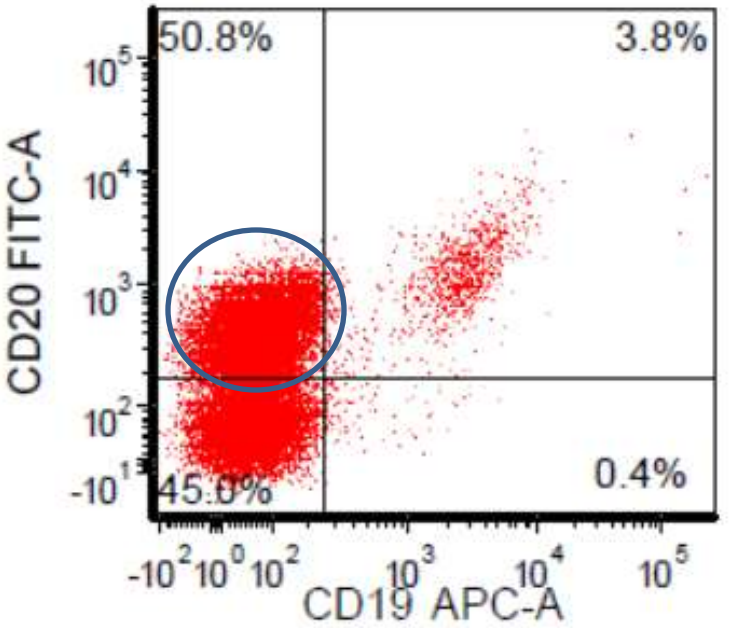

BCL1

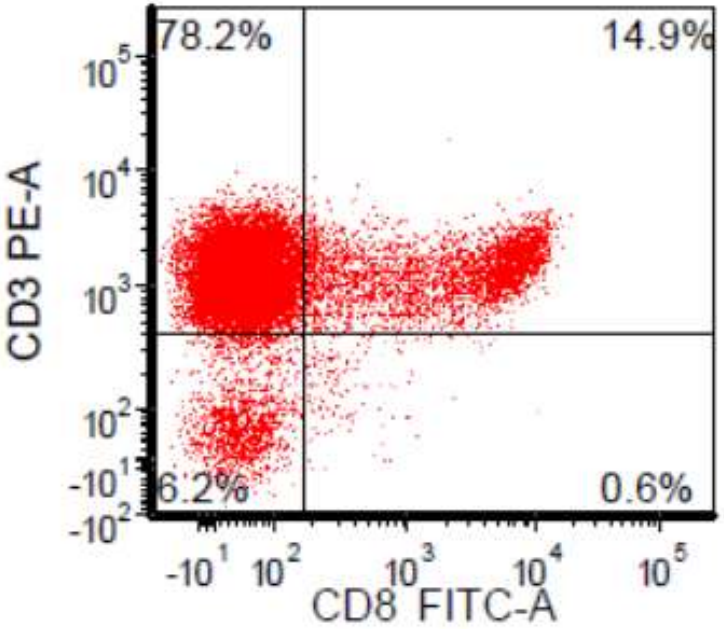

SOX11

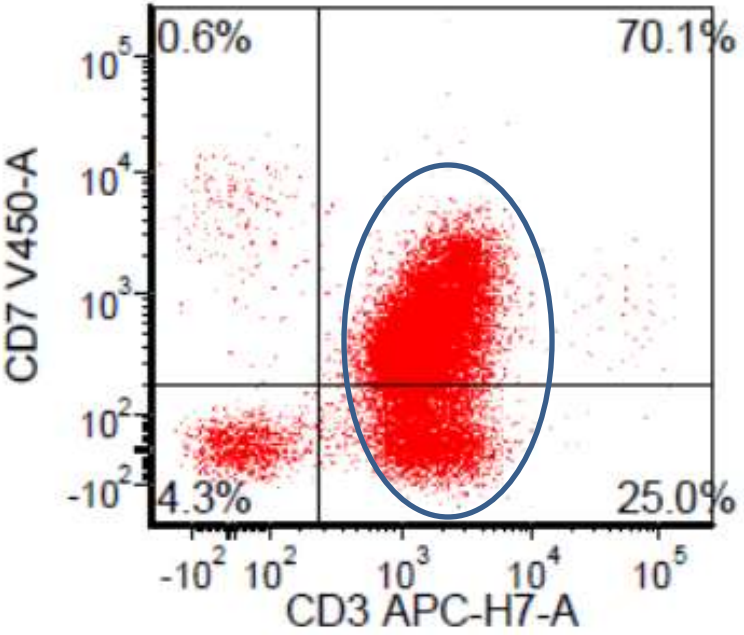
DIAGNOSIS?




262144
196608
131072
65536
0
SSC-A
Lymphs
Monos
0
65536
131072
196608
262144
FSC-A


50.8%
3.8%
45.0%
0.4%
CD20 FITC-A
CD19 APC-A


78.2%
14.9%
6.2%
0.6%
CD3 PE-A
CD8 FITC-A


0.6%
70.1%
4.3%
25.0%
CD7 V450-A
CD3 APC-H7-A

Can normal or reactive T-cells have CD20 expression - PB

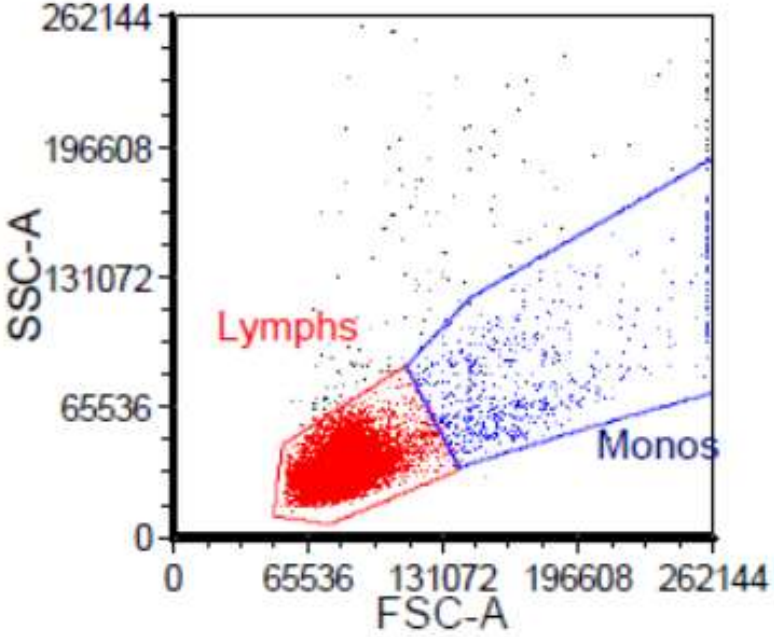
	Peripheral blood $CD3^+CD20^{dim}$ T cells (mean ± SD, range)		
	Number ($\times 10^9$/l)	% among lymphocytes	% among $CD3^+$ cells
Untreated MM	0·102 ± 0·054*	5·8 ± 2·9**	8·5 ± 4·3**
(65 ± 13)	0·020–0·24	1·2–11·5	1·8–17·18
Previously treated MM	0·034 ± 0·018†	1·8 ± 1·0*†	2·7 ± 1·3*†
(64 ± 11)	0·003–0·06	0·12–3·1	0·2–5·7
MGUS	0·086 ± 0·082	4·2 ± 3·3	6·5 ± 4·8*
(69 ± 13)	0·01–0·3	0·5–10·7	0·7–16·6
Connective tissue diseases	0·055 ± 0·052	3·3 ± 1·9	4·5 ± 2·6
(54 ± 14)	0·007–0·2	0·7–6·8	1·1–9·2
HIV infection	0·040 ± 0·035	1·9 ± 0·9	2·1 ± 1·1
(35 ± 8)	0·008–0·014	0·7–3·1	0·6–3·5
Healthy elderly subjects	0·055 ± 0·043	2·6 ± 1·1	3·8 ± 1·7
(70 ± 14)	0·01–0·2	0·7–3·9	1·0–6·0
Healthy young subjects	0·058 ± 0·039	2·8 ± 0·9	3·7 ± 1·5
(29 ± 6)	0·01–0·017	0·7–4·1	0·8–5·5

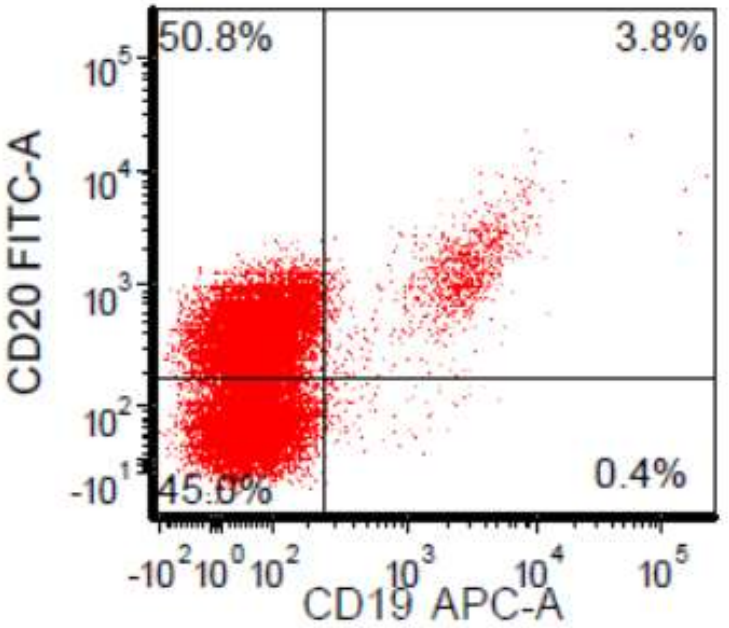
Katapodis et al. 2003

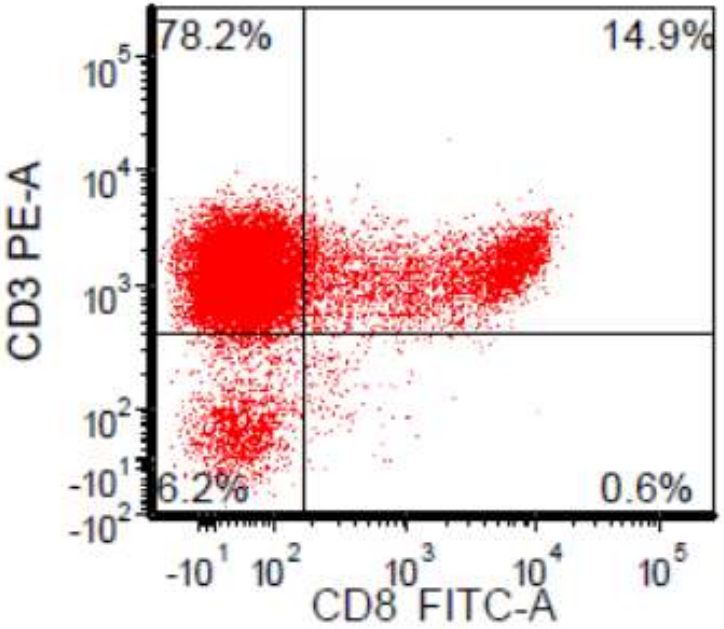
Can normal or reactive T-cells have CD20 expression – Bone marrow

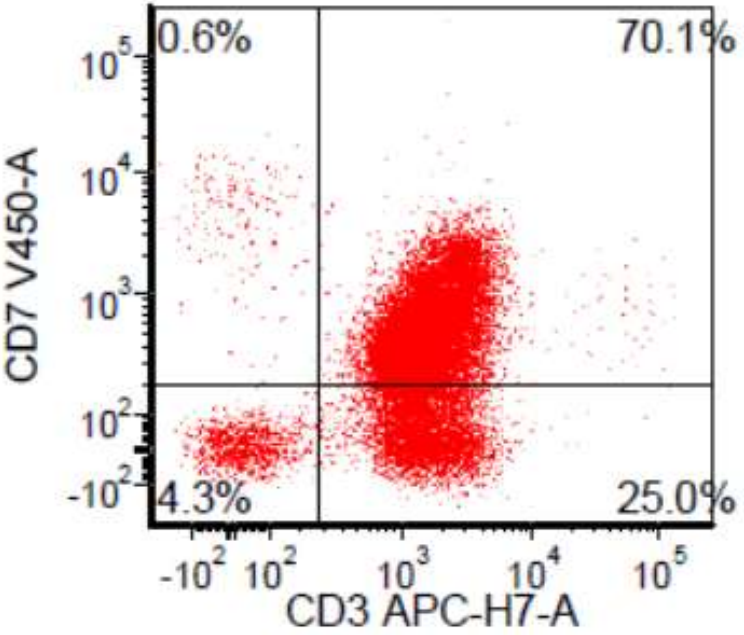
- 34 BMA (14 normal, 5 ALL, 5 AML, 4 HIV positive, 2 MDS/MPN, 2 CML, 1 CLL, 1 MM)
  - CD20 dim T-cells account for:
    - 1.77% of all mononuclear cells (range 0-11%)
    - 6.54% of marrow lymphoid cells (0-22.2%)

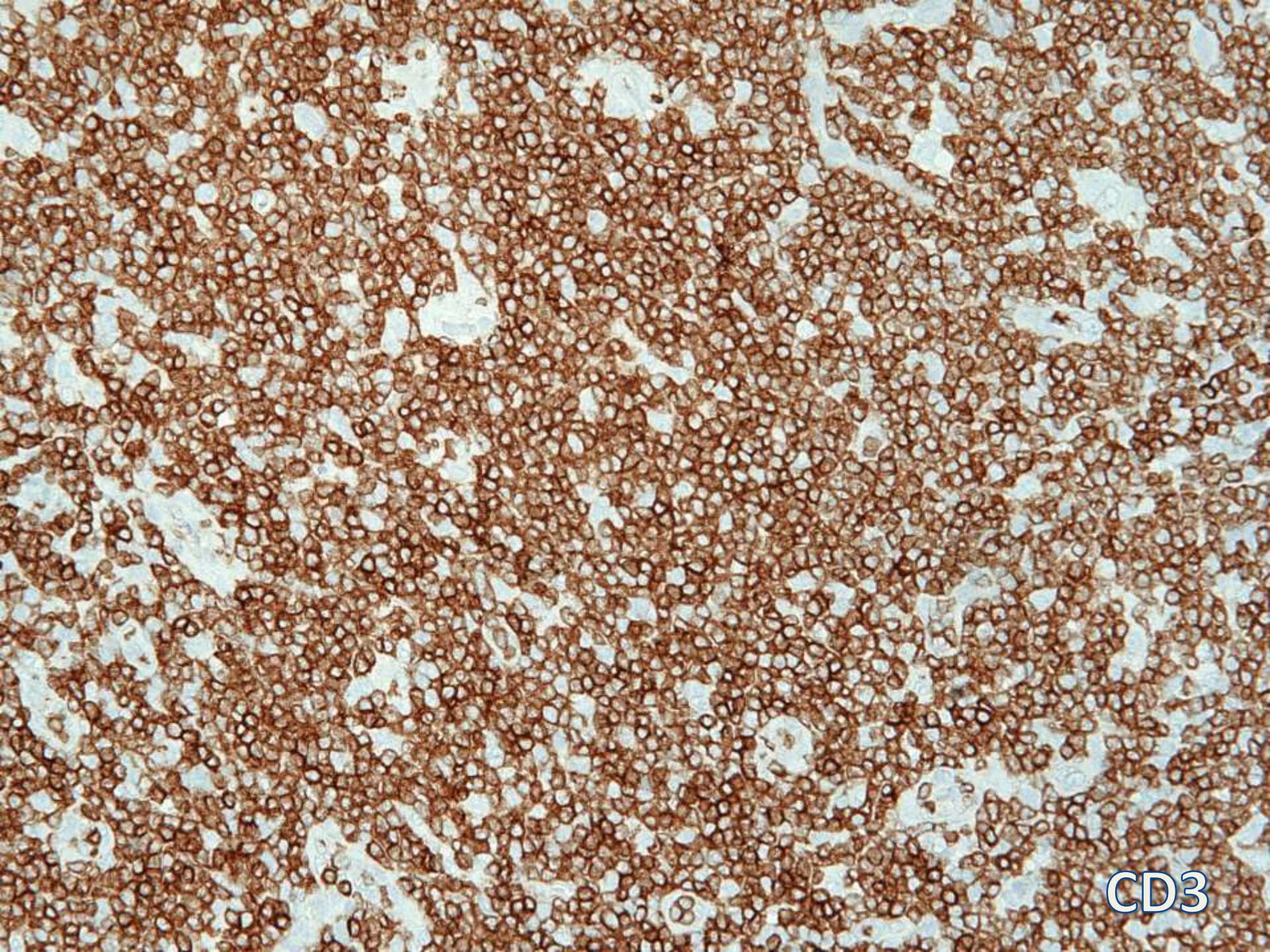
Algino el al. 1996

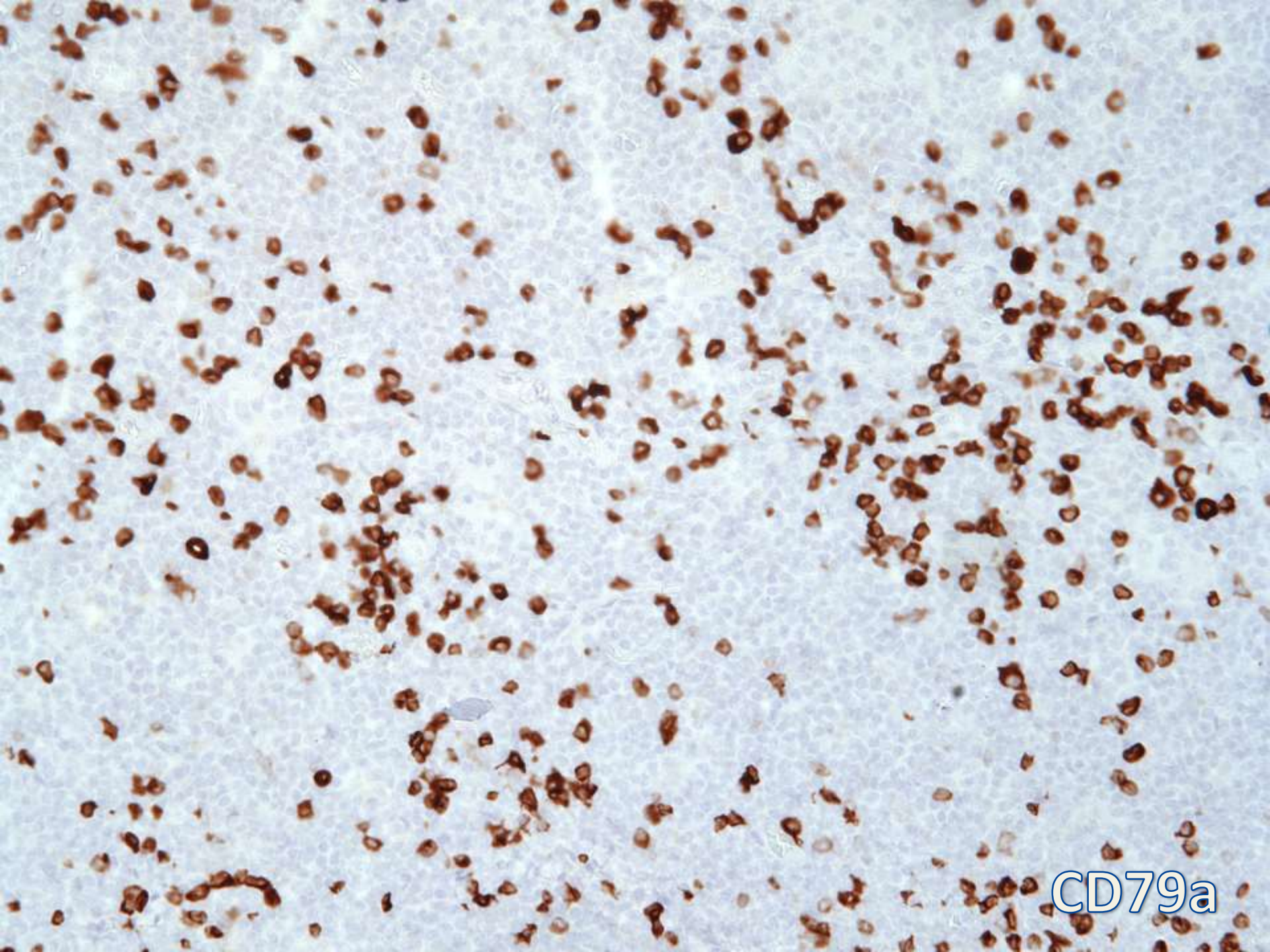

262144
196608
131072
65536
0
SSC-A
Lymphs
Monos
0
65536
131072
196608
262144
FSC-A


50.8%
3.8%
45.0%
0.4%
CD20 FITC-A
CD19 APC-A


78.2%
14.9%
6.2%
0.6%
CD3 PE-A
CD8 FITC-A


0.6%
70.1%
4.3%
25.0%
CD7 V450-A
CD3 APC-H7-A


CD3


CD79a

Additional studies:

- Immunohistochemistry:
  - T-follicular helper
    - PD1 weak focal
    - CD21, CD10 negative
  - Cytotoxic
    - Granzyme weak focal
    - TIA1, perforin, CD56 negative

- EBV ISH: scattered positive cells
- PCR shows clonal TCR beta and IgH gene arrangements

Diagnosis

LYMPH NODE, LEFT AXILLARY, EXCISIONAL BIOPSY

-- PERIPHERAL T-CELL LYMPHOMA, NOT OTHERWISE SPECIFIED, WITH ABERRANT CD20 EXPRESSION

CD20 Positive T-cell lymphomas

- Extremely rare entity
- Recent review of the literature (40 cases)
  - PTCL, NOS (n=25)
  - T lymphocytic leukemia (n=7)
  - MF (n=3)
  - NK/T cell lymphoma (n=3)
  - AITL (n=1)
  - EATL (n=1)
- Most patients are elderly males (age range 3-84)

Jiang et al. Diag Path. (2012)

Clinical Course?

Variable clinical course – some indolent, some very aggressive

- Case series of 9 cases, 8 had clinical follow-up
- 5 of the 8 patients had an aggressive course – median survival 11 months.
- 1 patient developed an EBV+ B cell lymphoma, died at 66 months
- 2 patients alive at 4 and 18 months

Rahemtullah et al. (2008)

Rituximab Therapy?

- Five cases of CD20 positive PTCL treated with Rituximab
  - One patient died of tumor lysis syndrome
  - Two patients relapsed 8 and 10 months after treatment
  - Two patients tolerated treatment and were alive after 4 and 12 months treatment

Rahemtullah et al. (2008)

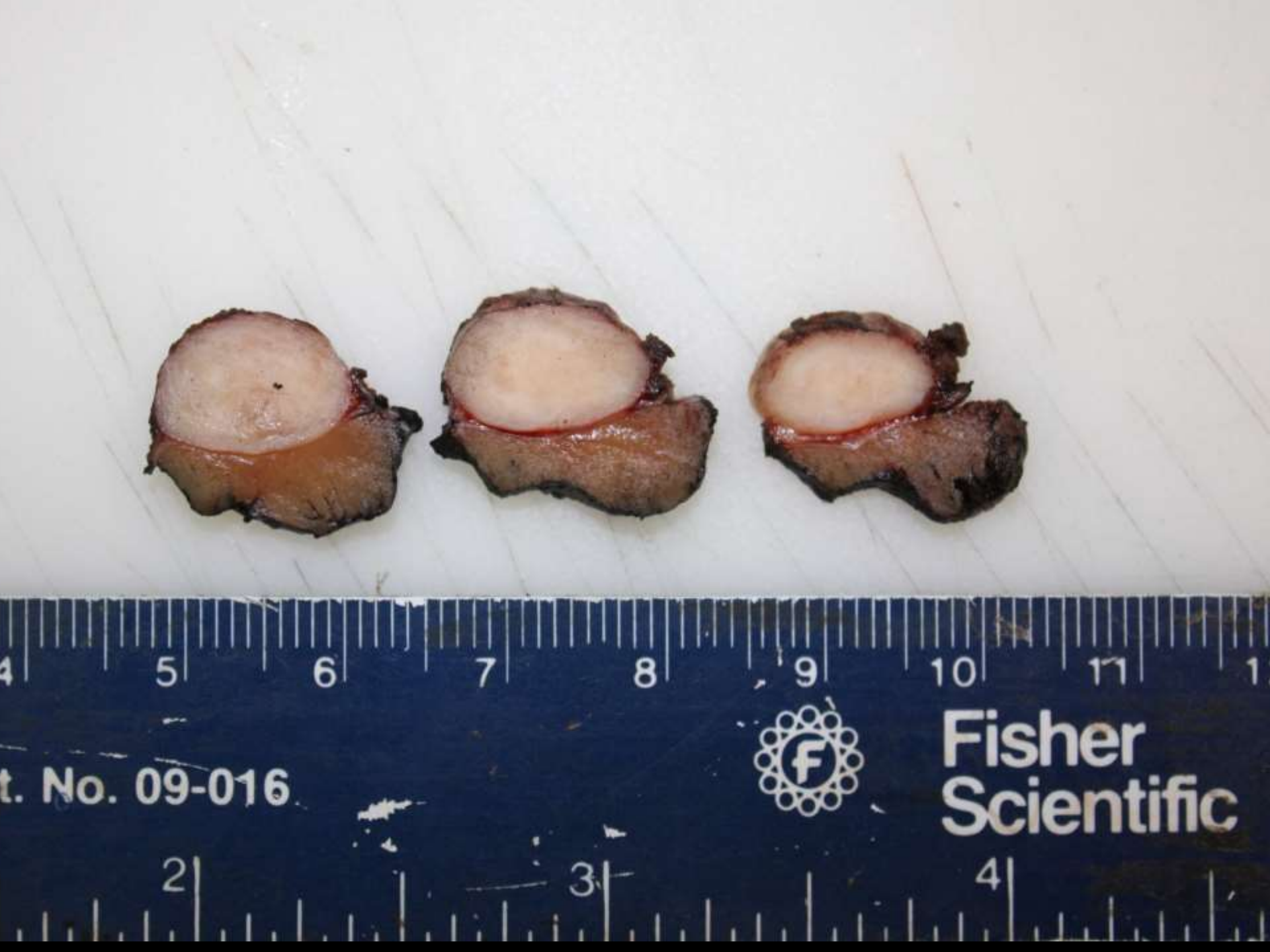
References:

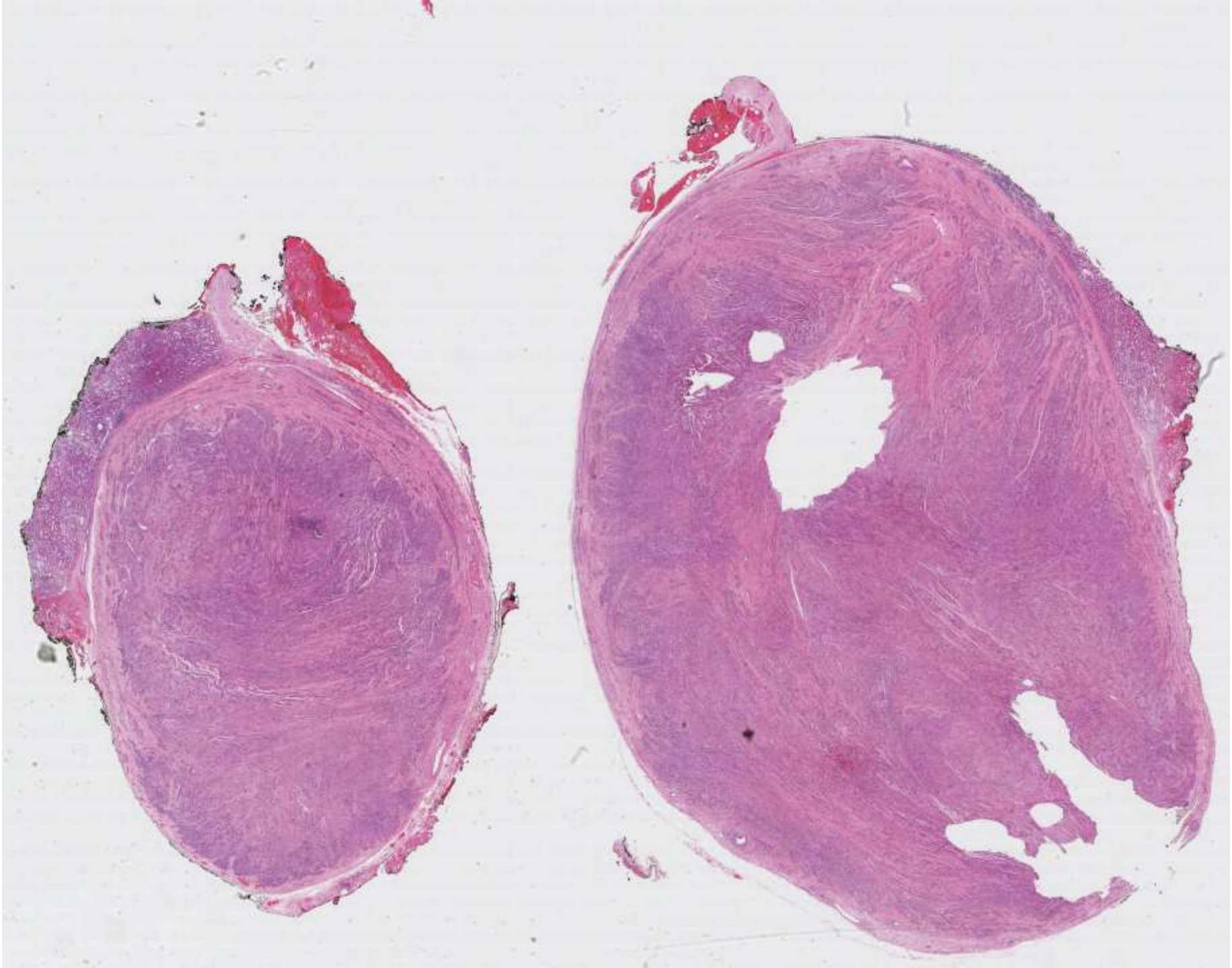
1. Hultin LE, Hausner MA, Hultin PM, Giorgi JV. CD20 (Pan-B cell) Antigen is Expressed at a Low Level on a Subpopulation of Human T lymphocytes. Cytometry 14:196-204.
2. Sandilands GP, Perry M, Wootton M, Hair J, More IA: B-cell antigens within normal and activated human T cells. Immunology 1999, 96:424-433.
3. Katopodis O, Liossis Stamatis-Nick, Vassilios V, et al. Expansion of CD8+ T-cells that express low levels of B cell-specfic molecule CD20 in patients with multiple myeloma. British Journal of Haematology. 2003; 120: 478-481.
4. Eggleton P, Bremer E, Tarr JM, et al. Frequency of Th17 CD20+ cells in the peripheral blood of rheumatoid arthritis patients is higher compared to healthy subjects. Arthritis Research & Therapy. 2001; 13:R208.
5. Forster F, Singla A, Arora SK, et al. CD20+ T cell numbers are decreased in untreated HIV-1 patients and recover after HAART. Immunology Letters. 2012; 146:74-78
6. Algino KM, Thomason RW, King DE, et al. CD20 (pan-B cell antigen) expression on bone marrow-derived T-cells. AJCP. 1996; 106(1):78-81.
7. Jiang QP, Liu SY, Yang YX, et al. CD20-positive NK/T-cell lymphoma with indolent clinical course: report of case and review of literature. *Diagn Pathol* 2012; **7**: 133.
8. Rahemtullah A, Longtine JA, Harris NL, et al. CD20+ T-cell lymphoma: clinicopathologic analysis of 9 cases and a review of the literature. *Am J Surg Pathol* 2008; **32**: 1593.

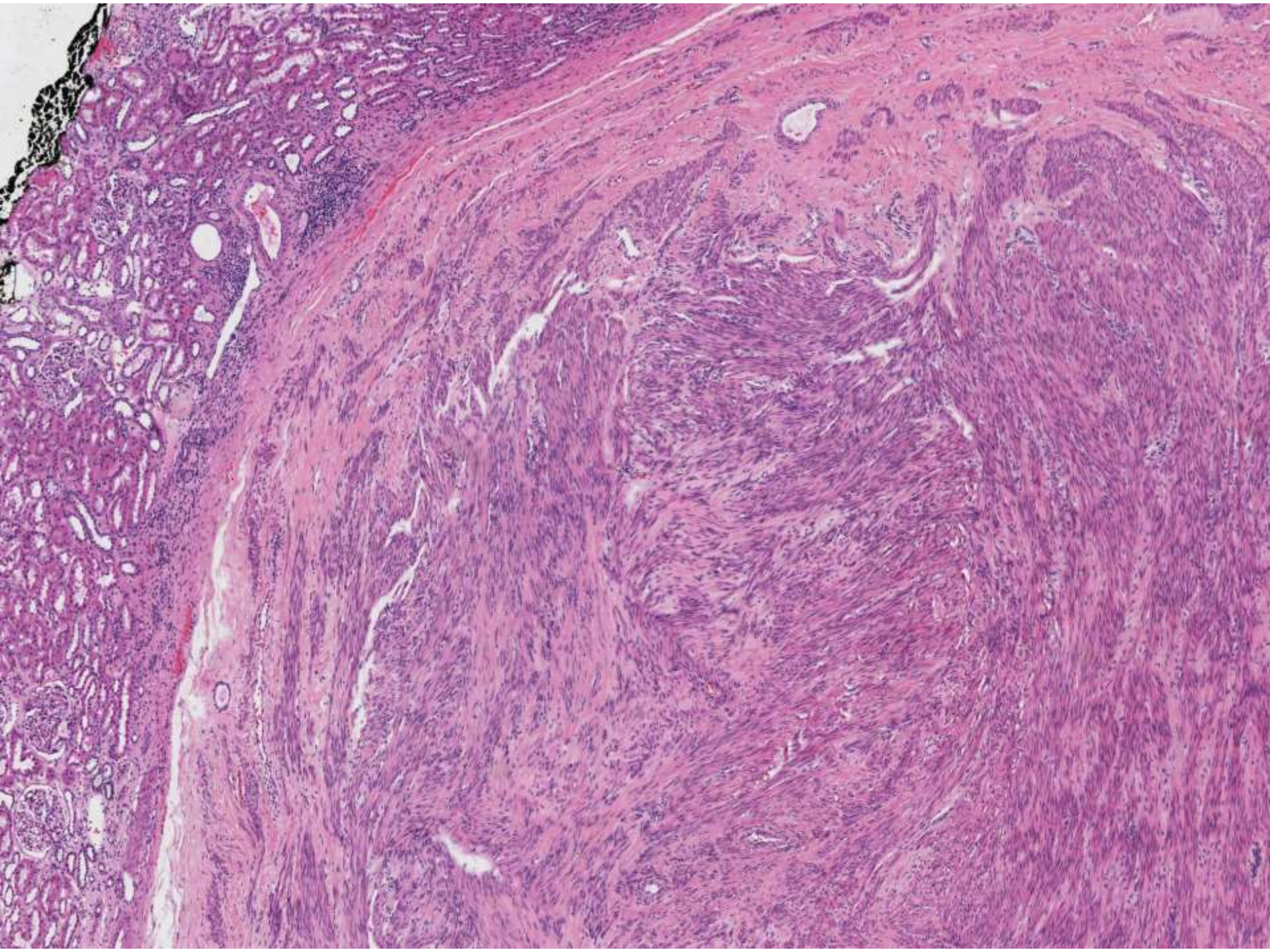
SB 6019

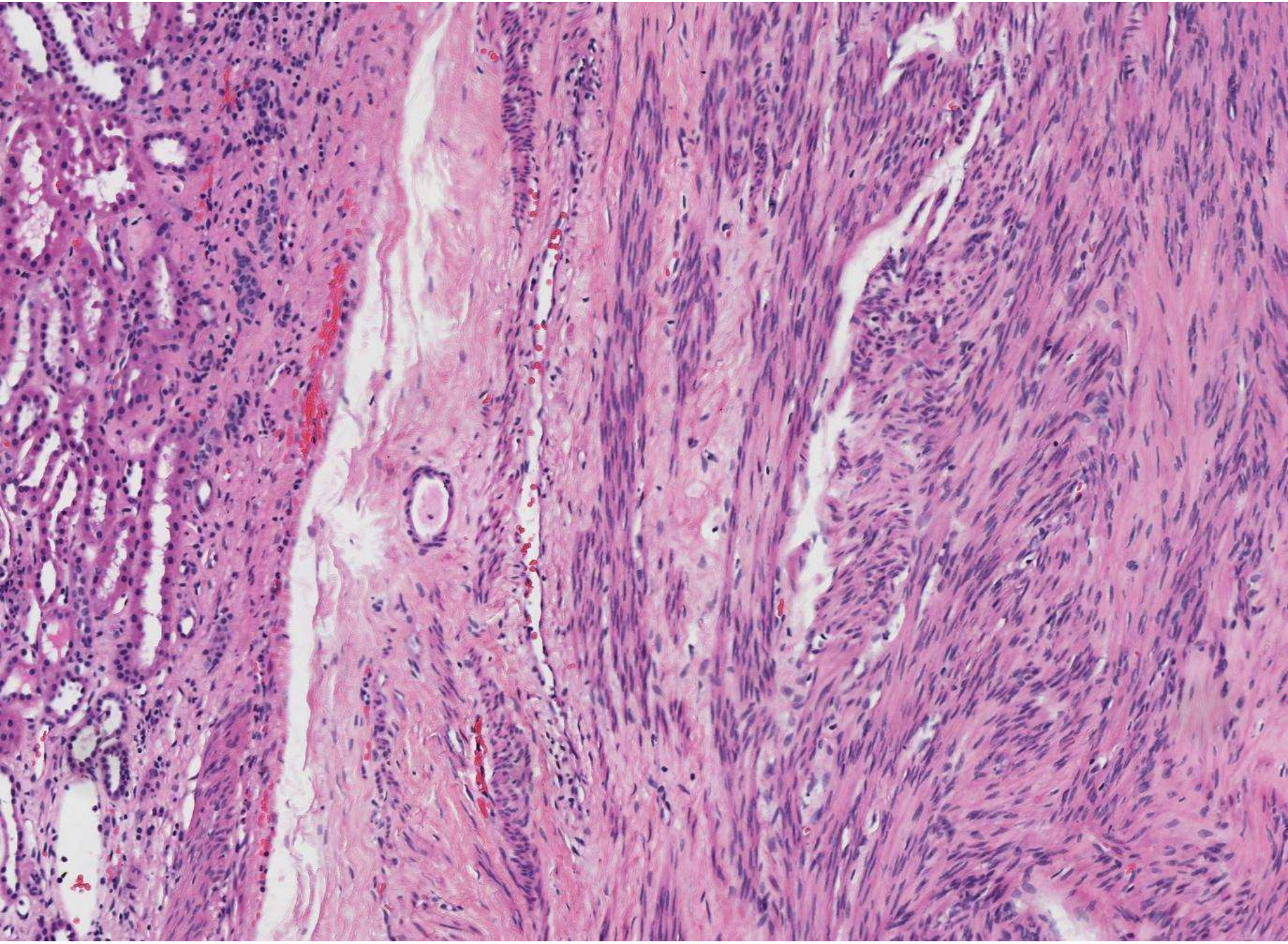
Ankur Sangoi; El Camino Hospital

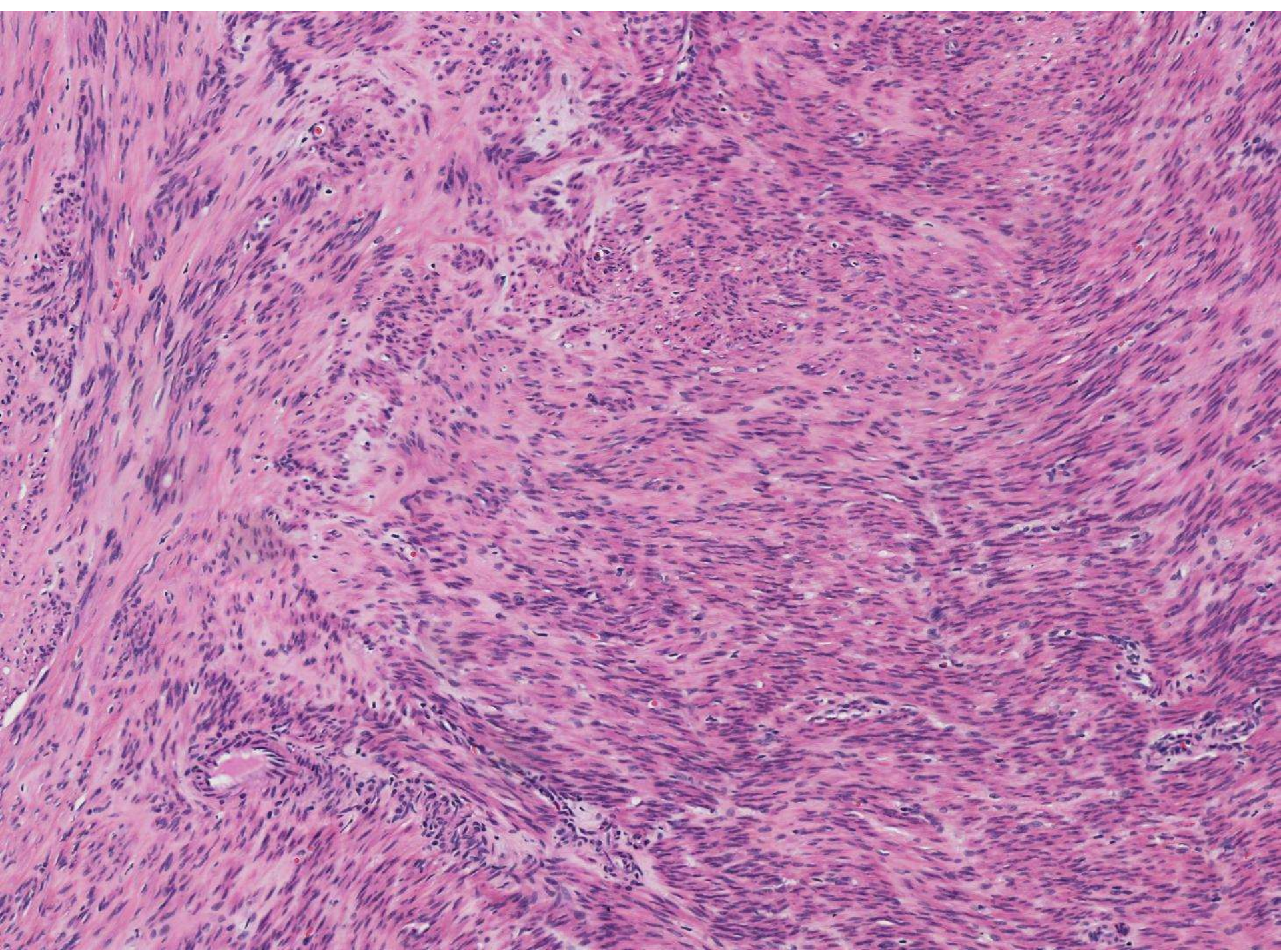
Middle-aged female with incidentally-identified renal mass, excised.

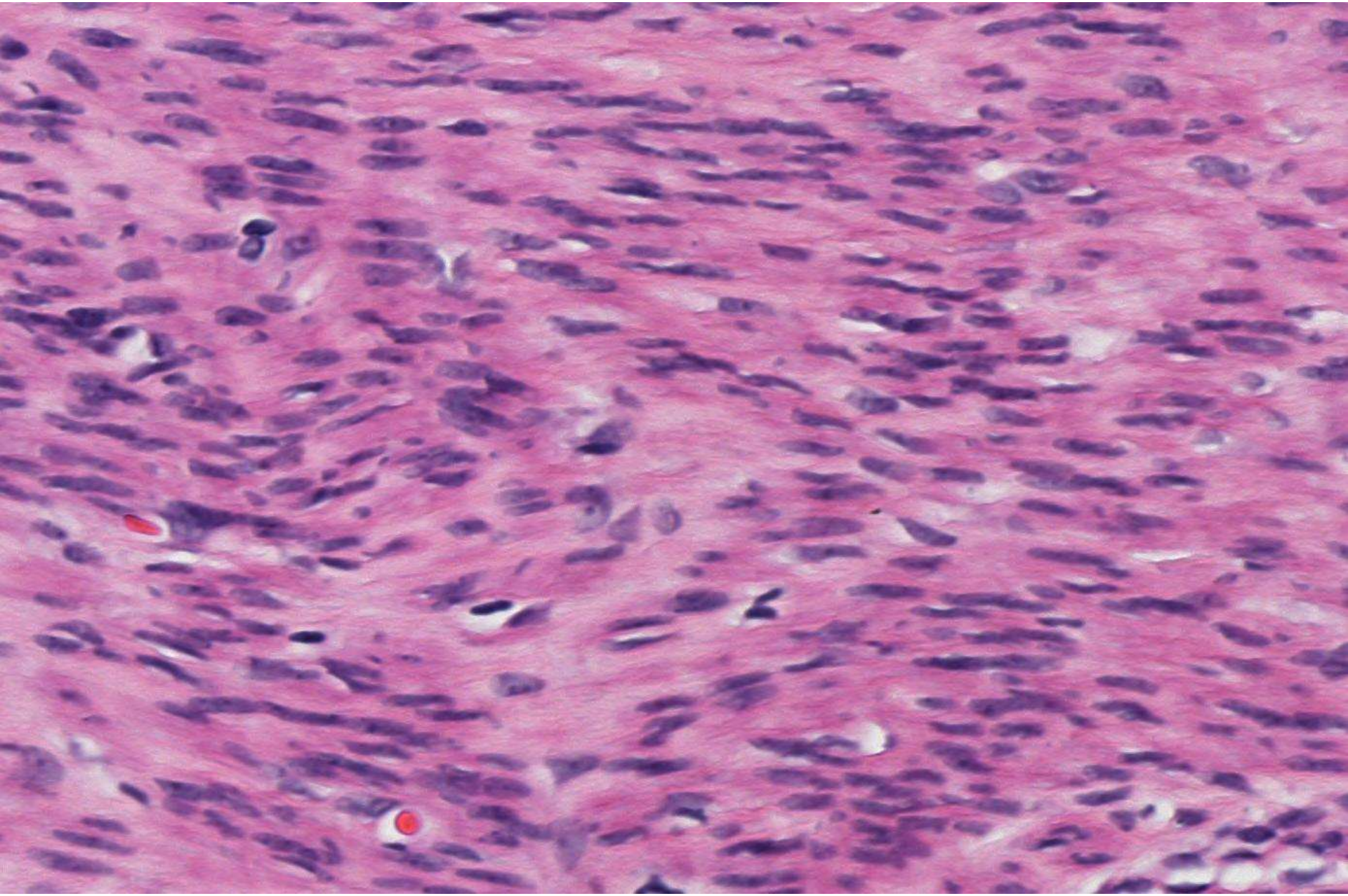

5
6
7
8
9
10
t. No. 09-016
Fisher
Scientific
2
3
4











DIAGNOSIS?

DDx

- Leiomyoma
- PEComa (sclerosing)
- Angiomyolipoma (lipid-poor)

IHC stains

- **POSITIVE**
  - Desmin
  - ER
- **NEGATIVE**
  - HMB45
  - melanA
  - CathepsinK

Renal Leiomyoma

A Contemporary Multi-institution Study of an Infrequent and Frequently Misclassified Neoplasm

Pallavi A. Patil, MD, Jesse K. McKenney, MD,* Kiril Trpkov, MD,† Ondrej Hes, MD,‡ Rodolfo Montironi, MD,§ Marina Scarpelli, MD,§ Gabriella Nesi, MD,‖ Manju Aron, MD,¶ Ankur R. Sangoi, MD,# Paolo Gattuso, MD,** and Cristina Magi-Galluzzi, MD, PhD**

Am J Surg Pathol • Volume 39, Number 3, March 2015

Renal Leiomyoma: AJSP 2015

- **24 submitted cases of “renal leiomyoma”**
  - Most reclassified as either AML/sclerosing PEComa, myolipoma, or medullary fibroma
    - Using morphology and IHC
  - 9 remaining cases

Renal Leiomyoma: AJSP 2015

2. Clinicopathologic Features of Patients With Renal Leiomyoma

Age	Sex	Tumor Size (cm)	R/L Kidney	Tumor Location	HMB-45	Desmin	ER	PR	Cathepsin K
56	F	3.2	R	Pelvis	N	P	N	N	N
65	F	2.0	R	Capsule	N	P	P	P	N
58	F	7.0	R	Capsule	N	P	P	P	N
74	F	1.1	L	Capsule	N	P	P	P	N
62	F	1.4	L	Subcapsular	N	P	P	P	N
73	F	1.8	R	Capsule	N	P	P	P	N
44	F	0.6	Implant	Capsule	N	P	P	P	N
68	F	6.0	Unknown	Unknown	N	P	Focal	N	N
67	F	3.0	R	Subcapsular	N	P	N	N	N

Renal Leiomyoma: AJSP 2015

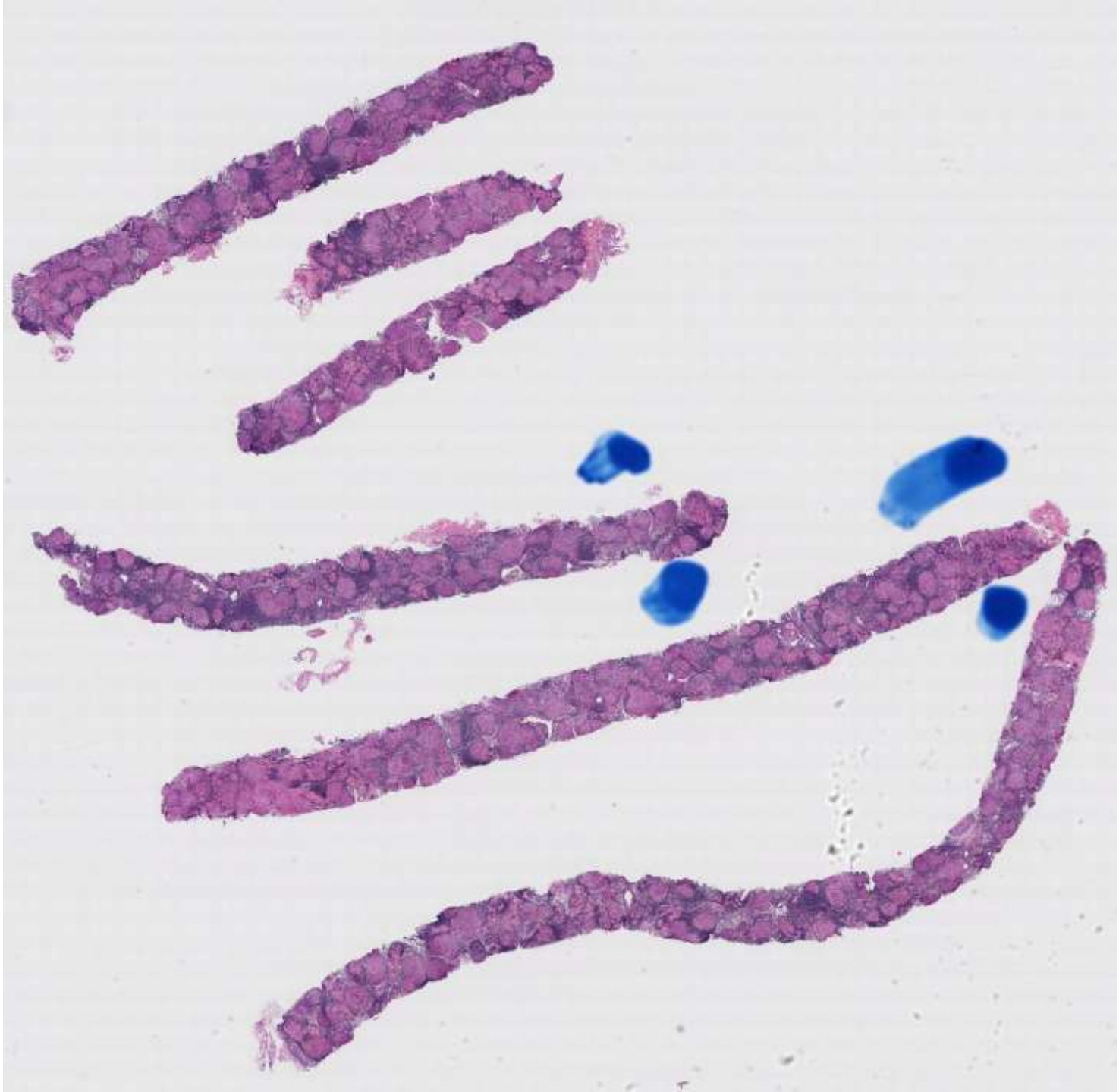
. Clinicopathologic Features of Patients With Renal Tumors Other Than Leiomyomas

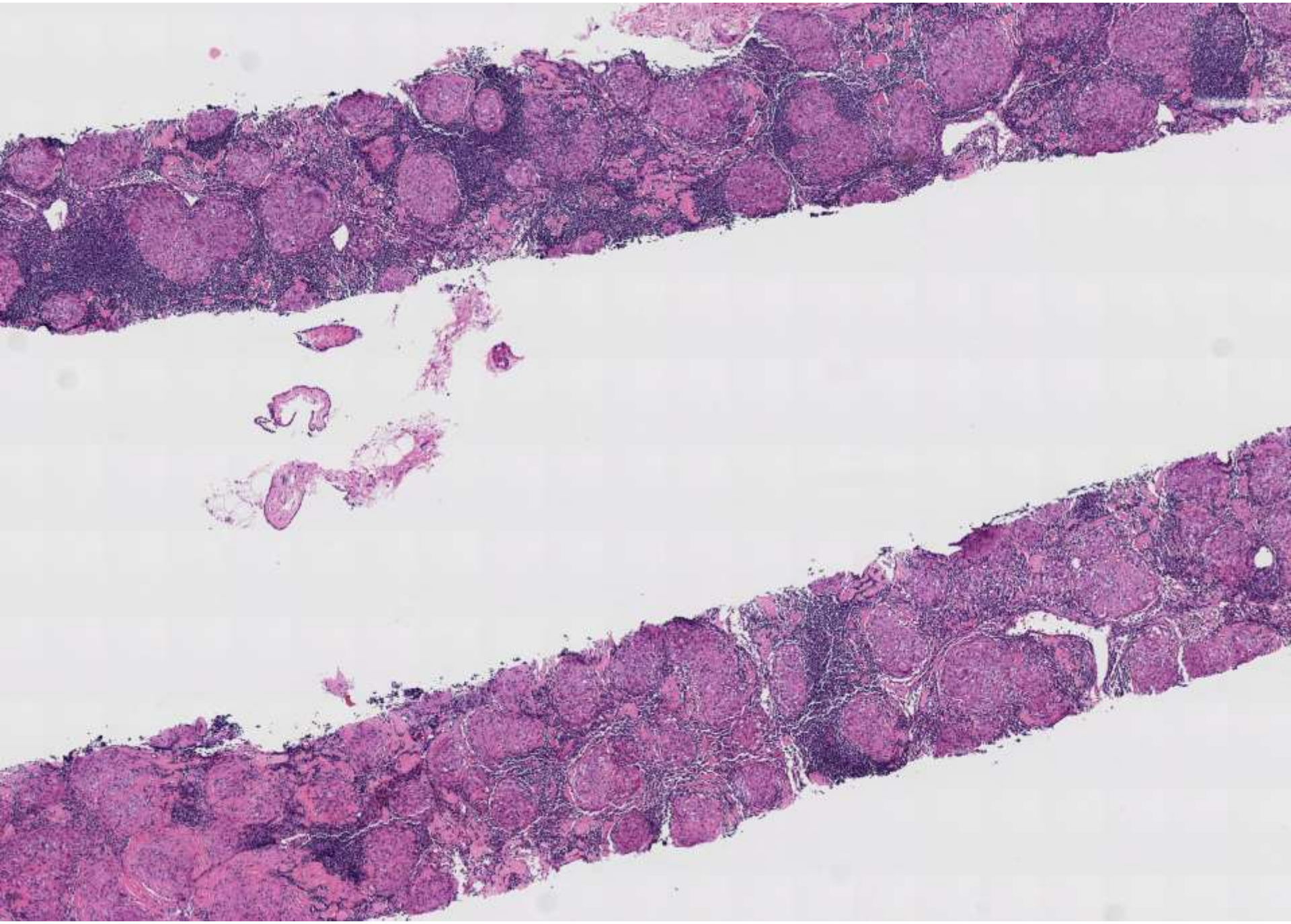
Diagnosis	Age	Sex	Size	R/L Kidney	HMB-45	Desmin	ER	PR	Cathepsin K
AML	81	F	0.6	L	N	P	Focal	N	P
AML	70	M	4.0	R	P	Focal	Focal	P	P
AML	29	M	1.8	R	NA	NA	NA	NA	NA
AML	34	F	3.0	R	NA	NA	NA	NA	NA
AML	60	F	Unknown	R	NA	NA	NA	NA	NA
AML	66	F	1.4	R	Focal	P	P	P	P
AML	64	F	0.2	R	N	P	P	P	P
AML	68	F	1.6	R	P	P	P	N	P
AML	52	F	2.3	L	P	P	P	N	P
AML	43	F	2.7	L	P	P	P	P	P
AML with sclerosis	75	M	2.4	L	P	P	P	Focal	P
AML with sclerosis	44	F	8.0	R	N	P	P	P	P
AML with sclerosis	49	F	2.2	L	Focal	P	P	N	P
Myolipoma	60	F	3.0	L	N	P	P	P	N
Medullary fibroma	53	F	0.4	L	N	P	P	P	N

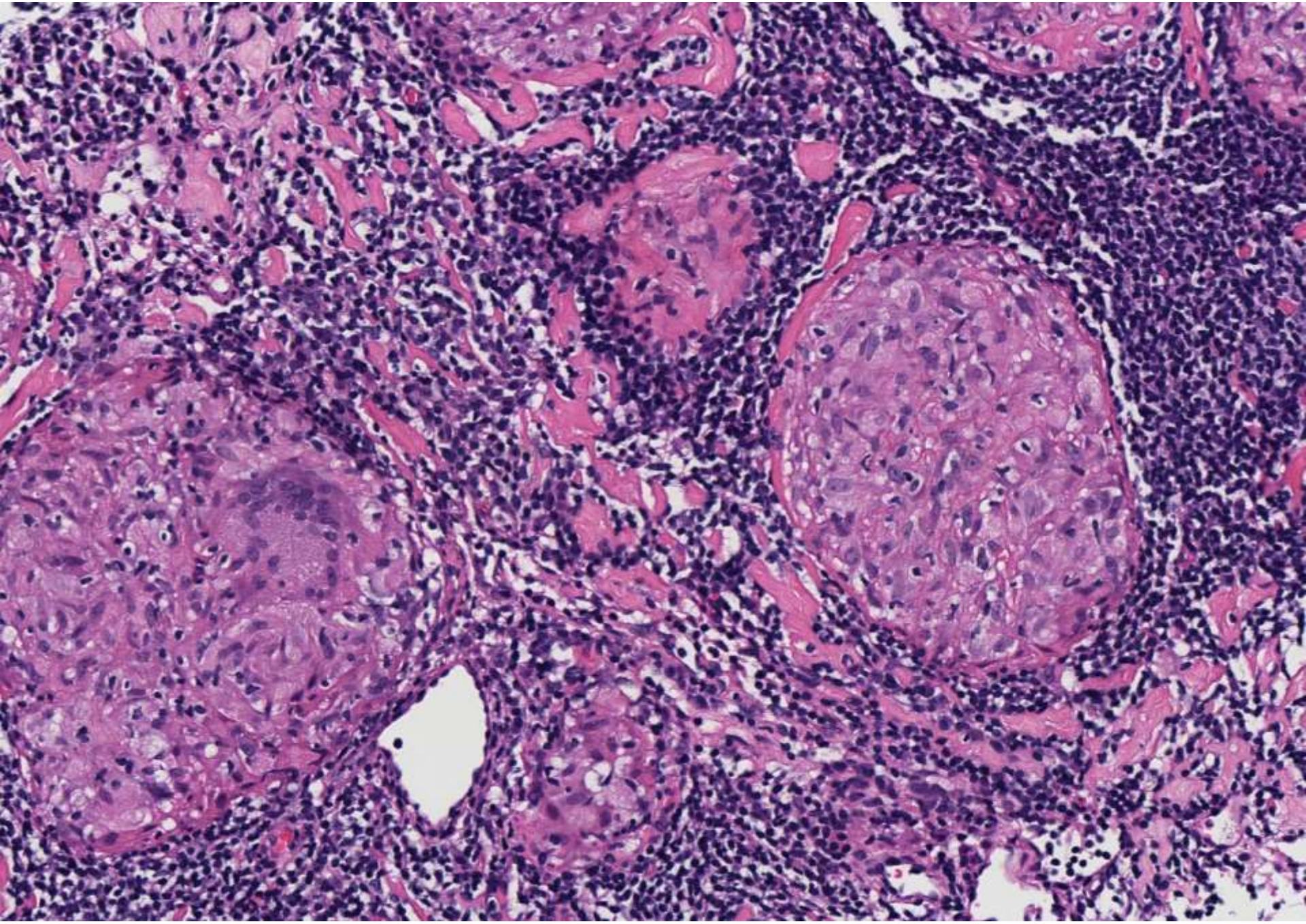
SB 6020

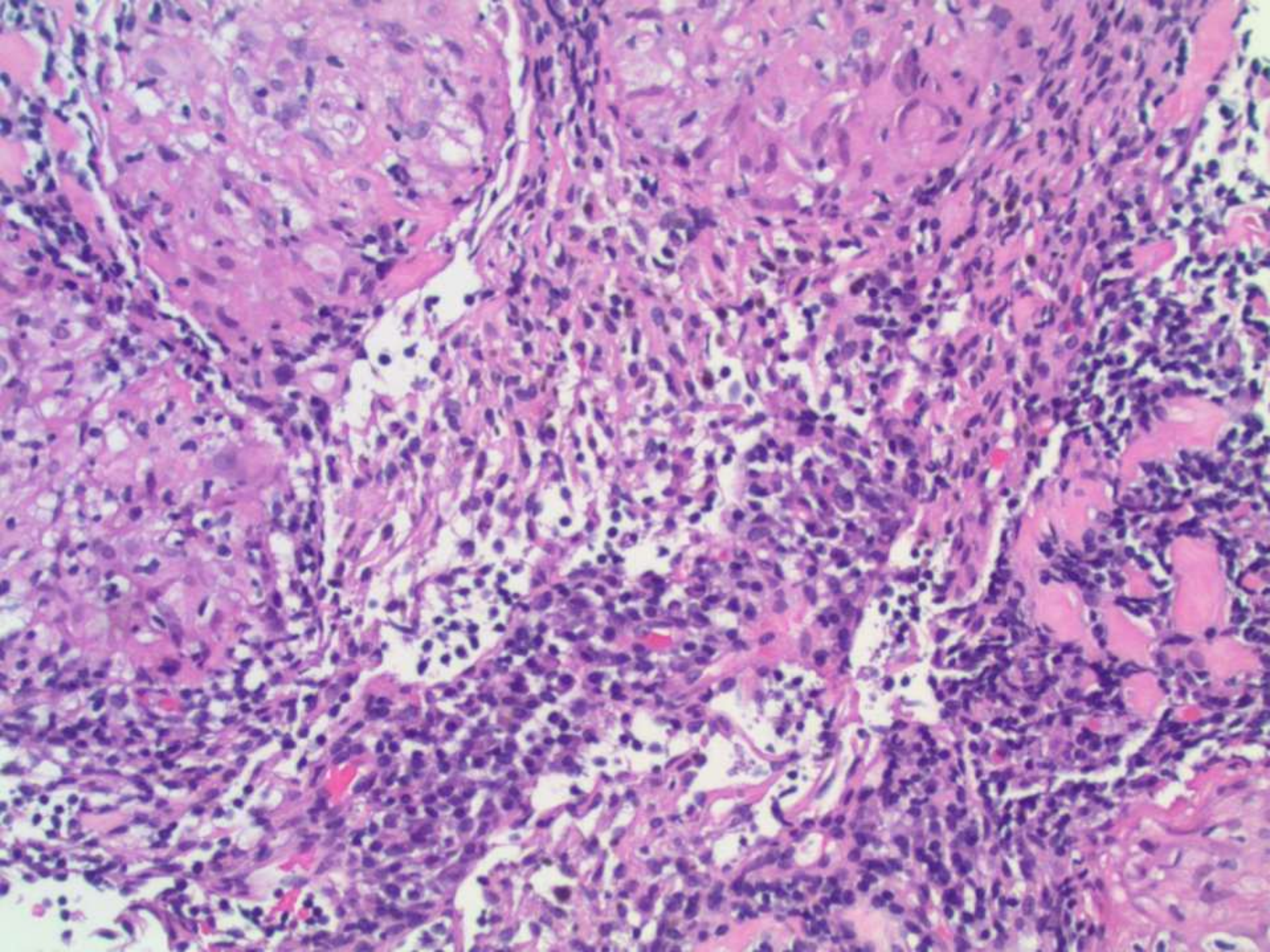
Ankur Sangoi; El Camino Hospital

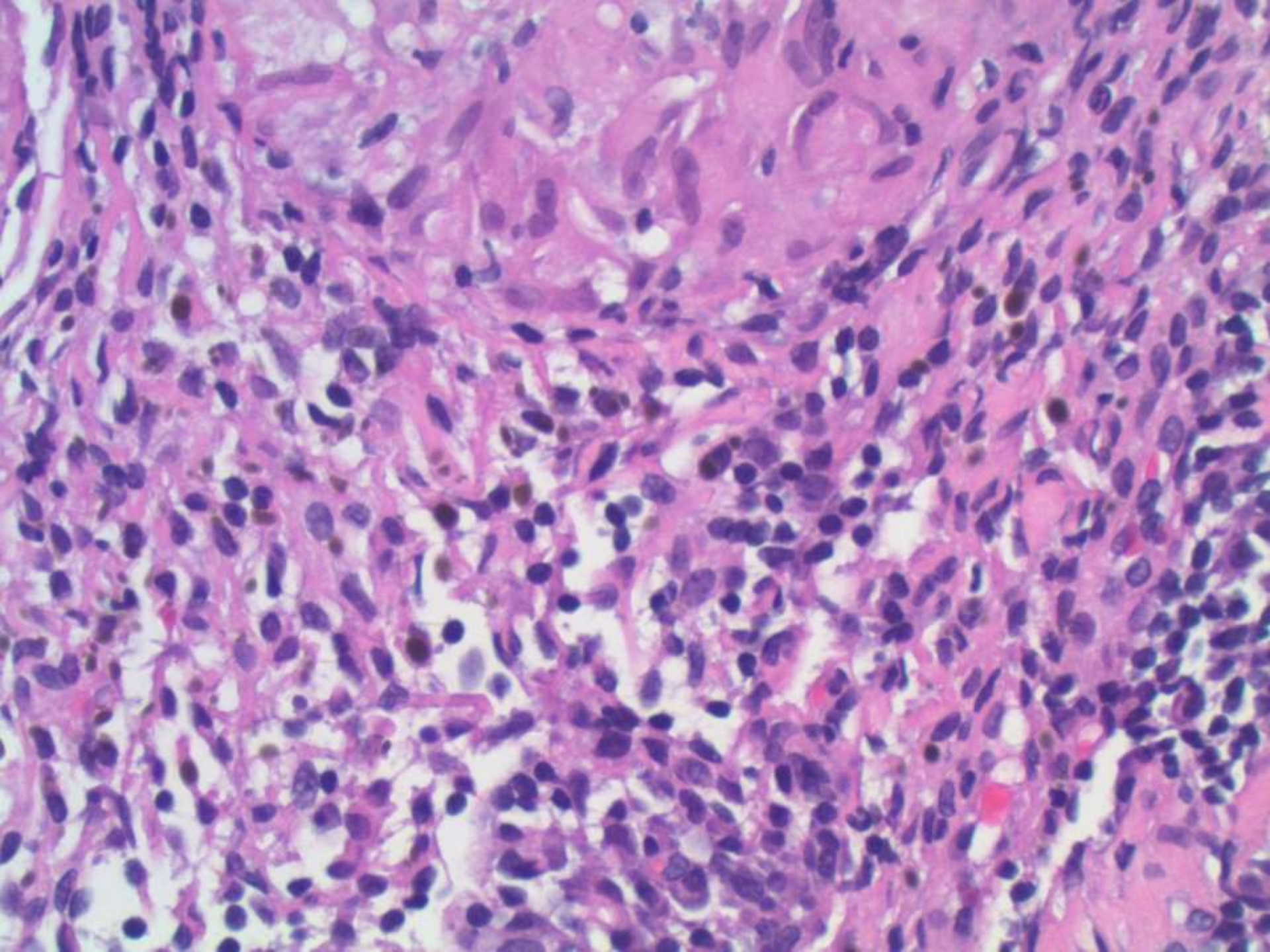
68-year-old female with recent history of appendiceal mucinous neoplasm. Now presents with mediastinal lymphadenopathy with clinical diagnosis of lymphoma.

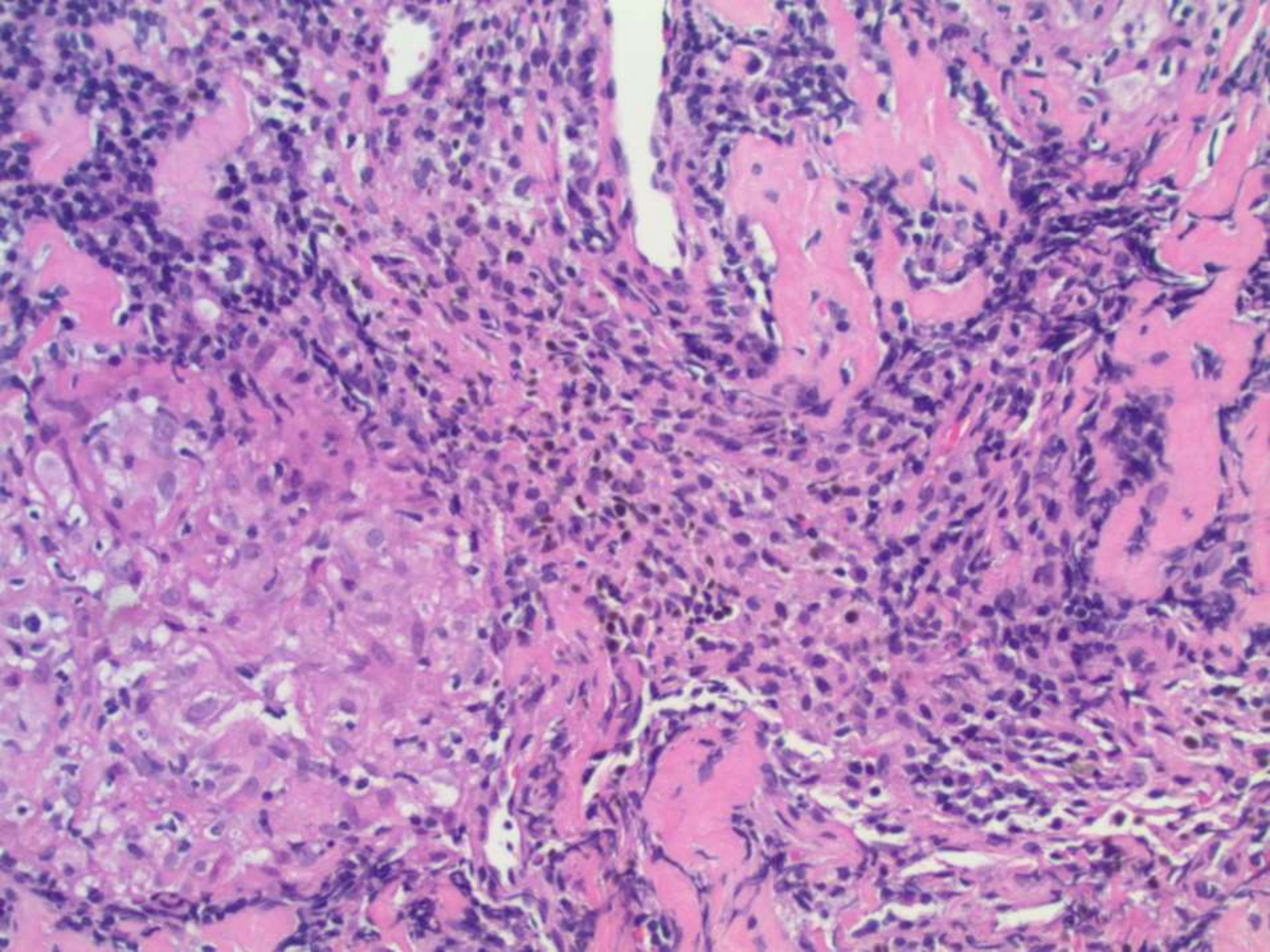


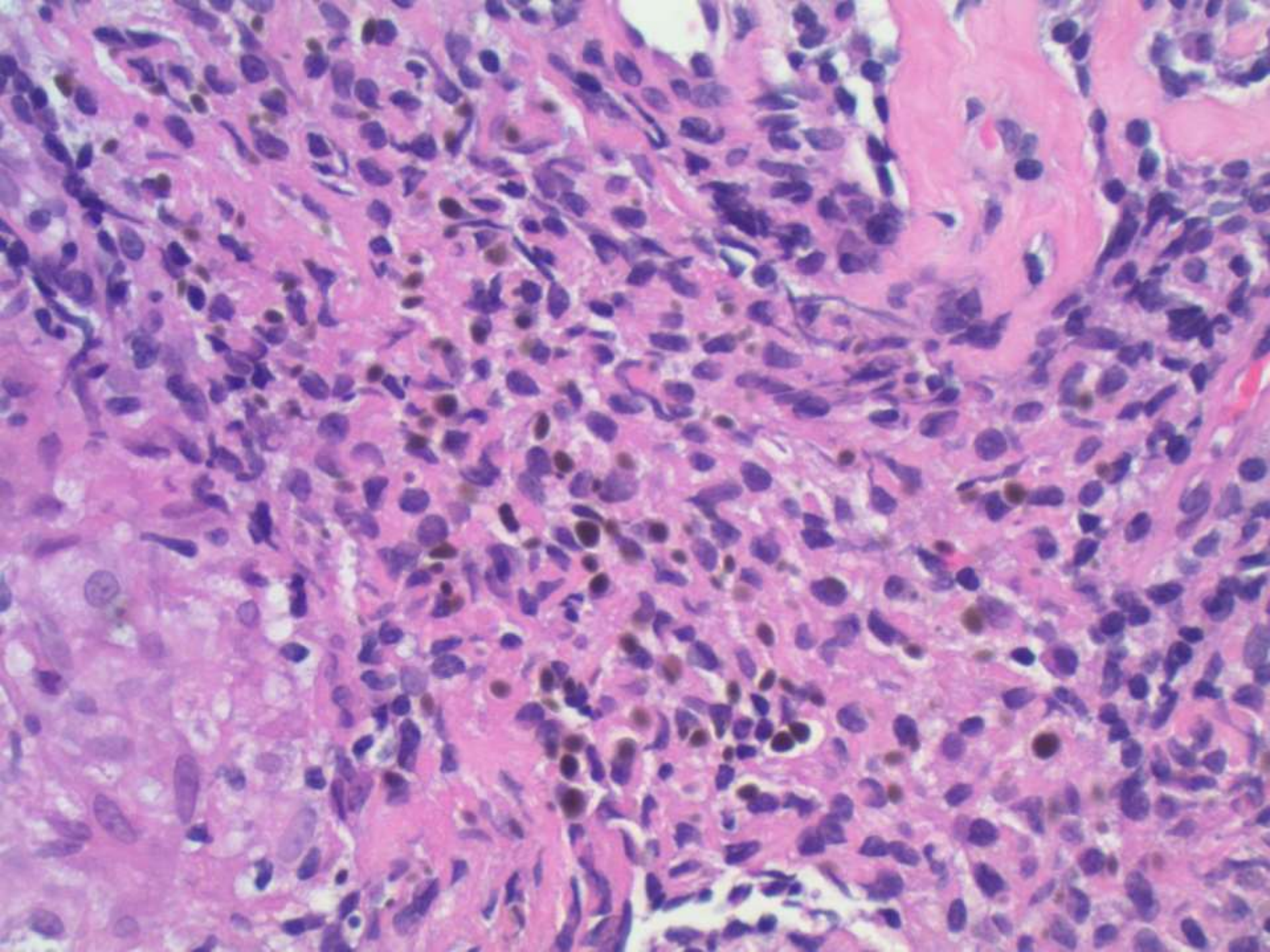


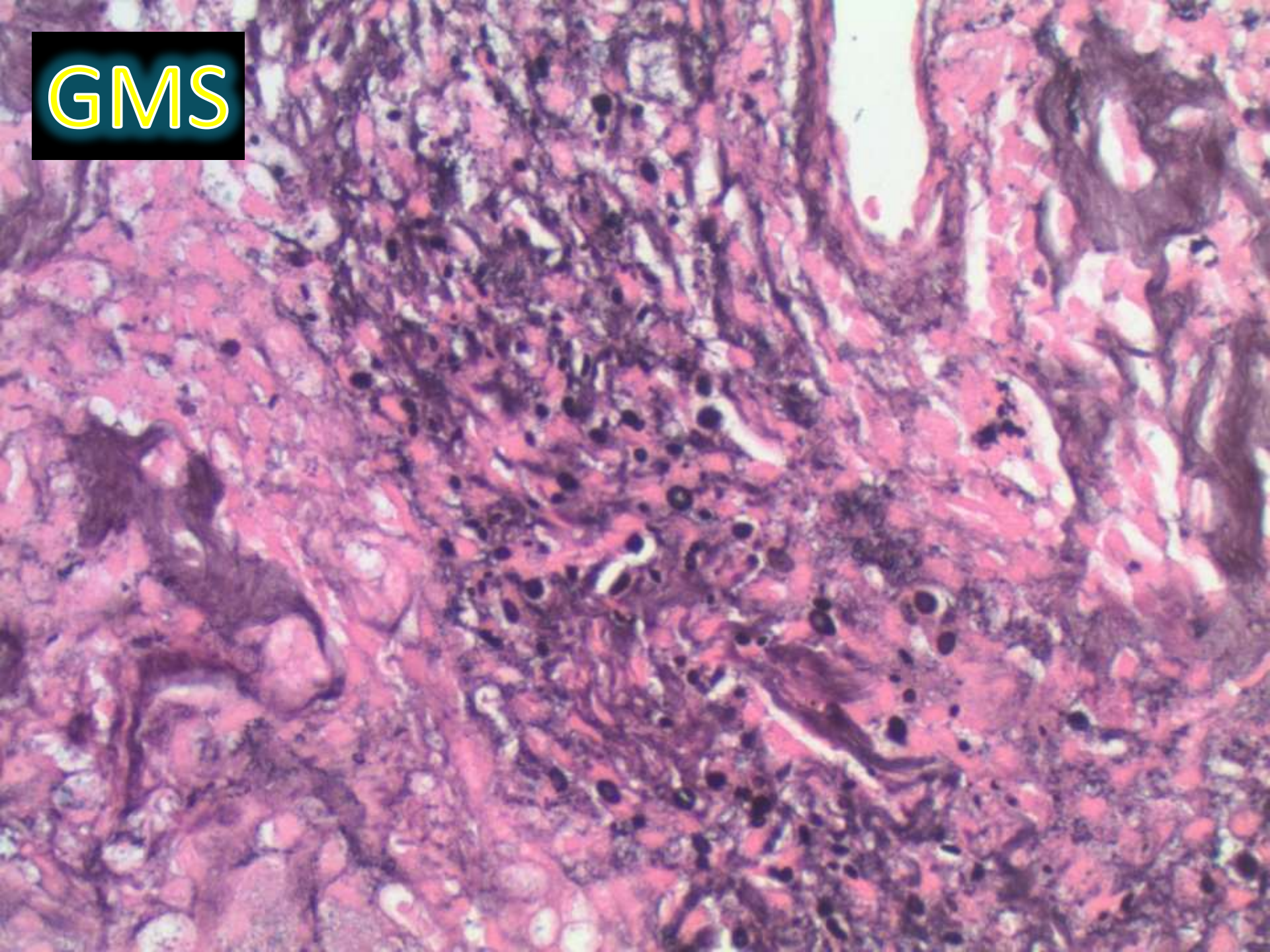


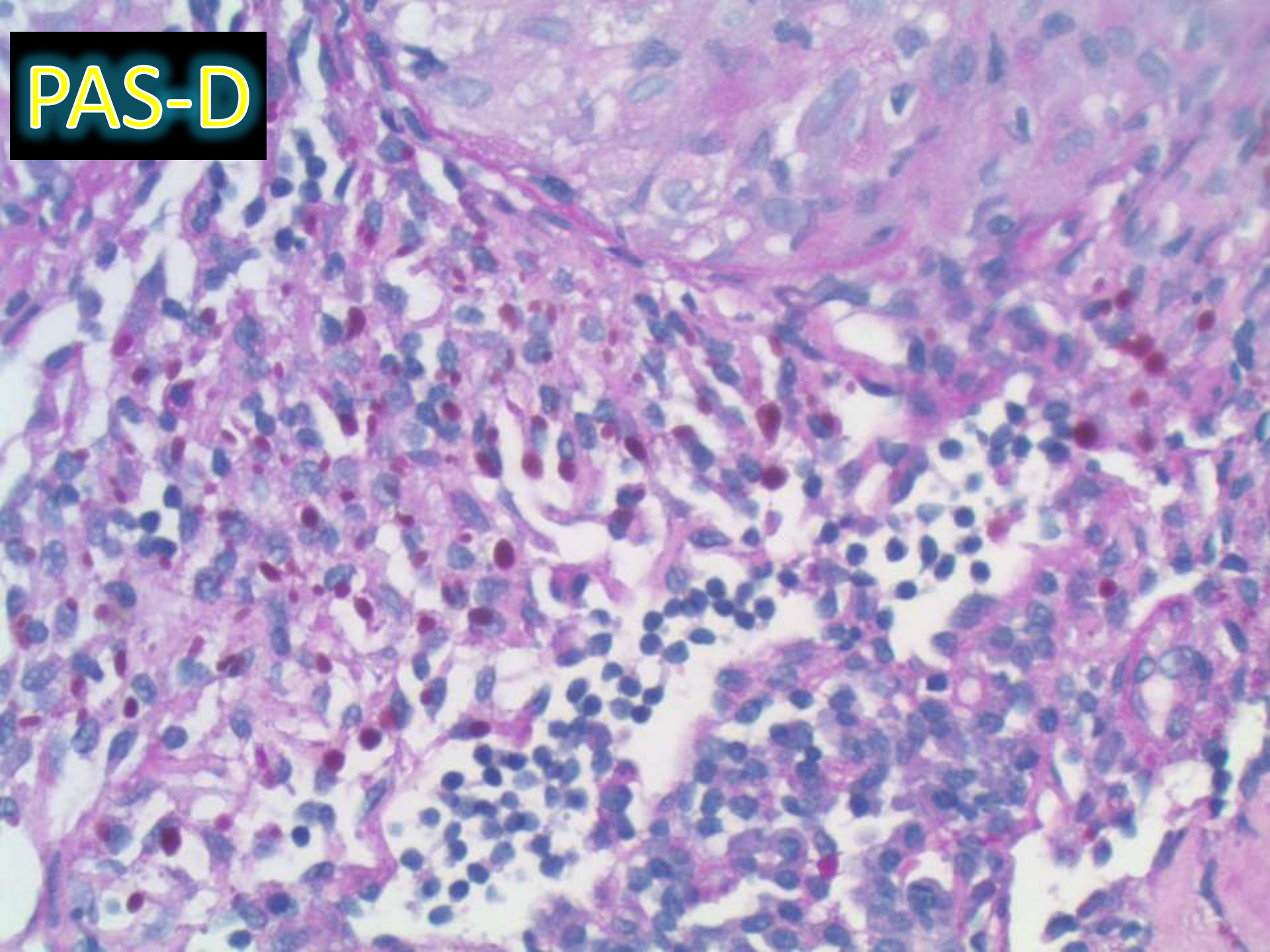




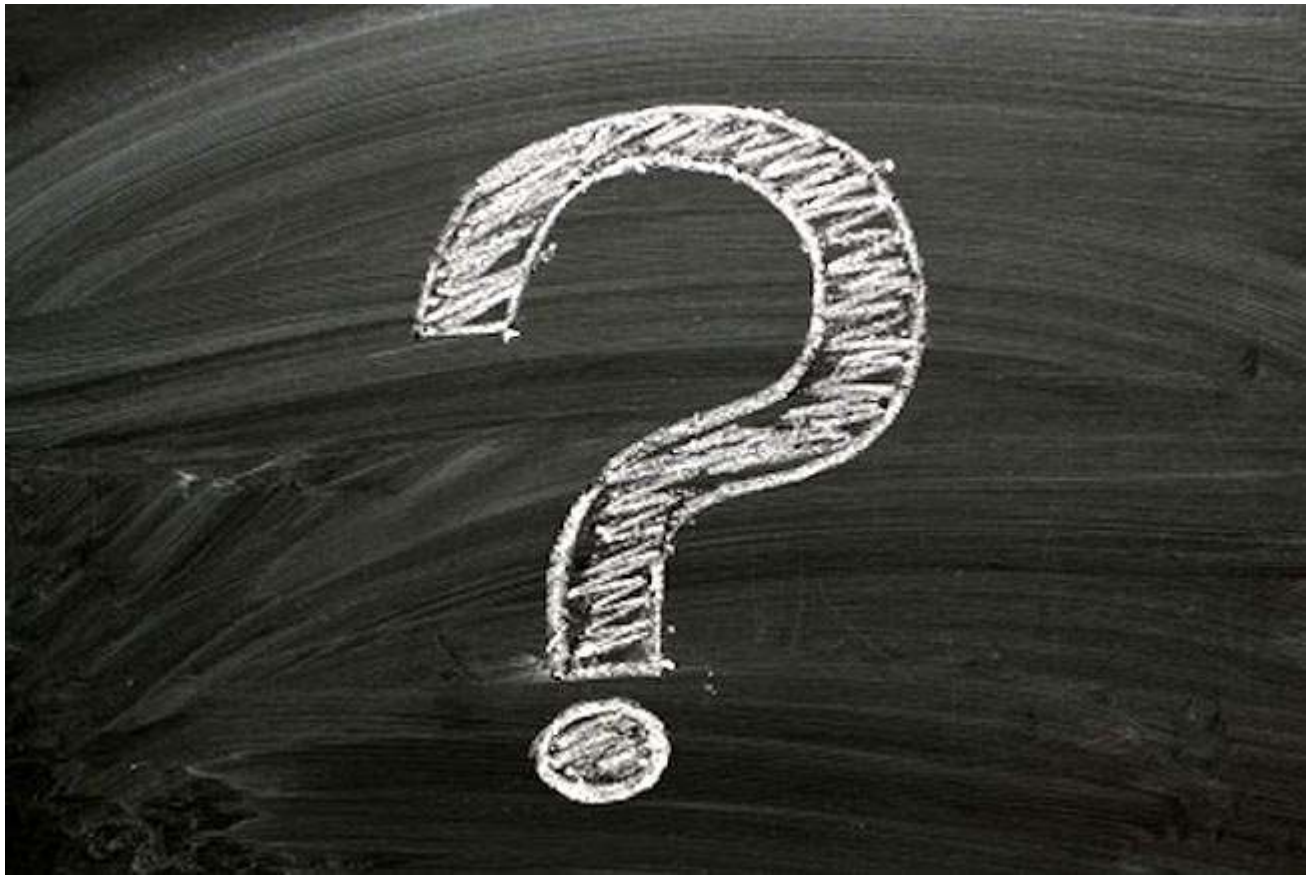





GMS


PAS-D

DIAGNOSIS?



DIAGNOSIS

- **Hamazaki-Wesenberg bodies (mimicking fungal organisms) in sarcoidosis**
  - GMS positive
  - PASD positive
  - Iron positive

Lymph node findings (not specific for sarcoid)

- **Asteroid bodies**
  - star-like cytoplasmic pattern, composed of radiating filamentous arms covered by myelin-like membranes; contain calcium, phosphorous, silica, aluminum; not specific for sarcoidosis
- **Schaumann bodies**
  - round, with concentric laminations, contain iron and calcium; not specific for sarcoidosis

Hamazaki-Wesenberg bodies

- PAS+, yellow-brown, ovoid; may represent large lysosomes with hemosiderin or lipofuscin; present in up to 68% of cases, but not specific for sarcoidosis; may resemble yeast
  - Ro JY, Luna MA, Mackay B, Ramos O. Yellow-brown (Hamazaki-Wesenberg) bodies mimicking fungal yeasts. Arch Pathol Lab Med. 1987 Jun;111(6):555-9.