Disclosures
July 9, 2018

Dr. Christine Louie has disclosed a financial relationship with Grail, Inc. (consultant). Dr. Harris Goodman has disclosed a financial relationship with Bristol Myers Squibb (consultant). South Bay Pathology Society has determined that these relationships are not relevant to the clinical cases being presented. The following planners and faculty had no financial relationships with commercial interests to disclose:

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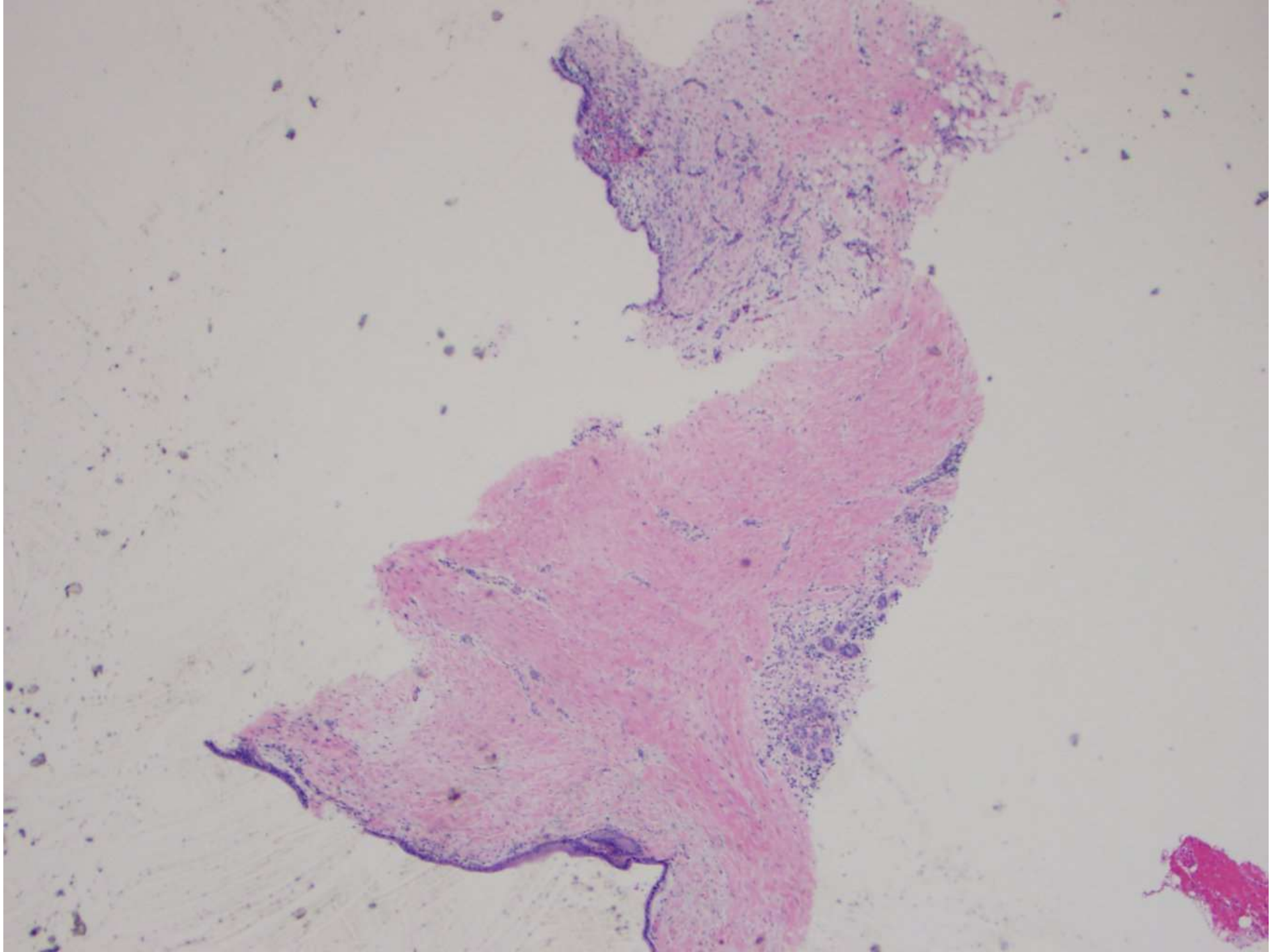
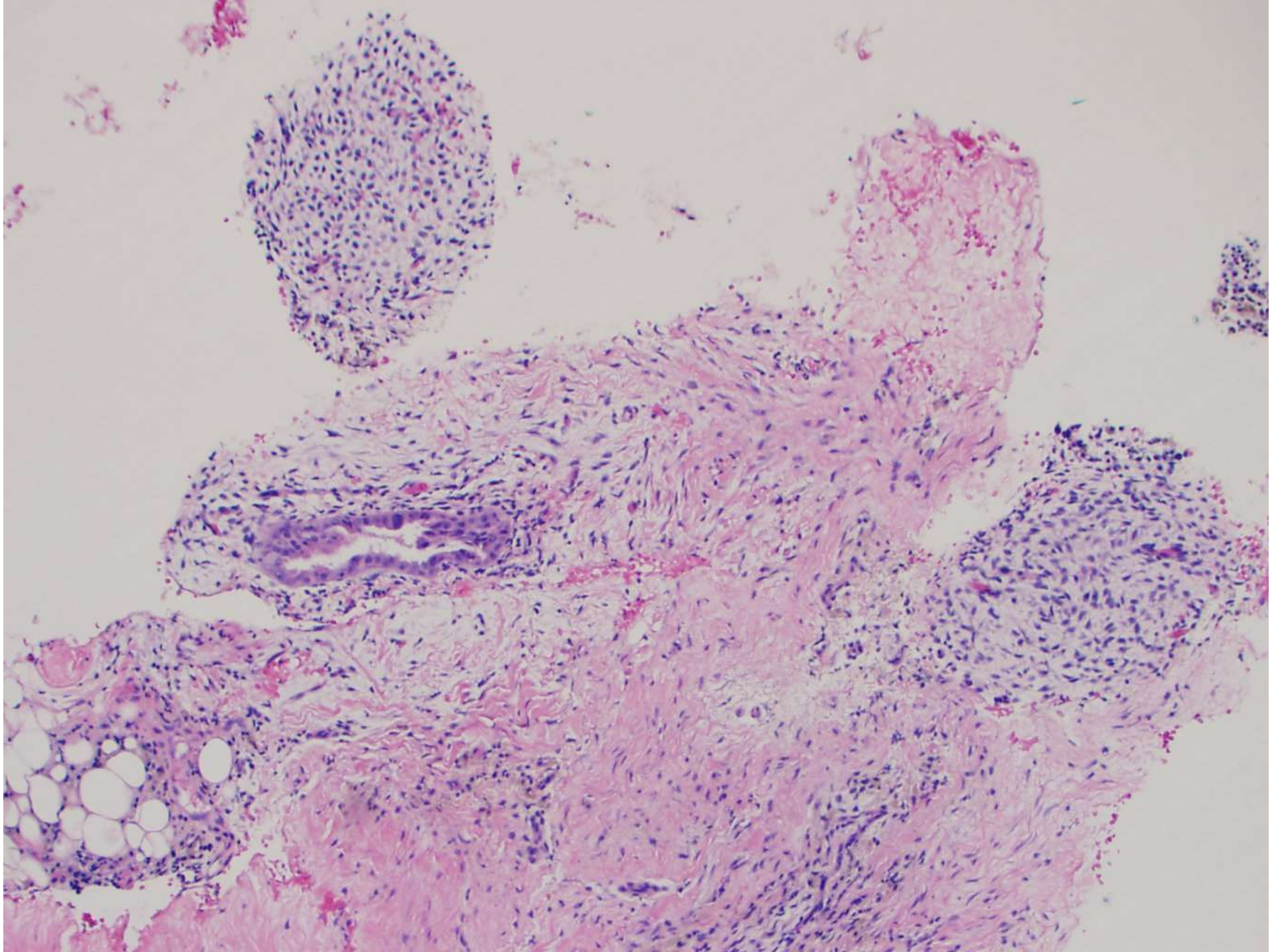
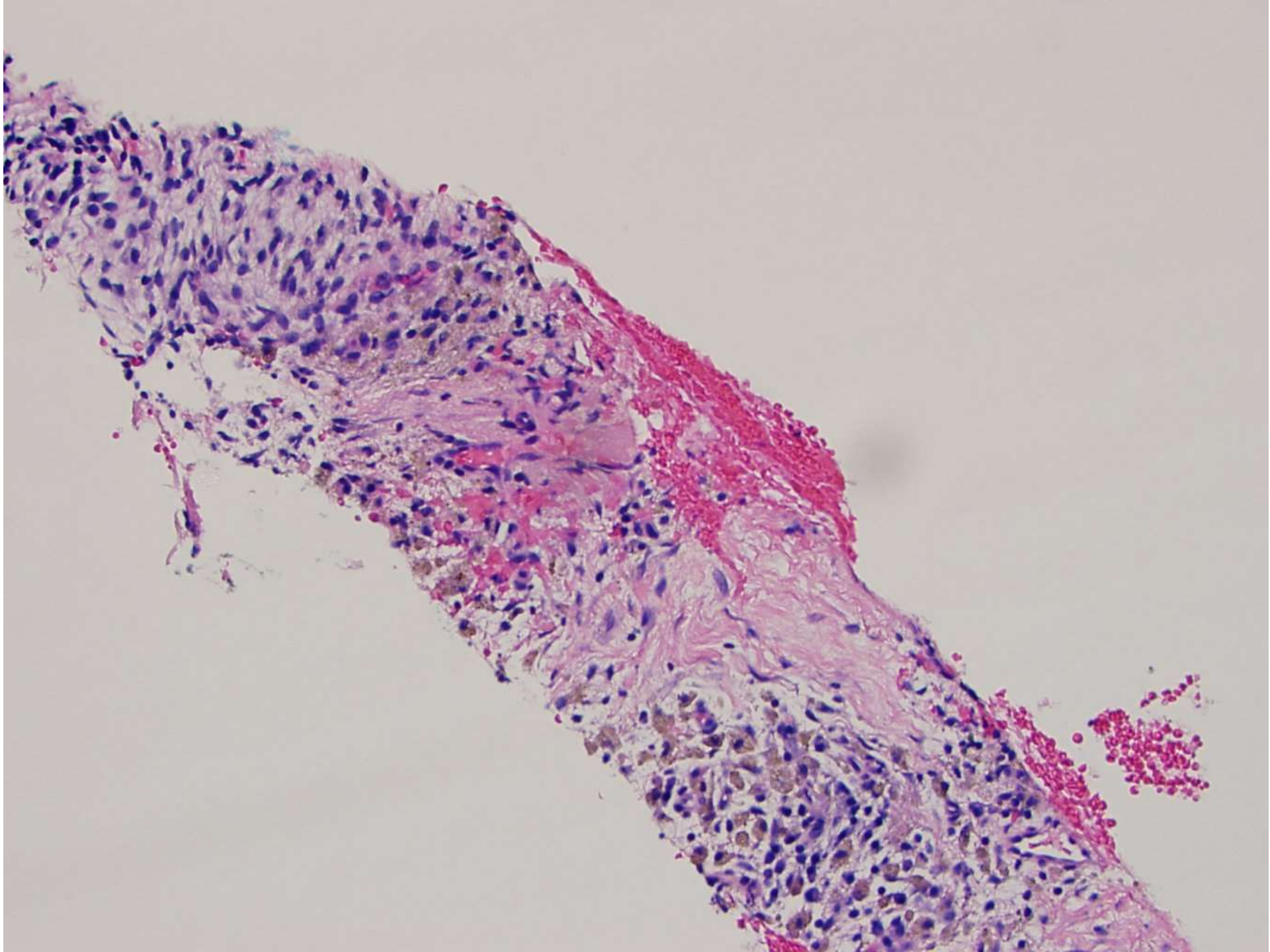
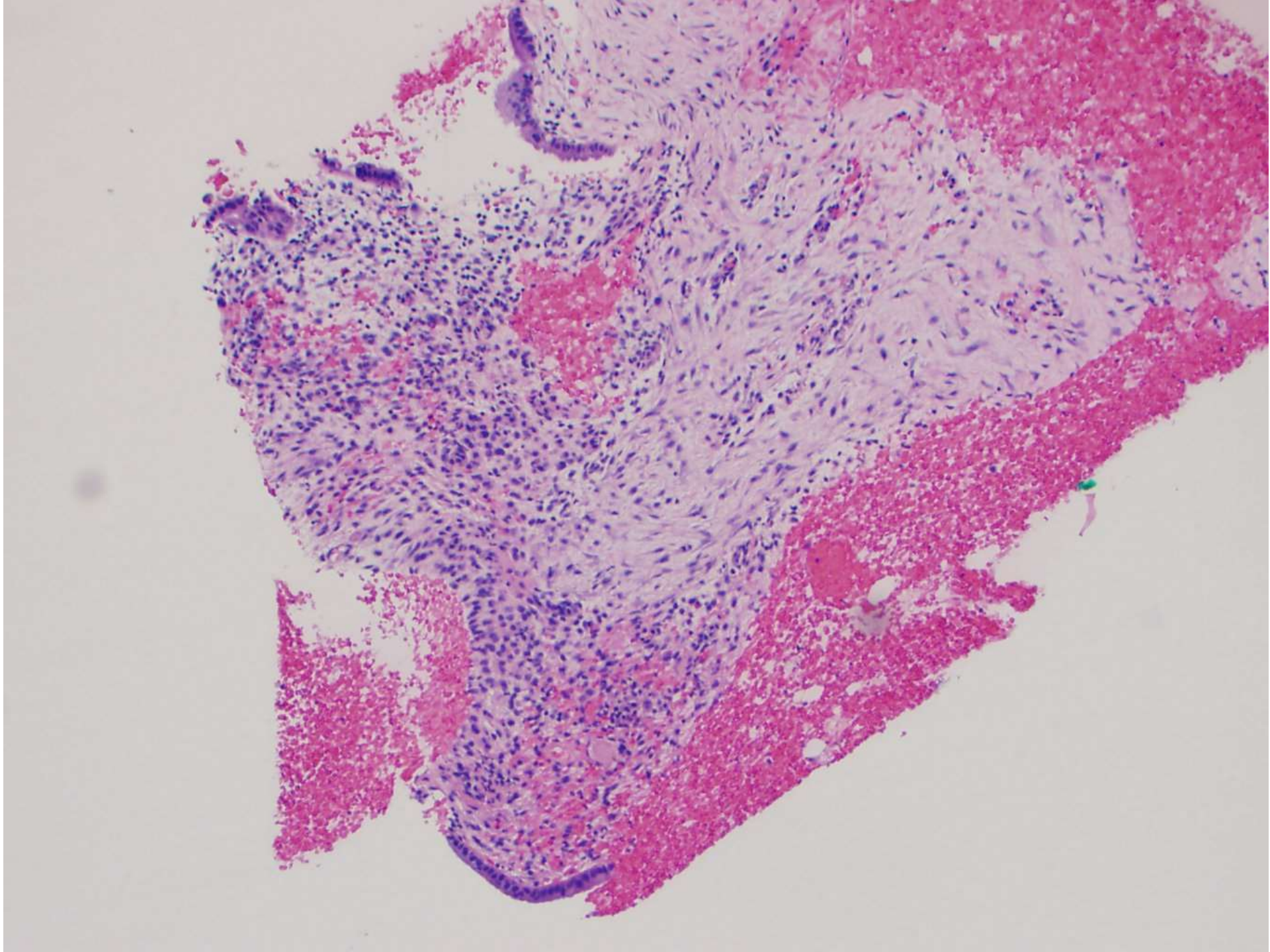
SB 6281
Greg Rumore; Kaiser Walnut Creek

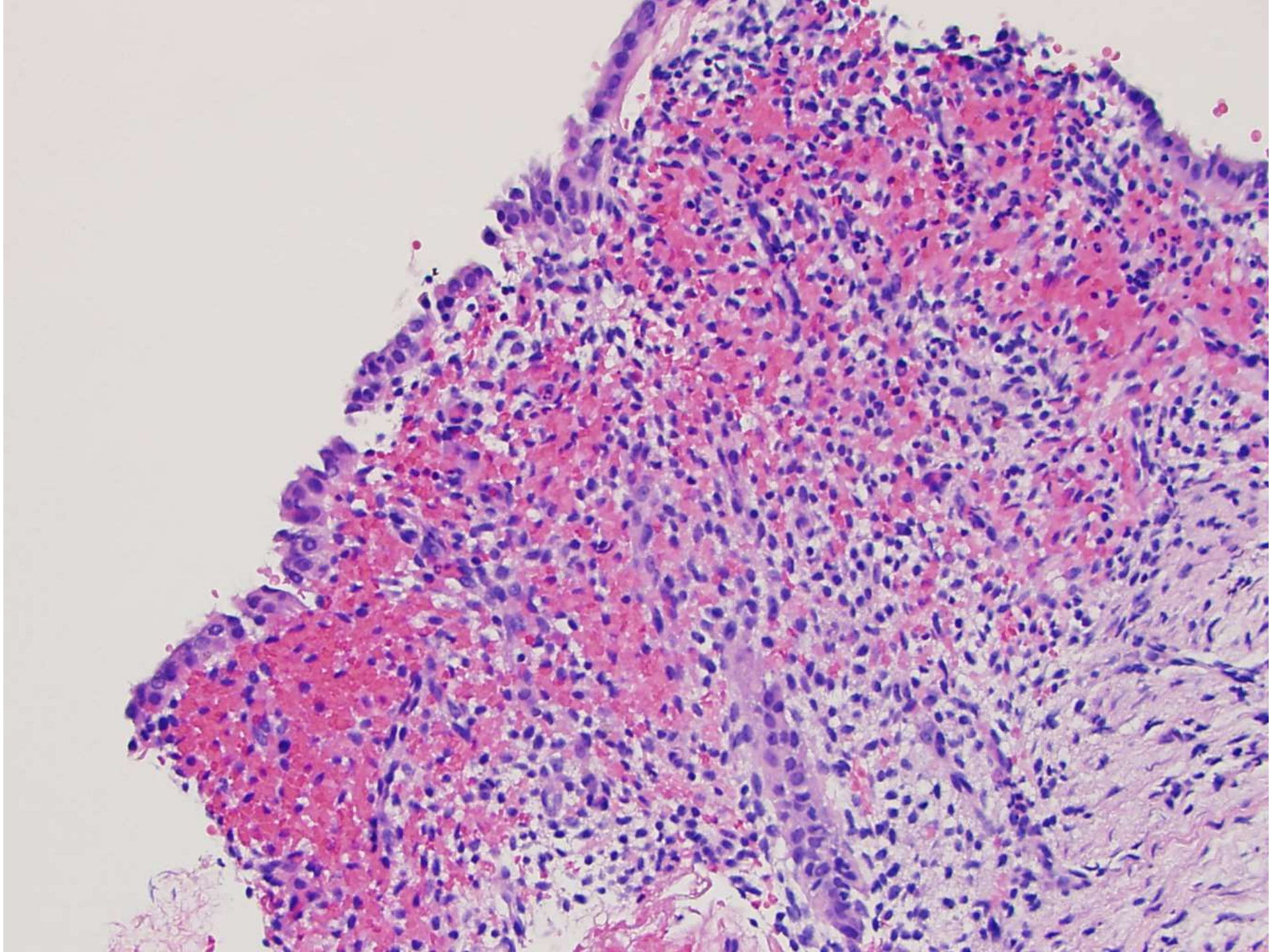
43-year-old woman with 1.8cm complex solid and cystic breast mass, moderately suspicious for malignancy.

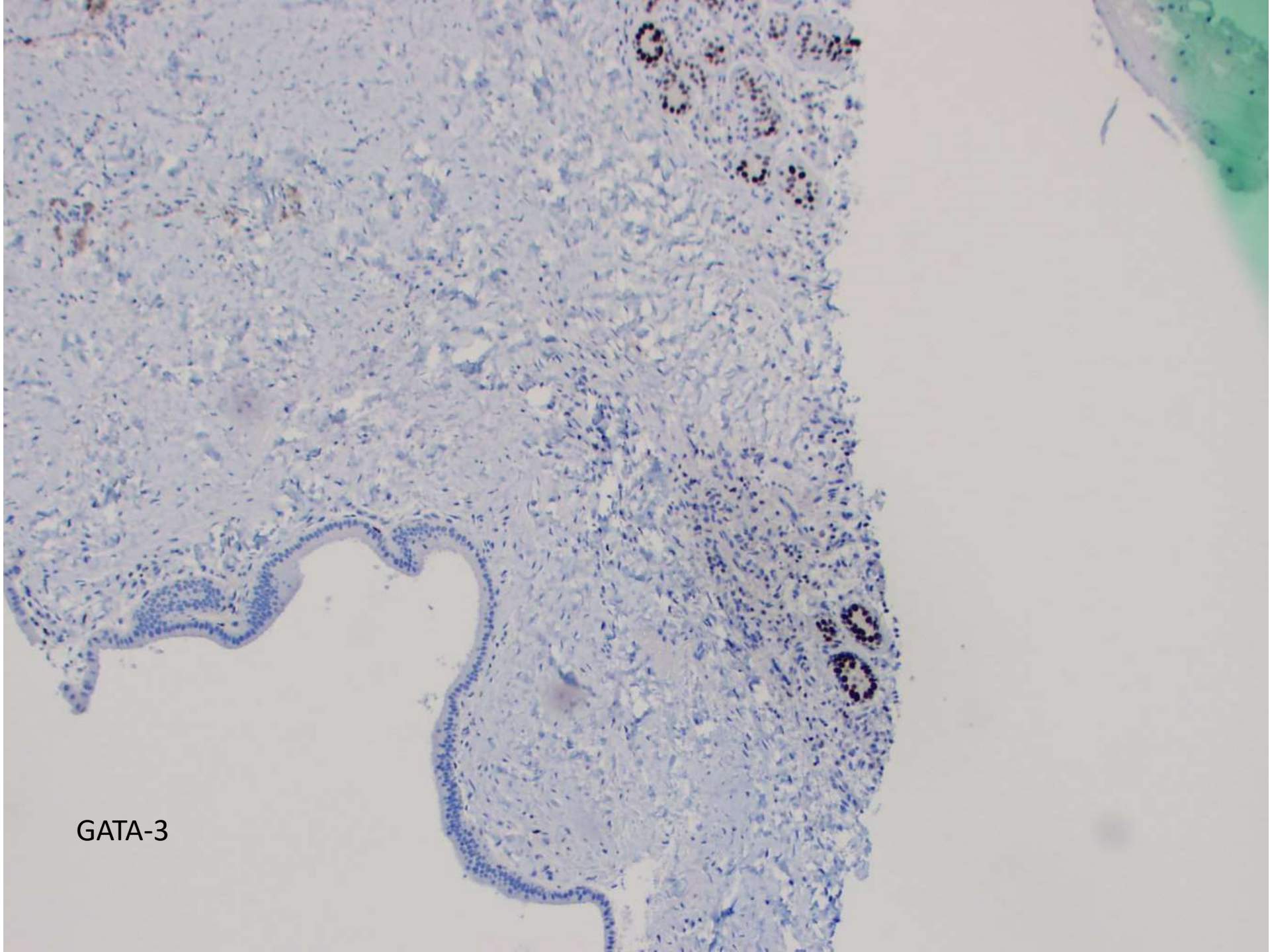








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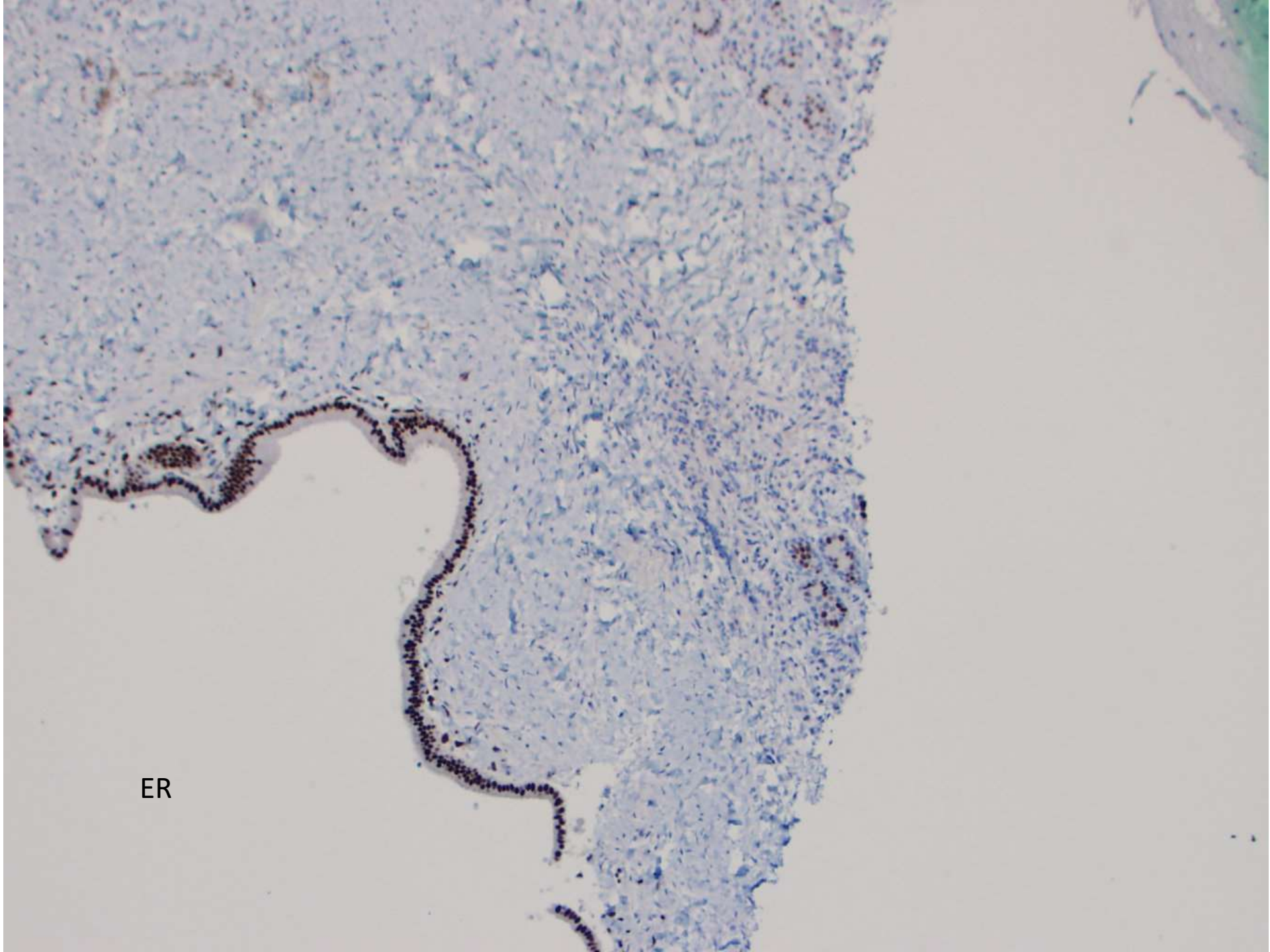
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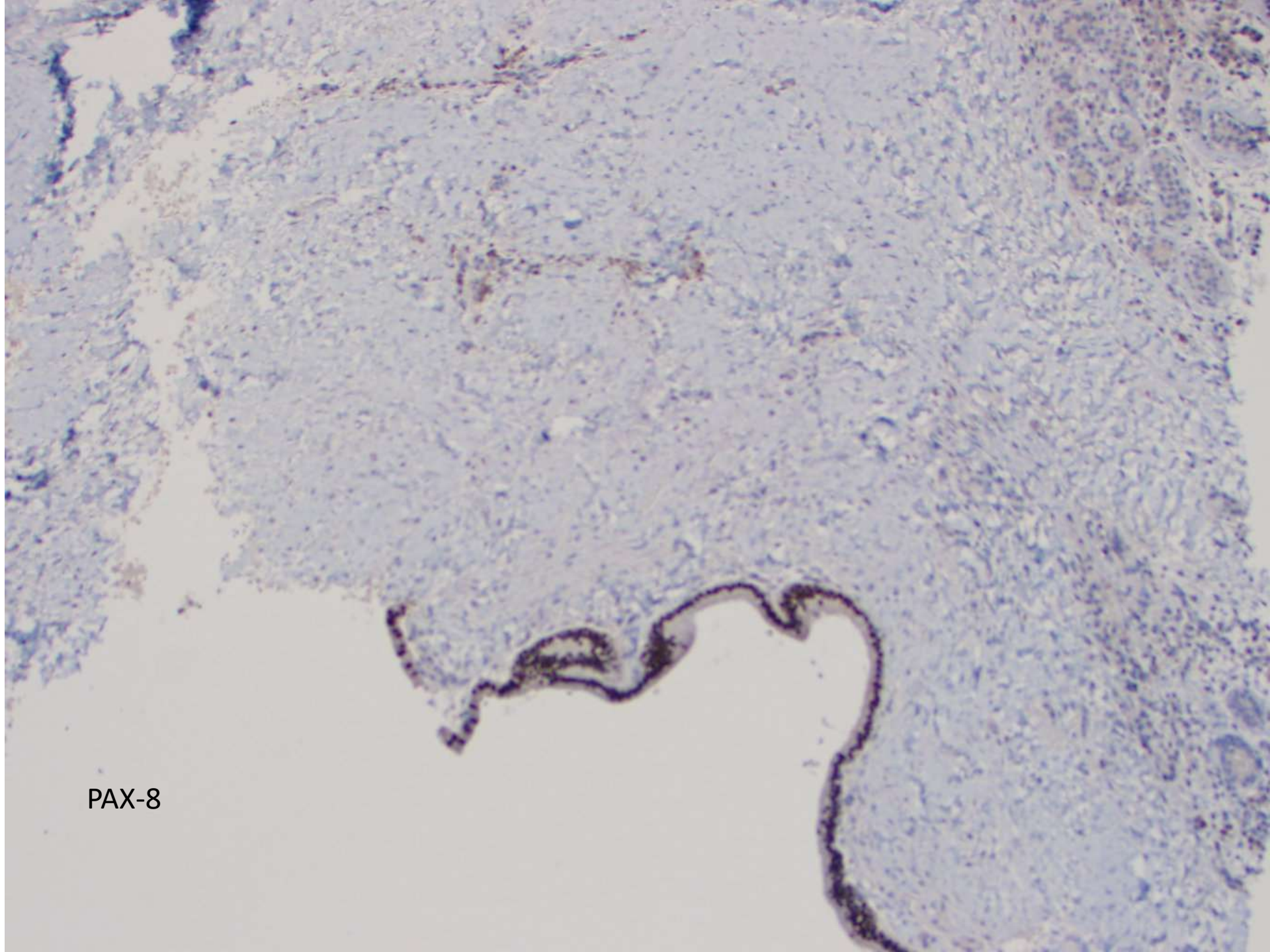
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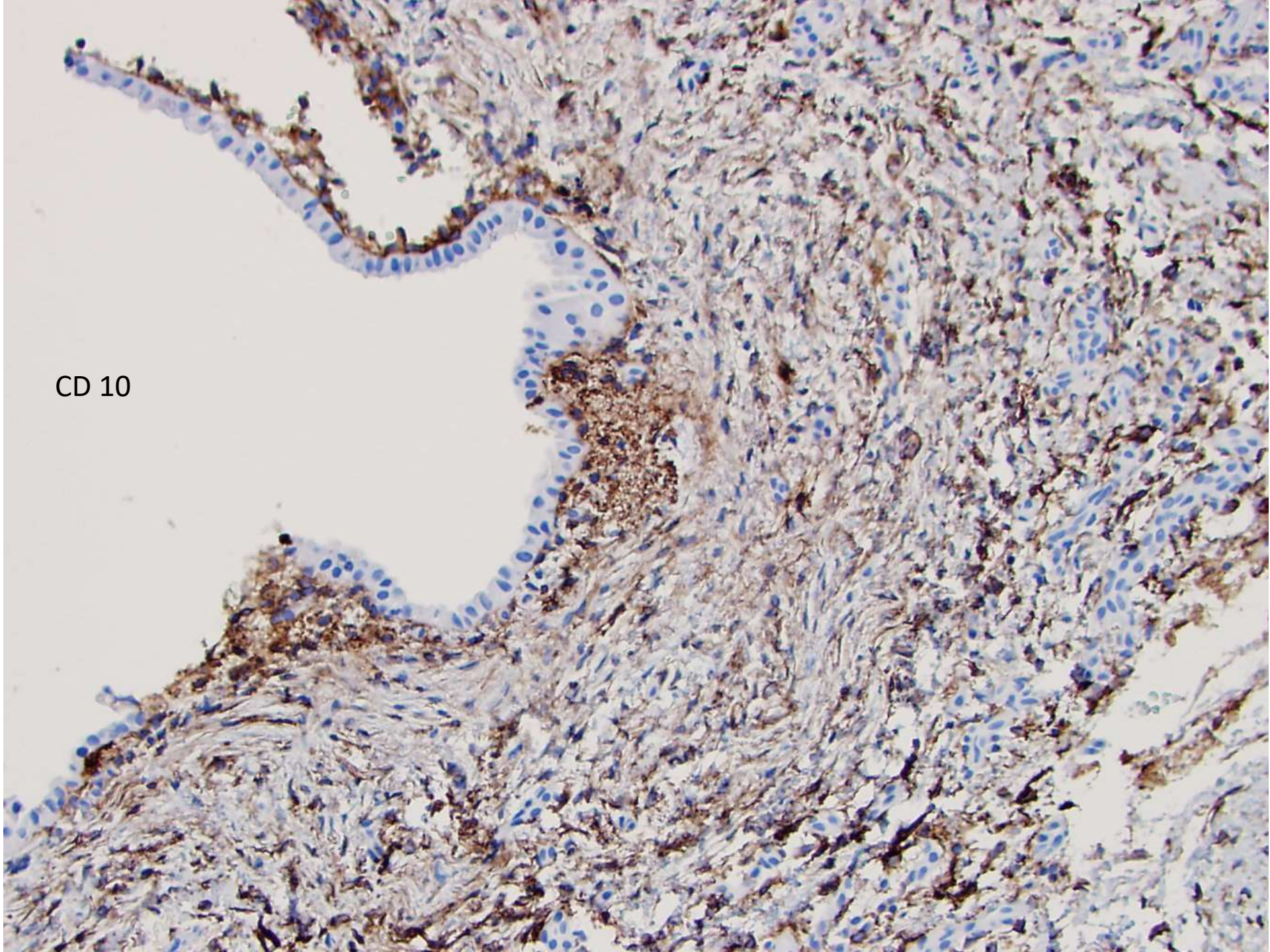

CD 10

Endometriosis of Breast

Endometriosis

additional complications.

- Pelvic examination may reveal tender nodules in the cul-de-sac and uterosacral ligaments; tender, semi-fixed, cystic ovaries; a fixed, retroverted uterus; and sometimes a tender and indurated rectovaginal septum.
- Rare complications include ascites (sometimes with a right pleural effusion), hemoperitoneum, and infection or rupture of an endometriotic cyst. Abdominal wall endometriosis associated with ventriculoperitoneal and lumboperitoneal shunts has caused compromise of the shunt.
- Serum CA125 levels may be elevated and correlate with both the severity and the clinical course of the disease.

serosal masses that may mimic a neoplasm on clinical, intraoperative, and gross examination. Typical (nonpolypoid) endometriosis is often present in the same site or elsewhere.

- Parker et al. found that the most common sites of polypoid endometriosis were, in descending order of frequency: colon, ovary (serosa or within an endometriotic cyst), uterine serosa, cervicovaginal mucosa, ureter, fallopian tube, omentum, bladder, paraurethral and paravaginal soft tissue, and retroperitoneum.
- Some cases may be related to hyperestrinism and/or contain hyperplastic endometriotic tissue.

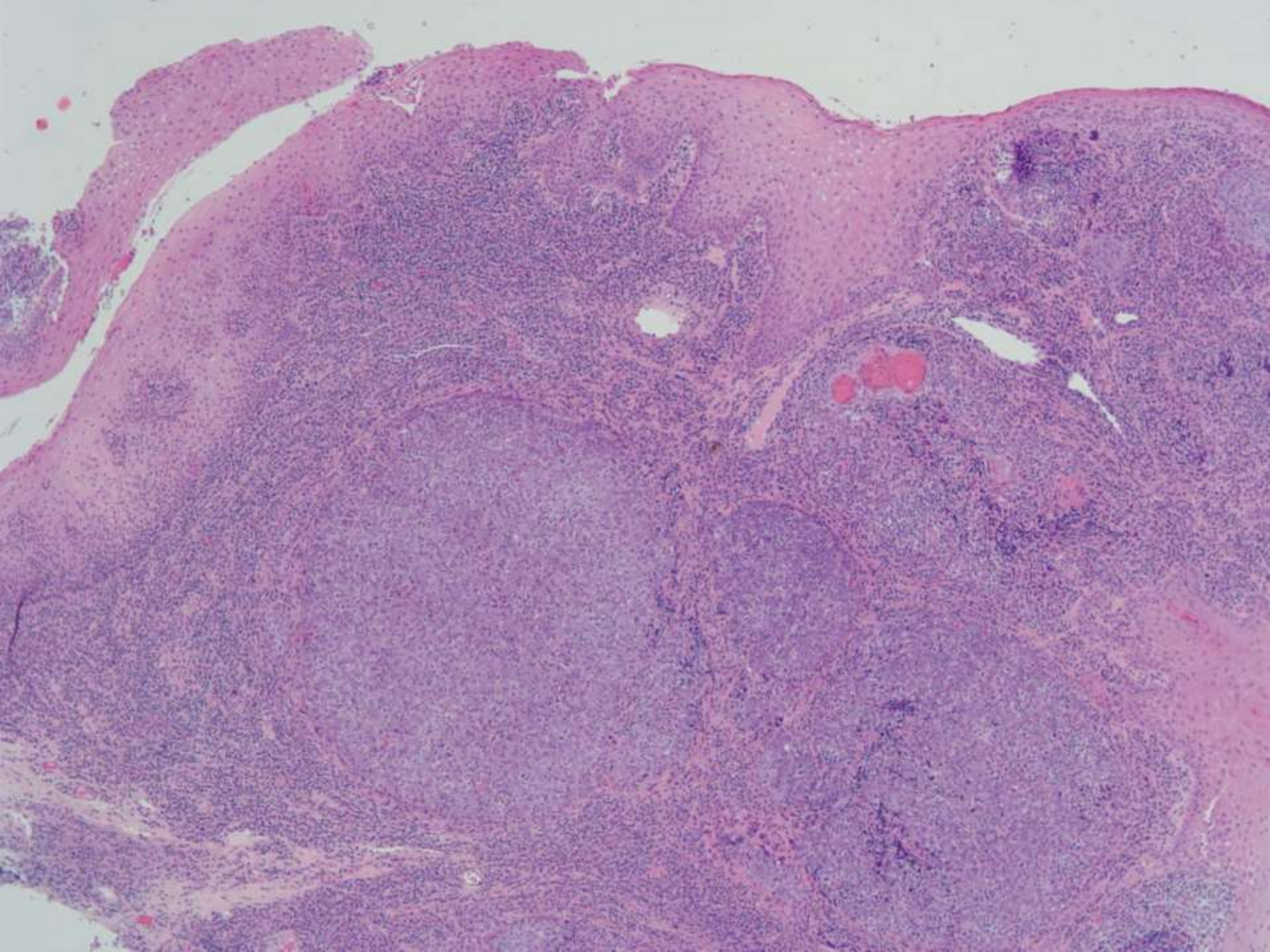
Table 19.1 Sites of Endometriosis

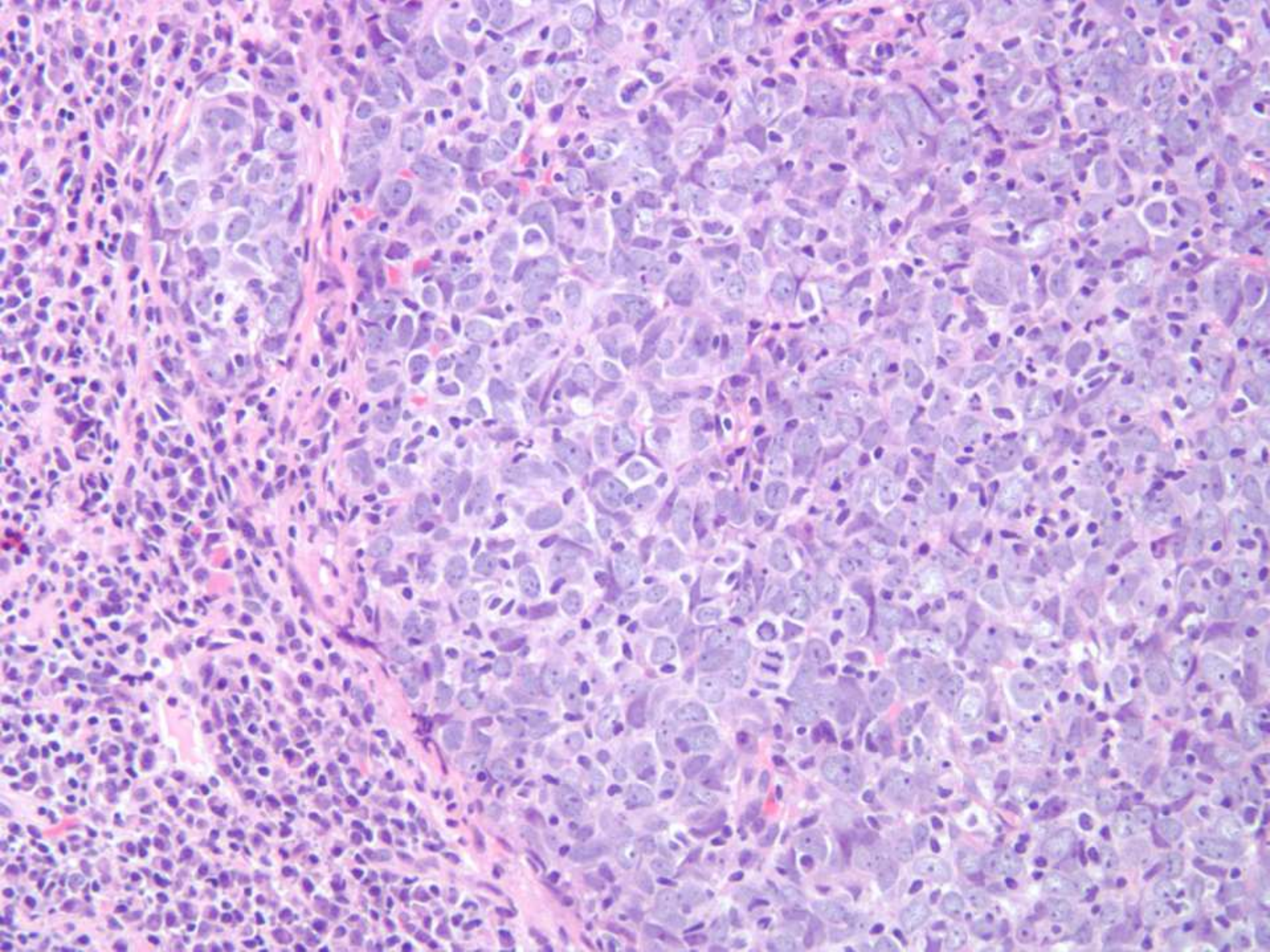
Common	Less common	Rare
Ovaries	Large bowel, small bowel, and appendix	Lungs, pleura
Uterosacral, round, and broad ligaments	Mucosa of cervix,[a] vagina, and fallopian tubes[b]	Soft tissues, breast
Rectovaginal septum	Skin (scars, umbilicus, vulva, perineum, inguinal region)	Bone
Cul-de-sac	Ureter, bladder	Upper abdominal peritoneum
Serosa of uterus and tubes	Omentum, pelvic lymph nodes	Stomach, pancreas, liver
Serosa of other pelvic organs	Inguinal region	Kidney, urethra, prostate, paratesticular area
		Sciatic nerve, subarachnoid space, brain

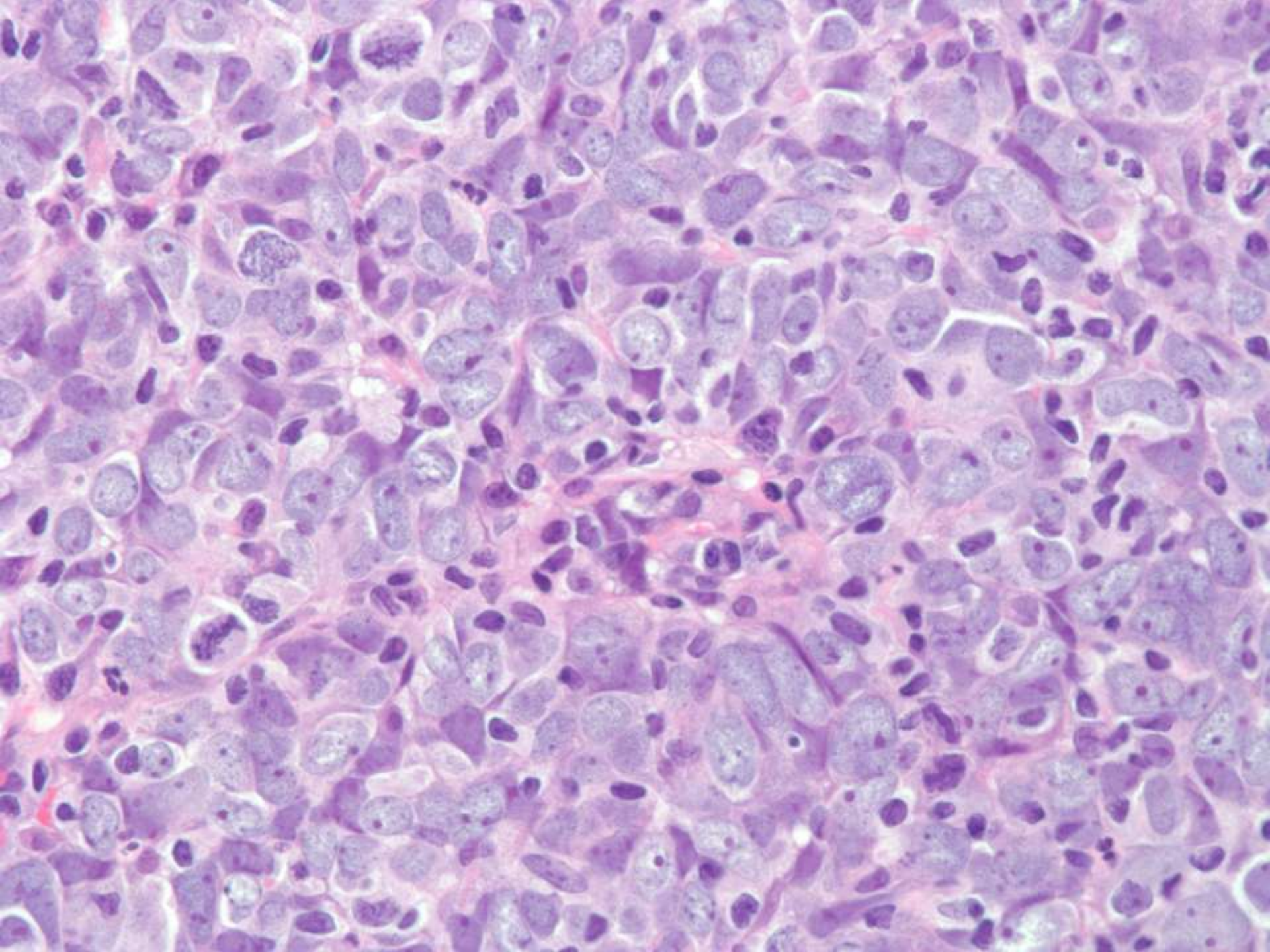
[a]Discussed in Chapter 4.
[b]Discussed in Chapter 11.

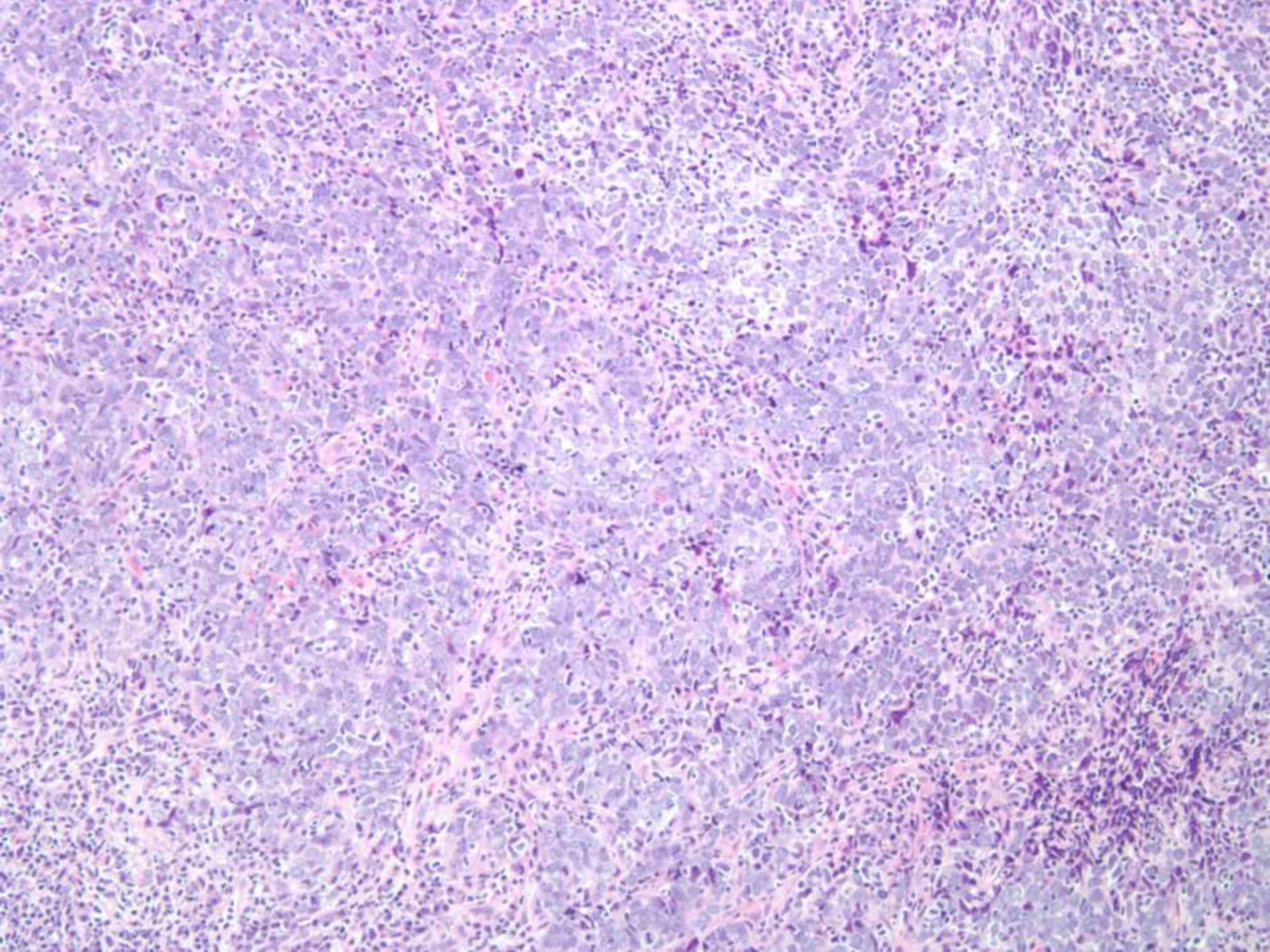
SB 6282
Charles Lombard; El Camino Hospital

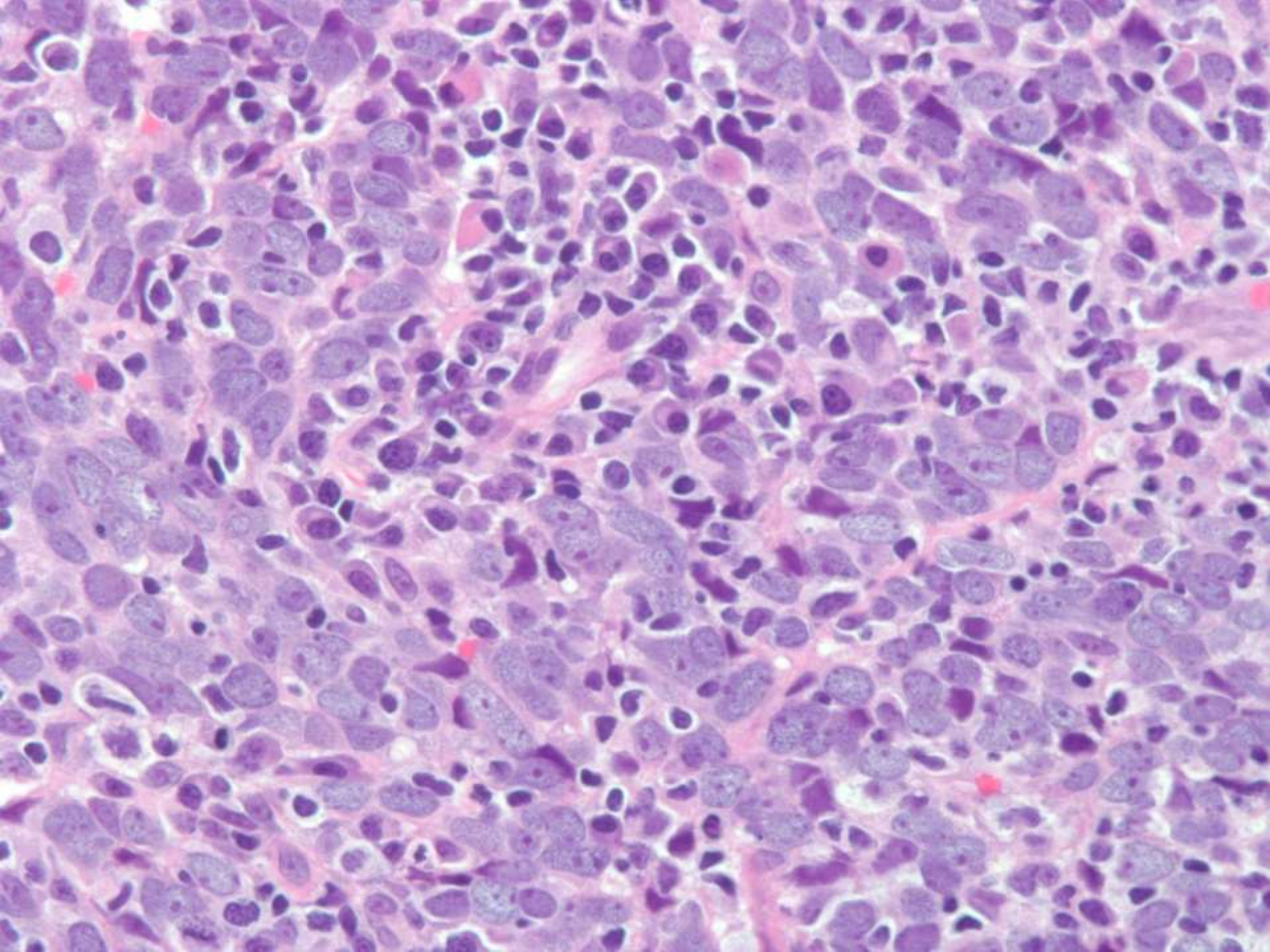
54-year-old man with right tonsillar mass.

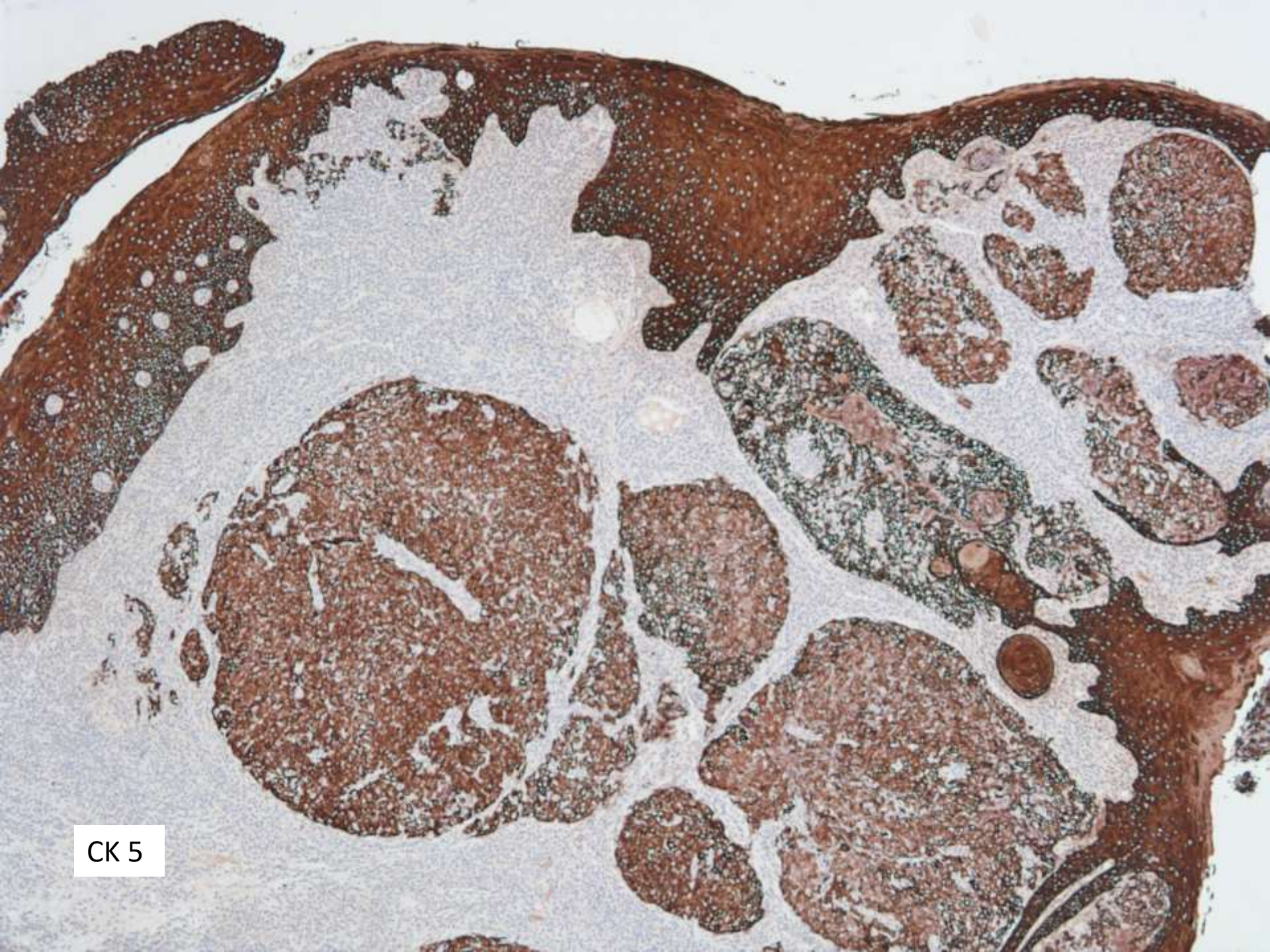


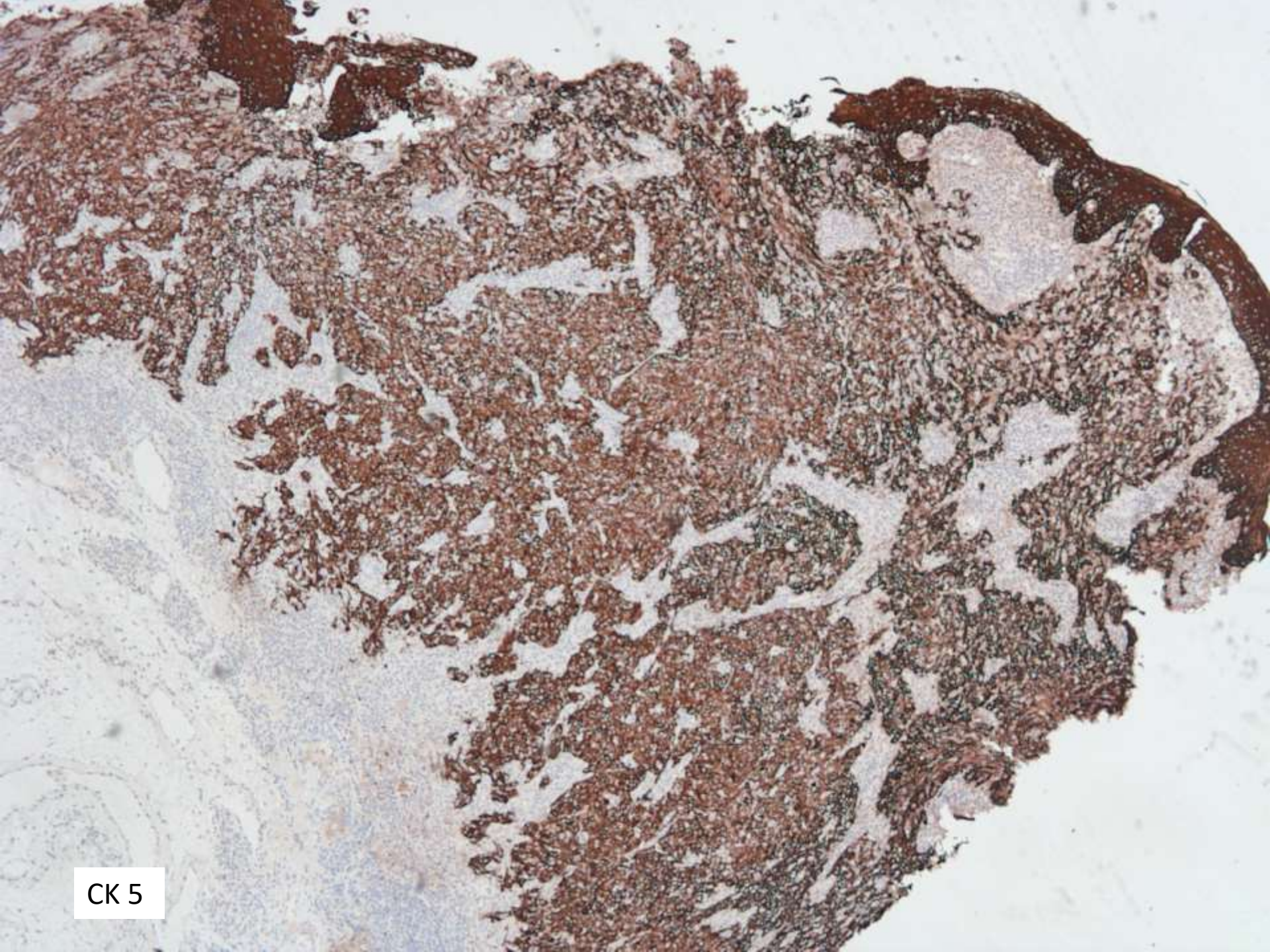









CK 5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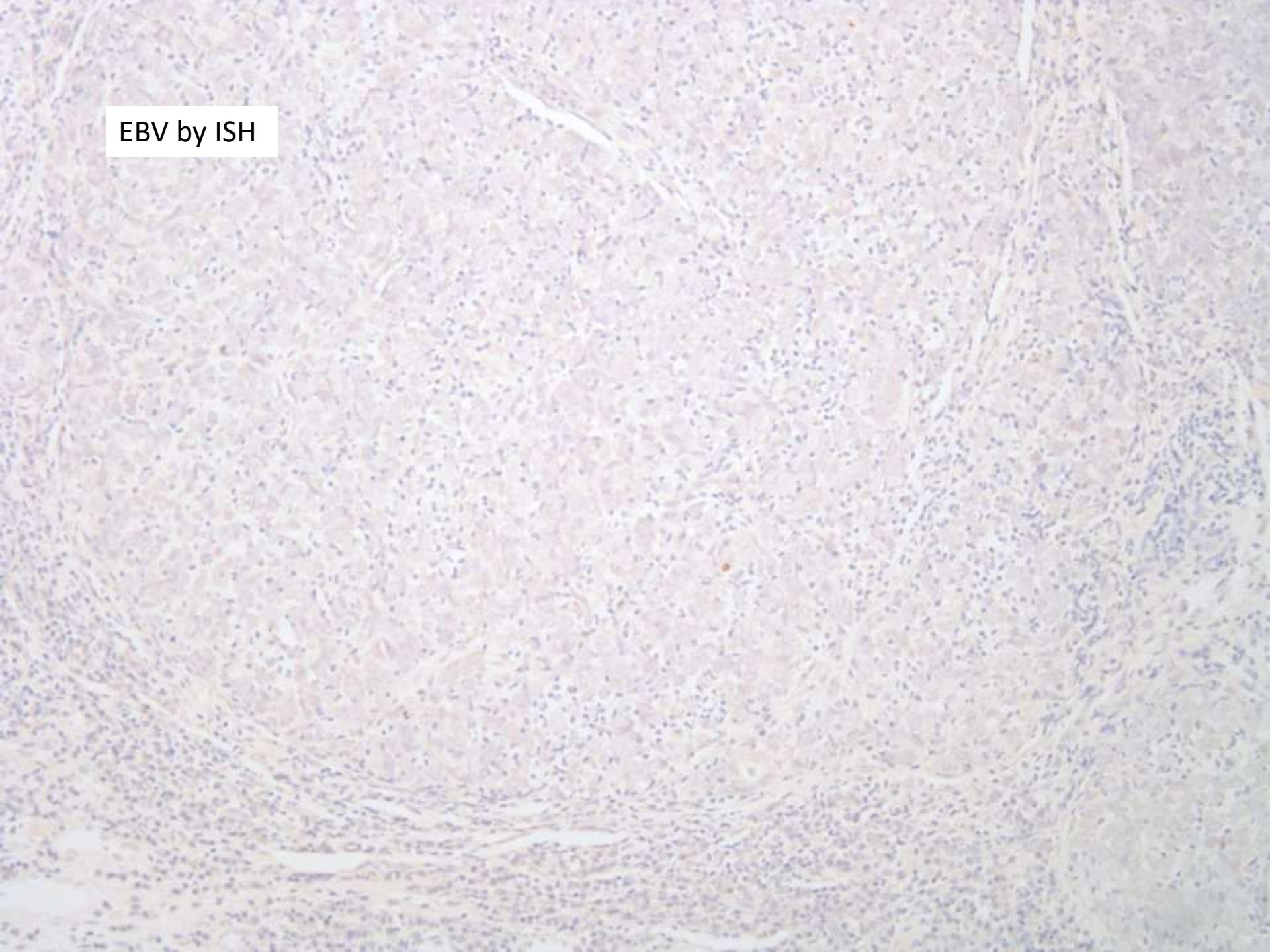
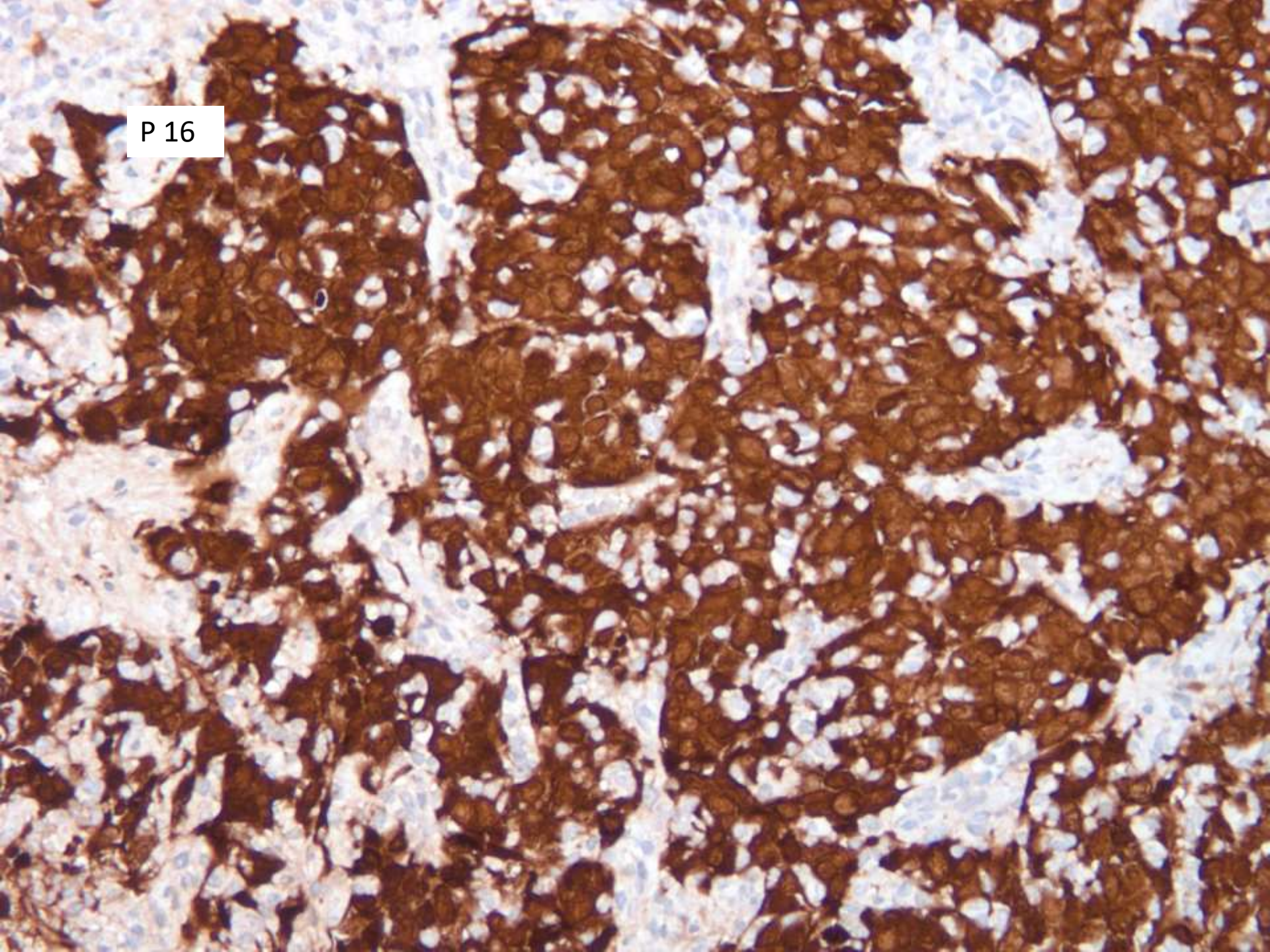
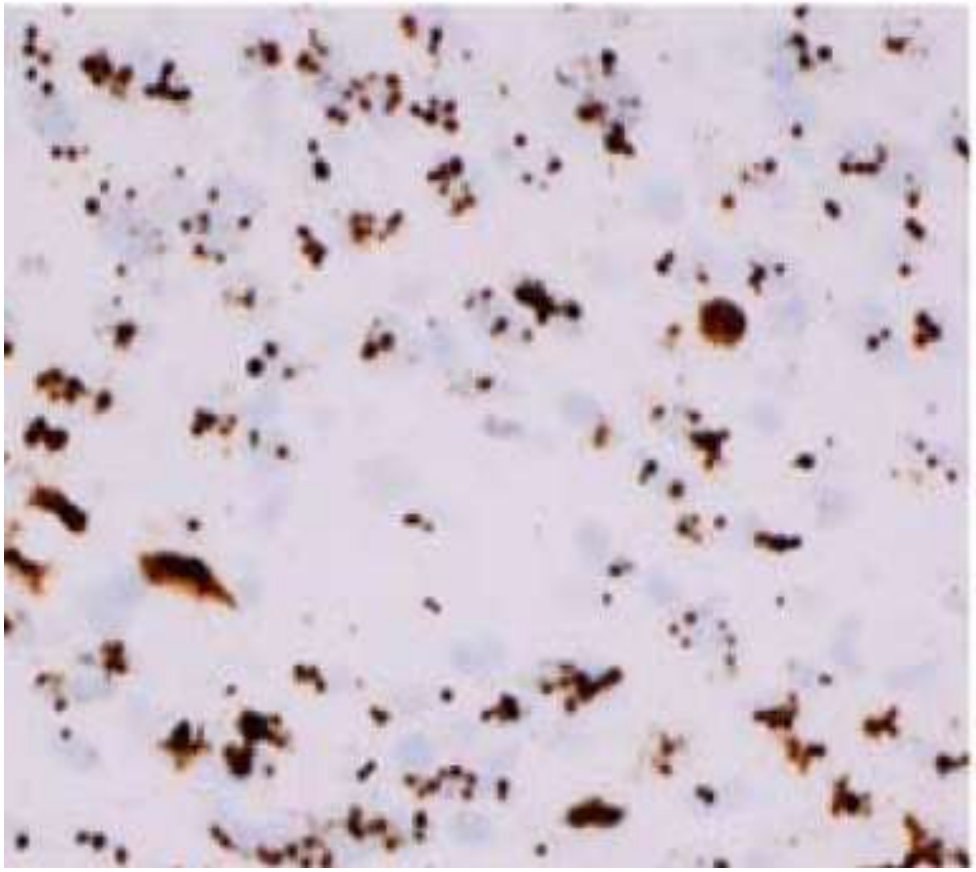

EBV by ISH


P 16

HPV high rish ISH (RISH)



Lymphoepithelial-like HPV associated squamous carcinoma

HPV-HNSCC

- Most arise from reticulated crypts of tonsils
- Unassociated with surface dysplasia
- Do not induce desmoplastic stroma
- Have a prominent lobular growth pattern
- Are nonkeratinizing or only minimally so
- High N:C ratio cells with “basaloid” appearance
- Exhibit cystic degenerative change when they metastasize to regional lymph nodes

LE-like HPV associated carcinoma

- Reported as a pattern of HPV associated carcinoma by J. Hopkins group 2010
- Histologic pattern indistinguishable from EBV-associated NP ca (LE-CA)
- 22 cases in oropharynx with LE-like pattern
  - 12 cases in the tonsil
  - All 22 cases P 16 positive/EBV Negative
- EBV associated LE CA do not overexpress P16

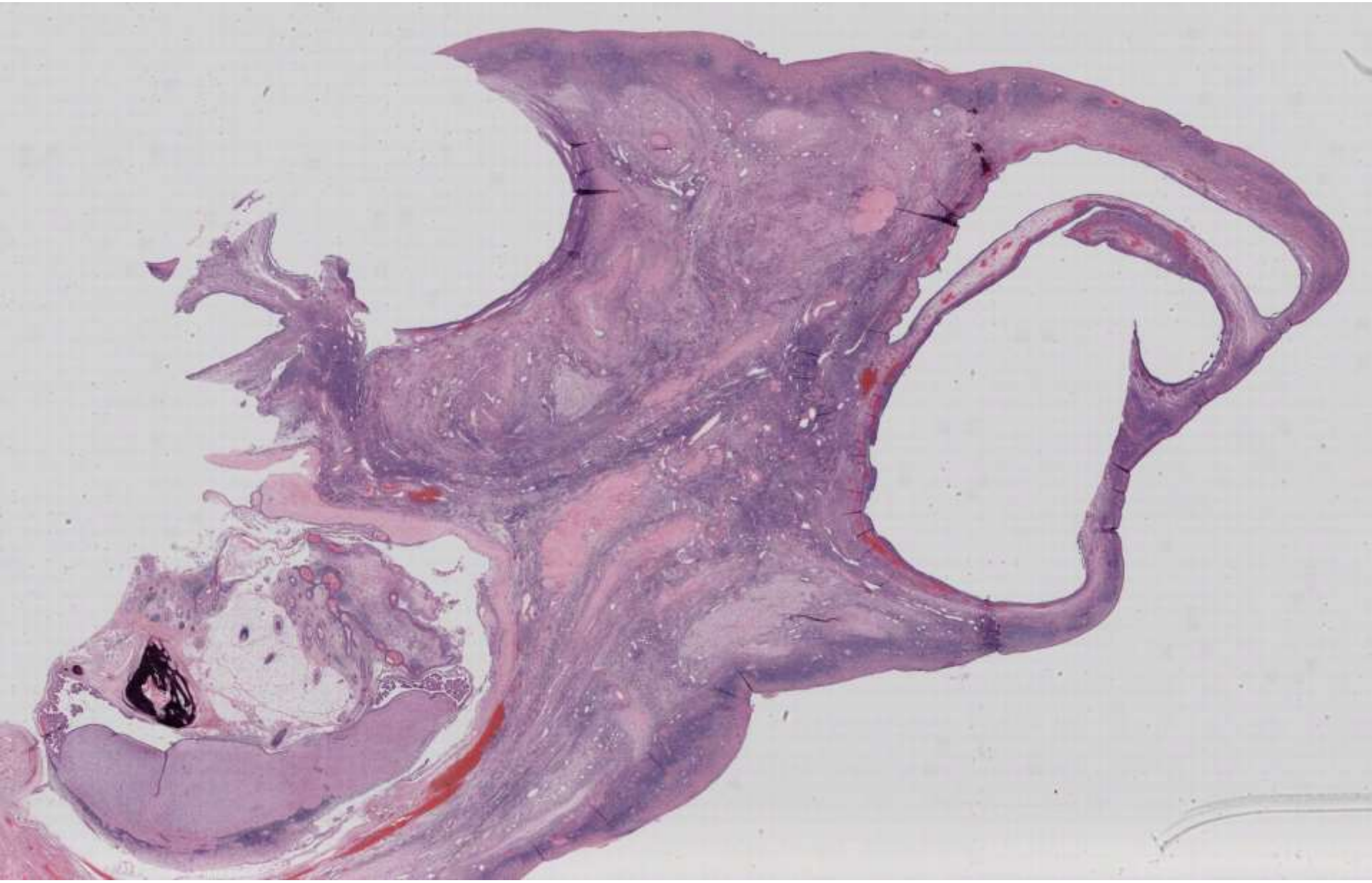
LE-like HPV associated carcinoma

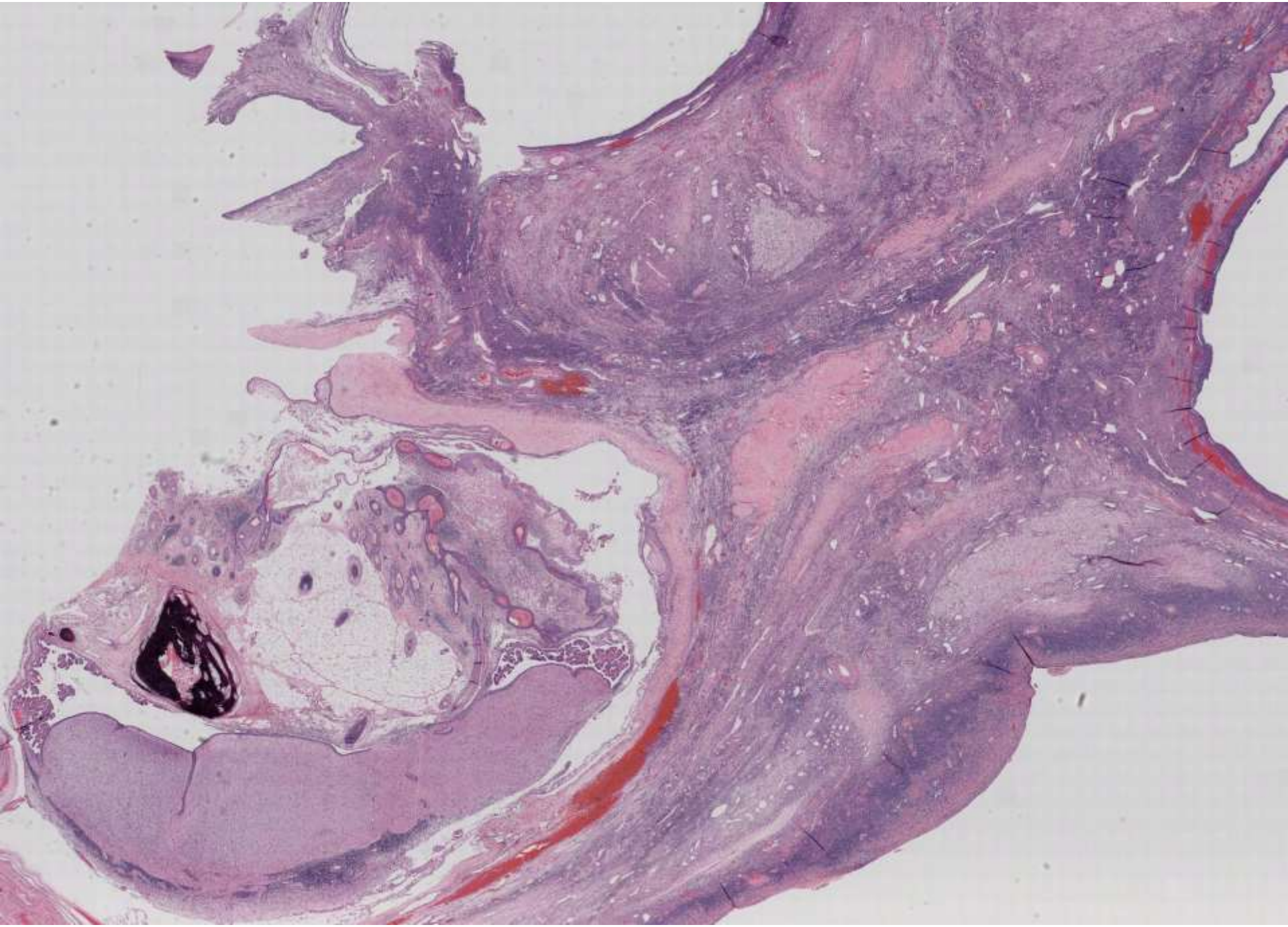
- Tend to occur in men <60
- Non smokers
- Do not metastasize to distant sites (beyond regional lymph nodes)
- Associated with highly favorable clinical outcome

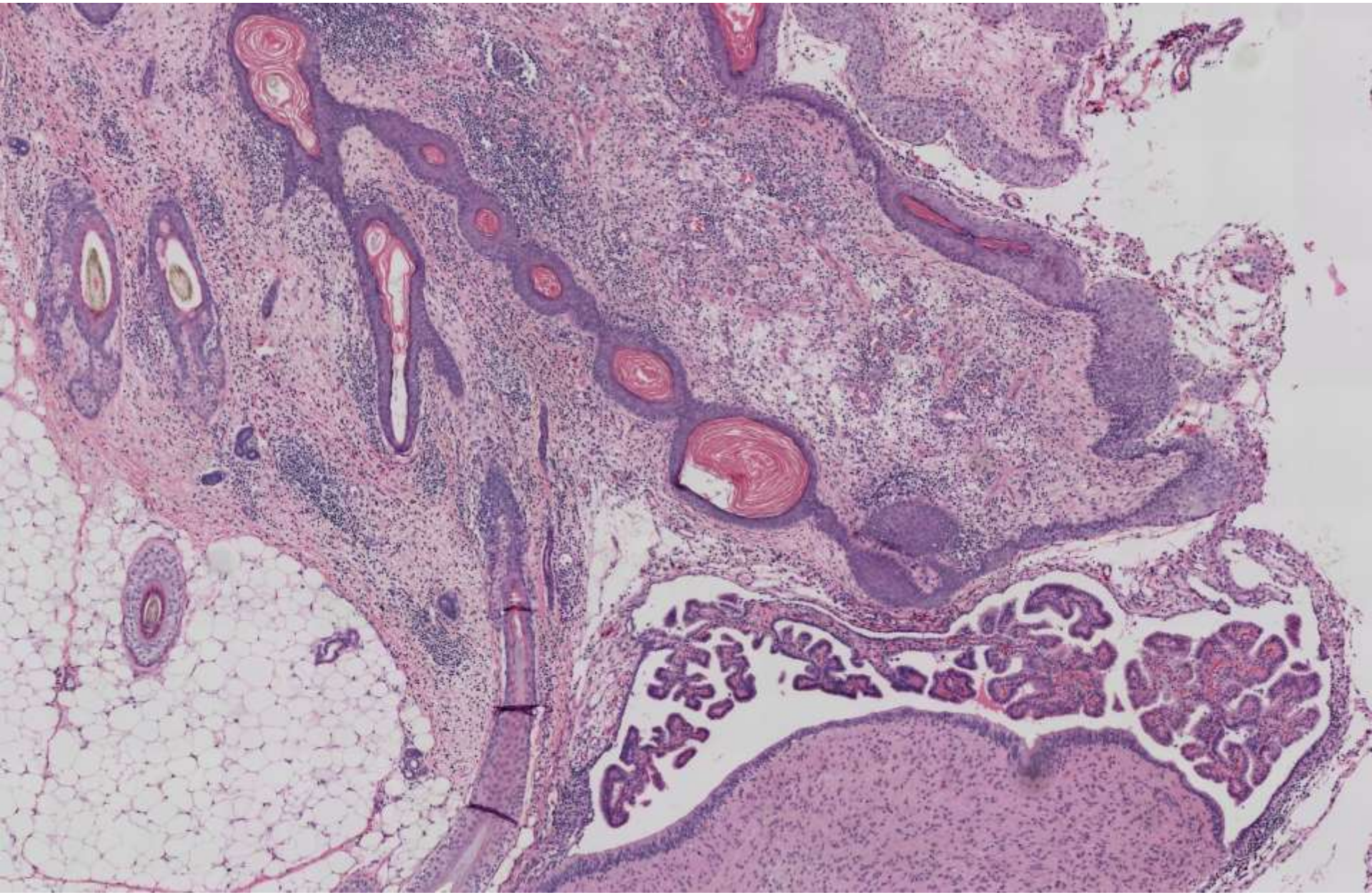
Reference: Singhi et al: "LE-like carcinoma of the oropharynx: A morphologic Variant of HPV-relaated head and neck carcinoma". AJSP 2010;34:800-805.

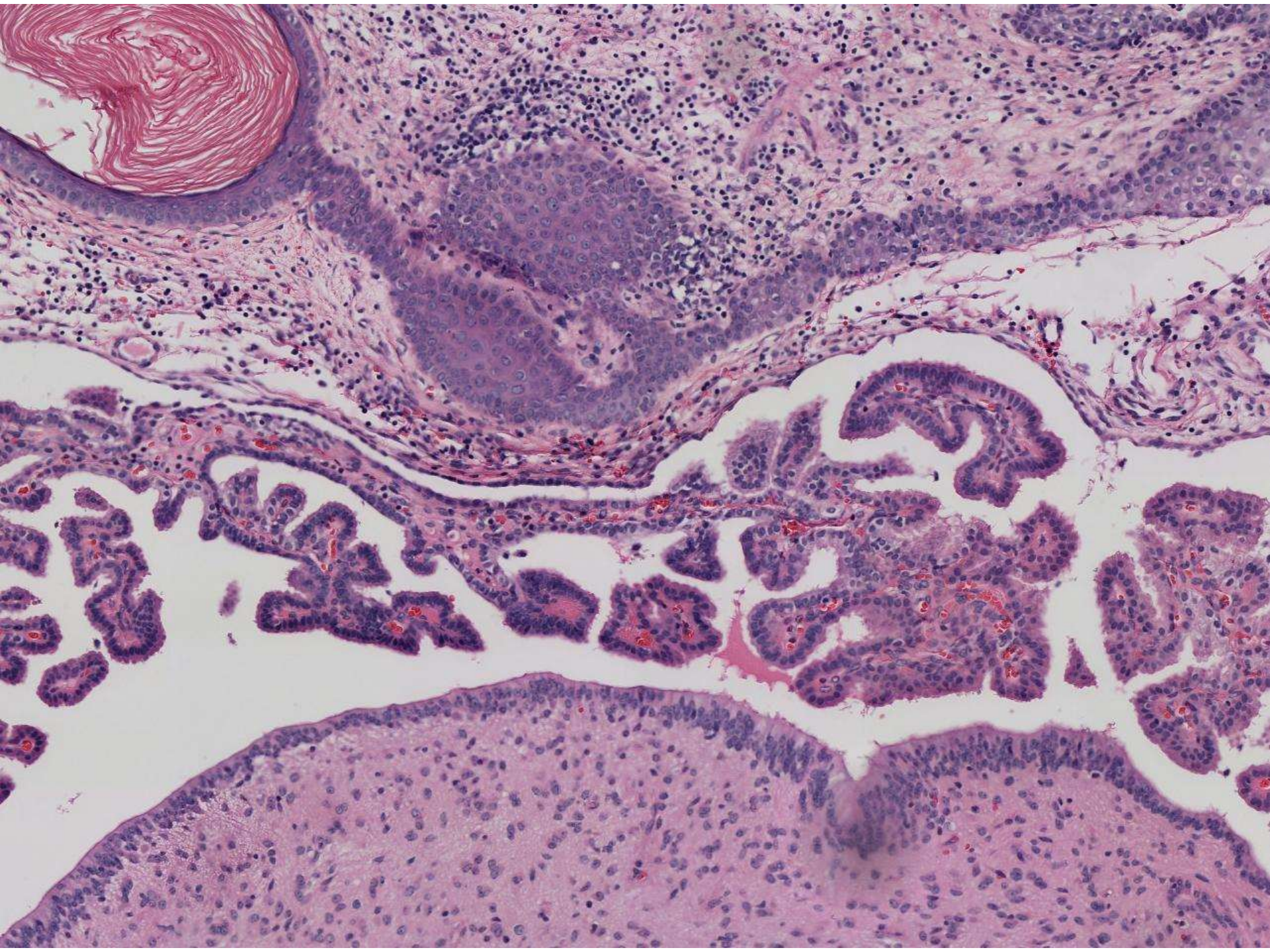
SB 6283 [scanned slide available] Harris Goodman; Saint Francis Hospital

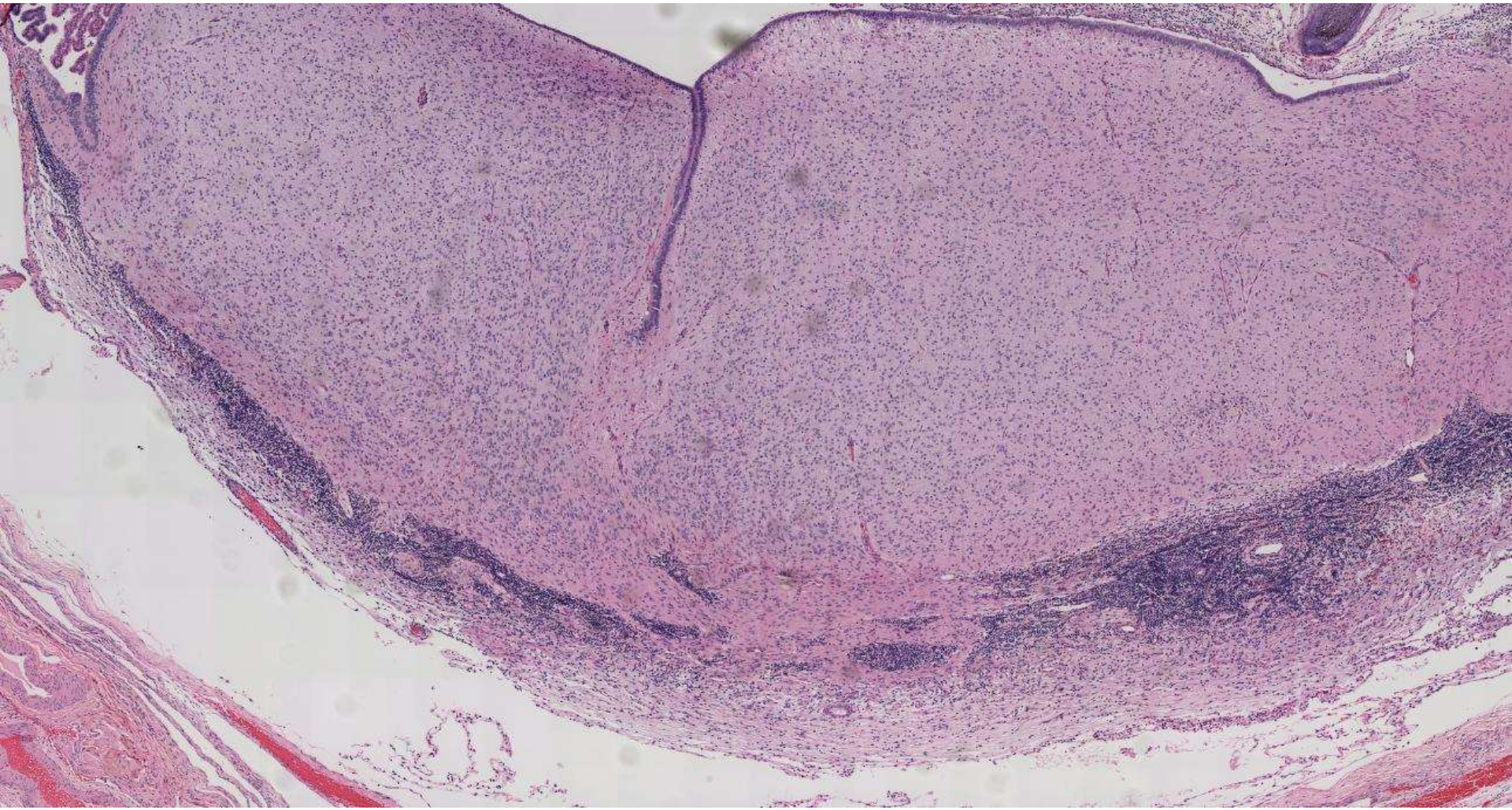
32-year-old woman, previously healthy, brought to ER for altered mental status. She was psychotic, uncooperative, agitated, and combative. Vital signs were normal, as was the physical exam. Toxicology screen was negative. She was admitted to psychiatry under a 5150 hold, and subsequently treated with a variety of psychiatric medications. Her condition worsened; brain MRI was normal. At insistence of friends/family, pelvic US was performed, and showed the submitted right ovarian mass.

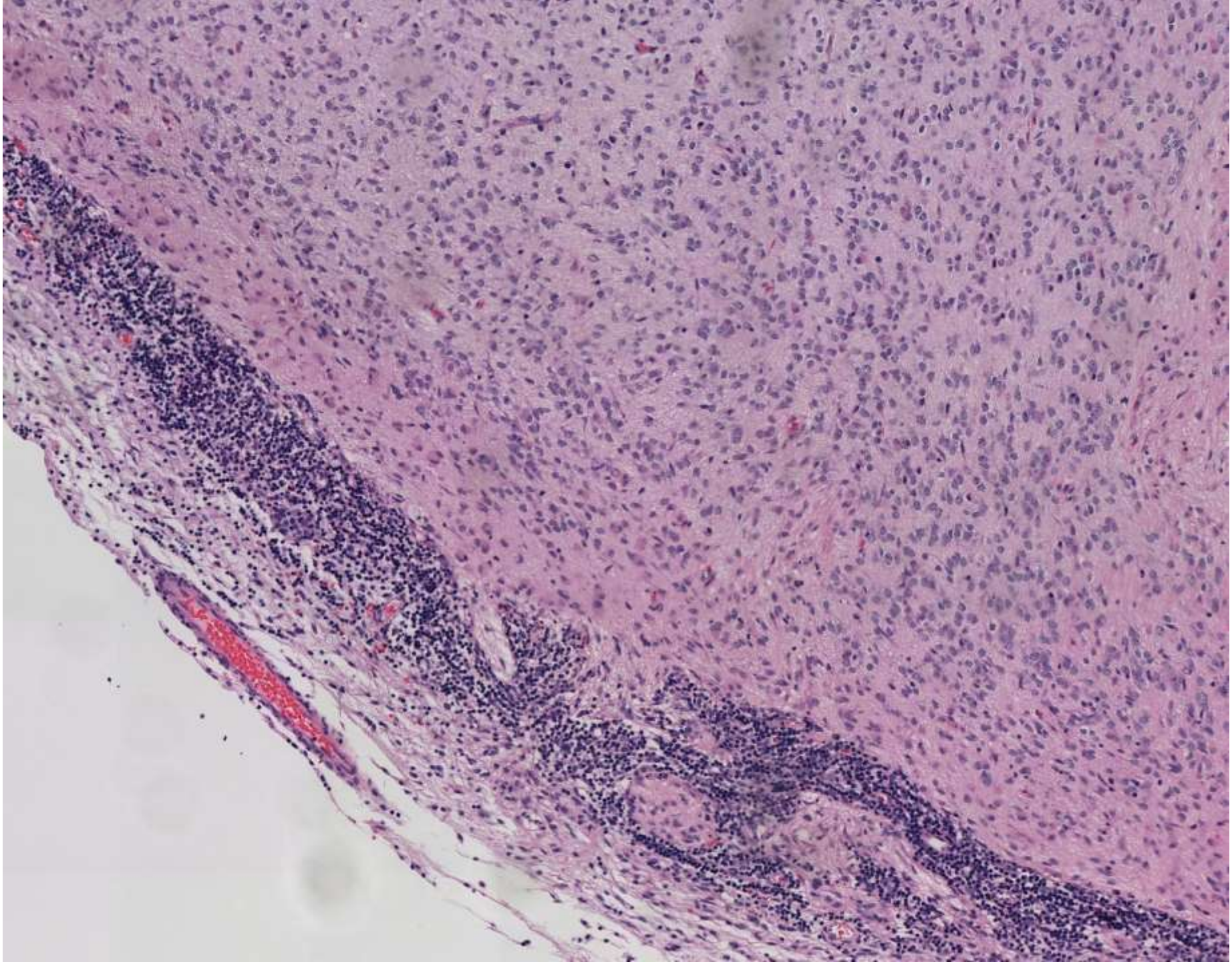


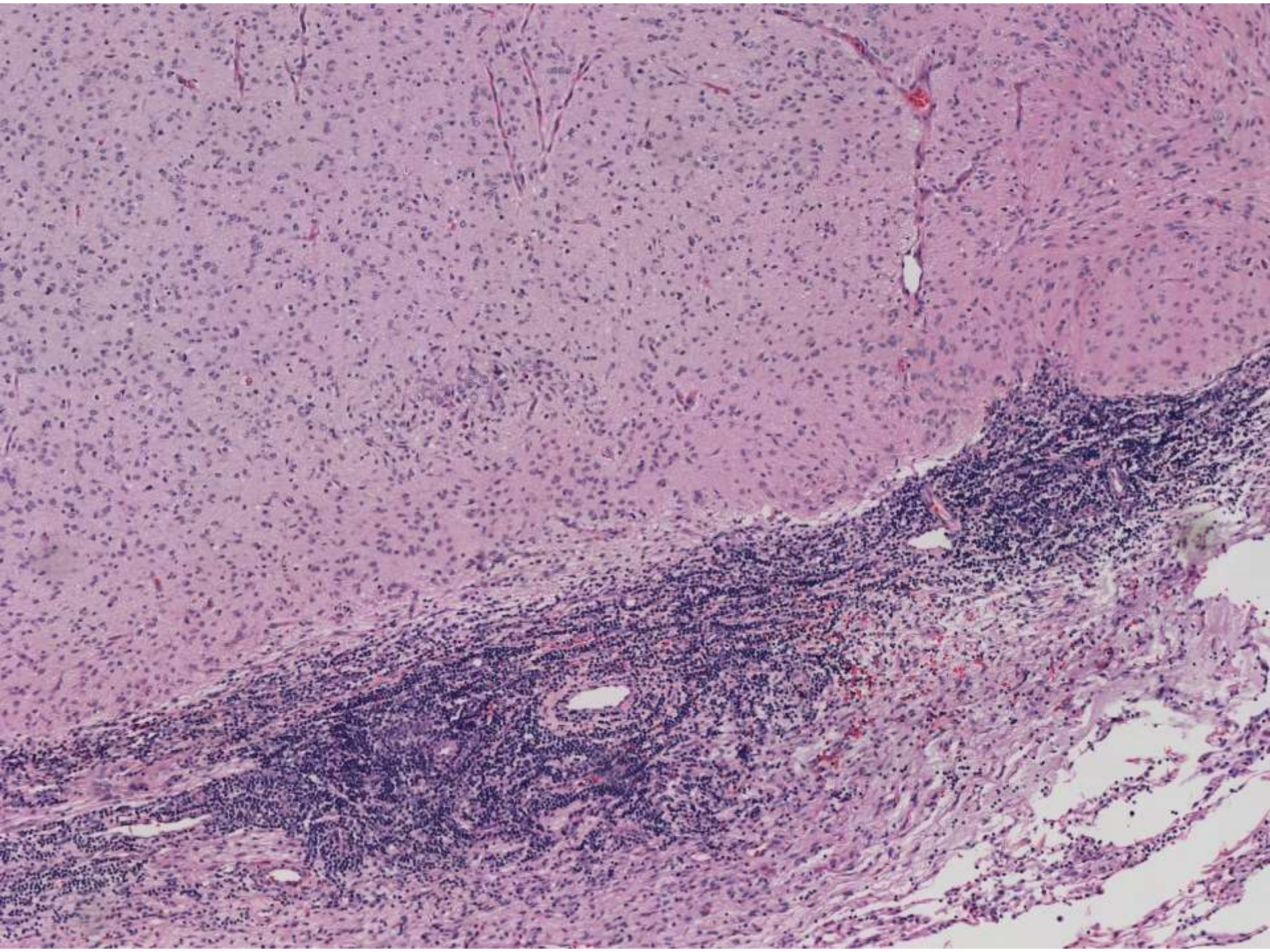


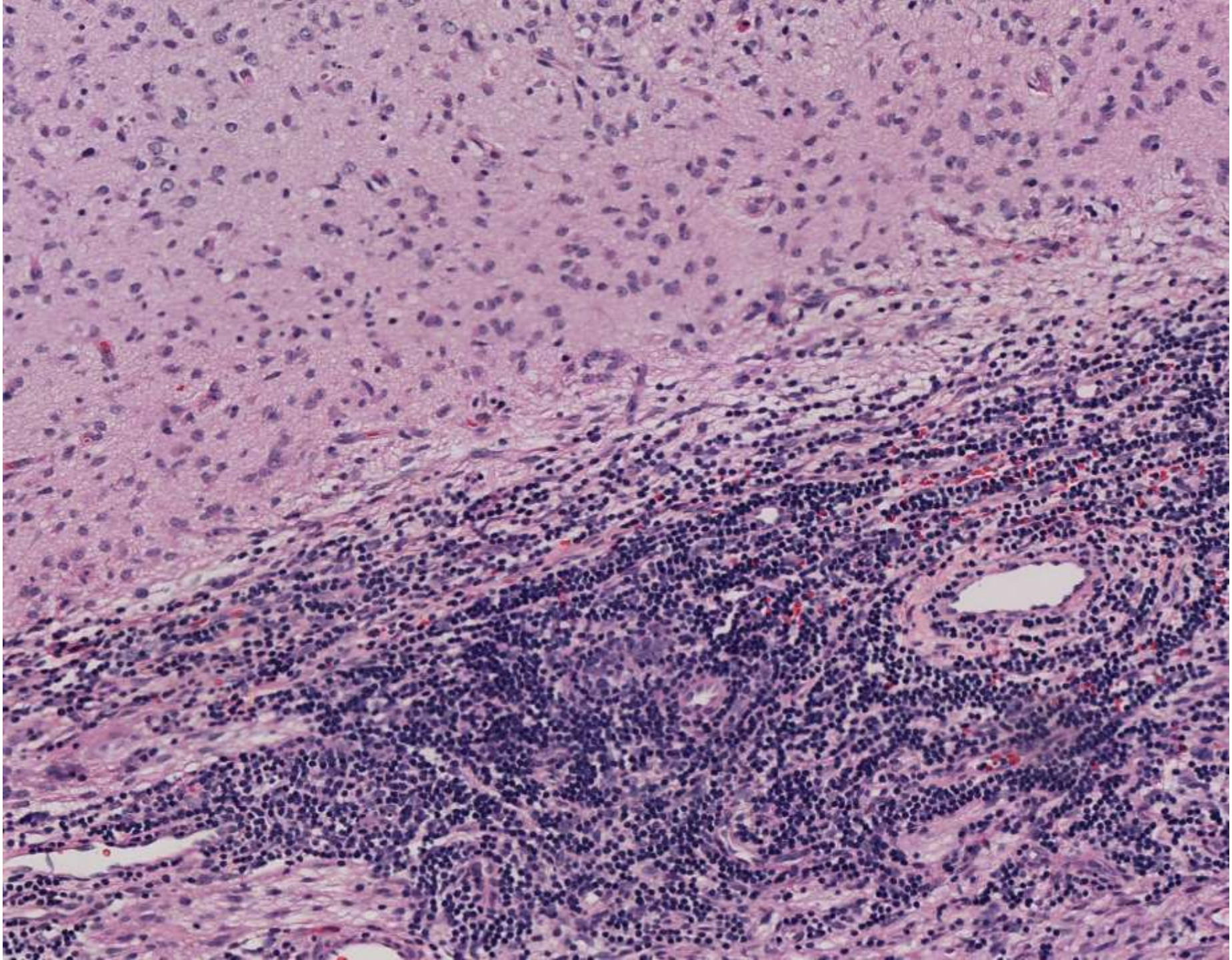


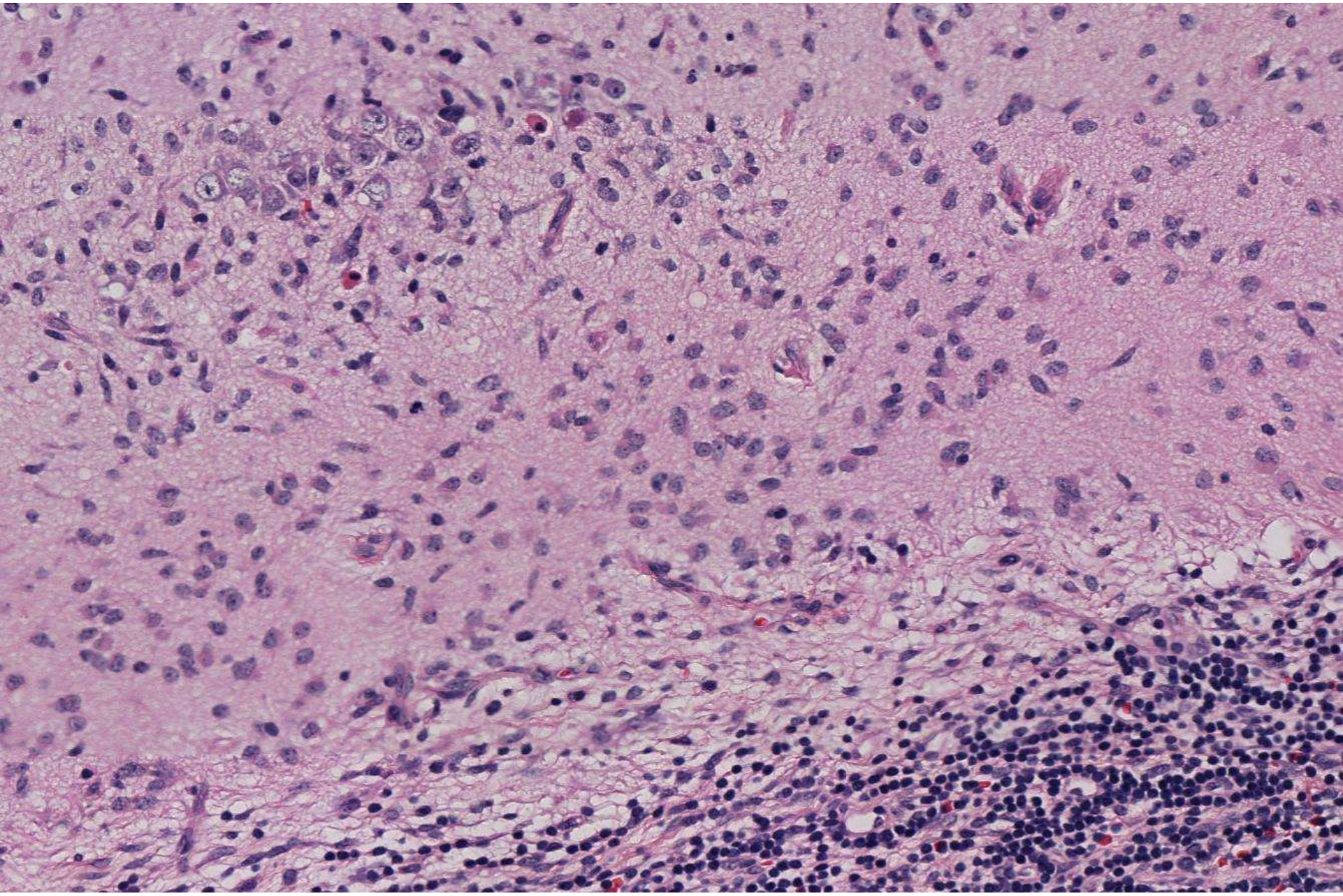












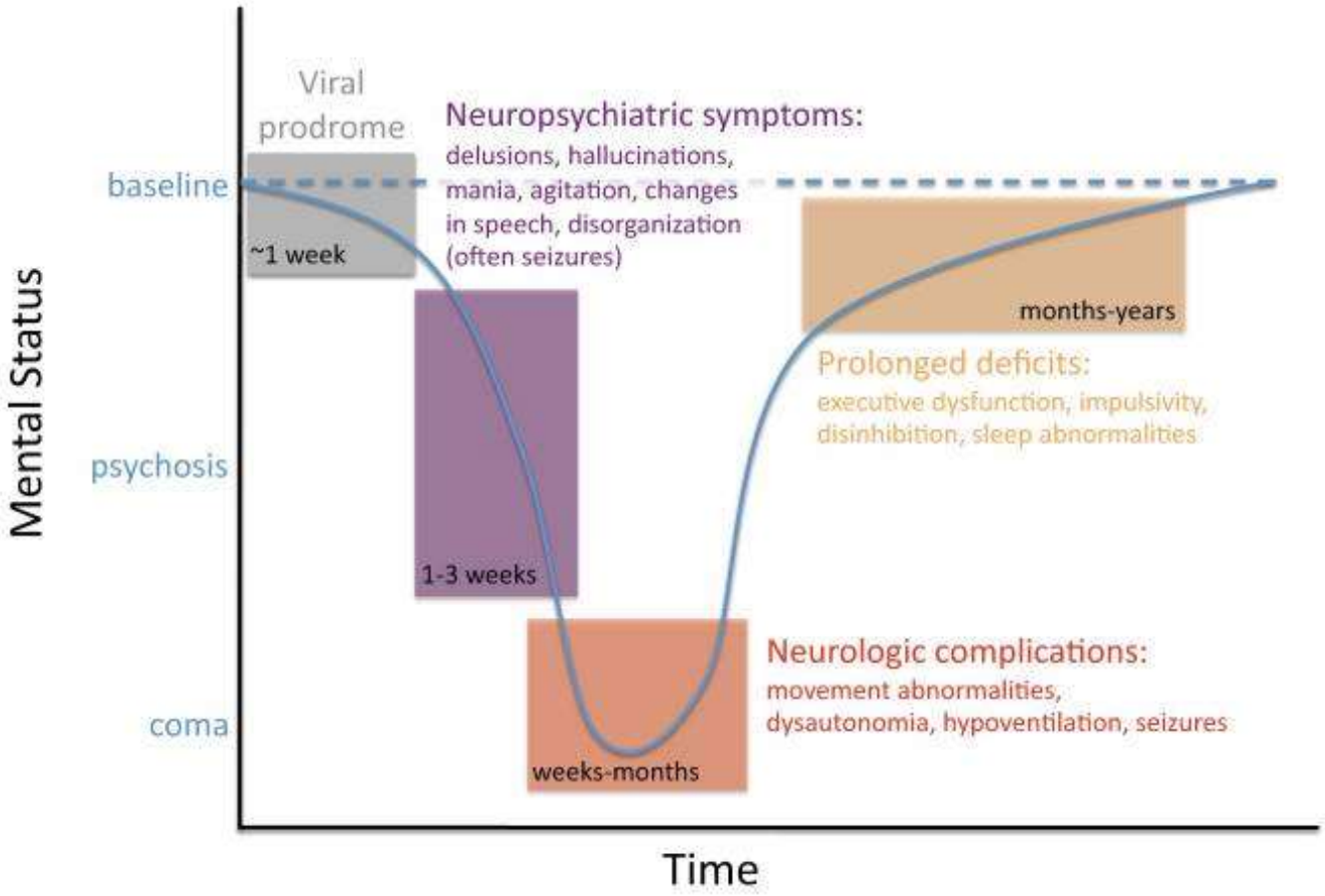
Anti-NMDA-Receptor Encephalitis

- Anti-N-methyl-D-aspartate (NMDA) encephalitis is a treatment-responsive inflammatory encephalopathic autoimmune disease associated with anti-NMDA receptor antibodies. The disease is mostly associated with teratomas of the ovaries and is thus considered a paraneoplastic neurologic syndrome. However, there are a significant number of cases with no detectable tumor.

- Officially categorized and named by Josep Dalmau and colleagues in 2007.

Signs and Symptoms

- Initially, headaches, flu-like symptoms.
- Then agitation, paranoia, psychosis and violent behaviors.
- Seizures and bizarre movements follow.
- Impaired cognition, memory deficits and speech problems.
- Autonomic dysfunction, hypoventilation, cerebellar ataxia, loss of consciousness and catatonia.


Viral prodrome
~1 week
Neuropsychiatric symptoms:
delusions, hallucinations, mania, agitation, changes in speech, disorganization (often seizures)
1-3 weeks
weeks-months
Neurologic complications:
movement abnormalities, dysautonomia, hypoventilation, seizures
months-years
Prolonged deficits:
executive dysfunction, impulsivity, disinhibition, sleep abnormalities
baseline
psychosis
coma
Mental Status
Time

Pathophysiology

- N-methyl-D-aspartate receptor is an ion channel located in both the pre- and post-synaptic membranes that plays a key role in synaptic transmission.
- Receptor is highly expressed in the forebrain, limbic system, and hypothalamus.

Differential Diagnosis

- Viral encephalitis (e.g. HSV, VSV, EBV, CYM, HHV5/HHV7, arbovirus, rabies, etc.)
- Autoimmune encephalitis (e.g. SLE, Sjogren syndrome, thyroiditis, etc.)
- Toxics and Metabolic Disorders (e.g. salicylates, amphetamines, cocaine, PCP, CO, methanol, cyanide, etc.)
- Porphyria
- Amino/Organic Acid Metabolism Disorders (in children).

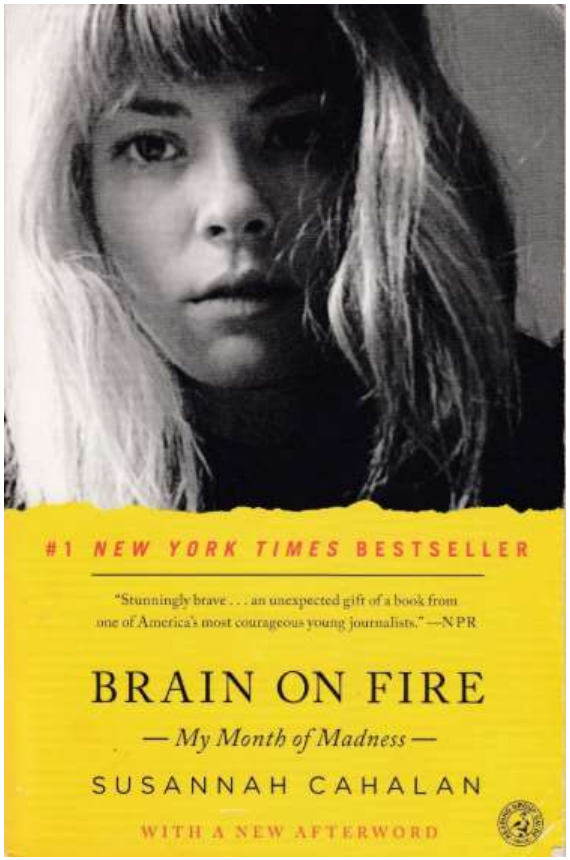
Management

- Remove any tumors.
- Steroids, IV IGG, plasmapheresis.
- Rituximab, cyclophosphamide, alemtuzumab.

Recovery can take many months.

- *New York Post* reporter Susannah Cahalan's book Brain on Fire: My Month of Madness

  2012



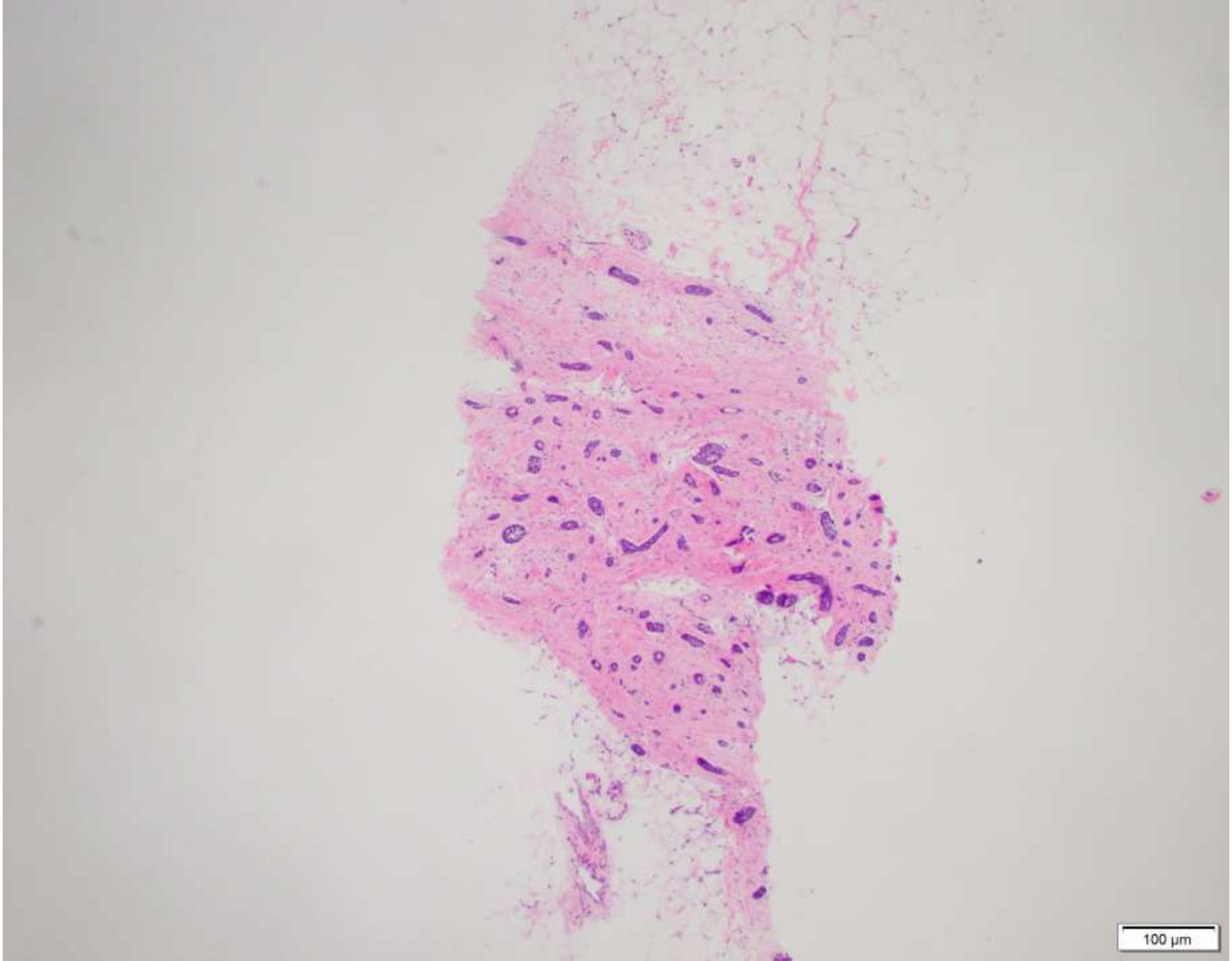
- Dallas Cowboys defensive lineman Amobi Okoye spent 17 months battling anti-NMDA receptor encephalitis. In addition to three months in a medically-induced coma, he experienced a 145-day memory gap and lost 78 pounds. He returned to practice on October 23, 2014.

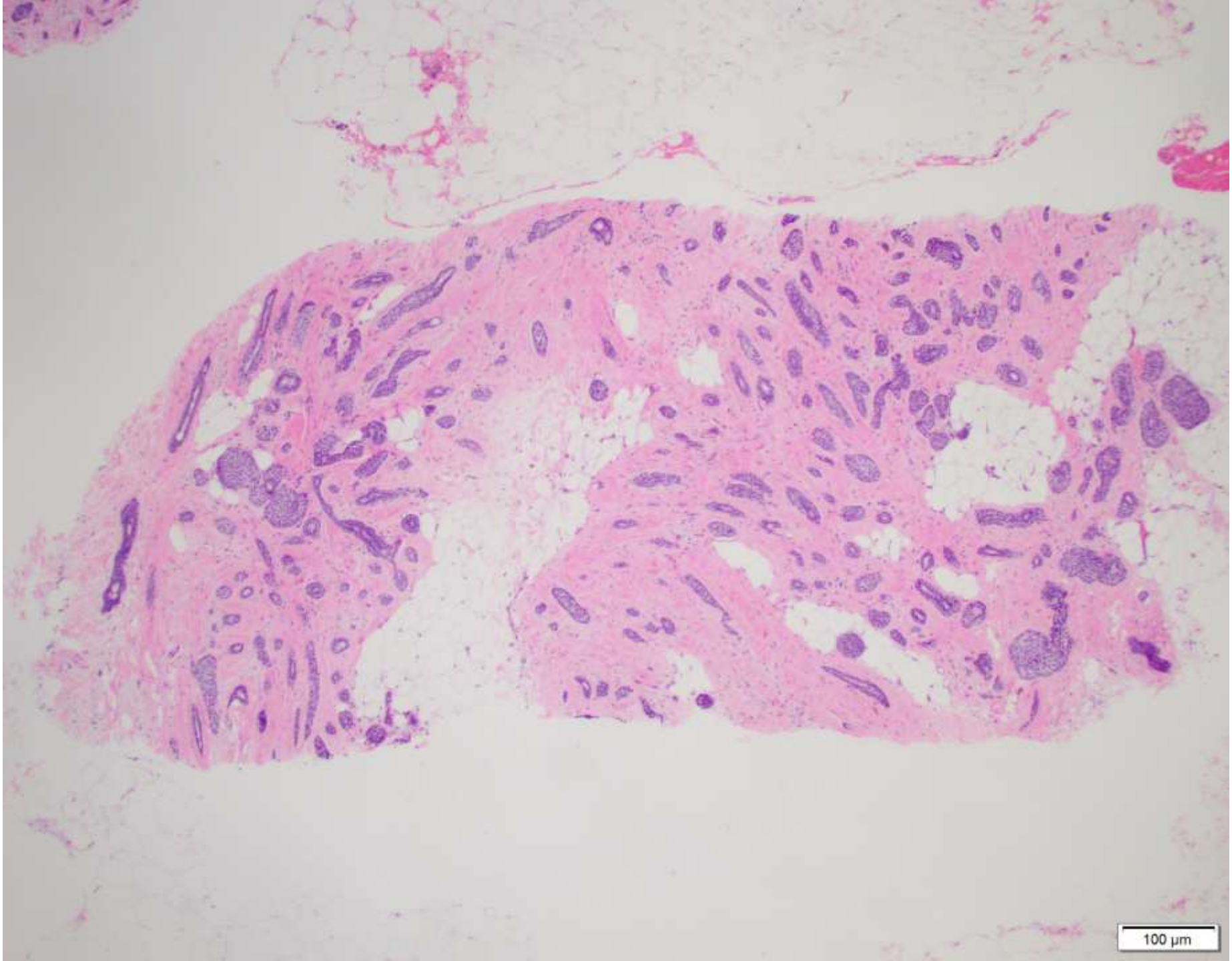
- Knut, a polar bear at the Berlin Zoological Garden that died on 19 March 2011, was diagnosed with anti-NMDA receptor encephalitis in August 2015. This was the first case discovered outside of a human host.

- Reference: Rosenbloom, M.H., et. al. "NMDA receptor antibody encephalitis presenting with enhancing lesion and seizures." Neurology: Clinical Practice, Oct 2017, pages 433-435.

SB 6284
Jim Mathews; Kaiser Antioch

72-year-old woman with right breast mass.


100 µm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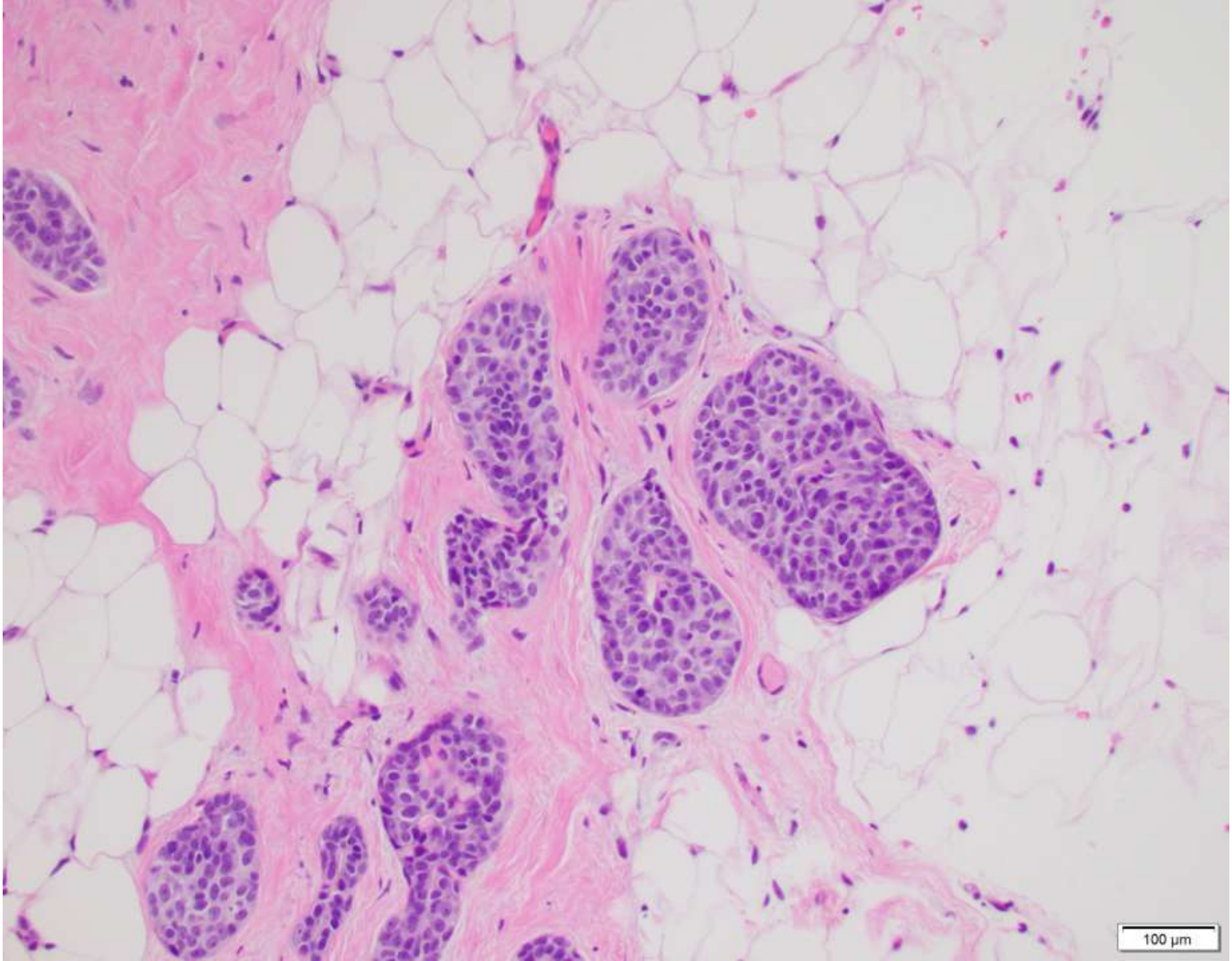
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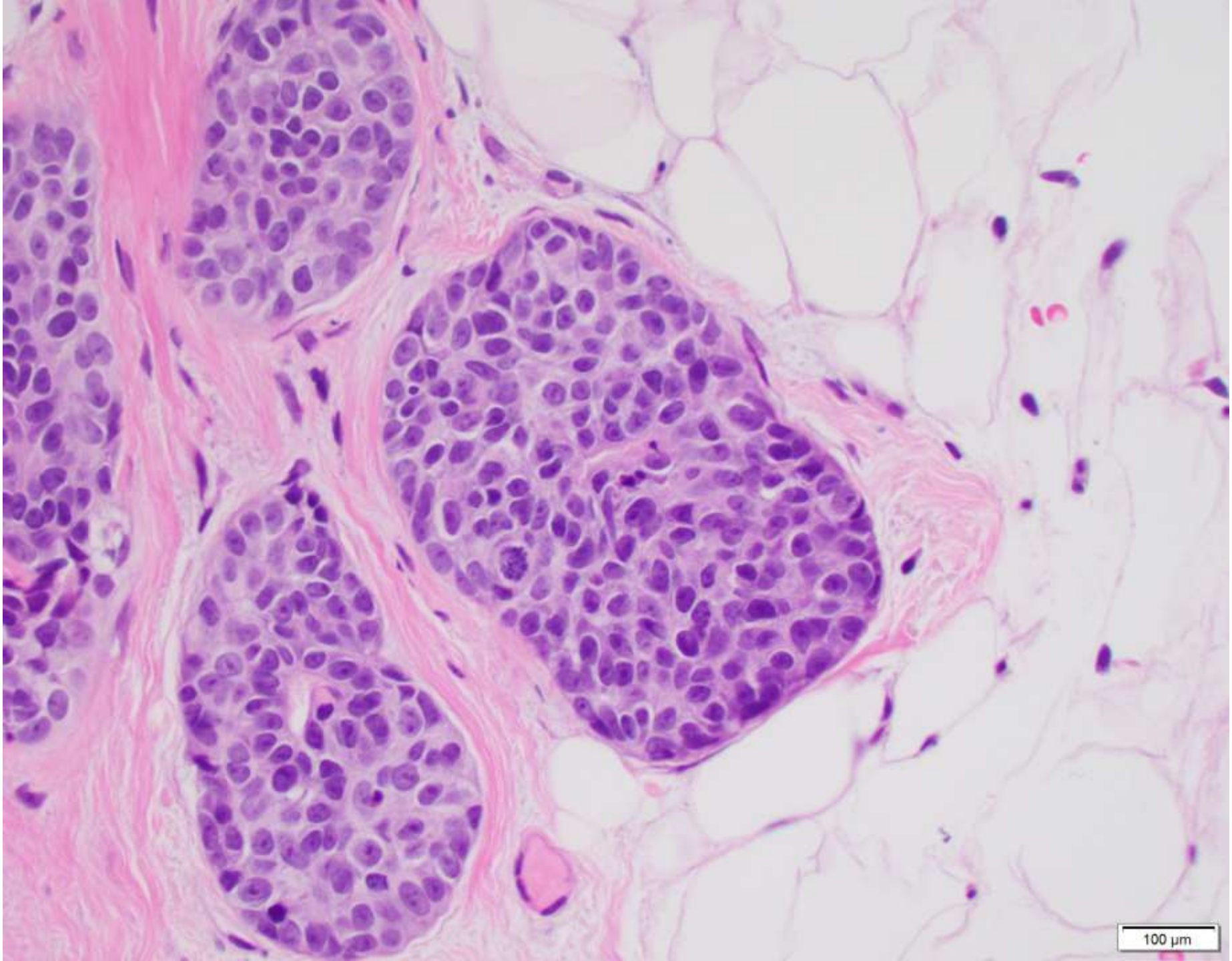
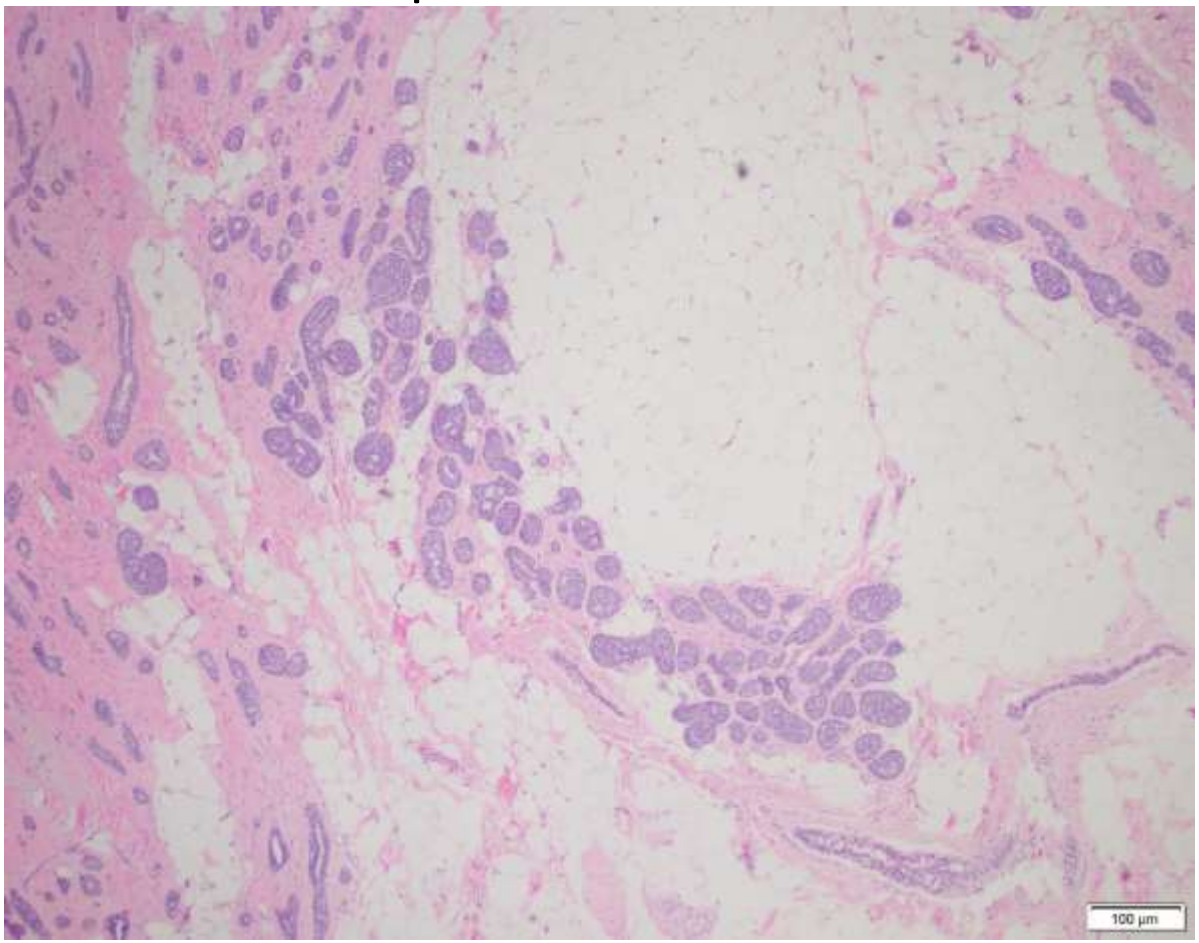
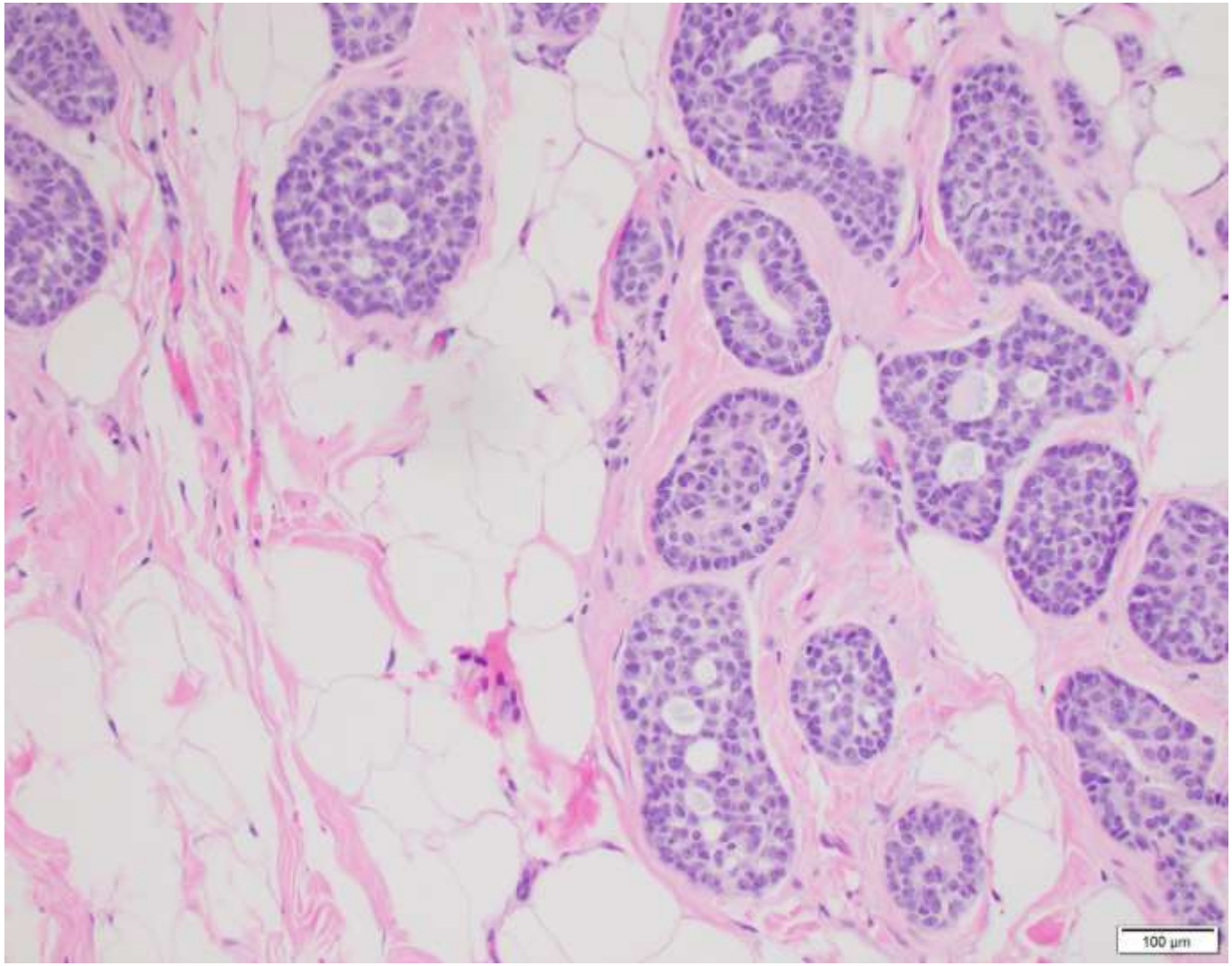

100 µm

Breast triple stain

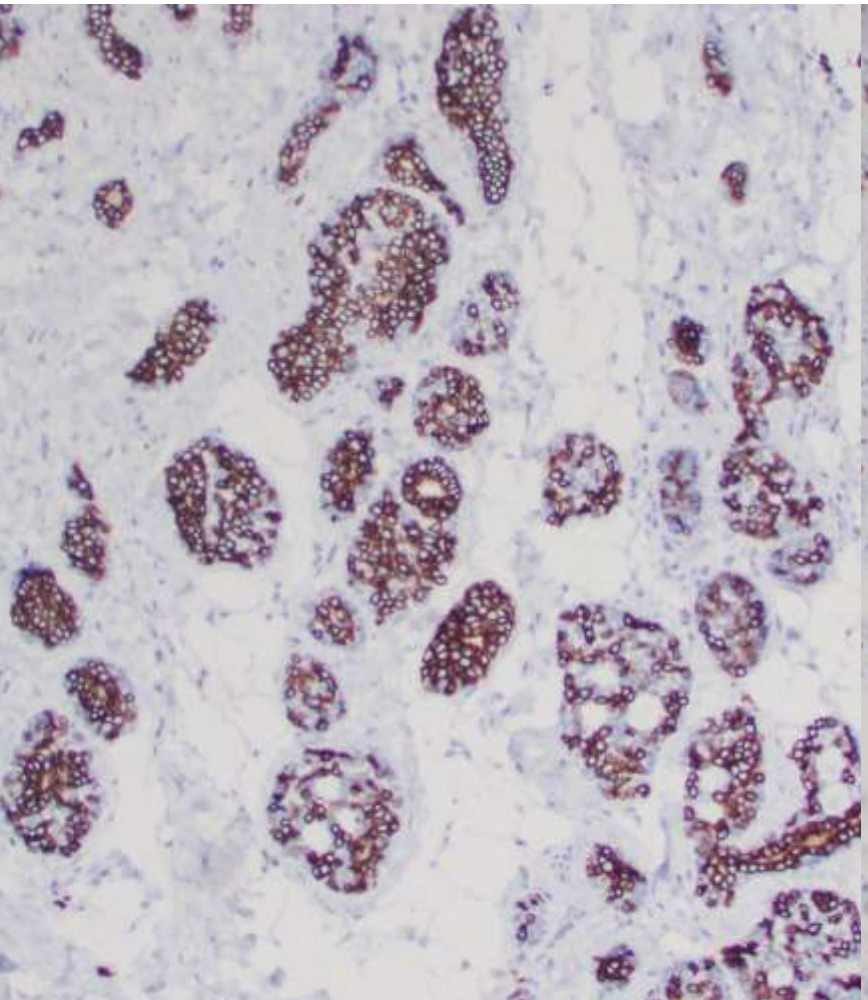
Subsequent excision

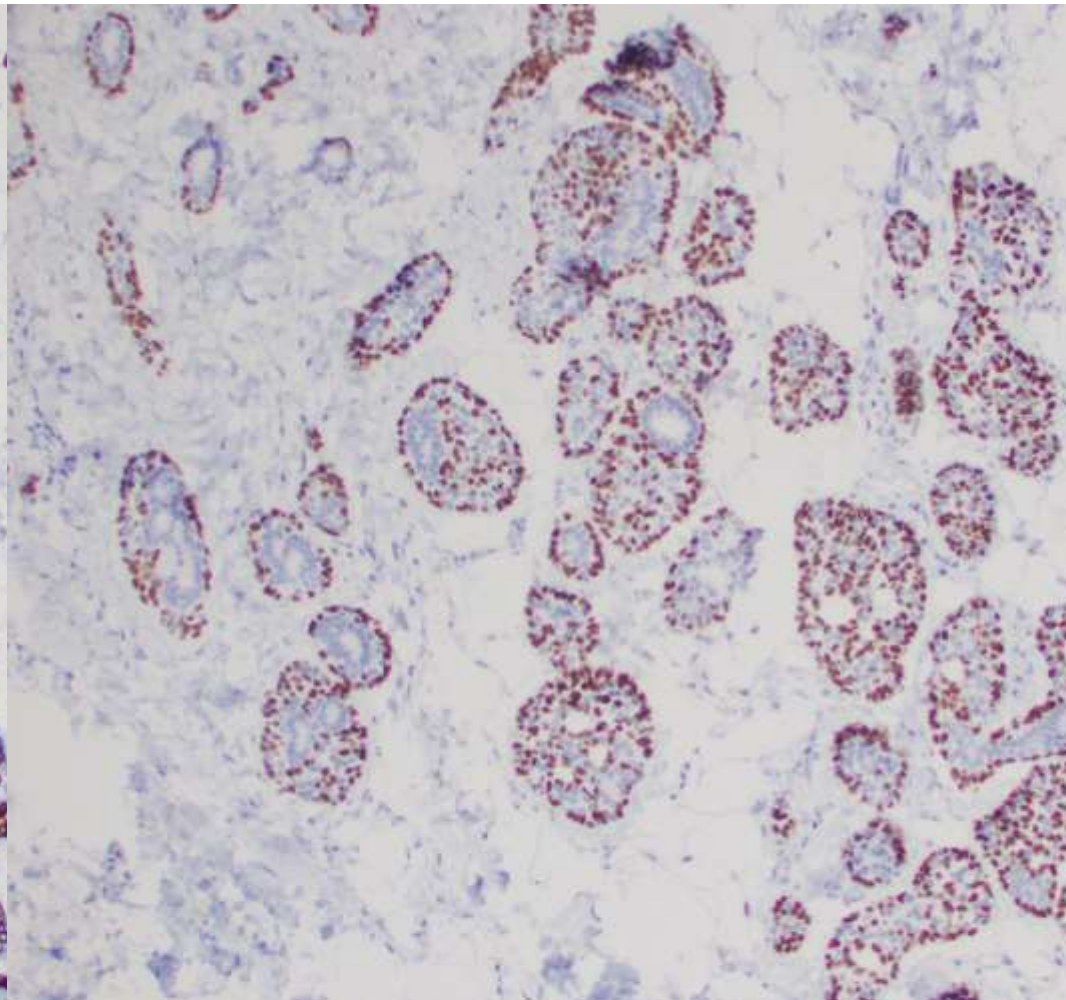



100 µm

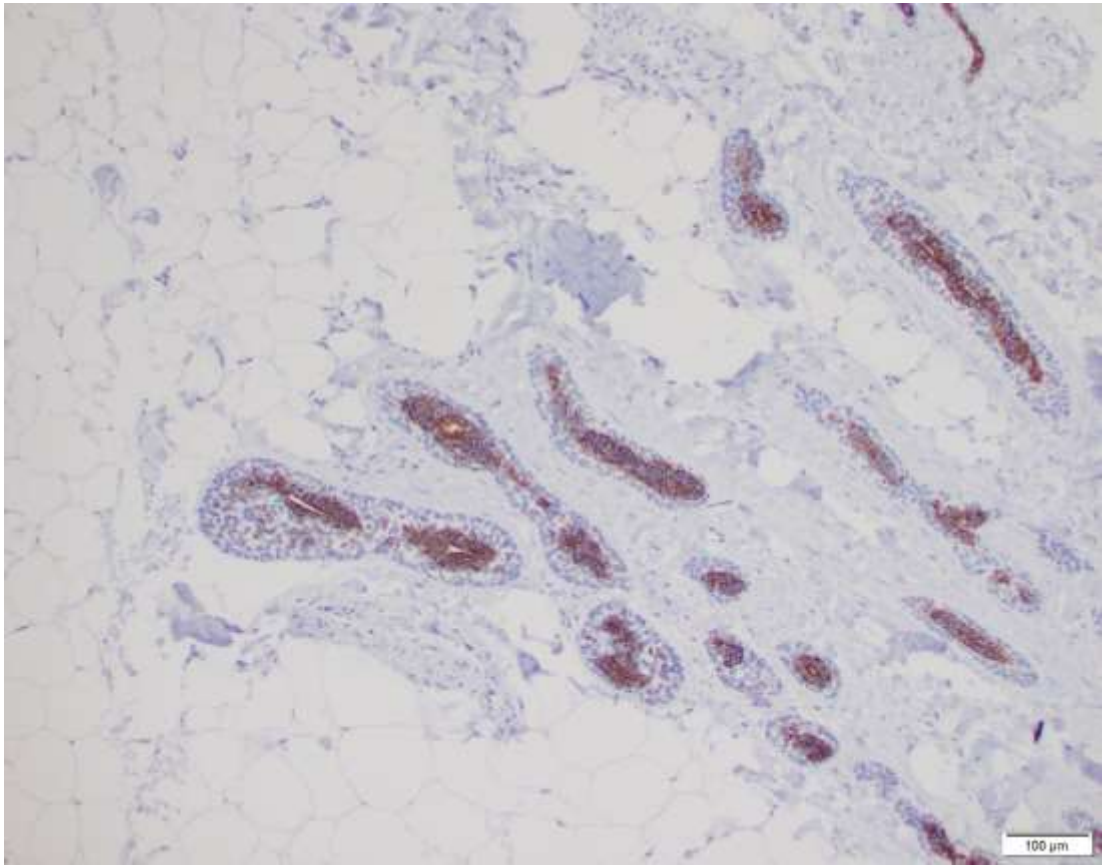
CD117

p63



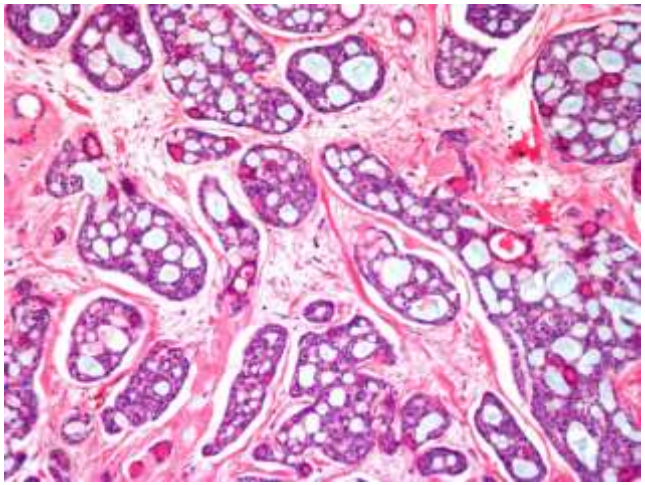


CK7



Adenoid Cystic Carcinoma (ACC)

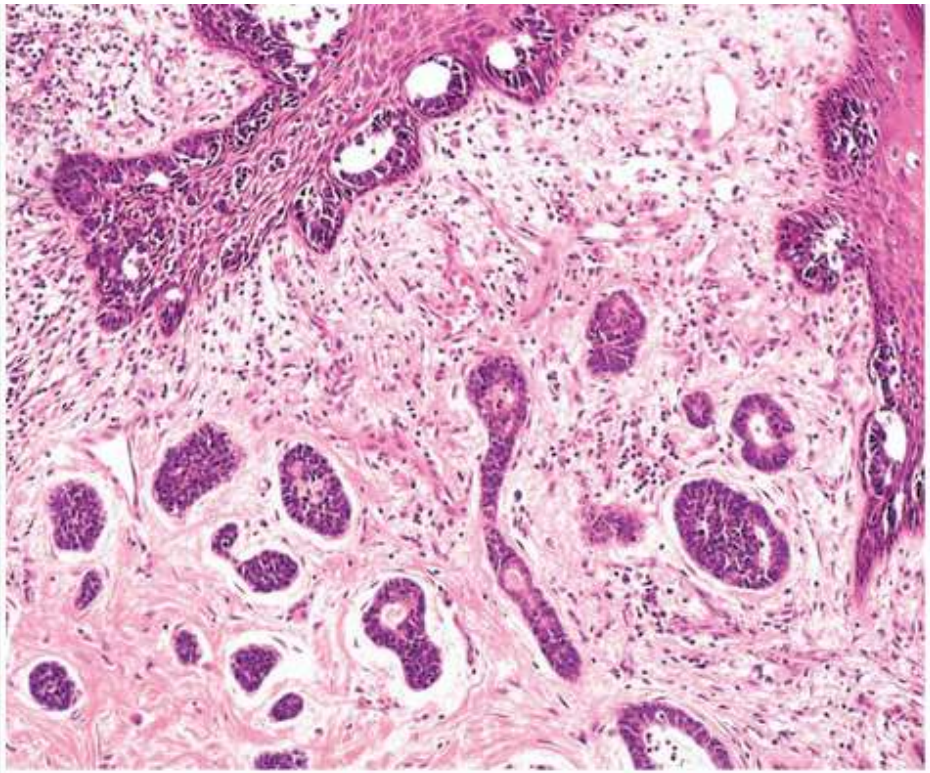
- Rare form of primary breast carcinoma, 0.058% according to California Cancer Registry
- Mean age 50-63 years
- Most frequently presents as a mass (80%), or less frequently pain
- Considered to have a good prognosis with low risk of systemic metastasis
- May be invasion microscopically despite a circumscribed gross appearance

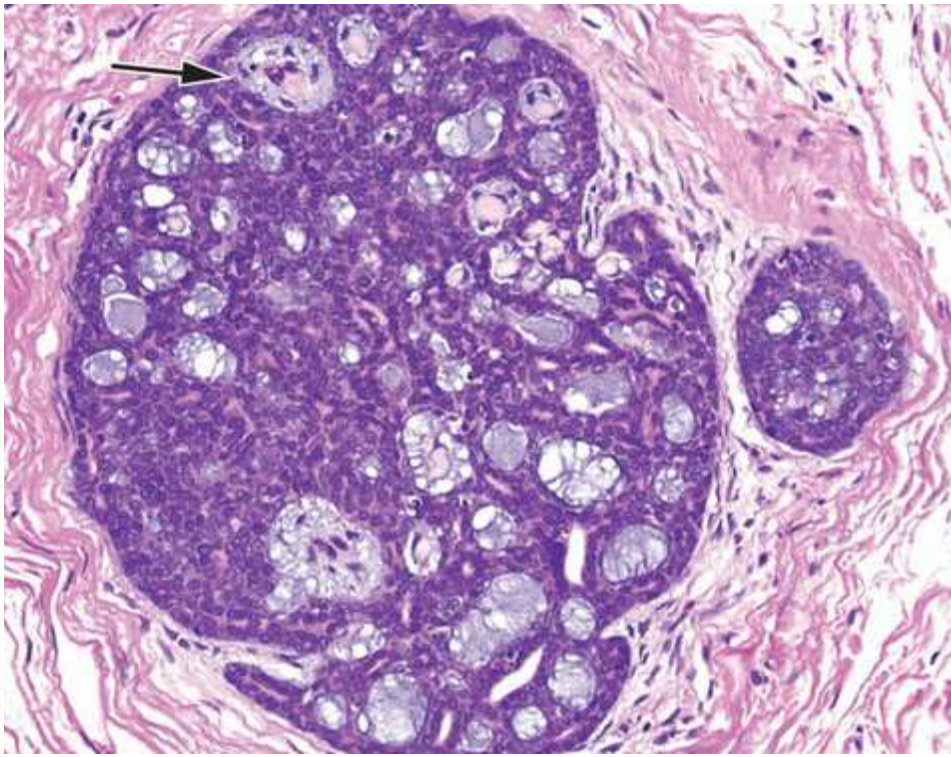


ACC Ancillary studies

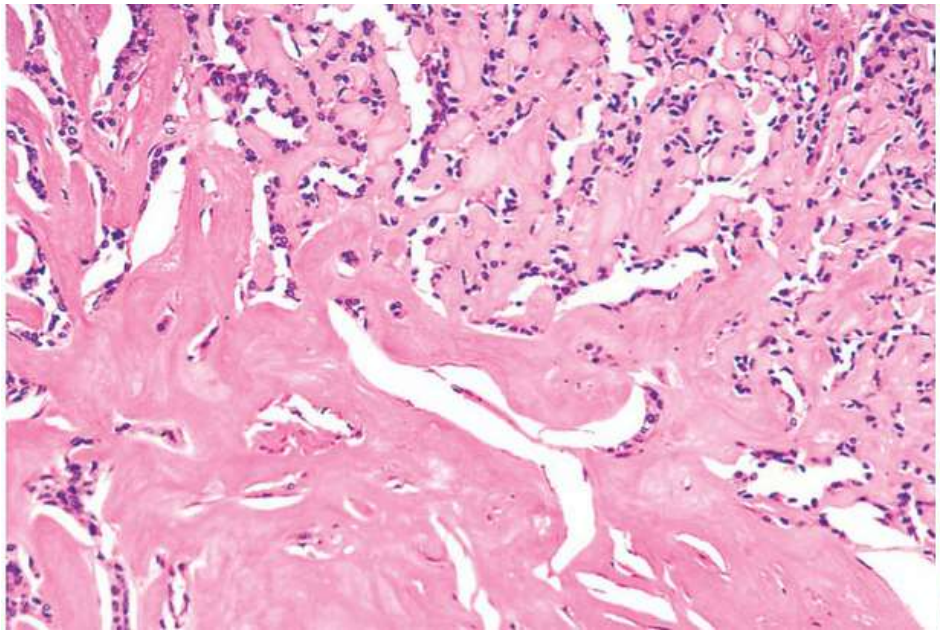
- Ipox that highlights epithelial cells: CK7, CEA, EMA CK5/6, CK8/18, CD117
- Ipox that myoepithelial cells: p63, SMA, calponin, CD10
- Cytogenetics:
  - MYB-NFIB fusion t(6;9)
  - Overexpression of the MYB protein (82%)
- Lack expression of ER and Her2

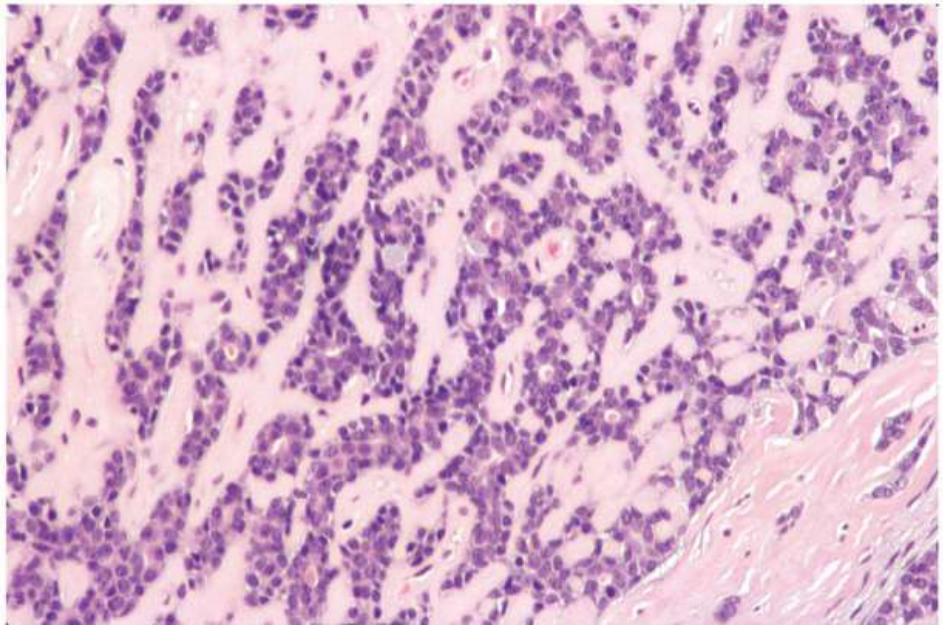
ACC Patterns

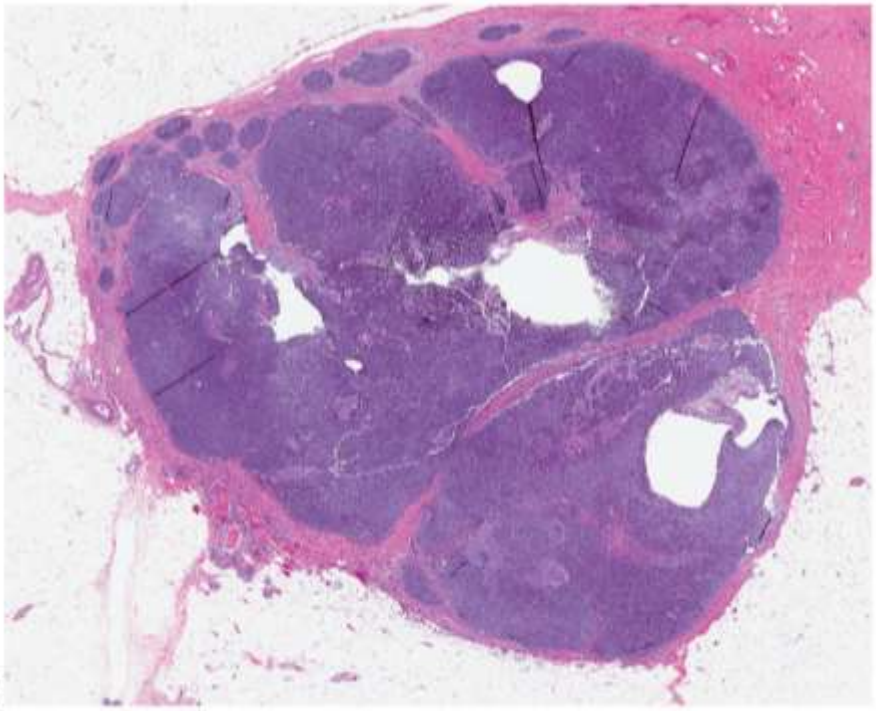




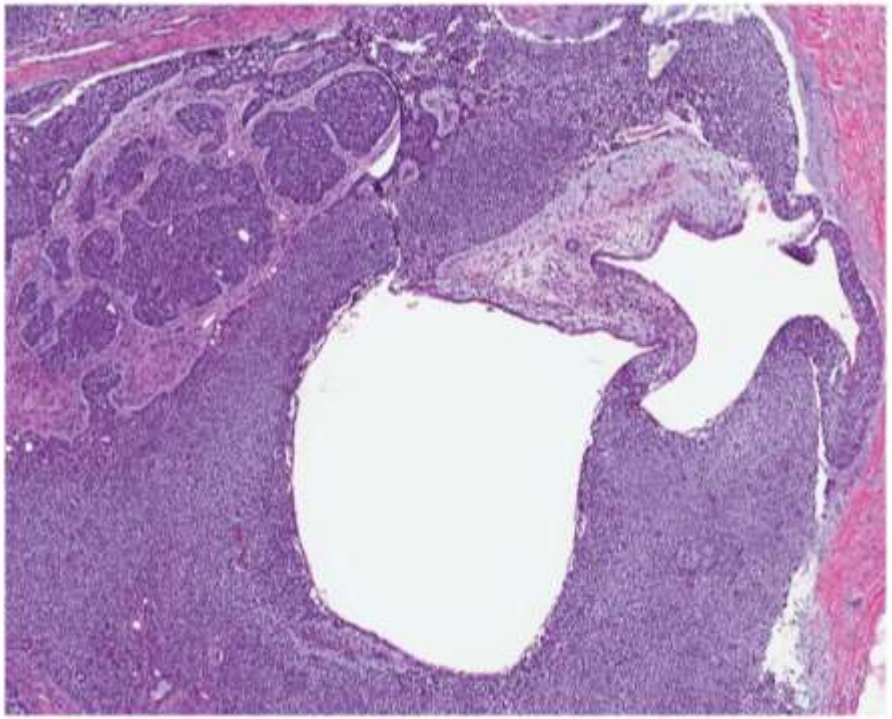
ACC Patterns





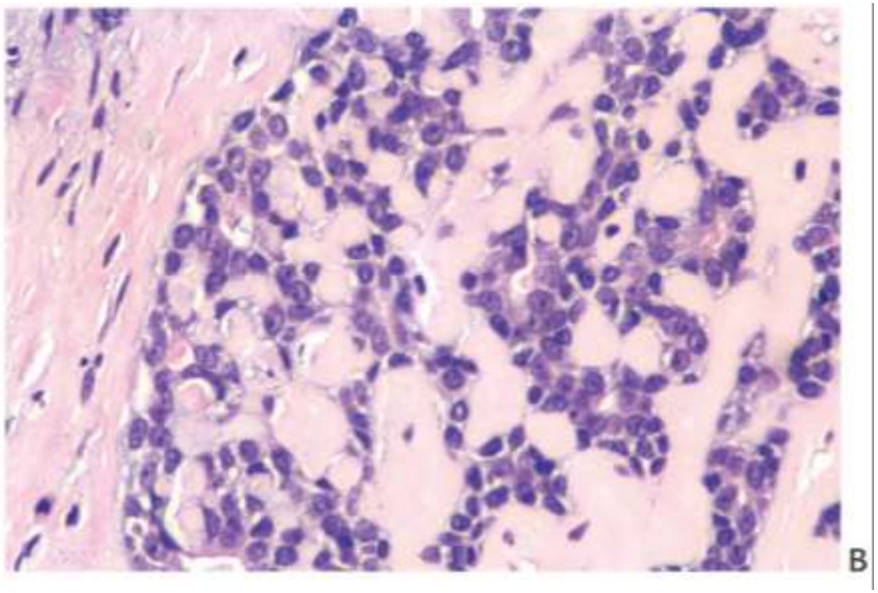


E

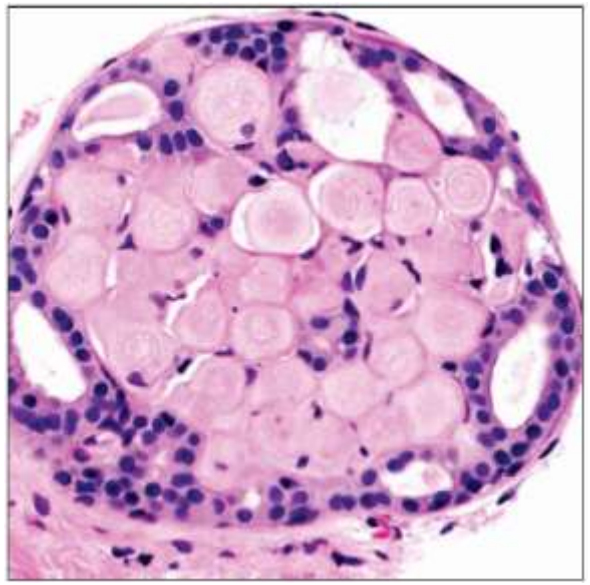


F

ACC



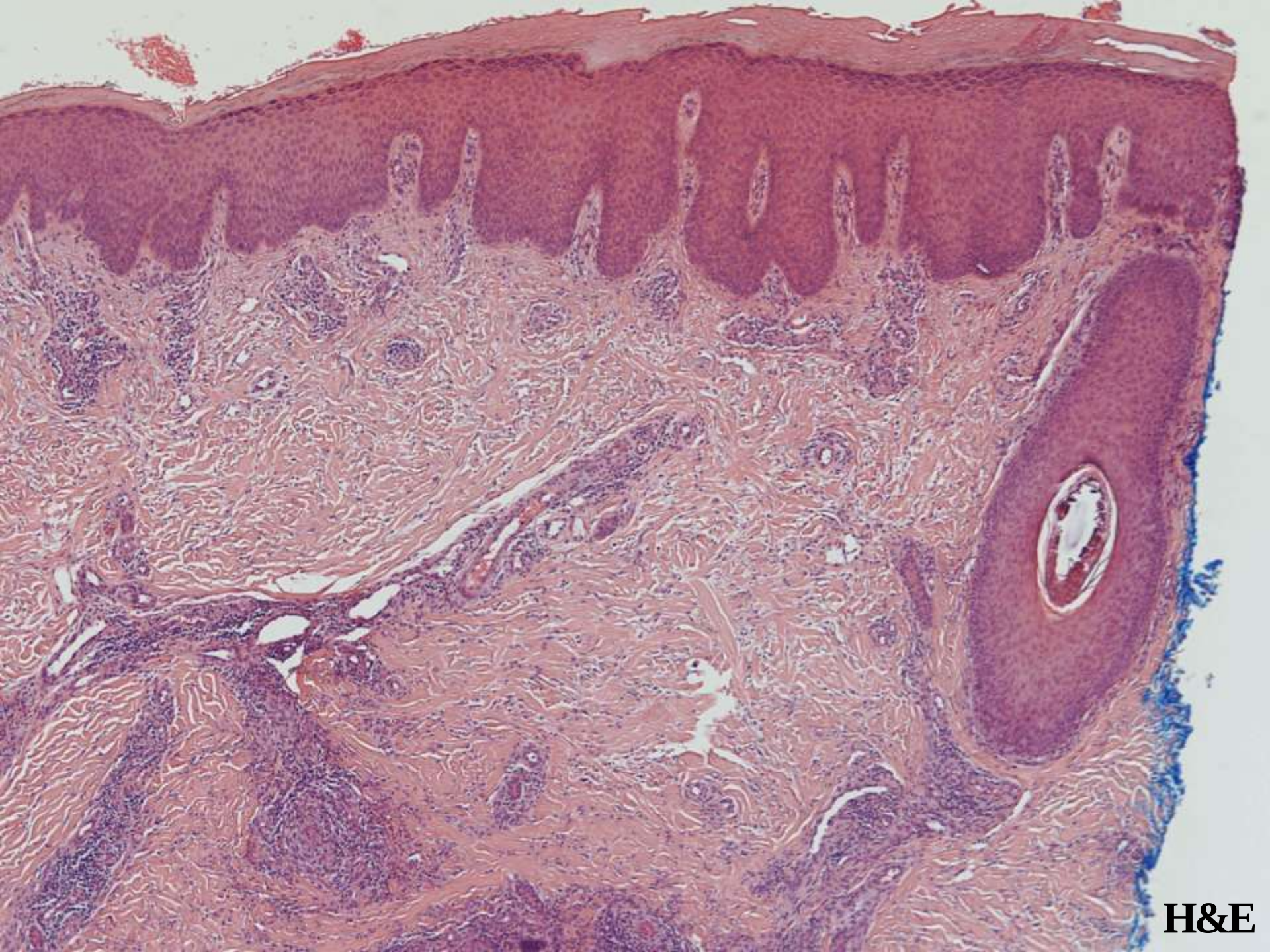
Collagenous spherulosis

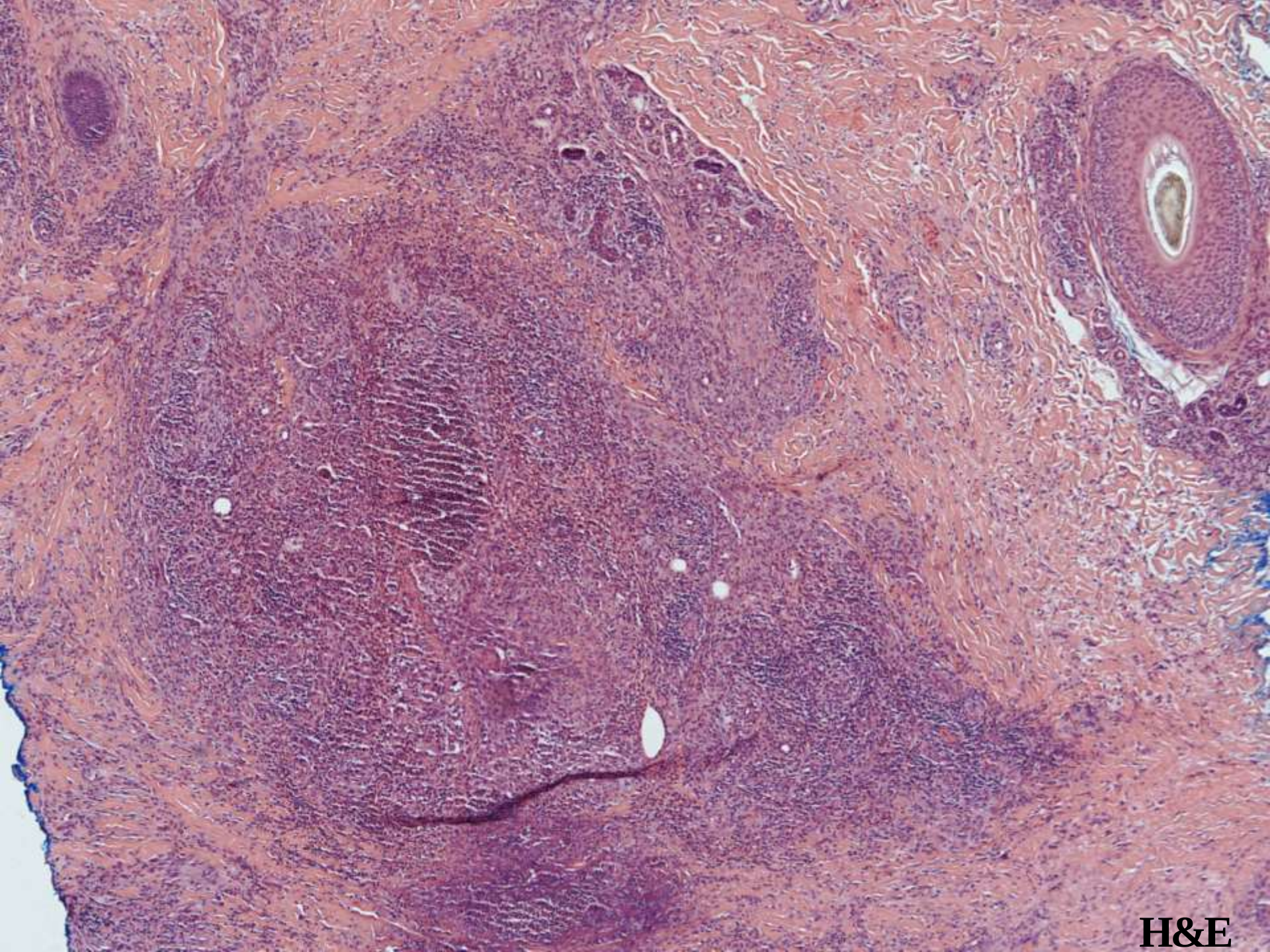


SB 6285
Atif Saleem/Christine Louie; VA Palo Alto

68-year-old HIV positive male with right wrist pruritic rash and bone pain x 1 week.

Right wrist


H&E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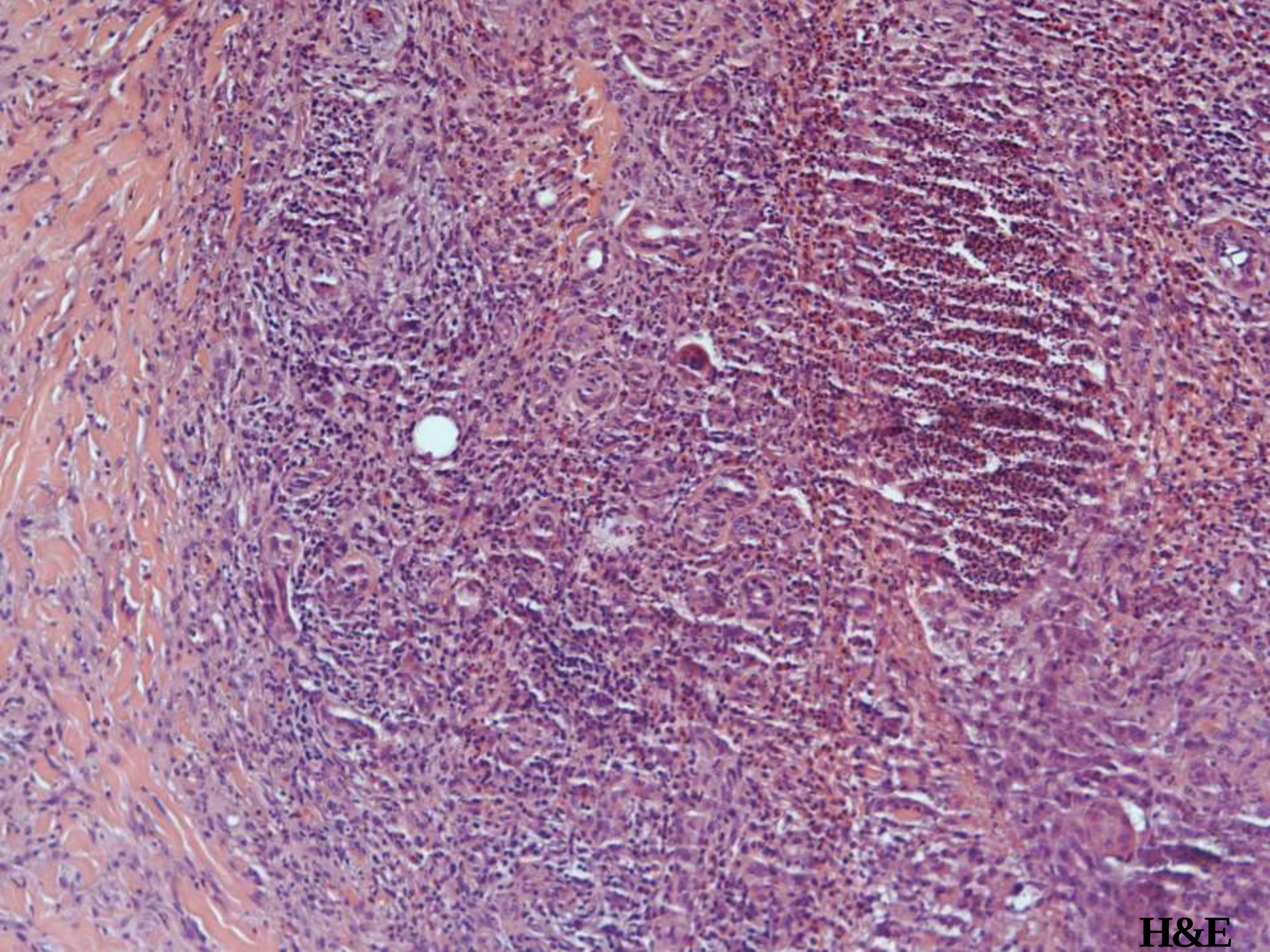
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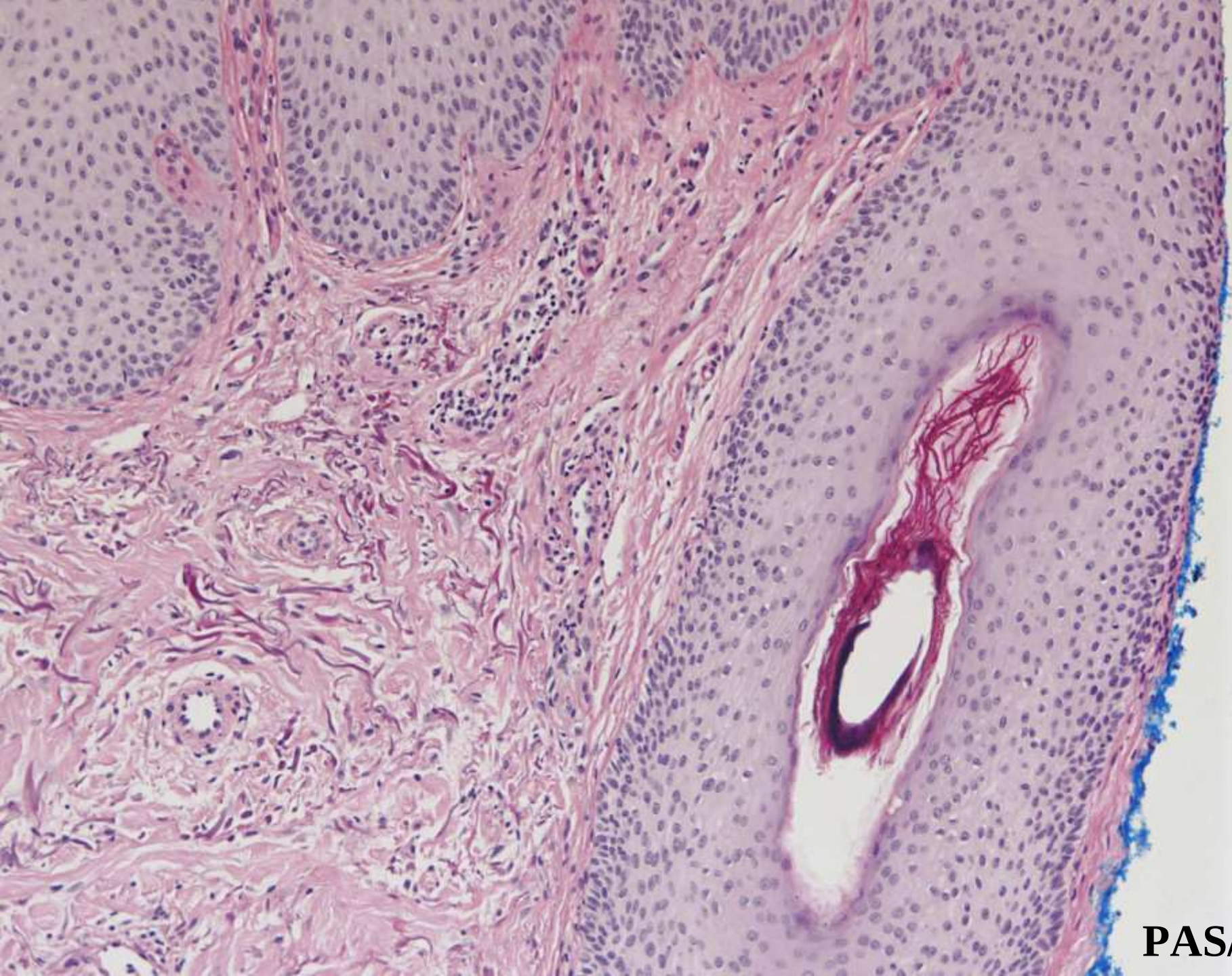
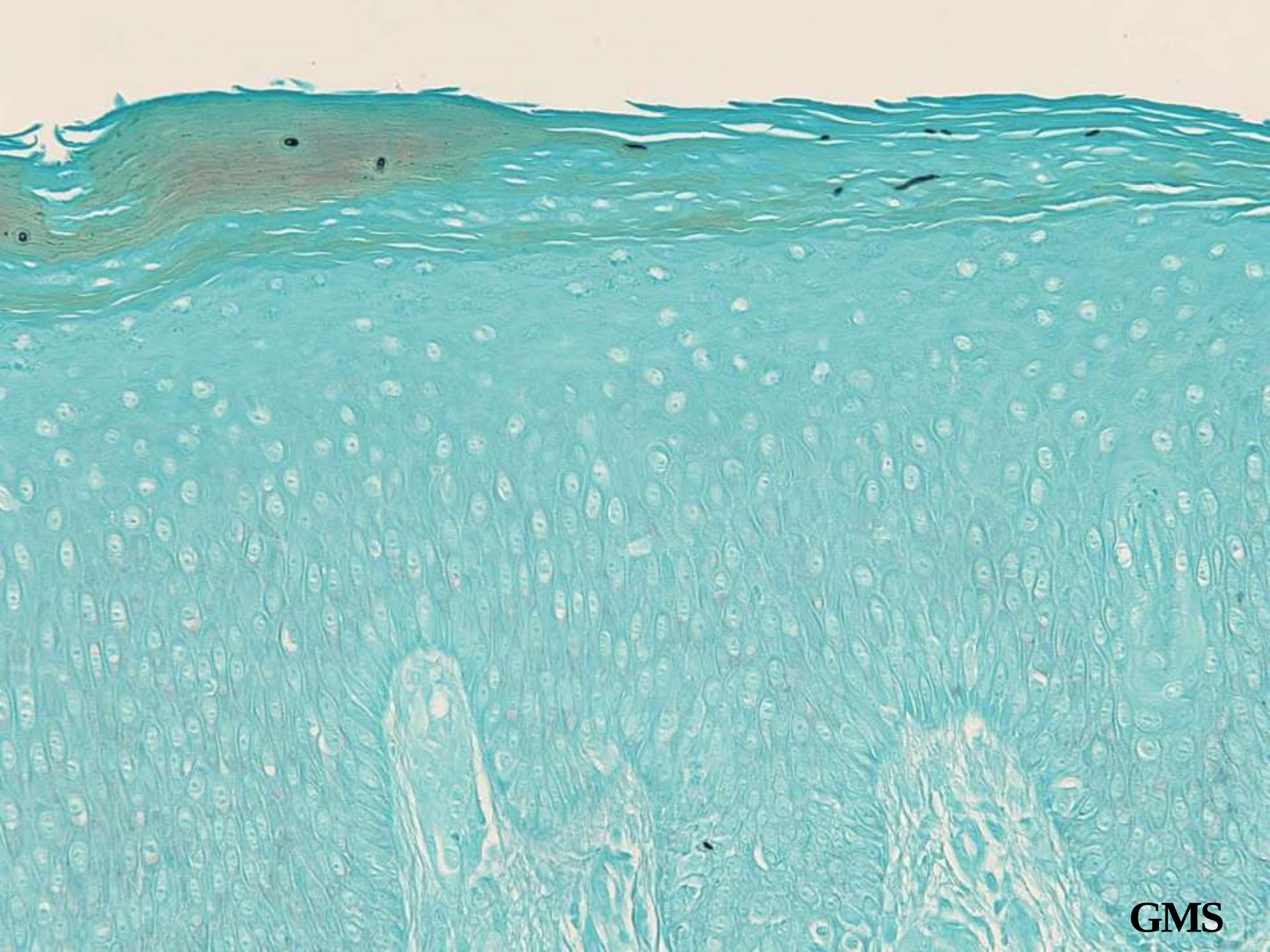
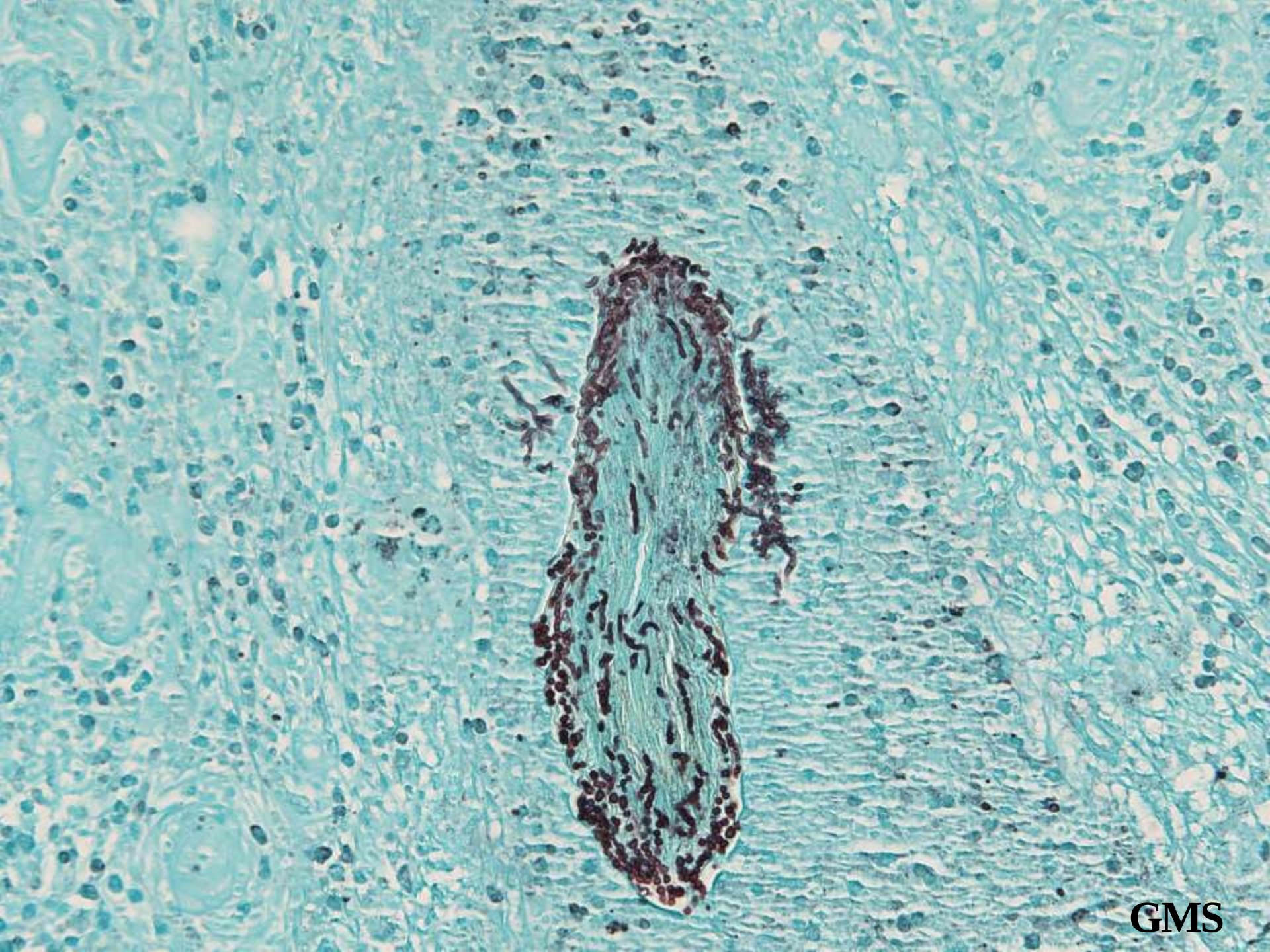
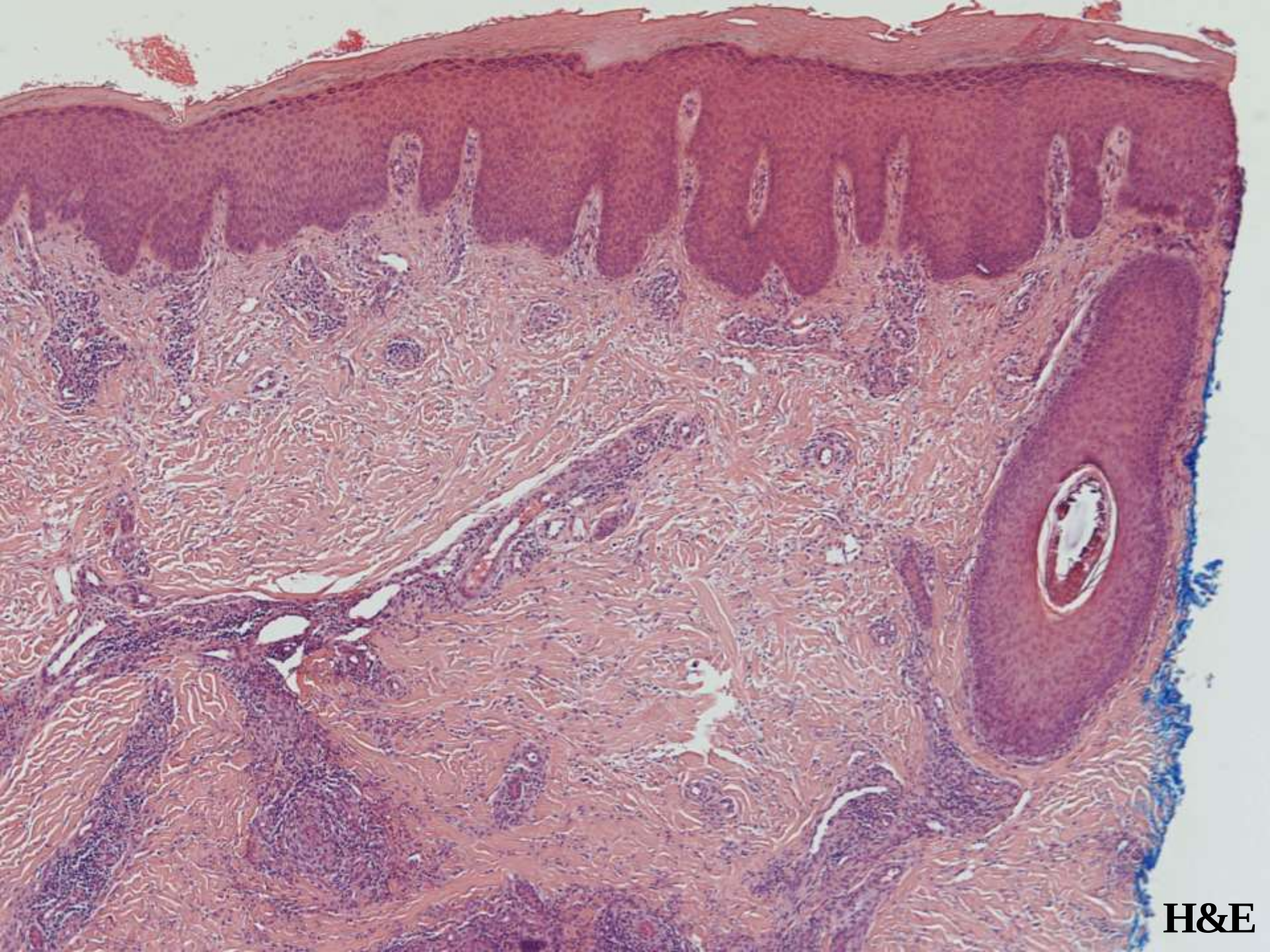
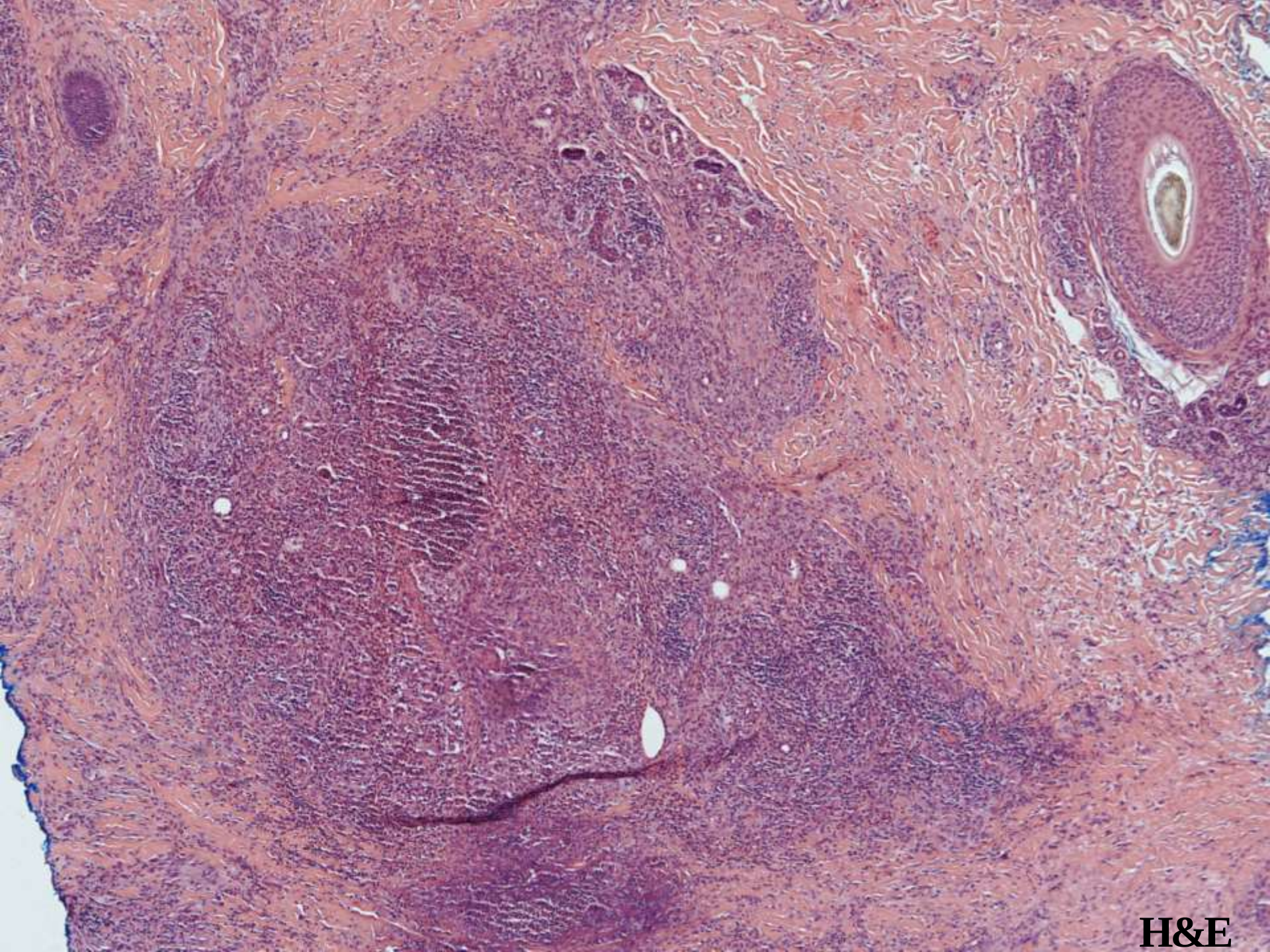

PAS/D


GMS


GMS

Right wrist


H&E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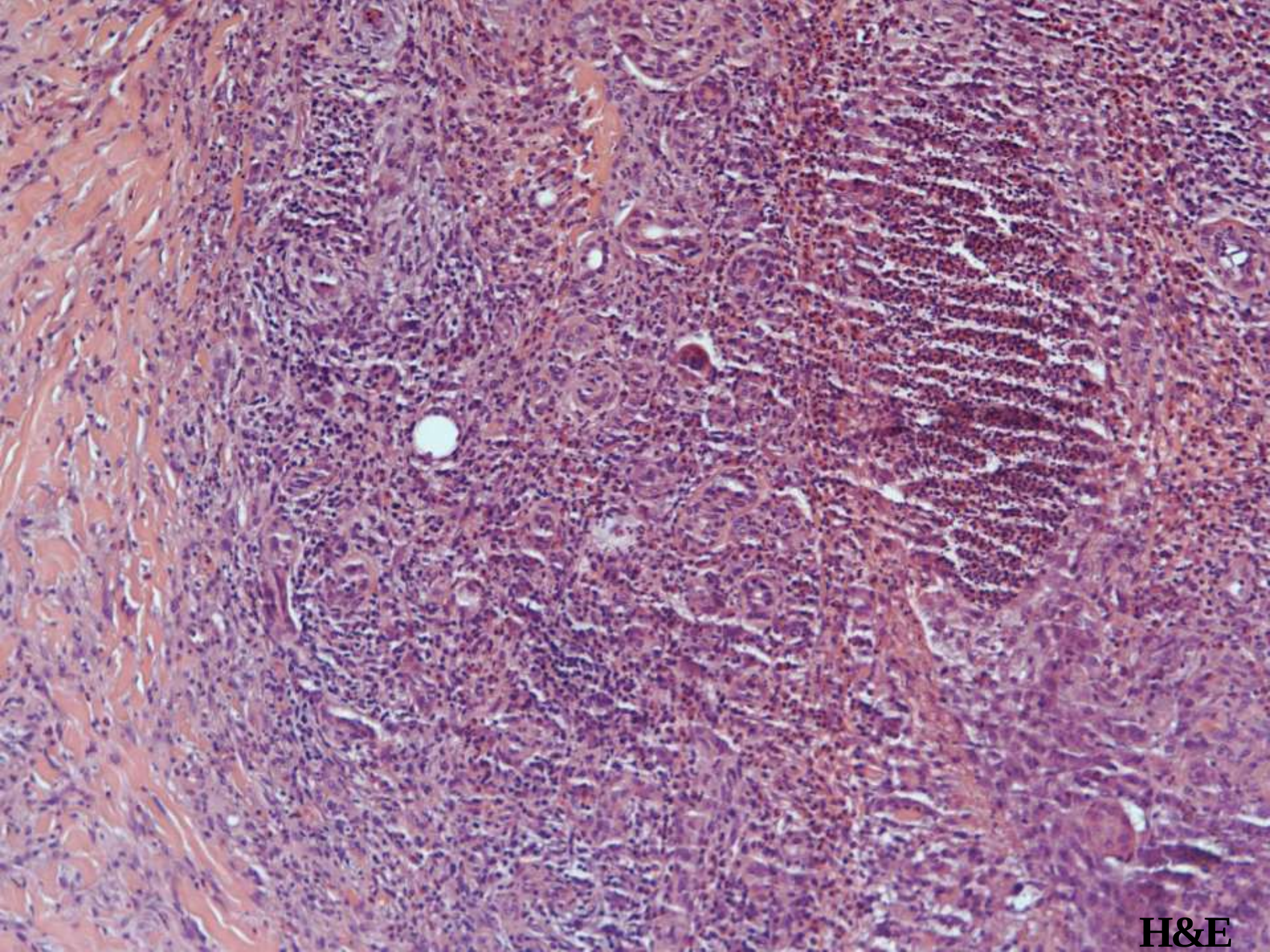
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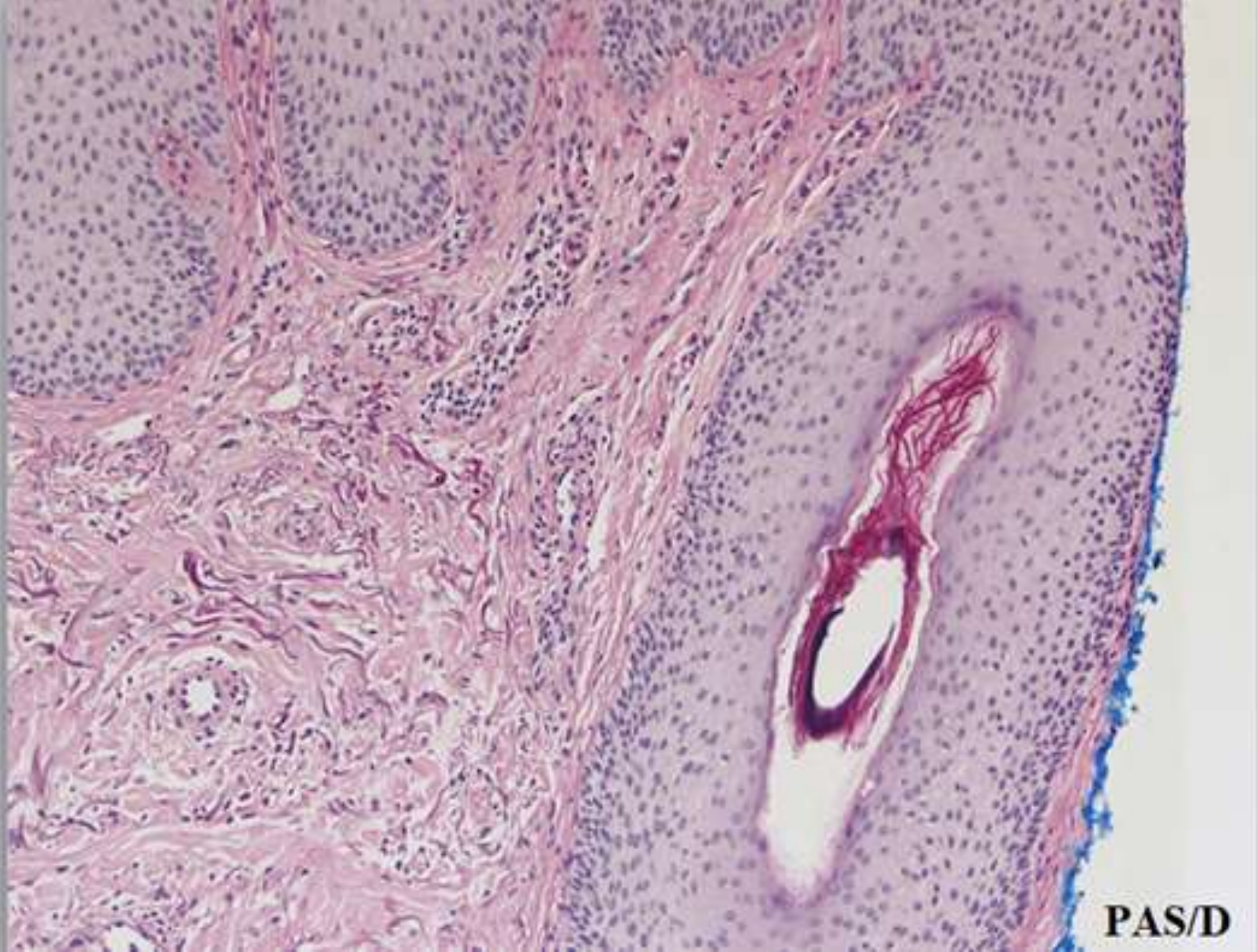
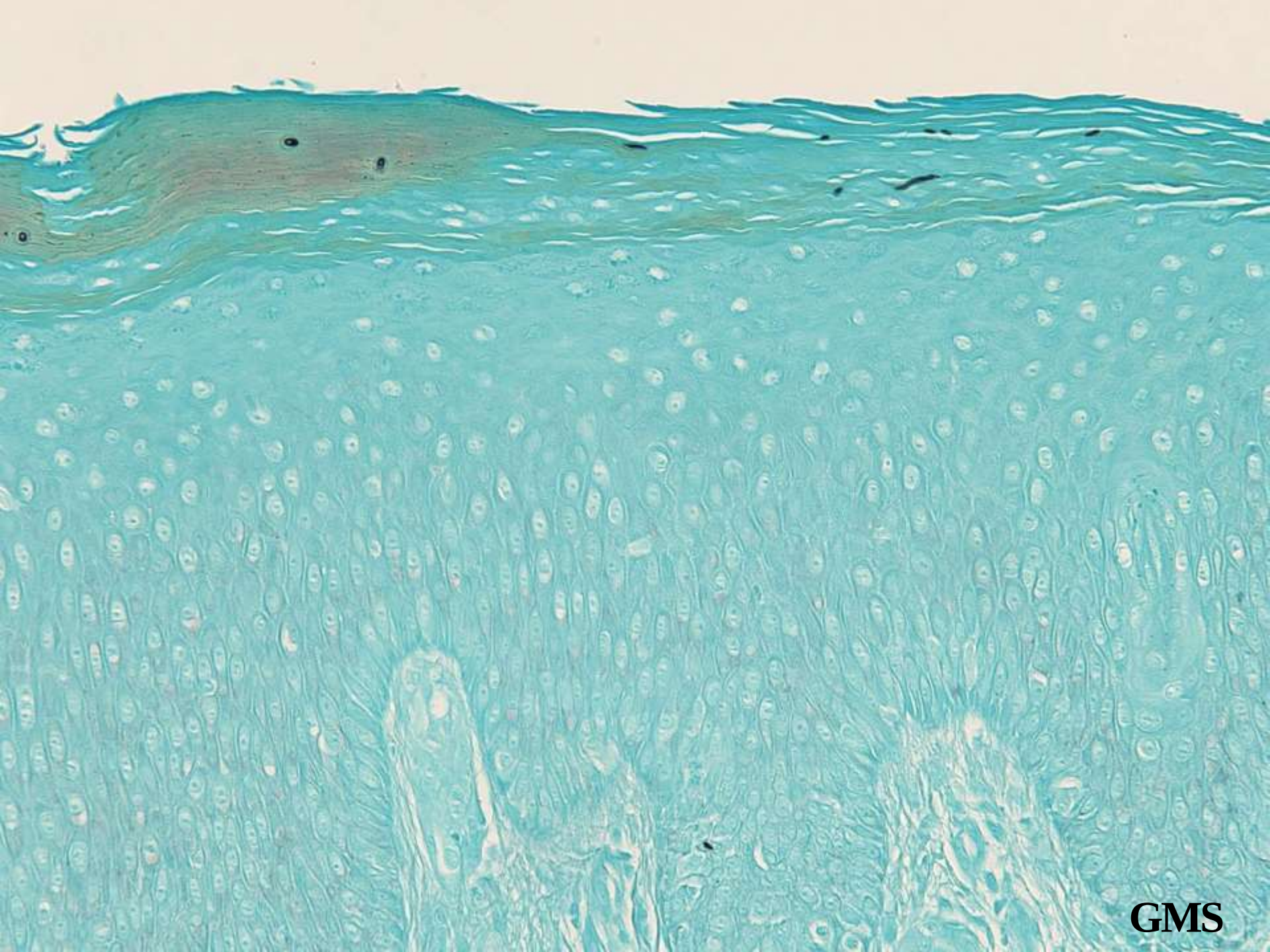

PAS/D

Differential Diagnosis

- Majocchi granuloma
- Deep fungal infection
- Atypical mycobacterial infection
- Other infectious process (bacterial or Herpes folliculitis)
- Other granulomatous disease (sarcoidosis, Granuloma Annulare)
- Sweet syndrome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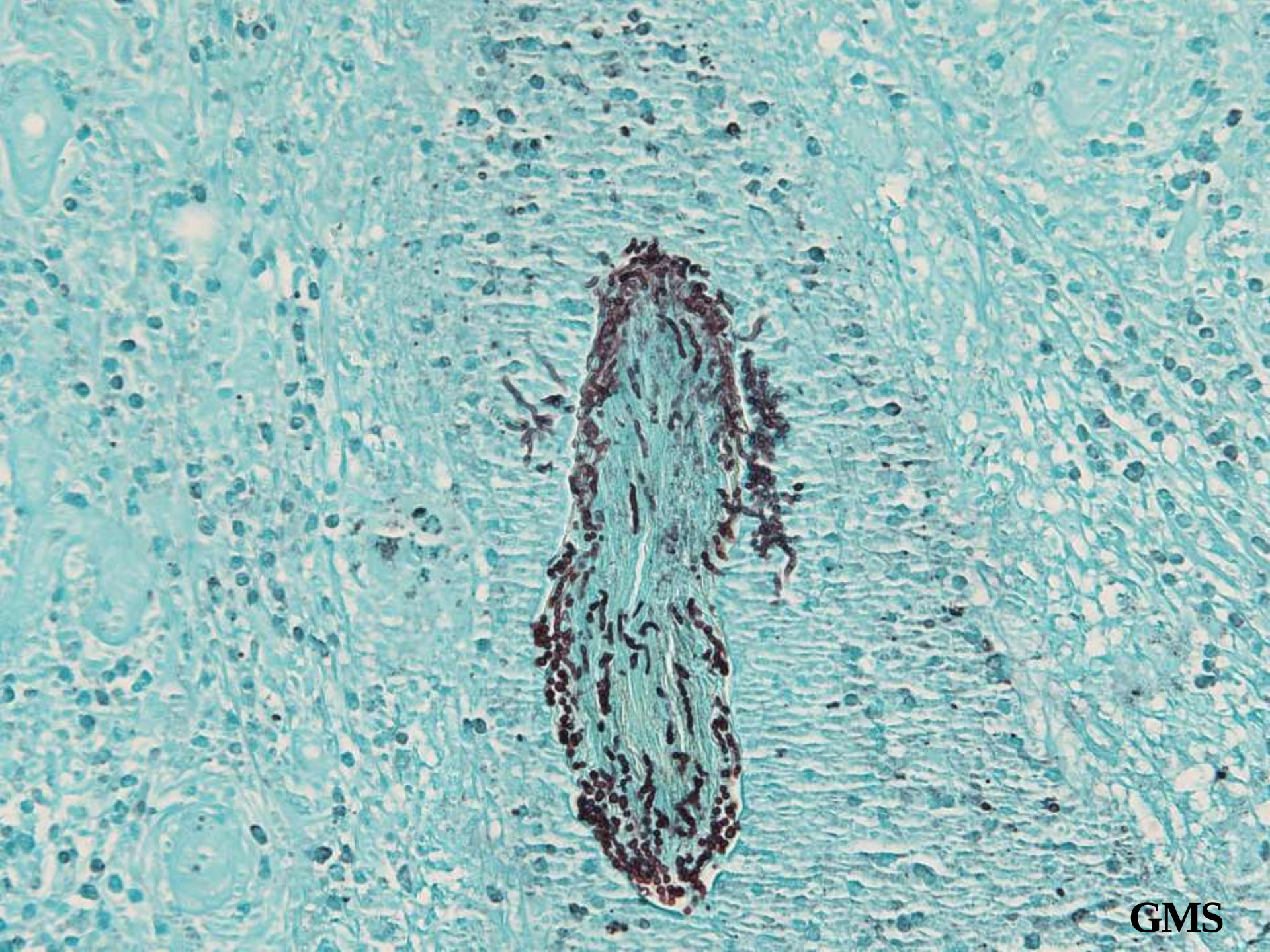

GMS

Final Diagnosis: Majocchi granuloma

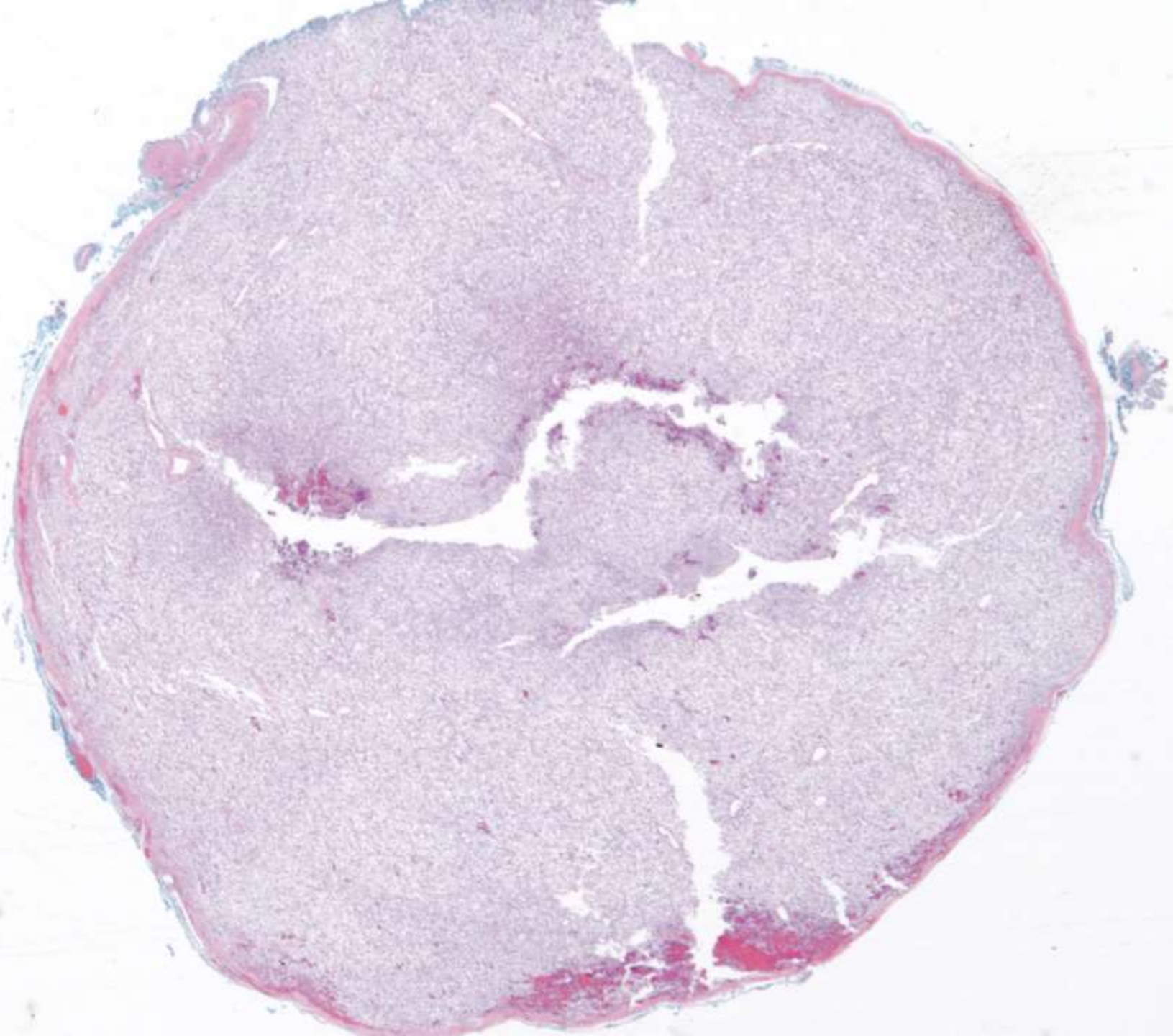
Majocchi Granuloma

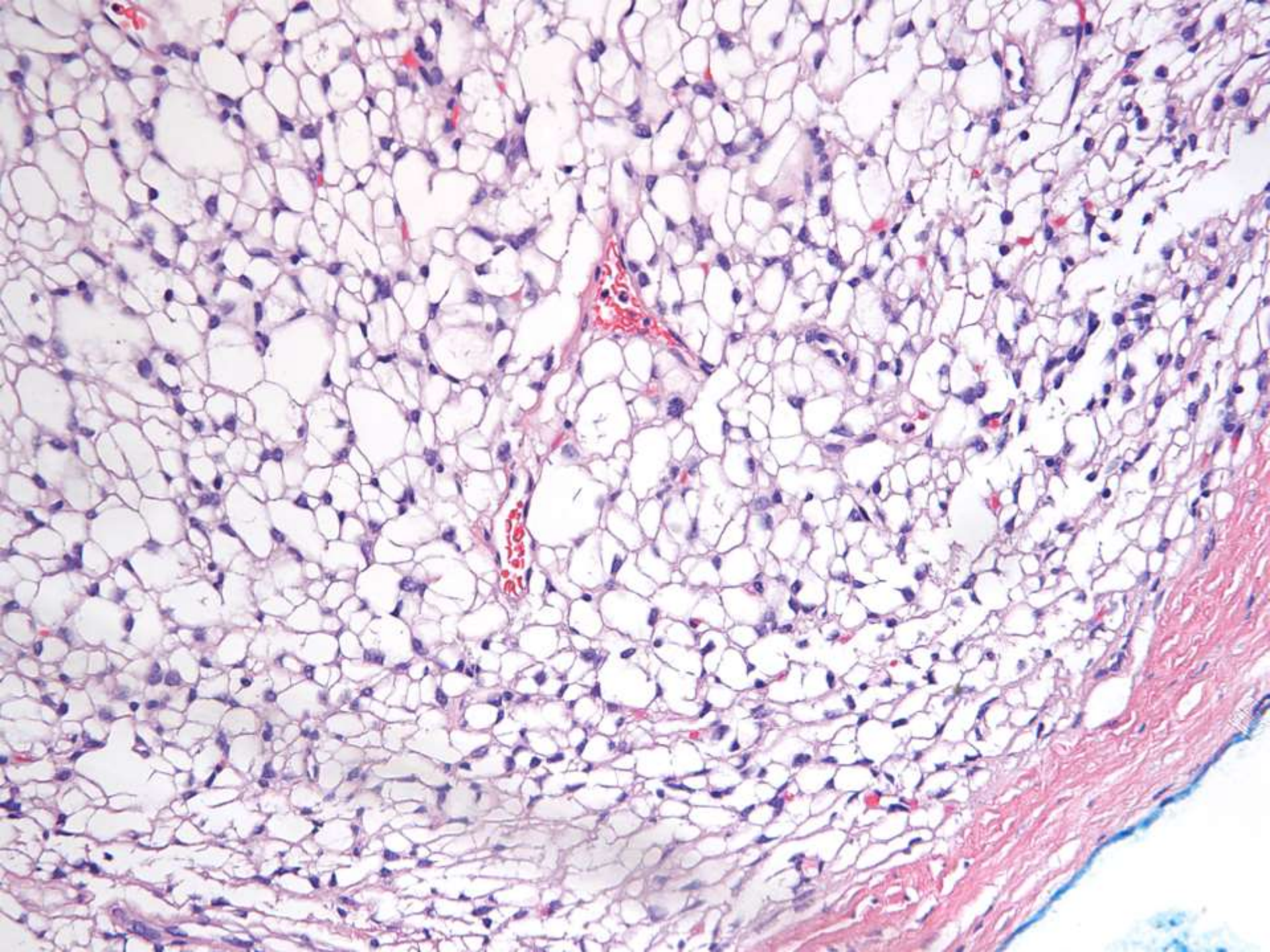
- Variant of tinea infection (*Trichophyton rubrum > mentagrophytes)* which is granulomatous, folliculocentric, nodular or pustular
- More common in immunosuppressed patients
- Diagnosis confirmed only by dermatophytes on microscopy or tissue culture
- Does not respond to topical antifungals due to depth of infection

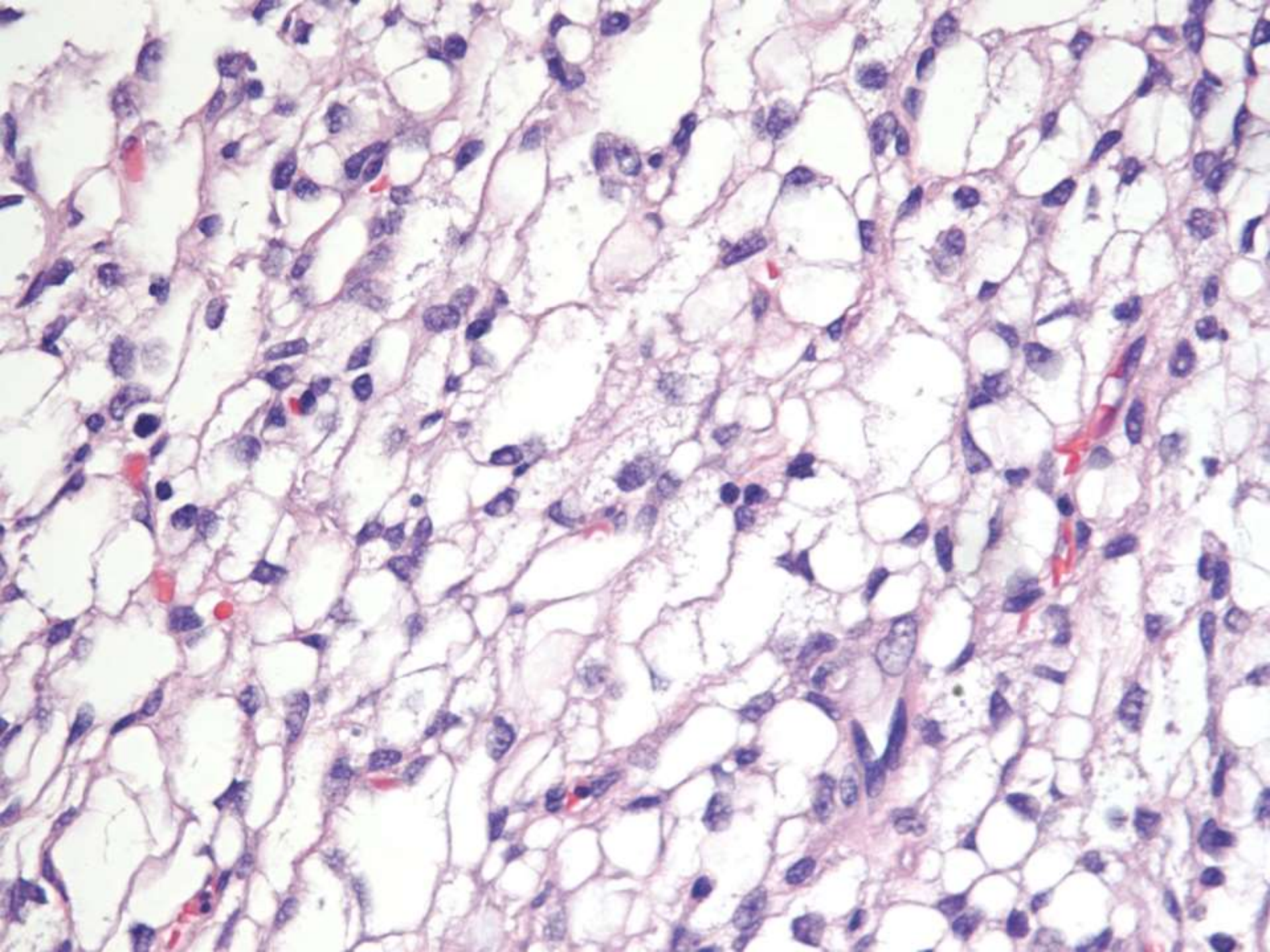
Ilkit M, Durdu M, Karakaş M. Majocchi's granuloma: a symptom complex caused by fungal pathogens. Med Mycol. 2012 Jul;50(5):449-57.

SB 6286
Kevin Ko/Jonathan Lavezo/Hannes Vogel; Stanford

70-year-old man with orbital mass in superonasal orbit. Adjacent to superior oblique muscle within superior nasal orbit, with apparent encapsulation and contrast enhancement.

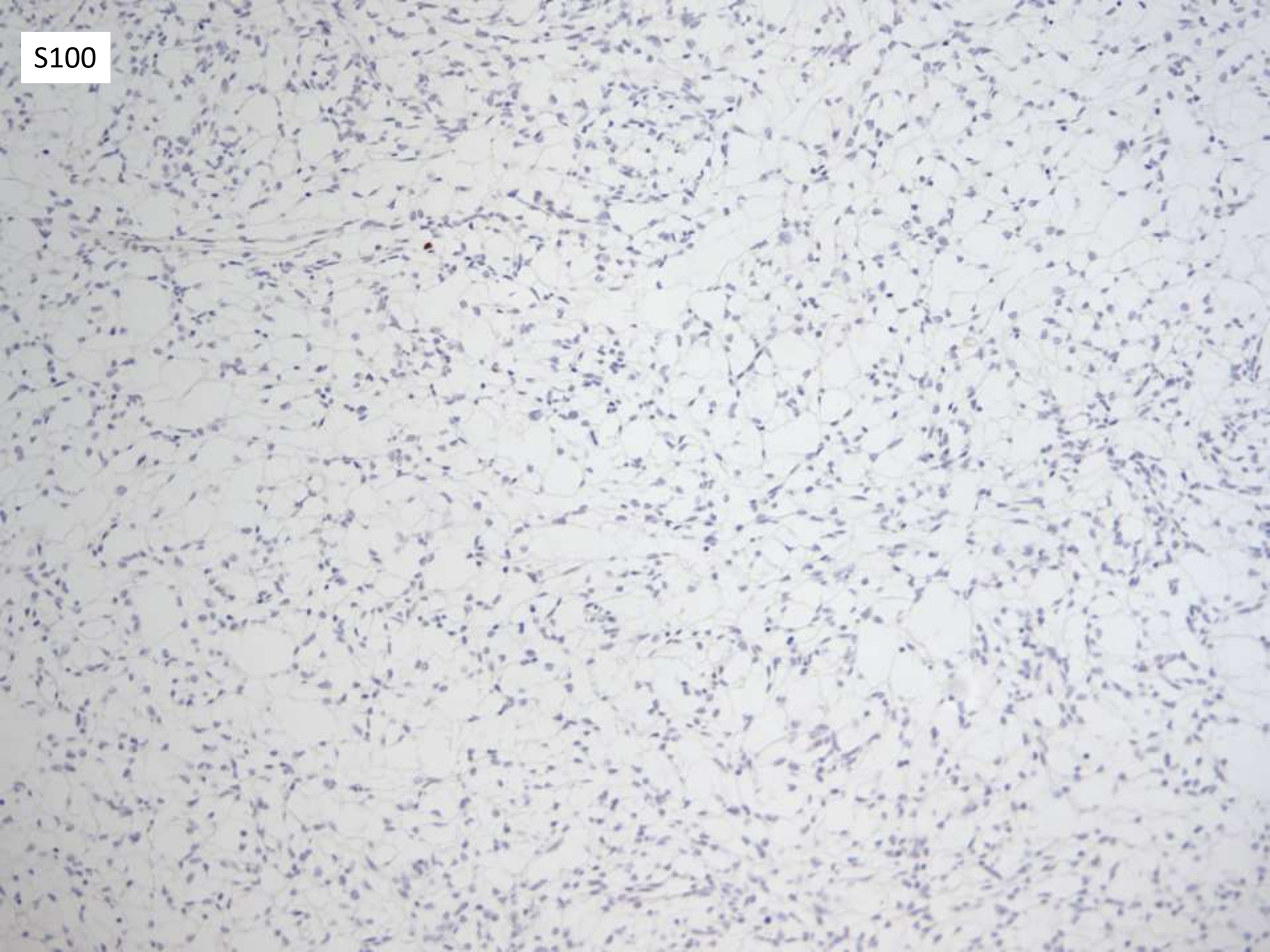


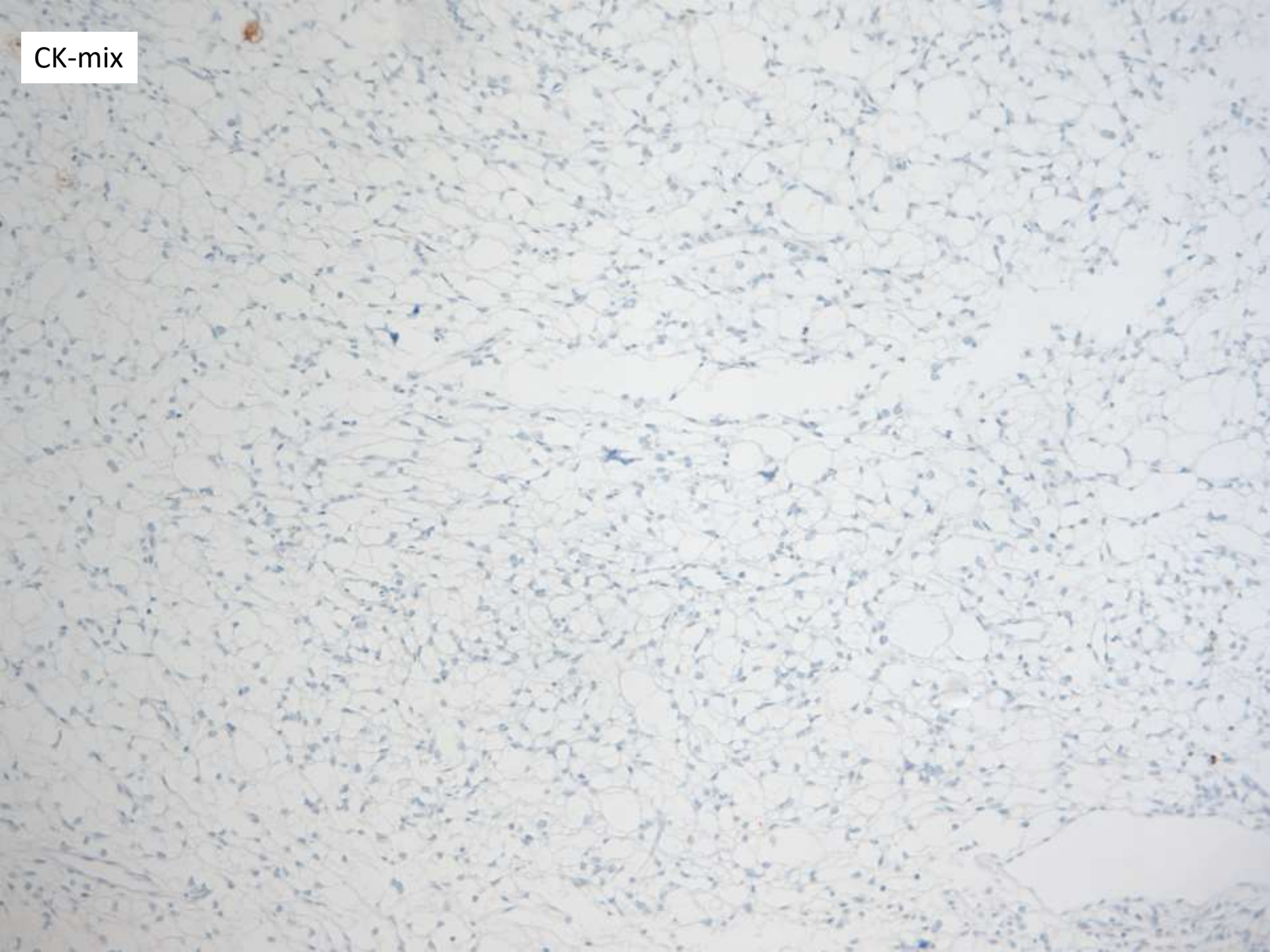




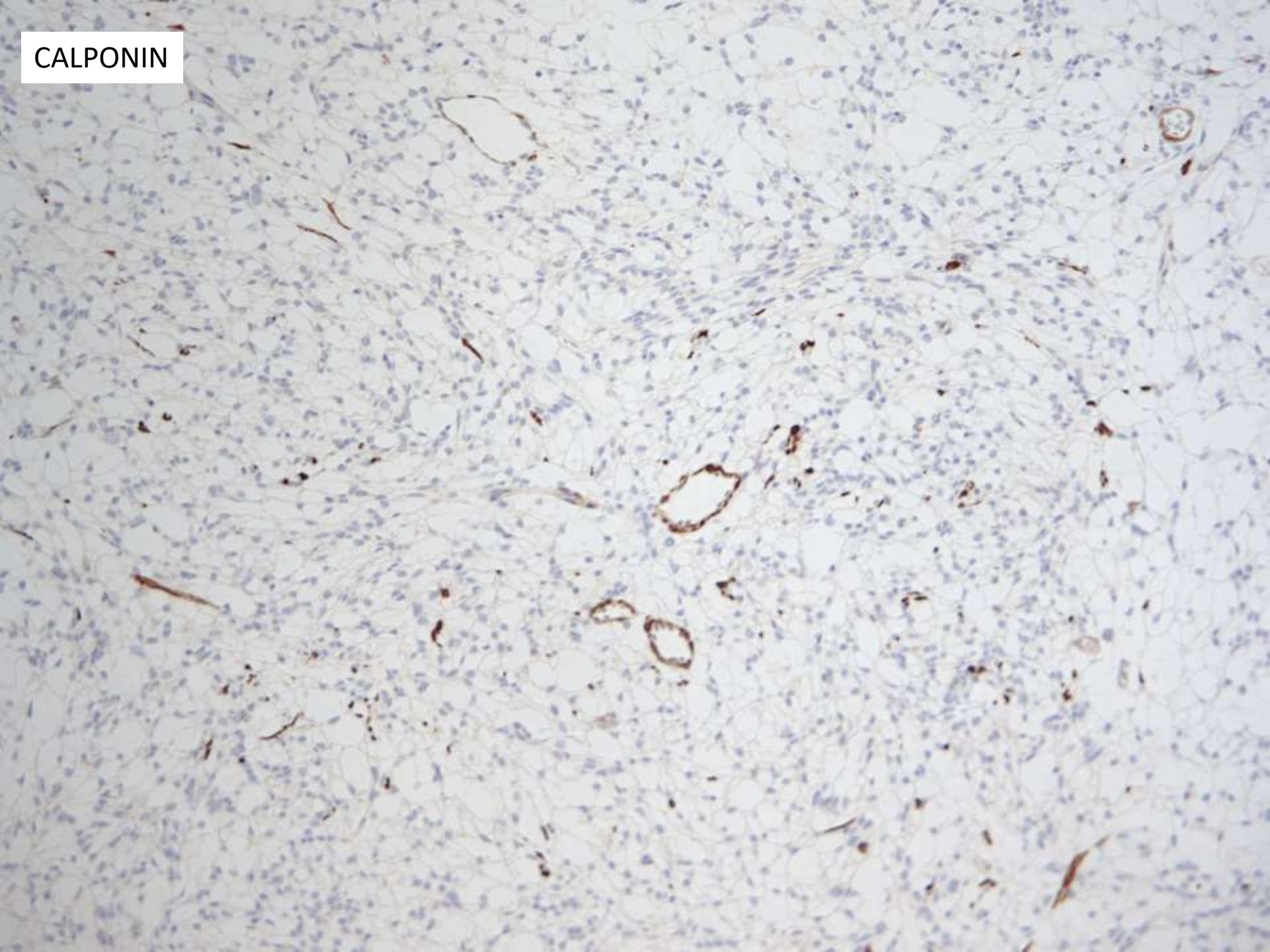
Differential diagnosis

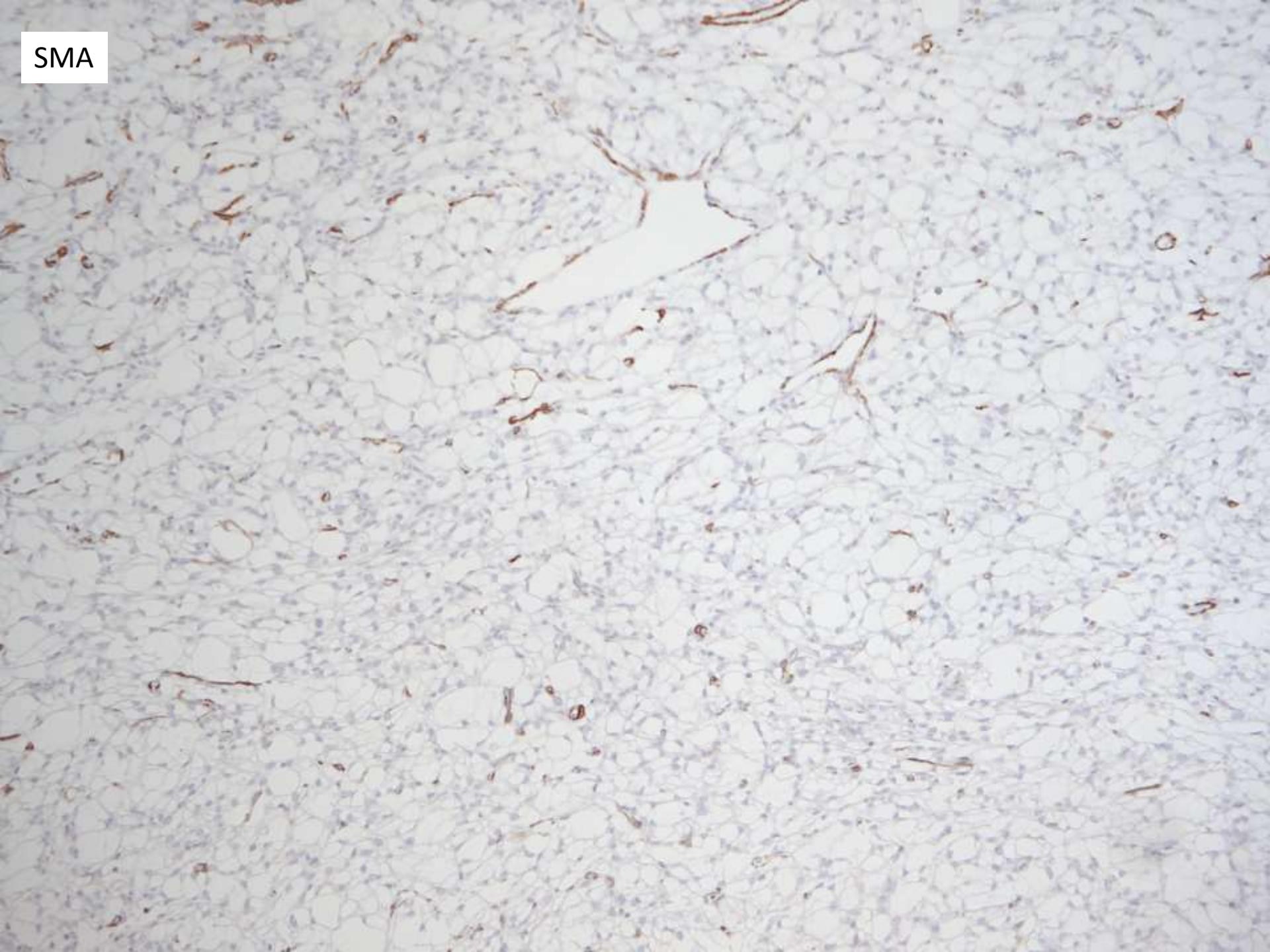
- Lipoma
- Atypical lipomatous tumor
- Clear cell squamous cell carcinoma
- Clear cell salivary gland neoplasm
- Metastatic renal cell carcinoma
- PEComa


S100

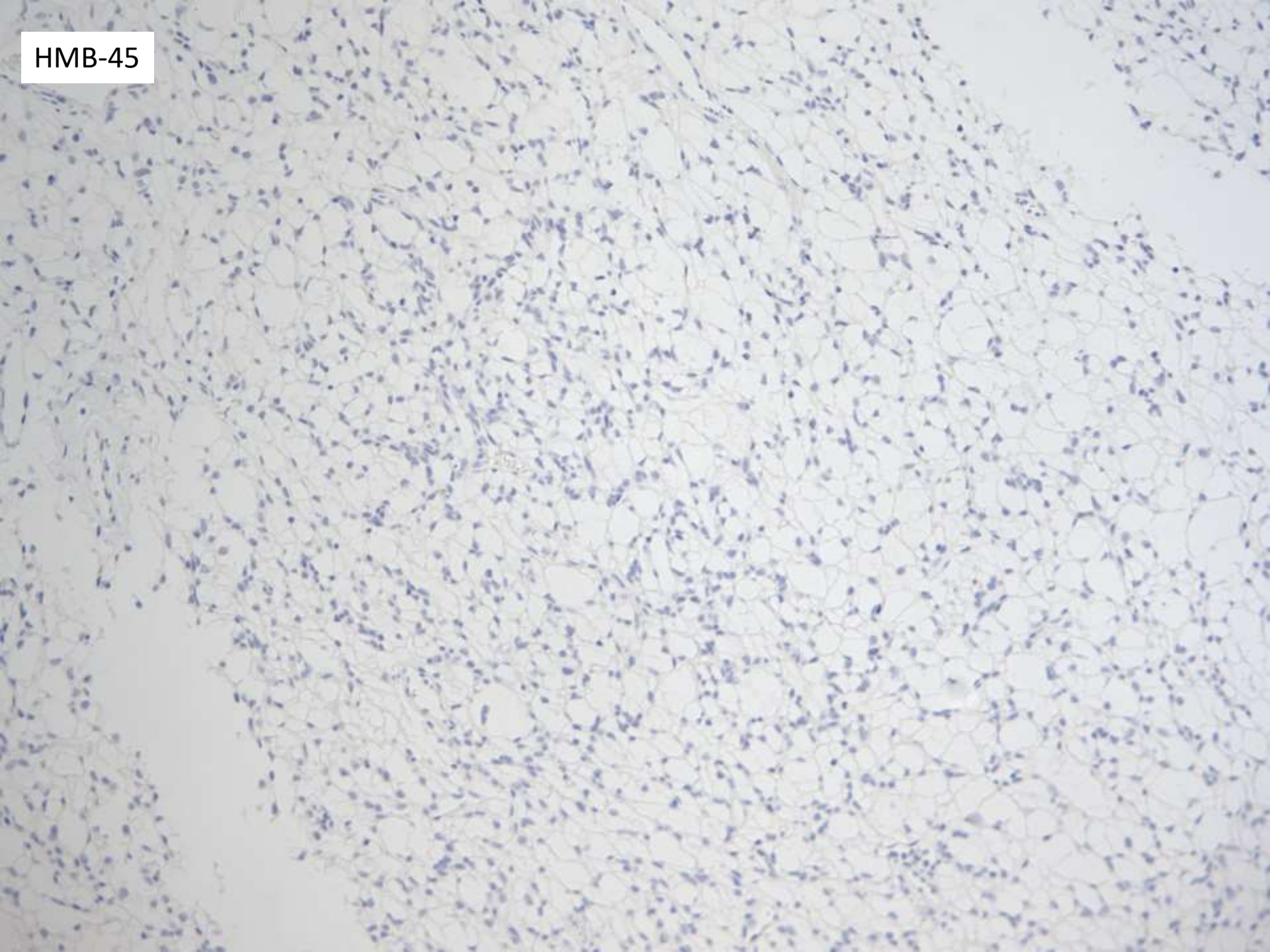

CK-mix


PAX-8


CALPONIN


SMA


p63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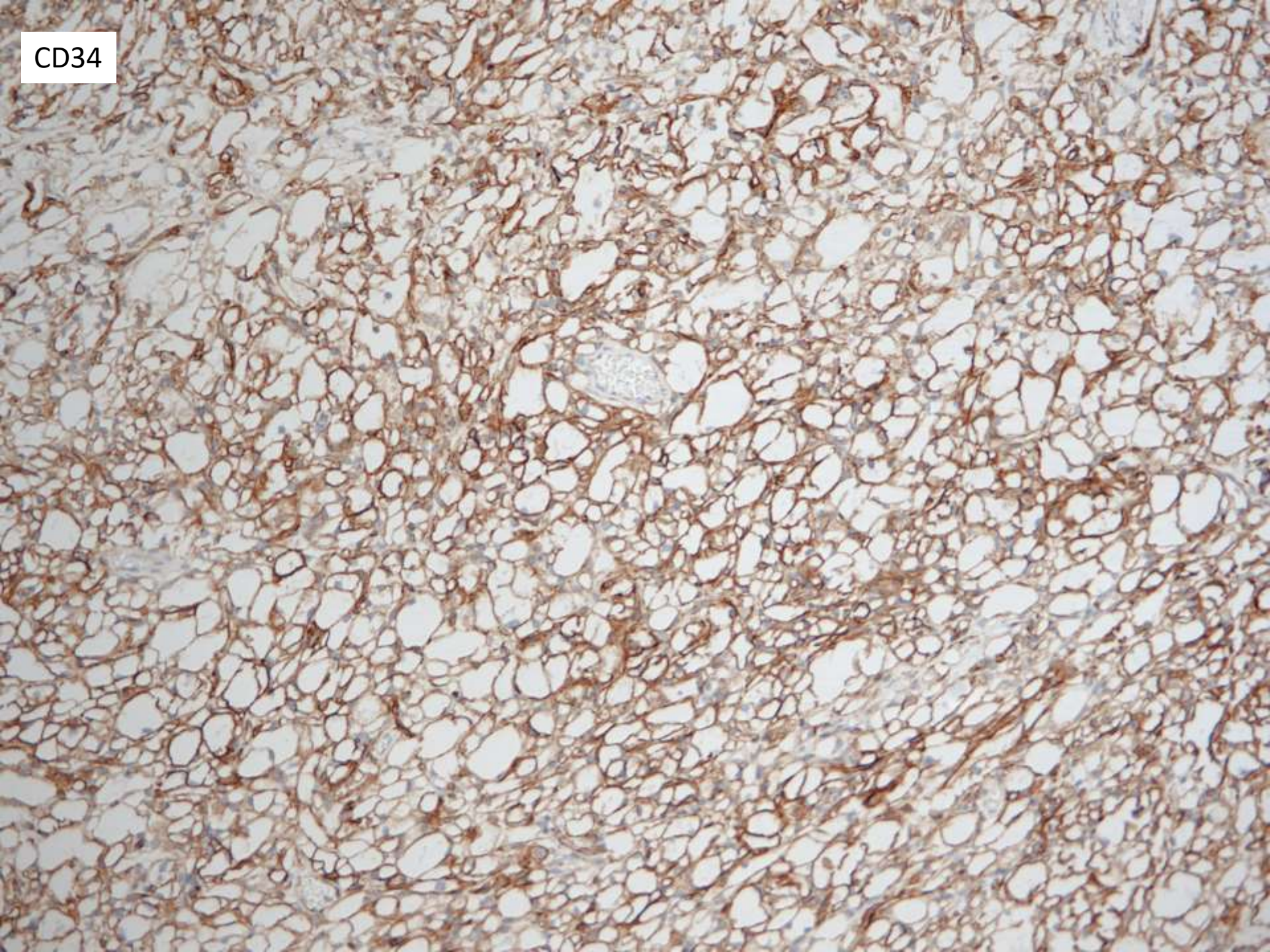
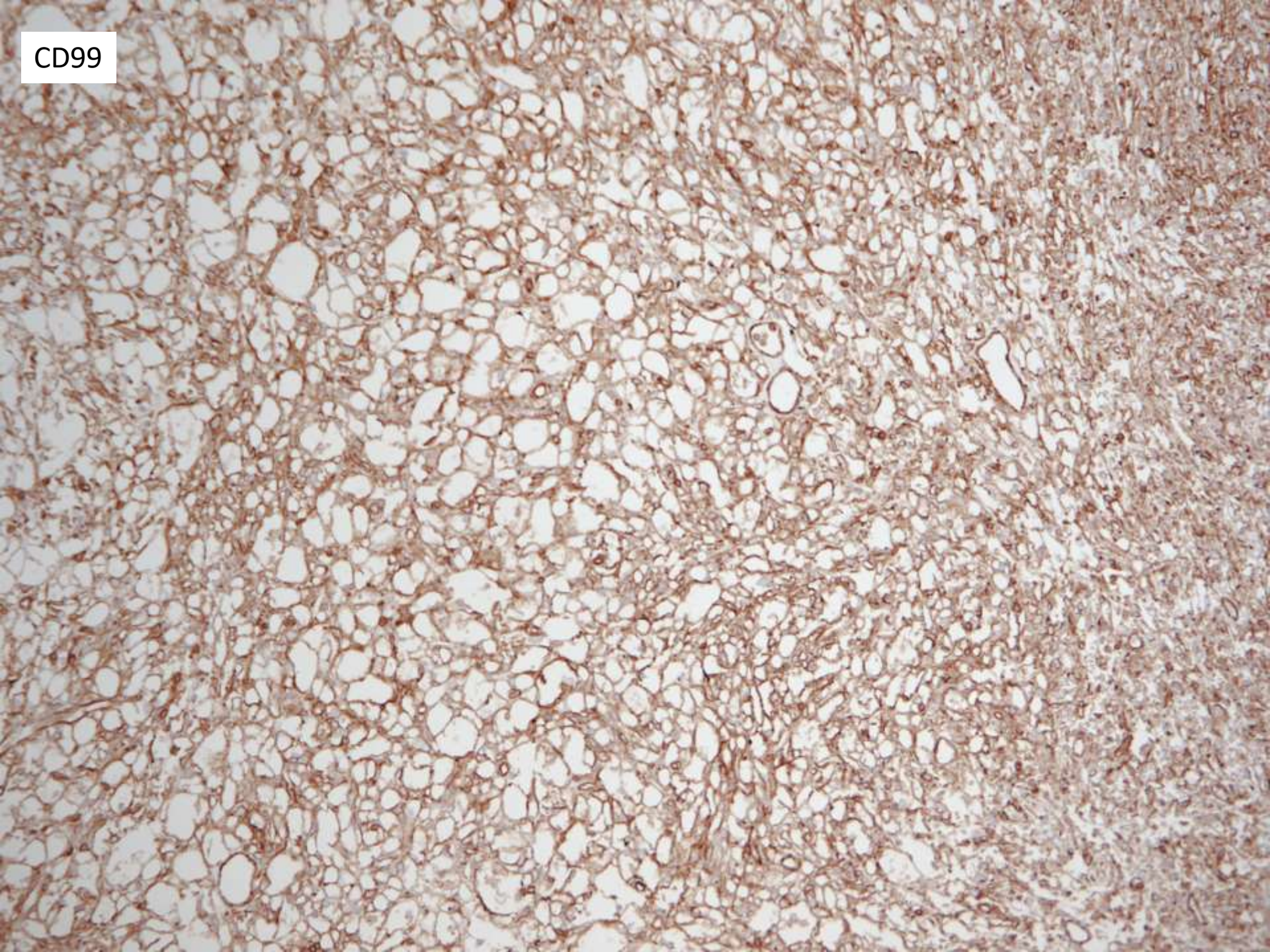

CD34


BCL2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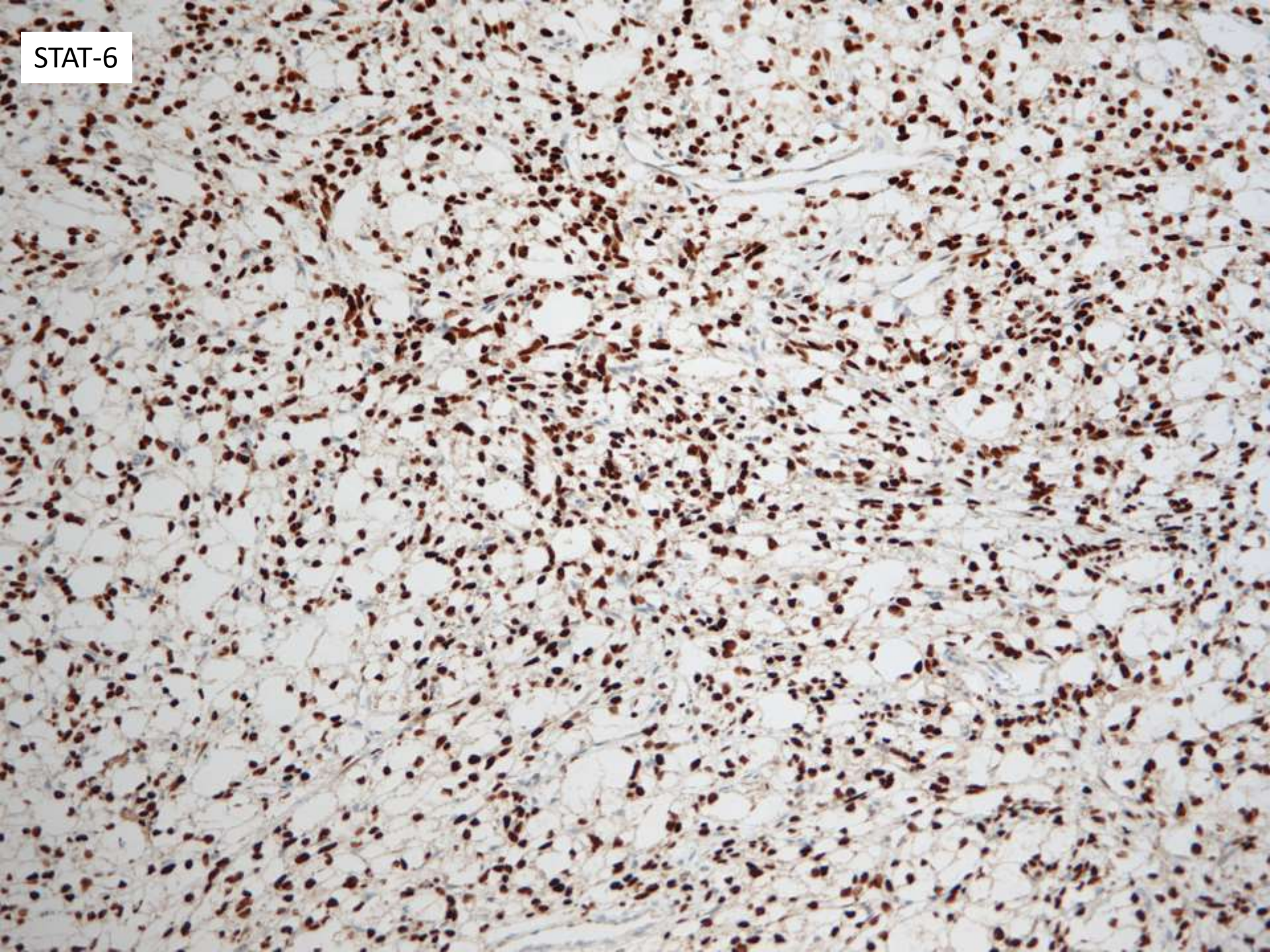
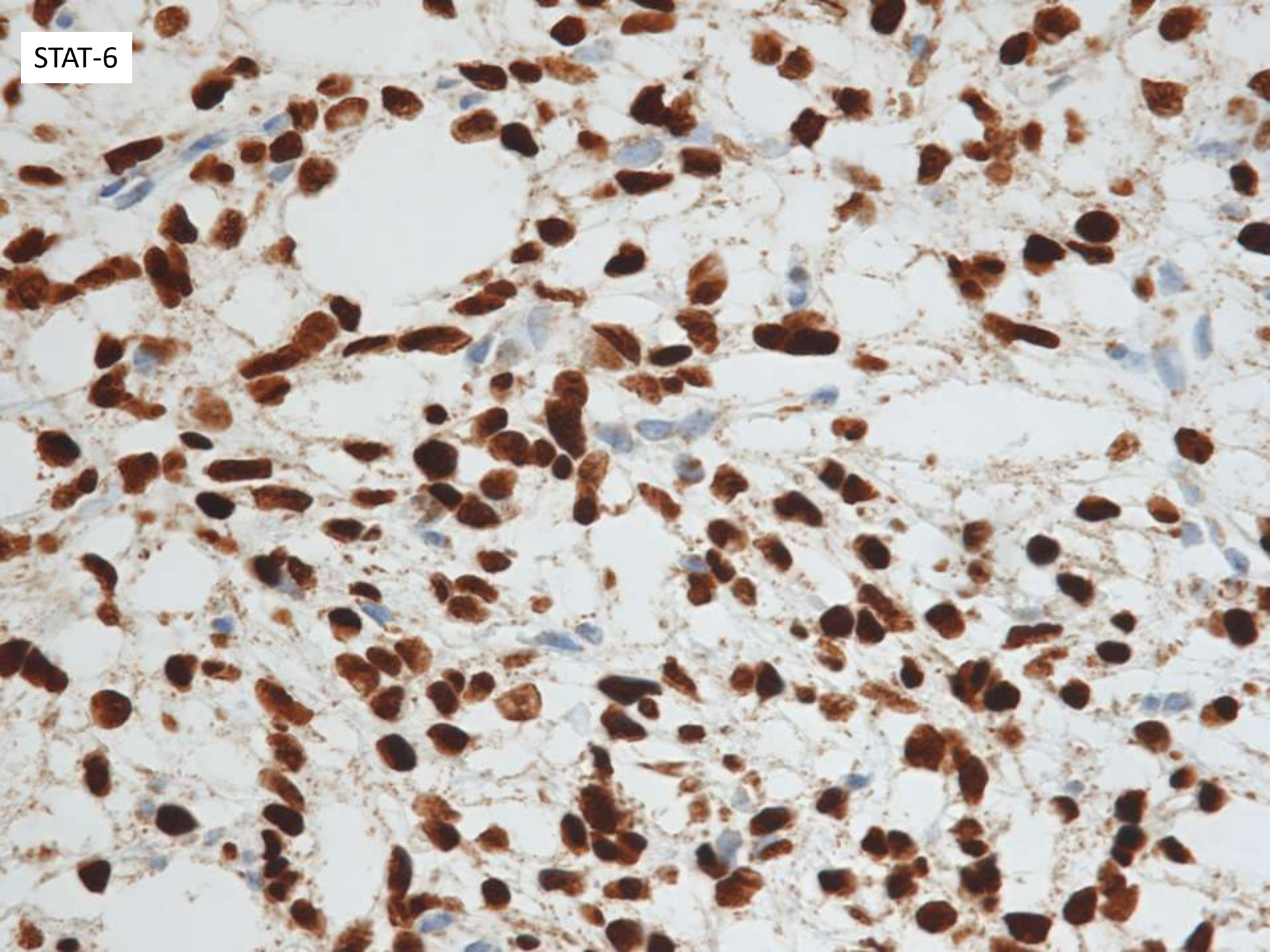

STAT-6


STAT-6

FINAL DIAGNOSIS

RIGHT EYE, ORBITAL MASS, EXCISION

-- FAT-FORMING SOLITARY FIBROUS TUMOR (LIPOMATOUS HEMANGIOPERICYTOMA)

Fat-Forming Solitary Fibrous Tumor

- First reported by Nielsen in 1995; ~80 reported in literature
- Majority of cases behave in indolent fashion
- Fatty component can vary greatly
  - Usually ranges from 25%-75%
- Oval to elongated cells; staghorn vasculatures
- Malignant Fat-forming SFT has been described
  - Key features:
    - Mitoses = 4/10 HPFs, hypercellularity, at least moderate atypia and necrosis

Nielsen GP, Dickersin GR, Provenzal JM, Rosenberg AE. Lipomatous hemangiopericytoma: a histologic, ultrastructural and immunohistochemical study of a unique variant of hemangiopericytoma. Am J Surg Pathol 1995; 19: 748-56.
Lee JC, Fletcher CD. Malignant fat-forming solitary fibrous tumor (so-called "lipomatous hemangiopericytoma"): clinicopathologic analysis of 14 cases. Am J Surg Pathol. 2011;35(8):1177-85.

Human Pathology (2011) **42**, 120–128

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www.elsevier.com/locate/humpath

Original contribution

Orbital solitary fibrous tumor: encompassing terminology for hemangiopericytoma, giant cell angiofibroma, and fibrous histiocytoma of the orbit: reappraisal of 41 cases

Emiko Furusato MD[a], Ives A. Valenzuela[a], Julie C. Fanburg-Smith MD[b], Aaron Auerbach MD[c], Bungo Furusato MD[d], J. Douglas Cameron MD[a], Elisabeth J. Rushing MD[a,*]

[a]*Department of Neuropathology and Ophthalmic Pathology, Armed Forces Institute of Pathology, Washington, DC, 20306-6000, USA*

[b]*Soft Tissue and Orthopaedic Pathology, Armed Forces Institute of Pathology/Inova Fairfax Hospital, Falls Church, VA 22042-3300, USA*

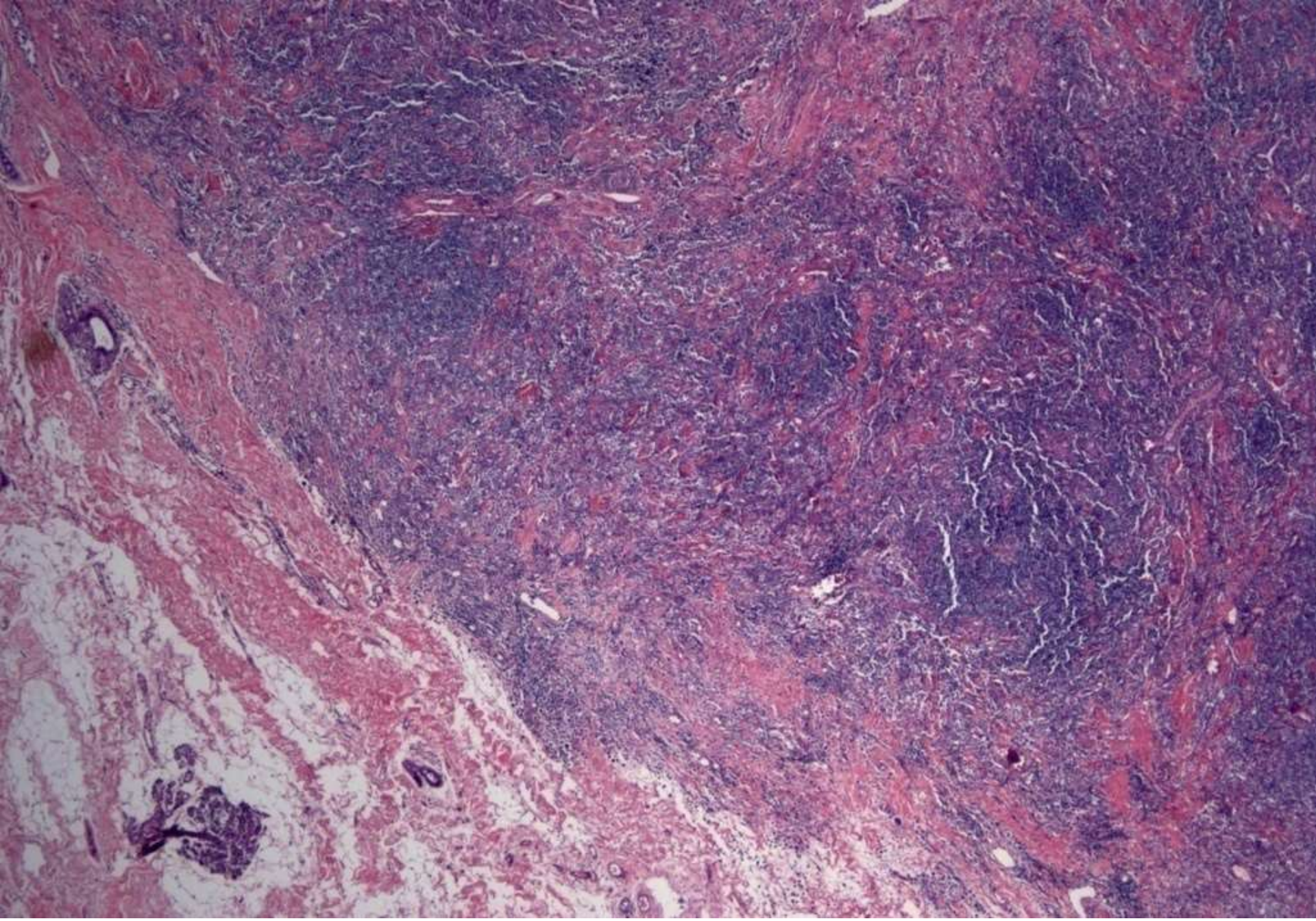
[c]*Hematopathology, American International Pathology Laboratories/Hematocor, Silver Spring, MD 20910, USA*

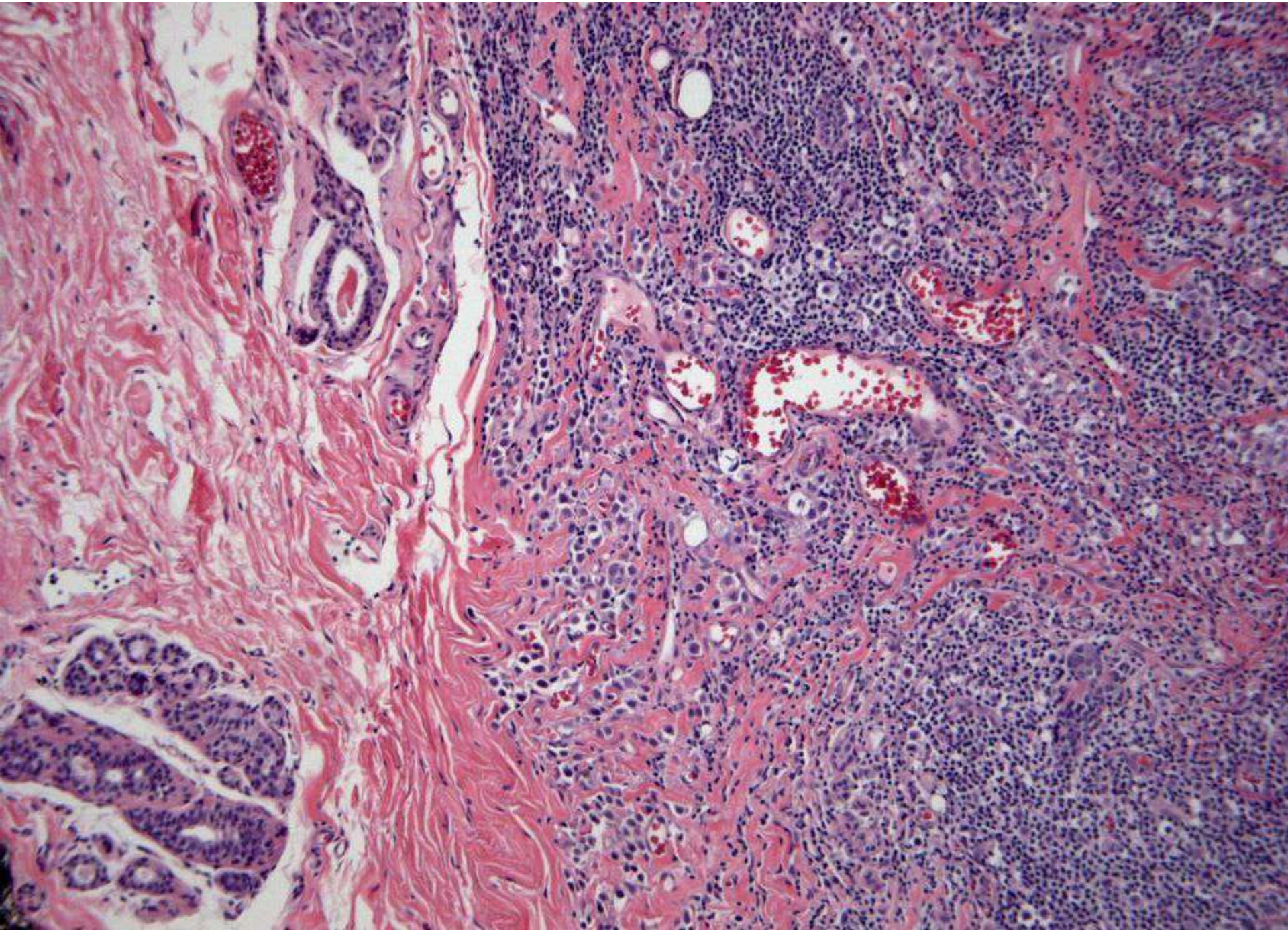
[d]*Genitourinary Pathology, Armed Forces Institute of Pathology, Washington, DC 20306-6000, USA*

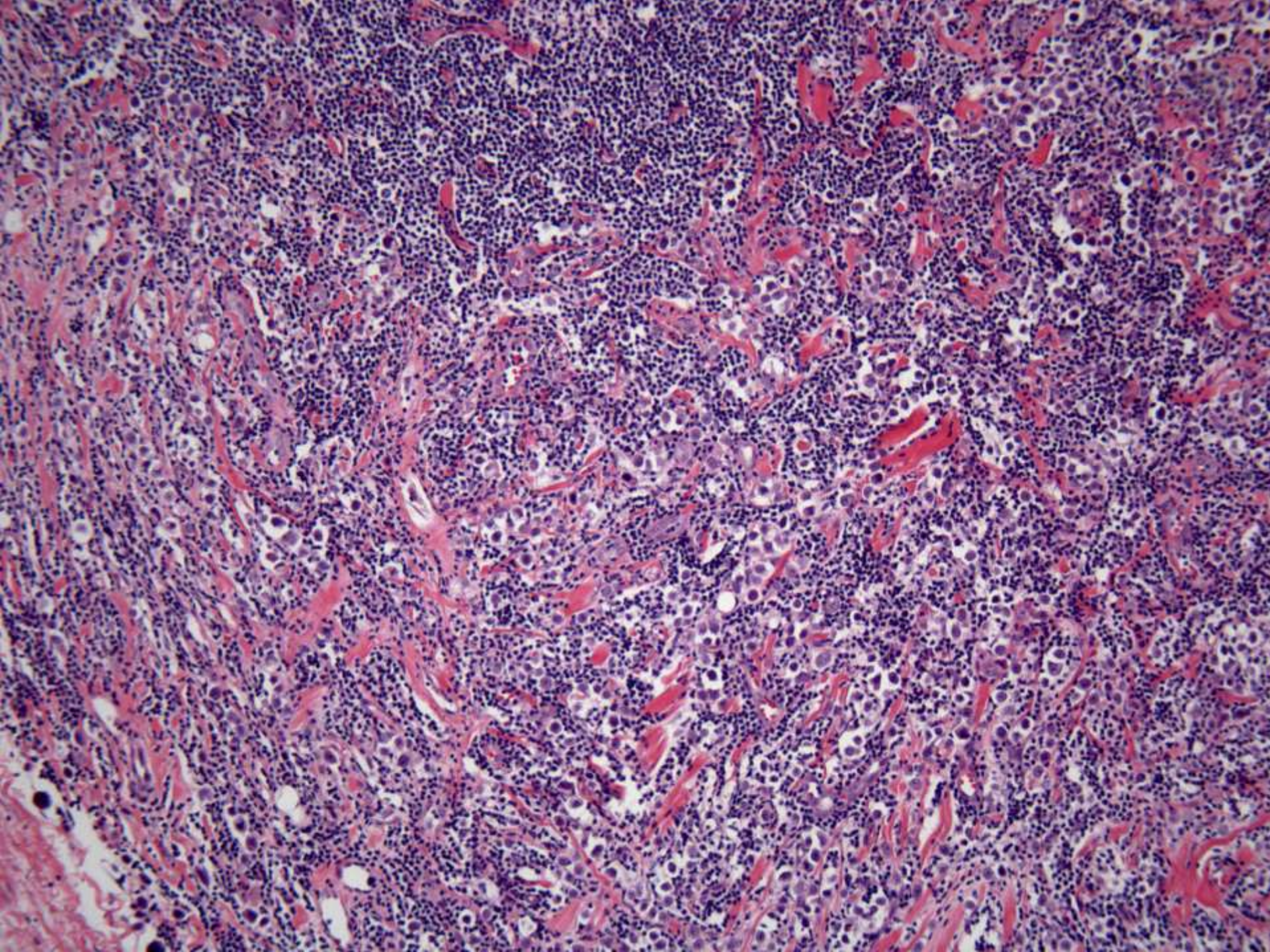
- Large series of collagen-rich fibroblastic tumors of the orbit
- Involvement of the orbital region is so rare, histologic diagnosis can prove challenging
- 41 fibroblastic orbital tumors reviewed
  - Hemangiopericytomas (n = 16)
  - Fibrous histiocytomas (n = 9)
  - Mixed tumors (hemangiopericytomas/fibrous histiocytoma) (n = 14)
  - Giant cell angiofibromas of orbit (n = 2)
- All cases were reclassified as solitary fibrous tumor (41/41).

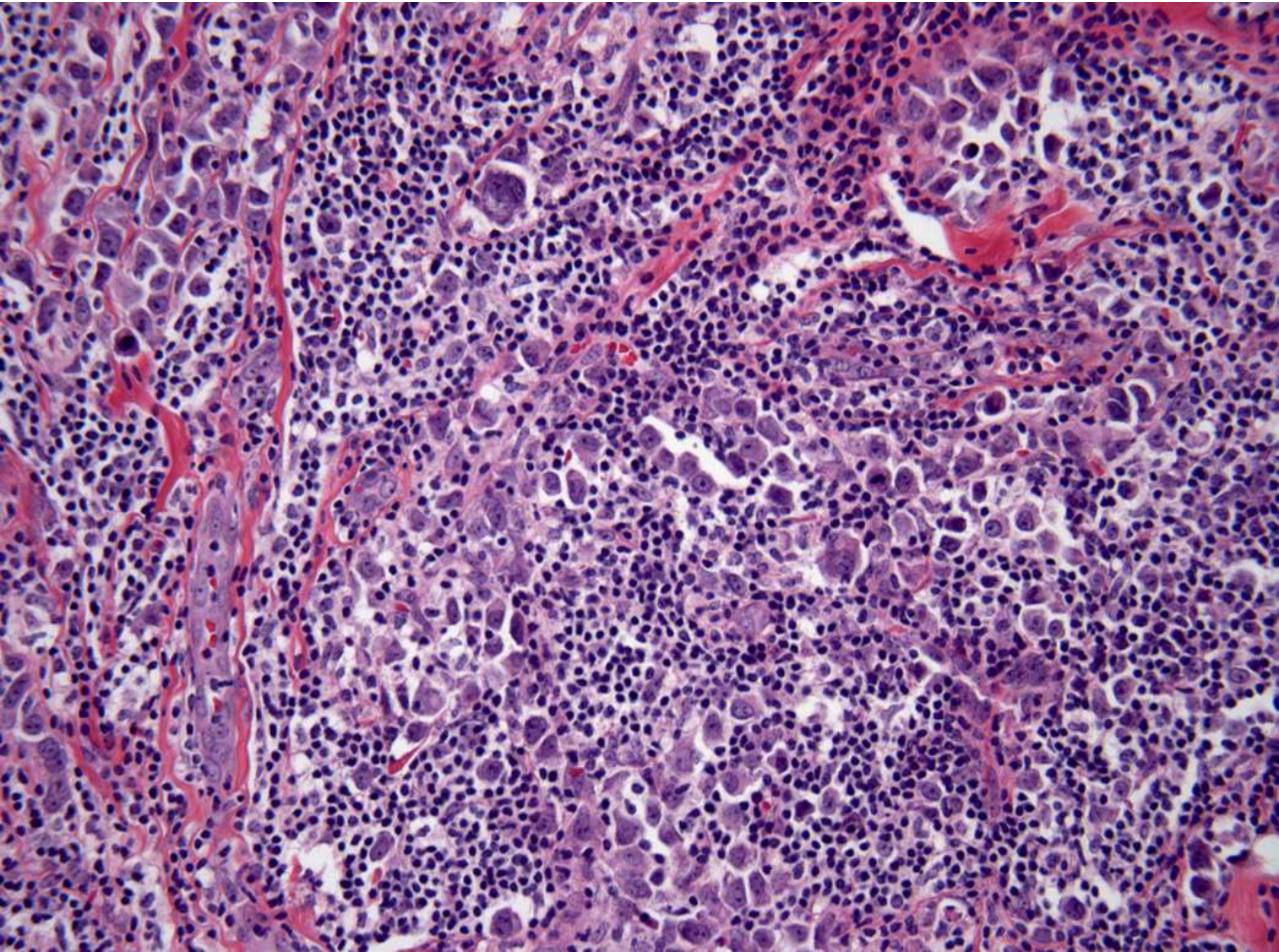
SB 6287
Megan Troxell; Stanford

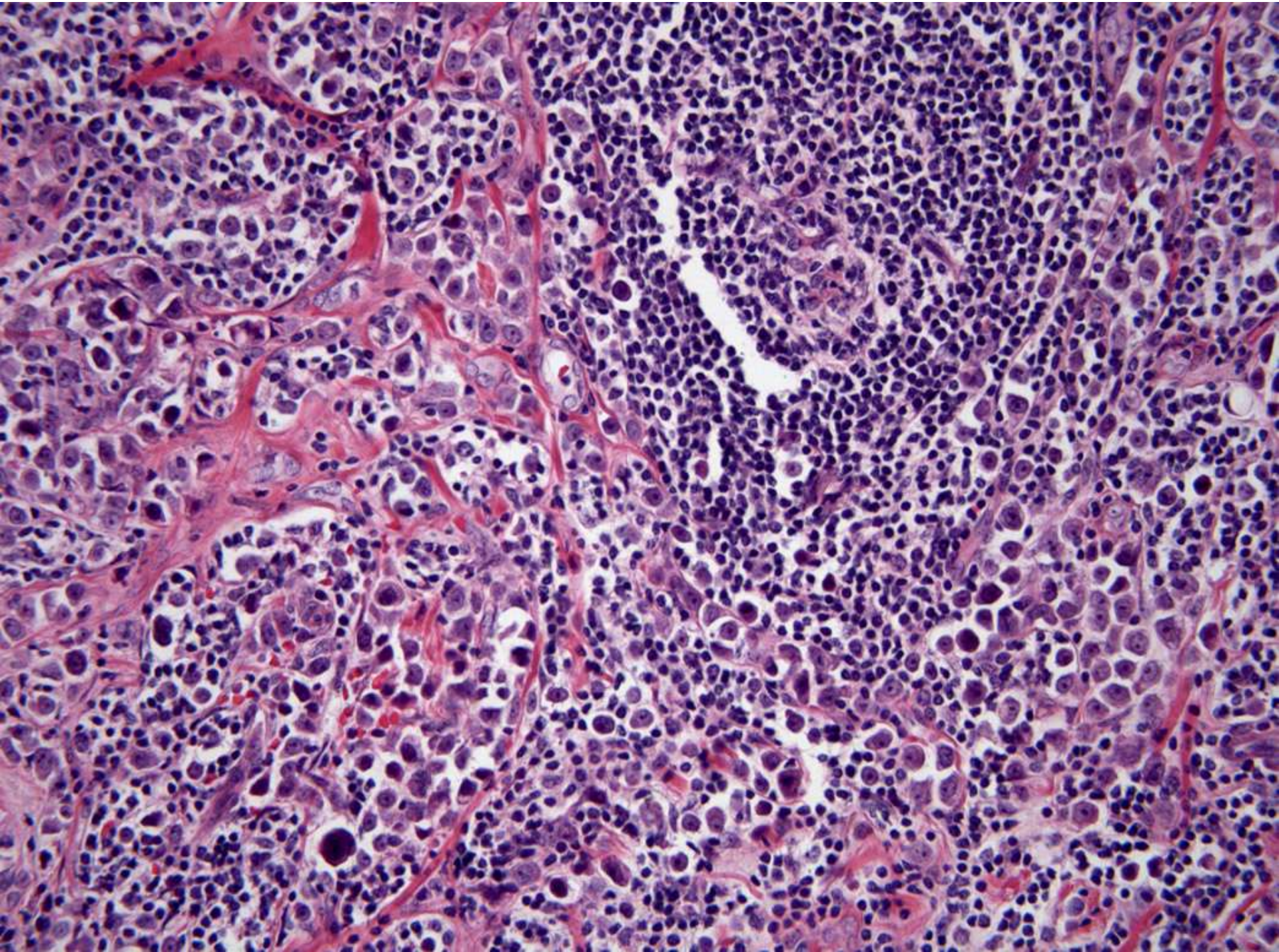
58-year-old female with palpable mass in left breast, excised 6 months ago demonstrating fibrocystic changes. Now with palpable mass in left axilla, excisional biopsy.

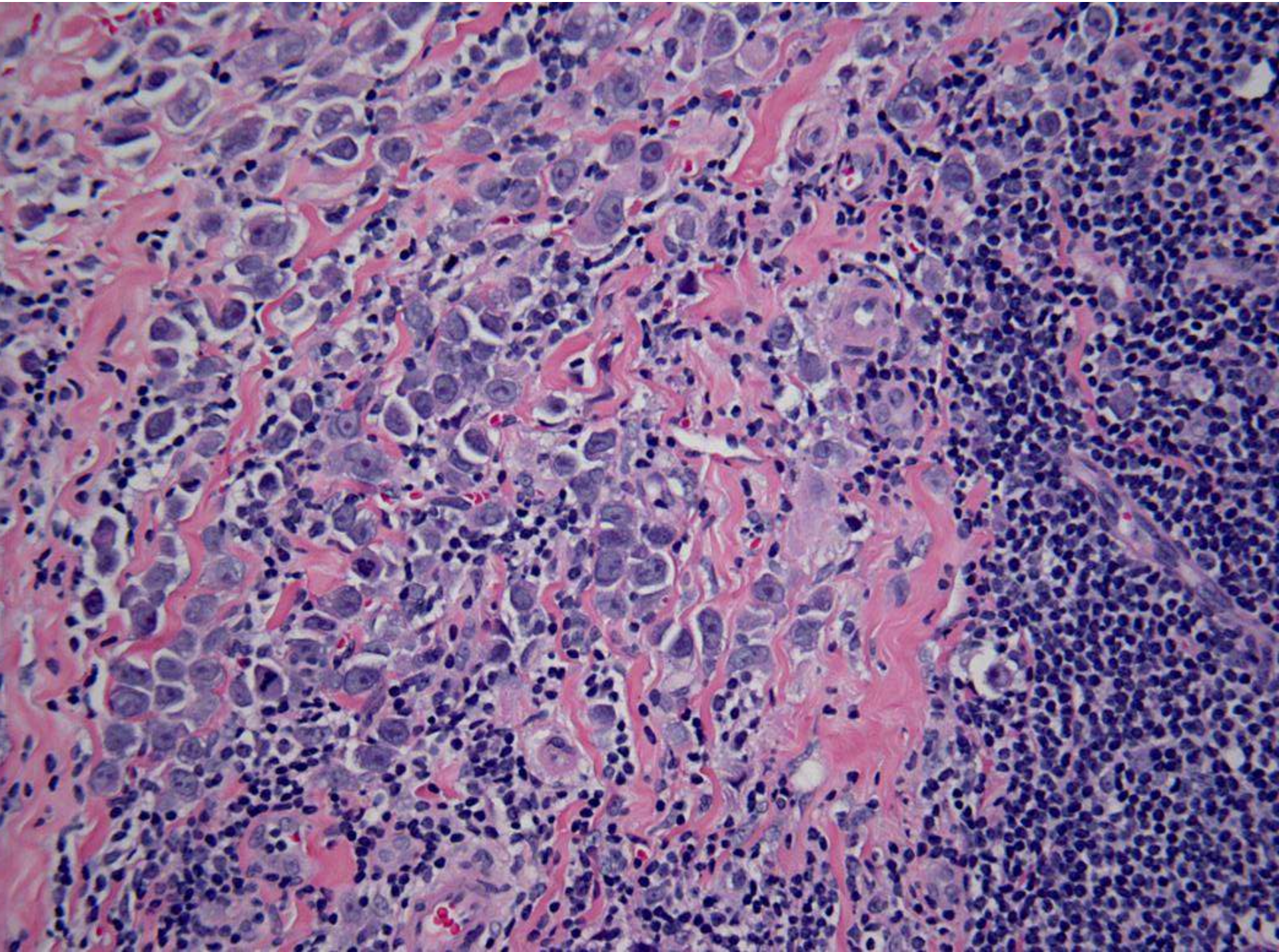


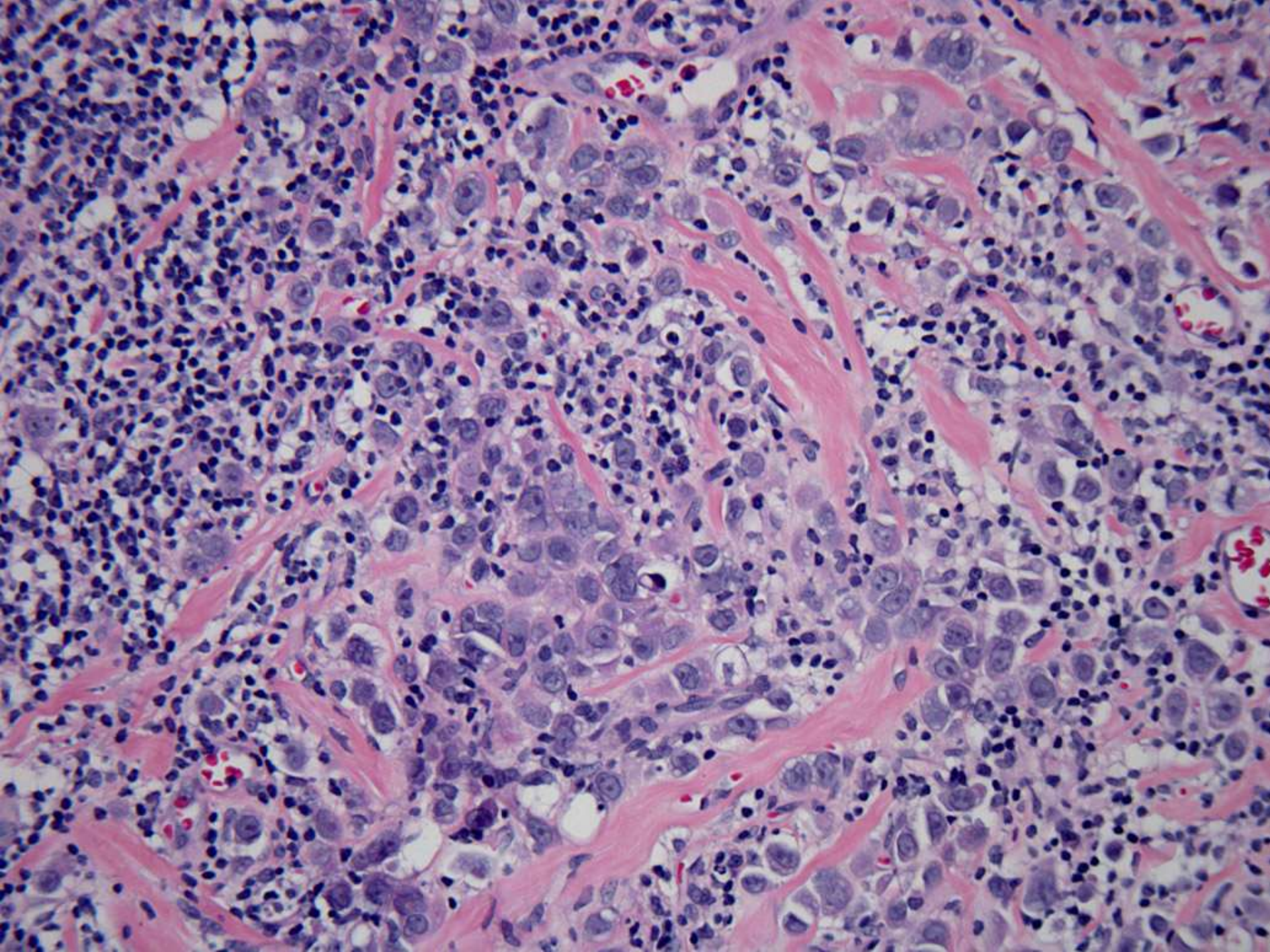


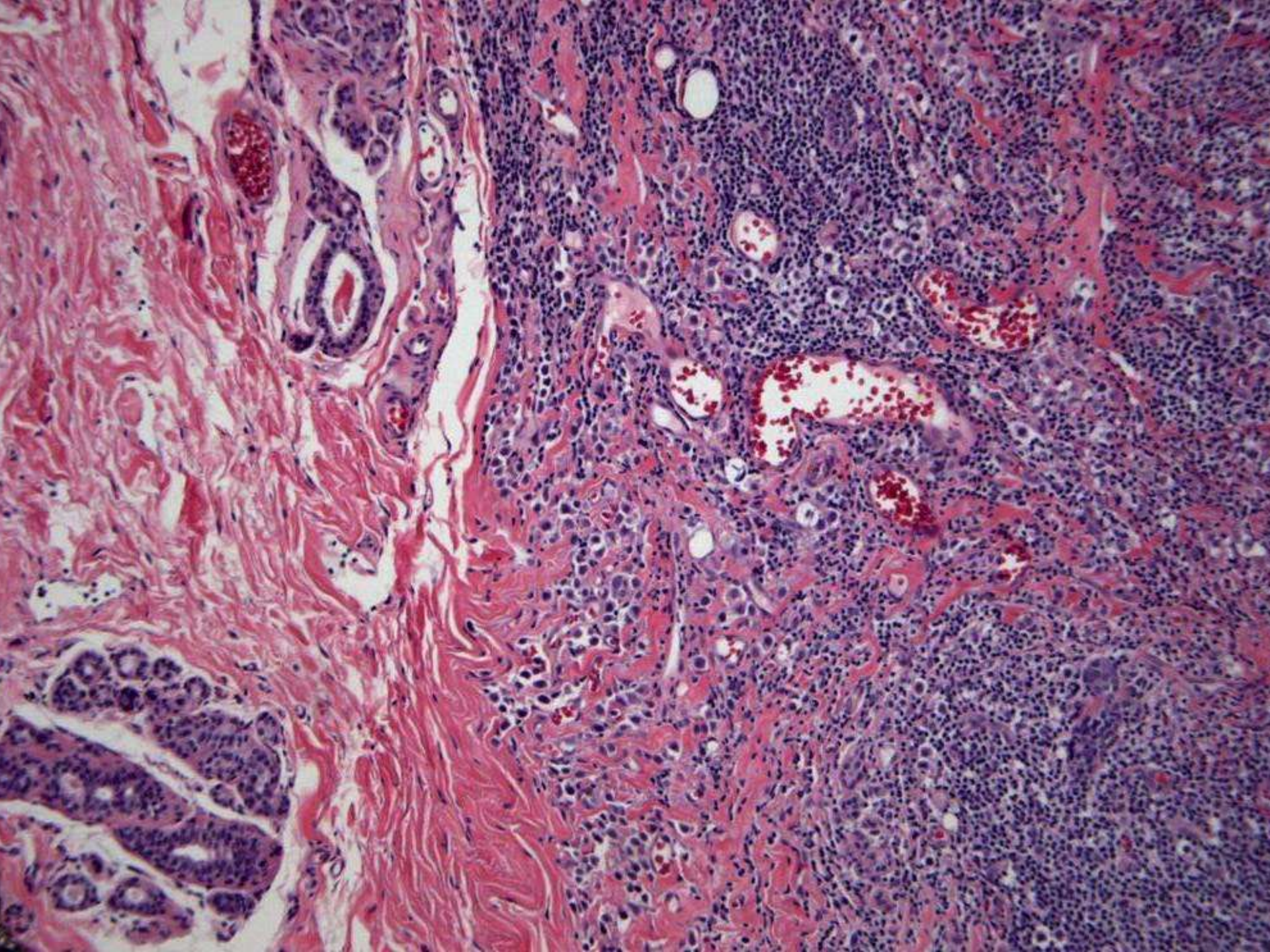






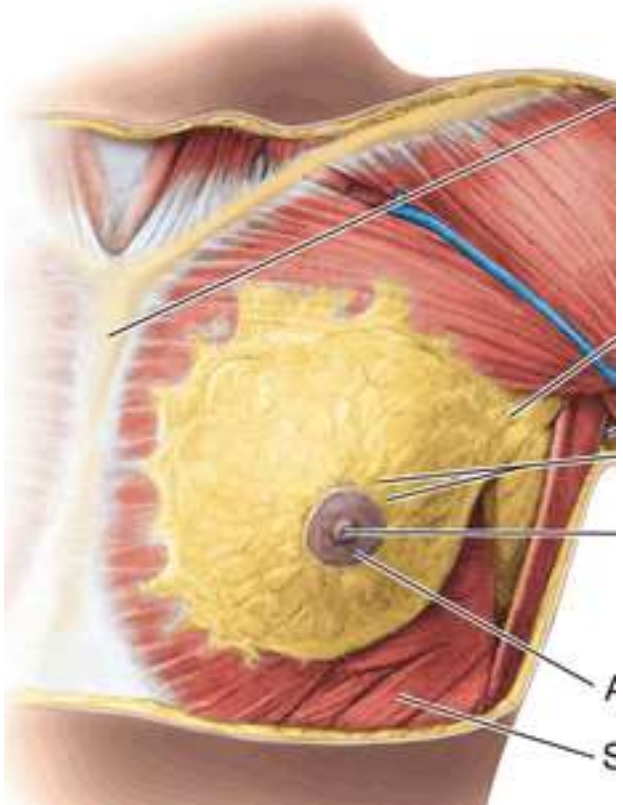




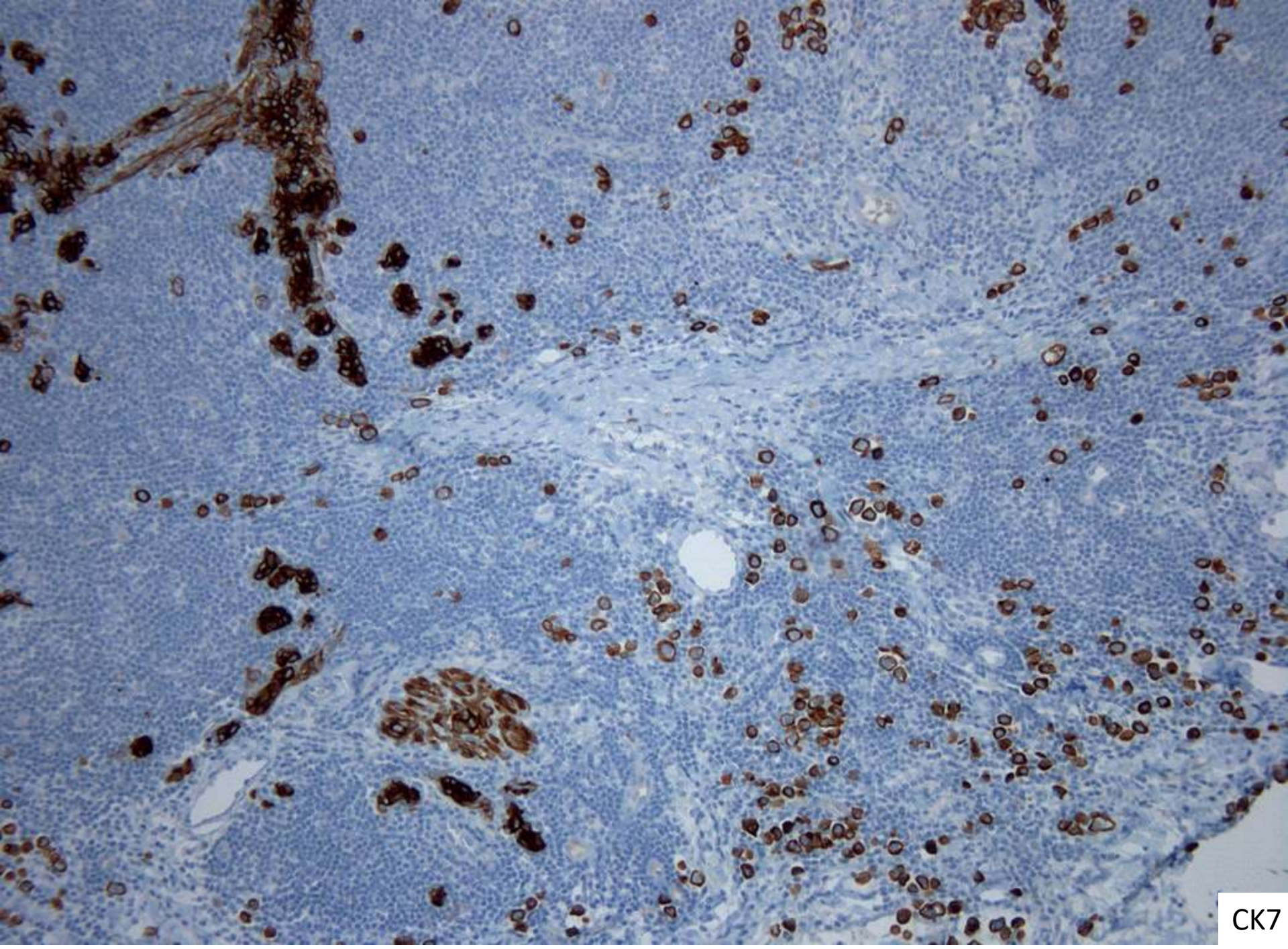


Differential diagnosis

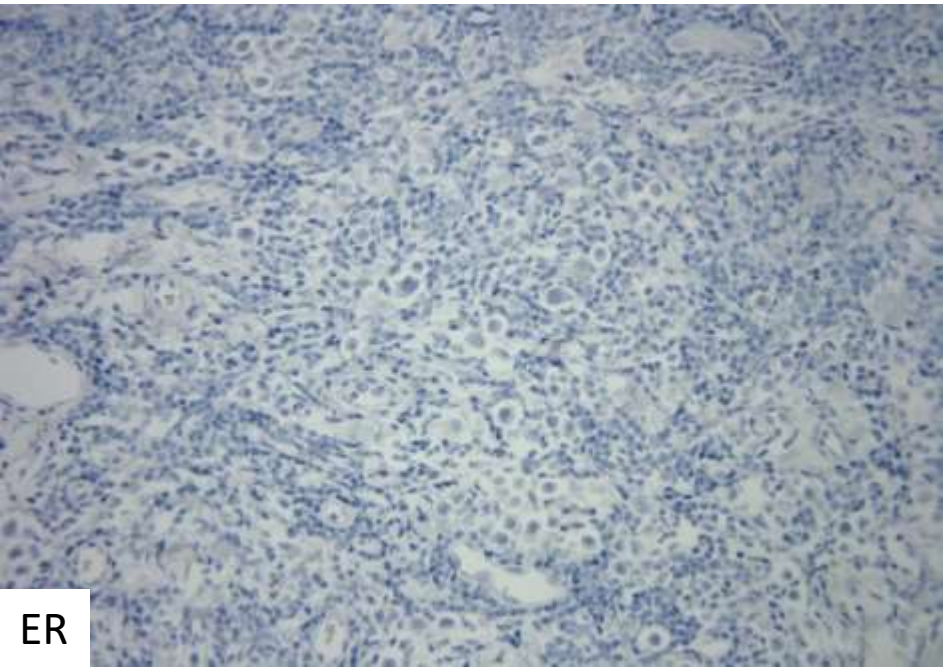
- LN metastasis from occult breast primary
- LN metastasis from occult non-breast primary
- Primary breast CA with abundant lymphocytic response
  - Axillary tail, ectopic breast
- Lymphoma, hematolymphoid

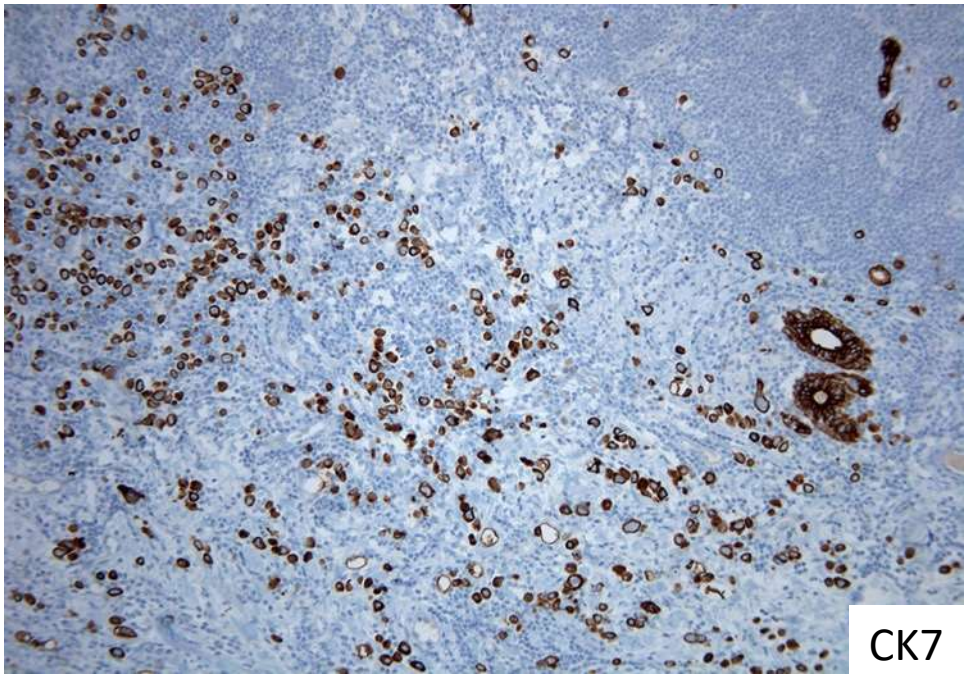


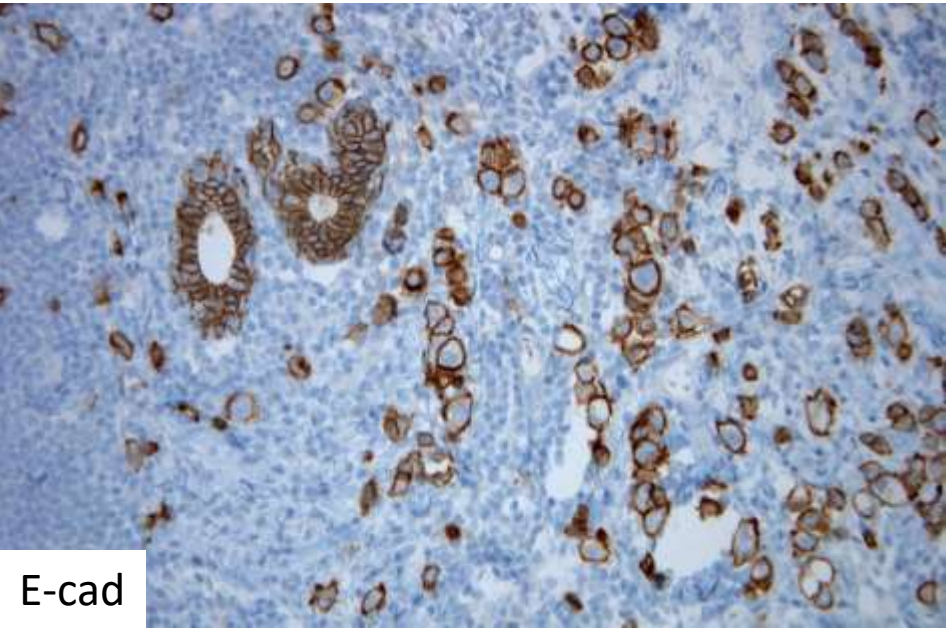
https://healtheappointments.com/chapter-1-thorax-essays/20/

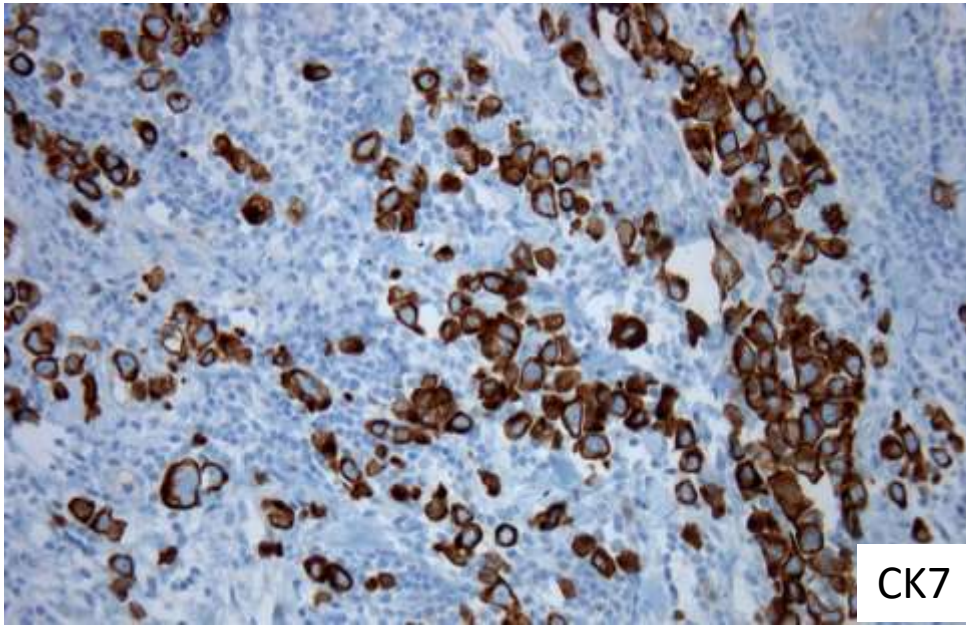

CK7

Axillary primary breast cancer

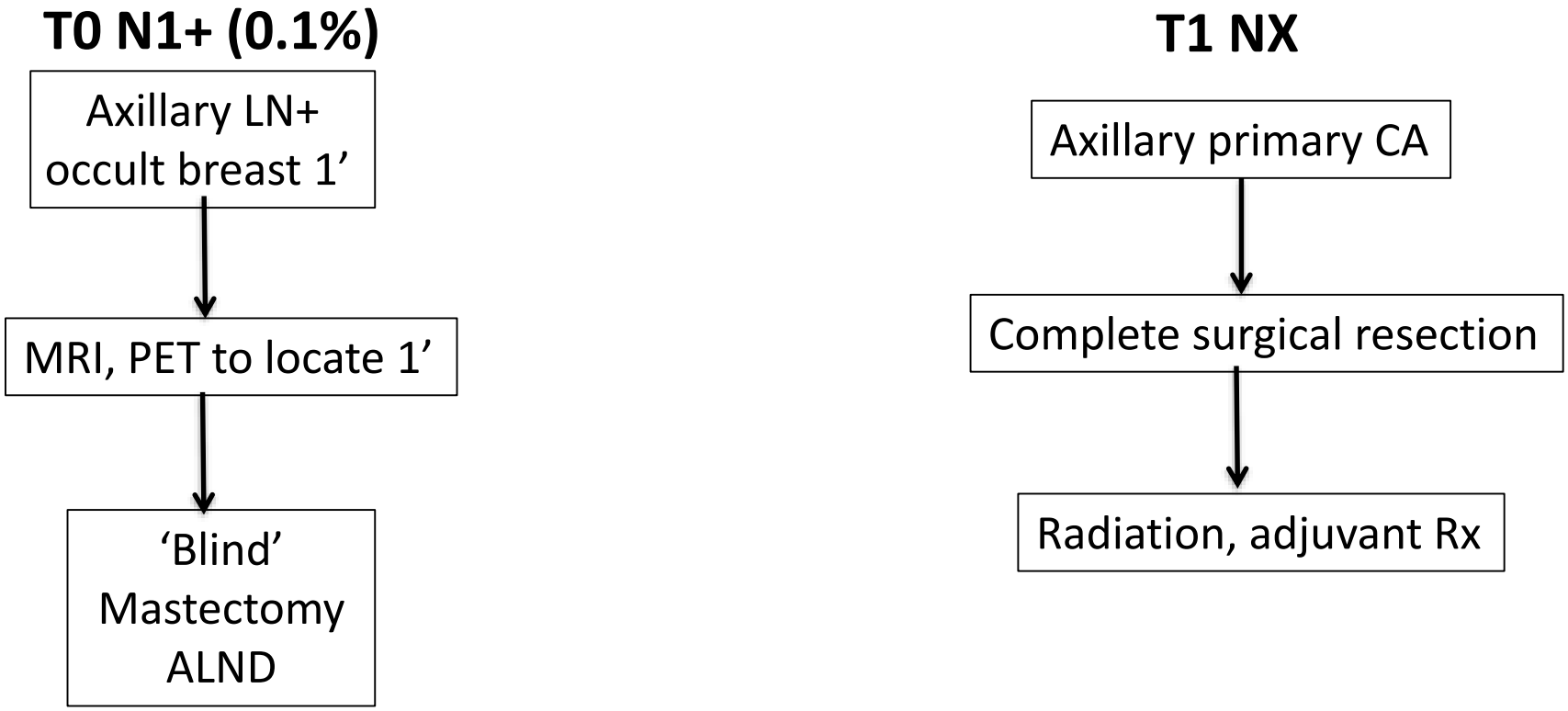






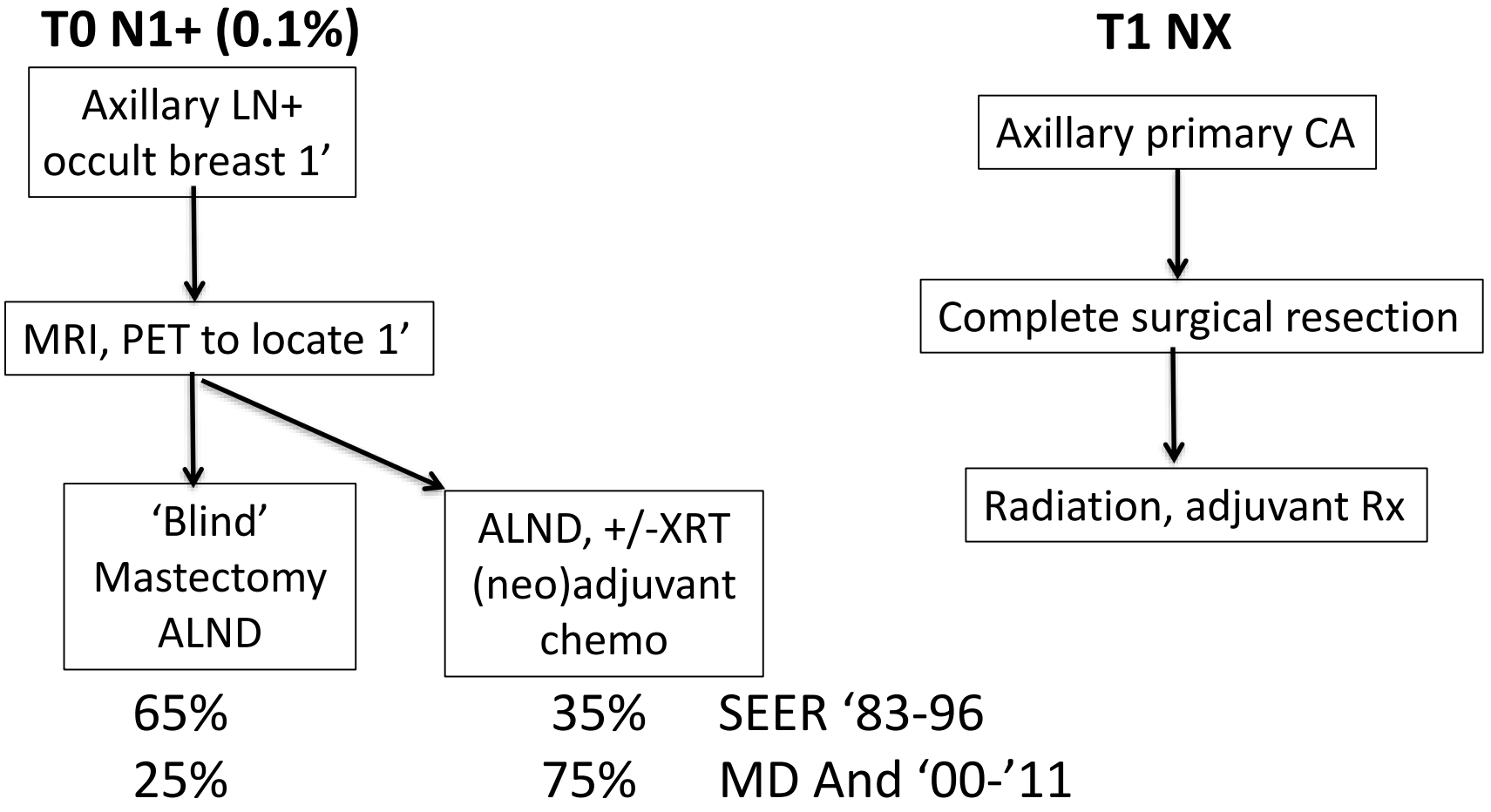


Difference in therapy



'Occult' evolves: MRI detects breast primary in 43-86% of such patients
'Occult' carcinoma previously discovered in mastectomy 55-90%, decreasing to 20-30% in MRI era (Barton. Eur J Cancer. 2011;47:2099–2106)

Difference in therapy



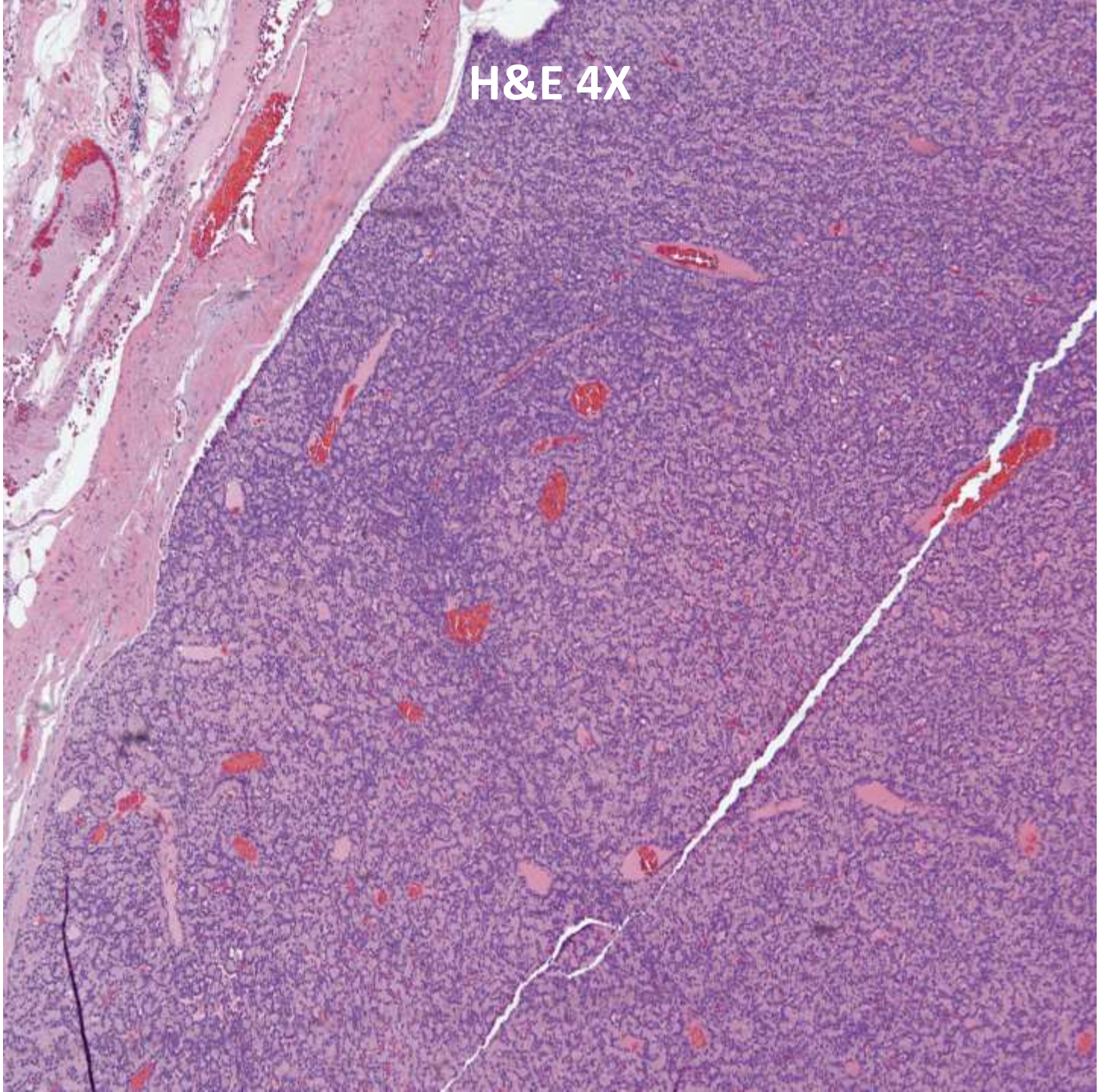
65% 35% SEER '83-96

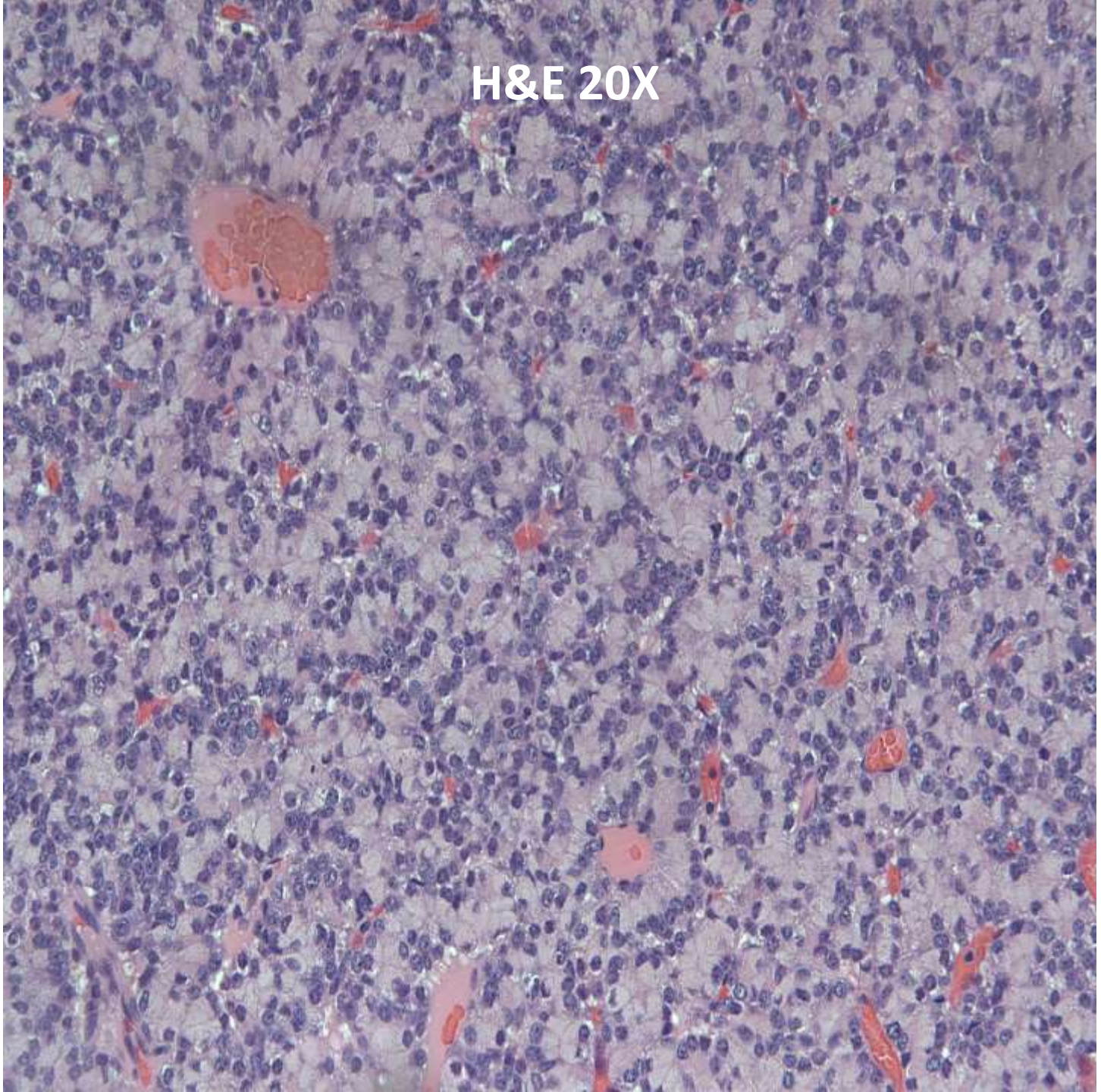
25% 75% MD And '00-'11

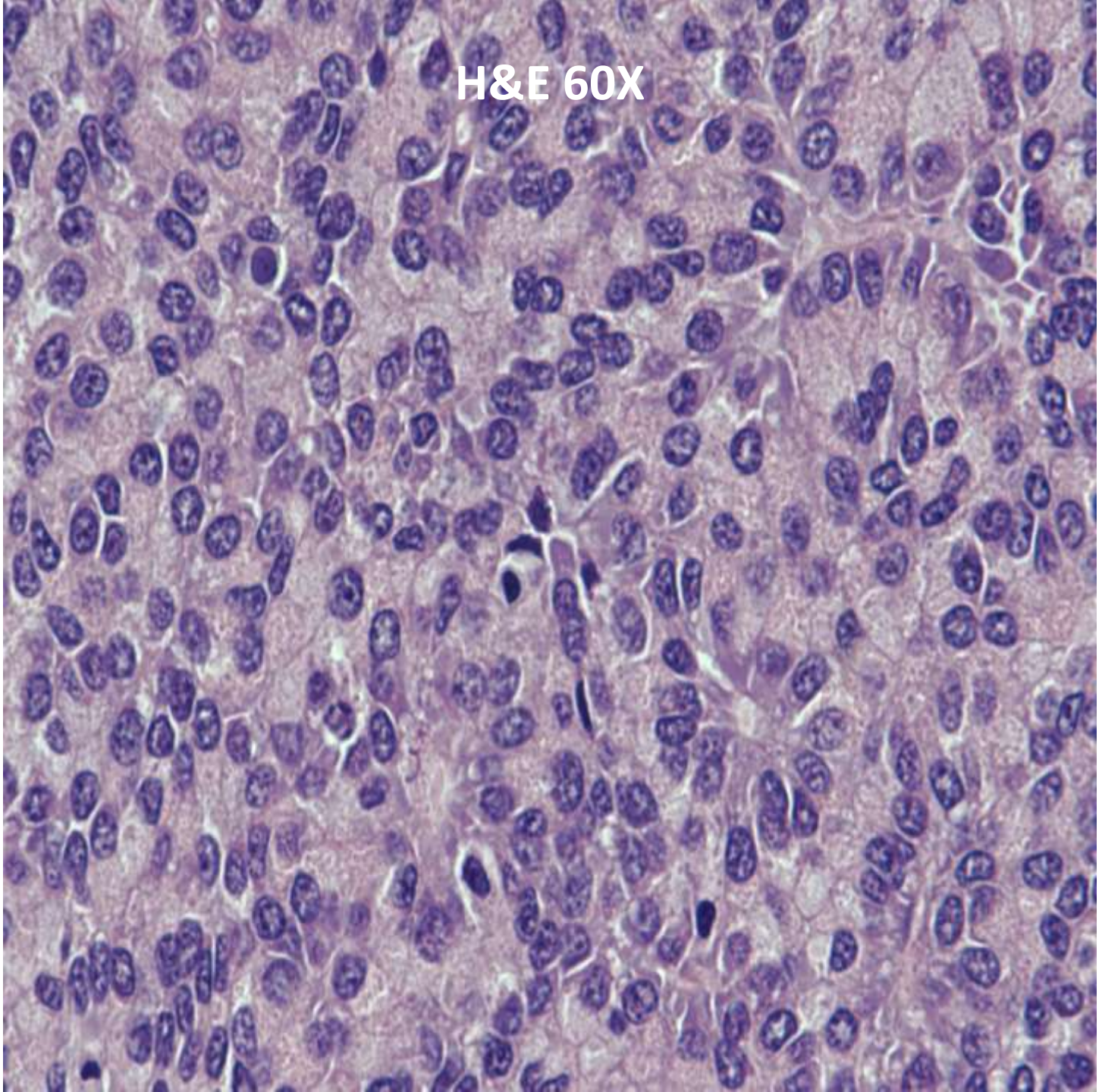
Rueth. Ann Surg Oncol. 2015;22:90–5
MD Anderson

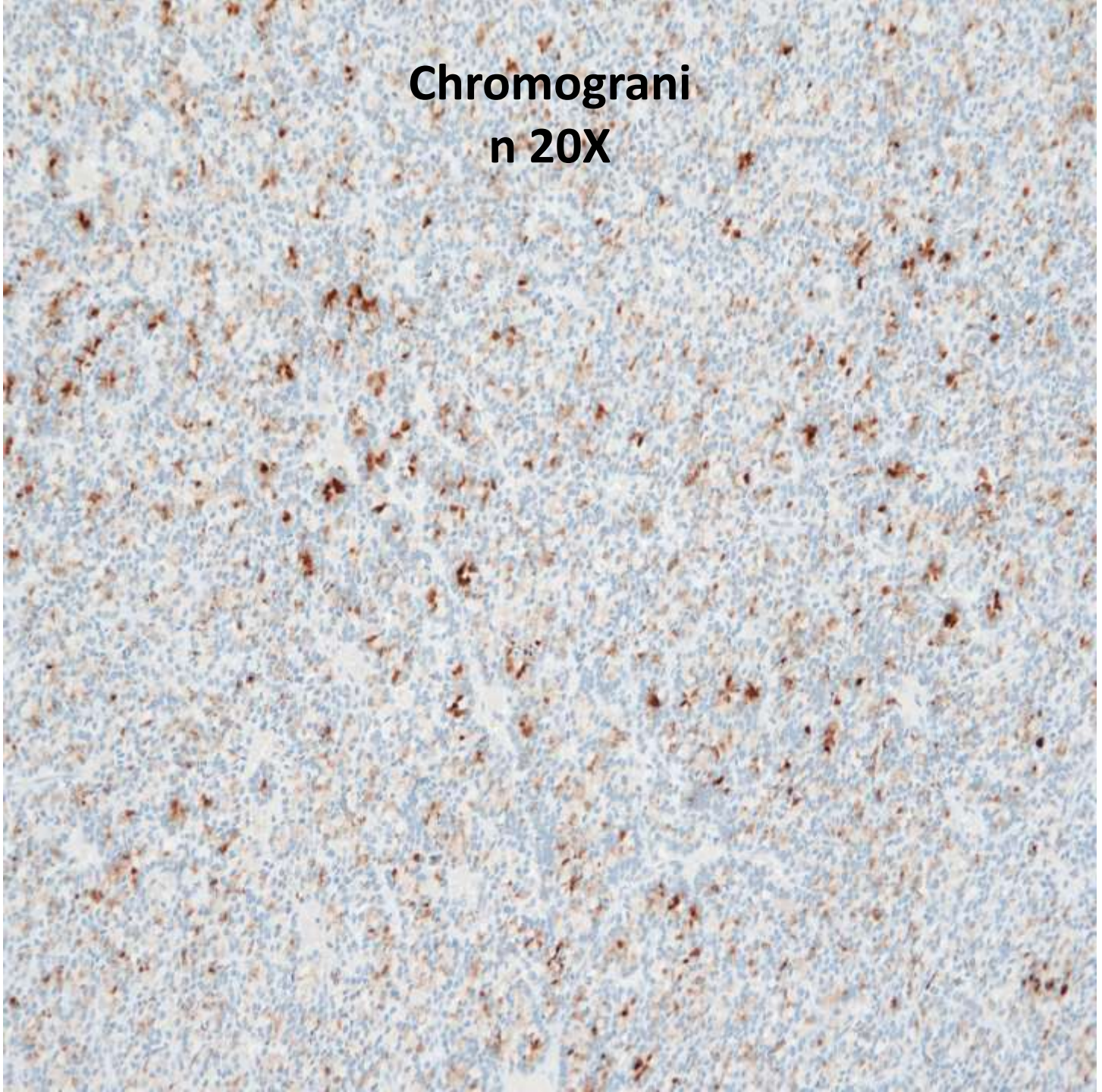
SB 6288 [scanned slide available] Kelly Mooney/David Bingham; Stanford

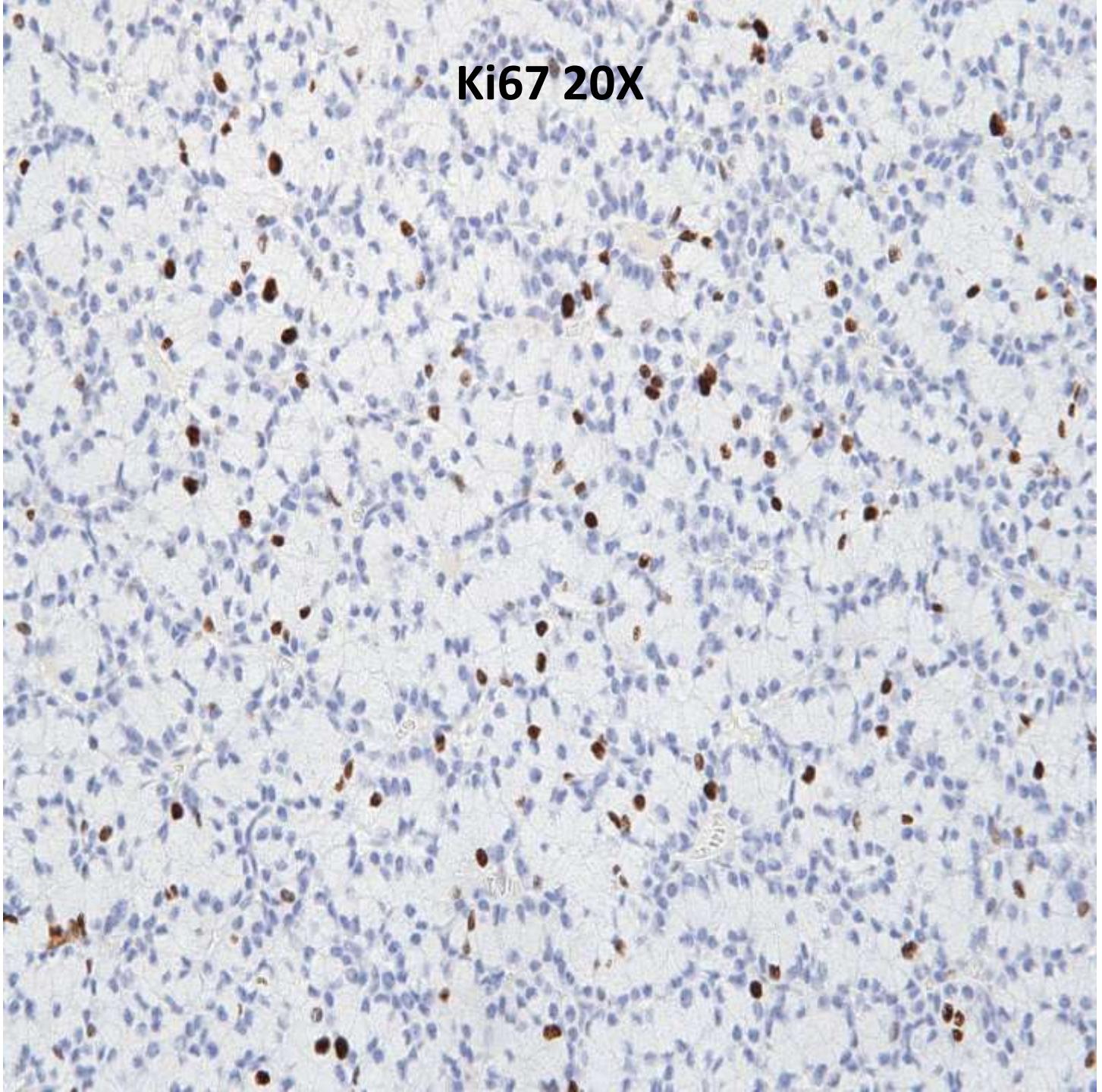
55-year-old man with pancreatic mass.


H&E 4X

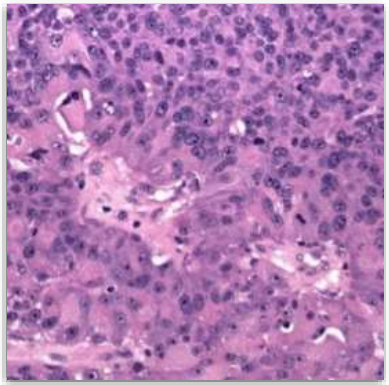

H&E 20X


H&E 60X

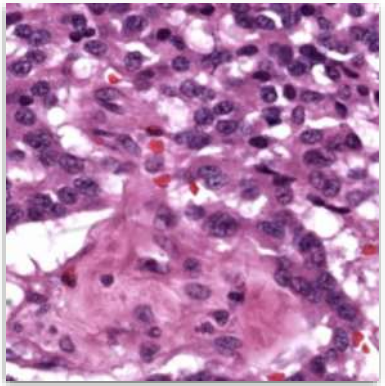

Chromograni
n 20X


Ki67 20X

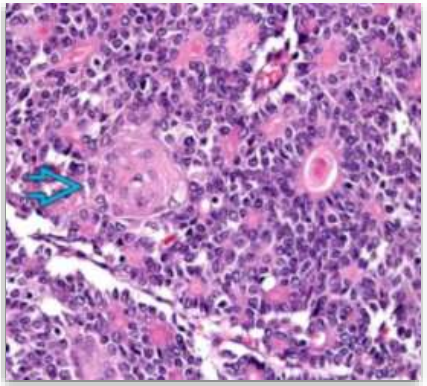
Differential diagnosis



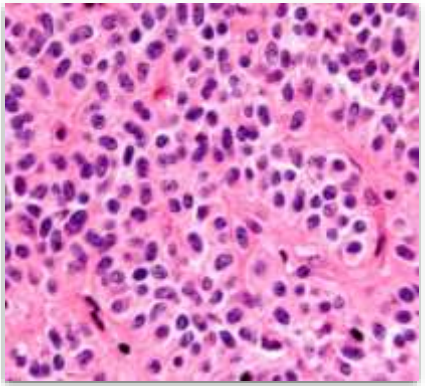
Acinar cell carcinoma



Neuroendocrine tumor



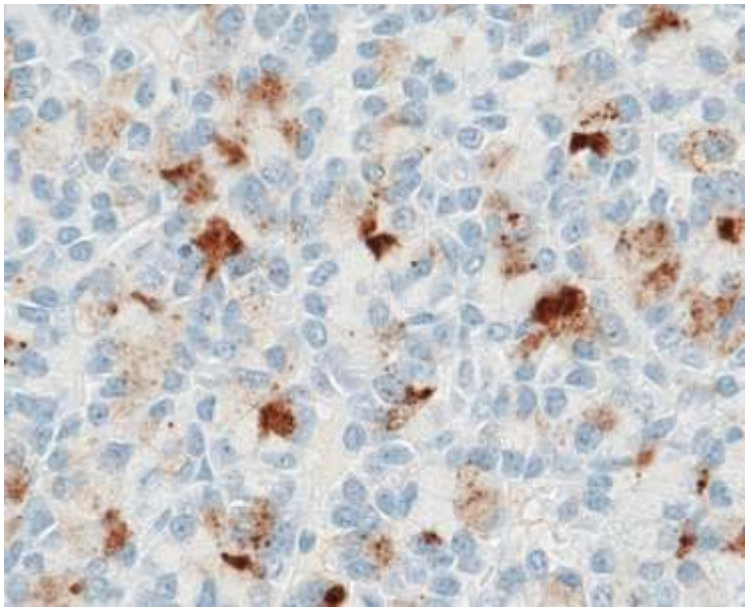
Pancreatoblastoma
Younger age
Squamoid nests



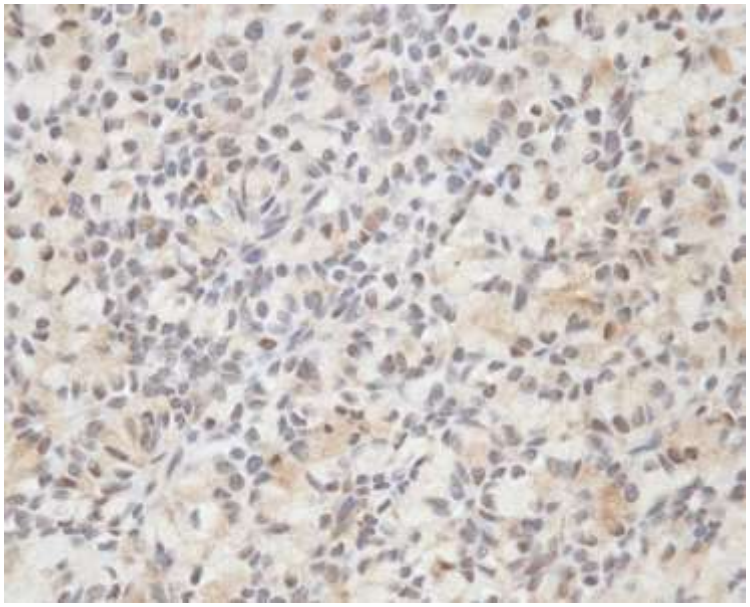
Solid Pseudopapillary Neoplasm
Young female
Ovoid nuclei

First: considered well-differentiated neuroendocrine tumor

Chromogranin



Synaptophysin

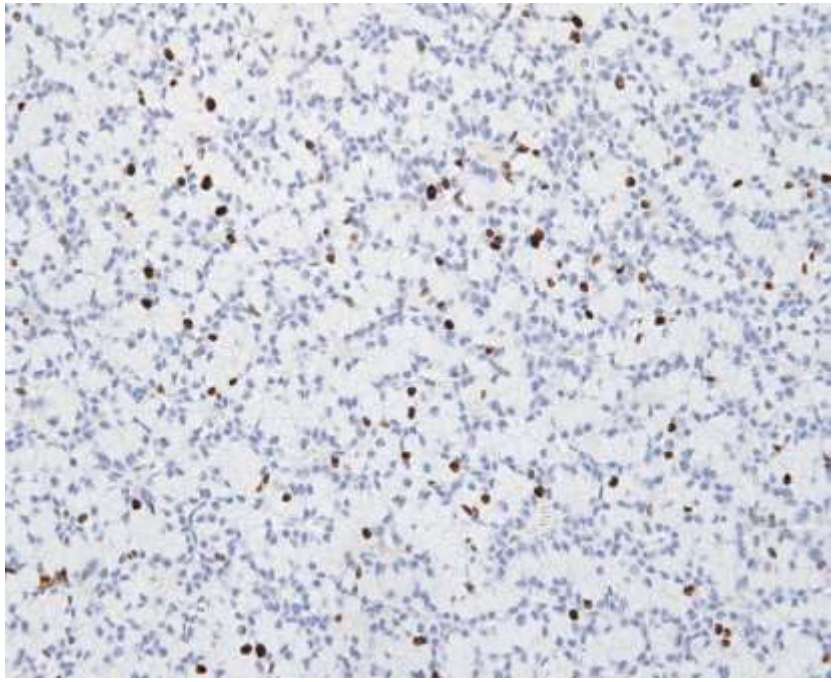


First: considered well-differentiated neuroendocrine tumor… with elevated proliferation index

- Ki67 proliferation index discordant with histology and mitotic index by H&E, i.e.:
  - Mits 4/10 HPF = grade 2
  - Ki-67 >20% = grade 3

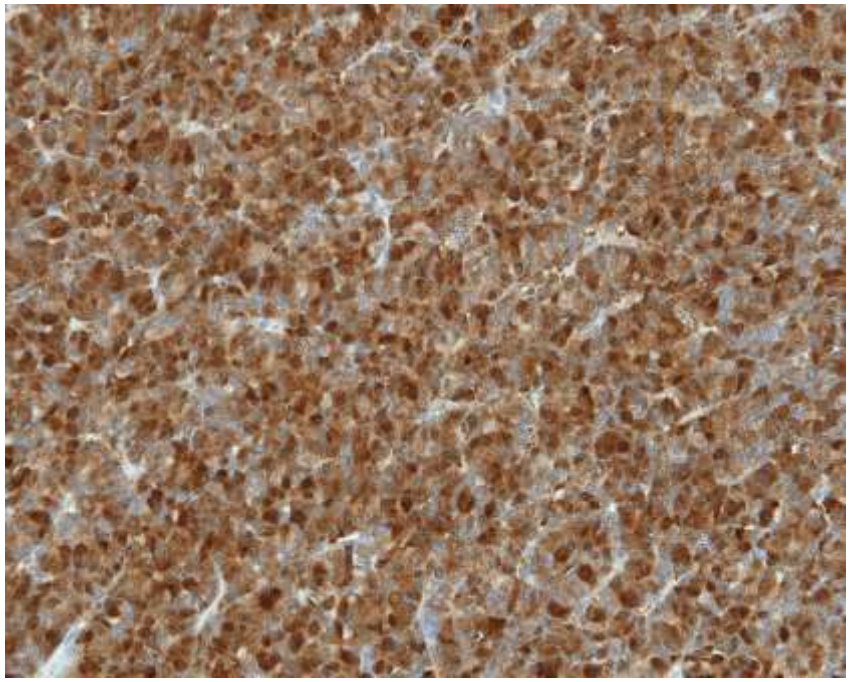
- Prognosis significantly better for these cases compared to poorly differentiated grade 3 carcinomas

Ki67

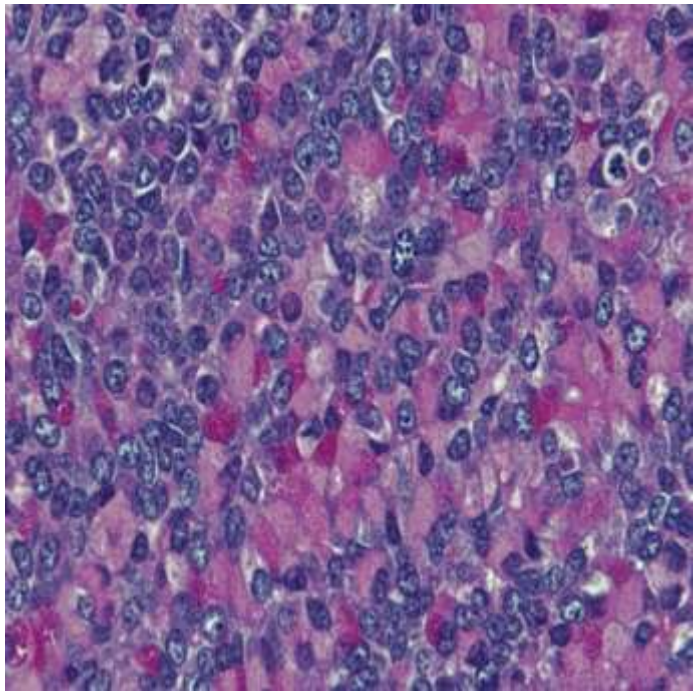


Basturk O, Yang Z, Tang LH et al. *Am J Surg Pathol*. 2015;39(5):683-90.

Final diagnosis: acinar cell carcinoma



Chymotrypsin: positive

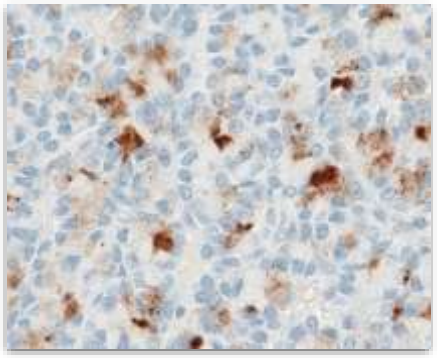


PAS-D resistant granules

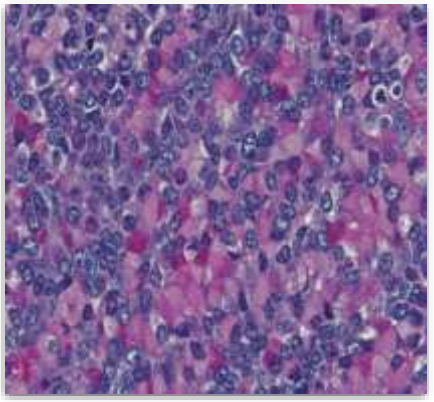
Acinar carcinoma and neuroendocrine markers

- Focal synaptophysin and/or chromogranin (~40% of tumors)
- **PASd+ granules** may be positive for **pancreatic enzymes** (trypsin, chymotrypsin, lipase) and **endocrine markers** (synapto/chromo)

Chromogranin

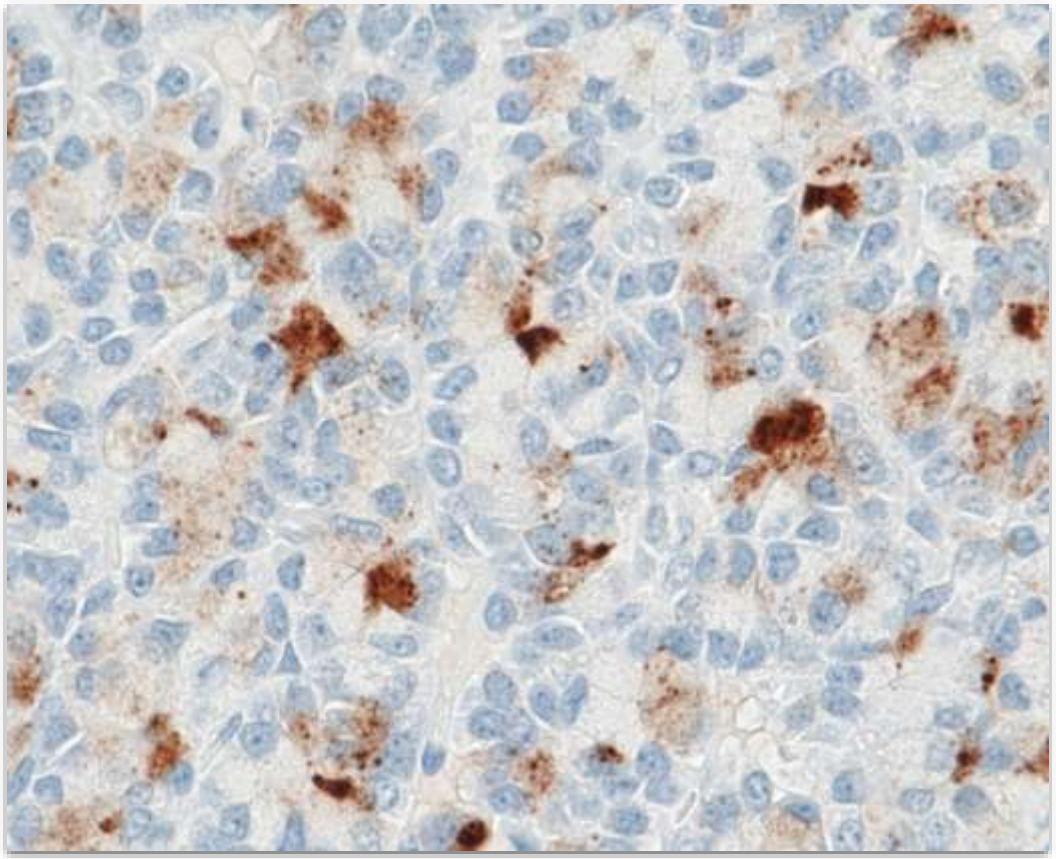


PASd

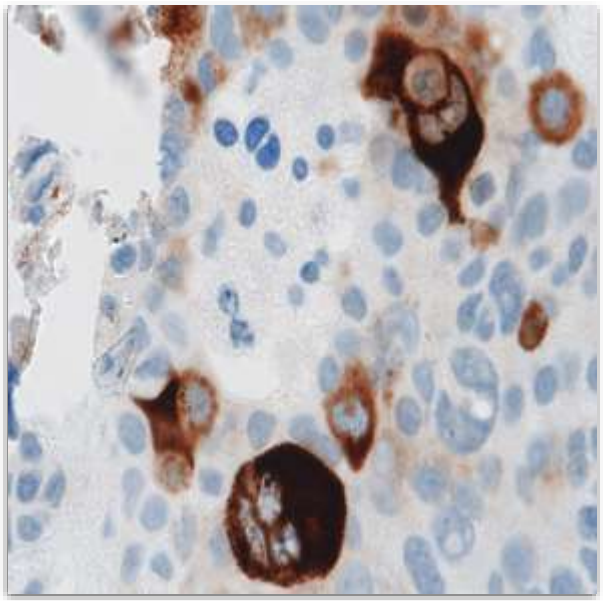


Klimstra DS, Rosai J, Heffess CS. *AJSP*. 1997:765-78.
Klimstra DS, Adsay V. *Semin Diagn Pathol*. 2016 ;33(5):307-18.

Acinar carcinoma and neuroendocrine markers



Chromogranin



Positive control

Differential diagnosis:
Combined acinar cell/ neuroendocrine tumor

- Definition: >25% of cells positive for neuroendocrine markers
  - Can be separate, definable components, or intermixed

- There are neither prognostic nor molecular differences between mixed acinar neuroendocrine carcinomas and pure acinar cell carcinomas.

Klimstra DS, Rosai J, Heffess CS. *AJSP*. 1994:765-78.

Acinar cell carcinoma: clinical features

- **Rare** (1-2% of primary pancreatic neoplasms)
- 4^{th}-6^{th} decade, male predominance
- Lipase hypersecretion paraneoplastic syndrome (10%)
    - elevated serum lipase, fat necrosis, arthralgias
- Highly **aggressive** (5-year survival 6%)

Clinical follow-up

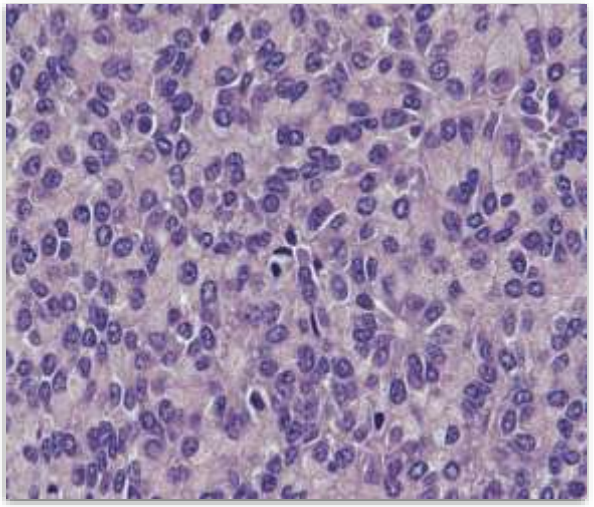
"We explained to the patient that **acinar cell carcinoma is very rare**. For that reason, there are **not strong randomized clinical trials from which to base our recommendations**. The general consensus is that acinar cell carcinoma is considered more aggressive than NET but less so than adenocarcinoma.

Recommendations:

1. 6 months of adjuvant chemotherapy with gem/cape per the **ESPAC-4 trial** (**Pancreatic ductal adenocarcinoma**)
2. Then, imaging surveillance per the NCCN guidelines for pancreatic adenocarcinoma"

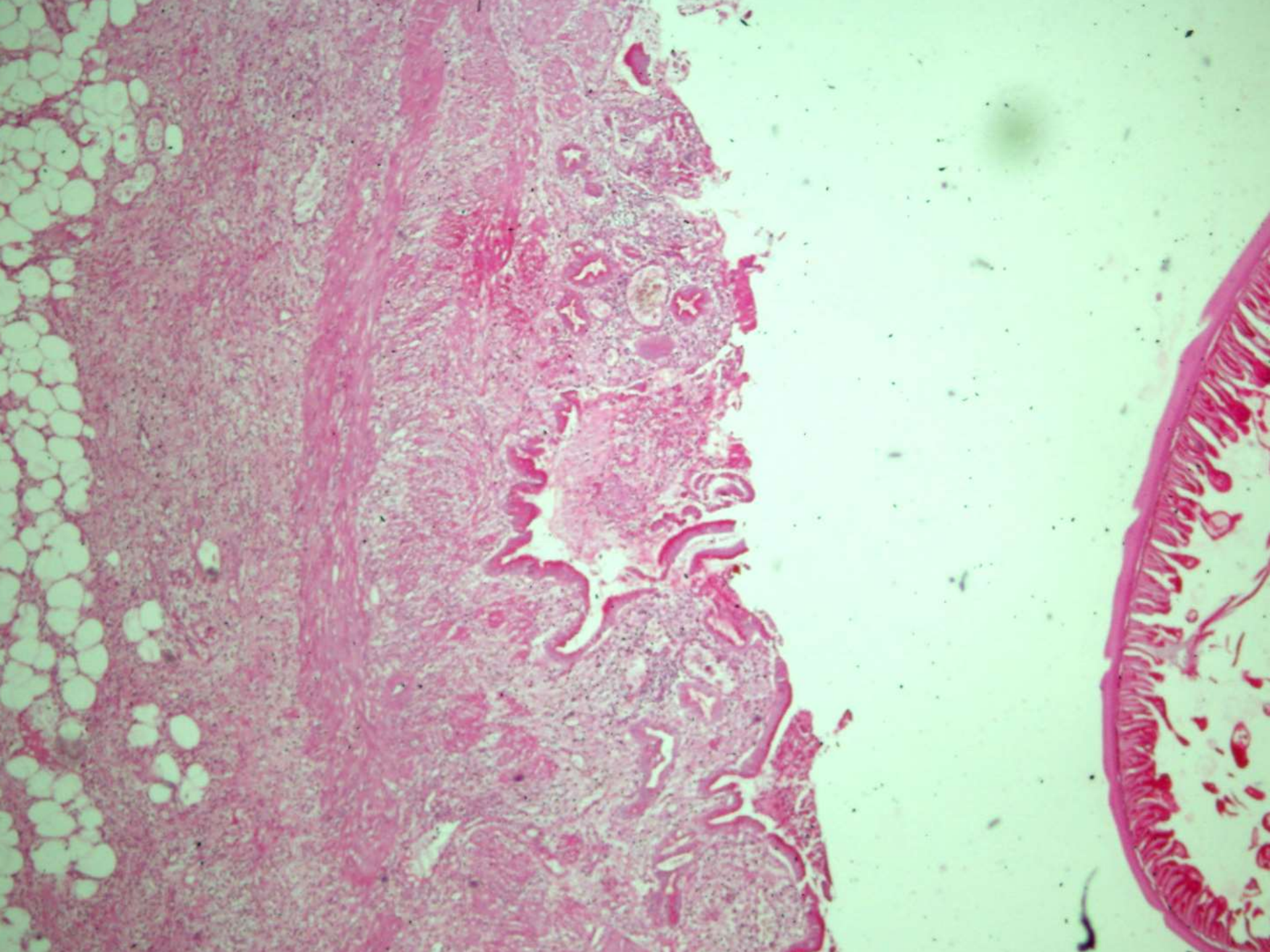
Take-aways

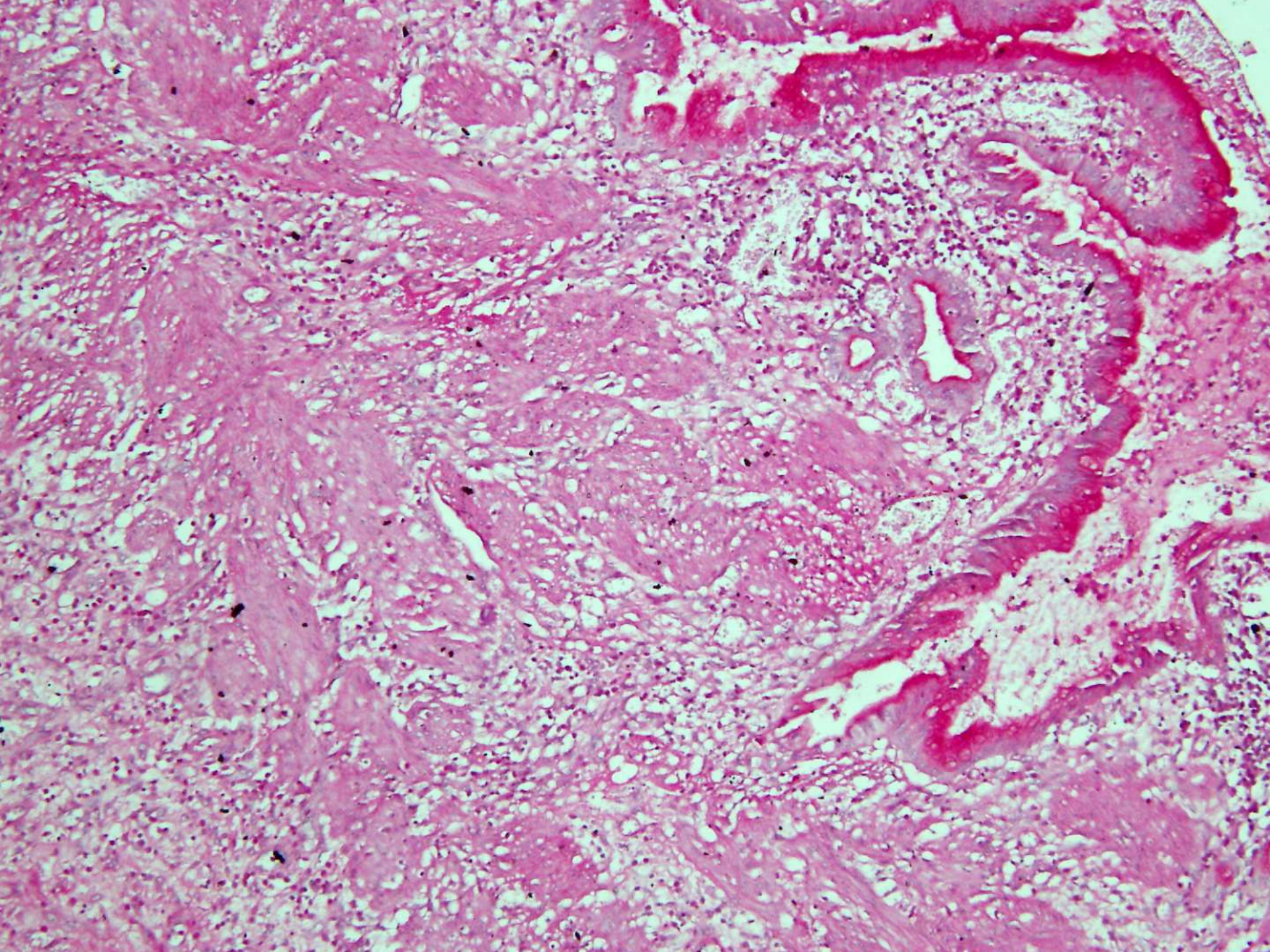
- Acinar cell carcinomas can stain with neuroendocrine lineage markers
- Mixed acinar cell carcinoma/ neuroendocrine tumors exist, with prognosis similar to that of pure acinar cell carcinoma
- Management currently same as pancreatic ductal adenocarcinoma

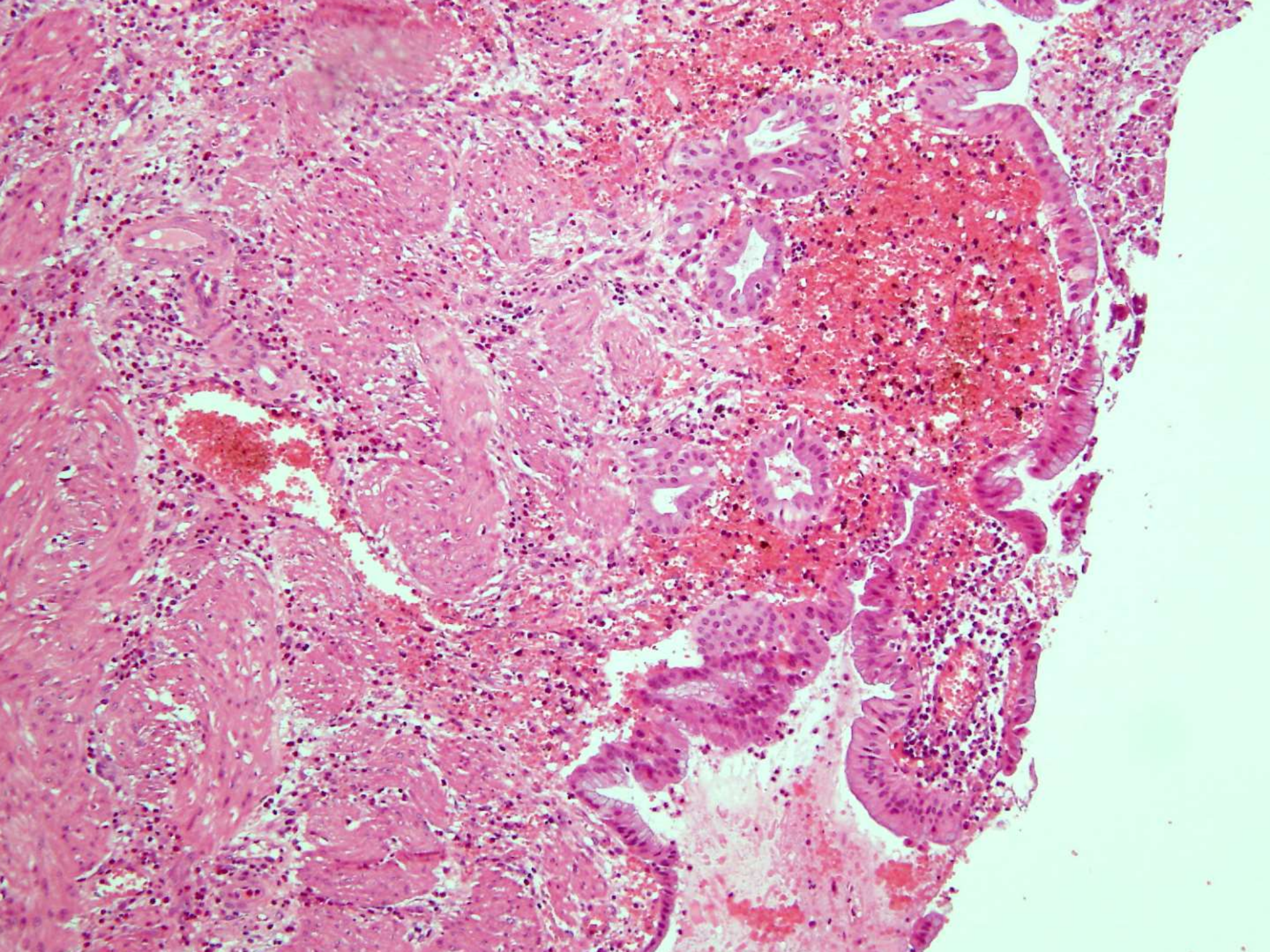


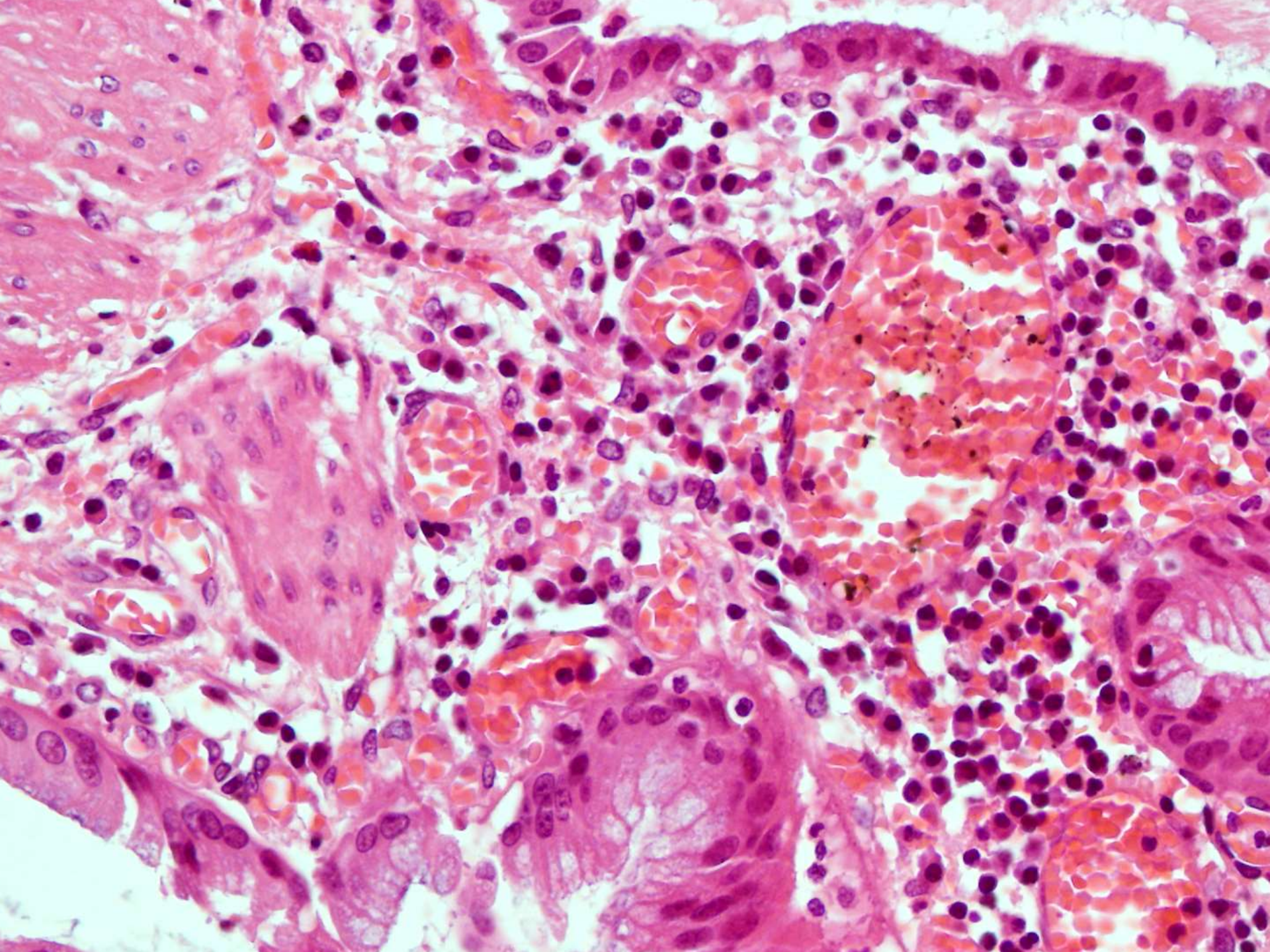
SB 6289
Nabeen Nayak; Sir Ganga Ram Hospital, New Dehli

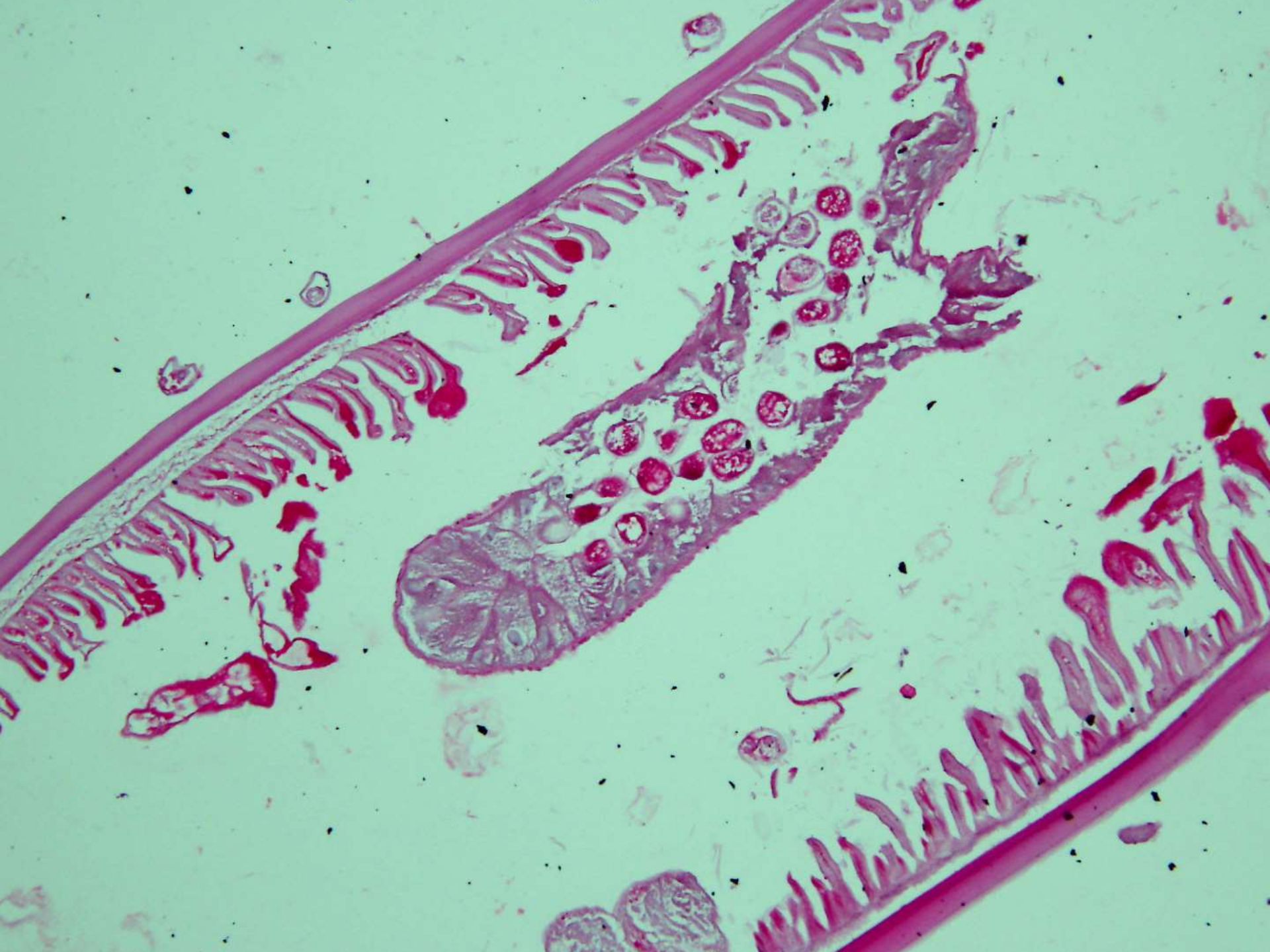
52-year-old woman, cholecystectomy done for repeated episodes of jaundice with non-calculus cholecystitis.

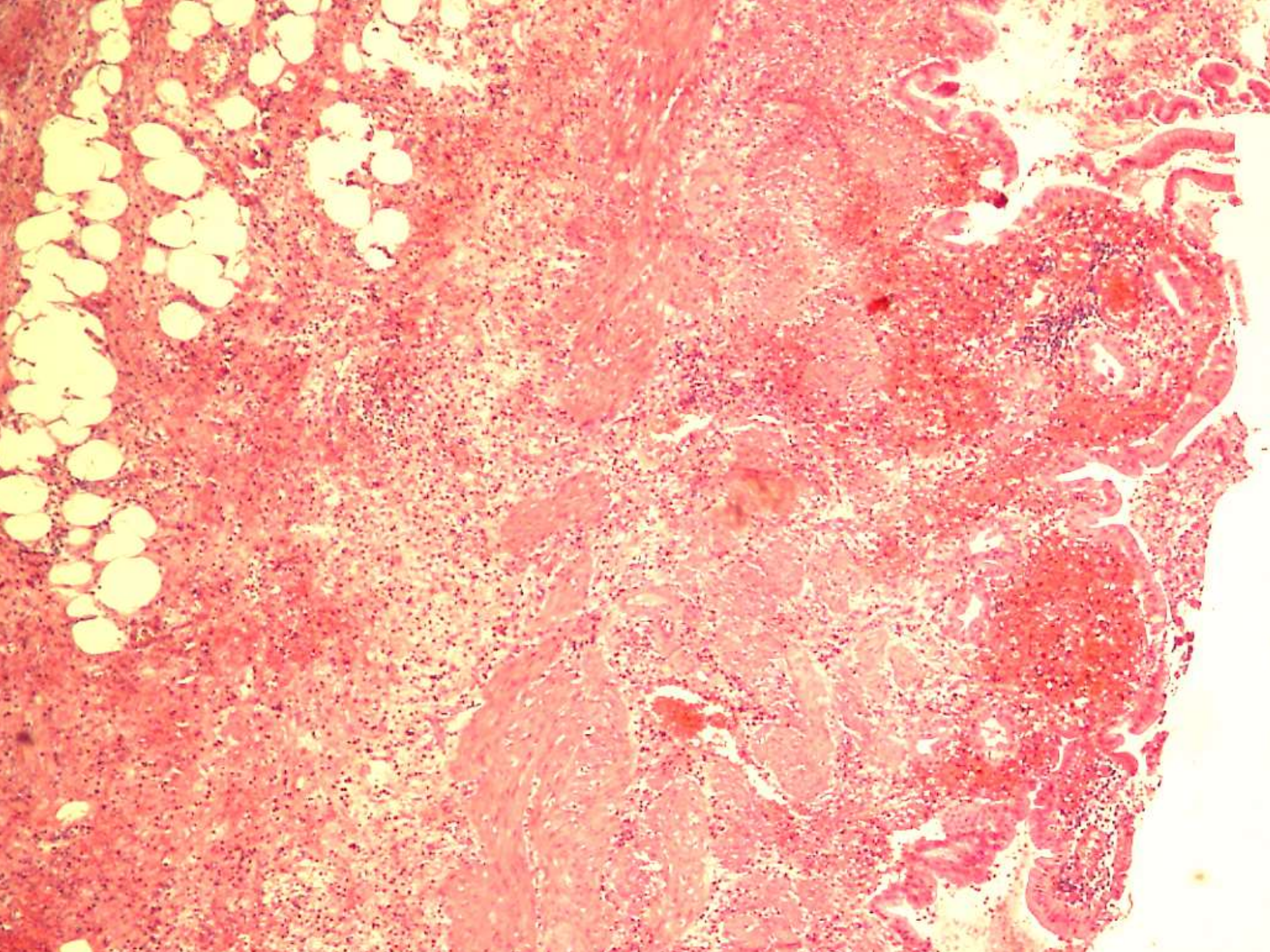


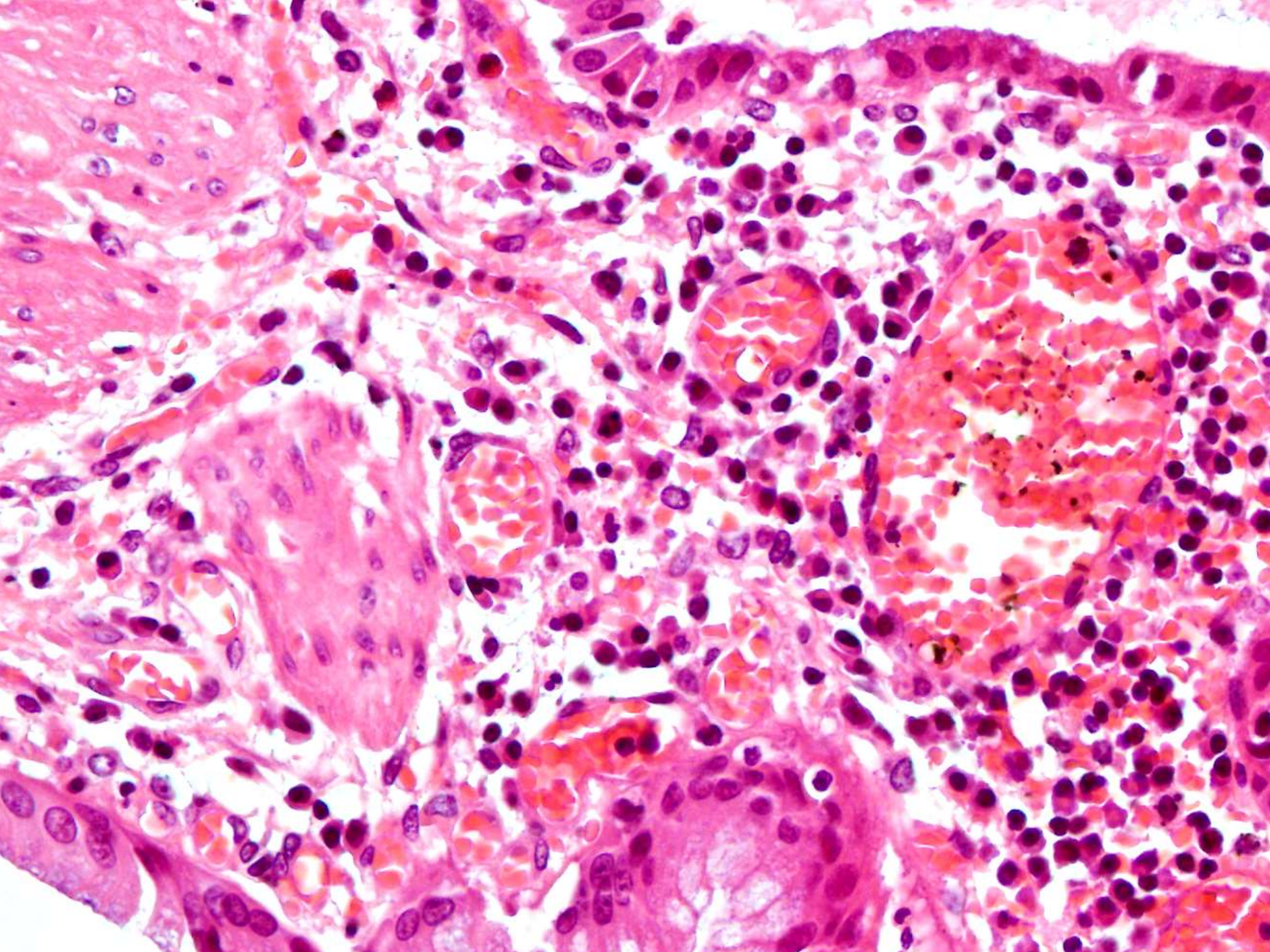


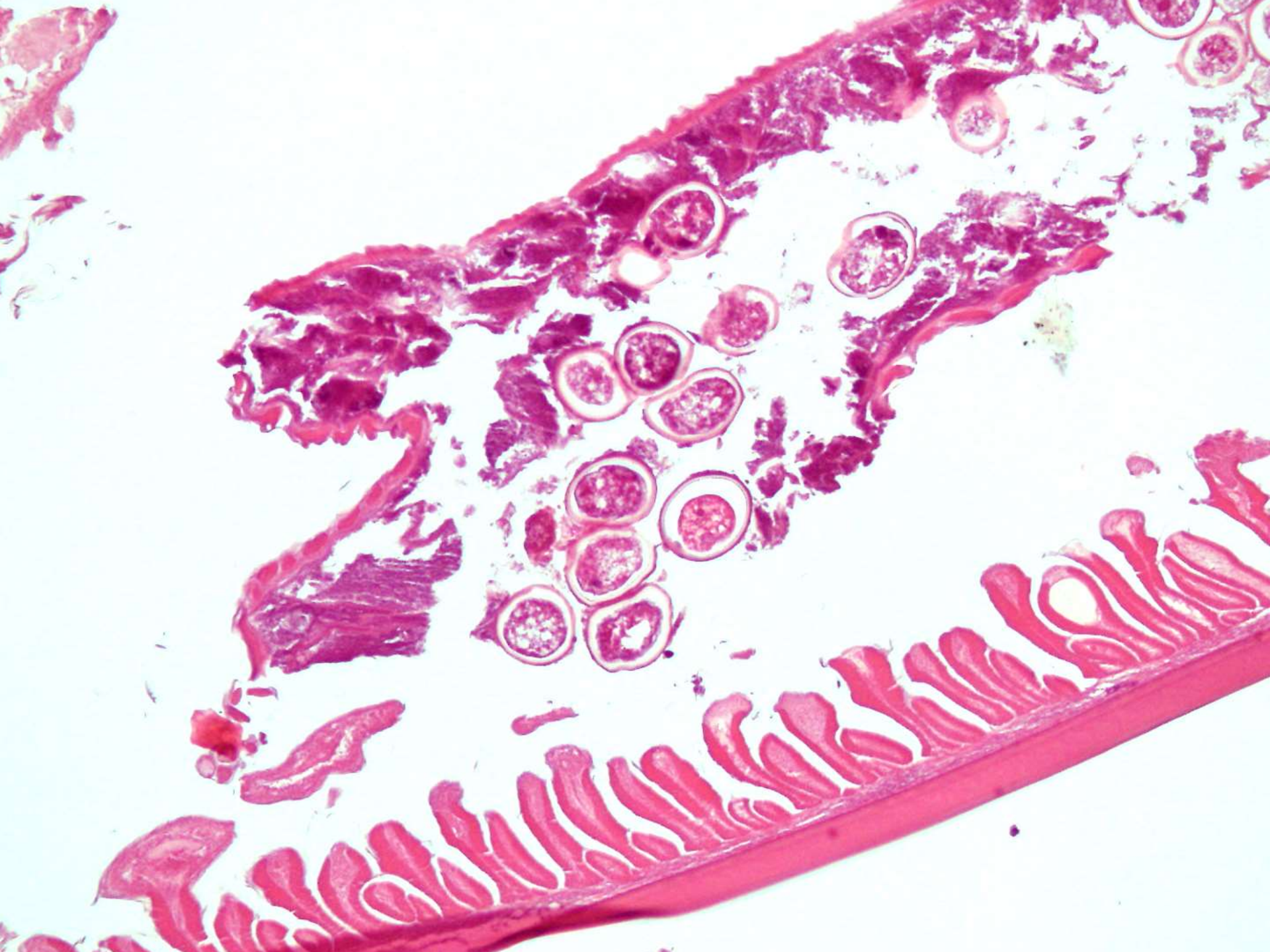


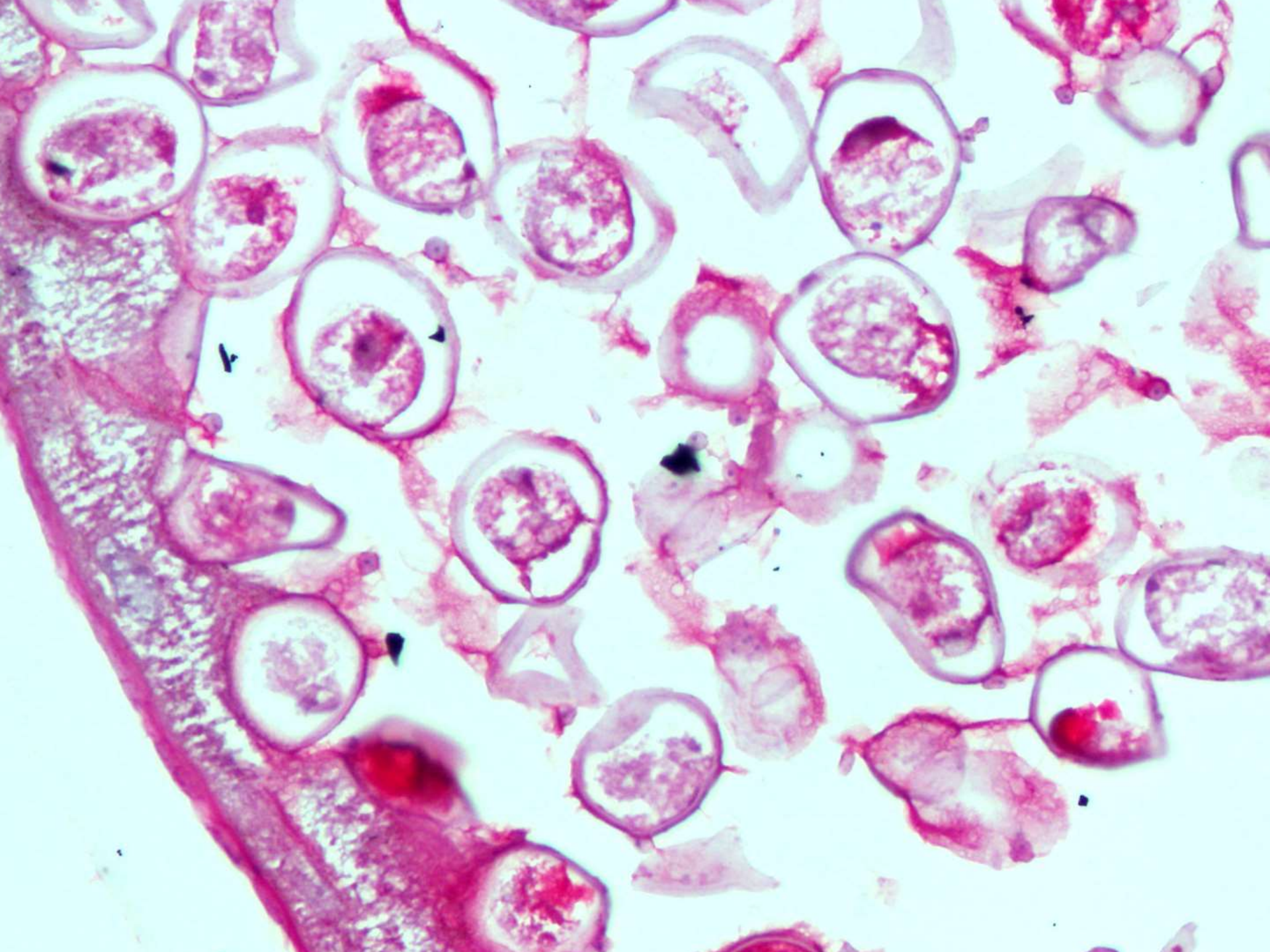












The worm was visualized within the gall bladder in pre-op radiologic images.

It was taken out in-situ at laparoscopic cholecystectomy and measured 18.0 cm. in length.

DIAGNOSIS: Acute on Chronic cholecystitis with adult female Ascaris lumbricoides.

- ASCARISIS is the commonest human helminthic infection.

- High global prevalence of 25%, nearly 1.3 billion infected.

- Most residing in countries of South East Asia, sub-Saharan Africa and Latin America. Very rare in the USA.

- Ova are infective,200-240,000 eggs being put out by a female worm every day of its 1-2 yr. life !!

-The vast majority (>85%) of infected individuals are, however symptom free.

- Heavy parasitic load generally cause symptoms resulting from:

- Larvae while migrating through lung cause pneumonic changes.

- Adult worms in masses mechanically obstruct intestinal lumens.

- Adult worms migrate through biliary and pancreatic ducts.

- **Hepato-biliary** ascariasis is rare, though advances in imaging and endoscopic procedures have lately revealed higher detection in endemic areas *****.

- Adult worms within the gall bladder are extremely infrequent, apparently because of the relatively tortuous cystic duct.

-*****Khuroo M S et al. World J Gastroenterol. 2016;22:7507-17

Bile Duct Anatomy, Parts and Pictures of Liver, Gallbladder Drainage

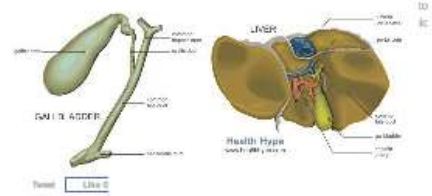
Posted by Dr. Chris

The bile ducts are a series of tubes that drain bile from the liver and either direct it to the gallbladder for temporary storage or pass it into the duodenum where it can be expelled with the feces. The biliary tree as it is known has many different parts, all of which serve the same function, and are prone to a number of diseases that can ultimately affect the liver, gallbladder and/or pancreas. The gallbladder is actually part of this biliary tree but it is often considered separately as an organ on its own.

Bile Drainage

Bile is produced by the hepatocytes (liver cells) which secrete it into the bile canaliculi. These canaliculi are not actual ducts but rather furrows or canals that drain the bile secreted by all the hepatocytes into the smallest of the bile ducts known as the interlobular biliary duct. As the the name suggests, each of these ducts drain a lobule of the liver. Lobules should not be confused with the lobes of the liver. Lobules are not functional units but rather structural arrangements.

The intrah… to form the … duct. This …



Common Bile Duct

The cystic duct,which communicates with the gallbladder, joins the common hepatic duct to form the common bile duct (or known just as the bile duct). The bile duct, which is between 5 to 15 centimeters long, courses behind the top of the duodenum and pancreas until it runs side by side with the main pancreatic duct.

Ampulla of Vater

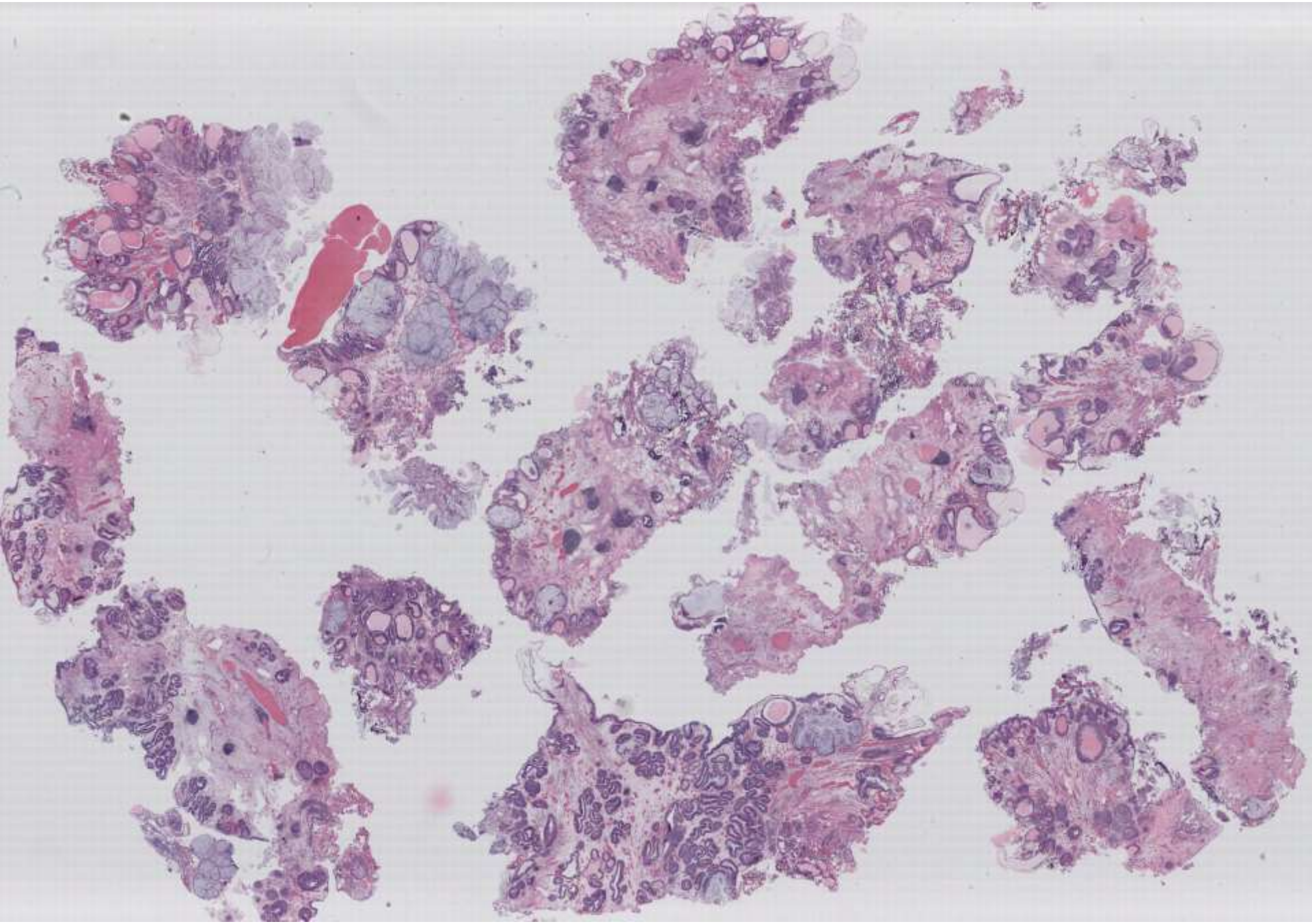
Eventually the bile duct and pancreatic duct unite to form a dilatation known as the hepatopancreatic ampulla (ampulla of Vater). This immediately drains into the duodenum through the major duodenal papilla.

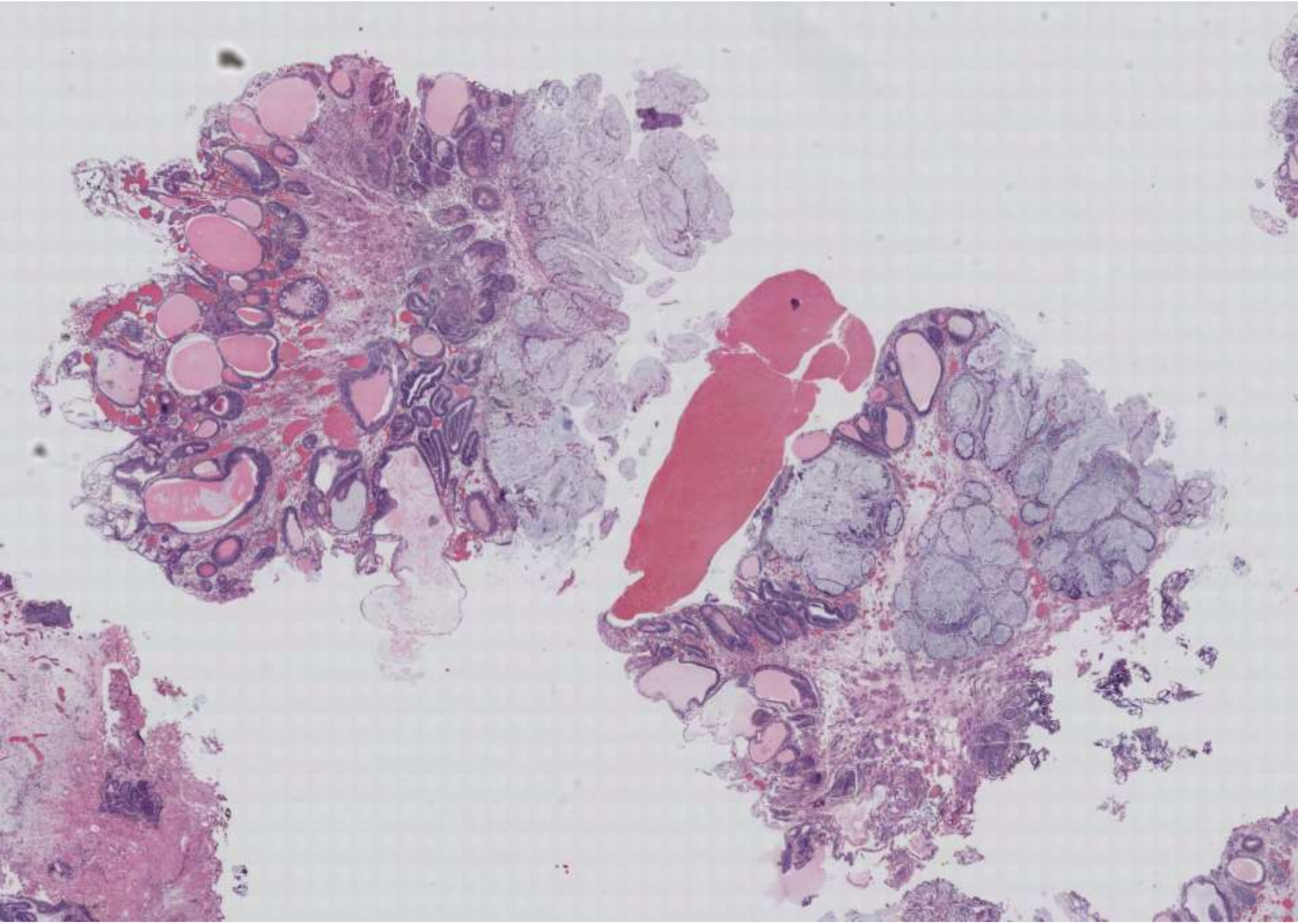
The end part of the bile duct, just before it joins the pancreatic duct, has thick circular muscle lying around it. This forms a sphincter which prevents bile from emptying into the ampulla and subsequently into the duodenum. This sphincter of the bile duct controls the flow of bile into the duodenum and when contracted, it also causes a backflow of bile in the common bile duct, thereby forcing the excess bile to redirect into the gallbladder for storage.

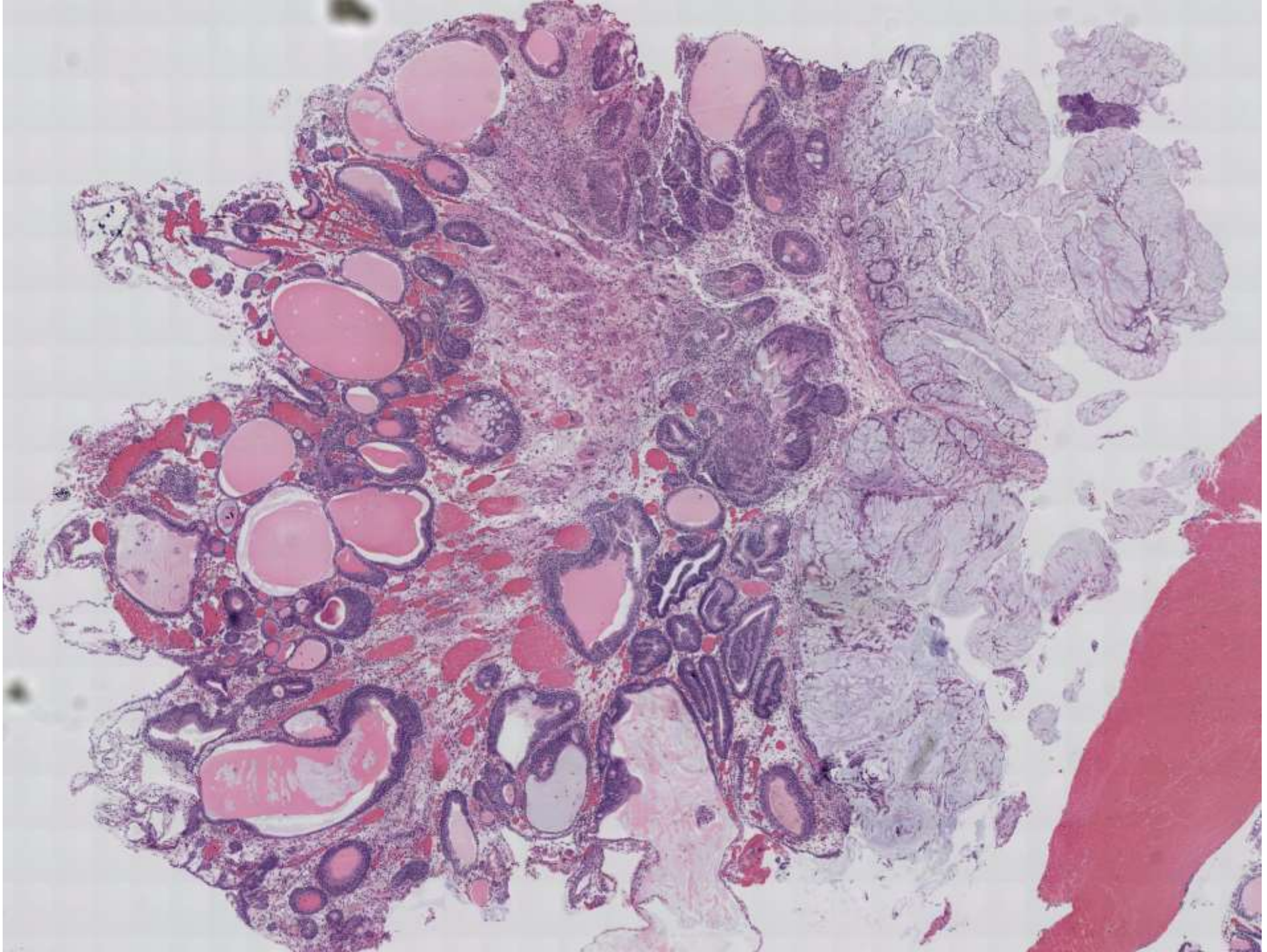
Sphincter of Oddi

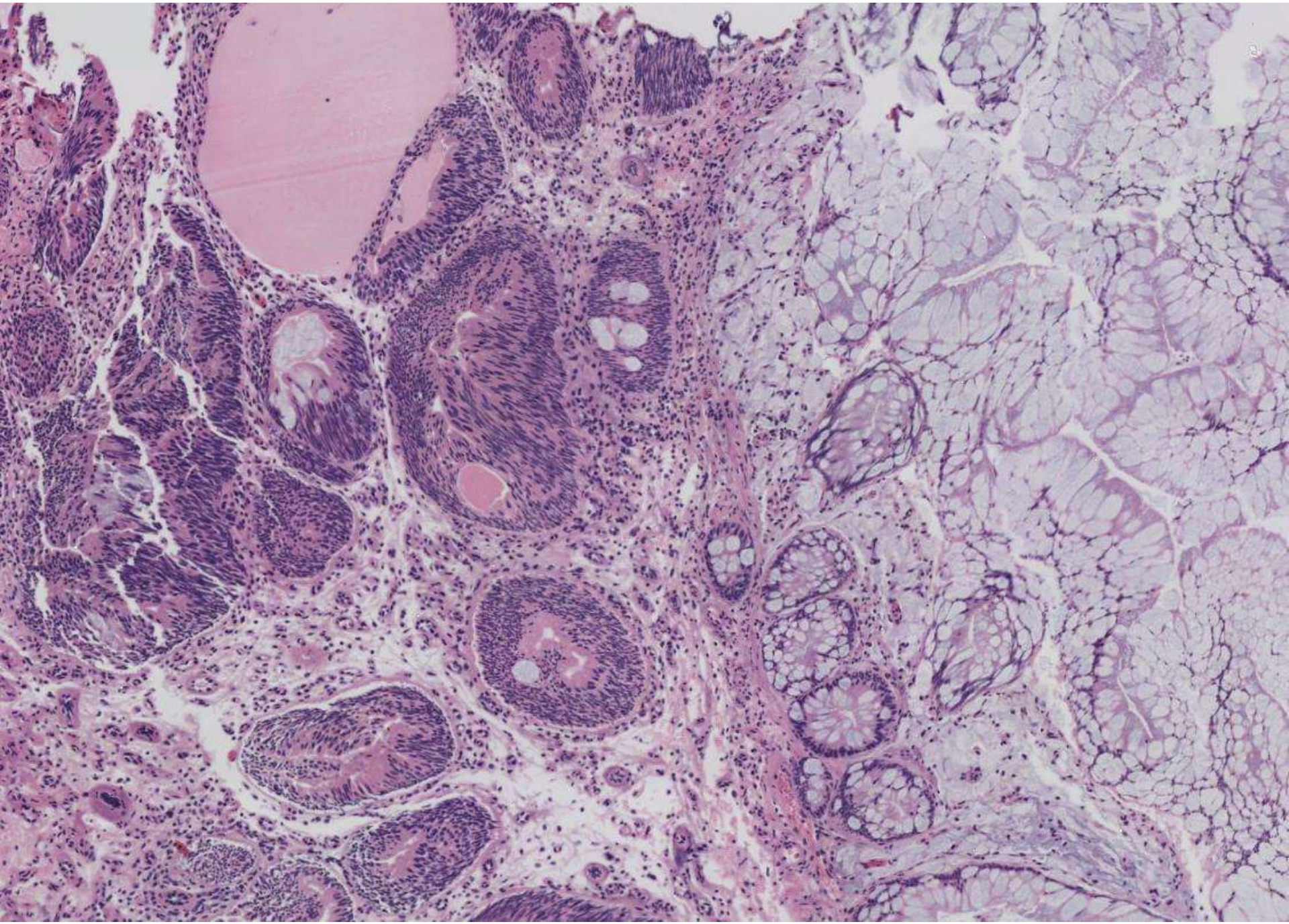
SB 6290 [scanned slide available]
Ankur Sangoi; El Camino Hospital

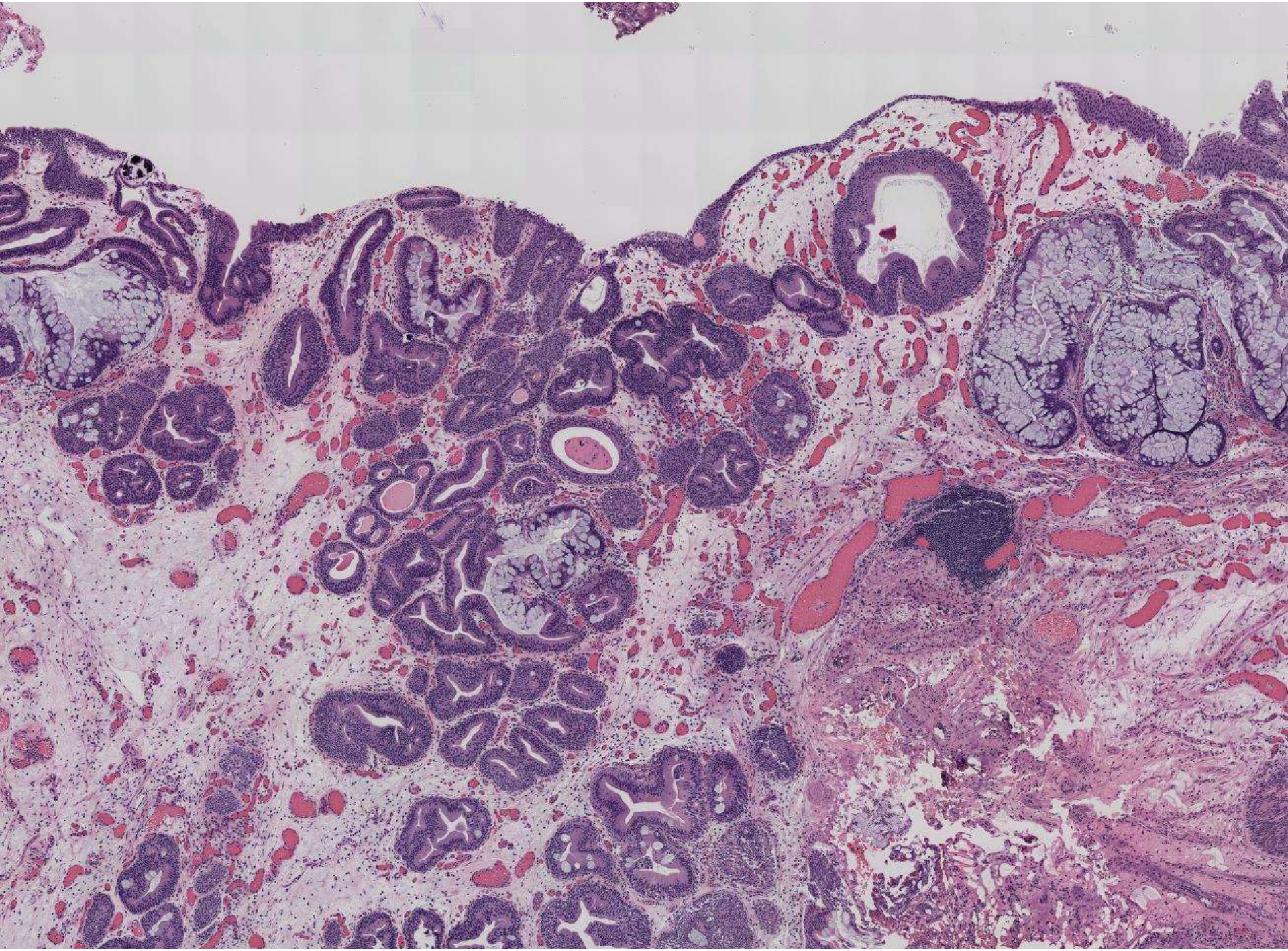
54-year-old man with bladder tumor.
TURBT performed.

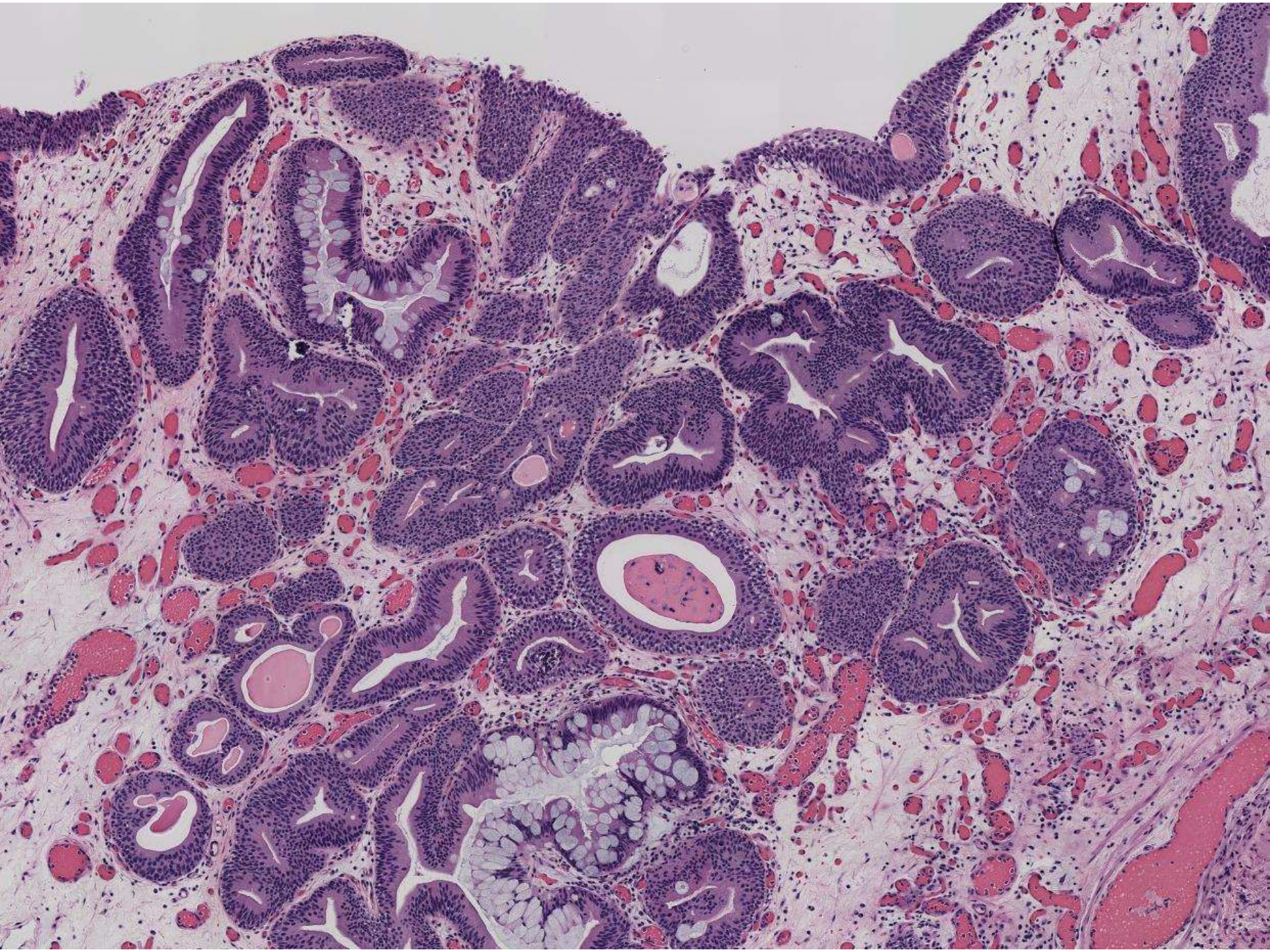


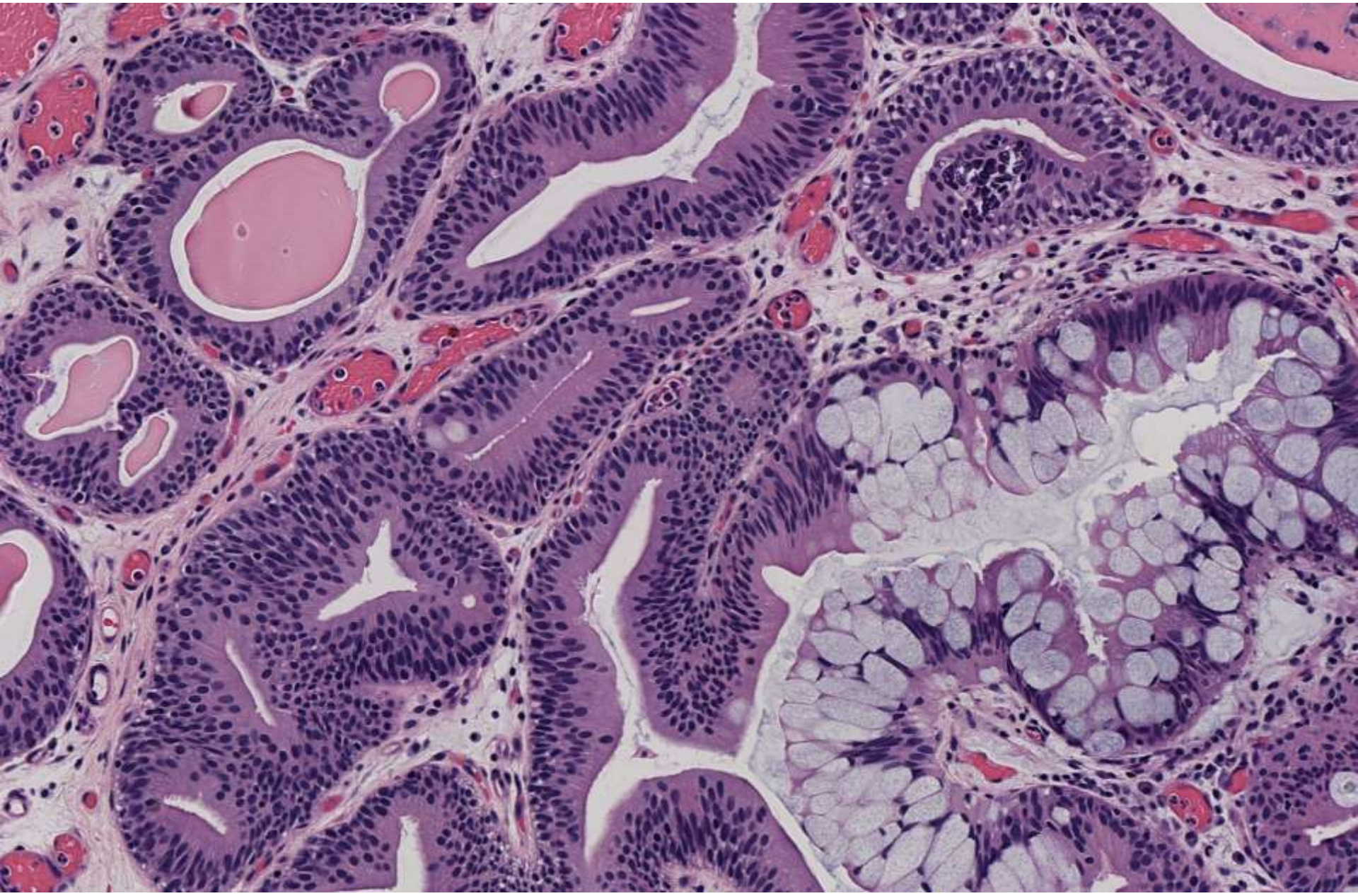


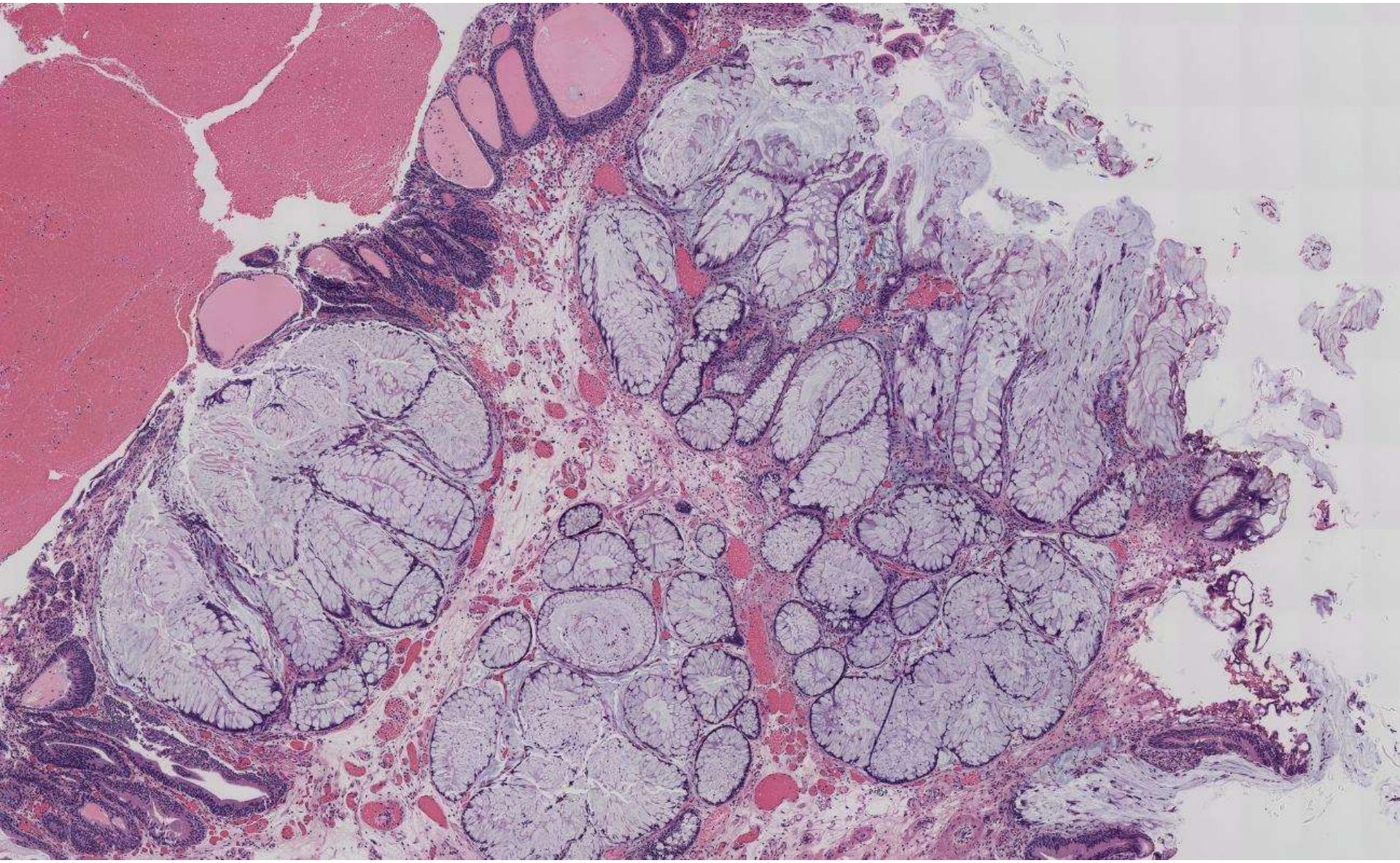


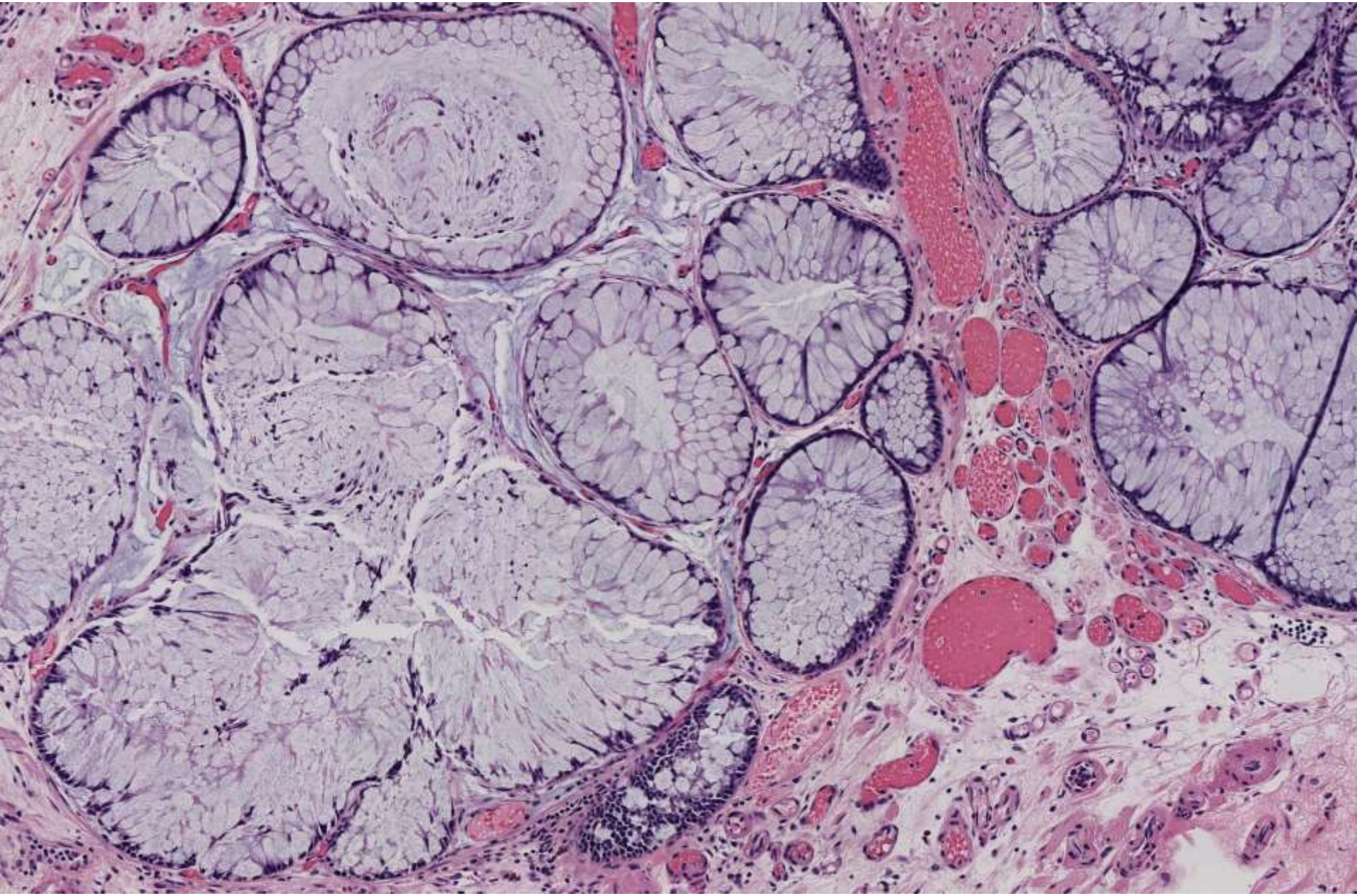












DDx

- Cystitis cystica glandularis with intestinal metaplasia
- Urothelial carcinoma with glandular differentiation
- Inverted papilloma with glandular features
- Bladder hamartoma
- Metastatic adenoCA (GI tract)
- Direct invasion from adenoCA (GI tract)

DIAGNOSIS:
Cystitis cystica glandular with intestinal metaplasia

- **Can mimic bladder cancer cystoscopically**
- **Low power architectural evaluation**
- **Rarely can have extensive mucinous extravasation**
  - No significant atypia, no irregular epithelial aggregates, no destructive invasion

Typical sequence of urothelial metaplasia

COMMON QUESTION

- **Similar to the adenoma/carcinoma sequence in GI path, is there is a risk for malignancy with GU tract intestinal metaplasia?**

INTESTINAL METAPLASIA IS NOT A STRONG RISK FACTOR FOR BLADDER CANCER: STUDY OF 53 CASES WITH LONG-TERM FOLLOW-UP

FEDERICO A. CORICA, DOUGLAS A. HUSMANN, BERNARD M. CHURCHILL, ROBERT H. YOUNG, ANNA PACELLI, ANTONIO LOPEZ-BELTRAN, AND DAVID G. BOSTWICK

ABSTRACT

Objectives. Intestinal metaplasia often coexists with adenocarcinoma of the urinary bladder, suggesting to some investigators that it is premalignant. However, the natural history and long-term outcome of intestinal metaplasia in isolation are unknown. We report 53 cases of intestinal metaplasia of the urinary bladder followed for more than 10 years.

Methods. We reviewed the Mayo Clinic surgical pathology files between 1926 and 1996 and all patients with exstrophic bladder recorded in the files of the Hospital for Sick Children (Toronto, Ontario, Canada) and Dallas Children's Hospital (Dallas, Texas) between 1953 and 1987, and identified all patients with intestinal metaplasia of the bladder.

Results. A total of 53 cases were identified from both series, and none of the patients developed adenocarcinoma of the bladder. The Mayo Clinic series consisted of 24 patients. Nineteen of the 24 (79.1%) were alive without evidence of cancer (median follow-up 14 years, range 0.9 to 53), and 5 patients died of intercurrent disease (at 0.9, 4, 8, 11, and 53 years after diagnosis) without evidence of bladder cancer. The Dallas Children's Hospital and the Hospital for Sick Children series consisted of 29 patients. Twenty-seven of the 29 (93.1%) were alive without evidence of cancer (median follow-up 13 years, range 3 to 23.9). Two patients died of trauma (at 10.9 and 12 years after diagnosis) and at autopsy had no evidence of bladder cancer.

Conclusions. Intestinal metaplasia of the urinary bladder is not a strong risk factor for adenocarcinoma or urothelial cancer. UROLOGY **50:** 427–431, 1997.