DIAGNOSTICALLY CHALLENGING BREAST CASES IN A DAY-TO-DAY PRACTICE: A CASE-BASED APPROACH.

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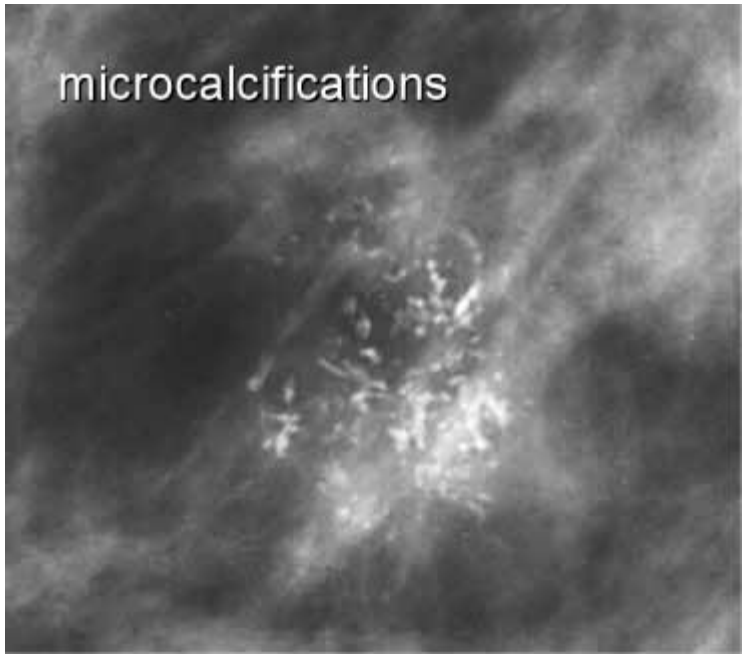
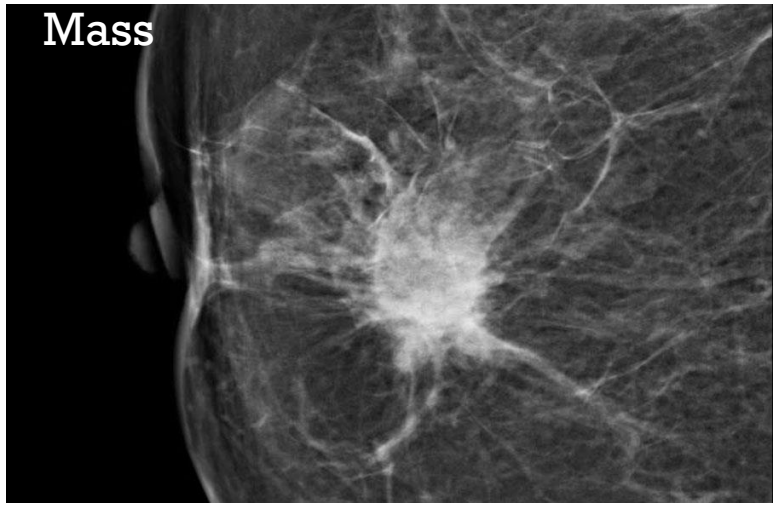
None/No conflicts

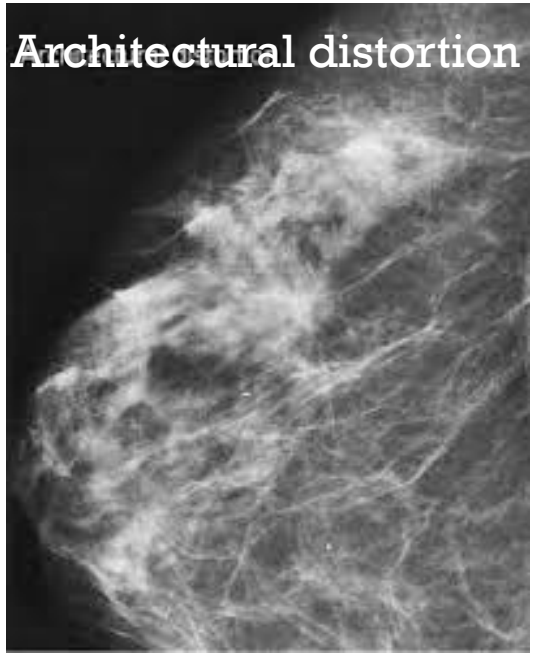
OBJECTIVES

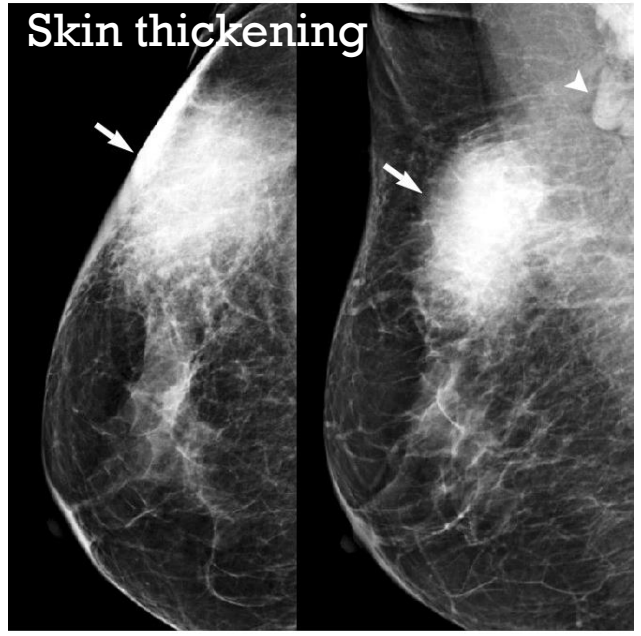
- Discuss the diagnostic features and differential diagnosis of challenging breast lesions and correlate with radiology
- Recognize the histologic features that correspond to the imaging findings of architectural distortion.
- Describe the importance of clinical, imaging and pathologic findings (Triple test) in arriving at a correct diagnosis
- Discuss the role of biomarkers applicable to breast lesions
- Role of cytology in breast

THE BEGINNING……WHAT DO RADIOLOGISTS LOOK FOR?









BI-RADS CATEGORIES

- 0-Incomplete additional imaging evaluation required
- 1-Negative
- 2-Benign Finding
- 3- Probably benign, short term follow up
- 4- Suspicious abnormality, biopsy should be considered
- 5- Highly suggestive of malignancy, appropriate action should be taken
- 6- Known biopsy proven malignancy

BI-RADS CATEGORIES AND BIOPSY CORRELATION

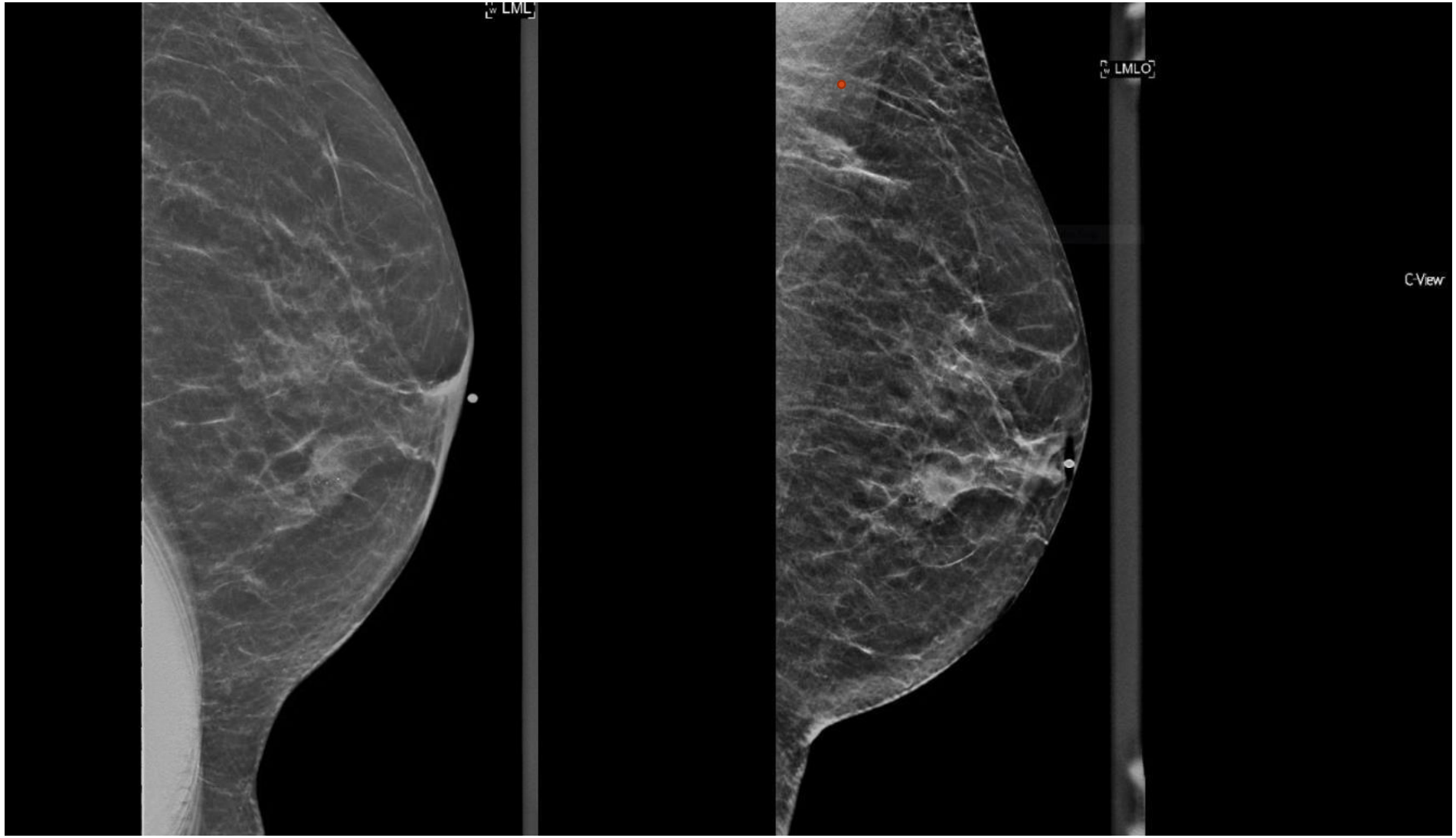
Category	% Risk of malignancy
3	<2
4A	2-10
4B	11-50
4C	51-95
5	>95

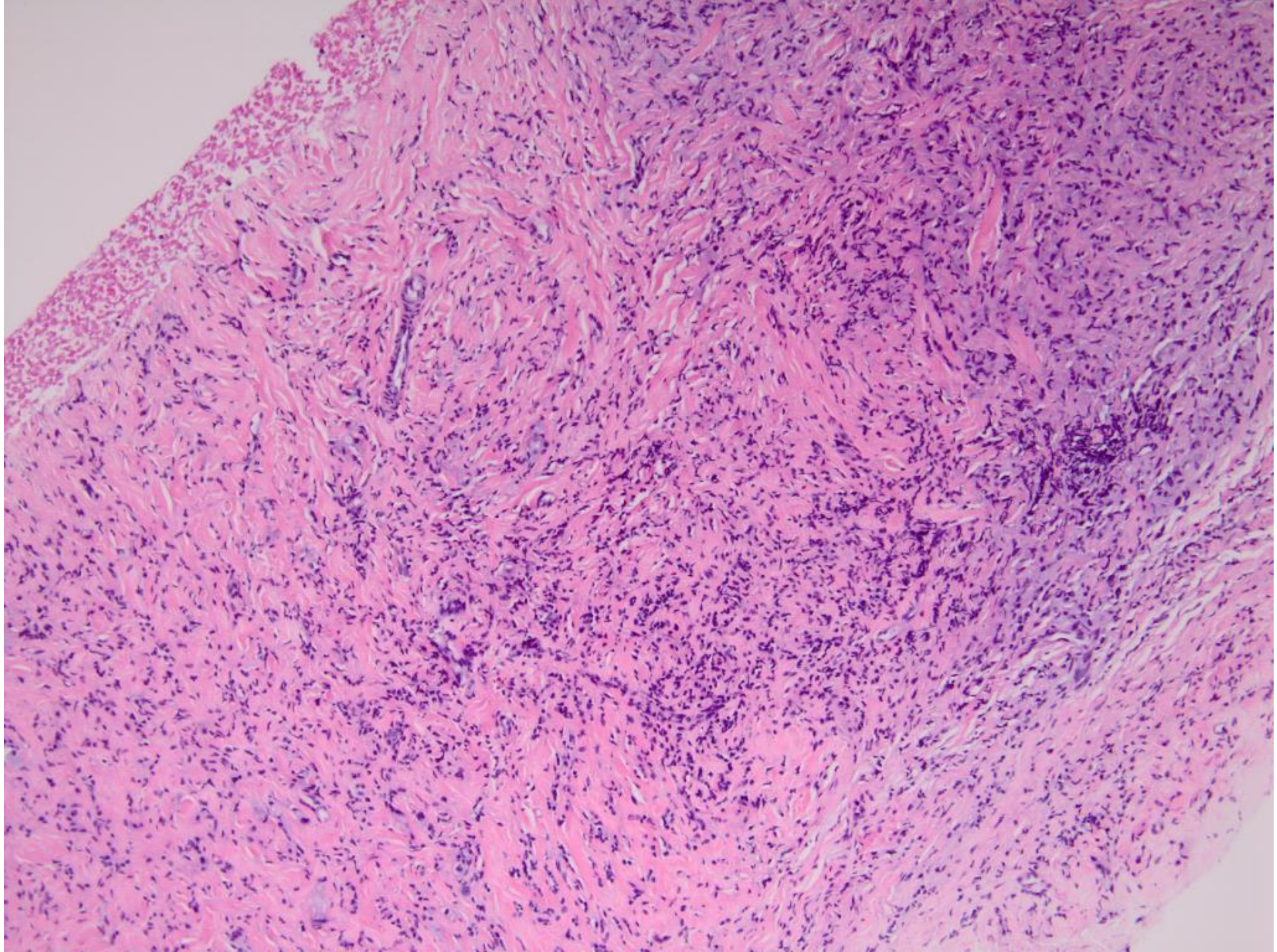
CASE 1

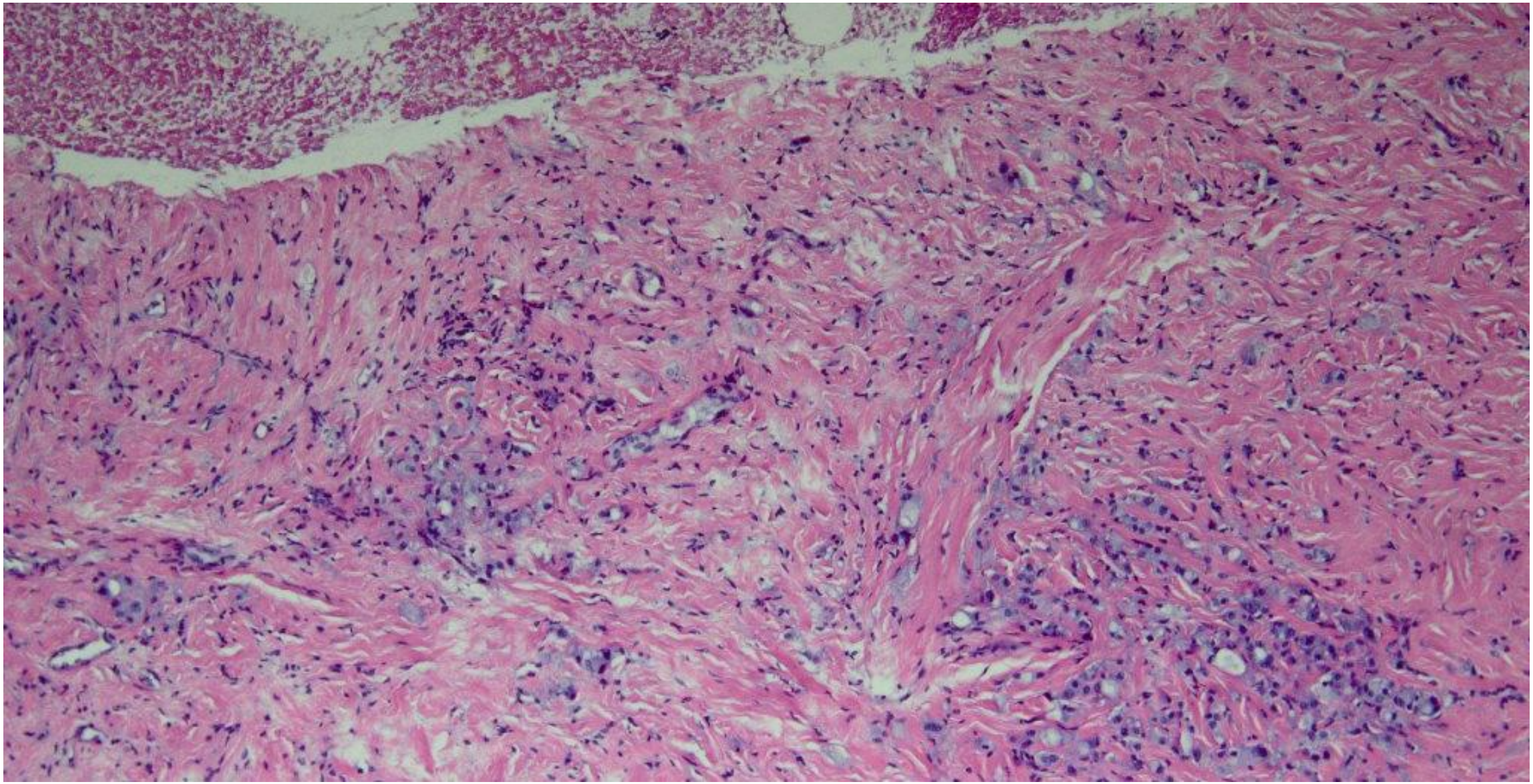
62 year old female with a history of lung carcinoma diagnosed in 2017, presenting with left breast density on chest CT, referred for mammogram, which showed a 2 cm spiculated left breast mass at 6:00 (1cm from nipple)with amorphous calcifications, highly suspicious (BIRADS category 5), and 1.4 cm left axillary lymph node- PET avid

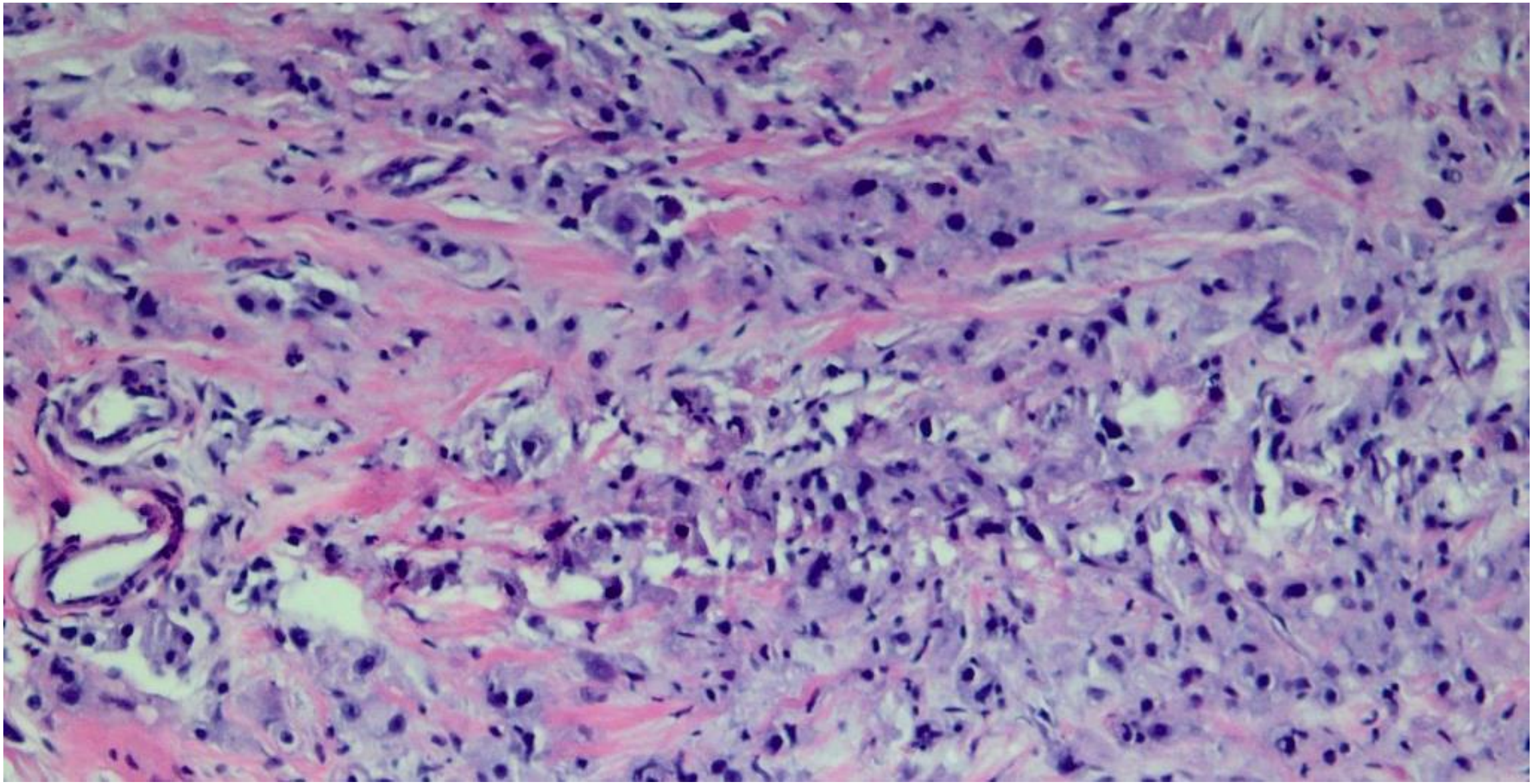
USG biopsy was performed

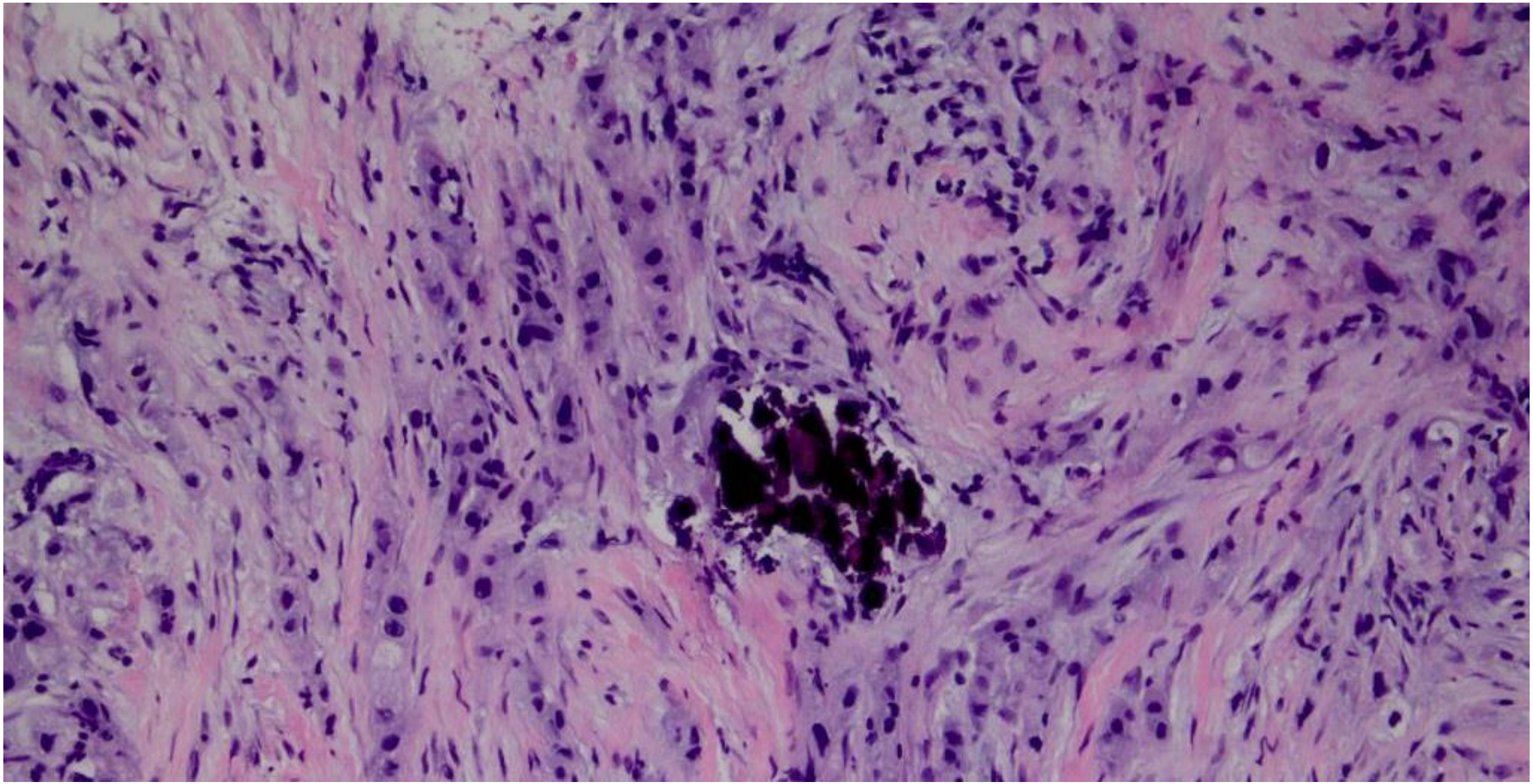
2 cm mass at 6:00, Left breast, 1 cm from nipple

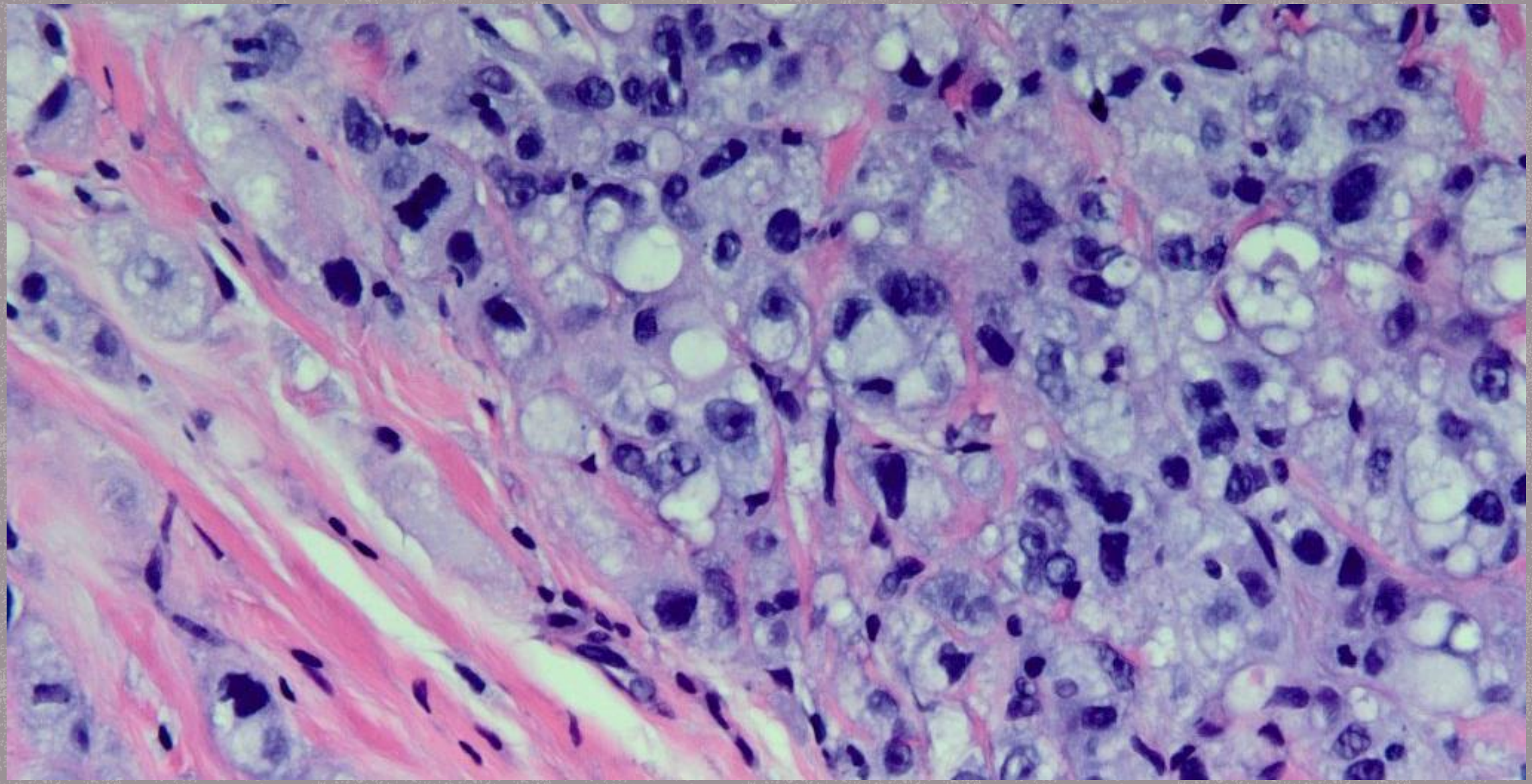


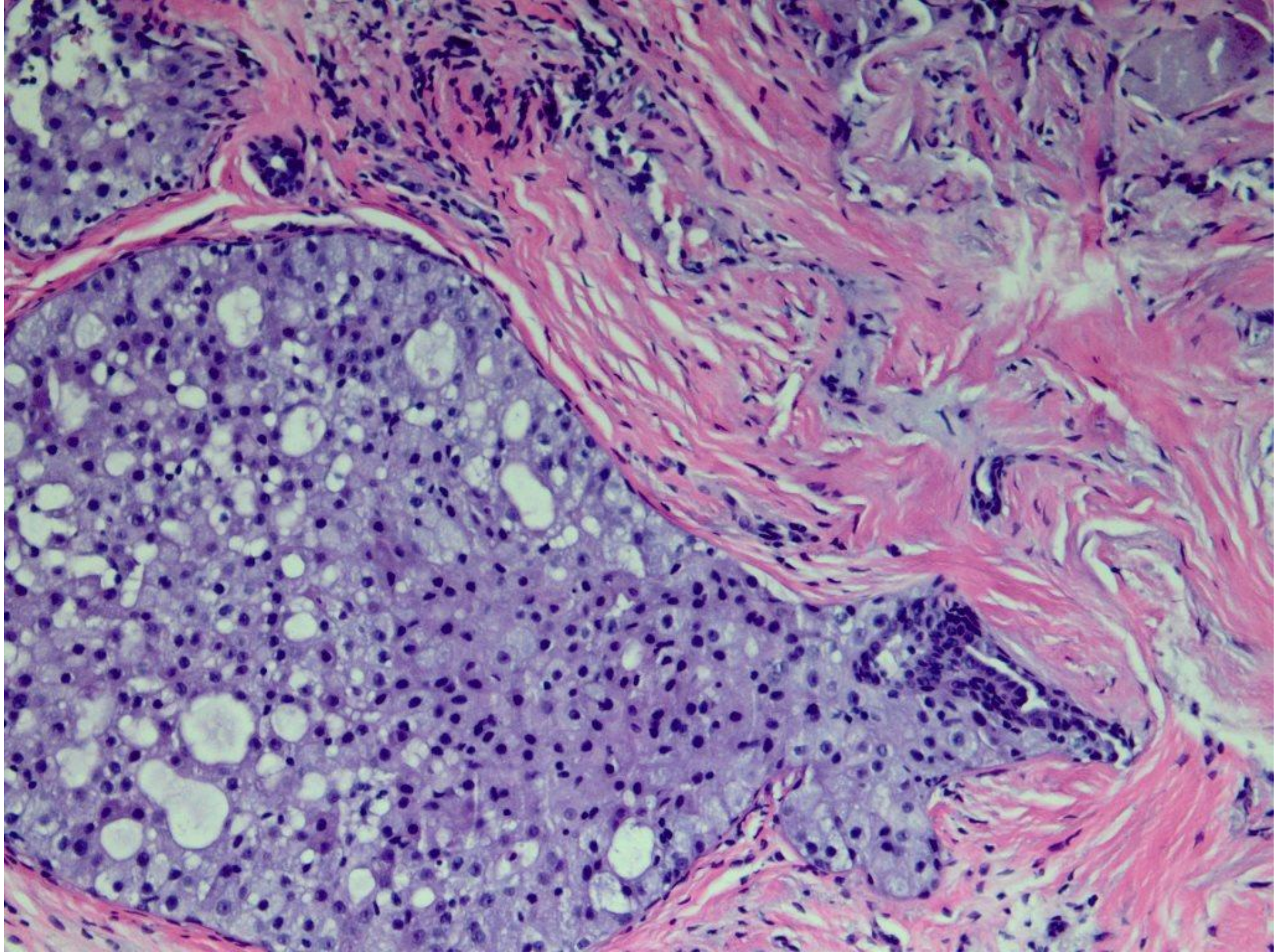


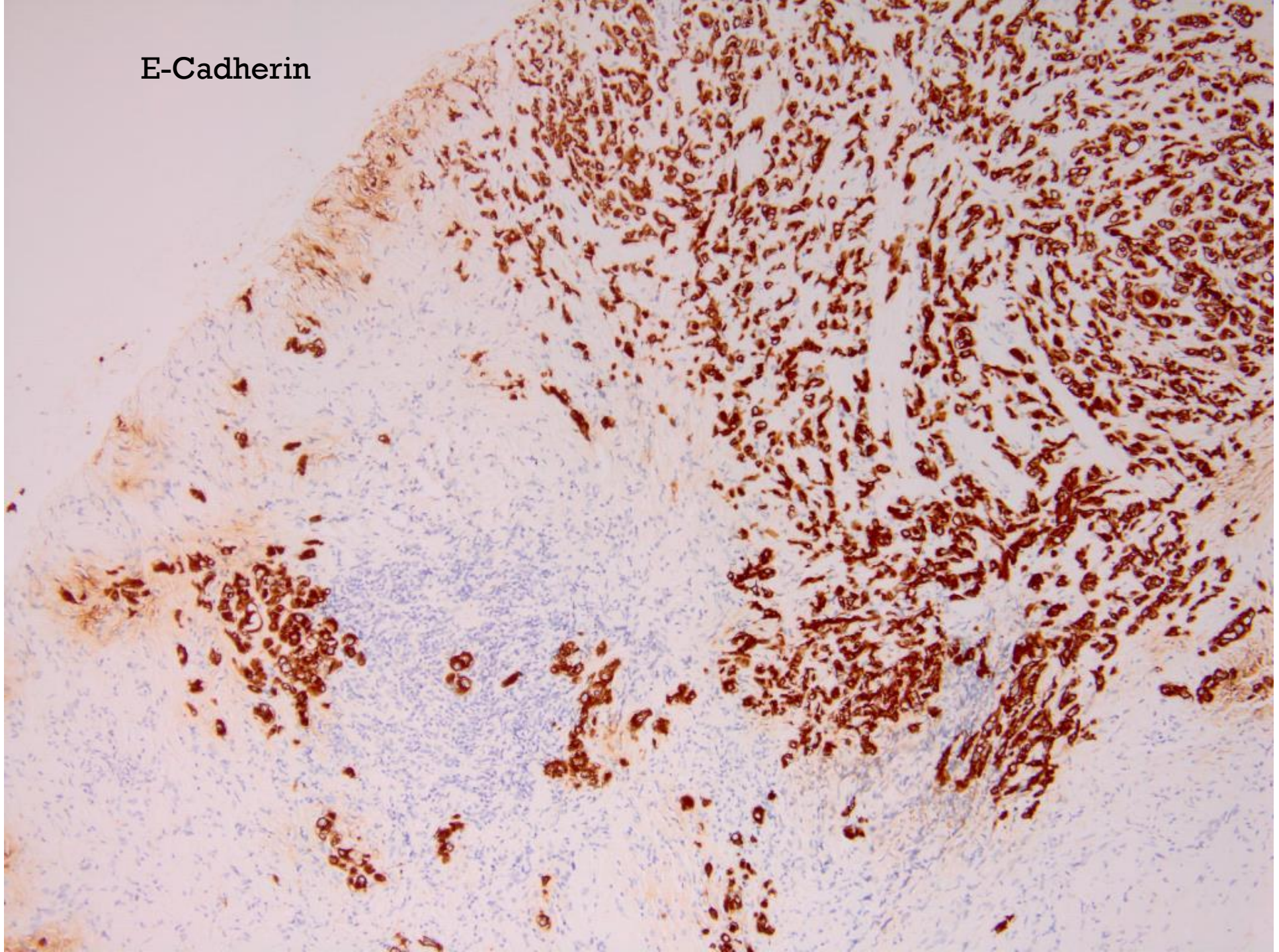


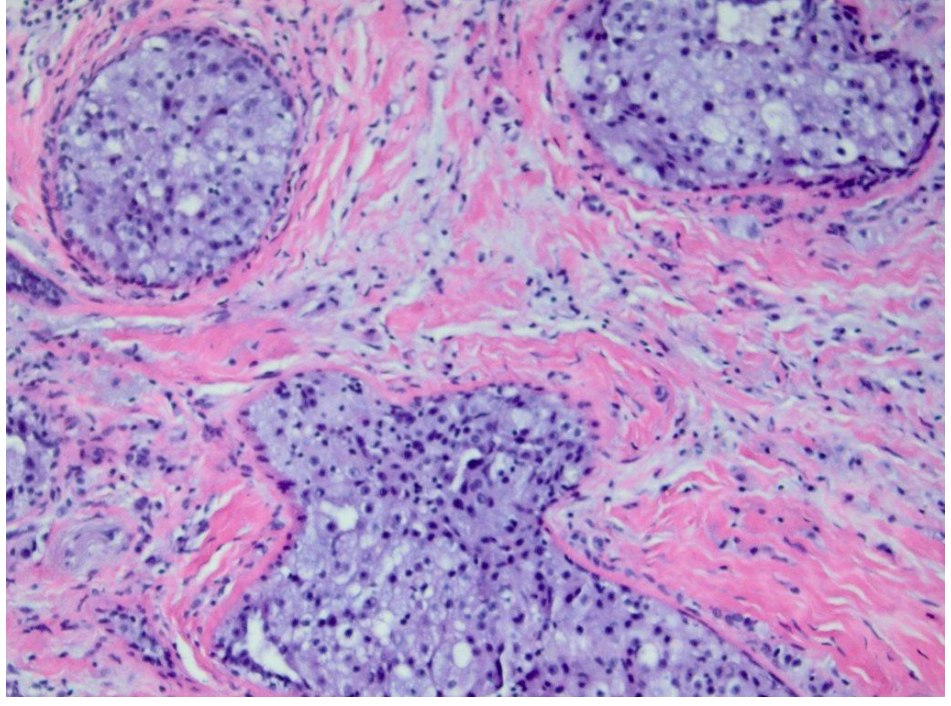


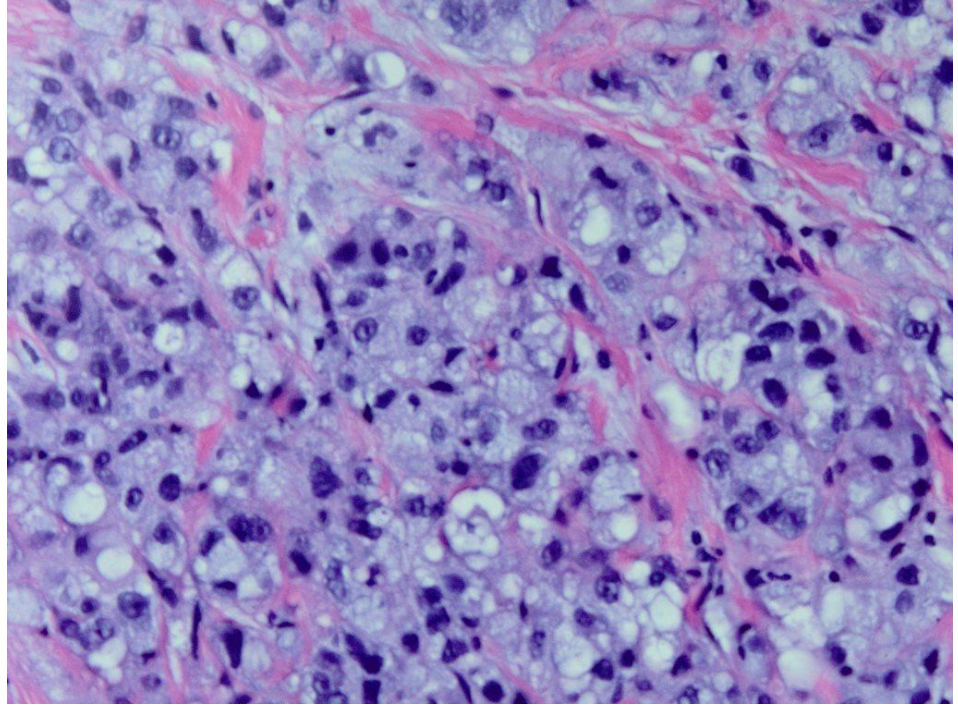


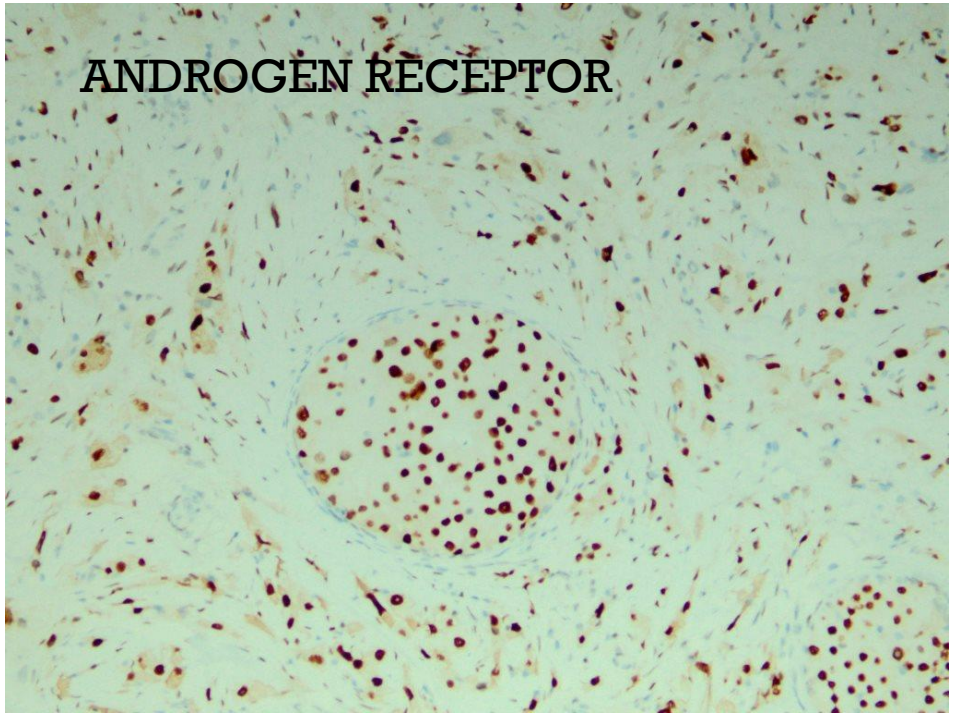





E-Cadherin






ANDROGEN RECEPTOR

IMMUNOSTAINS

GATA-3: positive

E-Cadherin: positive

Androgen receptor: positive

GCDFP: positive

TTF1: negative

Napsin A: negative

CD68: negative

DIAGNOSIS

- Invasive mammary carcinoma, with apocrine features, Nottingham histologic 2
- DCIS, intermediate grade, solid type with apocrine features
- Axilla- metastatic carcinoma, TTF-1 negative, GATA 3 positive
- Rad/Path= Concordant diagnosis

- ER: Negative
- PR: Negative
- Her 2-Neu: Negative
- Ki67: 11% intermediate

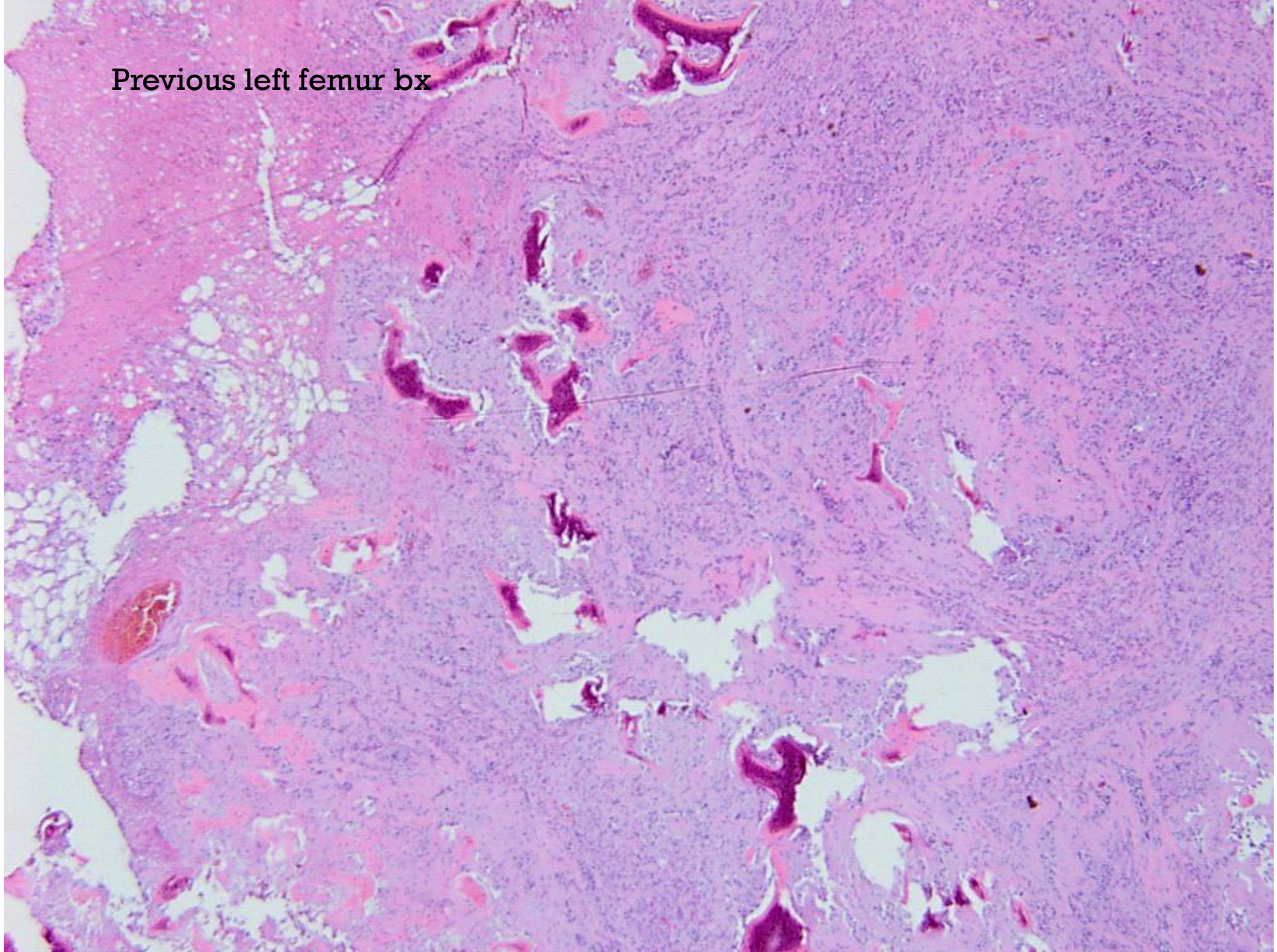
INVASIVE CARCINOMA WITH APOCRINE DIFFERENTIATION –WHO

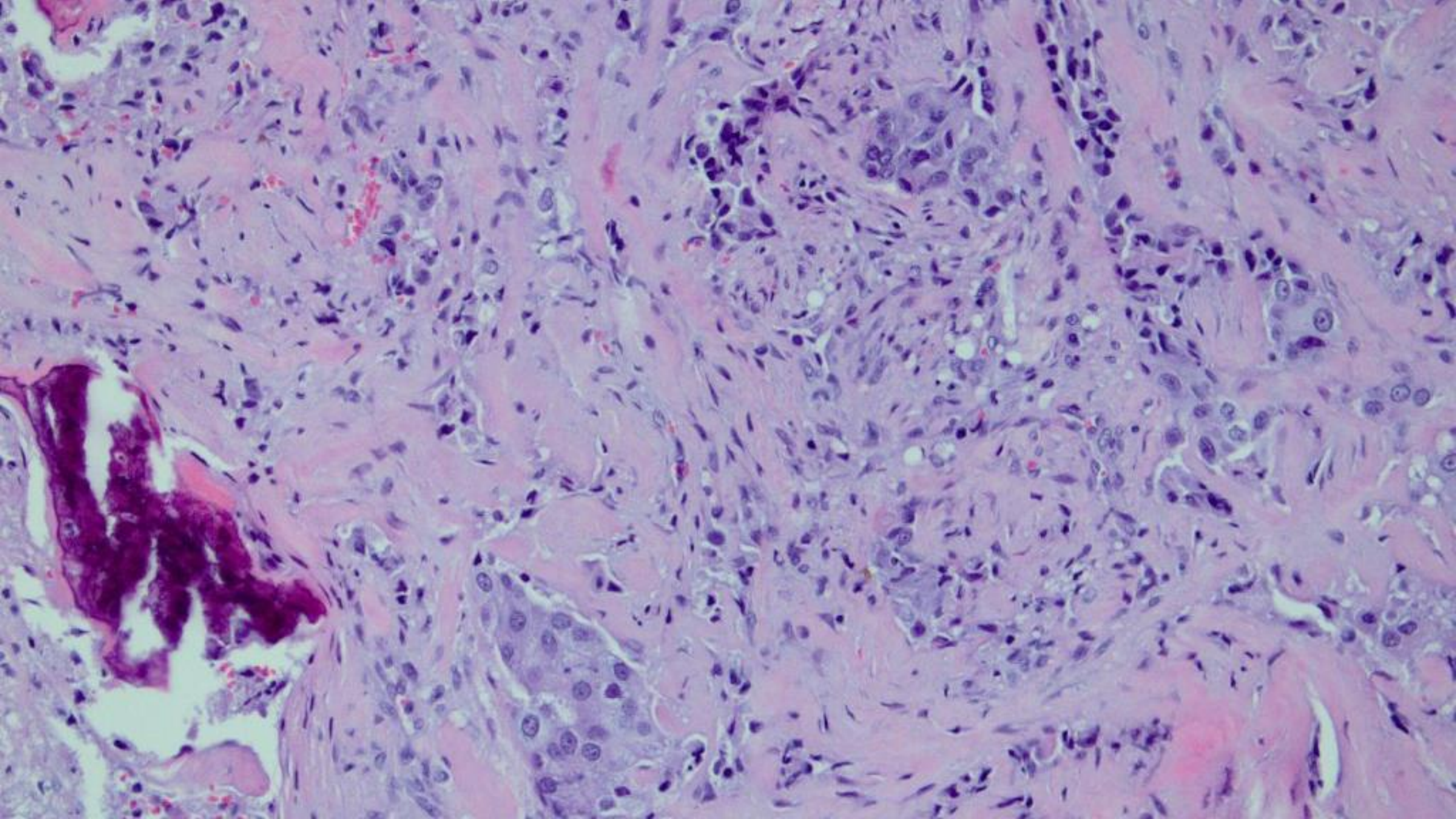
- Any invasive carcinoma with cytological features of apocrine cells
- Rare subtype comprising 1% of all breast carcinomas
- Clinically and by imaging similar to IDC
- Morphology
  - Cells have prominent nucleoli (and/or)
  - Abundant granular eosinophilic PAS-D+cytoplasm (Type A)
  - Abundant foamy cytoplasm (Type B)
  - GCDFP-15 positive (72%) and GATA-3 in 90%
  - Typically, ER and PR negative (often TN)
  - Androgen receptor positive (80%) and may be associated with Her2 expression in 30-60%

CARCINOMA WITH APOCRINE DIFFERENTIATION

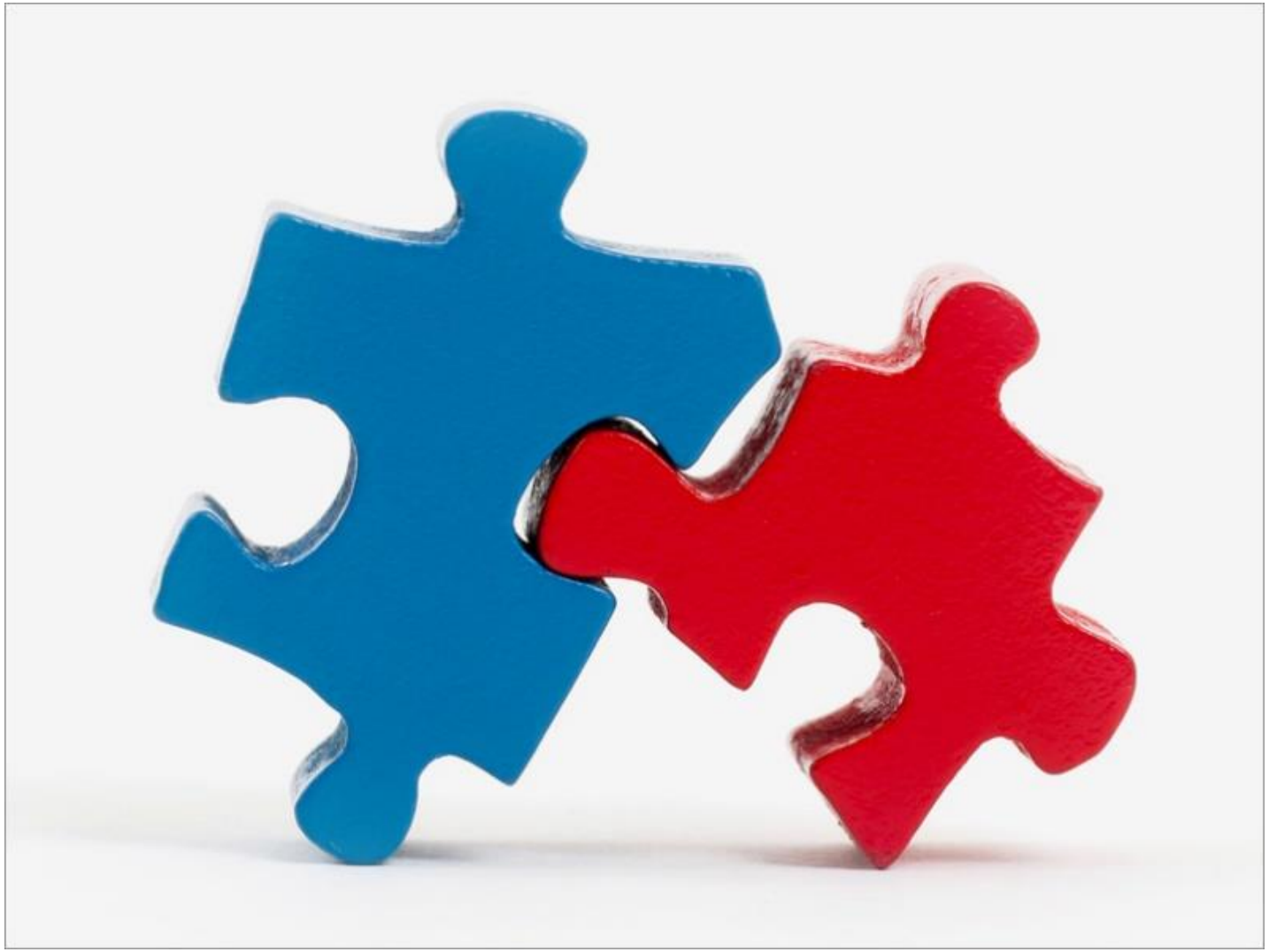
- Type A- D/D granular cell tumor (S100+)
- Type B- Inflammatory reaction or histiocytoid proliferation (CD68+)
- Apocrine differentiation is common feature of many subtypes of breast carcinoma, including pleomorphic lobular, tubular etc
- Prognosis, same as invasive carcinoma, NST
- Harbor mutations of TP53, PIK3CA/PTEN/AKT genes
- Androgen positivity may lead to development of new therapeutic modalities (Trials going on AR pos TNB. No standard test yet for AR targeting, how best to predict response)

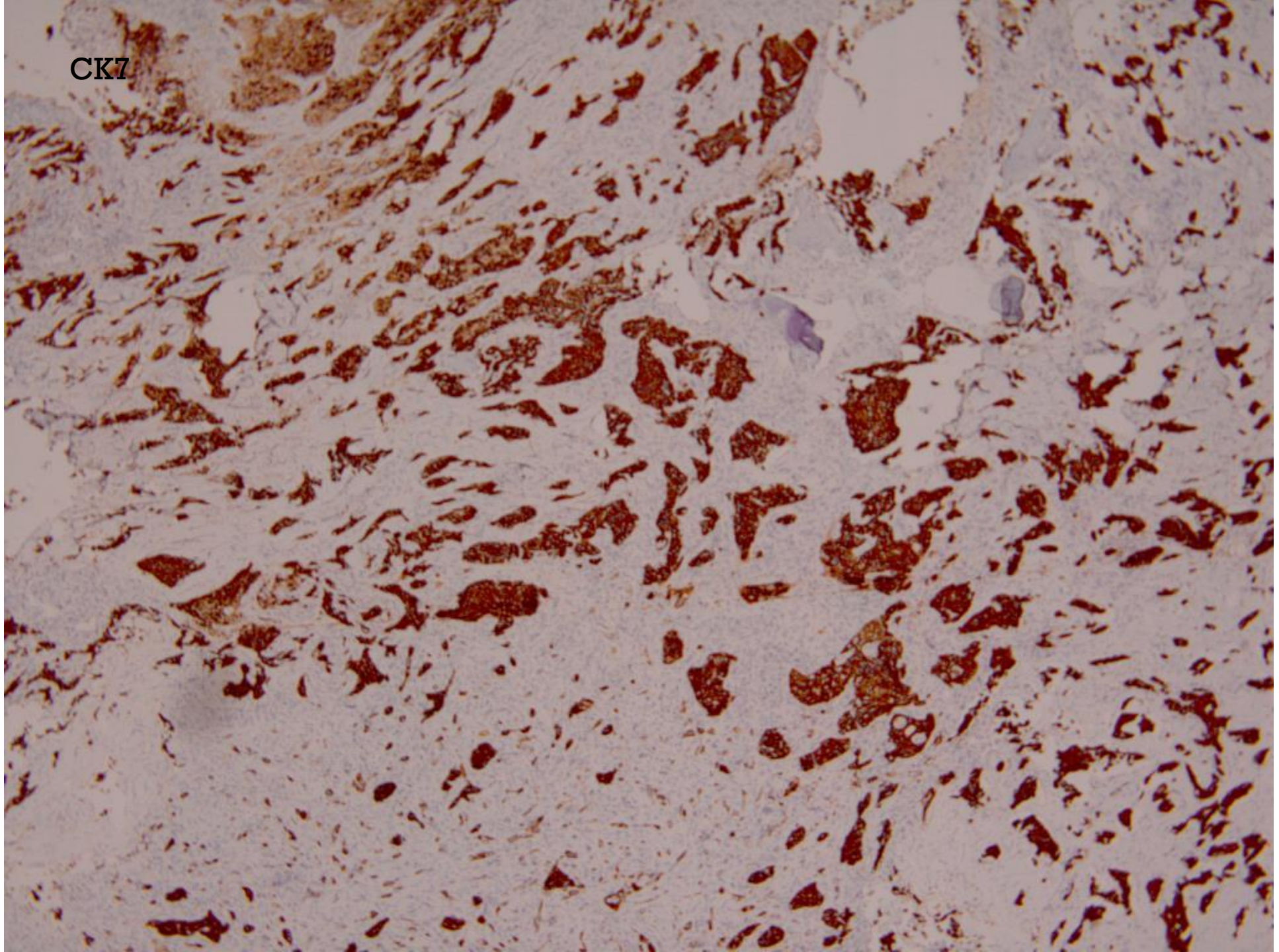

The missing piece
What about h/o lung Ca

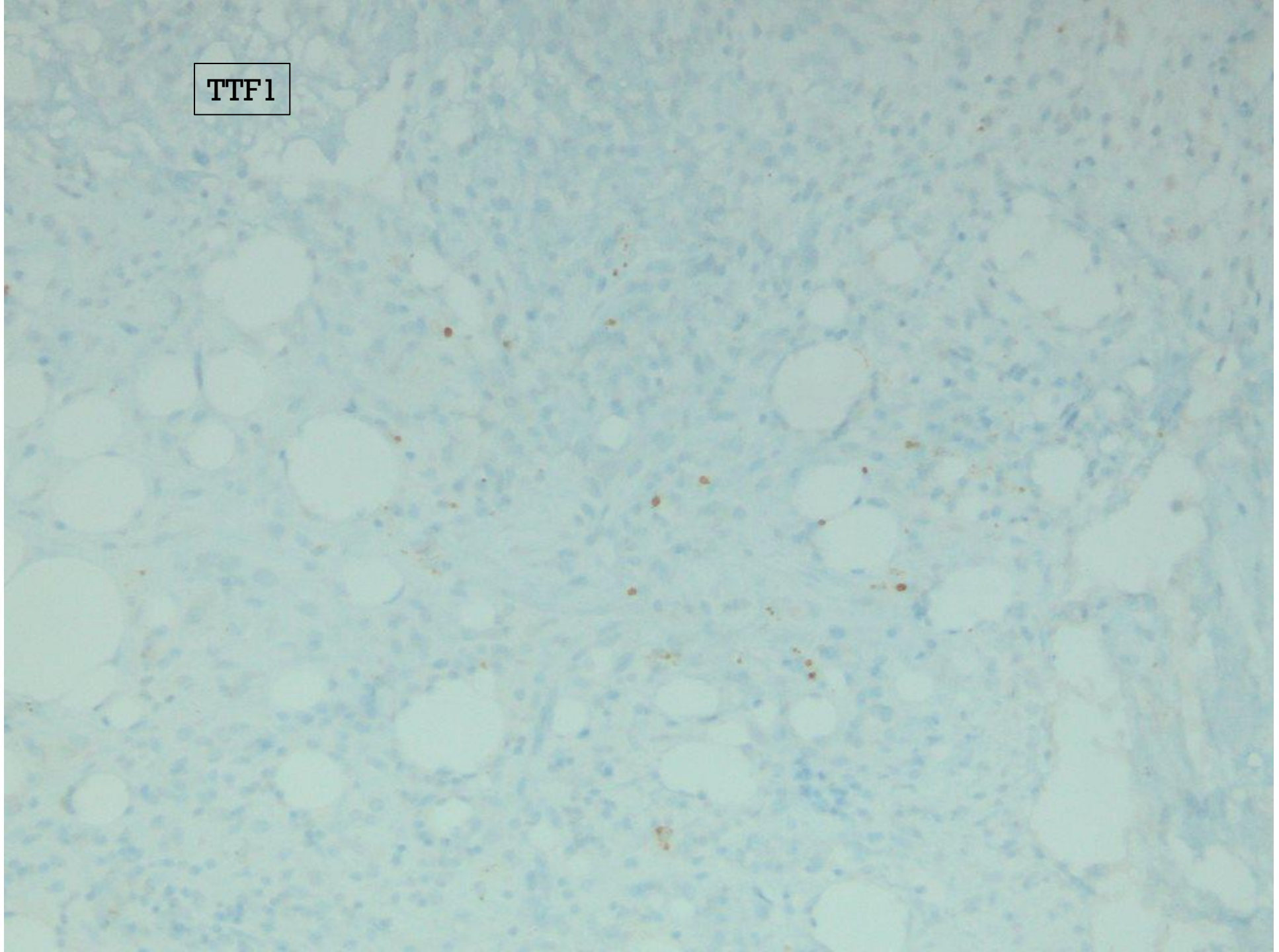

Previous left femur bx

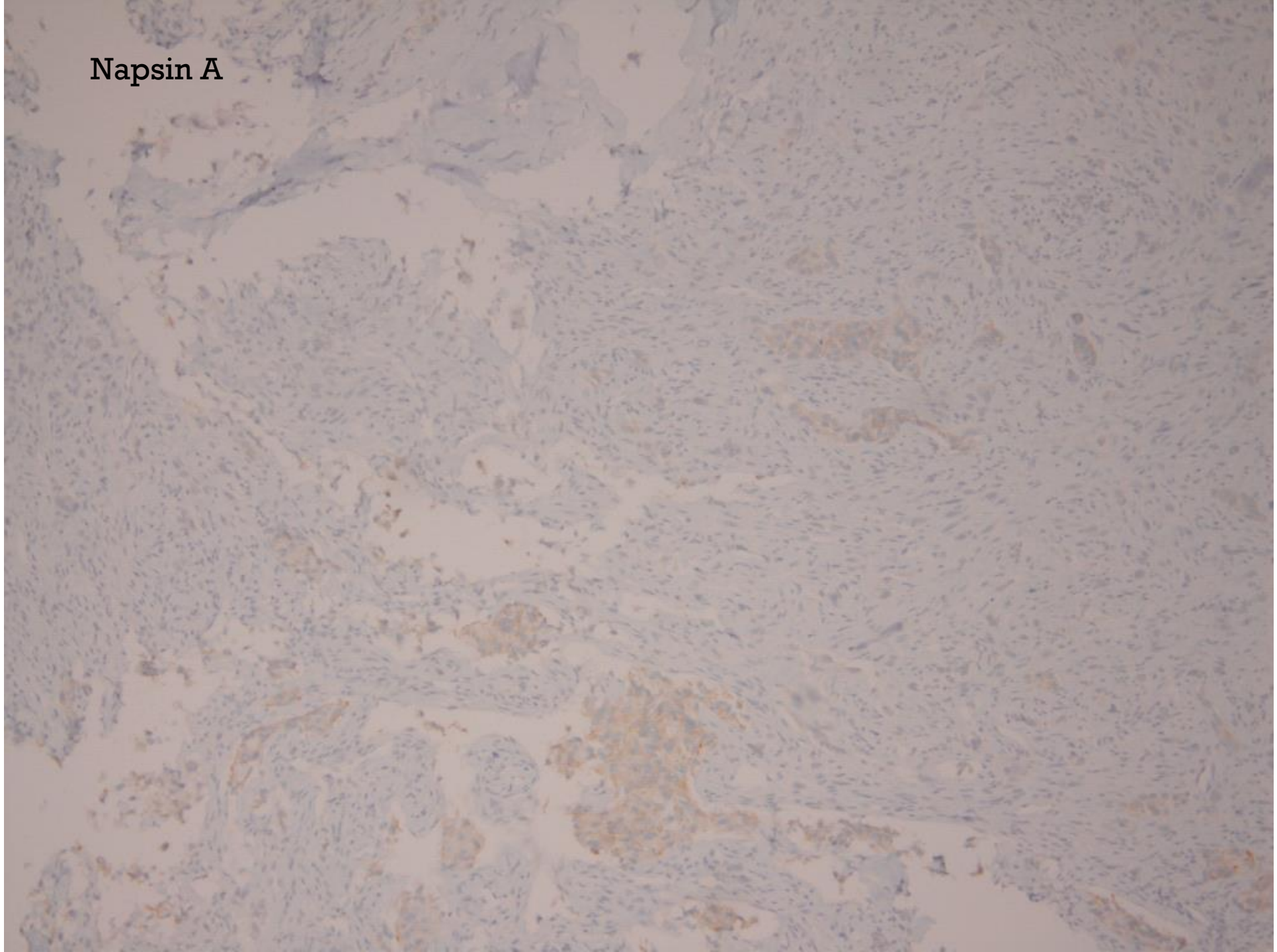


SOMETHING IS NOT RIGHT !!

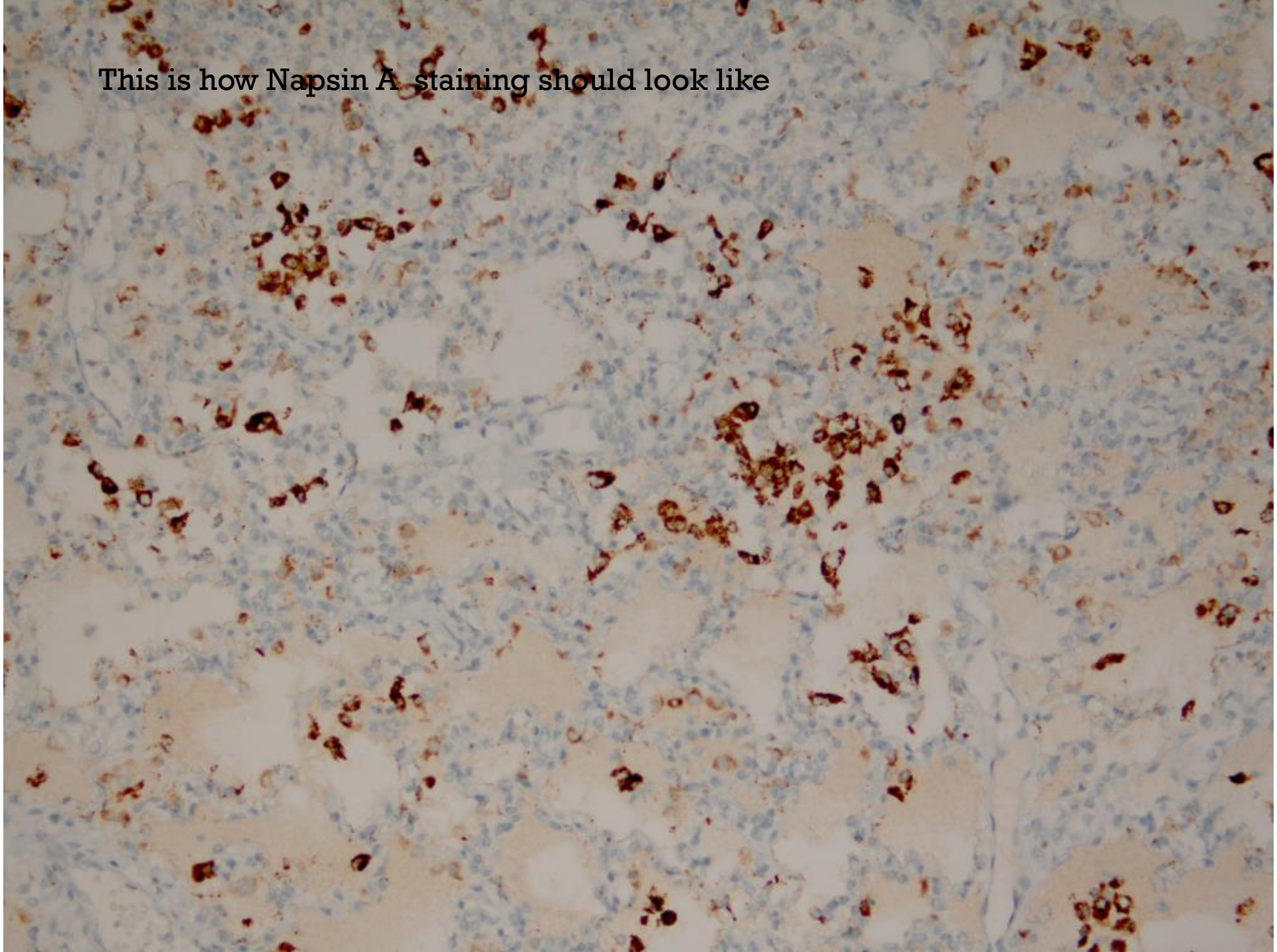


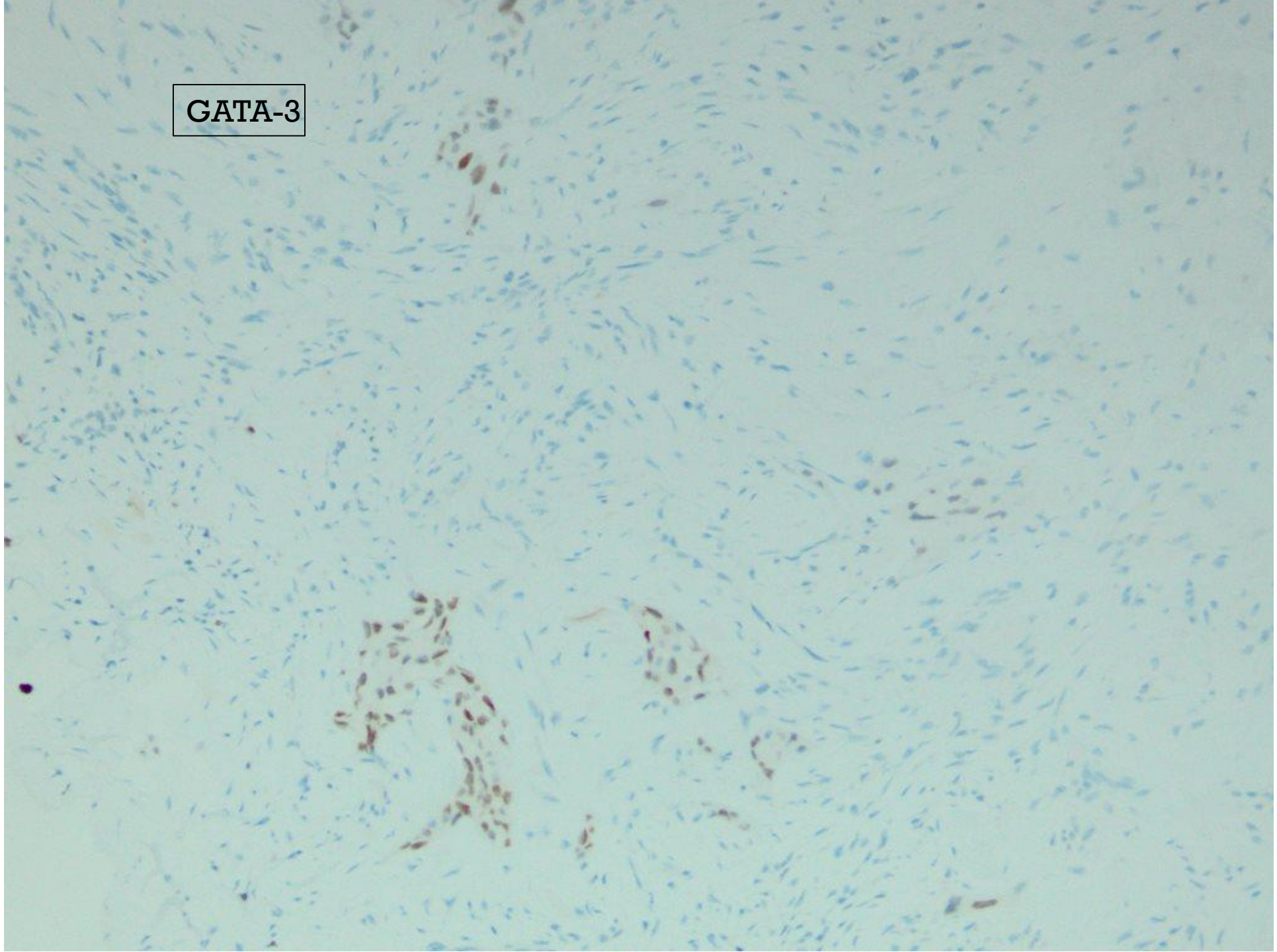

CK7

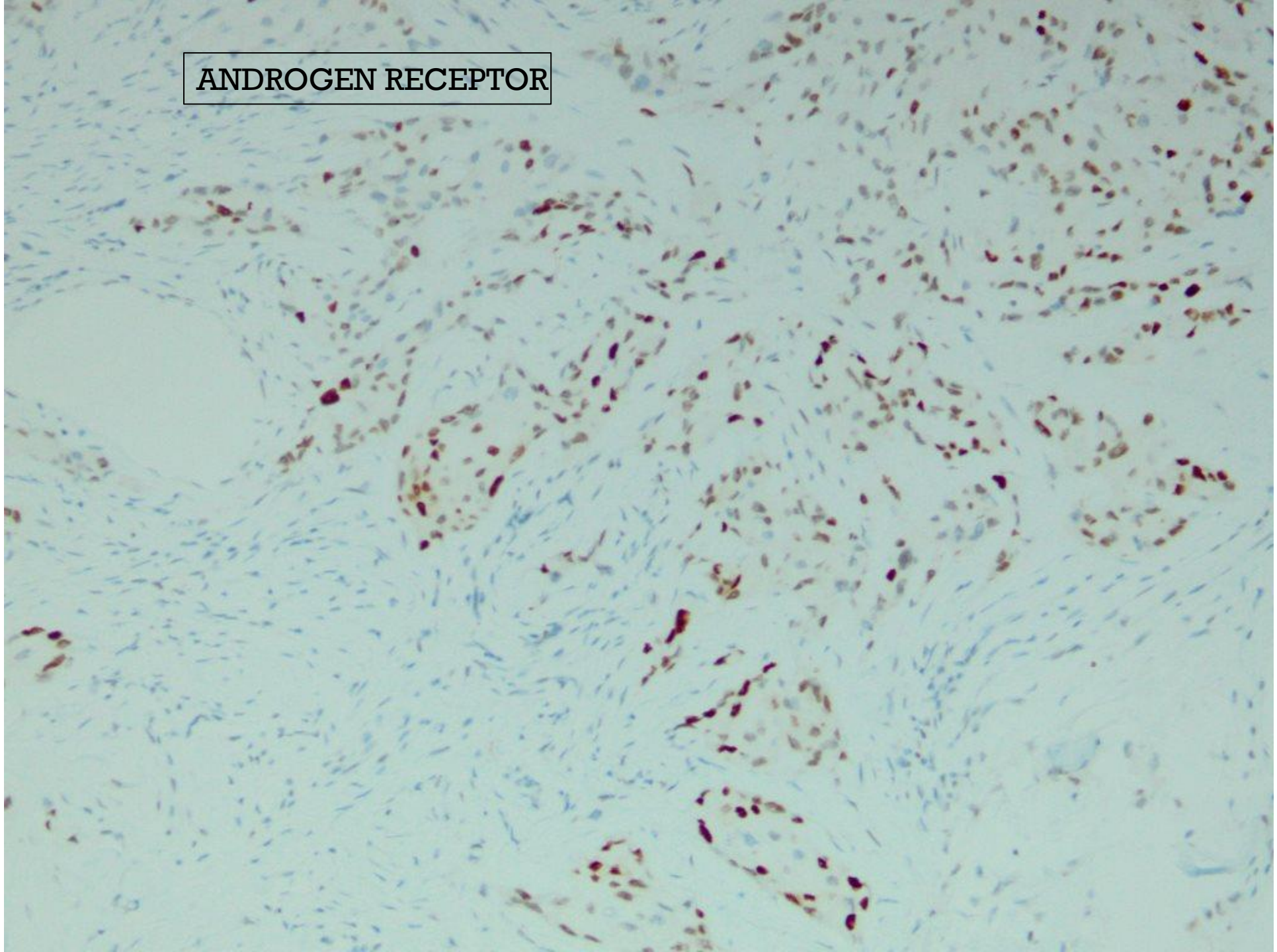

TTF1


Napsin A

This is how Napsin A staining should look like




GATA-3


ANDROGEN RECEPTOR

Metastatic breast carcinoma

- History history history
- Interpret the immunostains accurately
- Multiple nodules in lung, vs single nodule
- GATA-3, in a female
- Always compare morphology if a patient already has a documented history of cancer

CASE 2

20 year old female with palpable mass in the left breast x 1 month. Patient had history of MVA approximately 1 year back

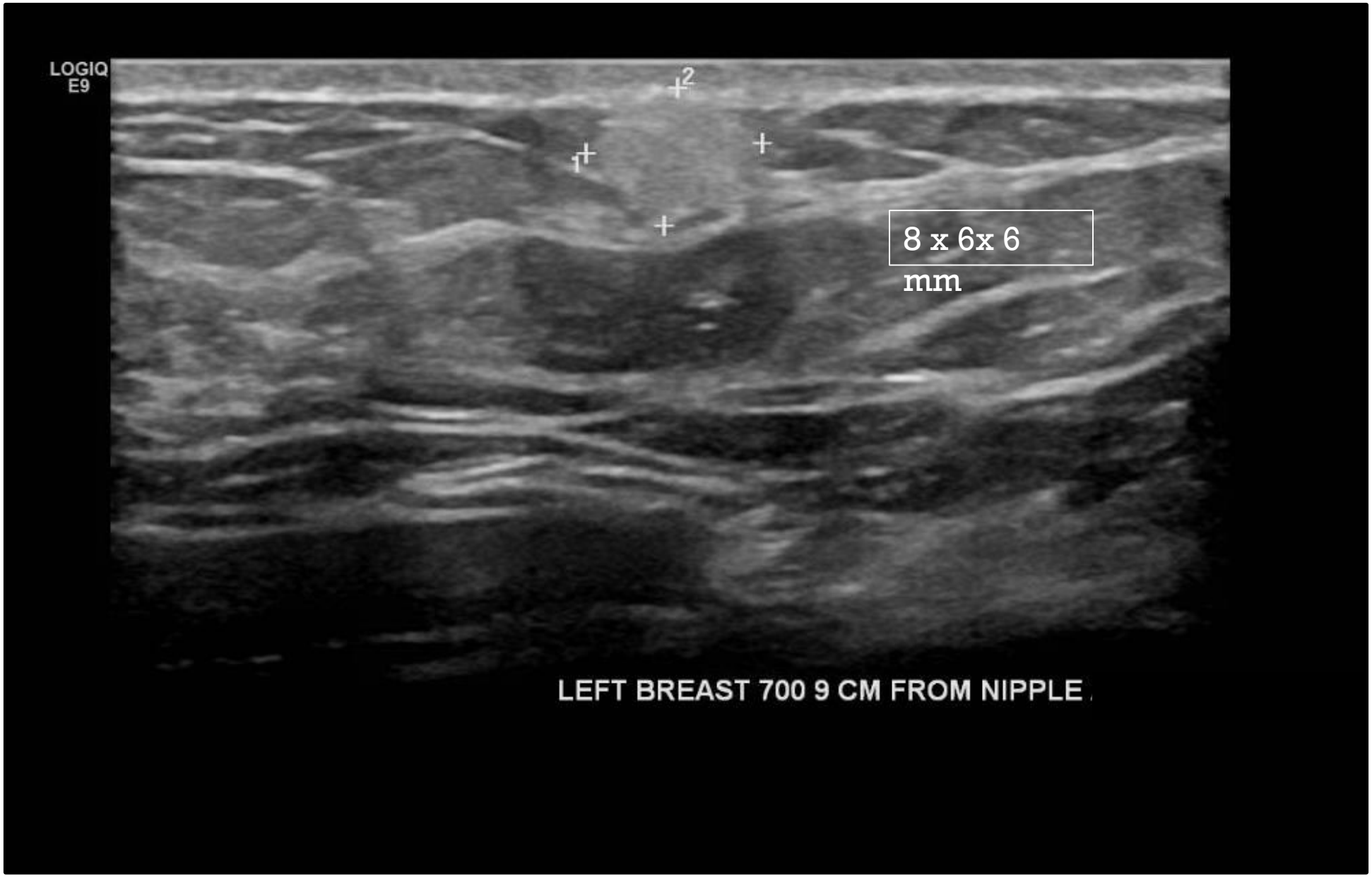
By imaging, 8mm lesion detected in left breast 7:00, 9 cm from nipple, with suggestion of peripheral hypervascularity

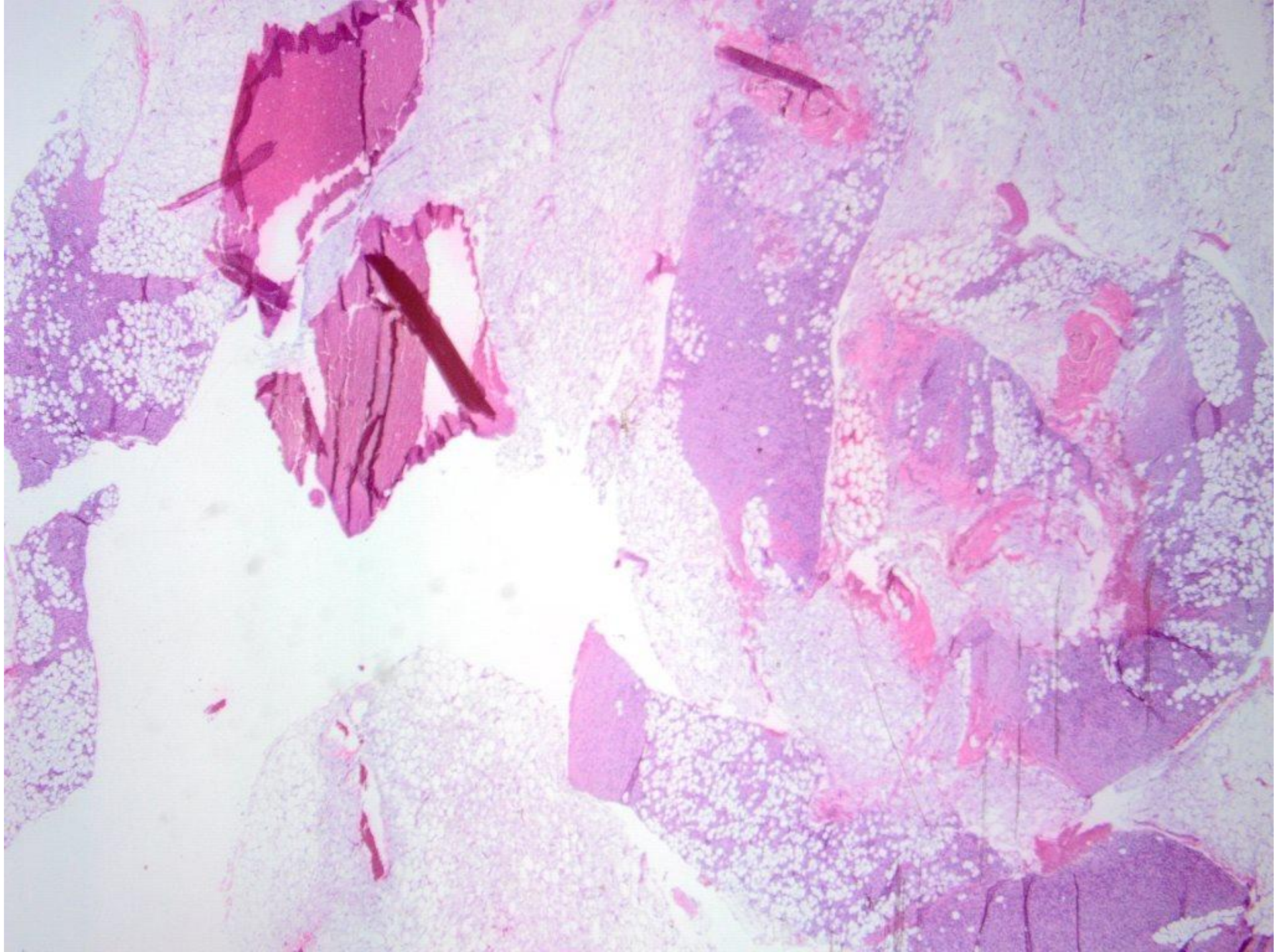
Differential diagnosis was angiolipoma and fat necrosis

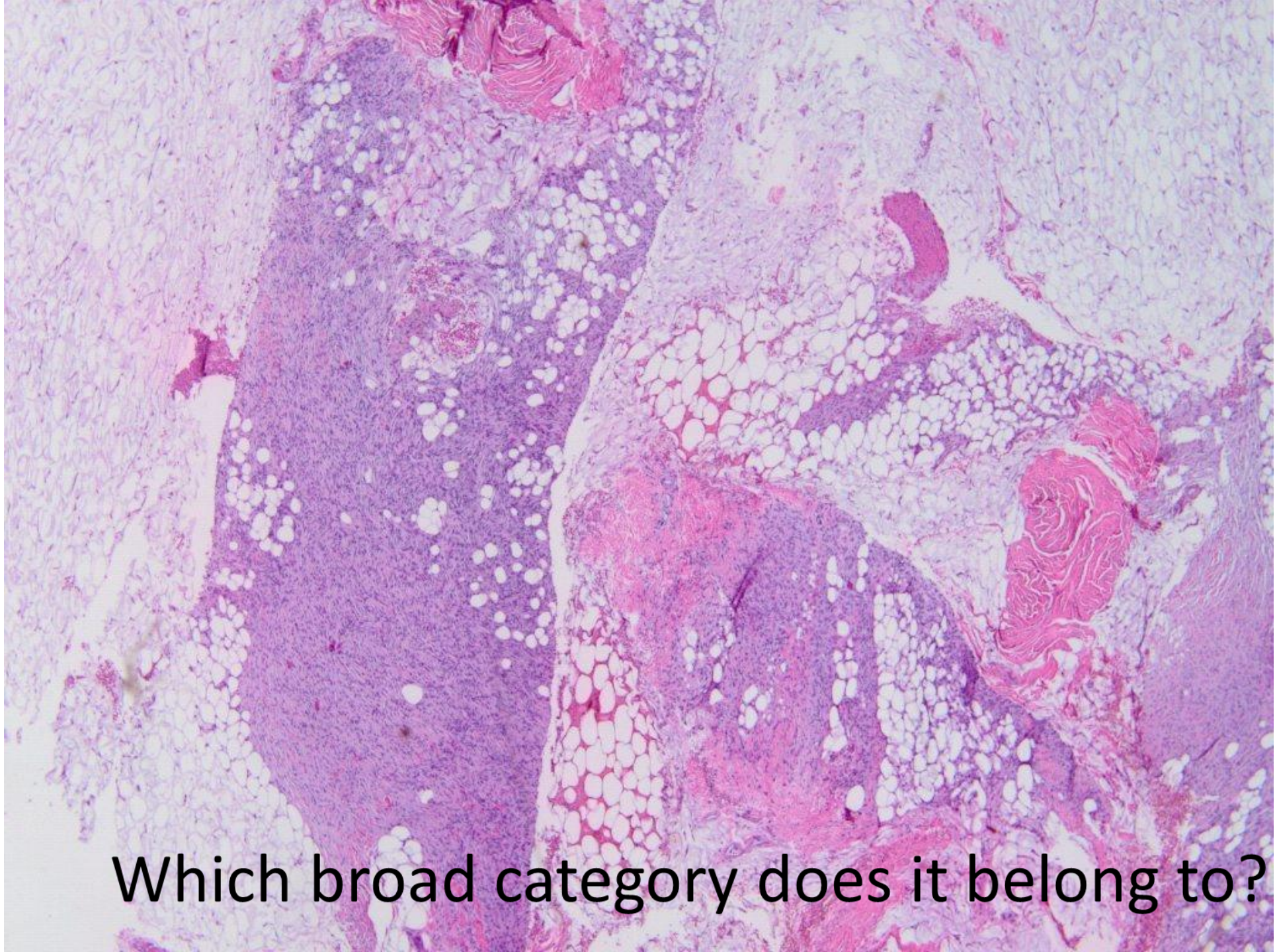
BIRADS category 4(suspicious findings)

Maternal grandmother with h/o breast cancer

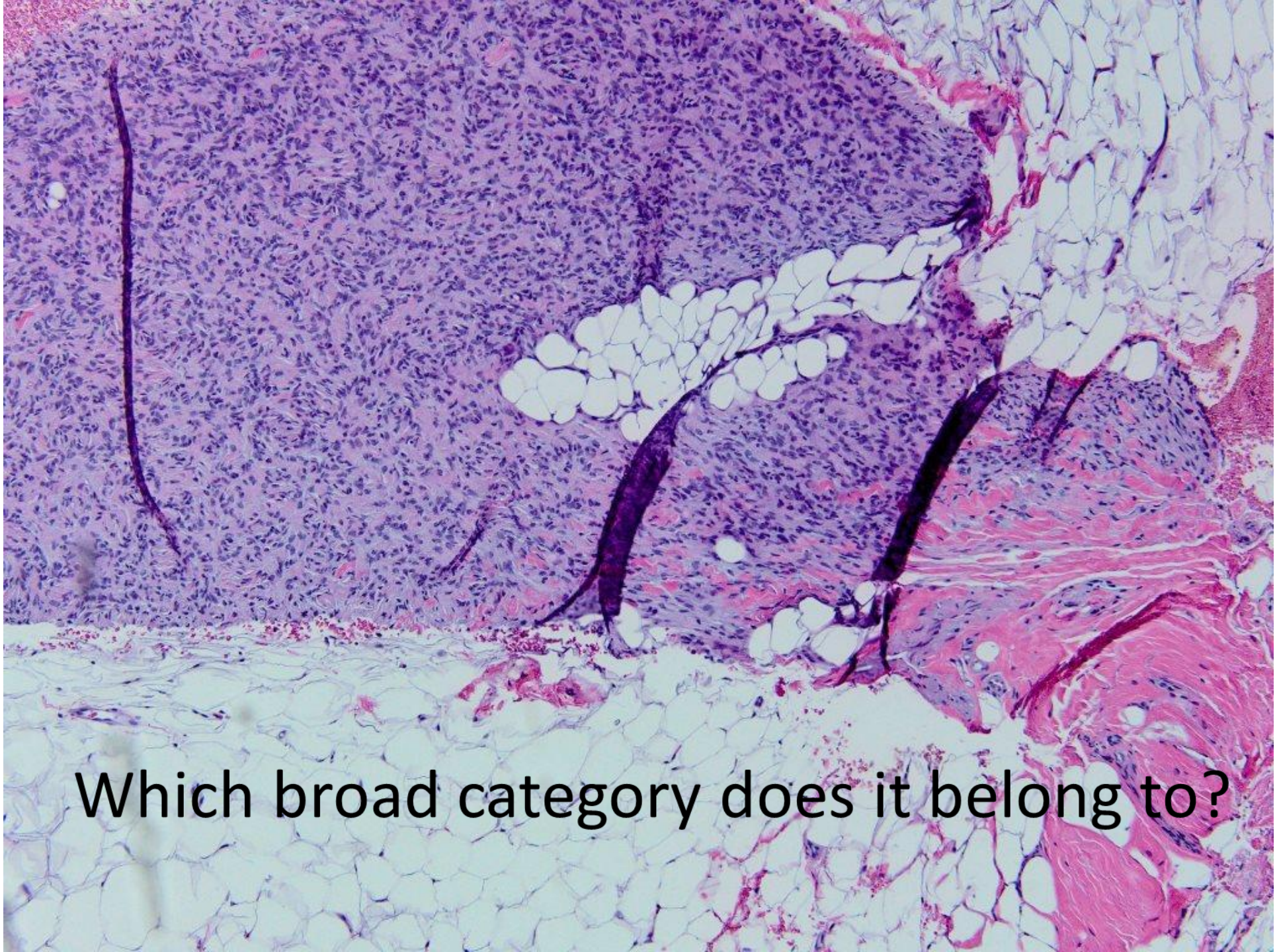
USG vacuum assisted biopsy was performed


LOGIQ
E9
2
1
8 x 6x 6
mm
LEFT BREAST 700 9 CM FROM NIPPLE





Which broad category does it belong to?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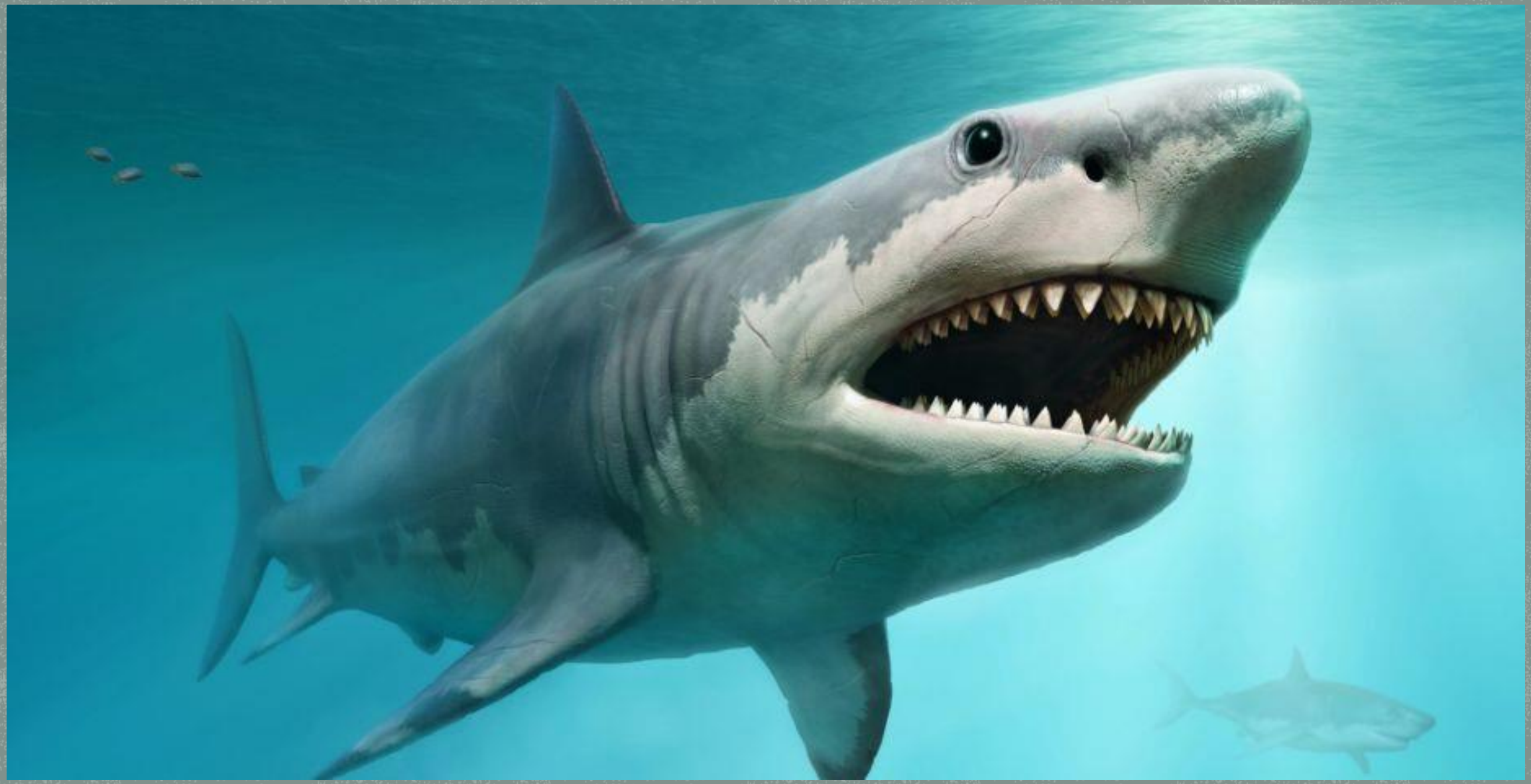
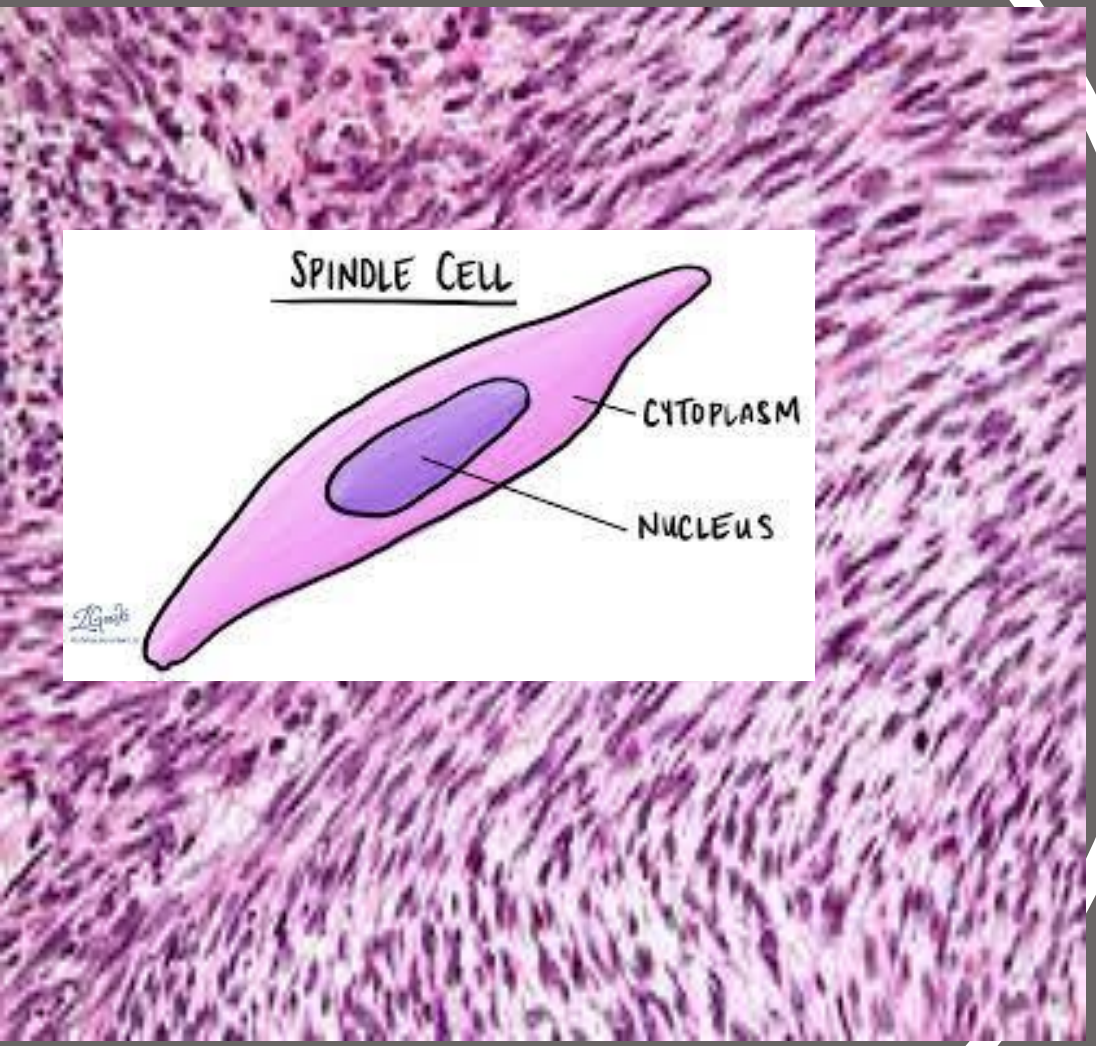
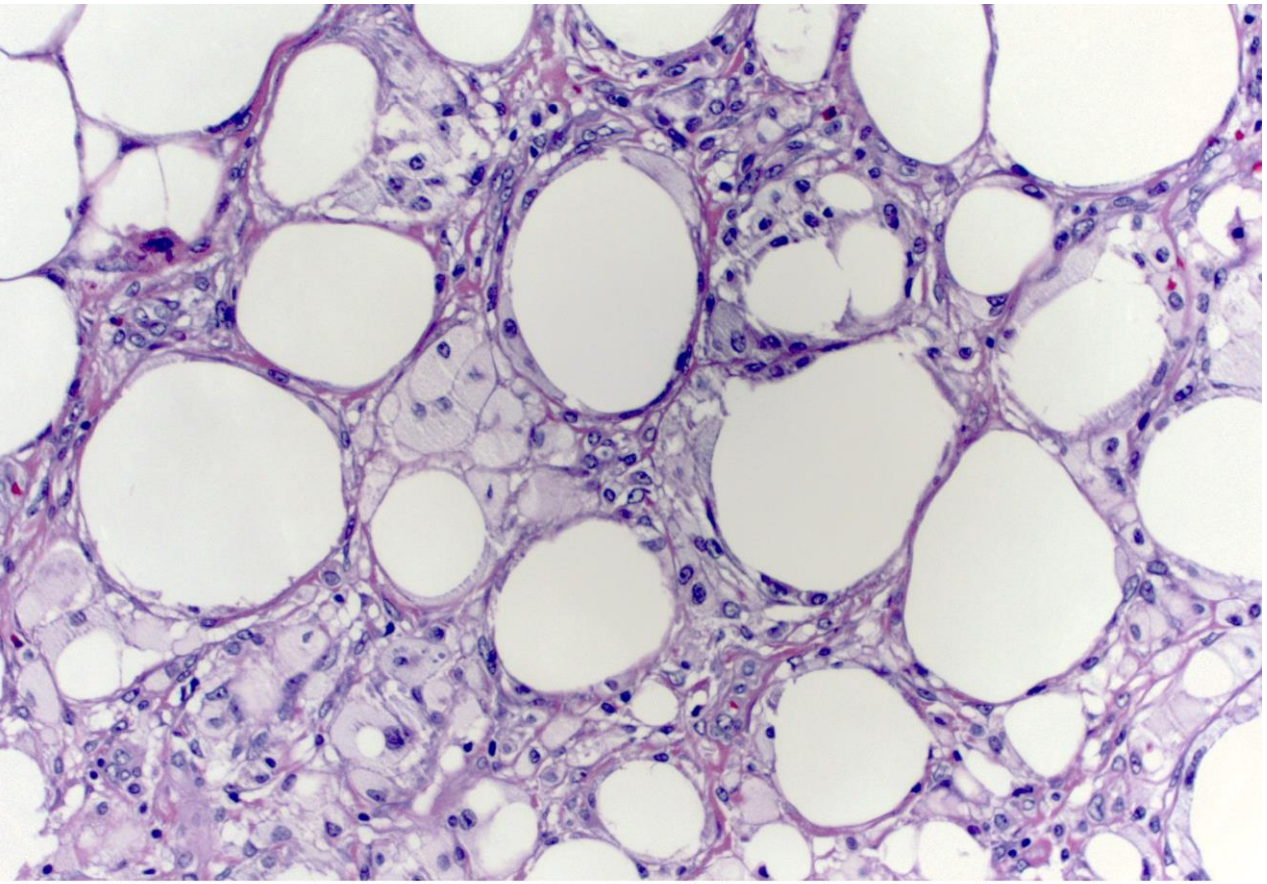
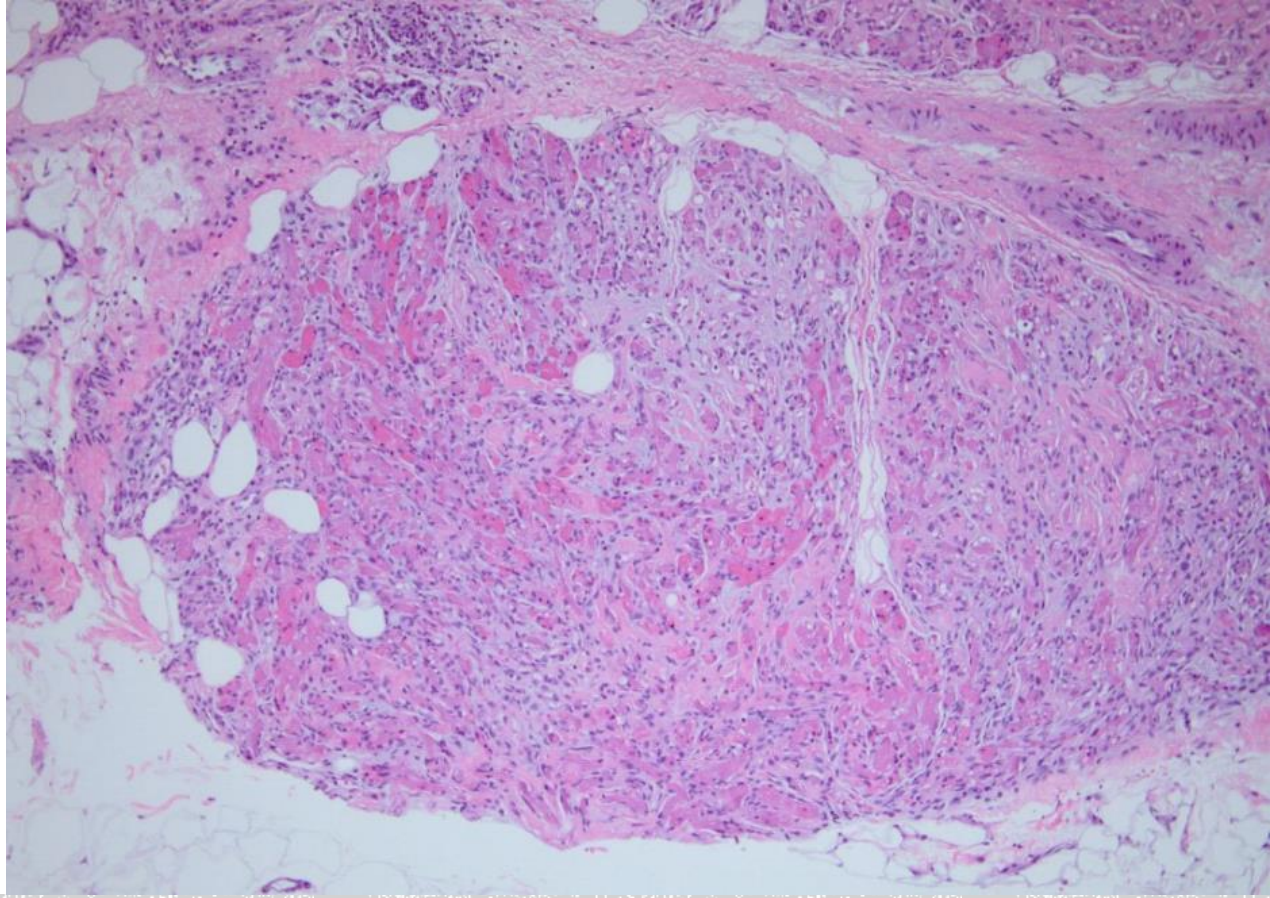




- **SPINDLE CELL LESIONS**
  - **Reactive stroma/scar**
  - **PASH**
  - **Myofibroblastoma**
  - **Fibromatosis**
  - **Solitary fibrous tumor**
  - **Nodular fasciitis**
  - **IMT**
  - **Leiomyoma**
  - **Schwannoma/Neurofibroma/ MPNST**
  - **Sarcoma (SS, DFSP, DF)**
  - **Melanoma**
- **Fibroepithelial**
  - **Phyllodes**
- **Epithelial Origin**
  - **Metaplastic carcinoma**
  - **Sarcomatoid (spindle cell) carcinoma**

	▪ **SPINDLE CELL LESIONS OF THE BREAST: -D/D**
NODULAR FASCIITIS	**RAPID GROWTH, SELF-LIMITING CLINICAL COURSE, +/- HISTORY OF TRAUMA; UNIFORM CELLS, FIBROBLASTS, RBCS GANGLION-LIKE CELLS; POSITIVE FOR SMA & VIMENTIN; T(17;22)(P13;Q12.3) → MYH9-USP6**
MYOEPITHELIOMA	Plump plasmacytoid cells, positive for CK, EMA & myoepithelial markers.
MYOFIBROBLASTOMA	Benign, tumor of mammary stroma, well circumscribed, excludes ducts and lobules. Discrete intersecting bundles of bland spindle cells ,myofibroblasts
PASH/Fasicular PASH	Dense collagen, prominent clefts lined by myofibroblasts, CD34, SMA, SMHM +, fascicular variant lacks the angiomatous clefted appearance.
SCHWANNOMA	Fishhook-like nuclei, Verocay bodies, fibrillary stroma; positive for S-100 (strong and diffuse), SOX10, TLE1 (in cellular schwannomas).
NEUROFIBROMA	Fishhook wavy nuclei, fibrillary, collagenous background; positive for S-100 (focal) & SOX10.
MALIGNANT PERIPHERAL NERVE SHEATH TUMOR (MPNST)	Pleomorphic spindle to ovoid cells with bipolar processes, positive for S-100 (focal), SOX10, TLE1.
SOLITARY FIBROUS TUMOR (SFT)	Spindle cells with scant bipolar cytoplasm, collagen, staghorn vessels, patternless pattern; STAT6 (+); NAB2-STAT6.
SYNOVIAL SARCOMA	Monotonous spindle to oval cells; (+): TLE1, CD99, BCL2; t(X;18) (p11.2; q11.2) → SYT-SSX
MELANOMA	Clinical history, prominent nucleoli, fine perinuclear vacuolation +/- binucleation, +/- melanin pigment; melanocytic markers (+)
Metaplastic Carcinoma	AE1/AE3 +, p63, MNF116
SARCOMATOID CARCINOMA	Positive for CK5/6, p63, p40, 34Beta E-12
INFLAMMATORY MYOFIBROBLASTIC TUMOR (IMT)	Prominent mixed inflammatory infiltrate, positive for ALK + (30-60%), SMA, desmin;
DERMATOFIBROMA/DFSP	Dense dermal collagen, positive for Factor XIIIa,CD34, PDGFRB
FIBROMATOSIS	Collagen fibers, positive for B-catenin, SMA
LEIOMYOMA	Cigar-shaped nuclei perinuclear vacuoles, positive for SMA, desmin, H-caldesmon.

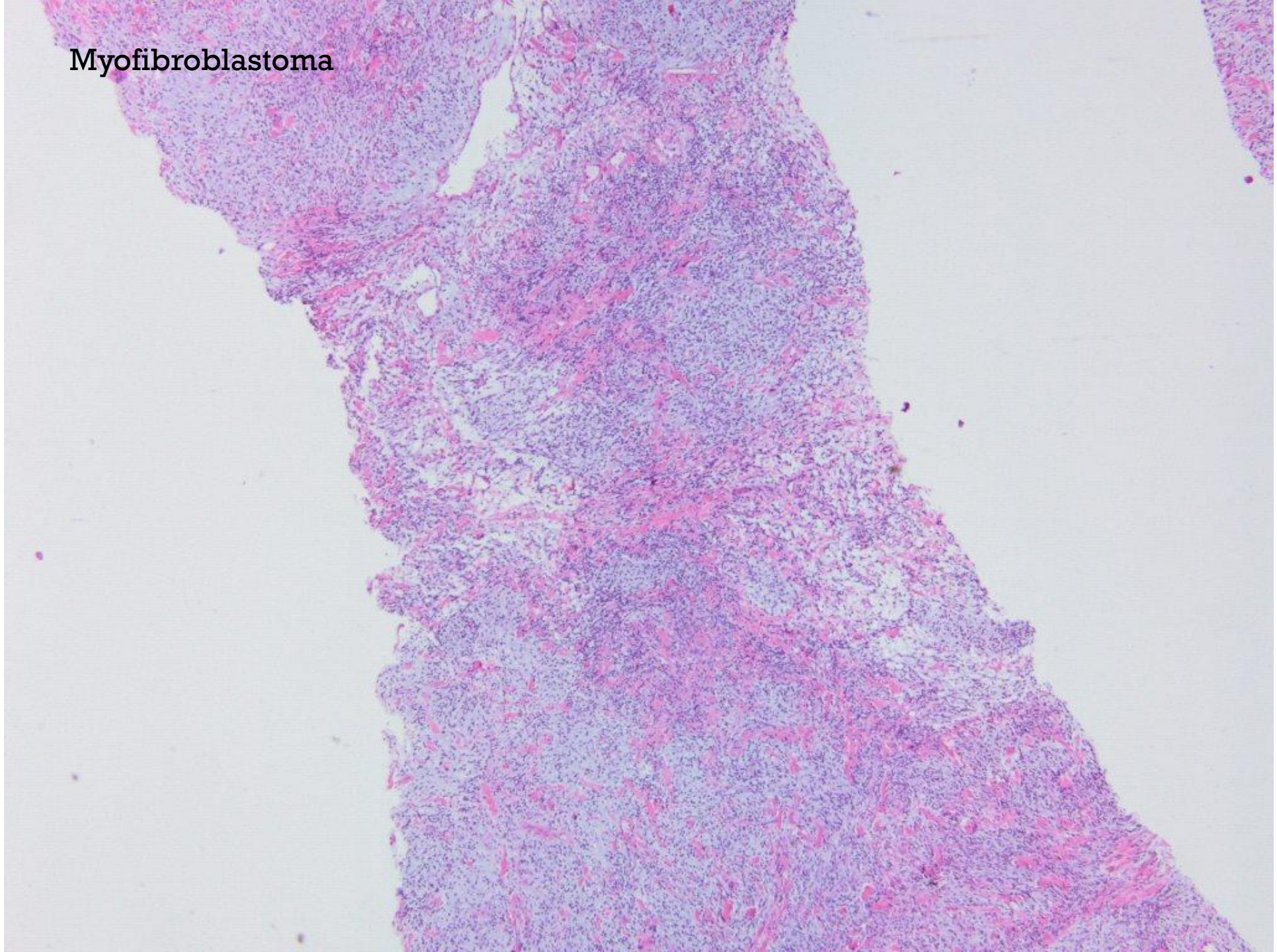




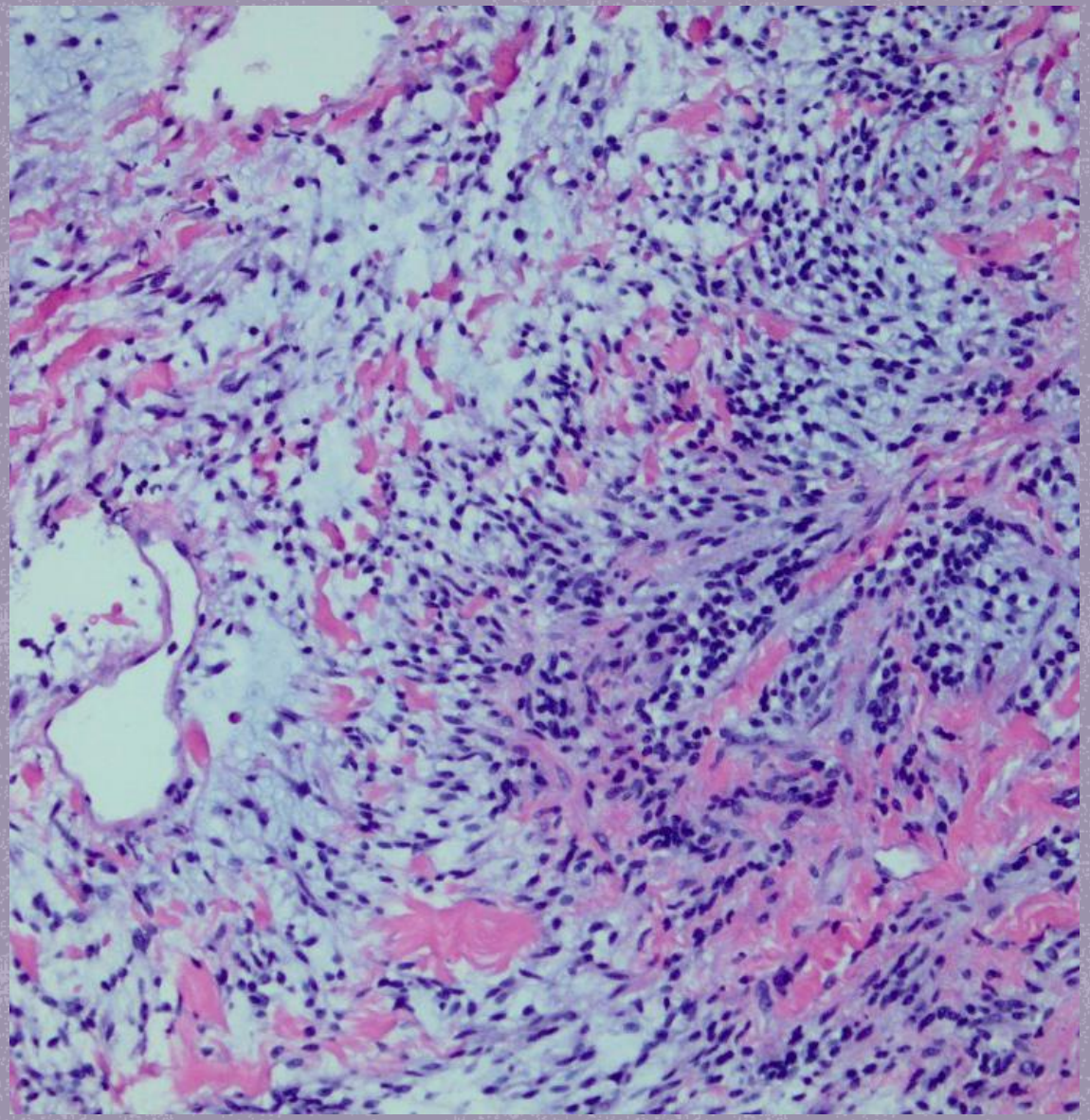
IMAGING D/D

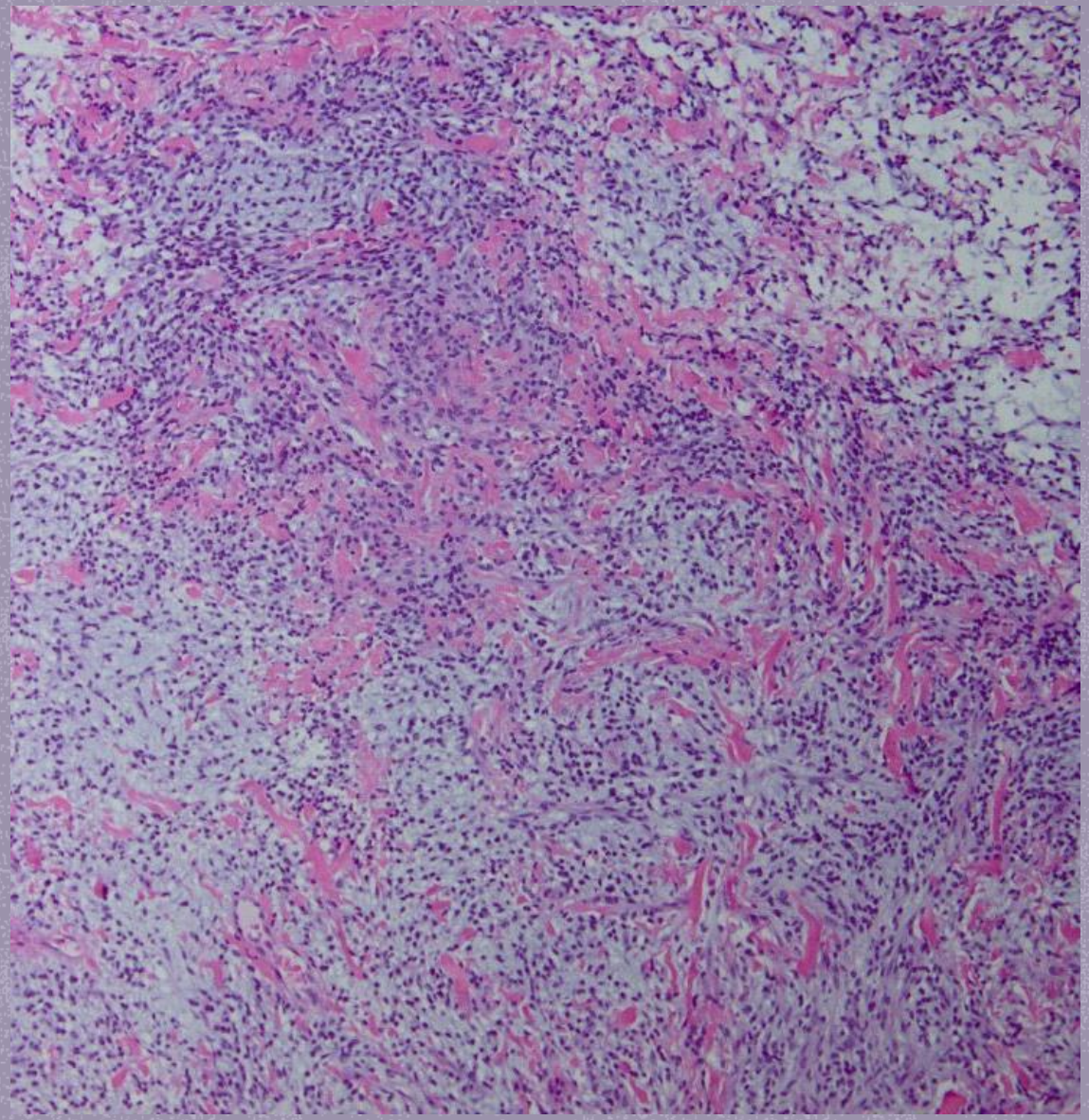
~~Fat necrosis/Angiolipoma~~

Myofibroblastoma

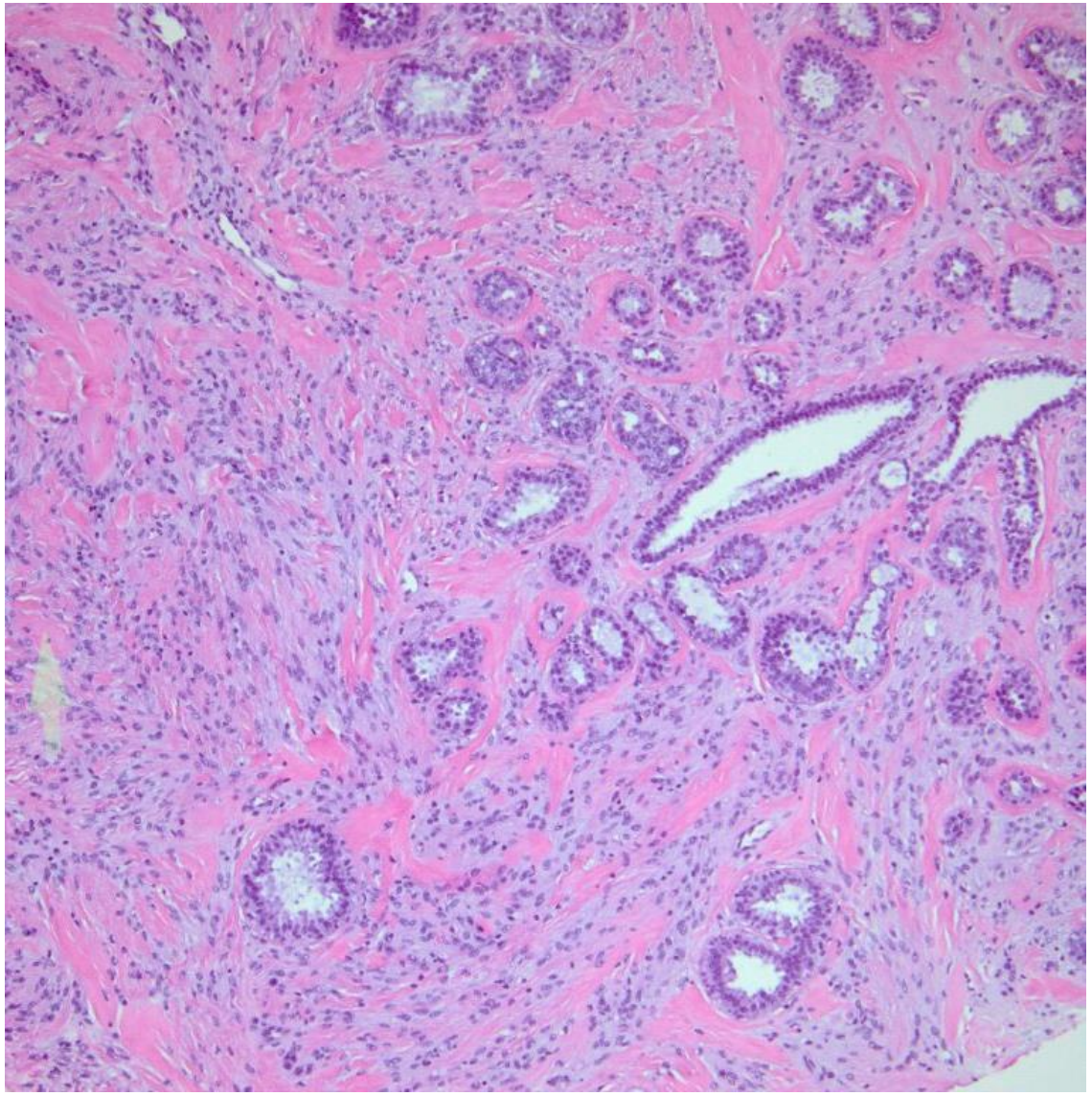


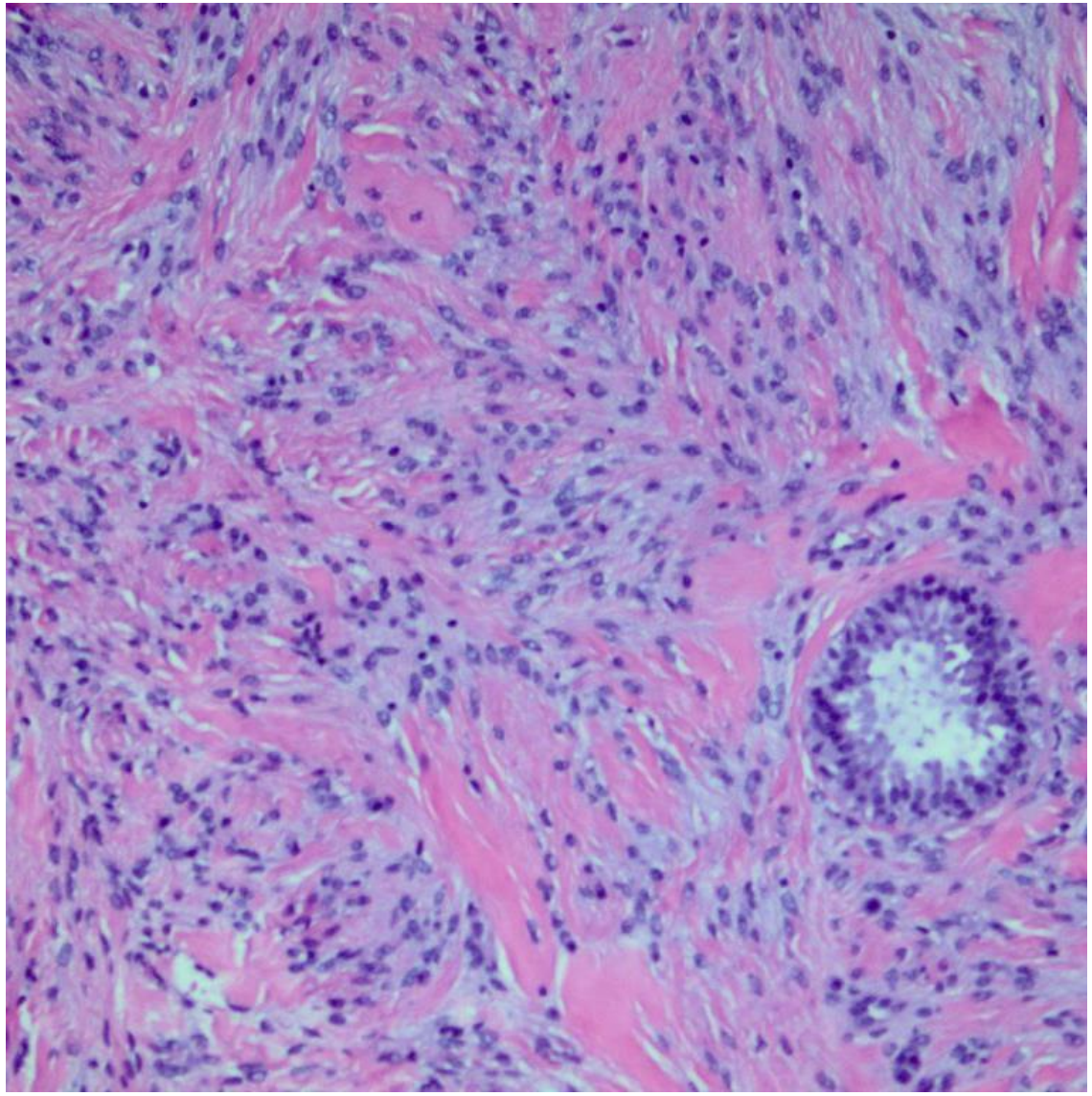
CD34 +, ER +, PR+, AR+, desmin +, Loss of Rb protein; FISH 13q14 deletion





Fascicular PASH





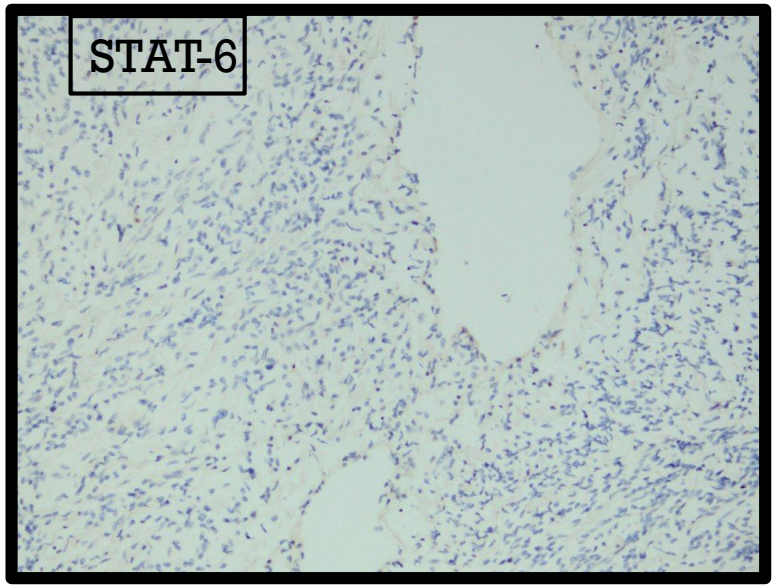
ANCILLARY STUDIES

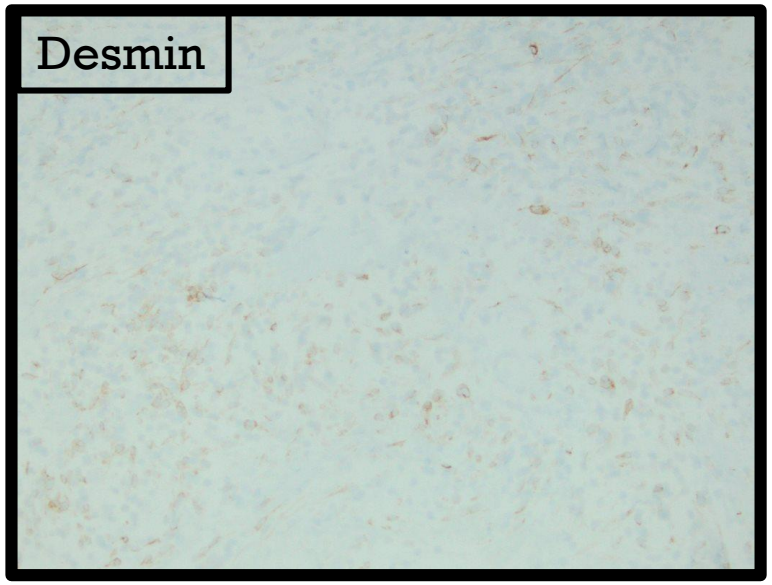
IHC:

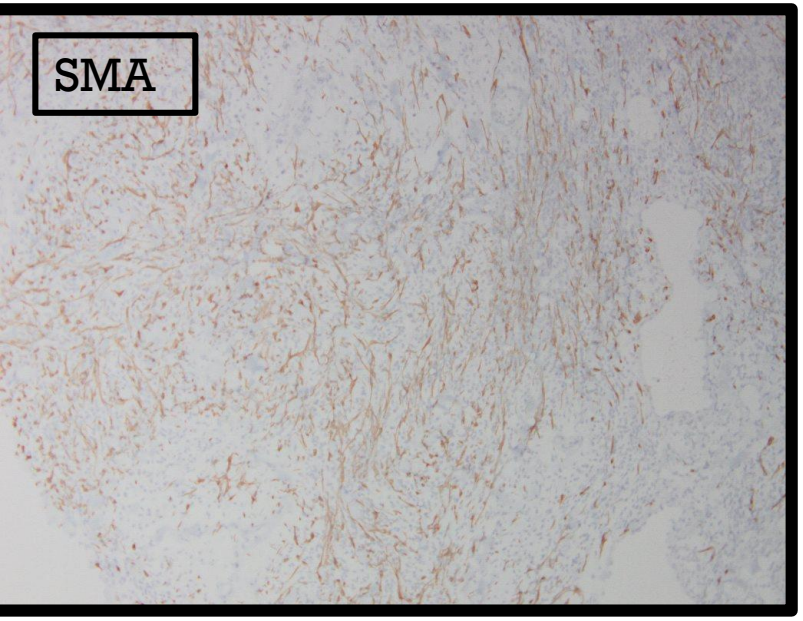
CK(AE1/AE3)-, p63-,

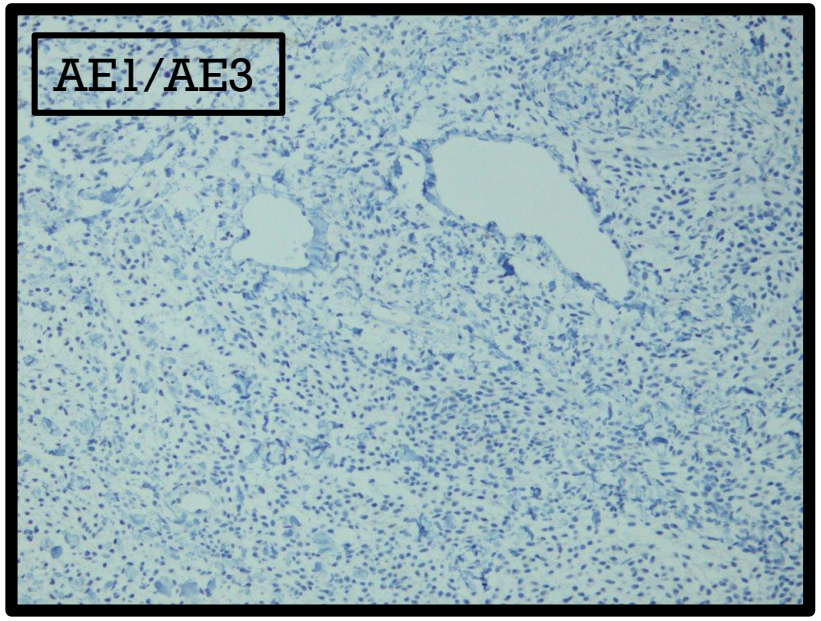
SMA-, ERG-, CD31-, stat-6 -CD34+, loss of RB(retinoblastoma protein)-

FISH: Multiplex morphometric testing for PDGFB rearrangement positive (Evidence of PDGFB(22q13.1) gene rearrangement


STAT-6


Desmin


SMA

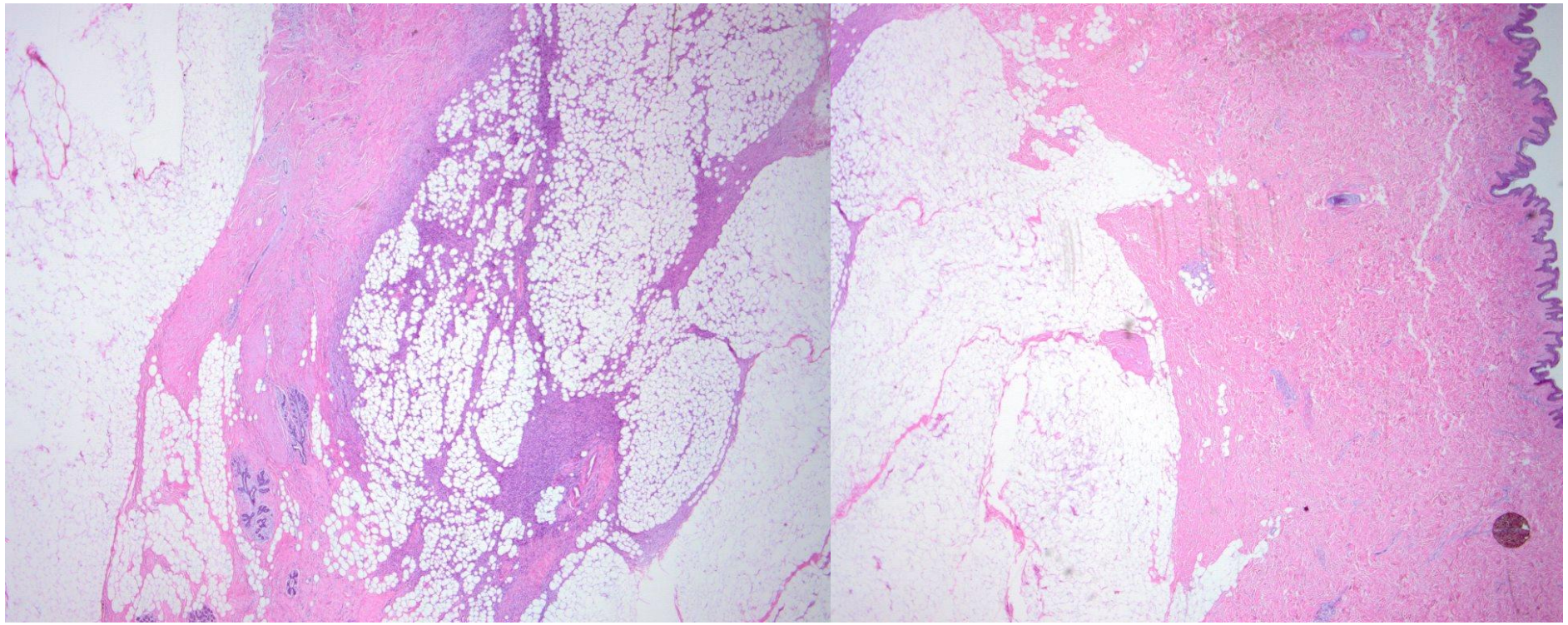

AE1/AE3

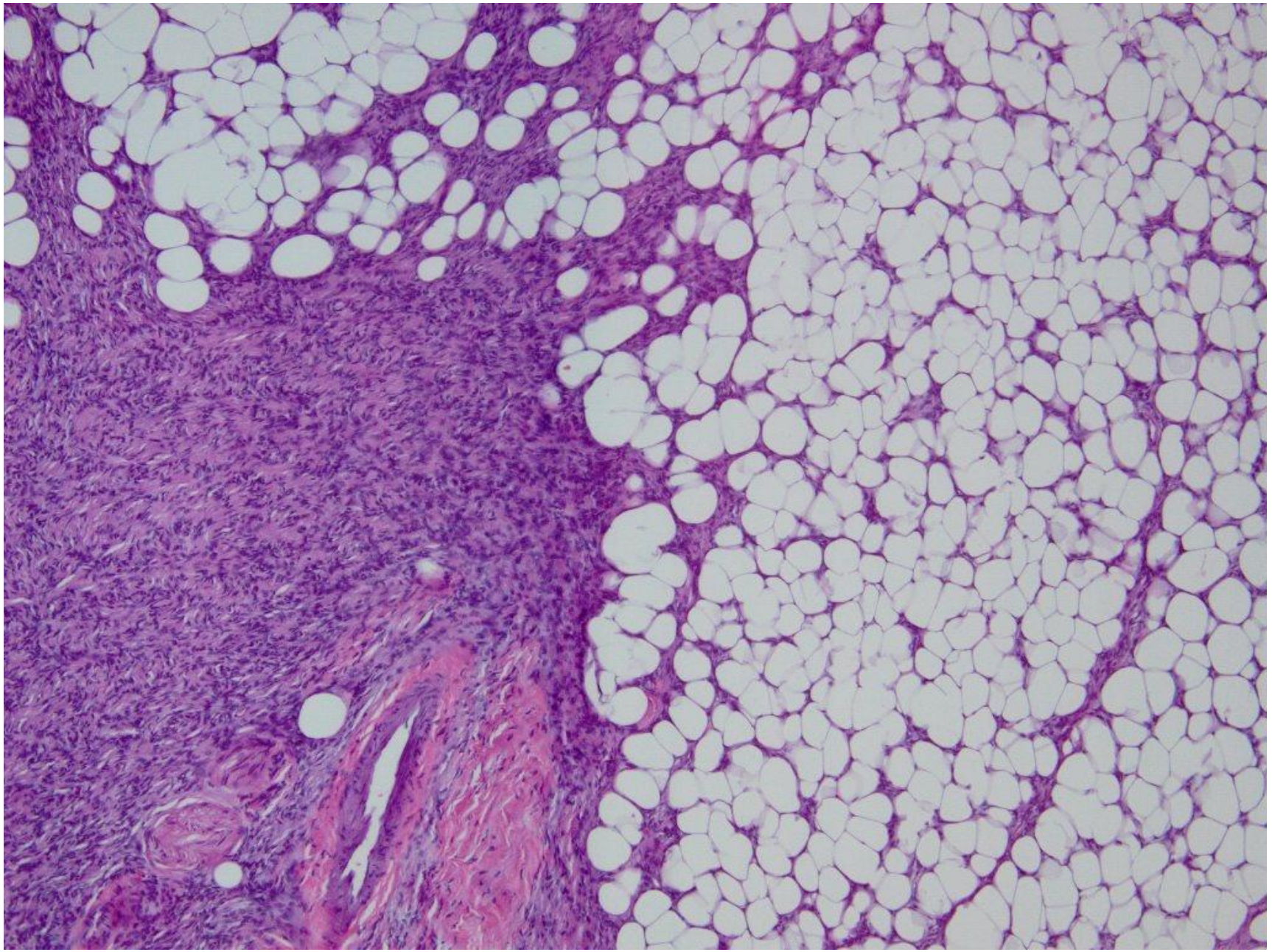
DIAGNOSIS

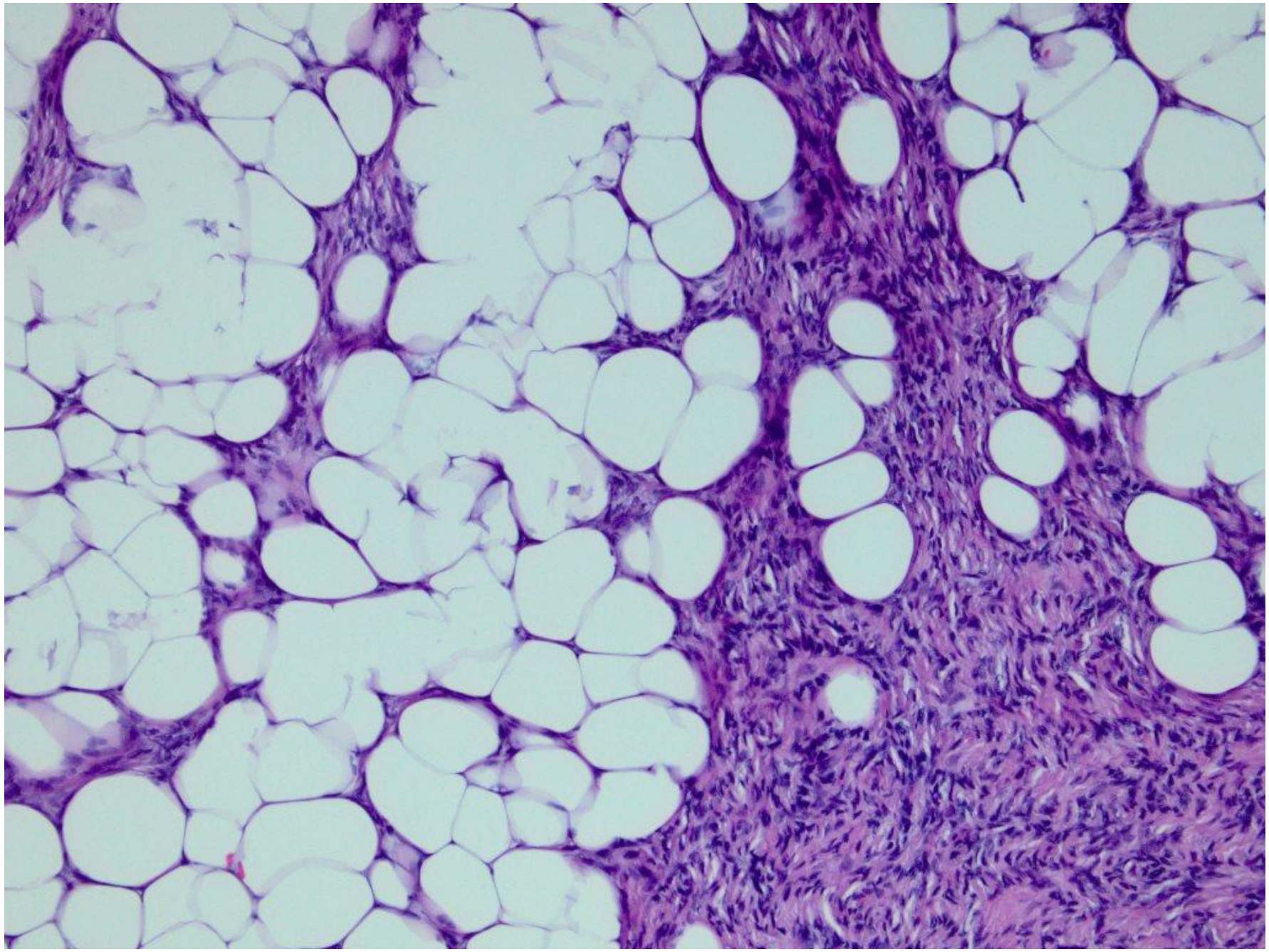
Dematofibrosarcoma protuberance

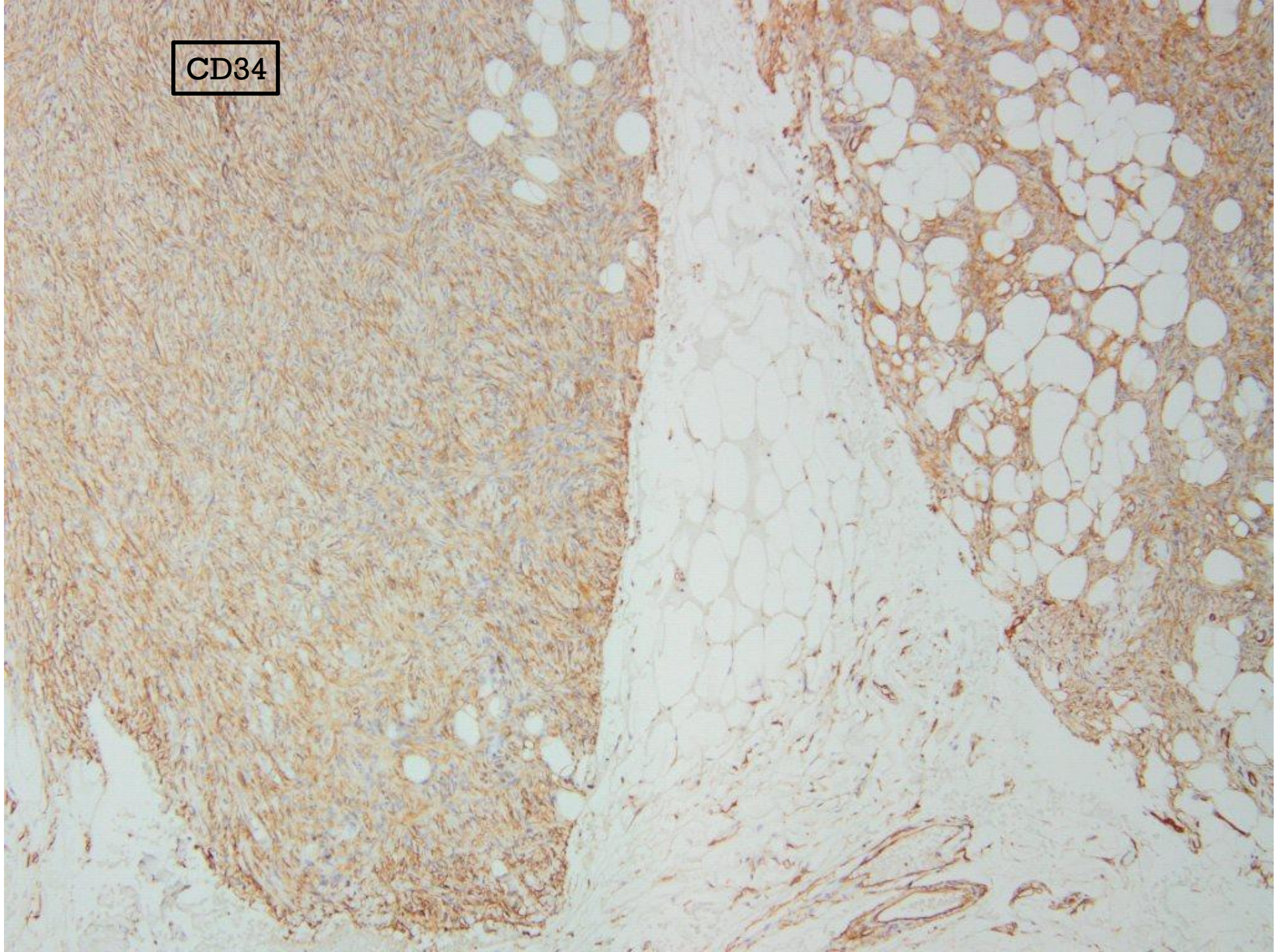
Wide margin of resection recommended, at least 2 cm.

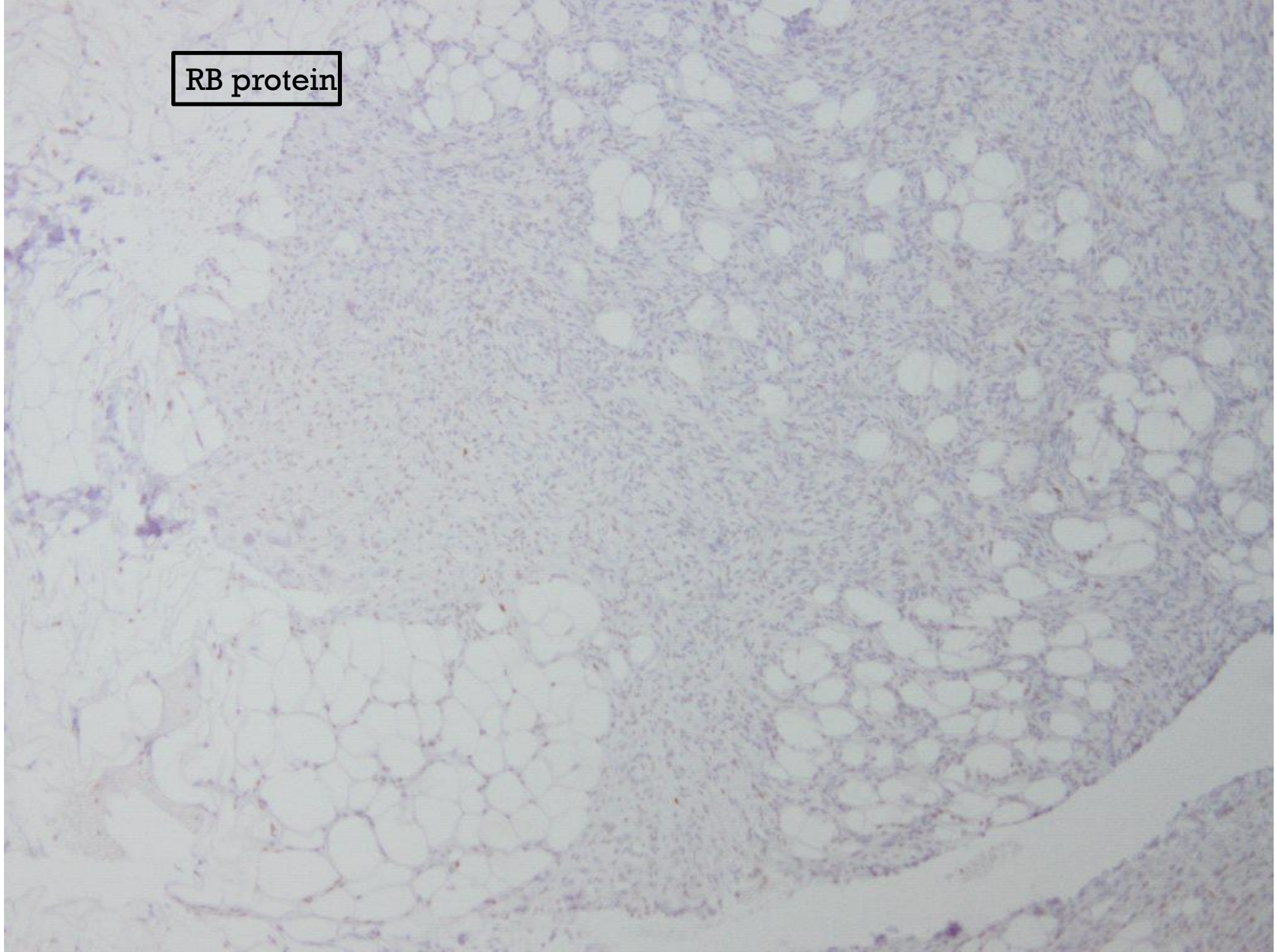
Resection specimen








CD34


RB protein


IMAGING FINDINGS
CLINICAL HISTORY
PATHOLOGIC CORRELATION
ANCILLARY STUDIES

DFSP OF BREAST

DFSP located within breast adipose tissue at the interface with the deep reticular dermis.

1.4 x 0.8 cm

Margins negative

DFSP OF BREAST

- DFSP is rare low grade sarcoma of subcutaneous tissue with infiltrative growth.
- Slow growing, therefore ignored
- DFSP breast involvement is rare, and is often misdiagnosed as a benign breast tumor, which delays treatment
- Highest frequency second and the fifth decades with incidence of 5/1,000,000
- Trunk and extremities most common sites
- Reciprocal translocation t(17;22)(q22;q13) resulting in the transcriptional upregulation of PDGF subunit B (*PDGFB*) gene, results in the fusion of the *COL1A1* gene in chromosome bands of 17q21 with the *PDGFB* gene in chromosome 22q13
- Rx of a localized tumor is surgical excision with wide margins(2–3 cm) - rarely metastasizes with low local recurrence rates(0–30%)

Cutaneous fibrohistiocytic origin with storiform pattern

Subtypes of DFSP:

- Pigmented (Bednar tumor)
- Giant cell fibroblastoma-like
- Atrophic, sclerosing
- Granular cell variant
- Fibrosarcomatous
- Myxoid DFSP

Definitive diagnosis -characteristic histopathological and immunohistochemical features, including CD34 positivity is a diagnostic marker for DFSP (80-100%)with PDGFB by FISH.

Factor XIIIa D/D between DFSP and dermatofibroma+

STAT-6 D/D between DFSP and Solitary fibrous tumors

Case Reports › Appl Immunohistochem Mol Morphol. 2021 Sep 1;29(8):e73-e82.
doi: 10.1097/PAI.0000000000000935.

DFSP of the Breast: Histomorphological, Immunohistochemical, and Molecular Features of a Rare Case in an Unusual Location

Hansini Laharwani [1], Varsha Prakash, Debbie Walley, Israh Akhtar

Affiliations + expand

PMID: 34282067 DOI: 10.1097/PAI.0000000000000935

erans of the Breast: a Rare Presentation of a Rare Entity

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second to fourth decades. It is less commonly reported in the head and neck. While DFSP is locally aggressive, metastases develop in only 3% of cases. DFSP is a rare tumor with an incidence of 2 to 4 cases per million per year. DFSP of the breast is rarer still, with less than 100 cases reported in the literature to our knowledge. We present a rare case of DFSP arising in the breast parenchyma.

CASE REPORT

A 21 year old female presented with a persistent non-tender left breast mass incidentally detected on chest imaging following trauma. A breast ultrasound demonstrated an 8 x 6 x 8 mm irregular hyperechoic mass at the 7 o'clock position that was 9 cm from the nipple (figure 1). The mass was graded BI-RADS category 4 (suspicious finding). An ultrasound-guided biopsy of the mass showed a proliferation of monotonous spindled cells in a storiform pattern with tapered nuclei that invaded the adipose tissue (figure 2). No normal breast elements were identified on biopsy. The neoplasm was positive for CD34 (figure 3) and negative for S100, broad spectrum cytokeratin, p63, CD31, smooth muscle actin, ERG, and RB protein. Multiplex morphometric FISH testing for *PDGFB* rearrangement was positive.

She underwent a wide local excision of the DFSP for definitive treatment. On gross examination, there was no discreet lesion identified. Microscopic examination of the resection was congruent with the biopsy. The DFSP was found to be arising from the breast parenchyma rather than the dermis (figure 4). The closest margin was 1.5 mm from the tumor.

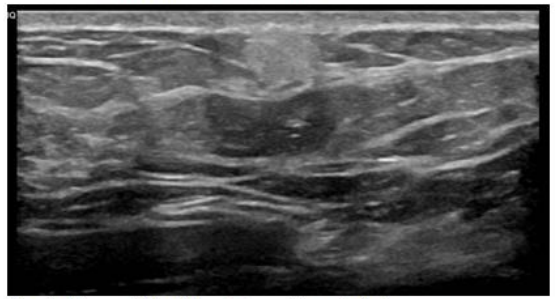


Figure 1. Ultrasound of the left breast demonstrates an 8 x 6 x 8 mm mass.

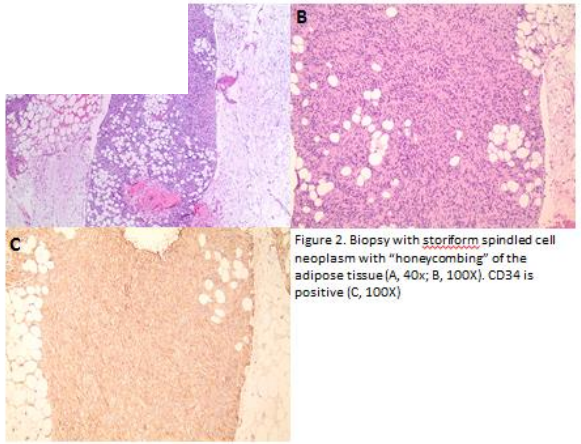


Figure 2. Biopsy with storiform spindled cell neoplasm with "honeycombing" of the adipose tissue (A, 40x; B, 100X). CD34 is positive (C, 100X)

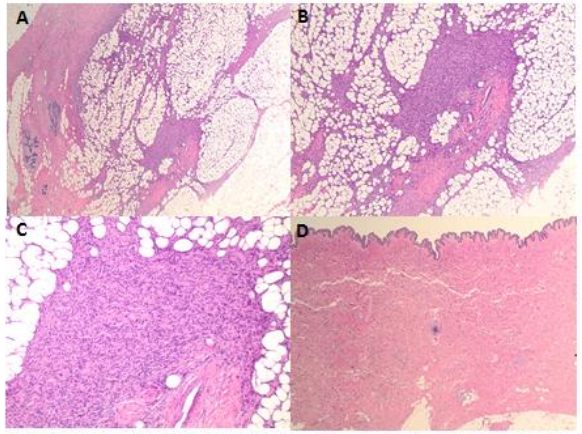


Figure 3. Resection with storiform spindled cell neoplasm with honey combing arising from the breast parenchyma (A, 20X; B, 40X; C, 100X). The neoplasm does not originate from the dermis (D, 20X)

DISCUSSION

DFSP is a cutaneous mesenchymal tumor with an incidence of only two to four new cases per million per year. They typically occur as multiple indurated nodules on the extremities and trunks of adults in their second through fourth decades, though cases have been reported in children and adolescents. For the most part, DFSP of the breast exists in the literature as case reports.

In this case, dermatofibroma and myofibroblastoma, another rare spindled cell breast neoplasm were high on our differential diagnosis. The CD34 positivity effectively ruled out dermatofibroma, but both myofibroblastoma and DFSP are positive for CD34. DFSP is associated with increased expression of platelet-derived growth factor-β due to a fusion of the *PDGFB* and *COL1A1* (the gene encoding collagen type 1) formed by an unbalanced der(17)(17;22)(q12;q12). In our case, multiplex morphometric FISH testing showed evidence of a PDGFB (22q13.1) gene rearrangement was positive with 55% of nuclei showing an extra 3'PDGFB signal, consistent with a derivative chromosome 22. This finding definitively proved the diagnosis in DFSP in this case.

Of interest, upon resection of the tumor we found that the DFSP arose from the breast parenchyma and invaded the surrounding adipose tissue. This may account for the lack of skin changes on physical exam. In most of the reported cases of DFSP the neoplasm arose from the dermis of the overlying breast skin.

The treatment of DFSP is wide local excision. Even so, the local recurrence rate of DFSP ranges from 20-40%. There are no agreed upon minimum resection margins, but studies have shown that DFSP resection margins greater than 4 cm are effective in preventing recurrence. Achieving such margins in the breast is difficult and may not be possible. Imatinib mesylate has also been shown to cause partial or complete tumor regression. While DFSP recurs aggressively, only 3% of these tumors metastasize.

CONCLUSION

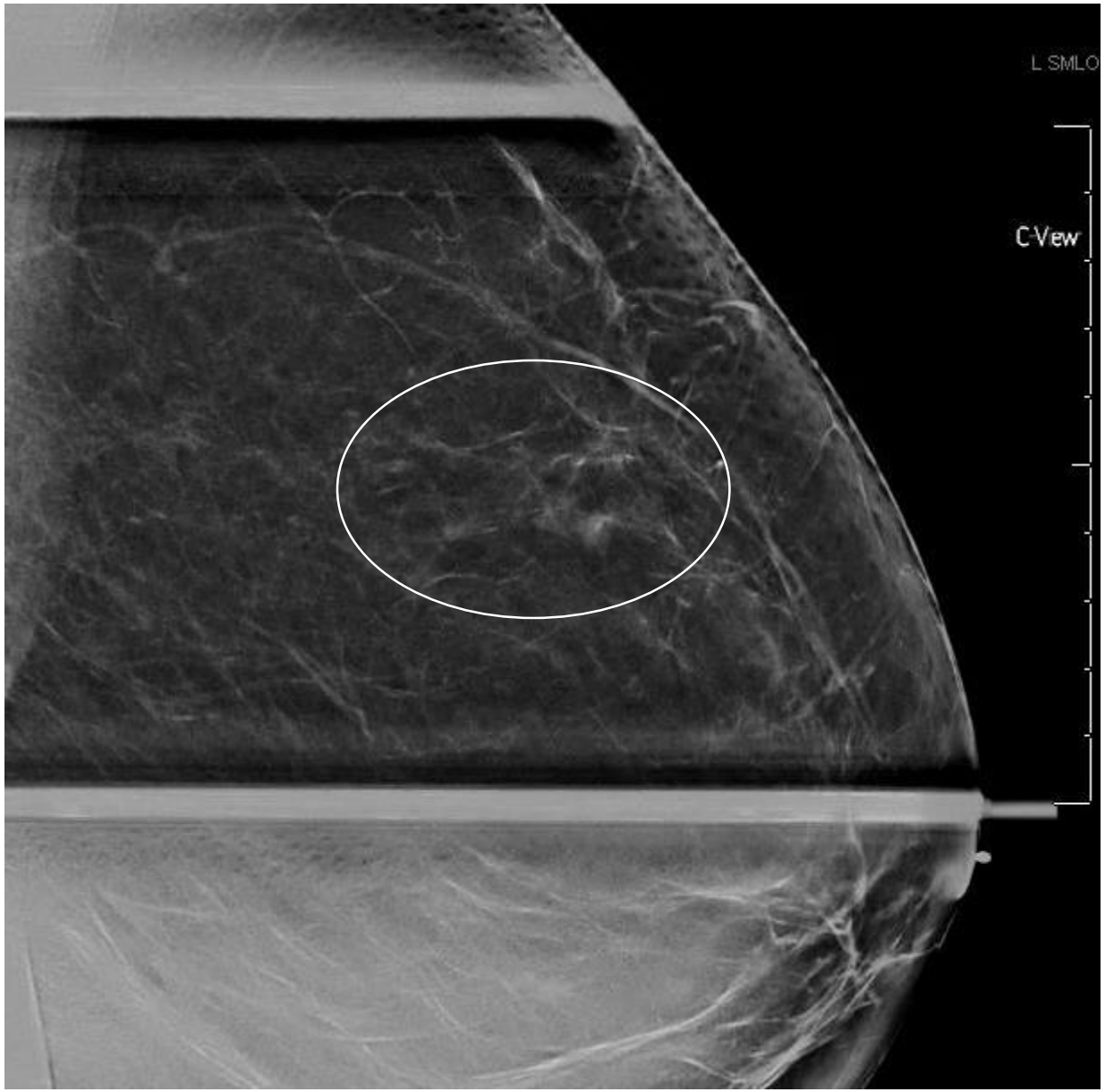
We present an extremely rare case of breast DFSP in a 21 year old female arising in the breast parenchyma. Given the extremely low incidence of DFSP in the breast, the pathologist must not let the odd location cause them to miss the diagnosis. Dermatofibroma can be ruled out by positive CD34 staining. Myofibroblastoma can be definitively excluded with FISH testing for *PDGFB* rearrangement. The diagnosis of DFSP of the breast on biopsy is imperative as it requires wide local excision for definitive treatment given its high rate of recurrence after resection. Metastases in this entity is very rare.

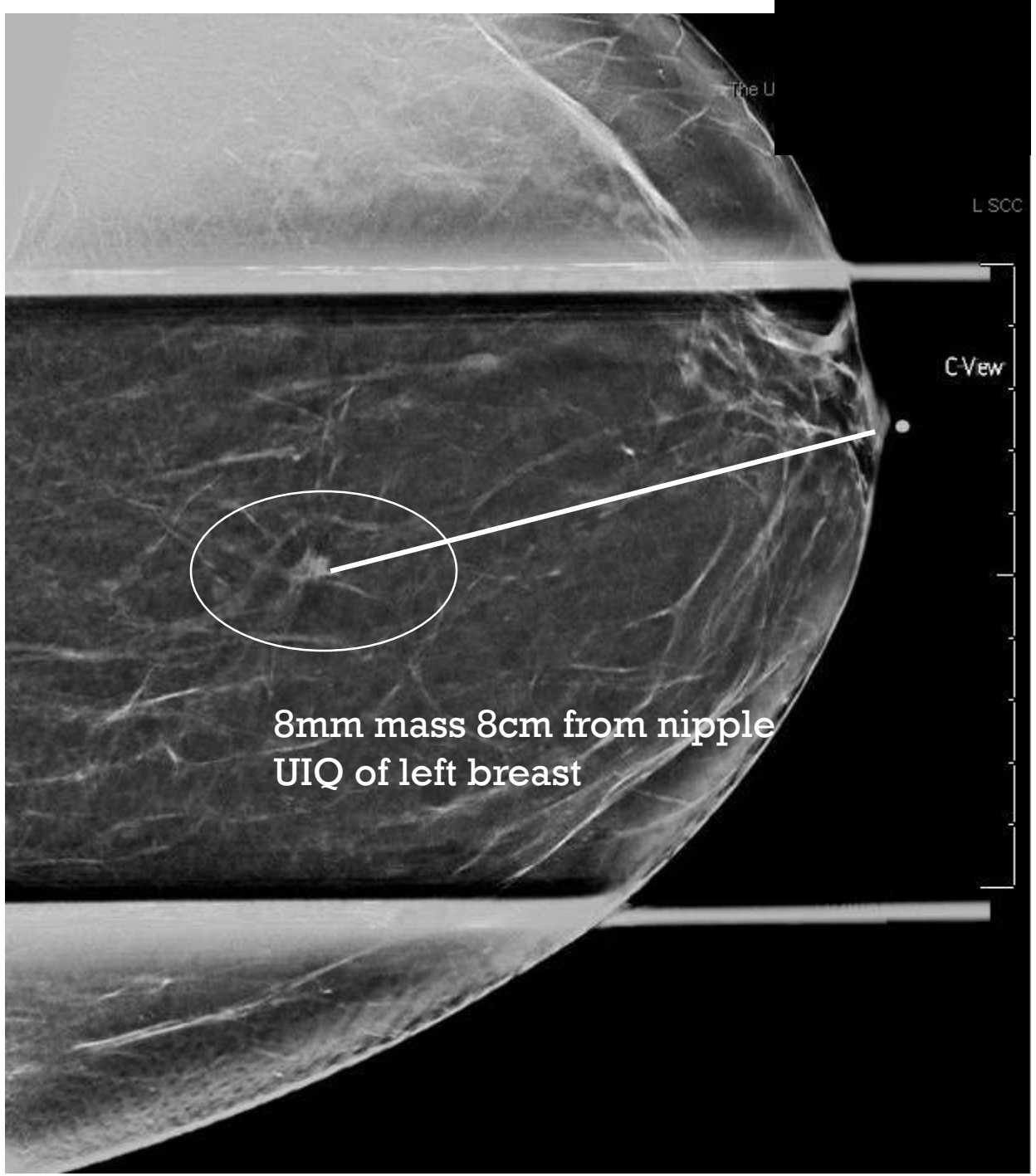
CASE 3

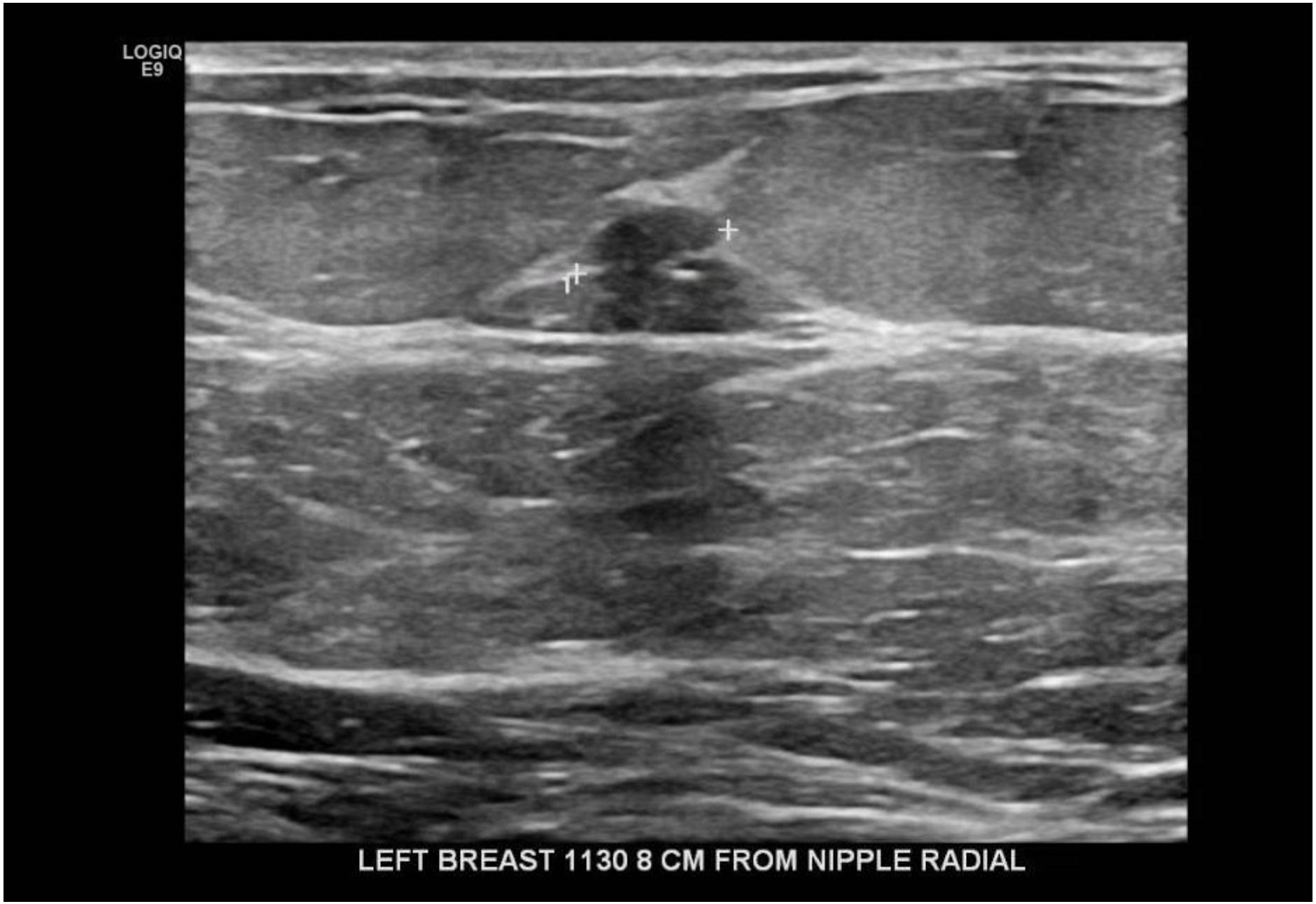
63 year old female with a new 8mm area of architectural distortion in left breast at 11:30, 8 cm from the nipple

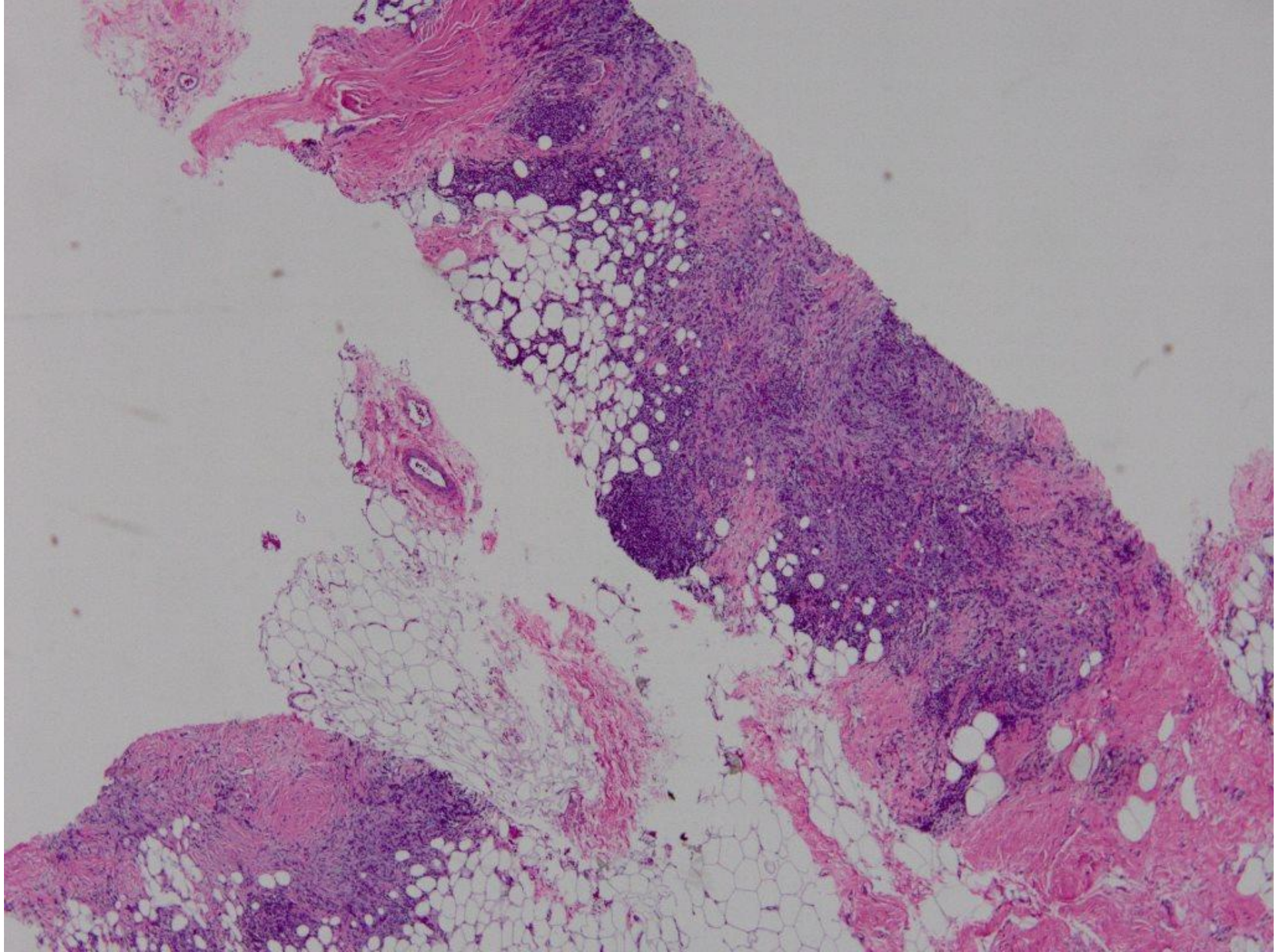
BIRADS category 5

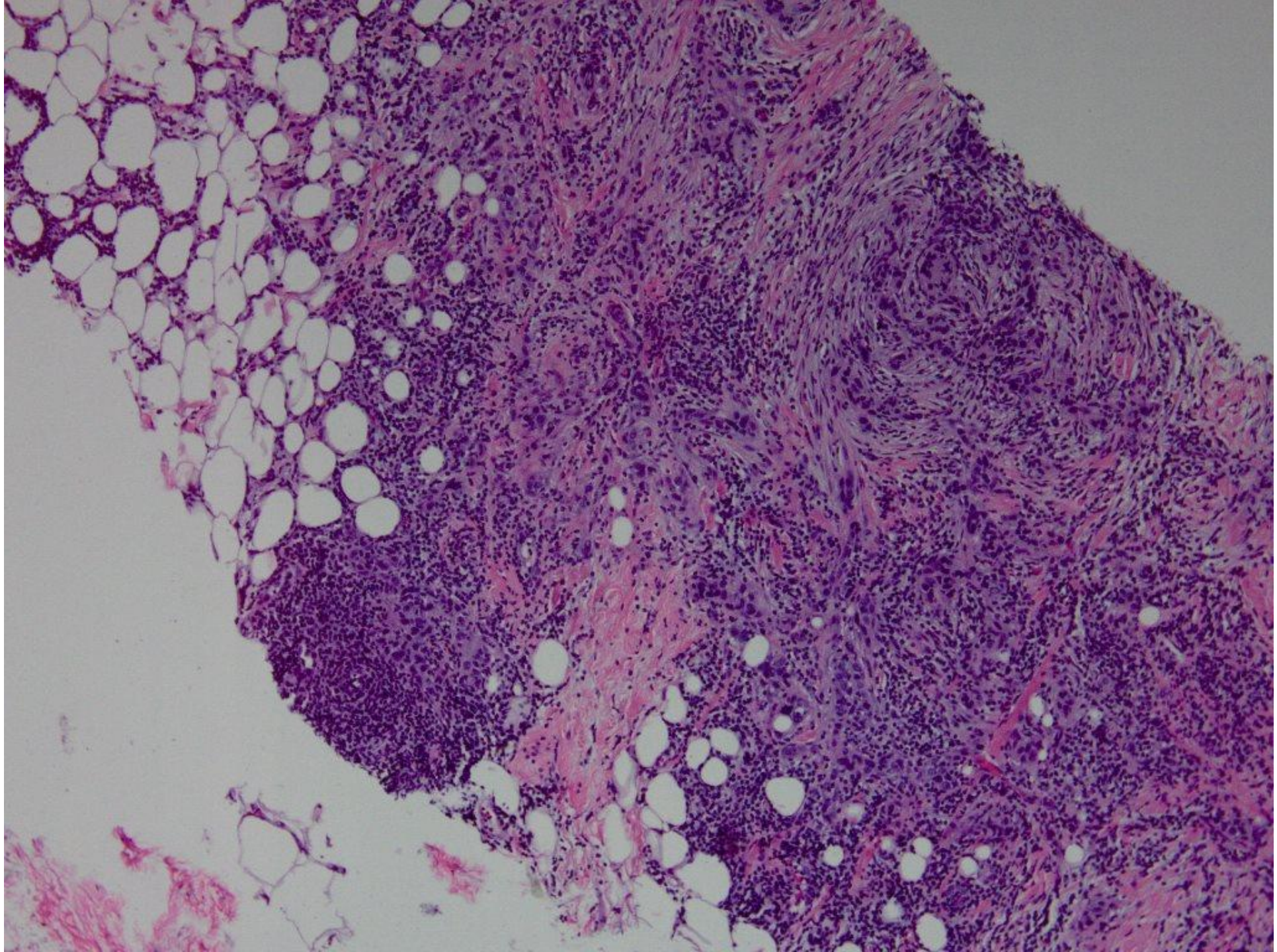
US guided biopsy was performed

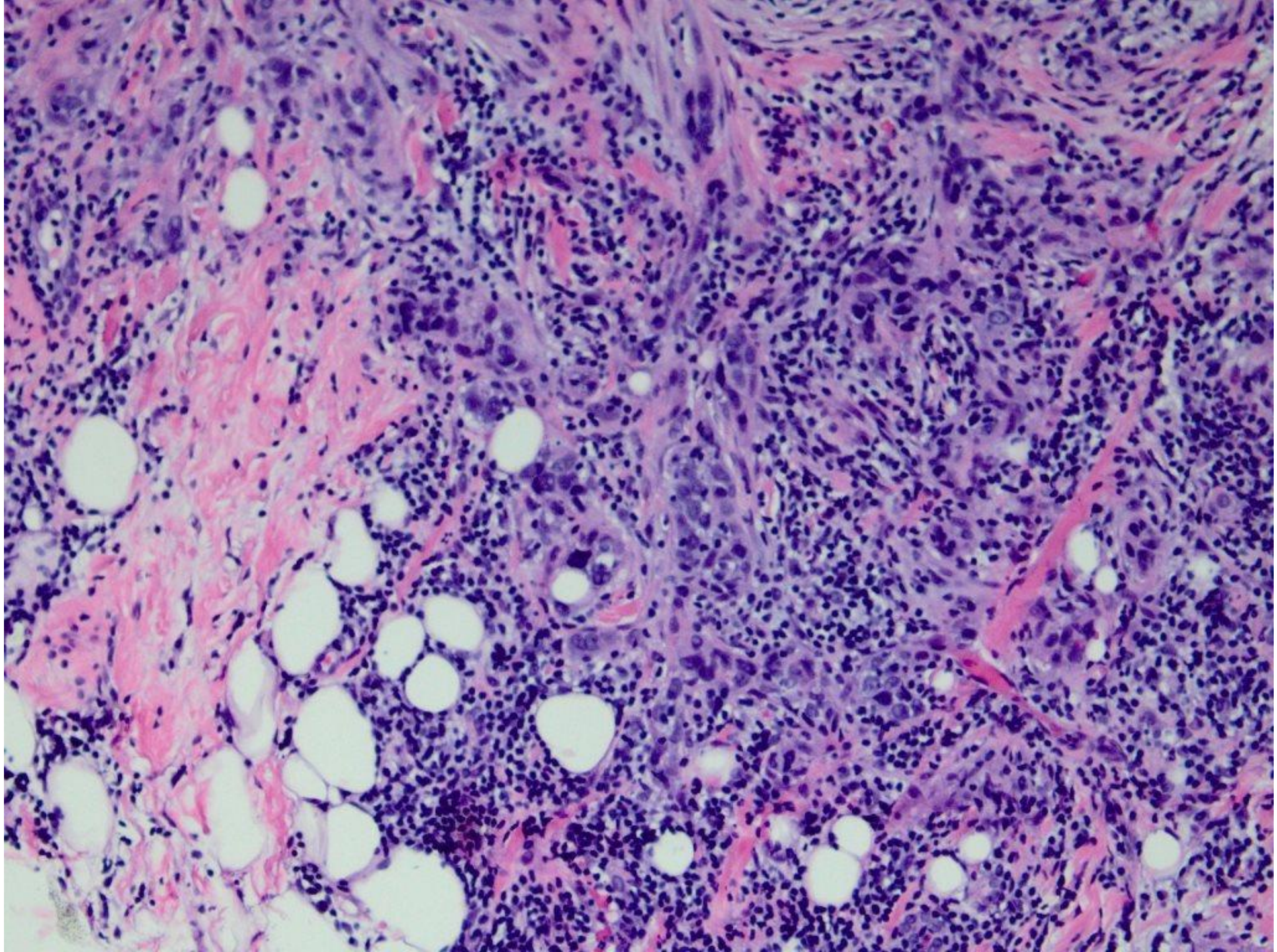

L SMLO
C-View

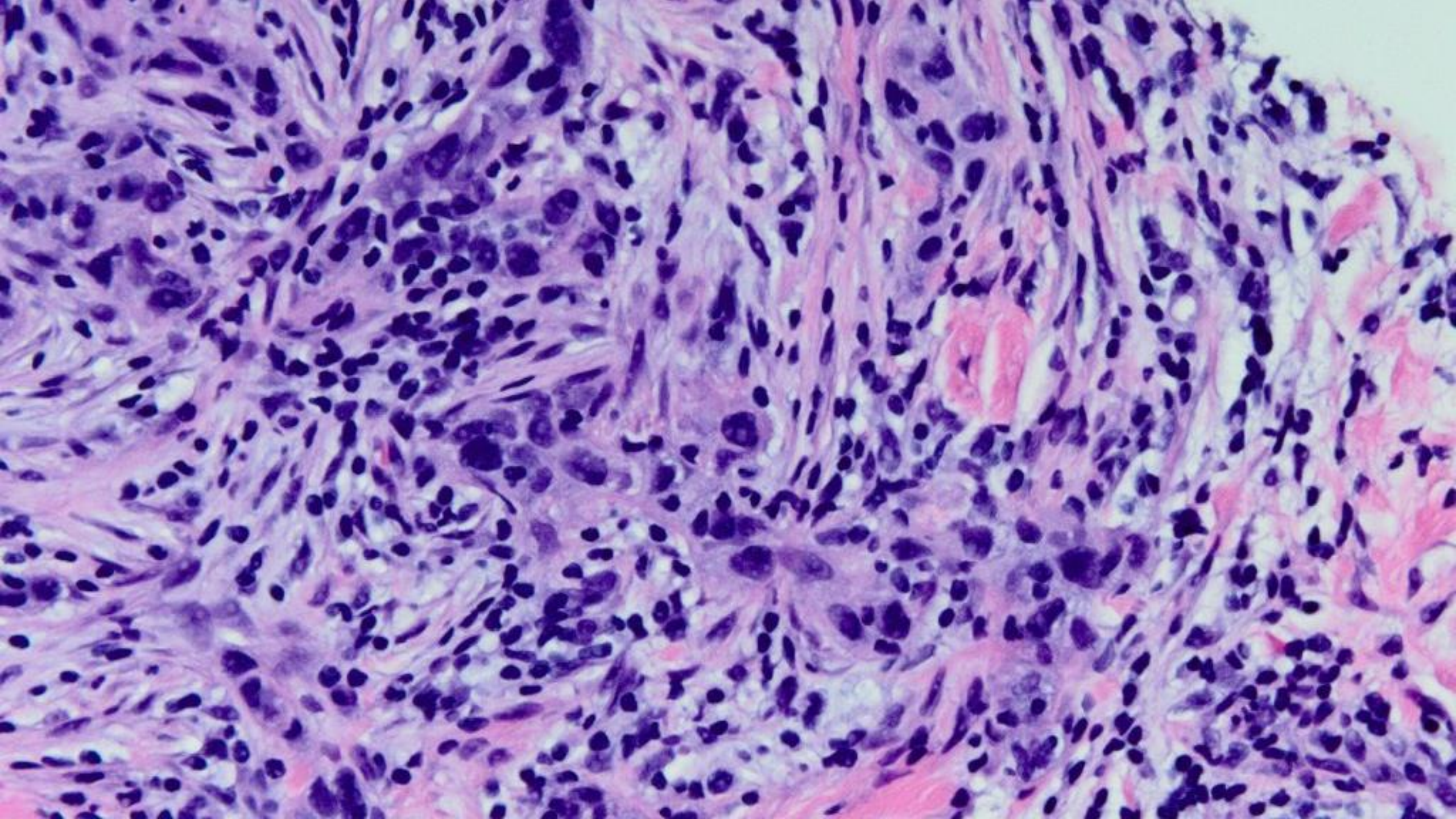

The U
L SCC
C-View
8mm mass 8cm from nipple
UIQ of left breast

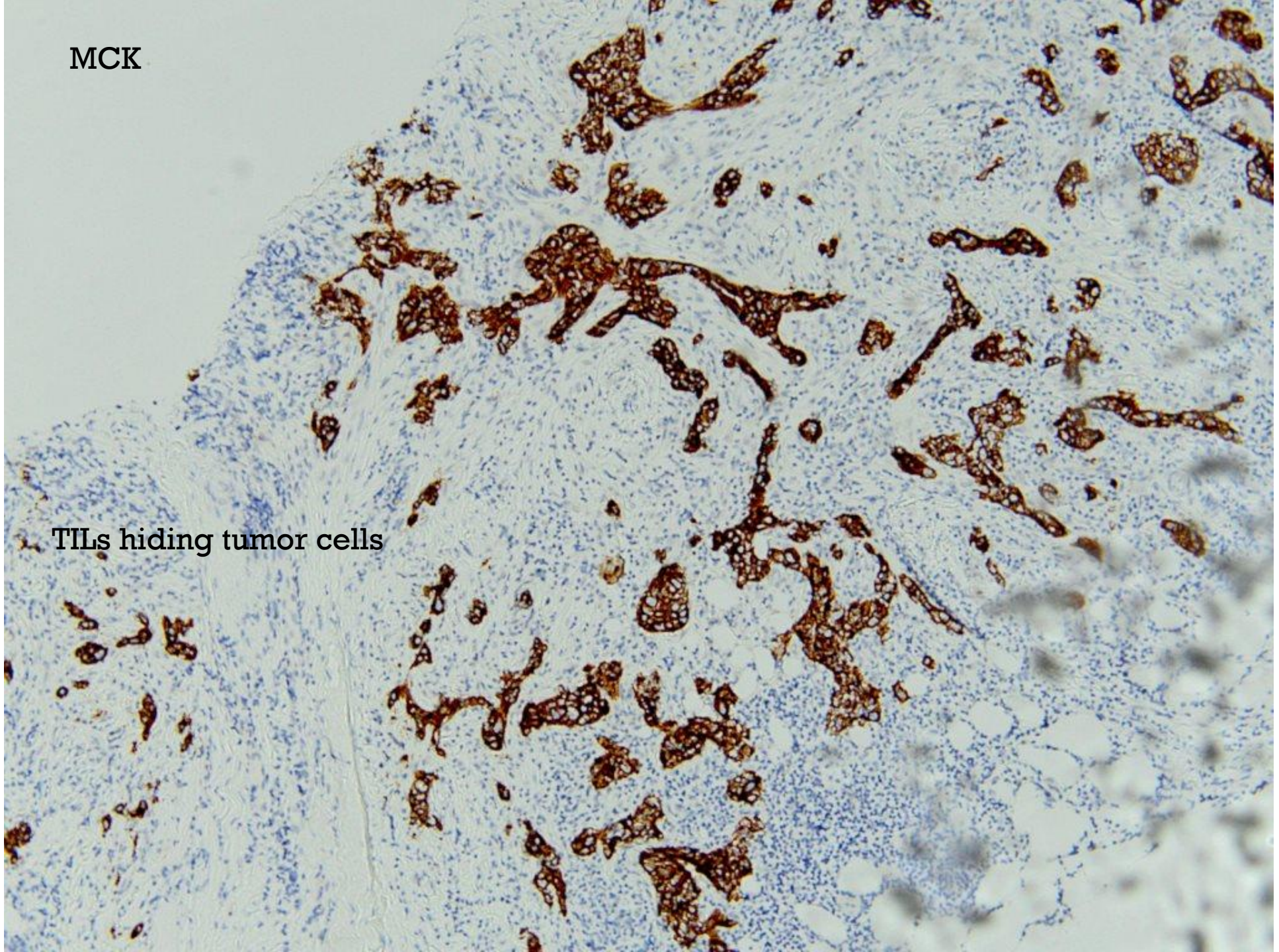

LOGIQ
E9
LEFT BREAST 1130 8 CM FROM NIPPLE RADIAL

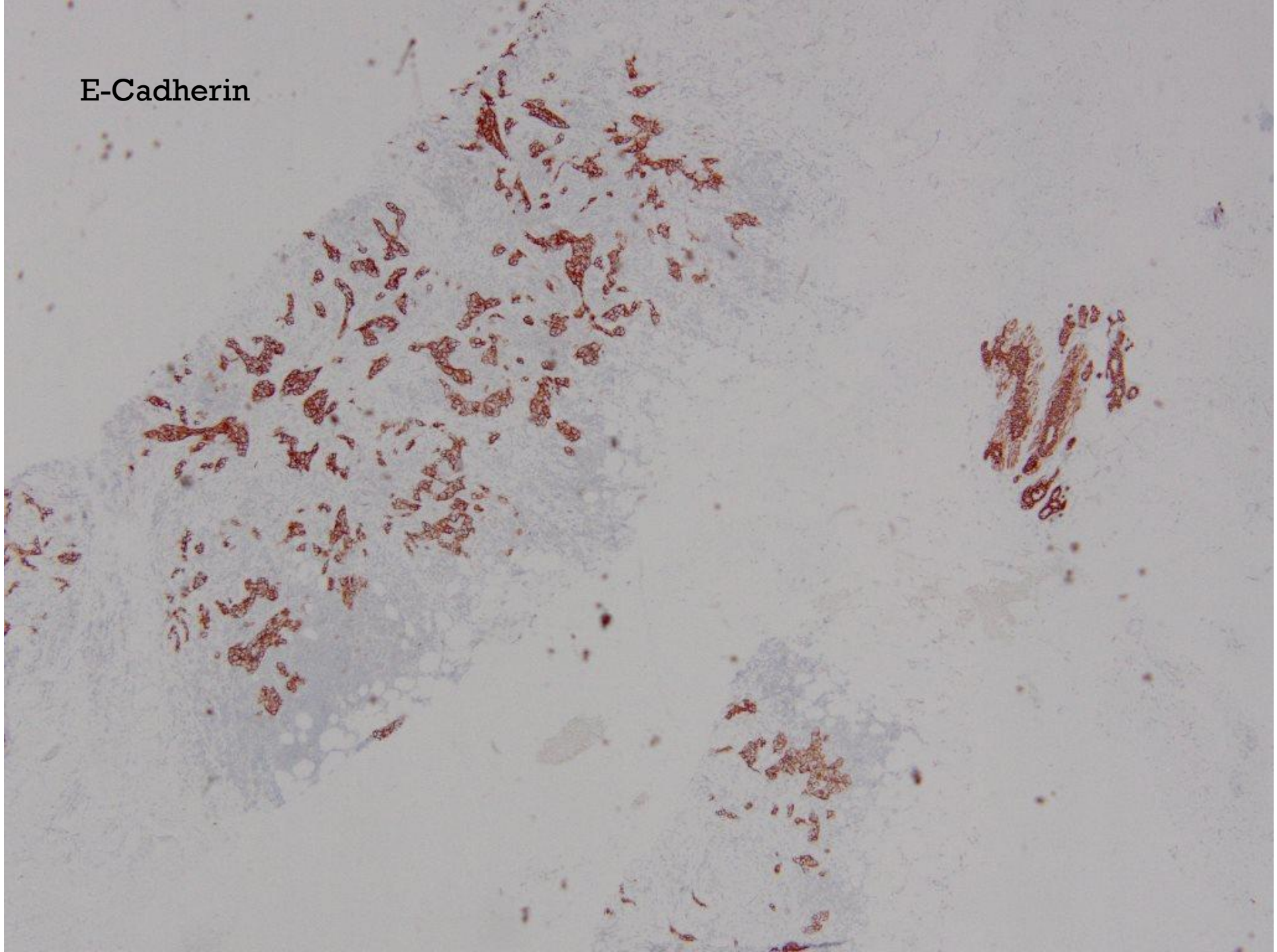


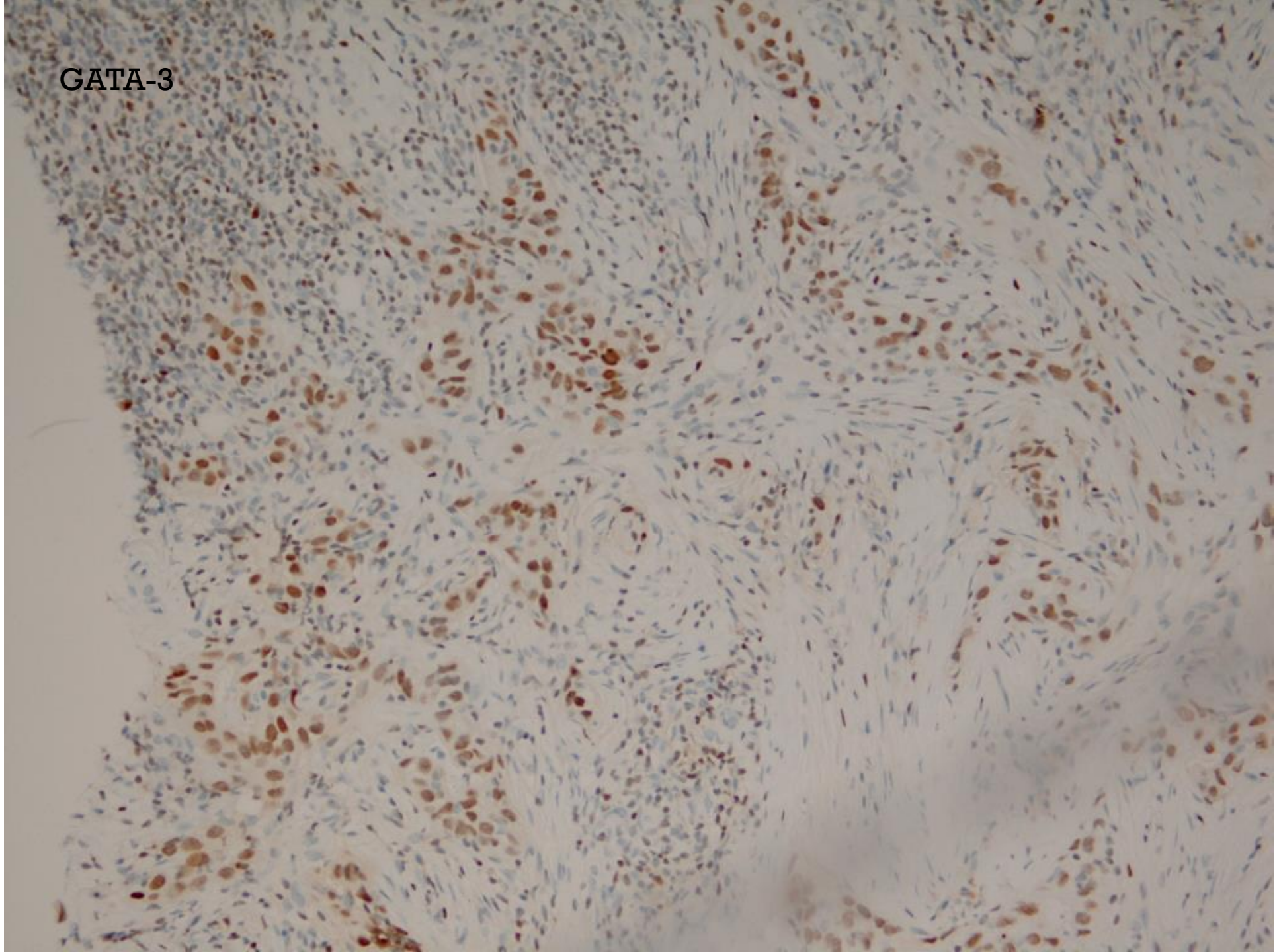


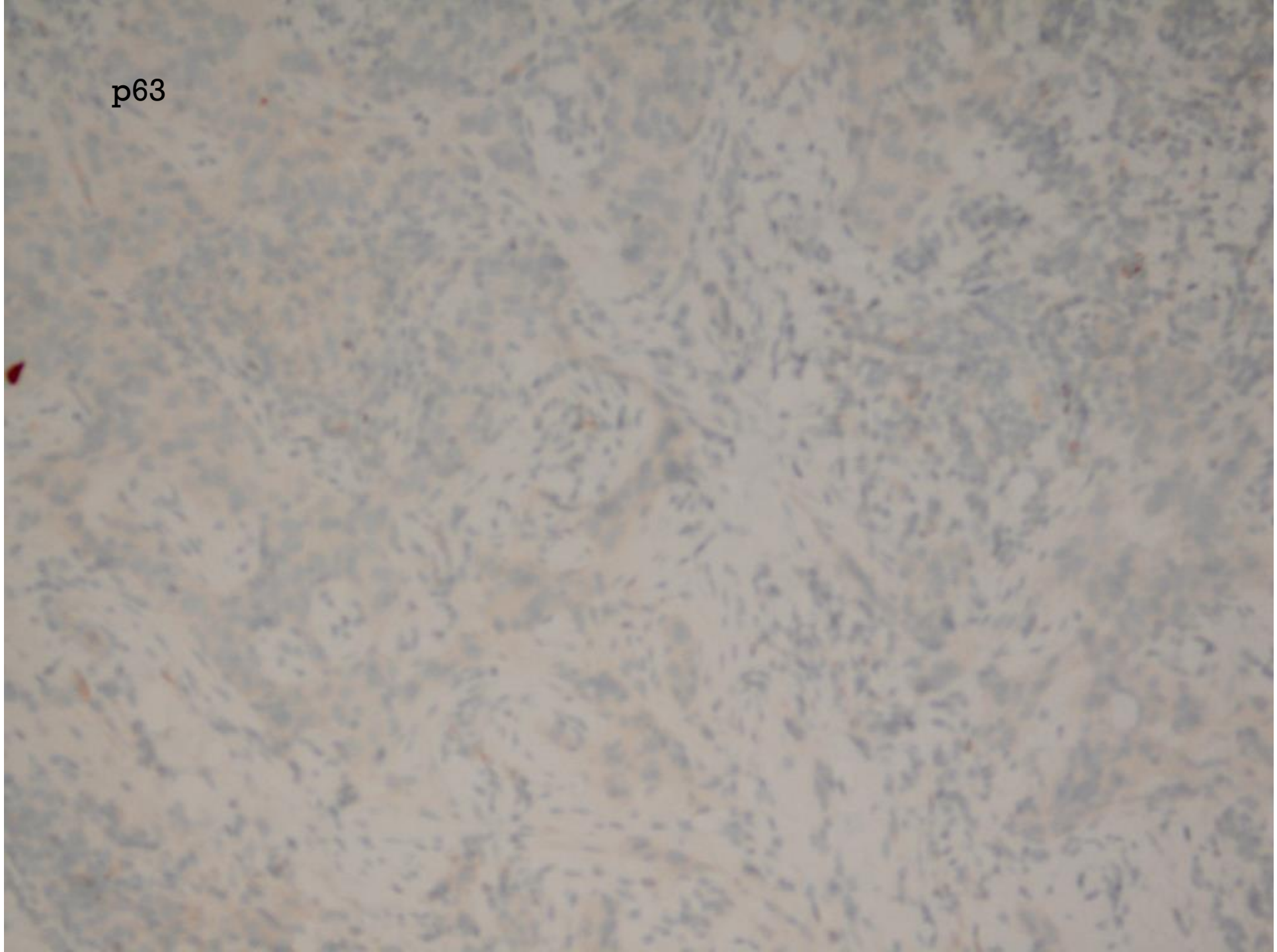


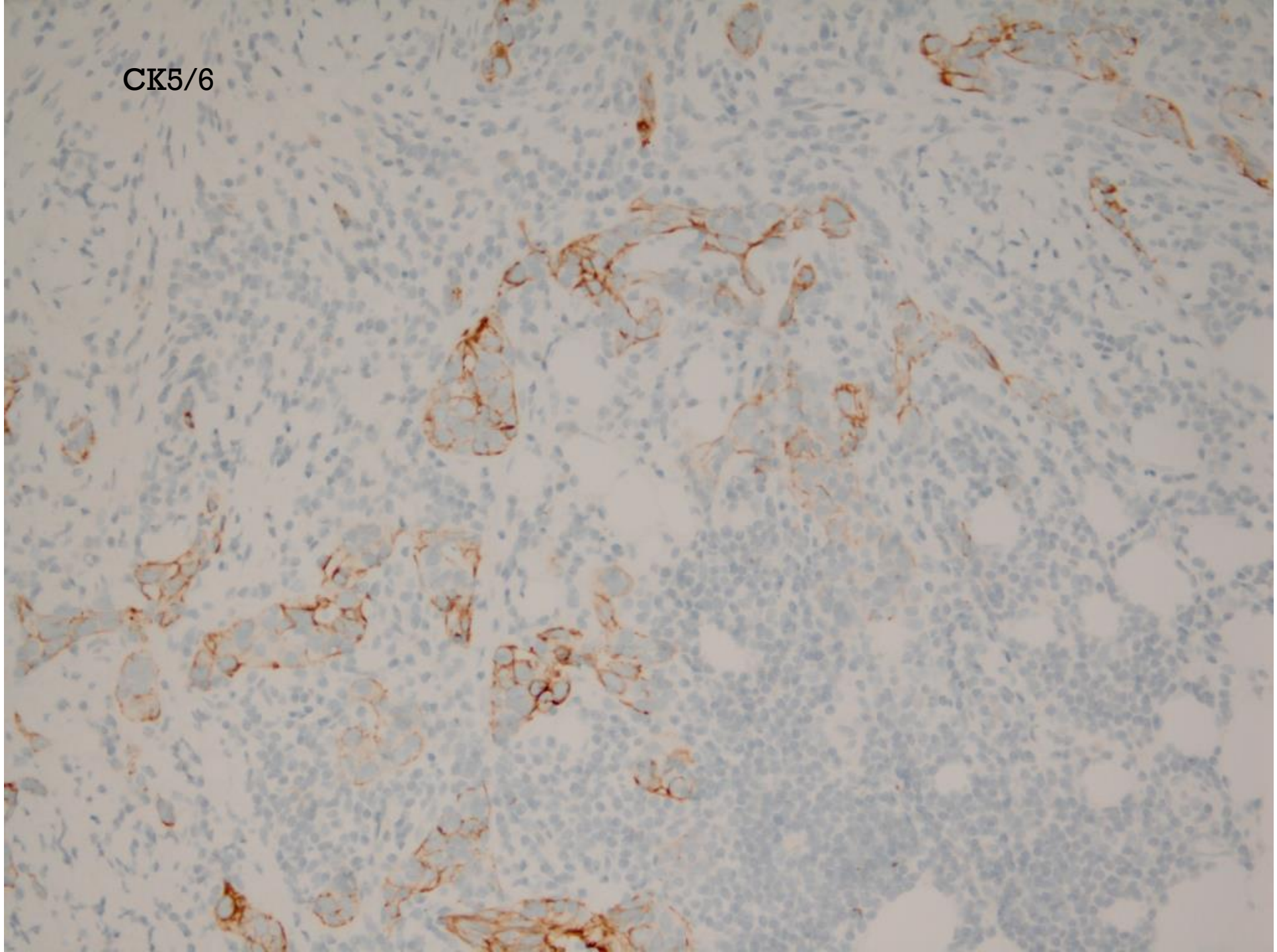



MCK
TILs hiding tumor cells


E-Cadherin


GATA-3


p63


CK5/6

Basal-Like Breast Cancer

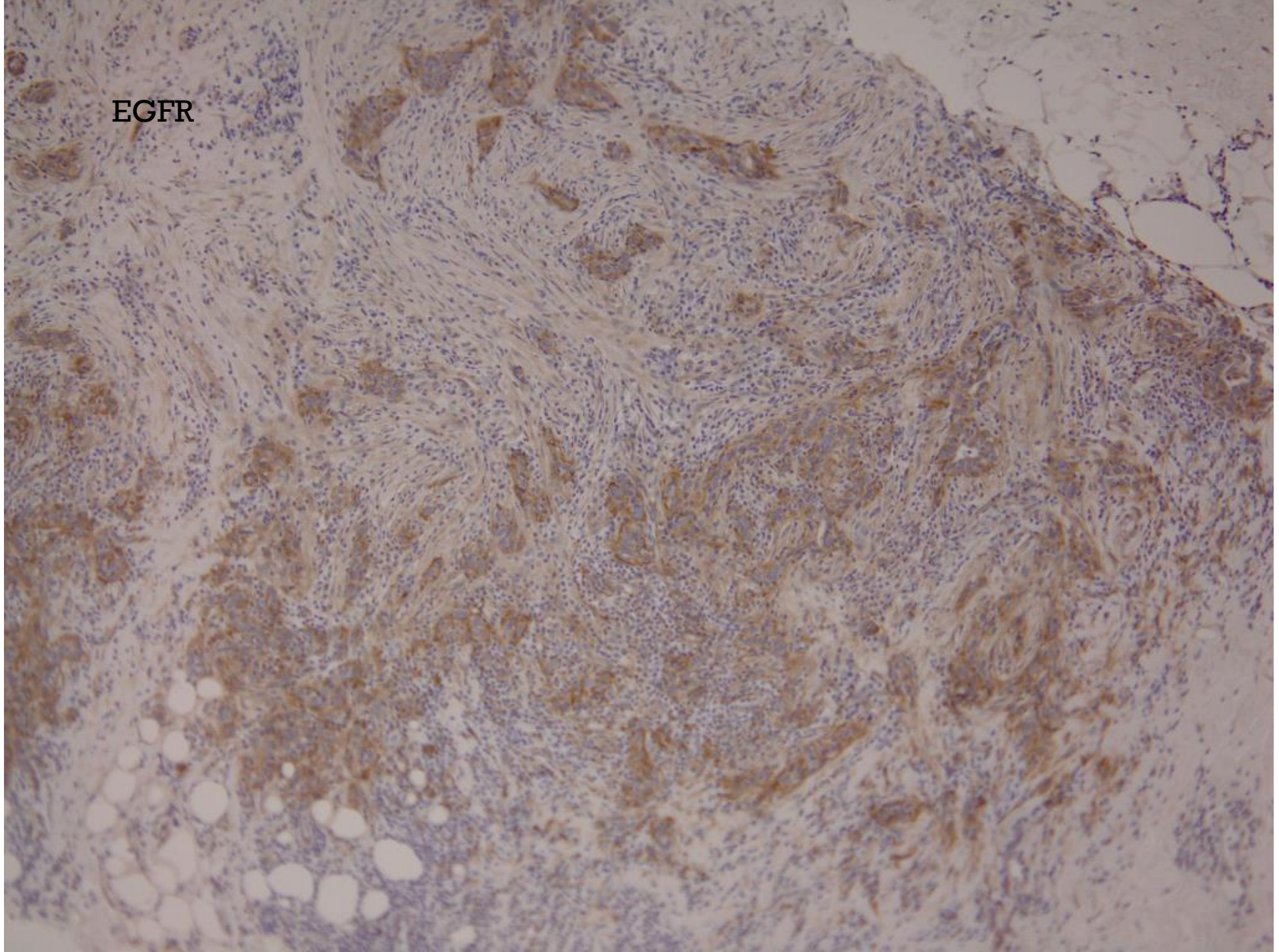
Update on Clinicopathologic, Immunohistochemical, and Molecular Features

Jennifer Leidy, MD; Ashraf Khan, MD, FRCPath; Dina Kandil, MD

• *Context.*—Basal-like breast carcinoma (BLBC) is a distinct molecular subtype of breast carcinoma identified through gene expression profiling studies.

Objective.—To provide the clinical background, the histologic profile, and the immunohistochemical profile of these tumors and discuss the current knowledge of their molecu molecu *Data* pertine *Con* sive tu makes chemo and de chemotherapy has been considered as a candidate for the treatment of BLBCs owing to their *BRCA1* phenotype. Approximately 22% of patients treated with single-agent cisplatin show pathologic complete response, which is a comparable rate to that seen with nonplatinum agents. Antiangiogenic agents have been promising, but their ered re- C. A ially sing still o be 858/ arpa.2012-0439-RA)

DIAGNOSIS Basal like breast carcinoma


EGFR

BASAL LIKE BREAST CANCERS

- Most are high grade IDC
- Brisk lymphoid infiltrate -maybe so dense that it obscures the tumor
- Marked nuclear pleomorphism
- Numerous mitosis
- Little or no associated DCIS
- Pushing borders-
- CK5/6 positive, EGFR positive
- Tp53 mutations in 82% of cases and PIK3CA in 10%
- Laminin and luminal cytokeratins (CK8, CK18 and/or CK19) positive

TNBC

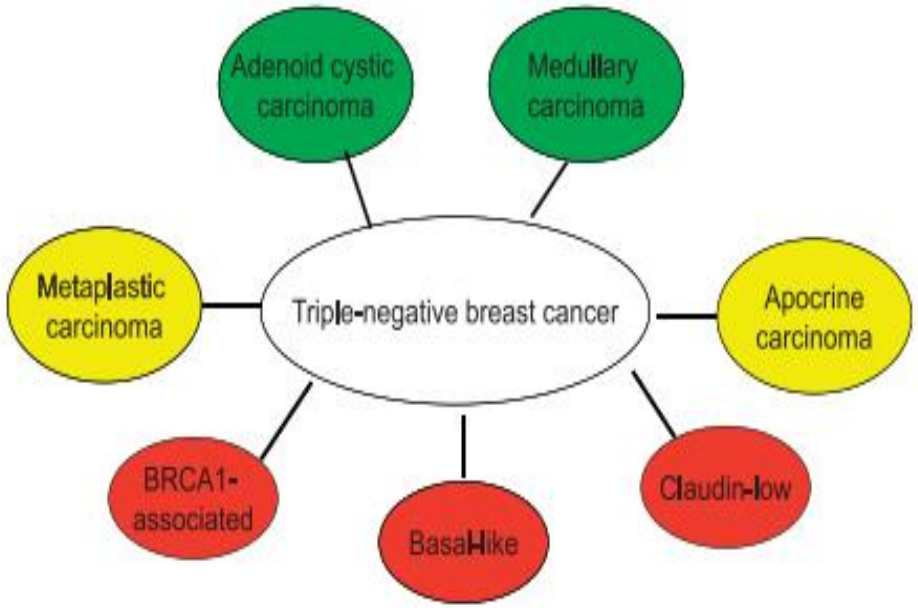


Figure 1. *Types of triple-negative breast cancer and their prognosis compared to that of similar-stage invasive ductal carcinoma. Green = favorable, yellow = comparable, and red = worse.*

- TNBC initially thought of a surrogate for BLC identified by gene expression profiling
- However, not all TNBC are basal like and not all BLC are TN

BLBC have aggressive behavior and poor prognosis

As EGFR is upregulated in most BLBCs, it represents a potential therapeutic target.

Lapatinib is a dual inhibitor of EGFR and HER2/neu tyrosine kinases.

Not all TNBC are high grade , some are low grade and have an indolent clinical course such as

Adenoid cystic carcinoma	Secretory carcinoma	Acinic cell carcinoma	Low grade metaplastic, adenosquamous, fibromatosis-like

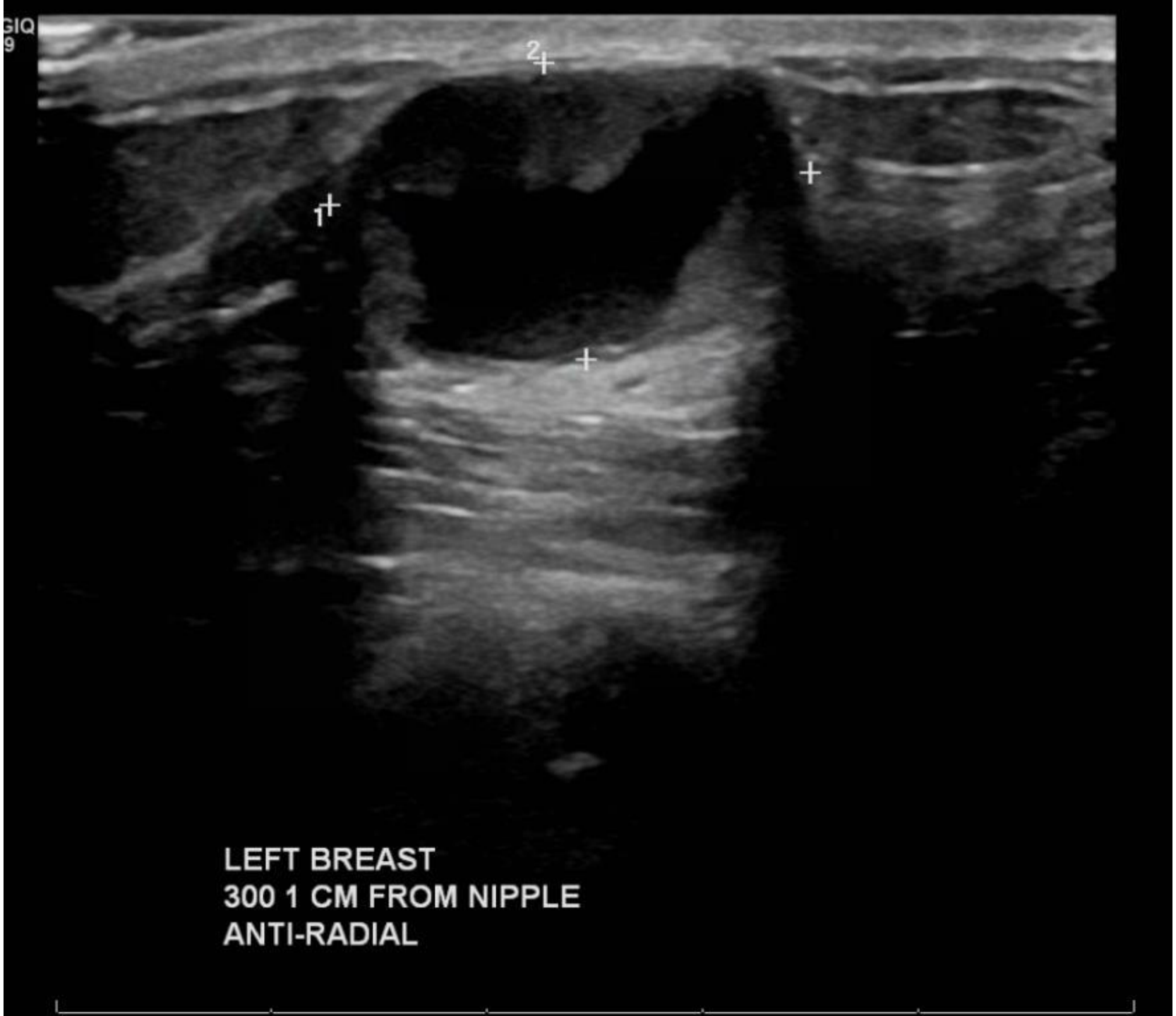
CASE4

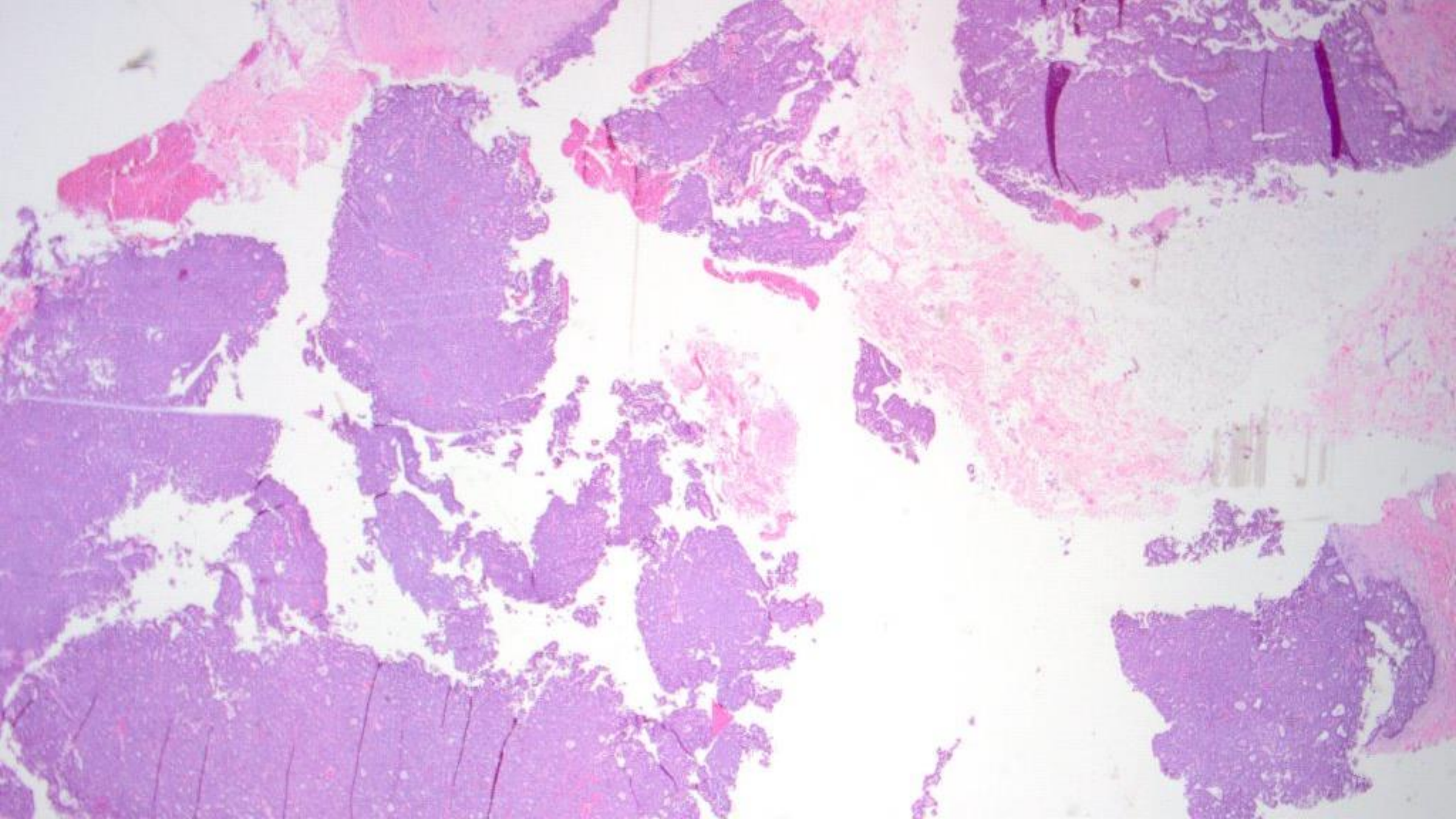
61 year old male, with history of trauma to left breast several years ago, now presents with a non-tender palpable mass

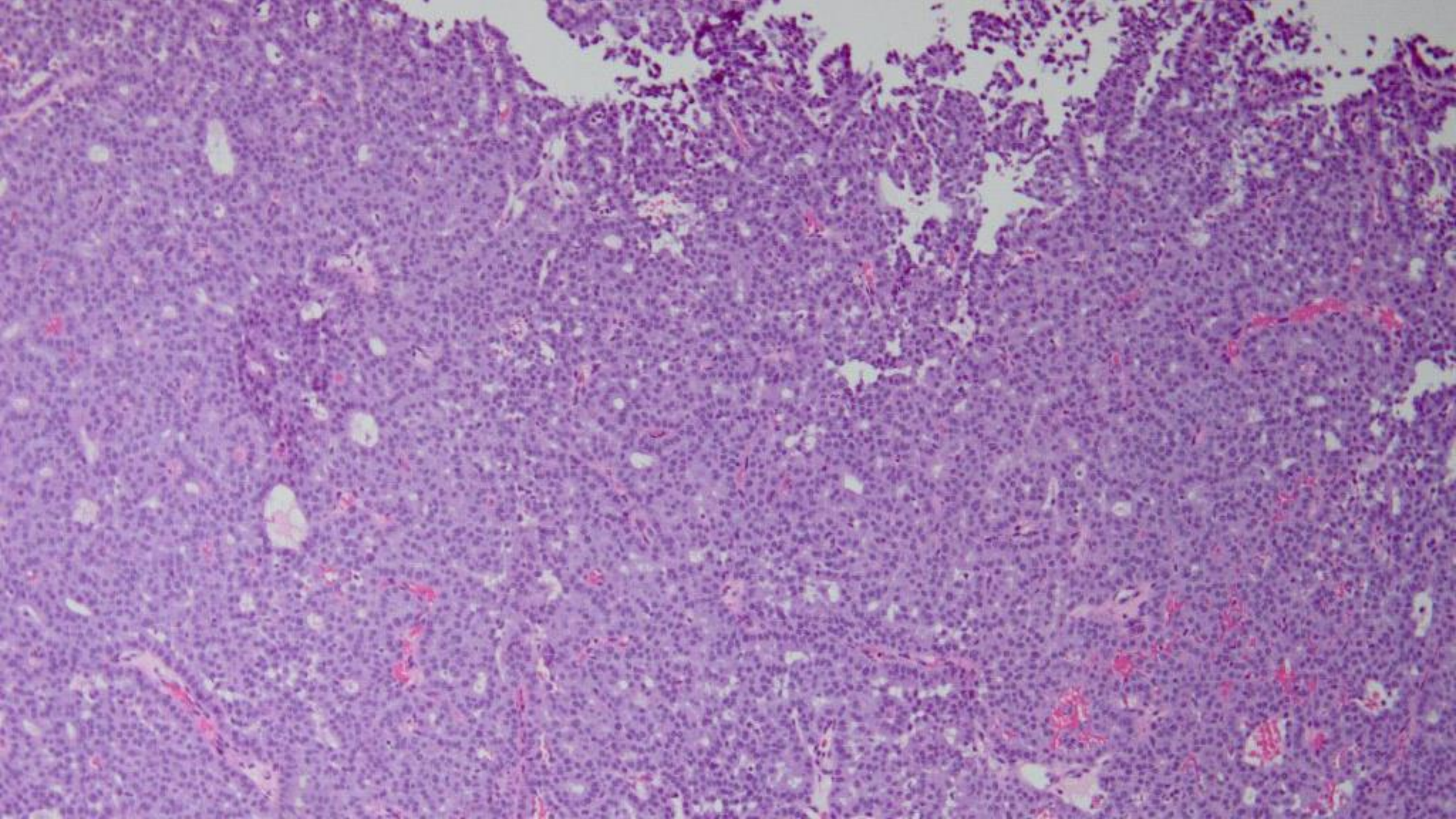
Imaging (US) shows a 3.4 cm left breast complex subareolar mass, at 3:00 with significant peripheral solid component and markedly increased vascularity. No suspicious calcifications or architectural distortion.

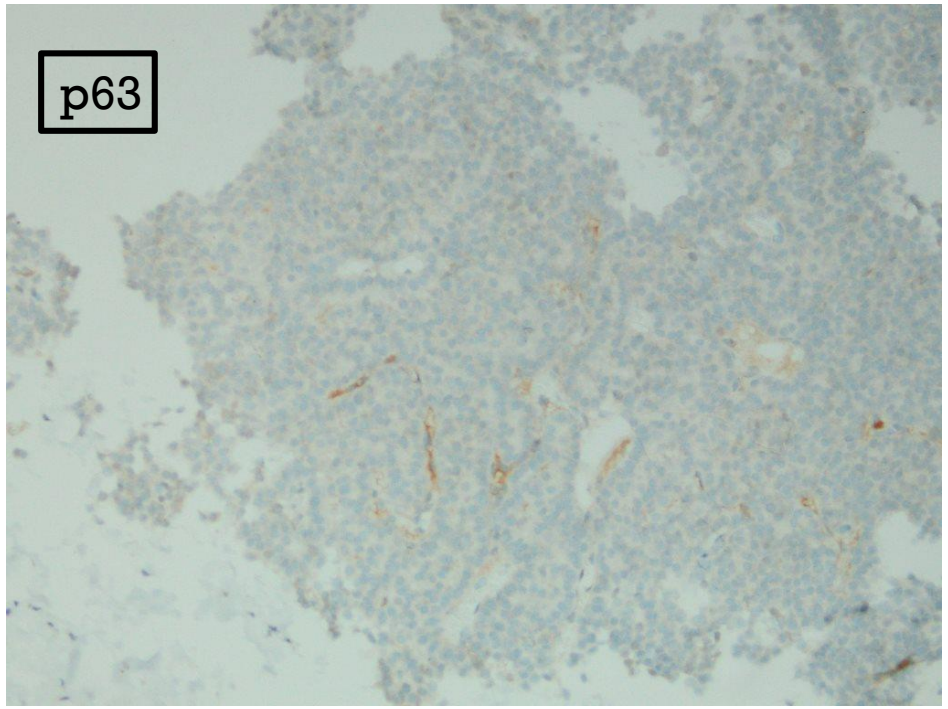
Right breast increased fibroglandular density compatible with Gynecomastia

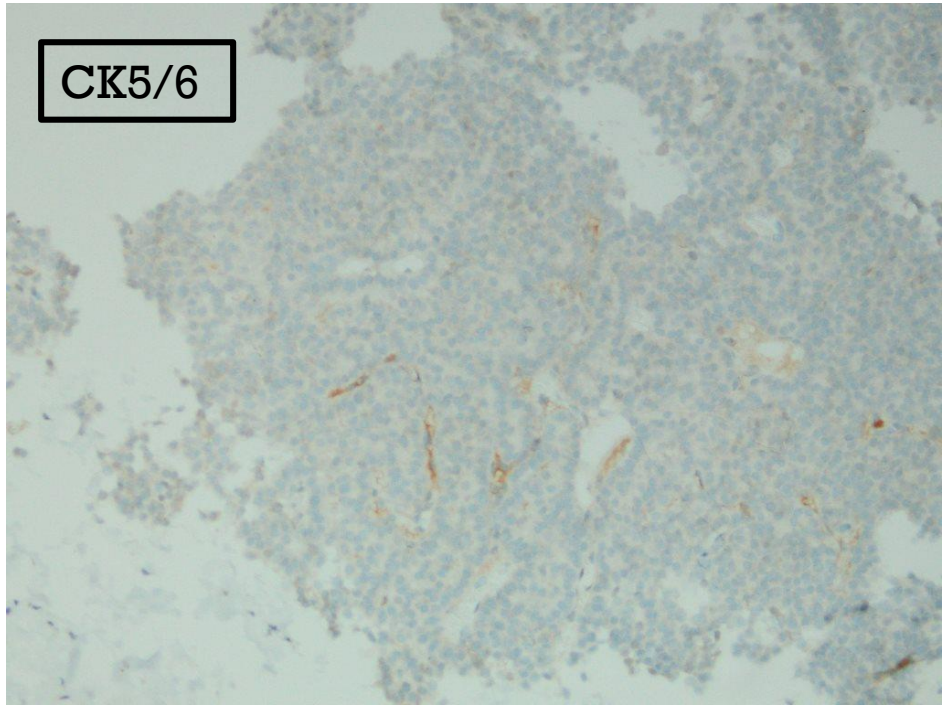
BIRADS category 4 suspicious findings(L)


LEFT BREAST
300 1 CM FROM NIPPLE
ANTI-RADIAL









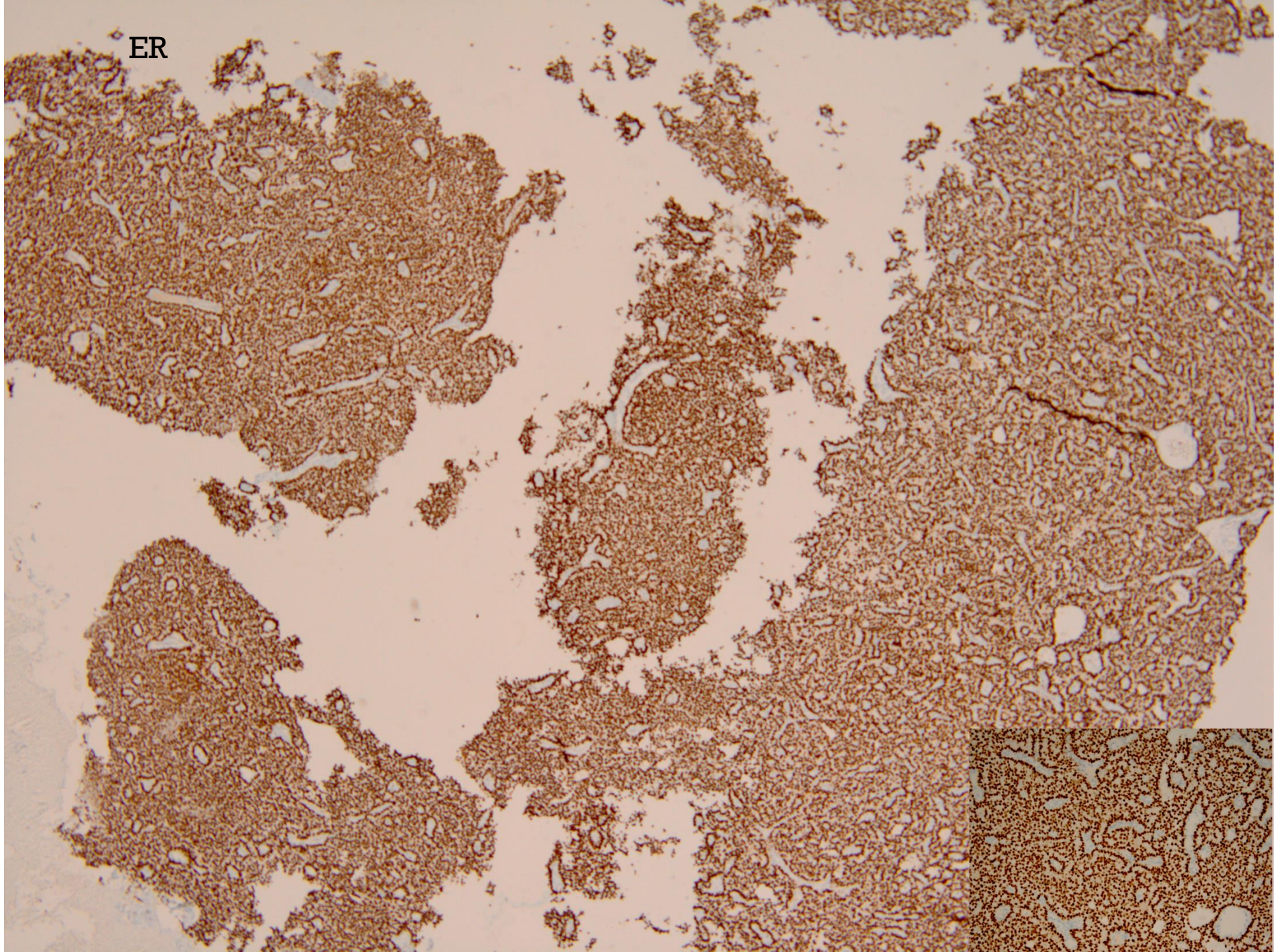
Papillary Lesion

P63

CK5/6

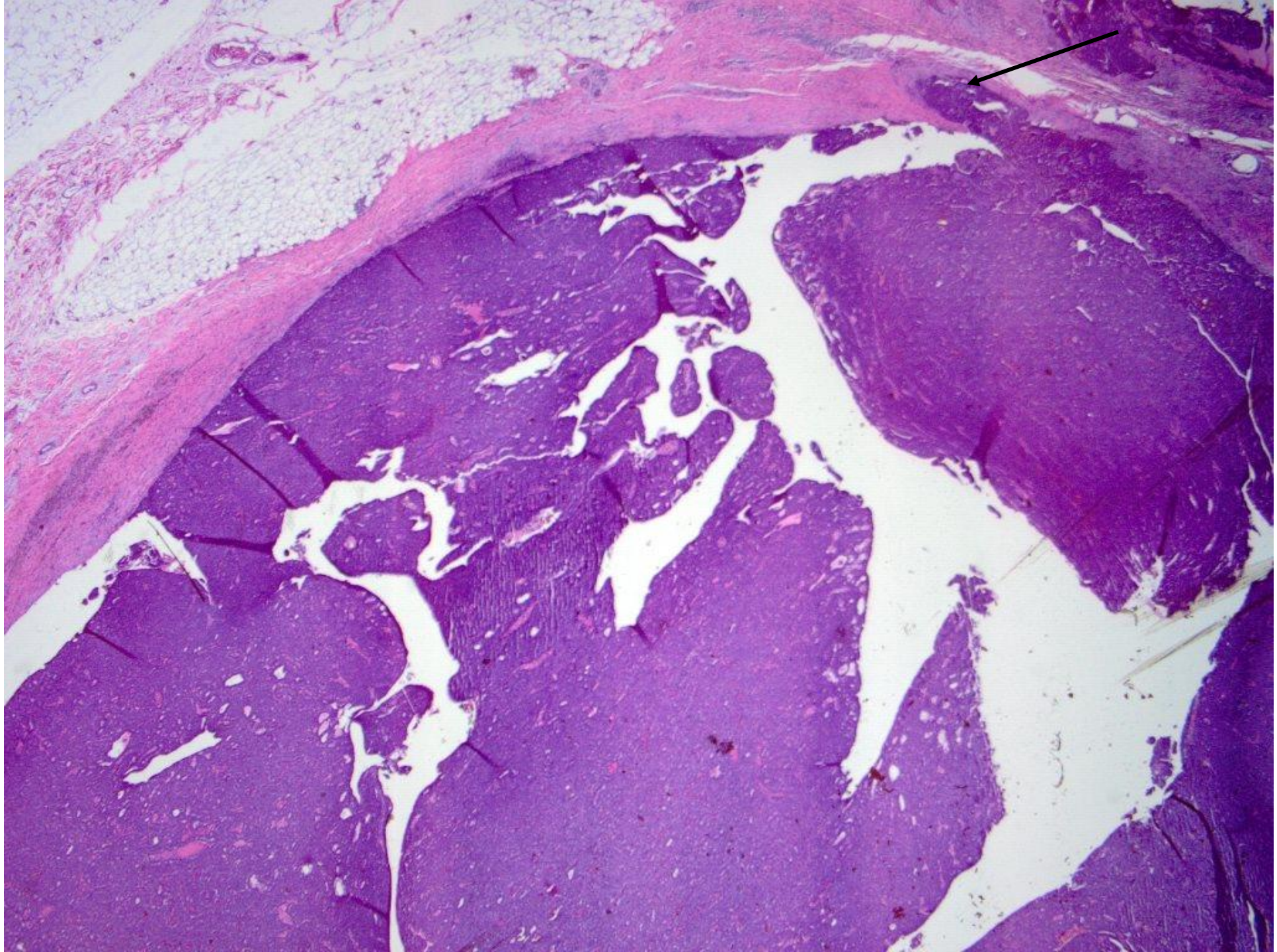
ER

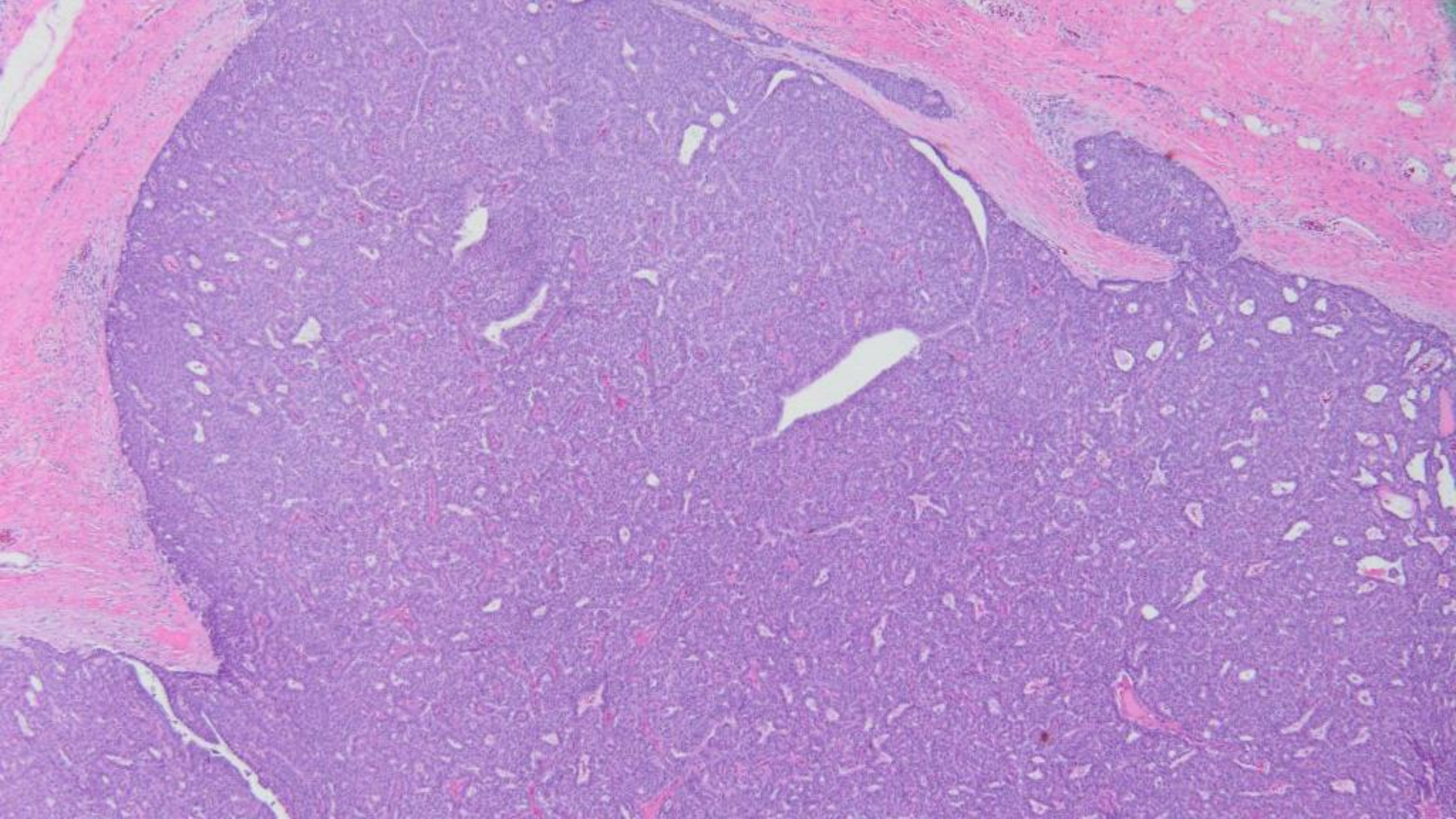
Insitu vs EPC

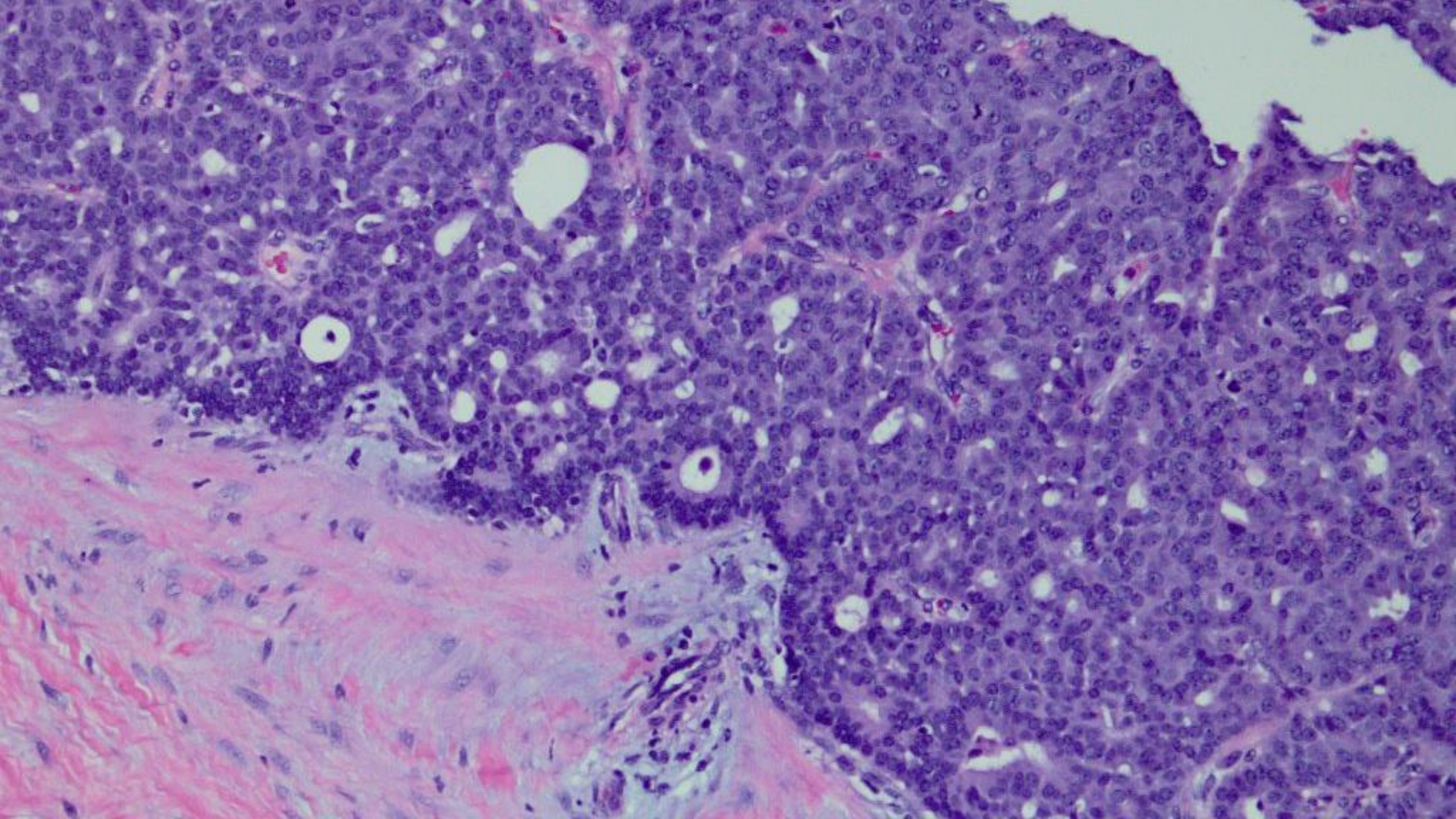

ER

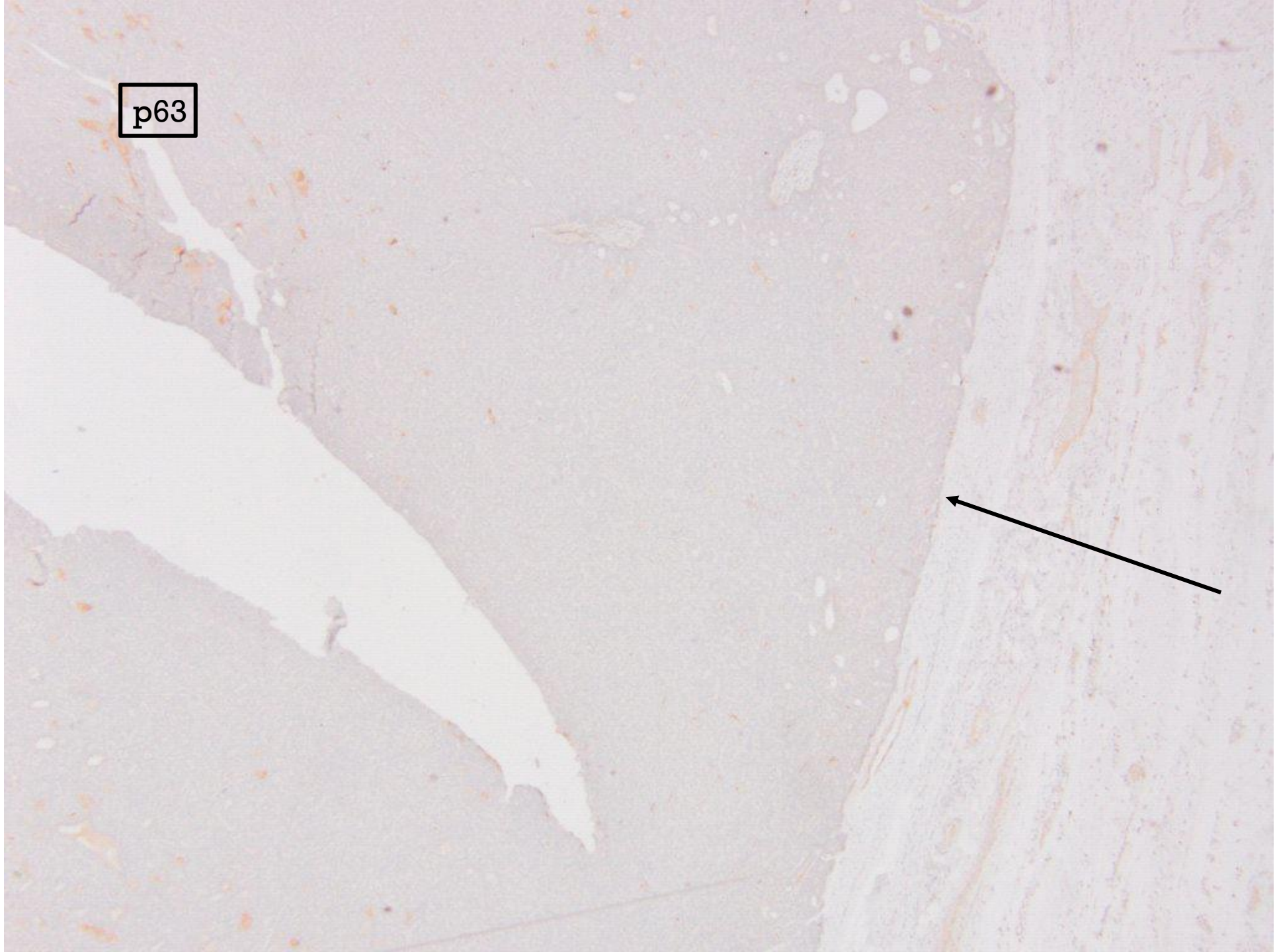
DIAGNOSIS

- Slender branching fibrovascular stalks covered by single cell population of neoplastic epithelial cells
- Papillary carcinoma
- D/D Encapsulated papillary carcinoma v/s intraductal papillary carcinoma (Papillary DCIS)to be determined in anticipated resection specimen
- Followed up by mastectomy
- Well circumscribed(2.6 x 2.5 x 2.0)cm mass





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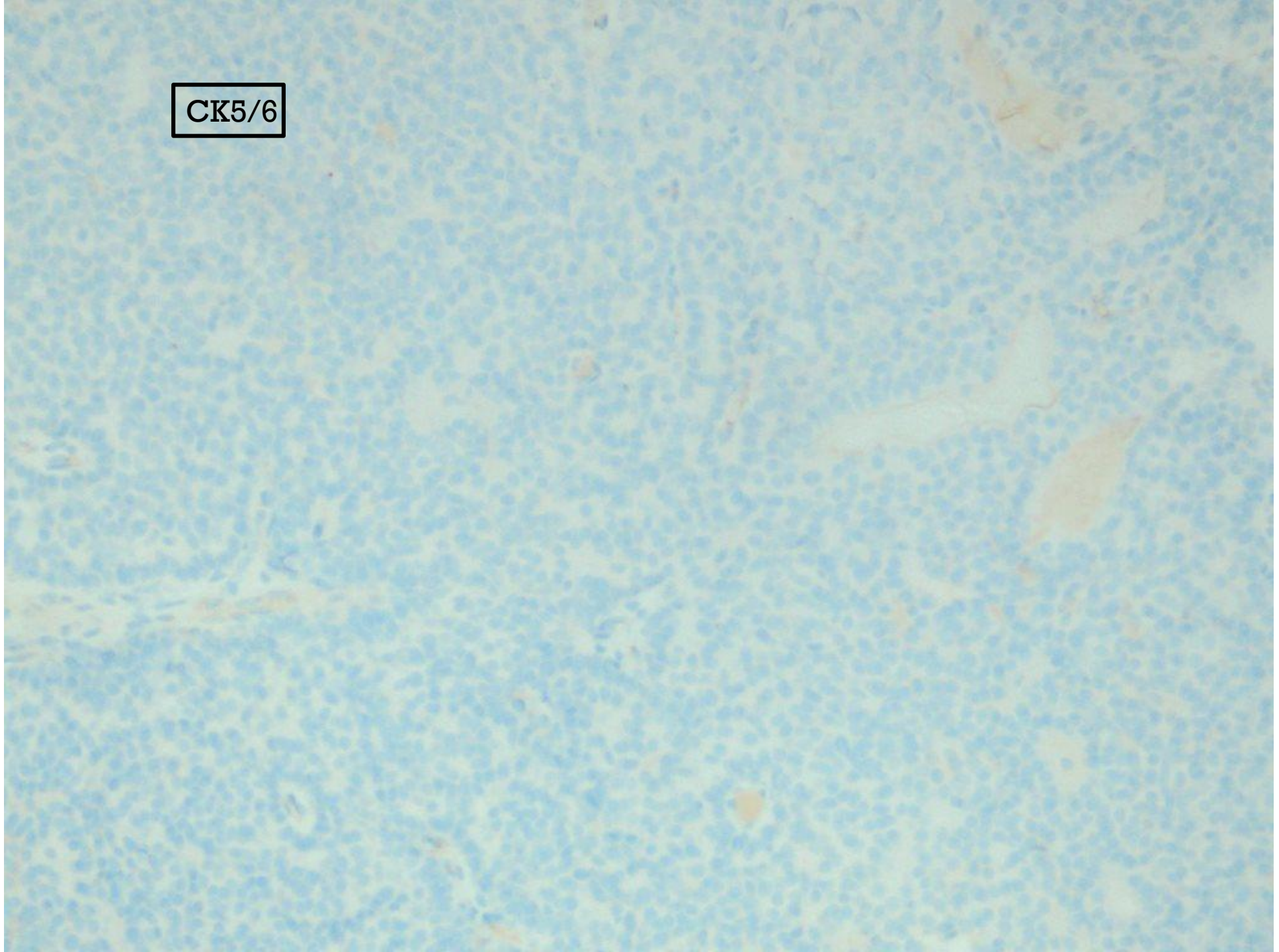

CK5/6

ENCAPSULATED PAPILLARY CARCINOMA

- Older patients(mid-60's)
- Nipple discharge
- Centrally located circumscribed, often cystic with thick fibrous capsule
- Can be multinodular
- Myoepithelial cells are absent along fibrovascular cores and around periphery of lesion

ENCAPSULATED PAPILLARY CARCINOMA

- Debate whether this should be considered as in situ or invasive carcinoma
- In older studies women presented with metastases
- In newer studies outcome is close to that of DCIS
- Often associated with conventional DCIS(50%;risk factor for local recurrence)

EPC AND AJCC STAGING

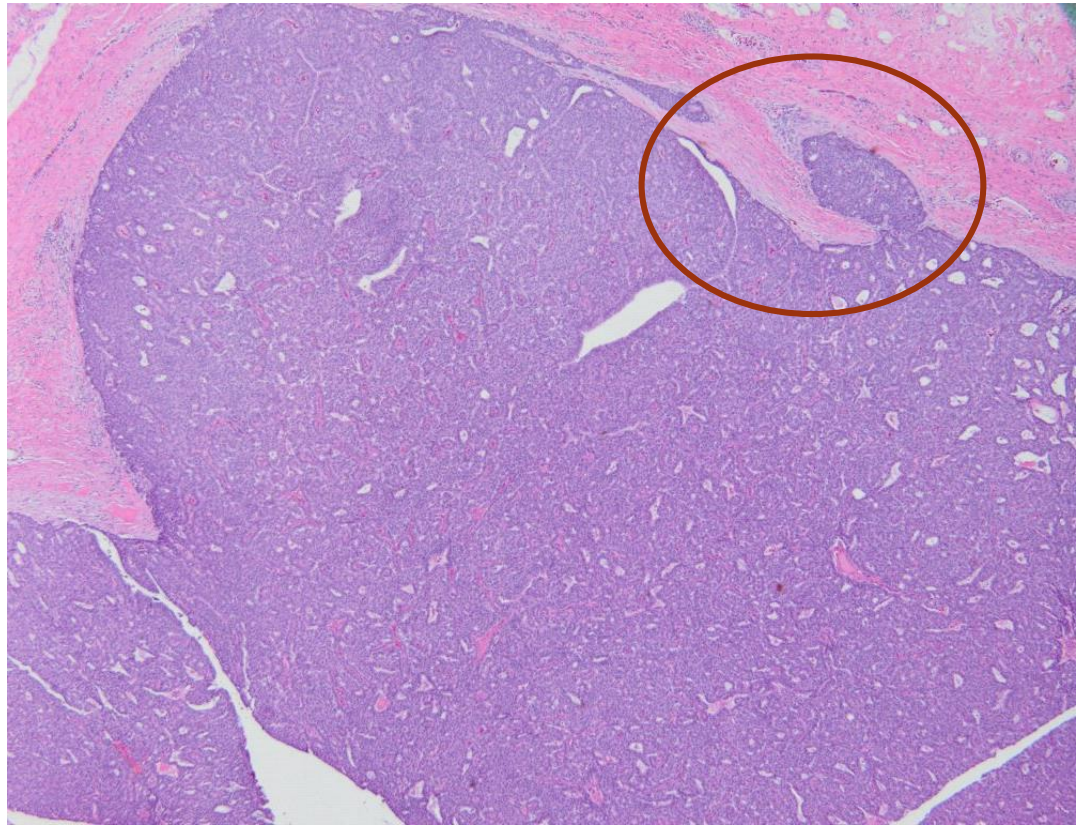
AJCC stage - there is currently no universal agreement as to what T stage should be assigned to these tumors.

WHO working group recommends EPC that lack areas of conventional IDC should be staged and managed as in situ lesions-Tis

Stage any frankly invasive carcinoma present beyond capsule according to the size of invasive component

Note: there is a high-grade variant of EPC with high incidence of mets(10%) that is staged as invasive carcinoma

DIAGNOSIS



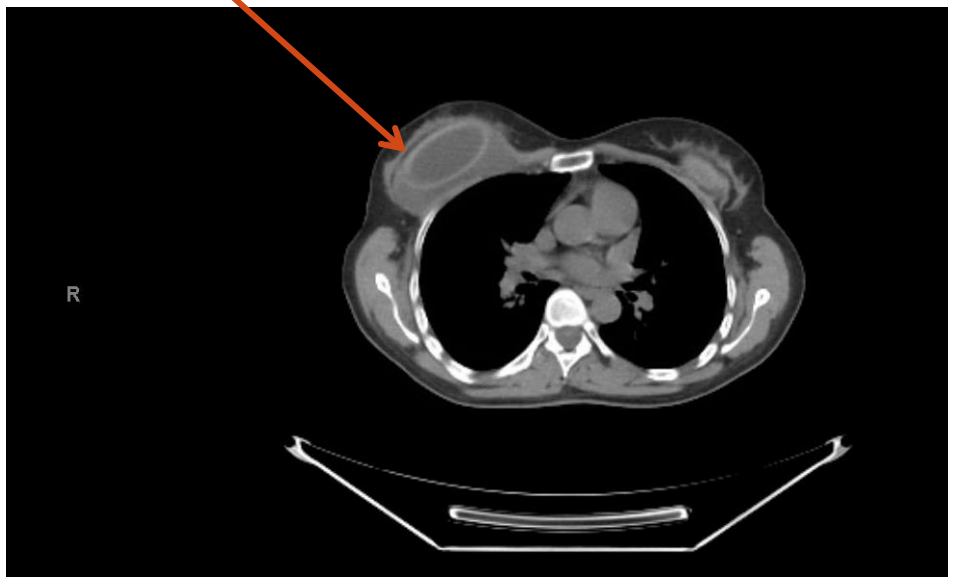
- Encapsulated papillary carcinoma, with capsular invasion, T1a N0MX(foci of transcapsular invasion was 2-3mm)
- ER +
- PR+
- Her 2 – (0)
- Ki67-20%

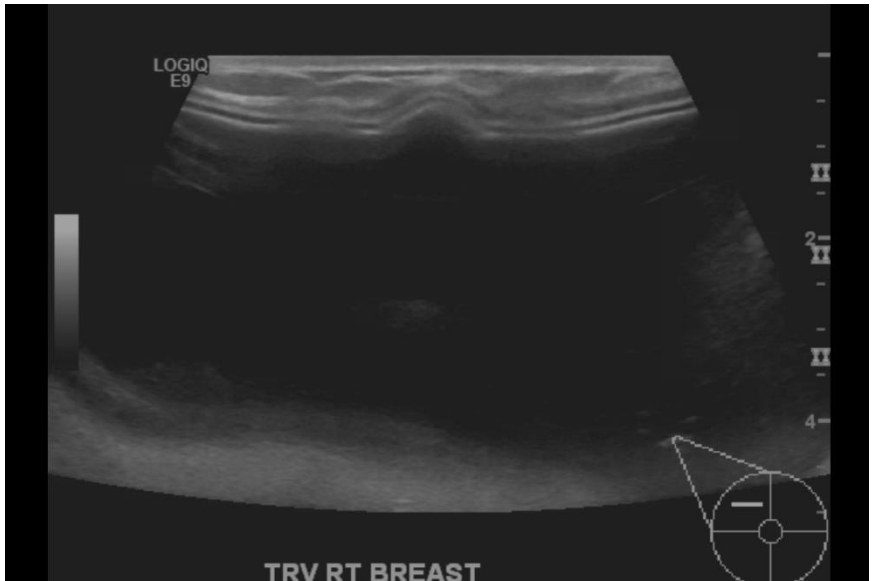
41-year-old women with breast implant since 2003 now with right peri implant fluid collection

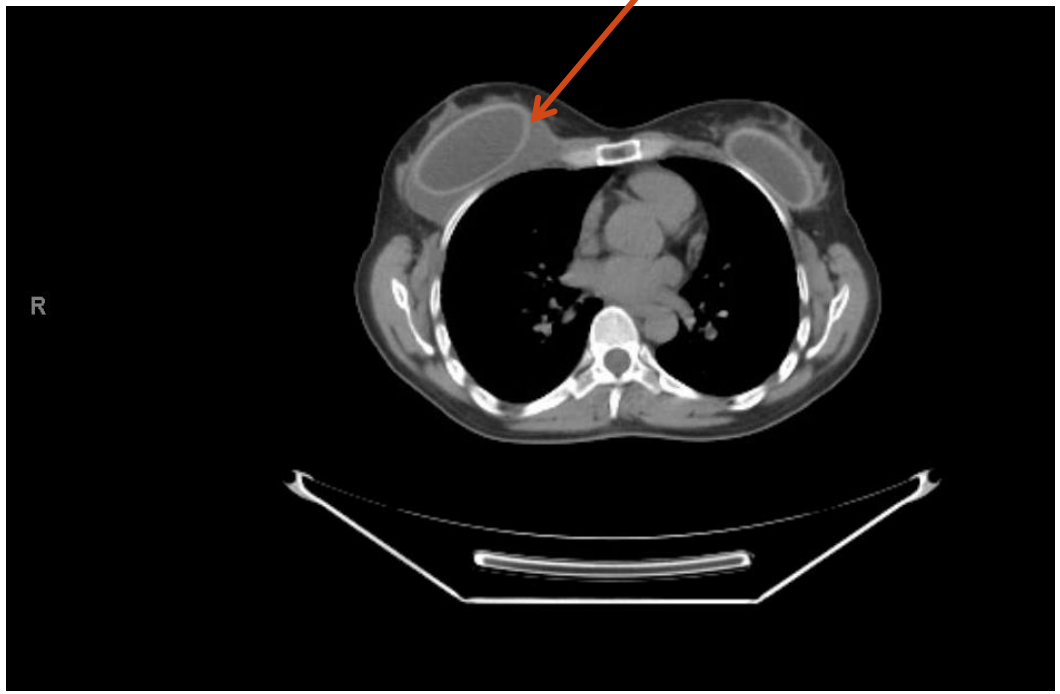
Fluid was aspirated and sent to cytology.

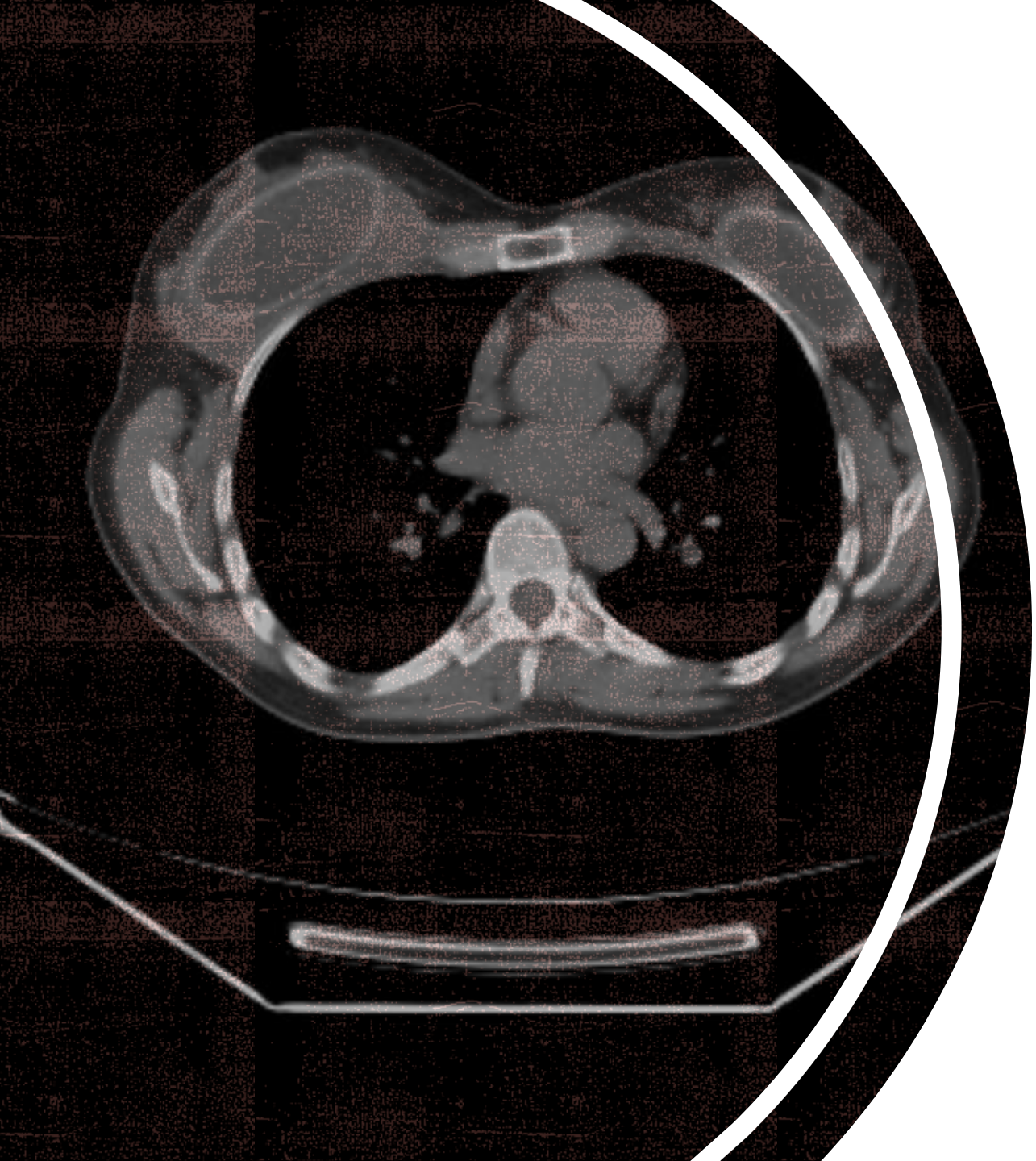
No solid mass seen adjacent to the implant

IMAGING



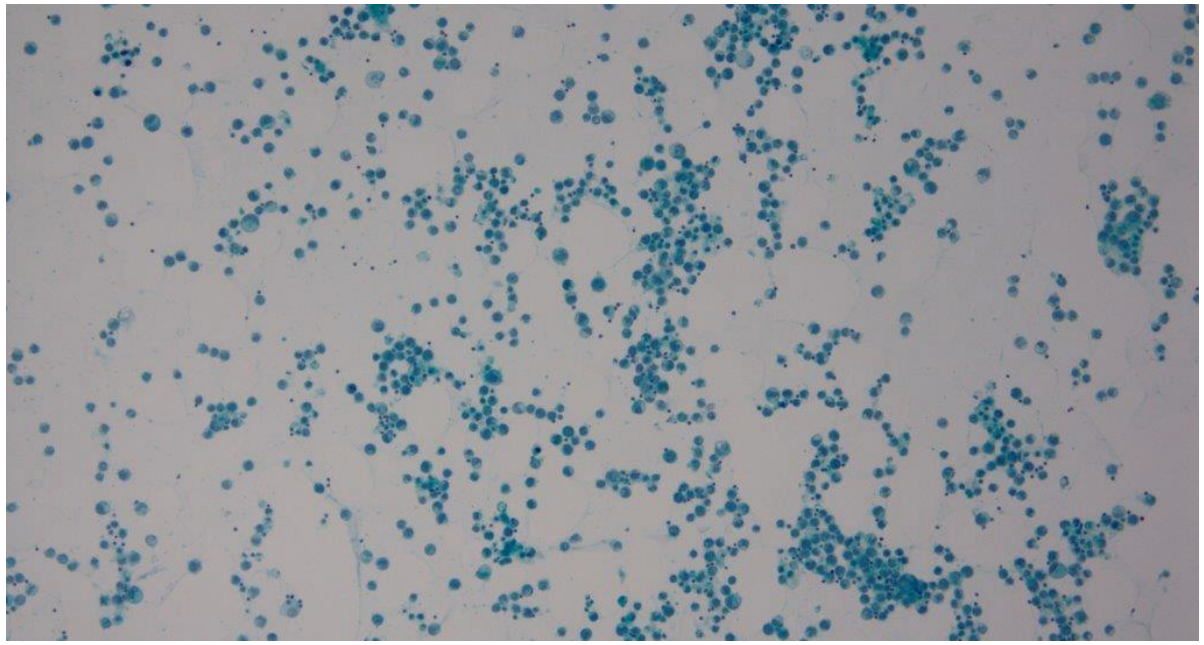


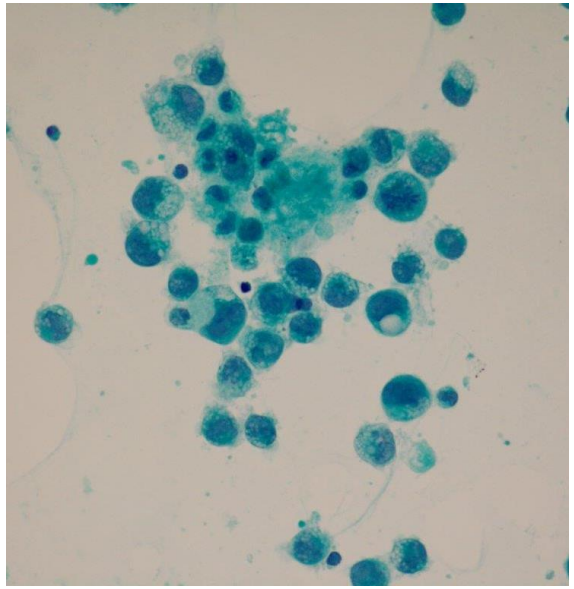


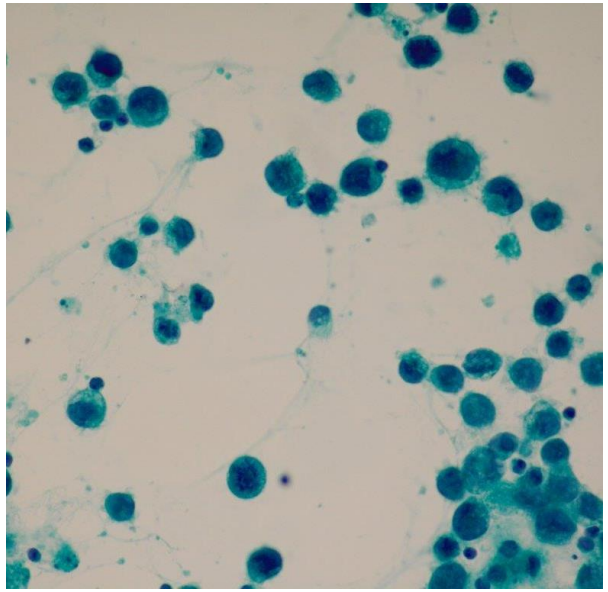


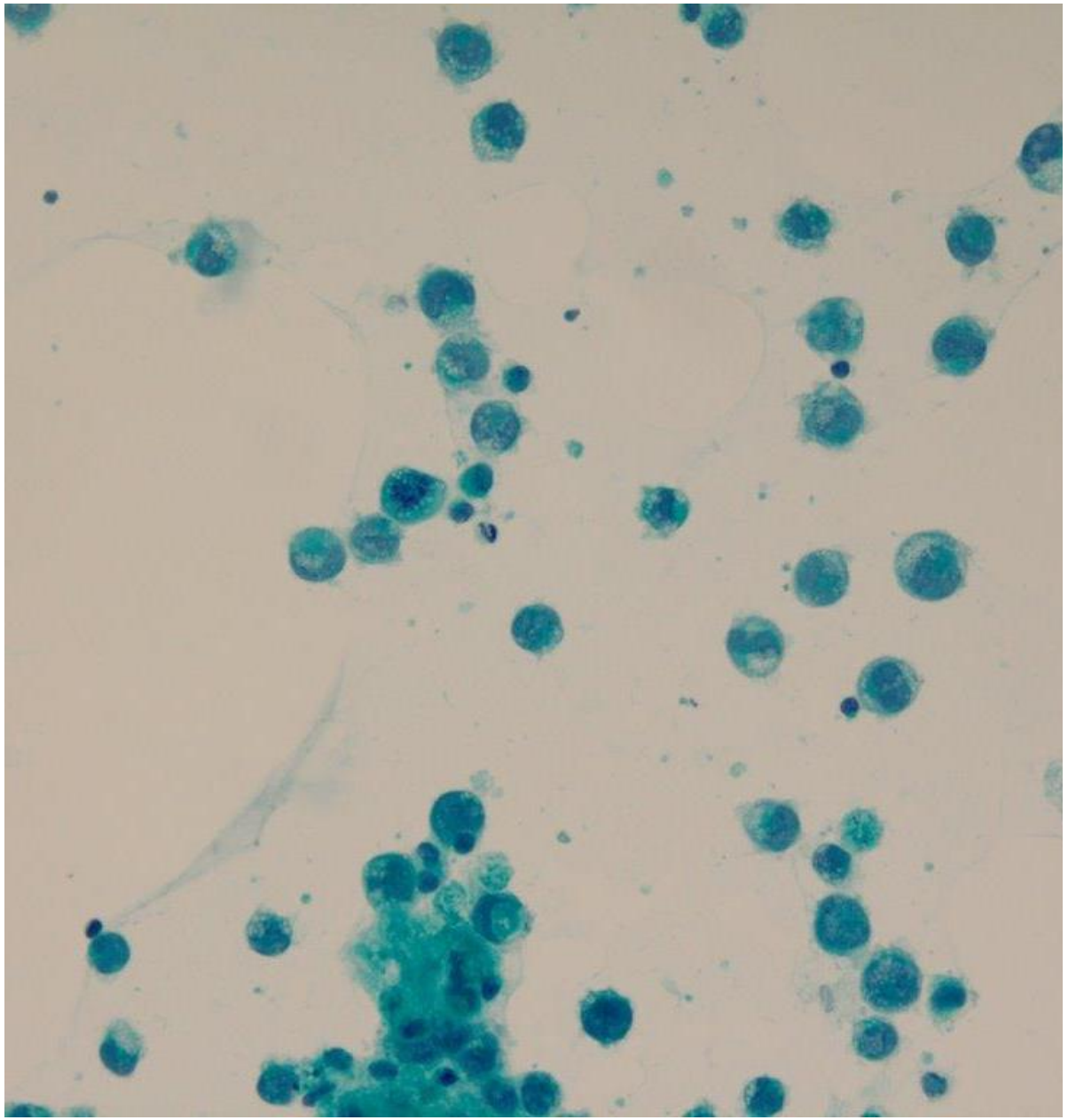
CYTOLOGY SAMPLE

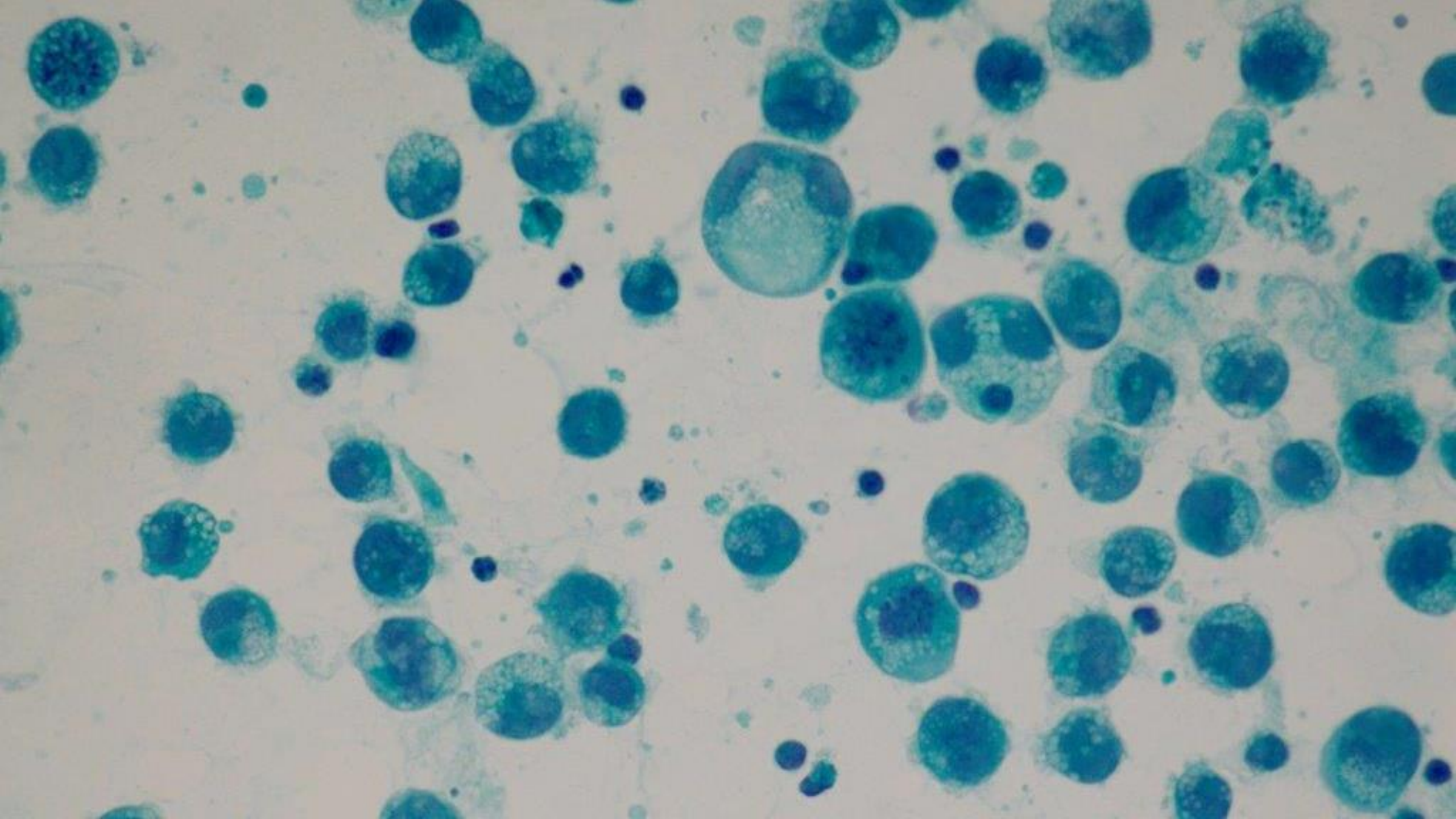
Peri implant fluid

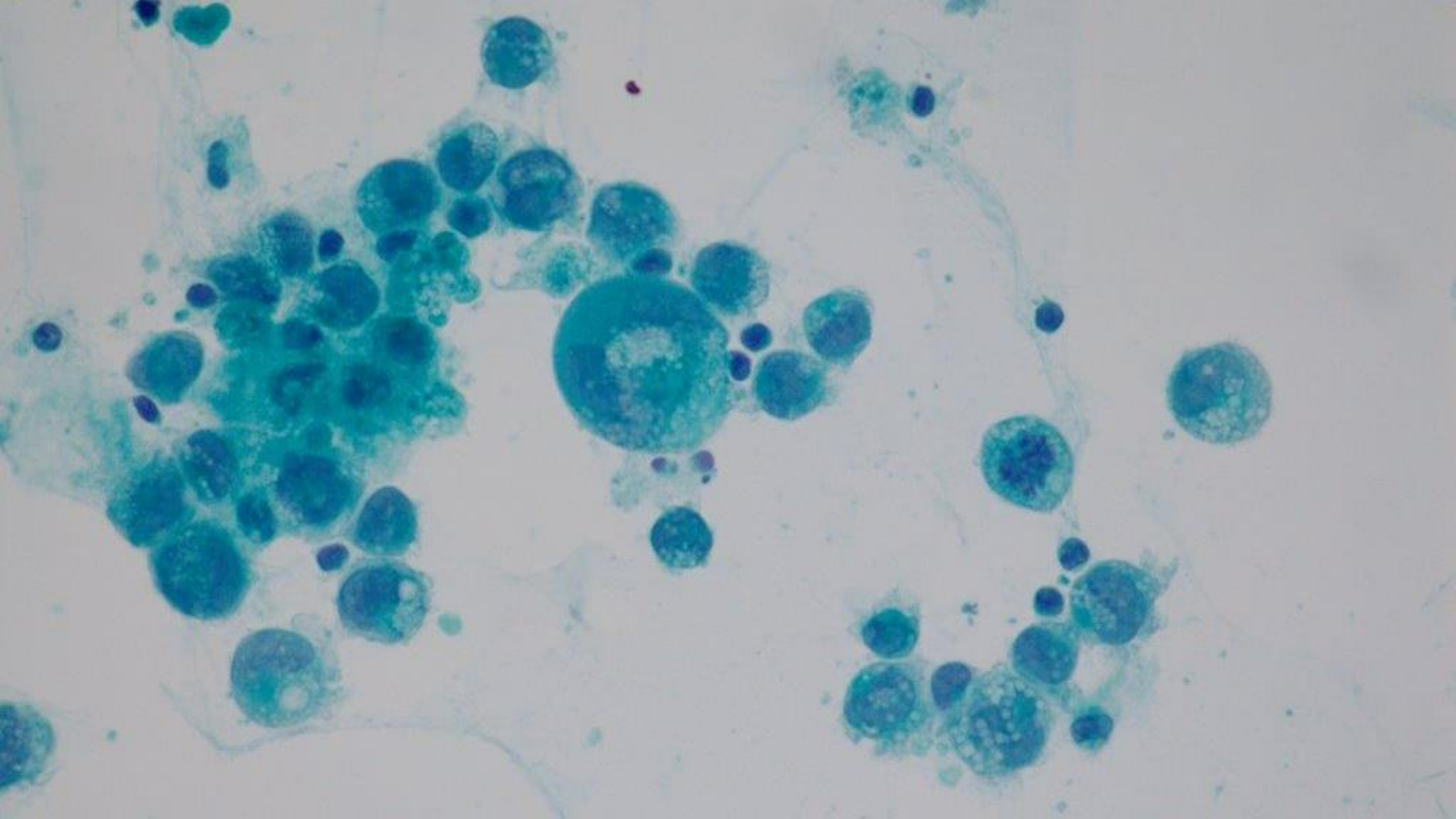


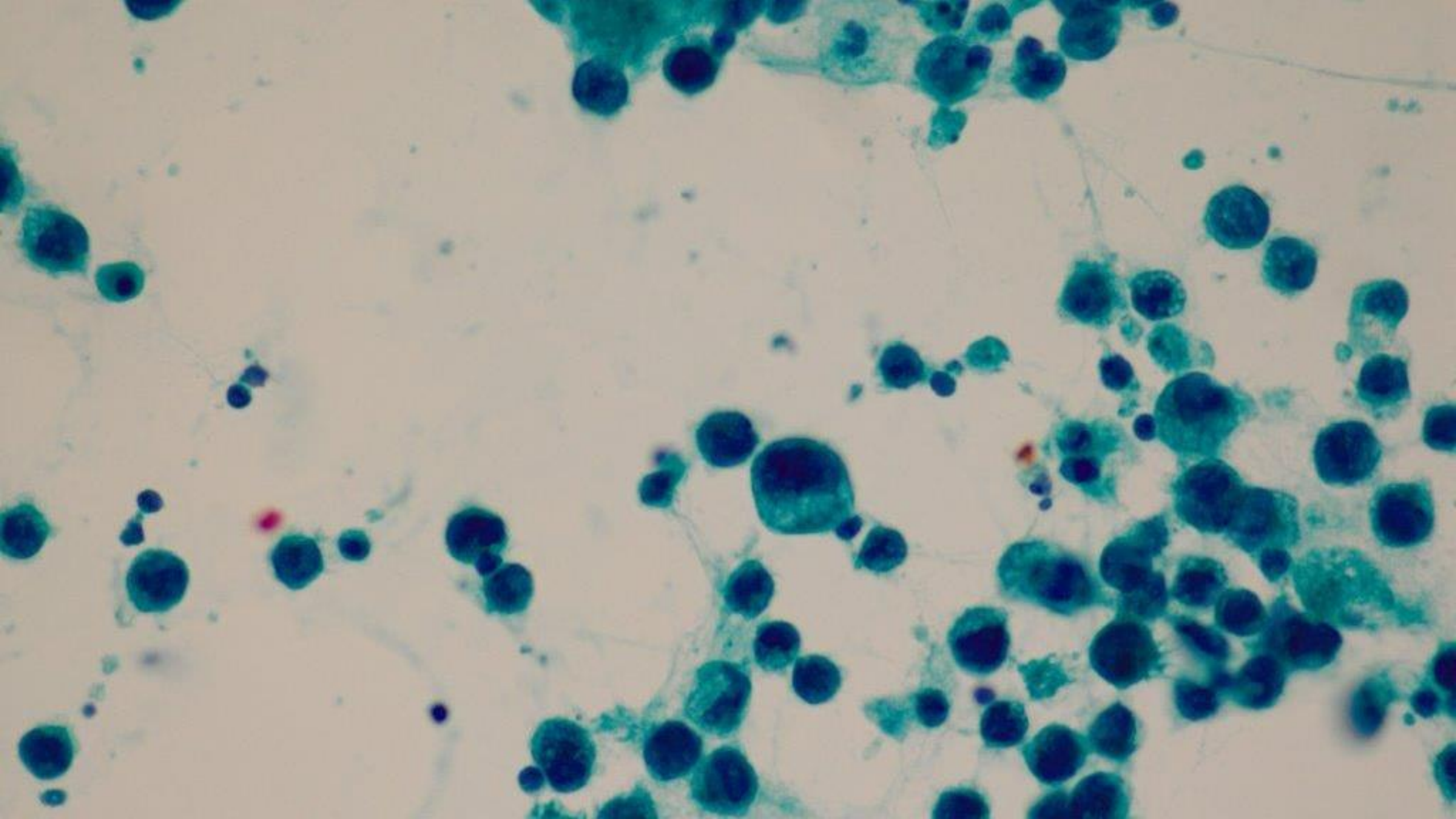


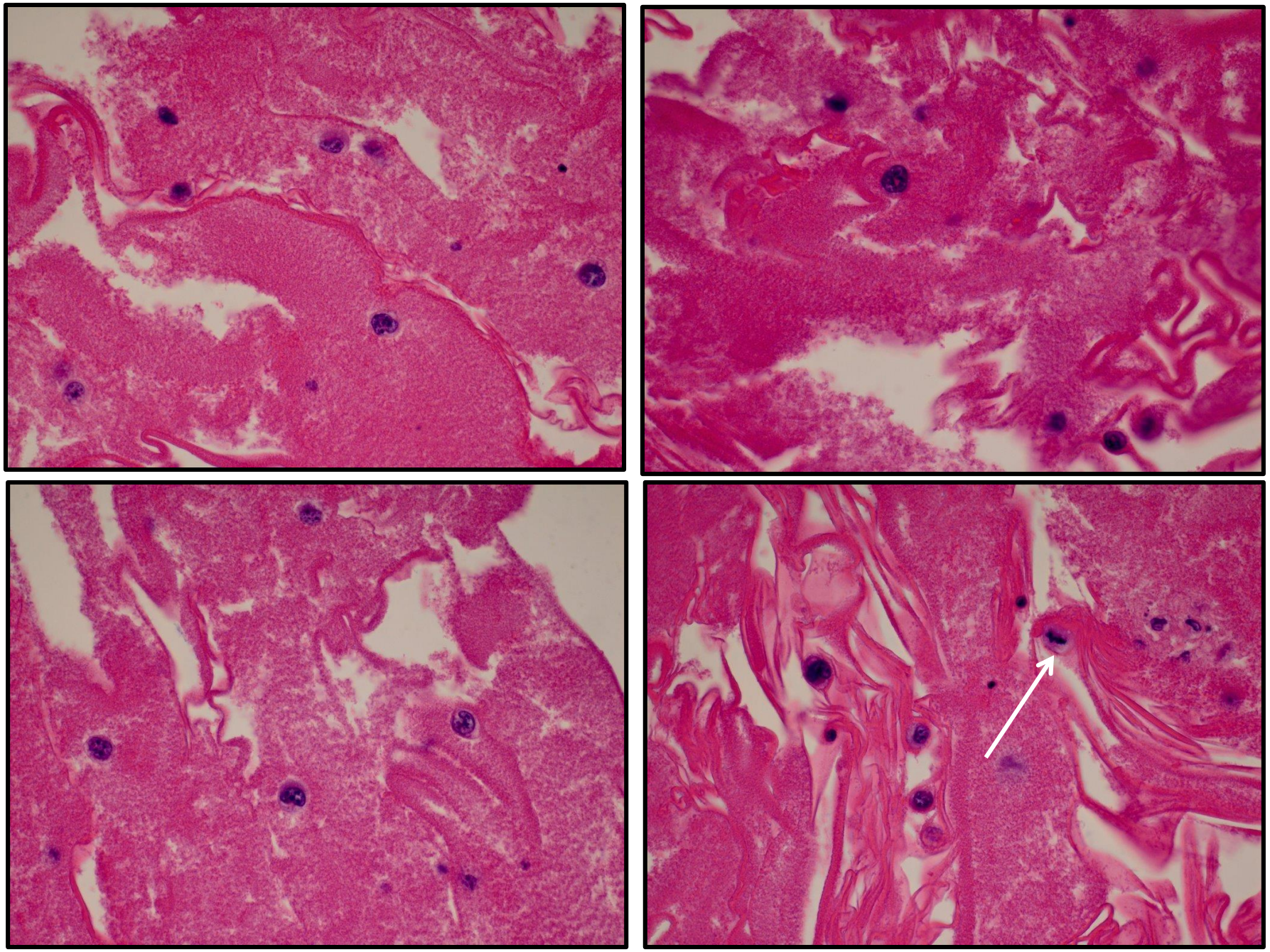


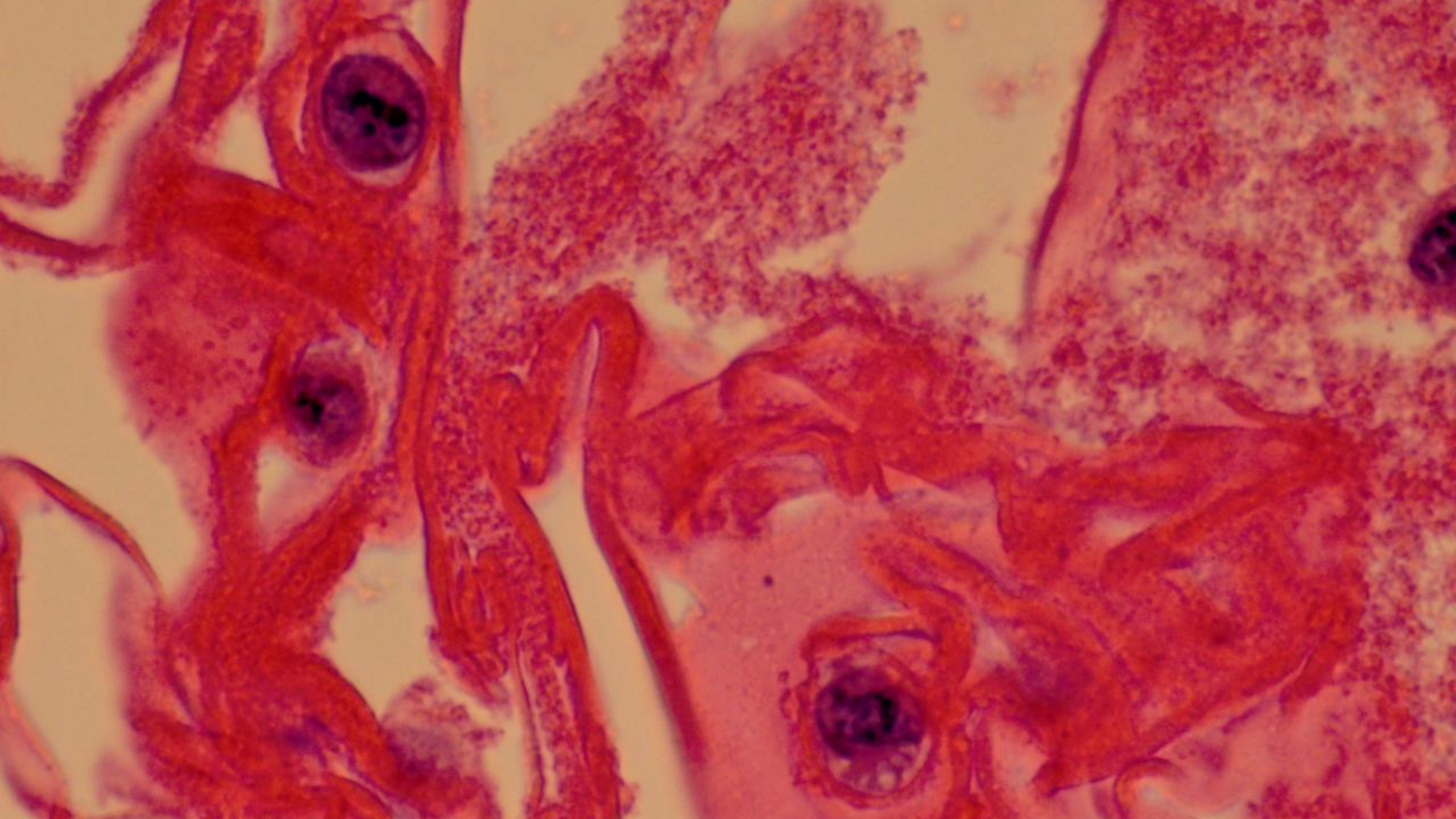












Very pleomorphic cells

Breast implant associated ALCL

Pleomorphic lobular carcinoma

CD30 positive, CD4 positive

AE1/AE3 negative

GATA-3 negative

Other differential diagnosis

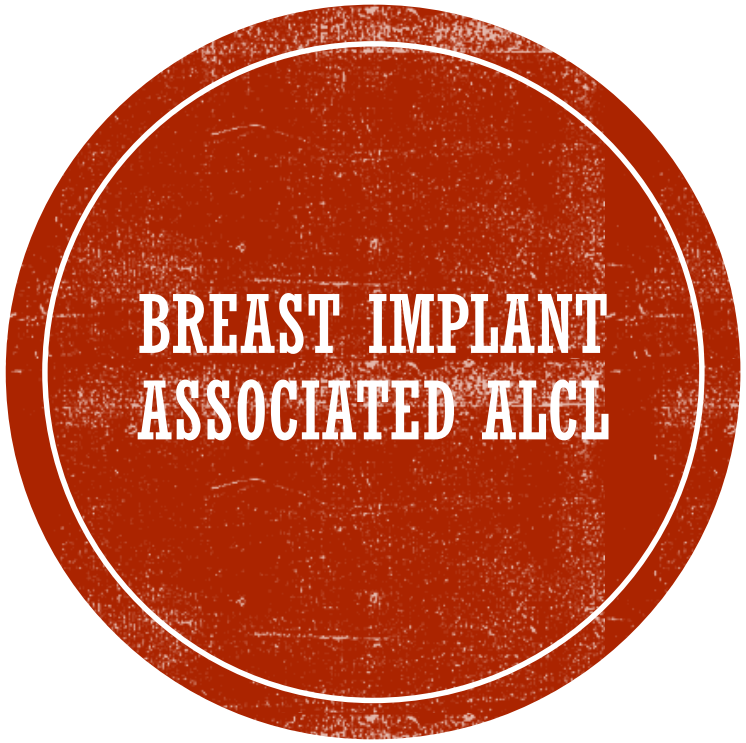
- Inflammation
- Recurrent carcinoma, check history

BREAST IMPLANT ASSOCIATED ALCL

- Large pleomorphic cells in seroma fluid or implant capsule
- T-cell or null lineage (CD4 +)
- CD30 +
- ALK-negative
- Absence of genetic abnormalities at ALK(2q23)
- Greater yield in cytology

BREAST IMPLANT ASSOCIATED ALCL

- Is a T-cell lymphoma with morphology and IHC similar to Alk-negative ALCL
- Late onset seroma, capsular contraction, mass
- Median age 52 years(28-87 range)
- Median time to development ~10 years(1-39 years)
- Significantly associated with textured implants



Relative risk of BIA-ALCL in patients with textured implants is 67 x higher than in general population

But absolute risk is extremely low

- 1 in 35,000 at age 50
- 1 in 1200 at age 70
- 1 in 750 at age 75

BI-ALCL TREATMENT AND COURSE

- If confined to capsule treated conservatively :Removal of implant
- Surgery is cornerstone of therapy
- Prognosis: Most have indolent clinical course (98.0 % 5-year survival), and almost 100% if pt. presenting with effusion only
- Patients presenting with mass have worse outcome- (chemotherapy) separate entity T-cell lymphoma
- Must exclude a systemic ALCL(may account for some cases with more aggressive course)
- 20% have LNI- when BIA-ALCL extends beyond capsule(survival reduced to 75%)

STAGING

- T1: tumor confined to the luminal side of capsule (35.6%)
- T2: Superficial infiltration of capsule (12.6%)
- T3: Deep infiltration of capsule, often accompanied by chronic inflammatory cell infiltration (16.1%)
- T4: Through the capsule (34.5%)
- Lymph node involvement and distant metastasis may occur

BI-ALCL POSSIBLE ETIOLOGIES

- Chronic T-cell stimulation either due to:
  - Micromotion/friction of textured implants
- Response to bacterial biofilm
  - Ralstonia sp. implicated -Gram negative, non-fermenting bacillus found in soil and water
  - Similarities with H.Pylori
  - Interestingly macrotextured implants were developed in 1980's to improve integration of implant with host tissue, widespread use began in 1990's and first reported case of BIA-ALCL was in 1996, with more being reported in 2000's

BI-ALCL

- Upregulation of genes involved in cell motility and myeloid cell differentiation and 80% have monoclonal rearrangements of the TRG or TRB genes
- Activation of CD4 memory T-cells
- Are consistently negative for translocation involving Alk, DUSP22 gene , and TP63 found in ALCL

BREAST IMPLANT ASSOCIATED ALCL

- In 2016 Aesthetic Breast meeting BIA-ALCL consensus conference report
- 20 experts from multiple disciplines agreed upon:
  - Late seroma >1 year after implant should be evaluated
  - Fluid to be sent for culture, flow cytometry, cytology and cell block evaluation
  - Surgical removal of implant and capsule
  - Clinical f/u every 6 months for 5 years with USG for 2 years

Human Pathology
Volume 67, September 2017, Pages 94-100

Original contribution

Breast implant capsule–associated squamous cell carcinoma: a report of 2 cases ☆

Daniel L. Olsen MD, Gary L. Keeney MD, Beiyun Chen MD, PhD, Daniel W. Visscher MD, Jodi M. Carter MD, PhD

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https://doi.org/10.1016/j.humpath.2017.07.011

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Highlights

- Two cases of invasive squamous cell carcinoma arising in epithelialized breast implant capsules are described.
- In both cases, the patients had long-standing breast implants and presented with acute unilateral breast pain and enlargement.
- In contrast to the sole prior report with outcome data, in this series, the tumors behaved aggressively and were associated with poor clinical outcomes.

THE UPDATED WHO CLASSIFICATION OF HEMATOLOGICAL DISEASE

- BIA-ALCL is listed as a new provisional entity distinguished from other ALK-ALCL
- Non-invasive disease with excellent prognosis

FOR OUR PATIENT-

- Multidisciplinary consensus recommendations include
  - Follow up on mammogram and breast MRI, bilateral capsulectomy

Abstract

The International Academy of Cytology (IAC) gathered together a group of cytopathologists expert in breast cytology who, working with clinicians expert in breast diagnostics and management, have developed the IAC Yokohama System for Reporting Breast Fine-Needle Aspiration Biopsy (FNAB) Cytology. The project was initiated with the first cytopathology group meeting in Yokohama at the 2016 International Congress of Cytology. This IAC Yokohama System defines five categories for reporting breast cytology, each with a clear descriptive term for the category, a definition, a risk of malignancy (ROM) and a suggested management algorithm. The key diagnostic cytopathology features of each of the lesions within each category will be presented more fully in a subsequent atlas. The System emphasizes that the crucial requirements for diagnostic breast FNAB cytology are a high standard for the performance of the FNAB and for the making of direct smears, and well-trained experienced cytopathologists to interpret the material. The performance indicators of breast FNAB, including specificity and sensitivity, negative predictive value, positive predictive value and ROM stated in this article have been derived from the recent literature. The current practice of breast FNAB has evolved with the increasing use of ultrasound guidance and rapid on-site evaluation. Two recent publications have shown a range of ROM for the insufficient/inadequate category of 2.6–4.8%, benign 1.4–2.3%, atypical 13–15.7%, suspicious of malignancy 84.6–97.1%, and malignant 99.0–100%. The management algorithm in the System provides options because there are variations in the management of breast lesions using FNAB and core-needle biopsy in those countries utilizing the "triple test" of clinical, imaging, and FNAB assessment, and also variations in the availability of CNB and imaging in low- and middle-income countries. The System will stimulate further discussion and research, particularly in the cytological diagnostic features of specific lesions within each category and in management recommendations. This will lead to continuing improvements in the care of patients with breast lesions and possible modifications to the IAC Yokohama System.

ACTA CYTOLOGICA

Review

The International Academy of Cytology Yokohama System for Reporting Breast Fine-Needle Aspiration Biopsy Cytopathology

Field A.S.[a] · Raymond W.A.[b] · Rickard M.[c] · Arnold L.[d] · Brachtel E.F.[e] · Chaiwun B.[f] · Chen L.[g] · Di Bonito L.[h] · Kurtycz D.F.I.[i] · Lee A.H.S.[j] · Lim E.[k] · Ljung B.-M.[l] · Michelow P.M.[m,n] · Osamura R.Y.[o,p] · Pinamonti M.[q] · Sauer T.[r] · Segara D.[s] · Tse G.[t] · Vielh P.[u] · Chong P.Y.[v] · Schmitt F.[w]

Author affiliations

Keywords: Breast cytology · Fine-needle aspiration biopsy · International Academy of Cytology · Reporting system · Yokohama

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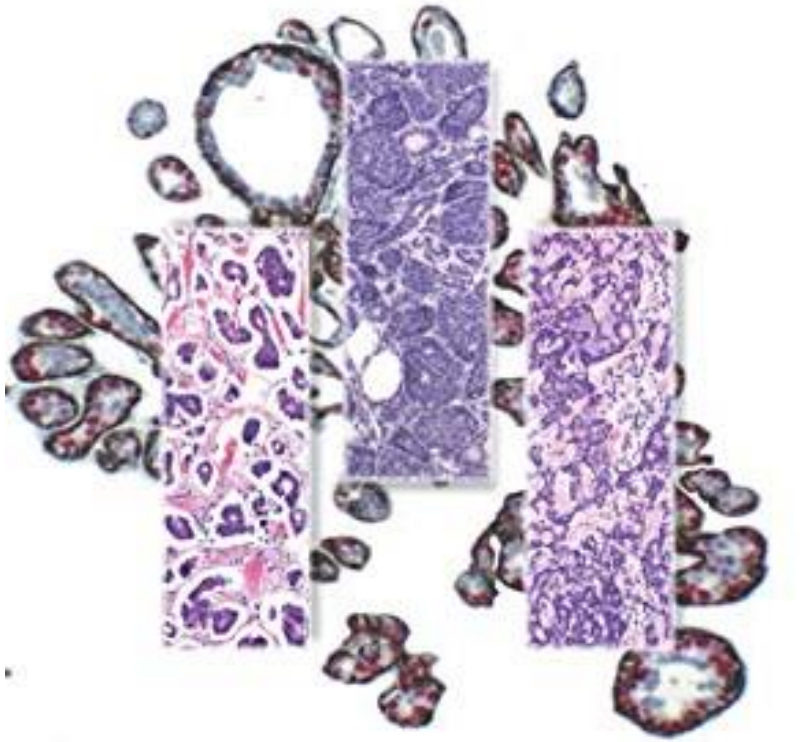

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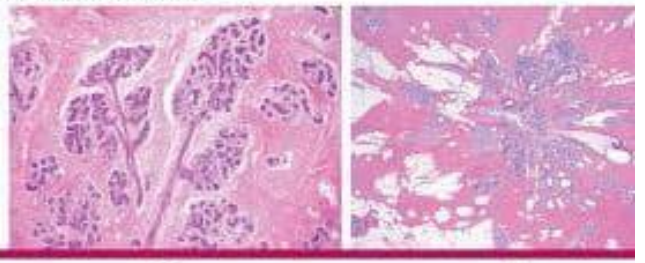

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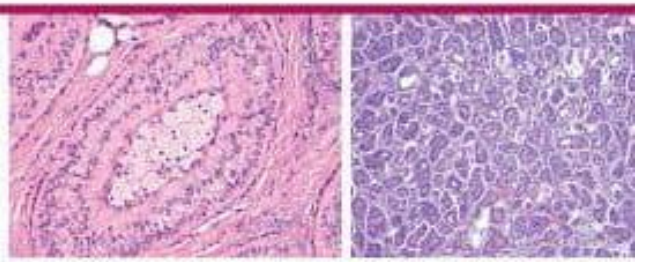

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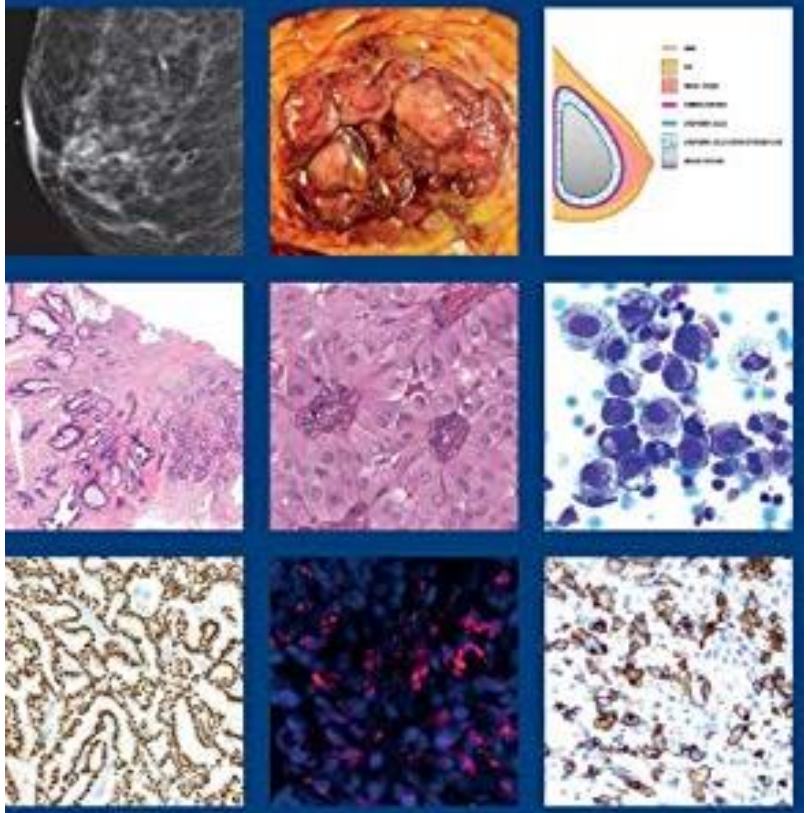

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