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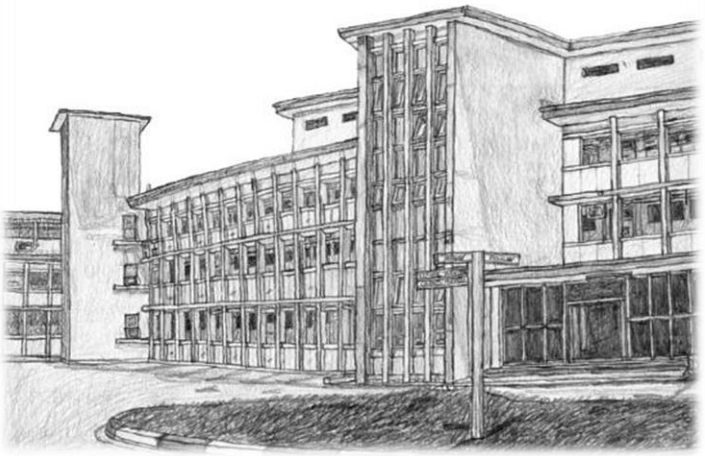
Case 32

56 year old female.
Right breast lump. Excision biopsy.
Sections from tumour (A, B).



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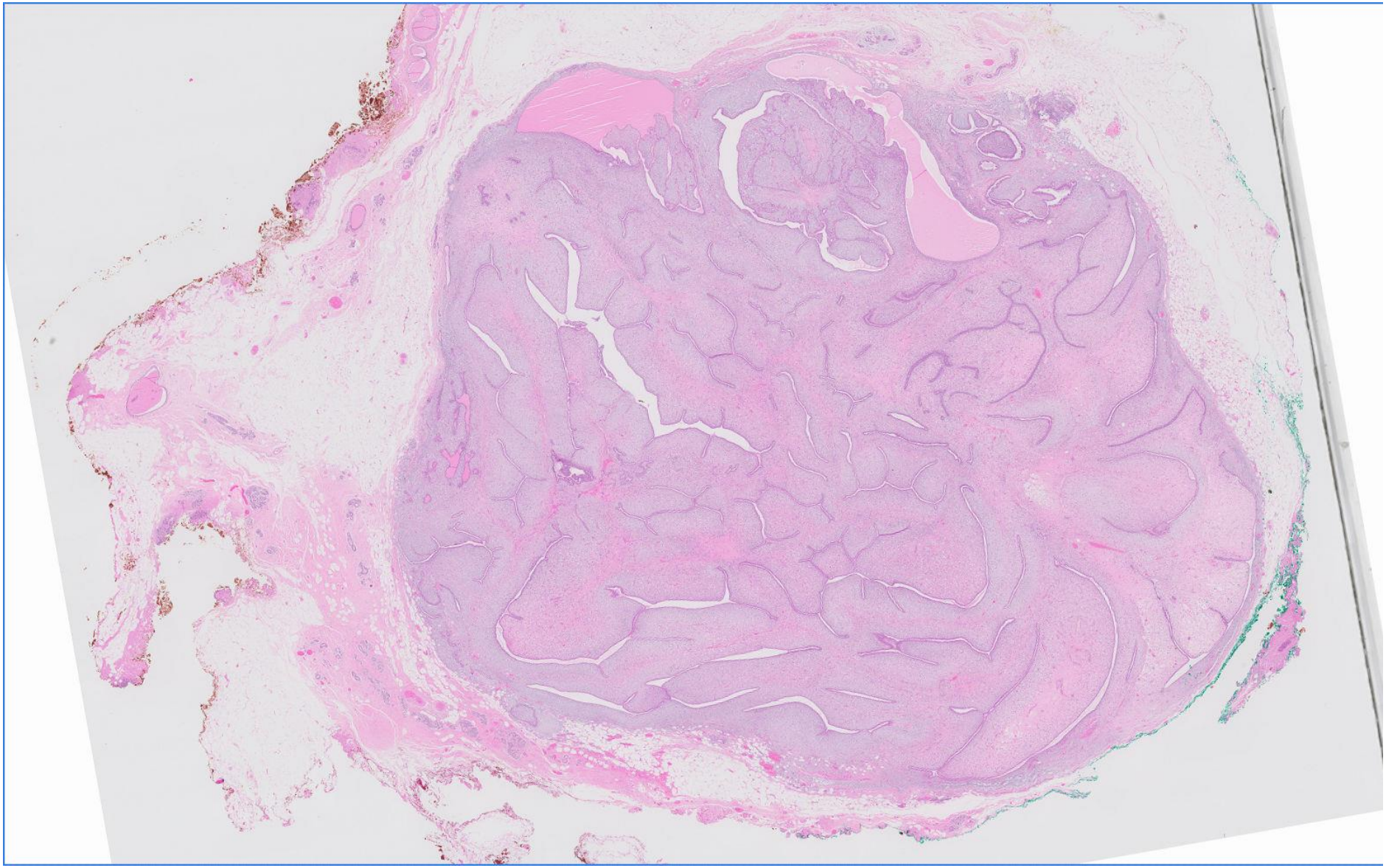

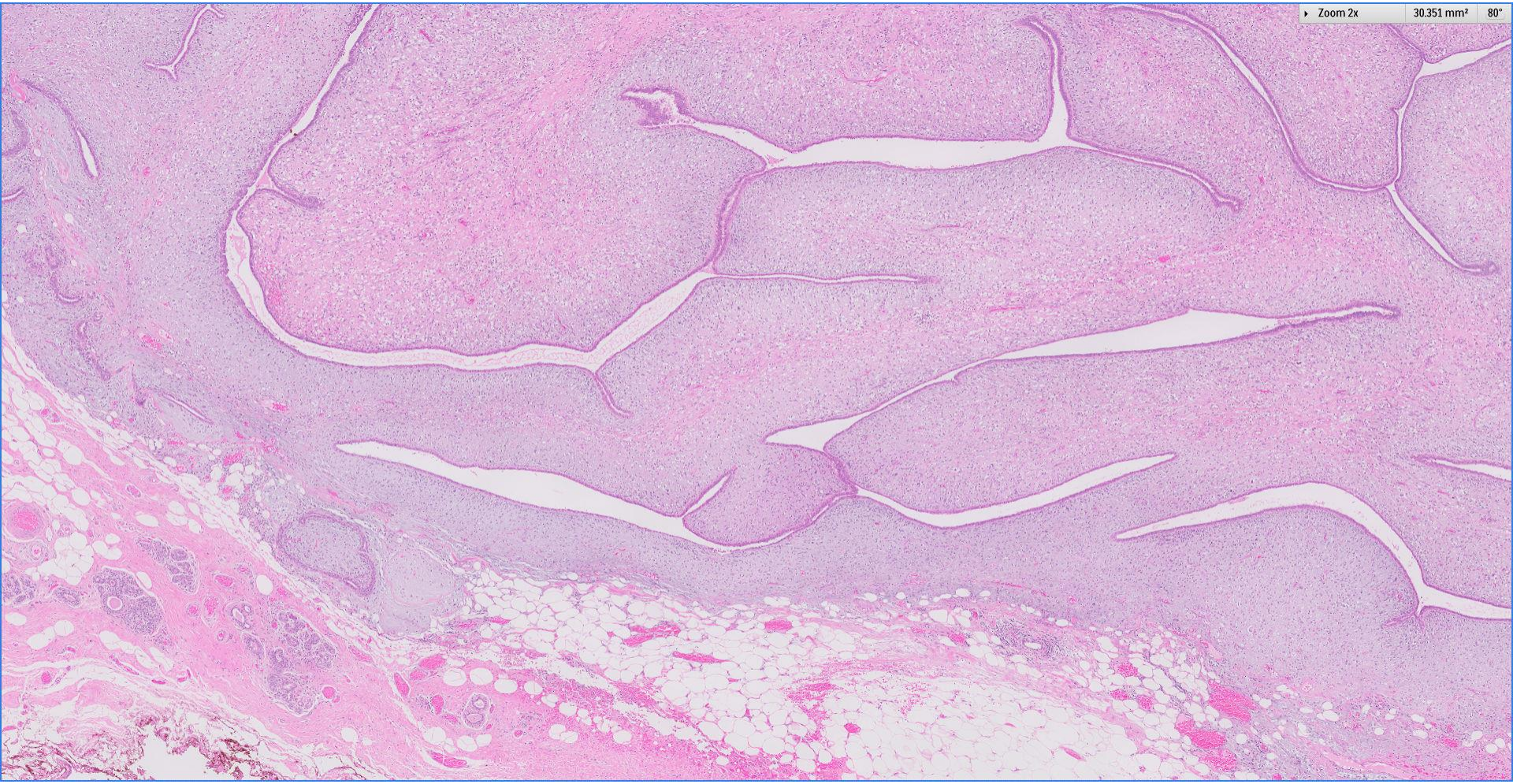
Zoom 2x
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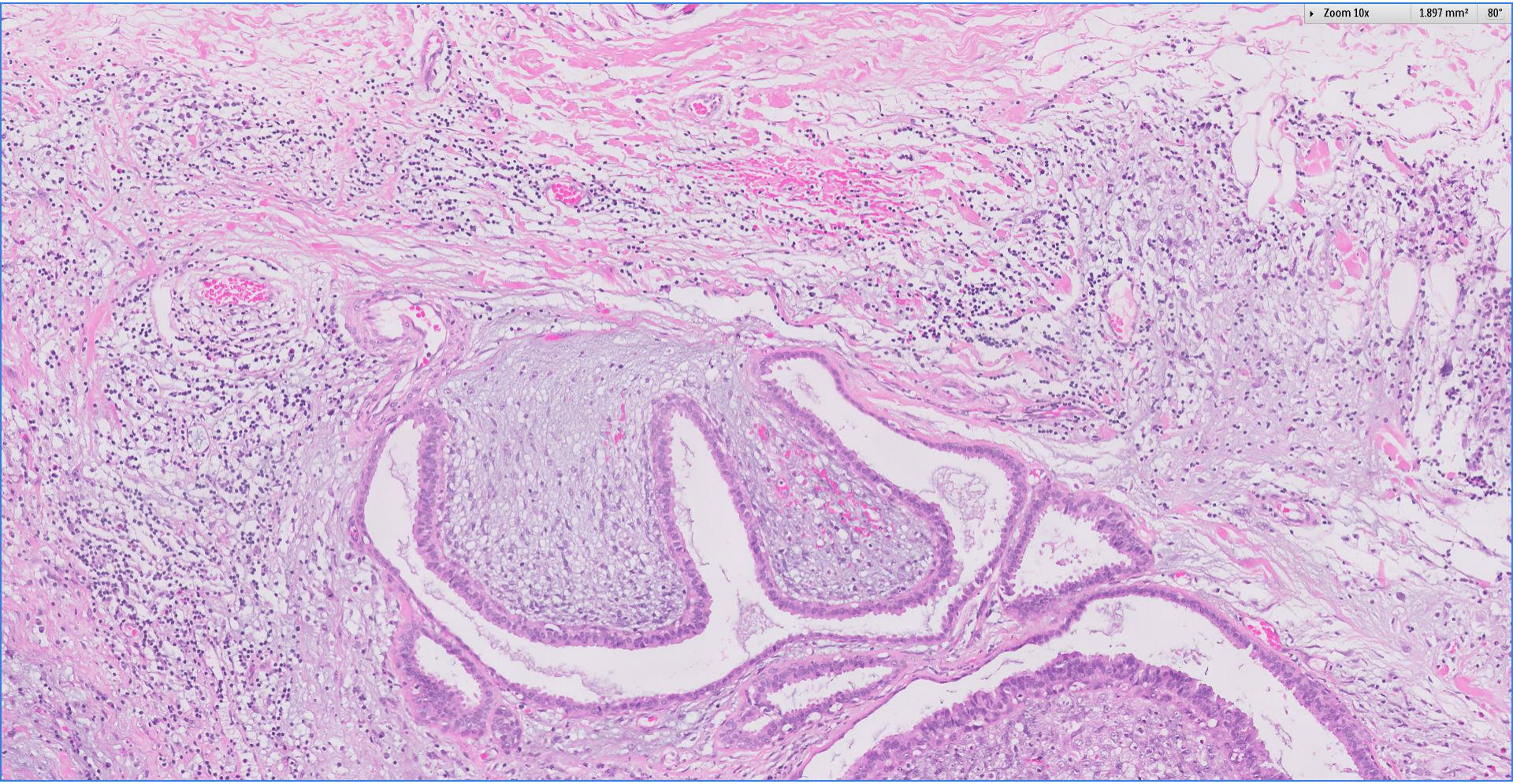
80°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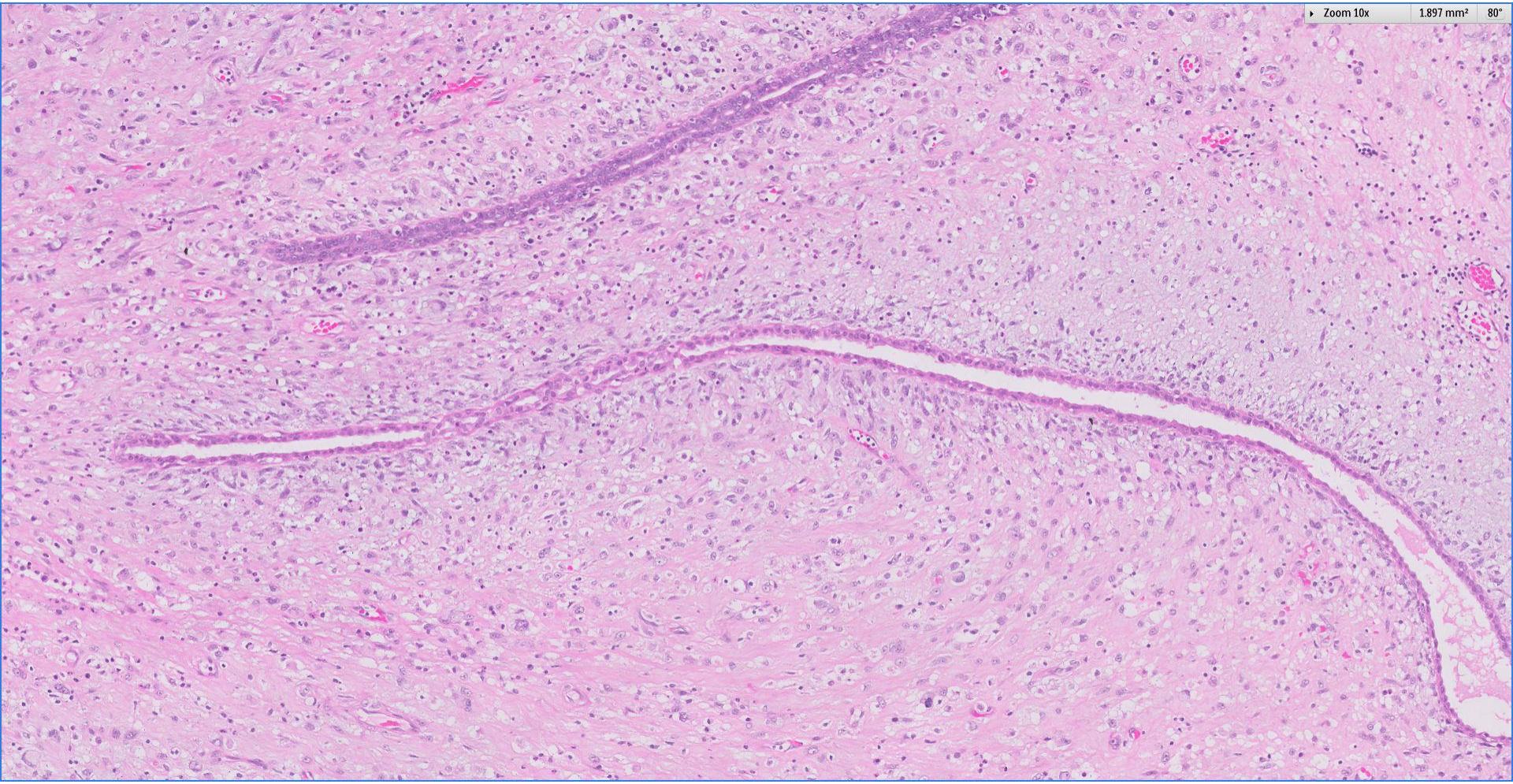
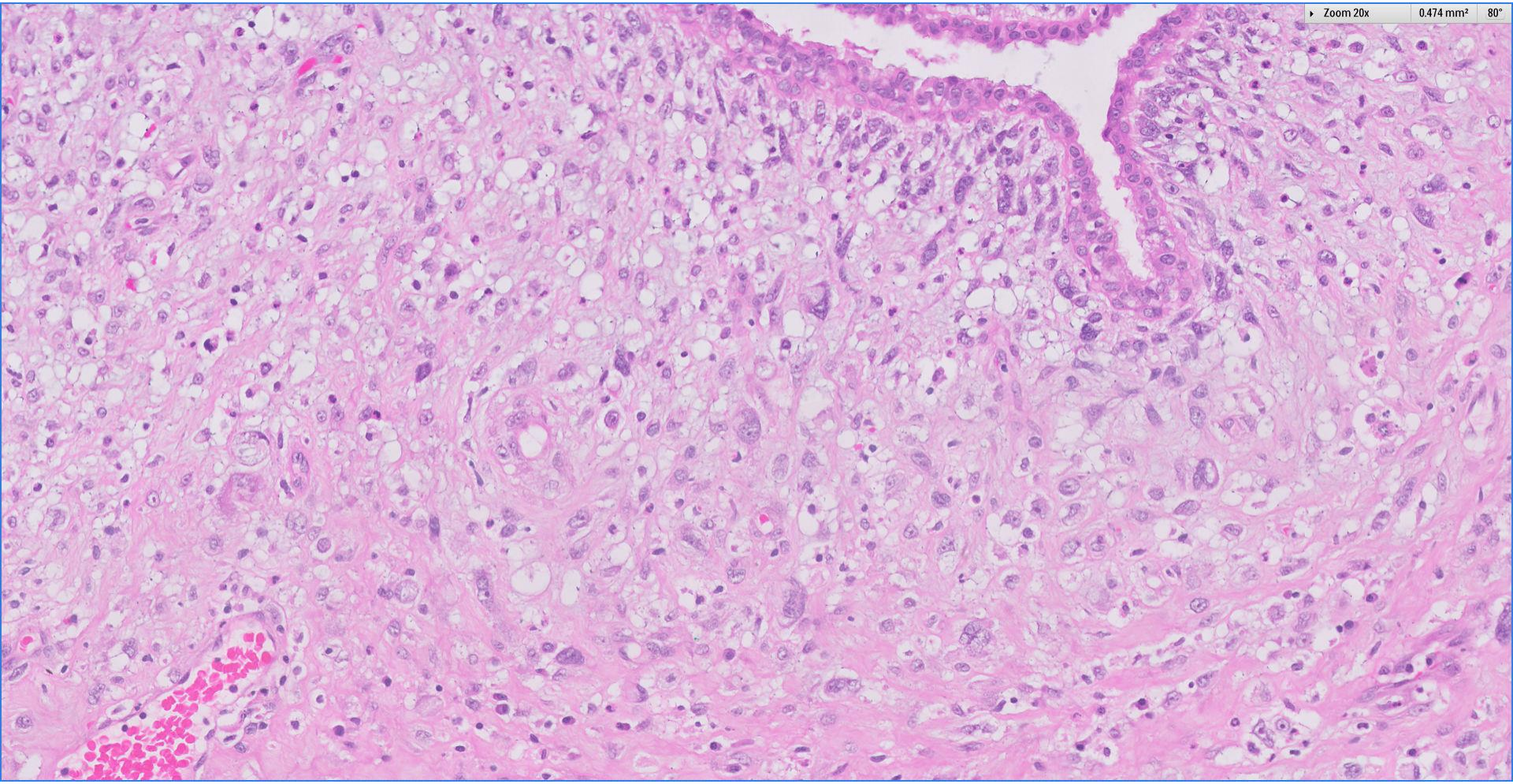

Zoom 10x
1.897 mm²
80°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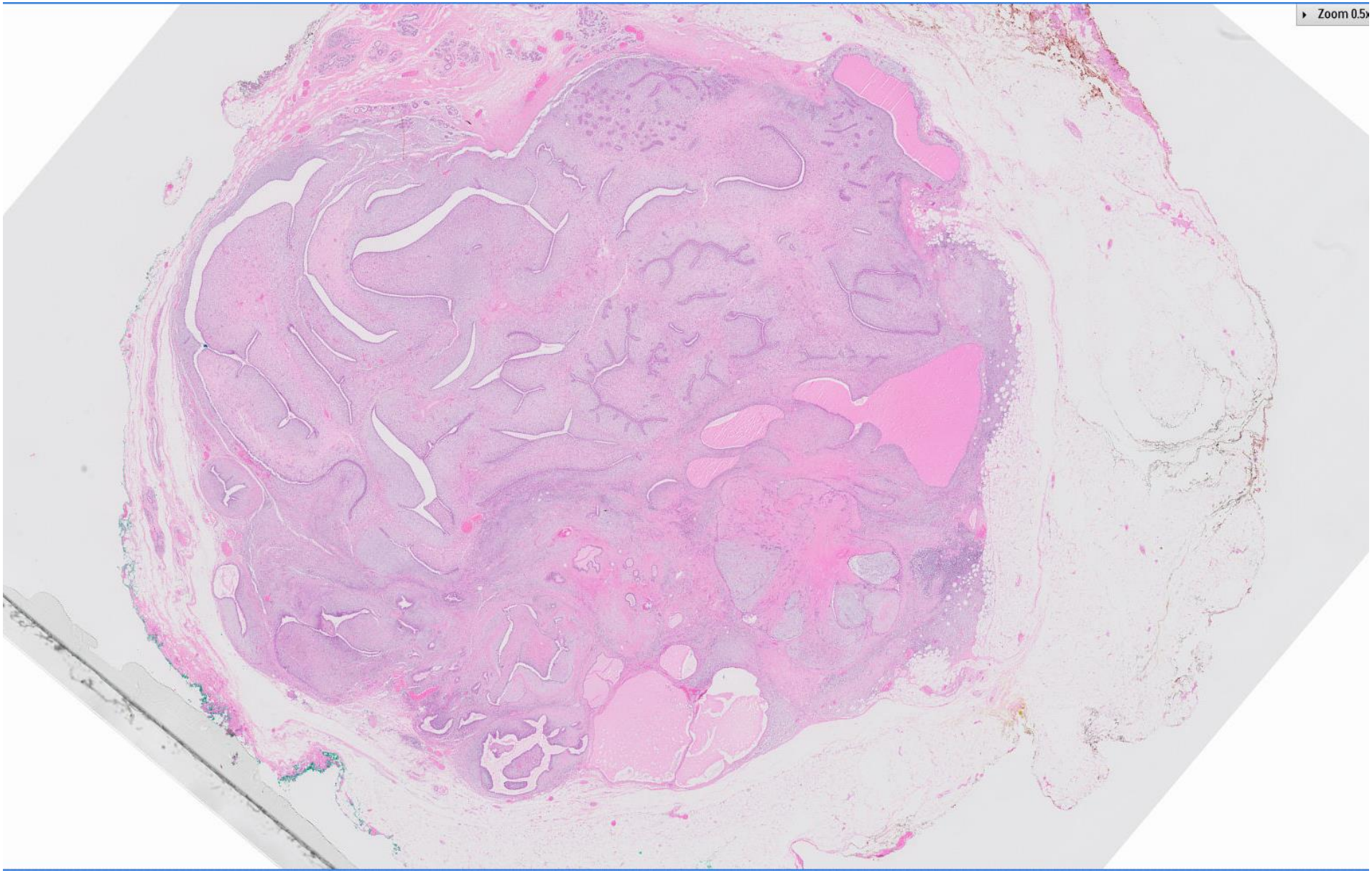
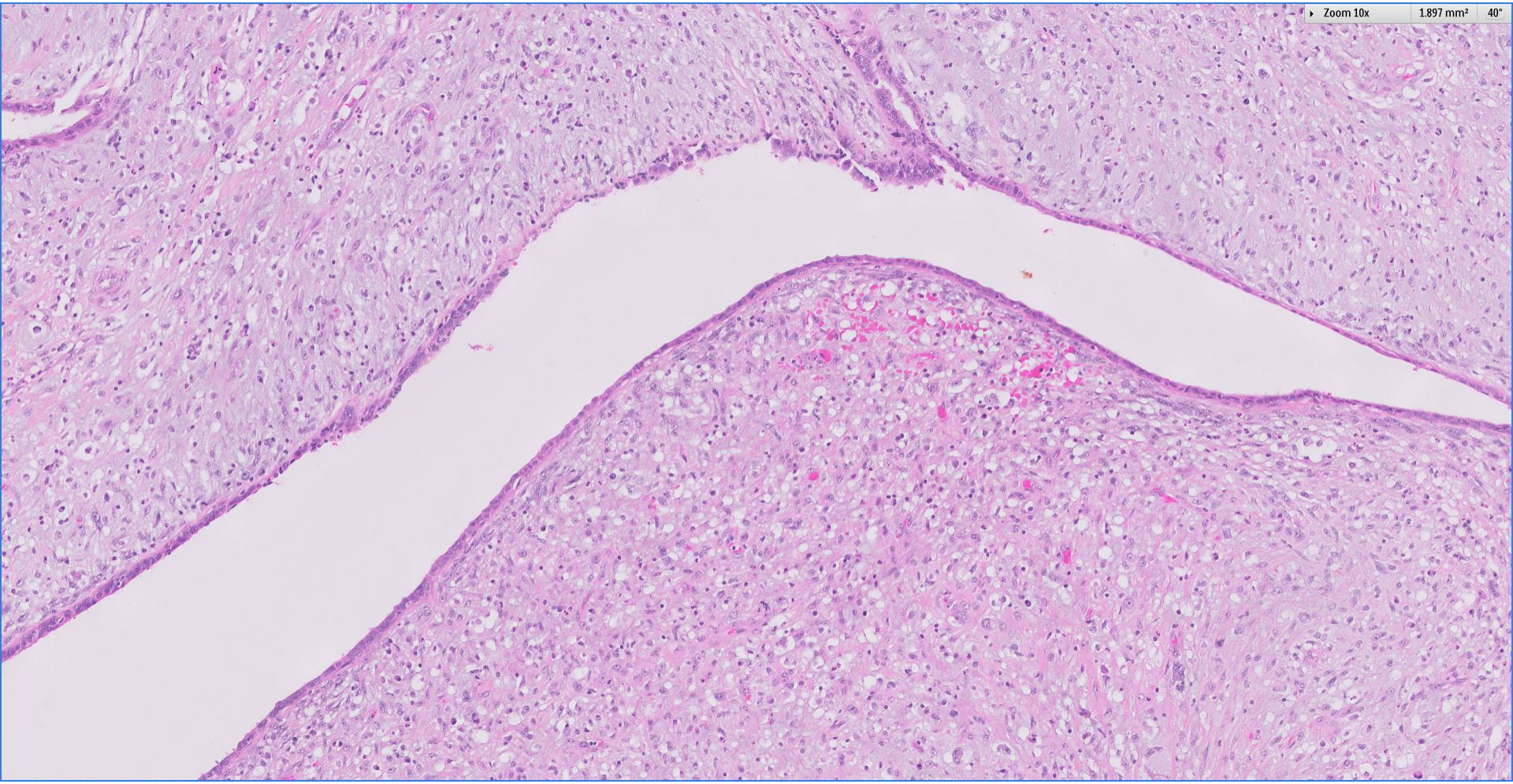

Zoom 0.5x


Zoom 10x
1.897 mm²
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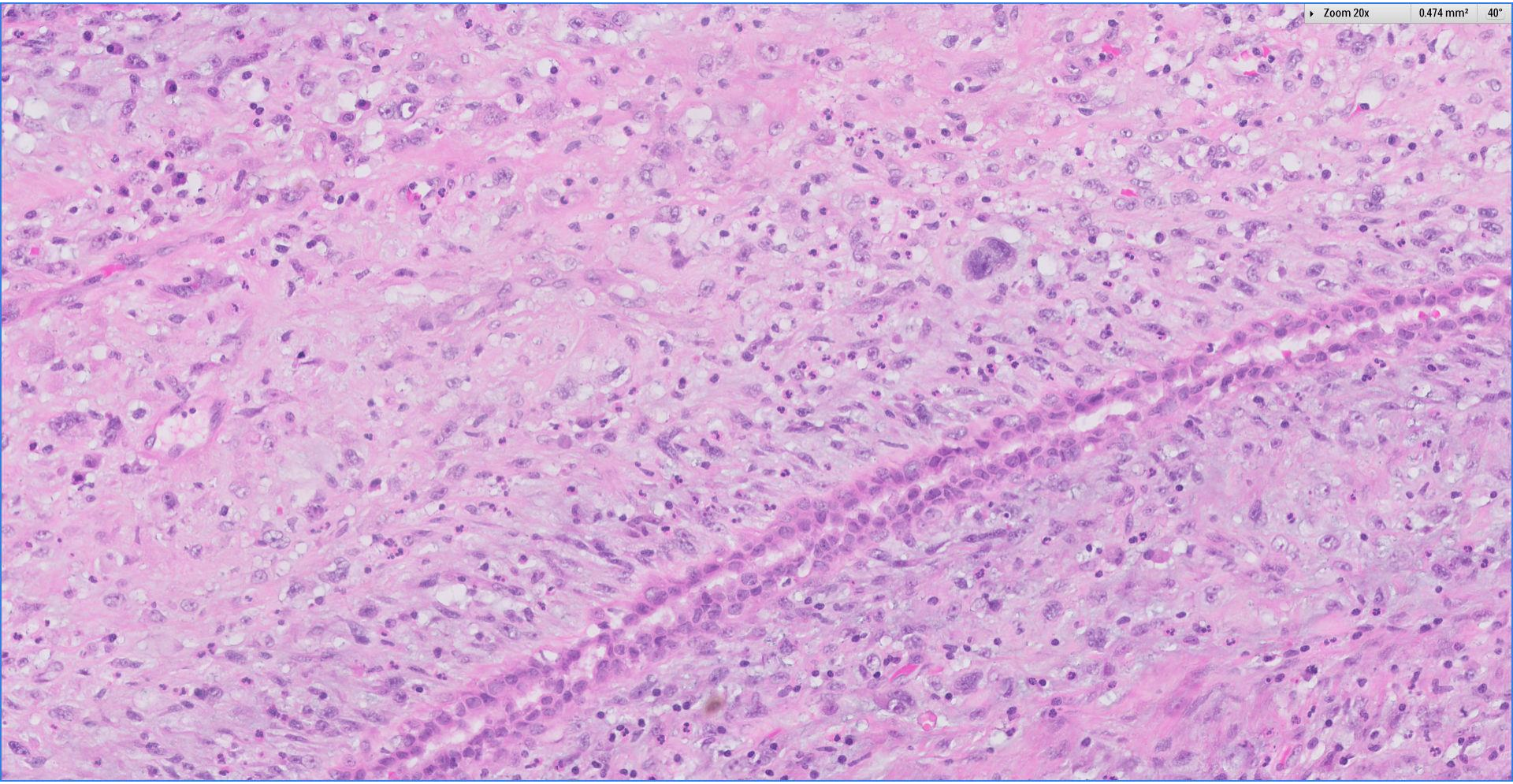
Zoom 20x
0.474 mm²
40°

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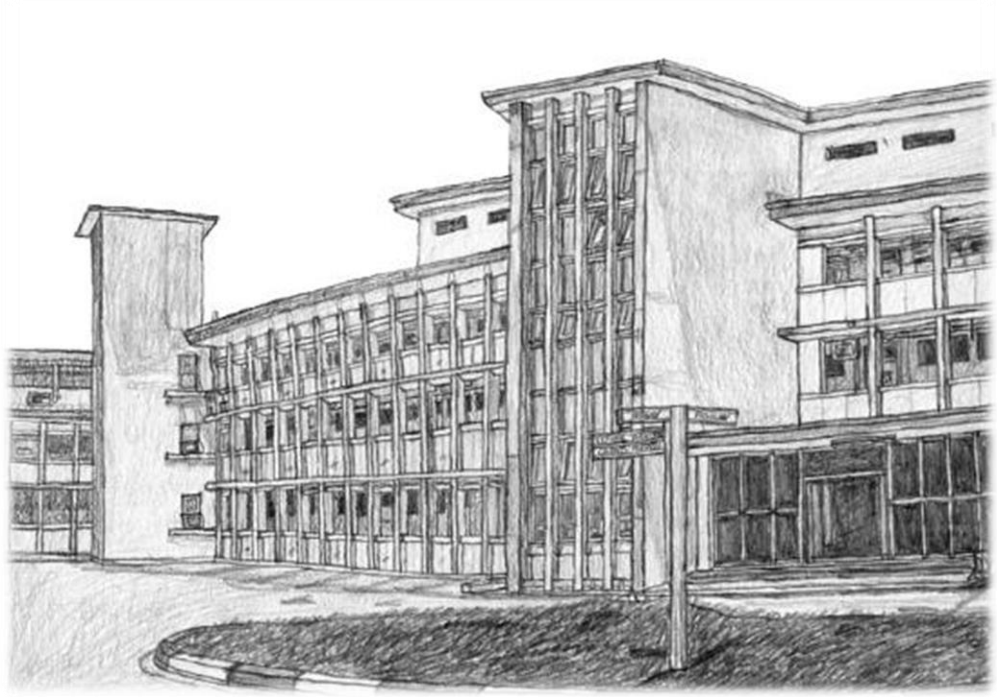

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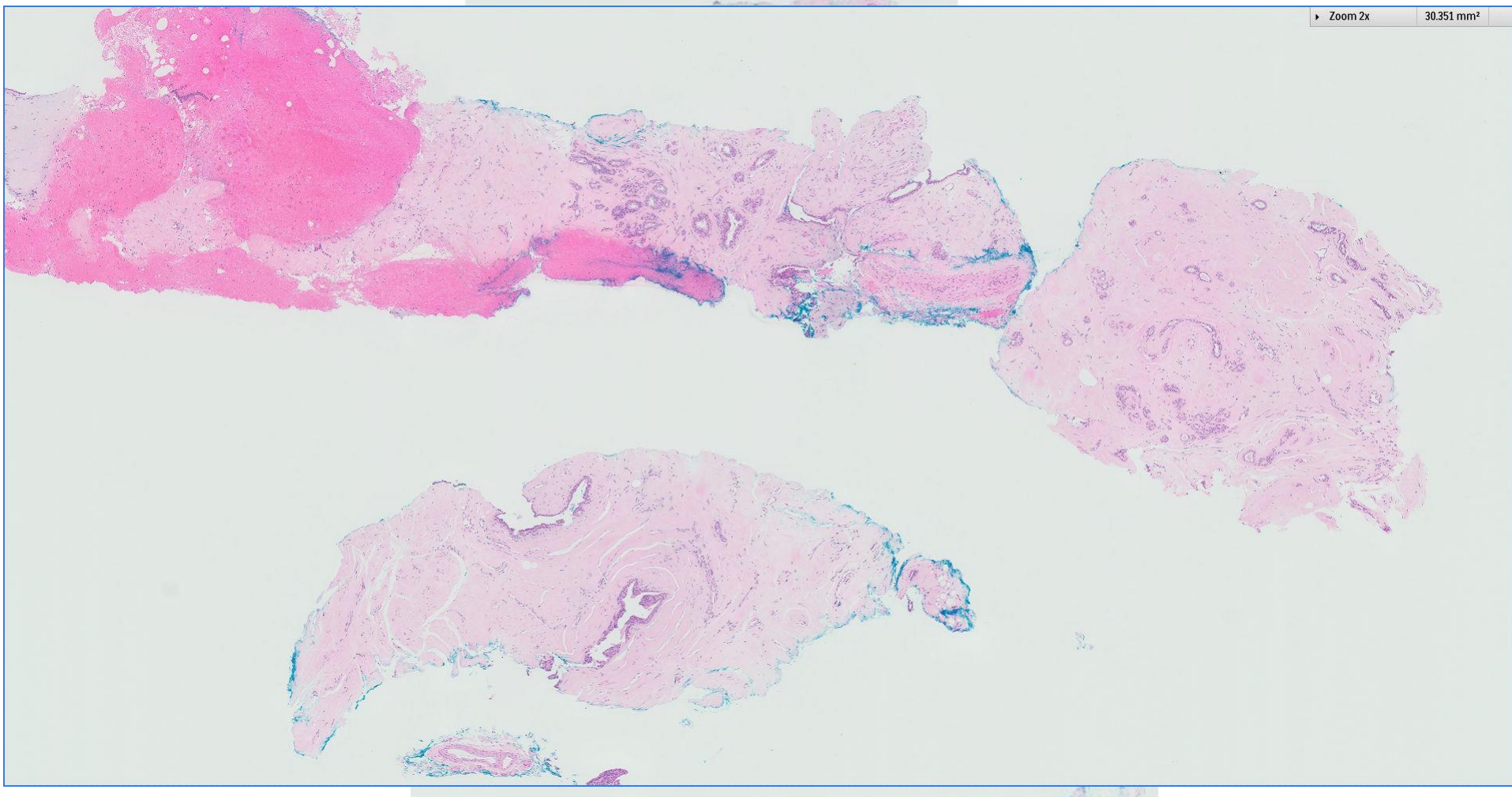
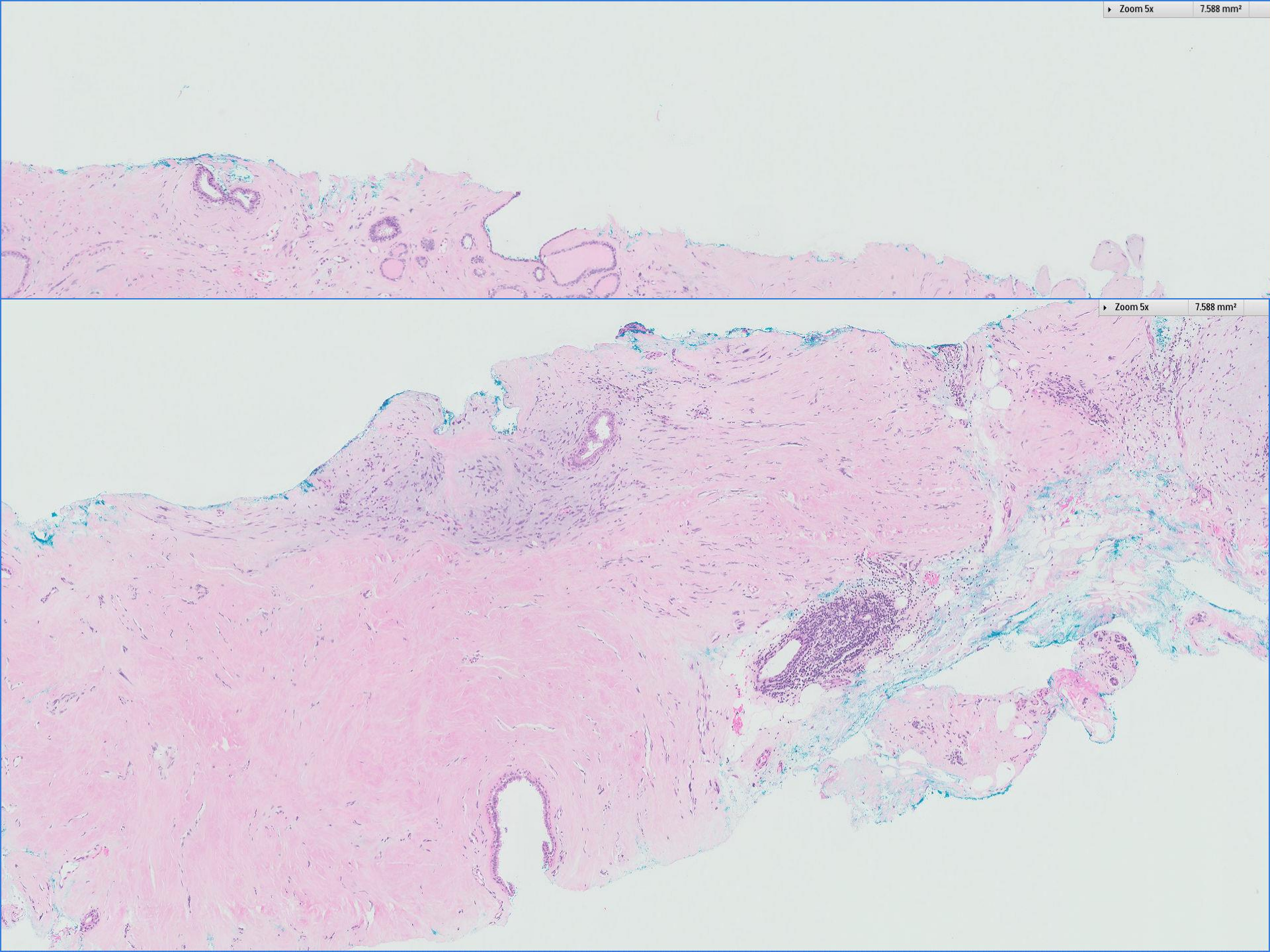
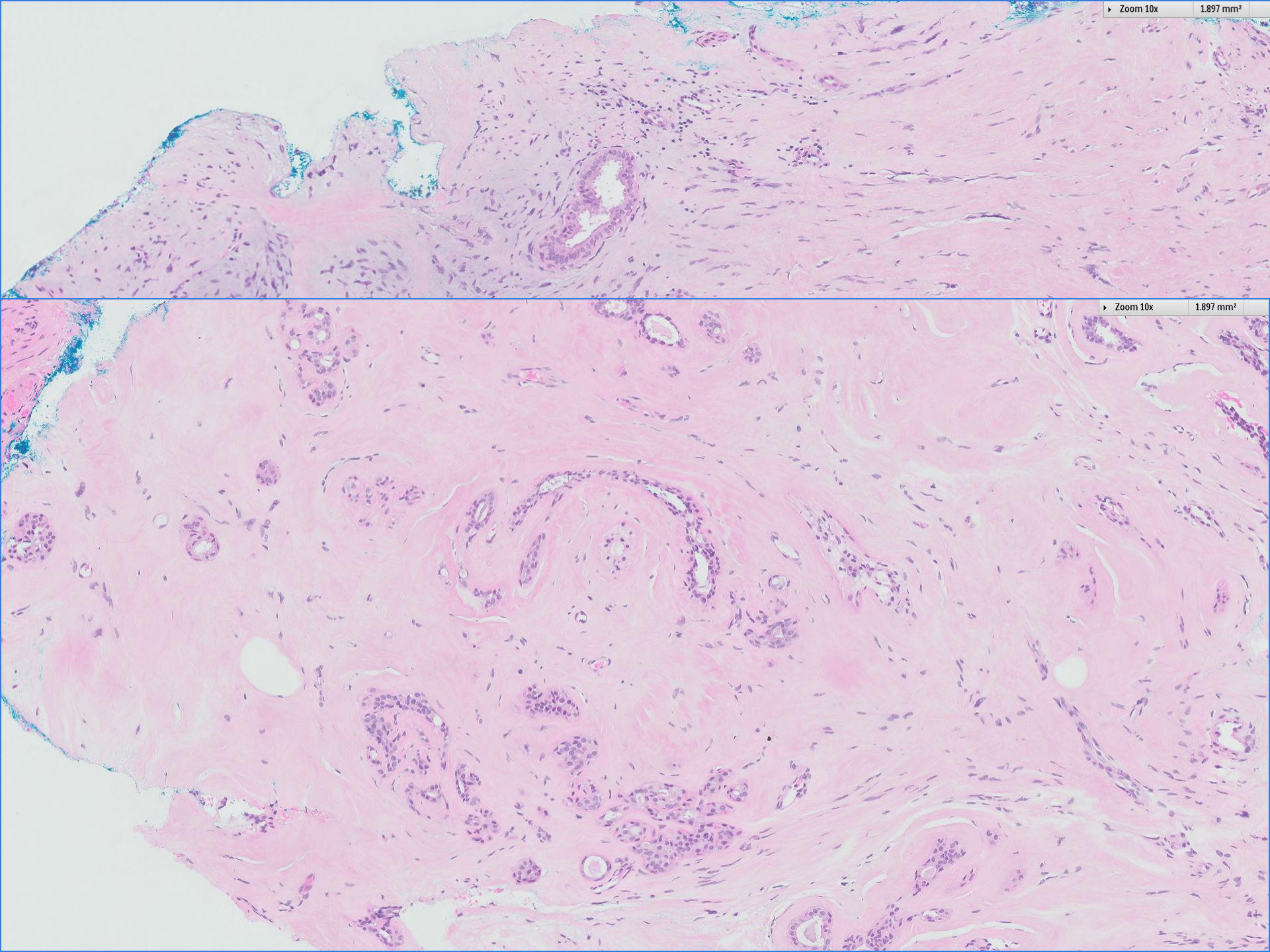
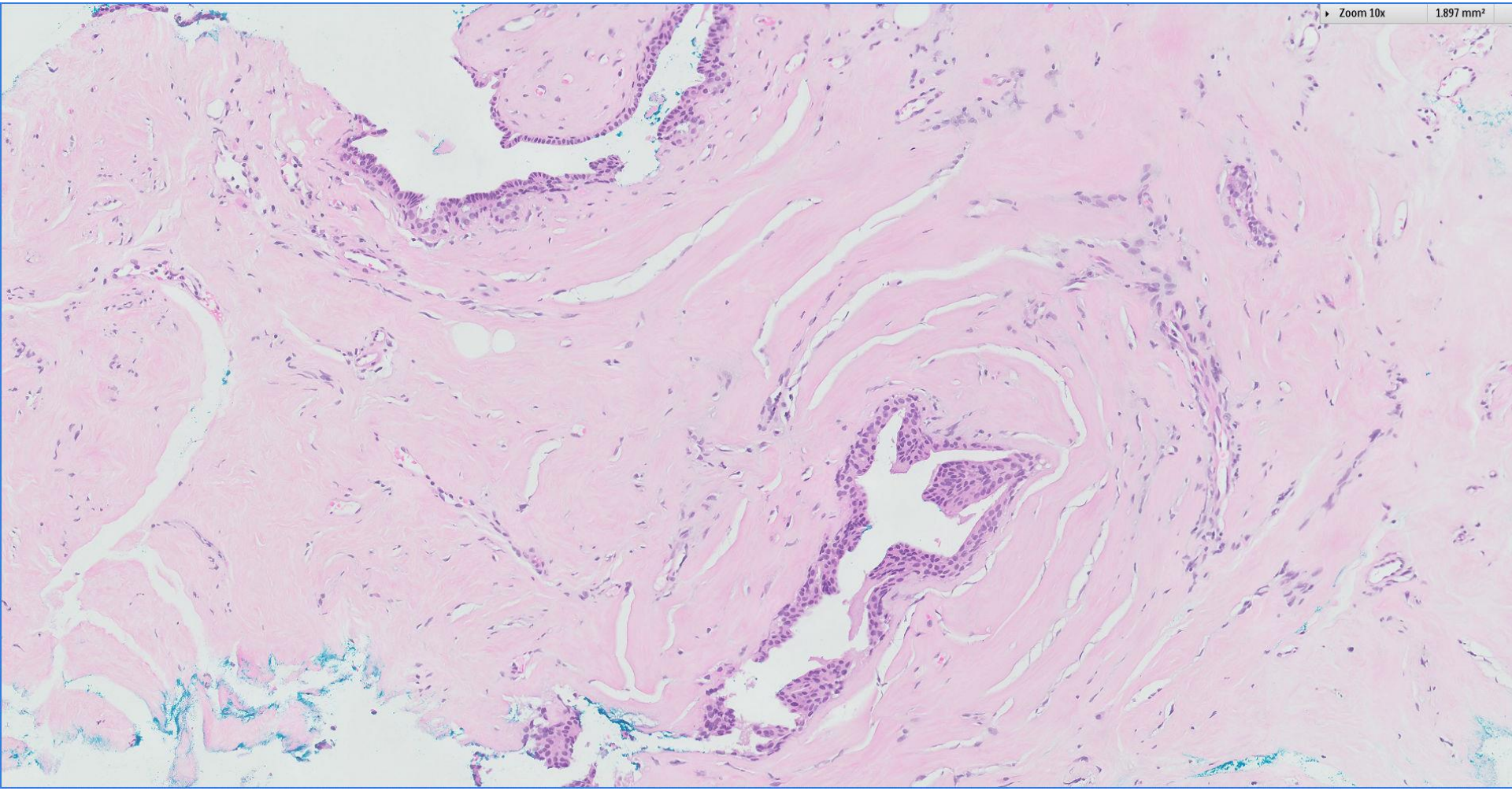
Previous core biopsy ~ 14 months ago




Zoom 5x
7.588 mm²
Zoom 5x
7.588 mm²


Zoom 10x
1.897 mm²
Zoom 10x
1.897 mm²


Zoom 10x
1.897 mm²

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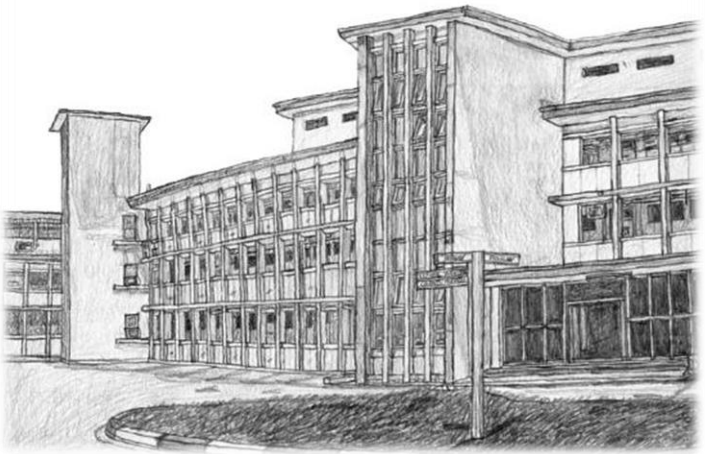
Ultrasound guided core biopsy, right breast nodule:

Fibroadenoma with focal pseudoangiomatous stromal hyperplasia



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Excision biopsy

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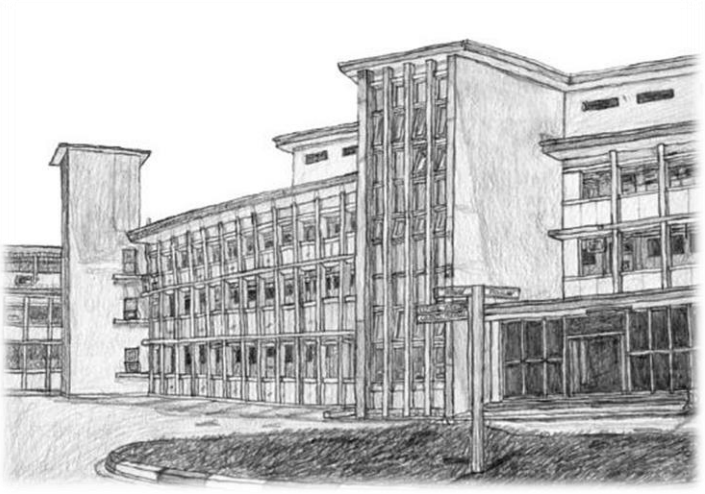

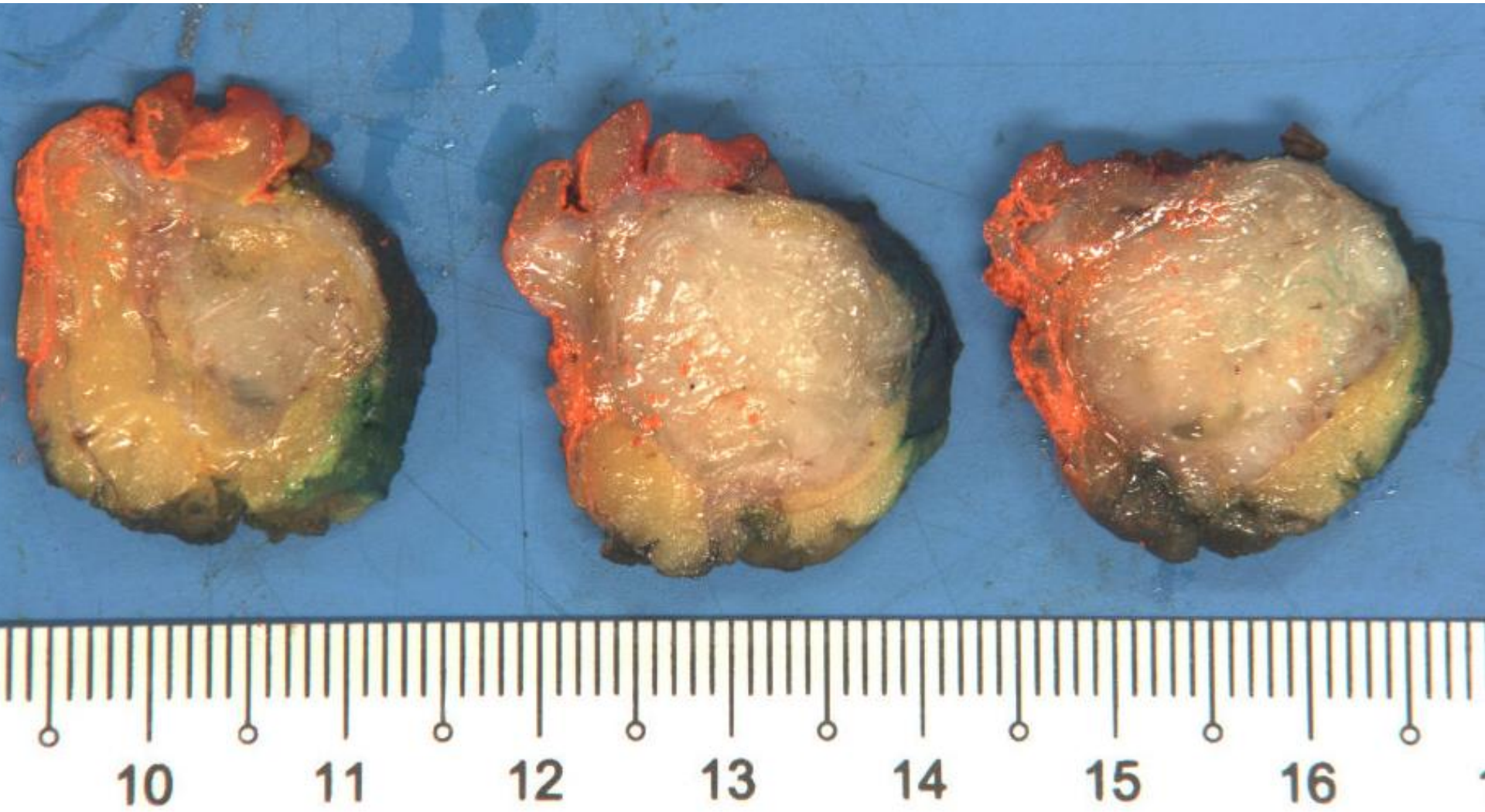
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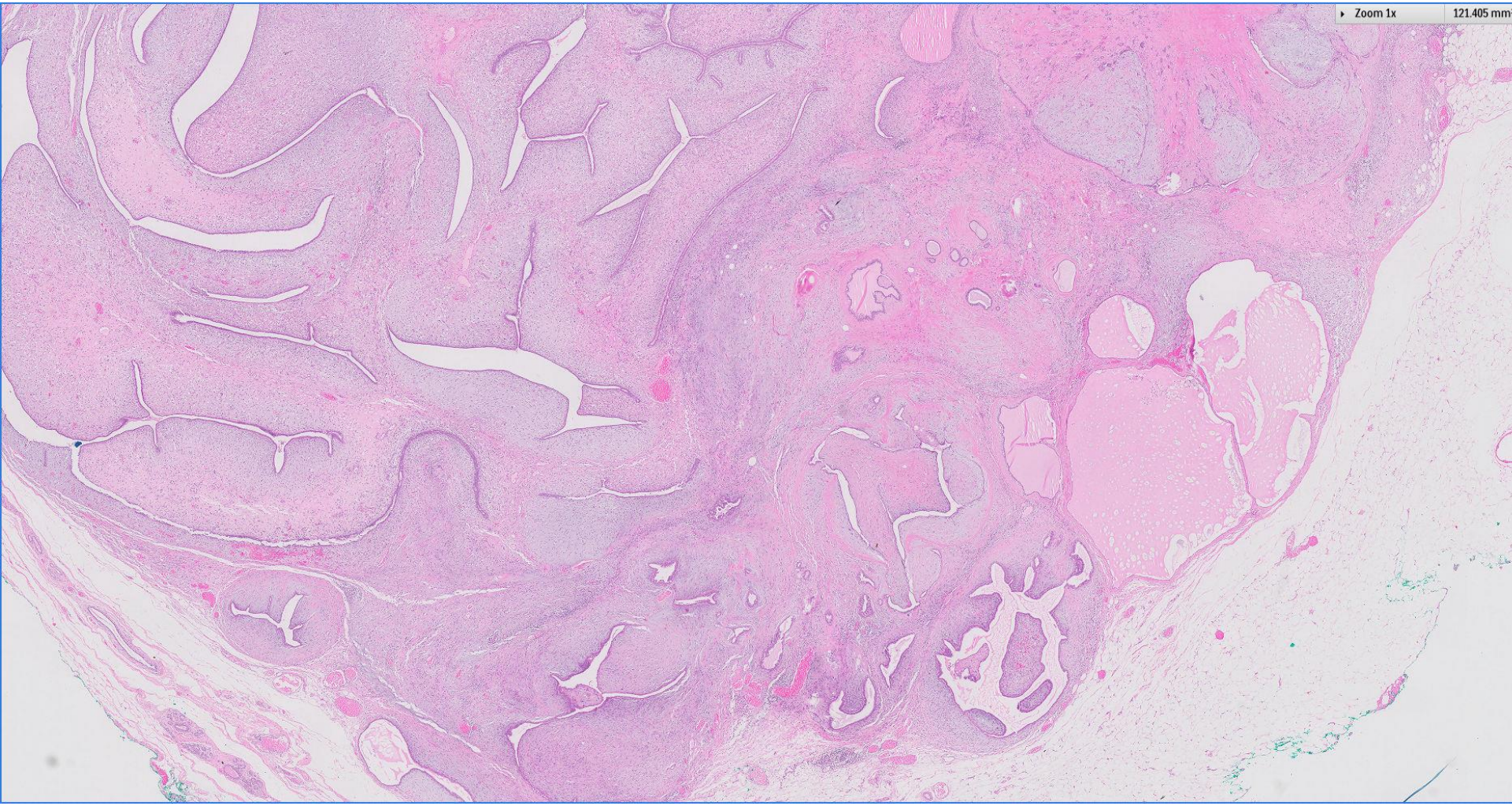
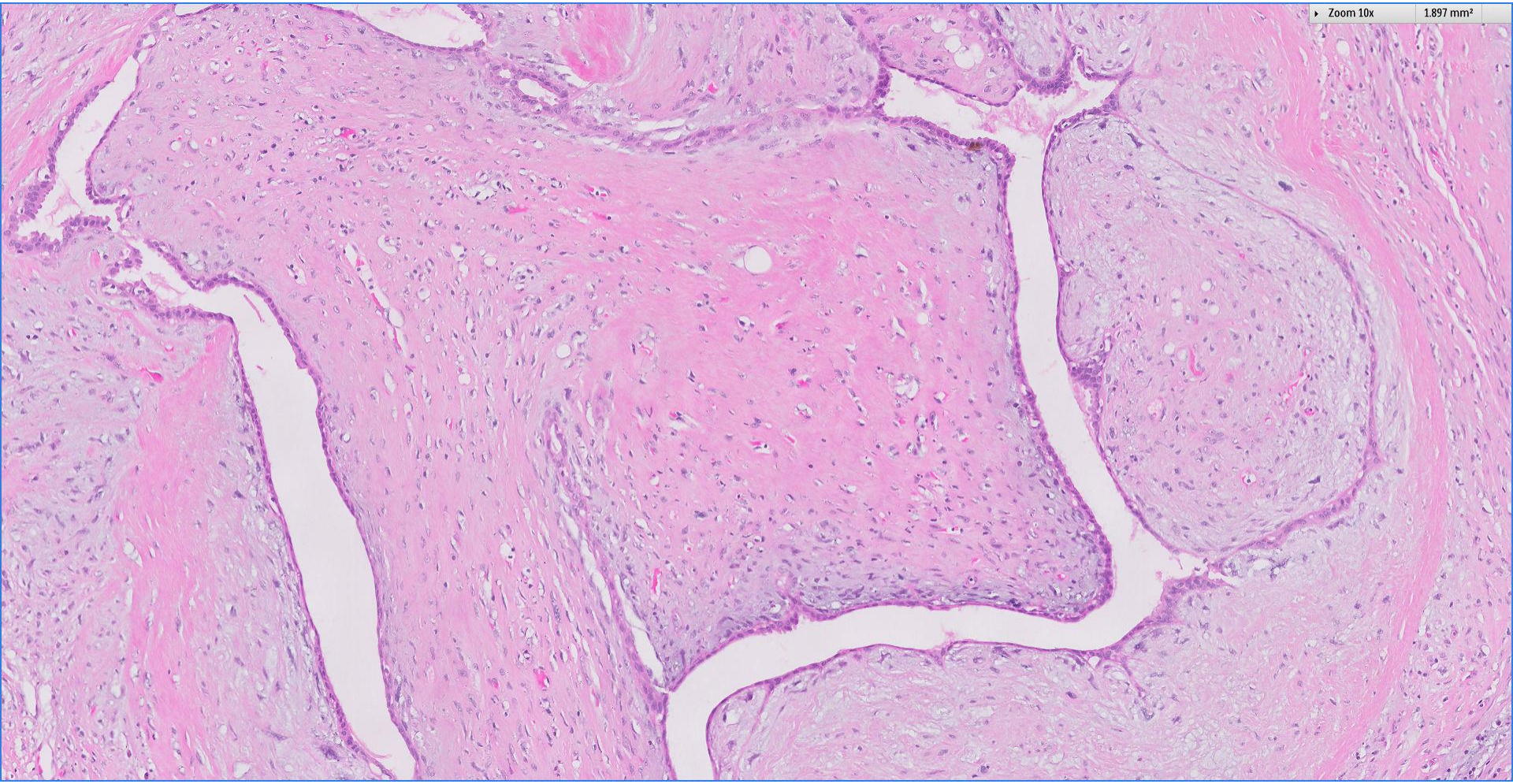
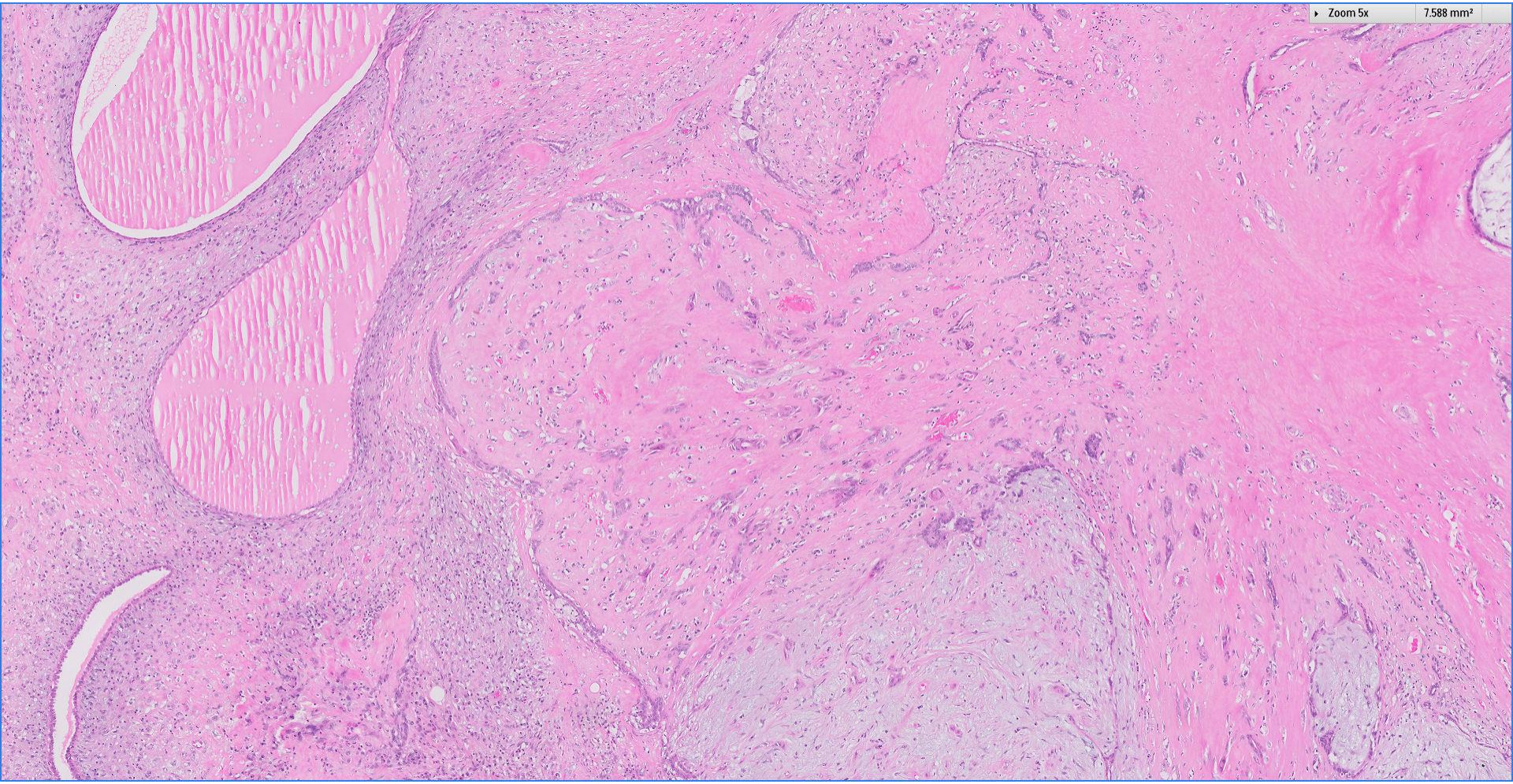
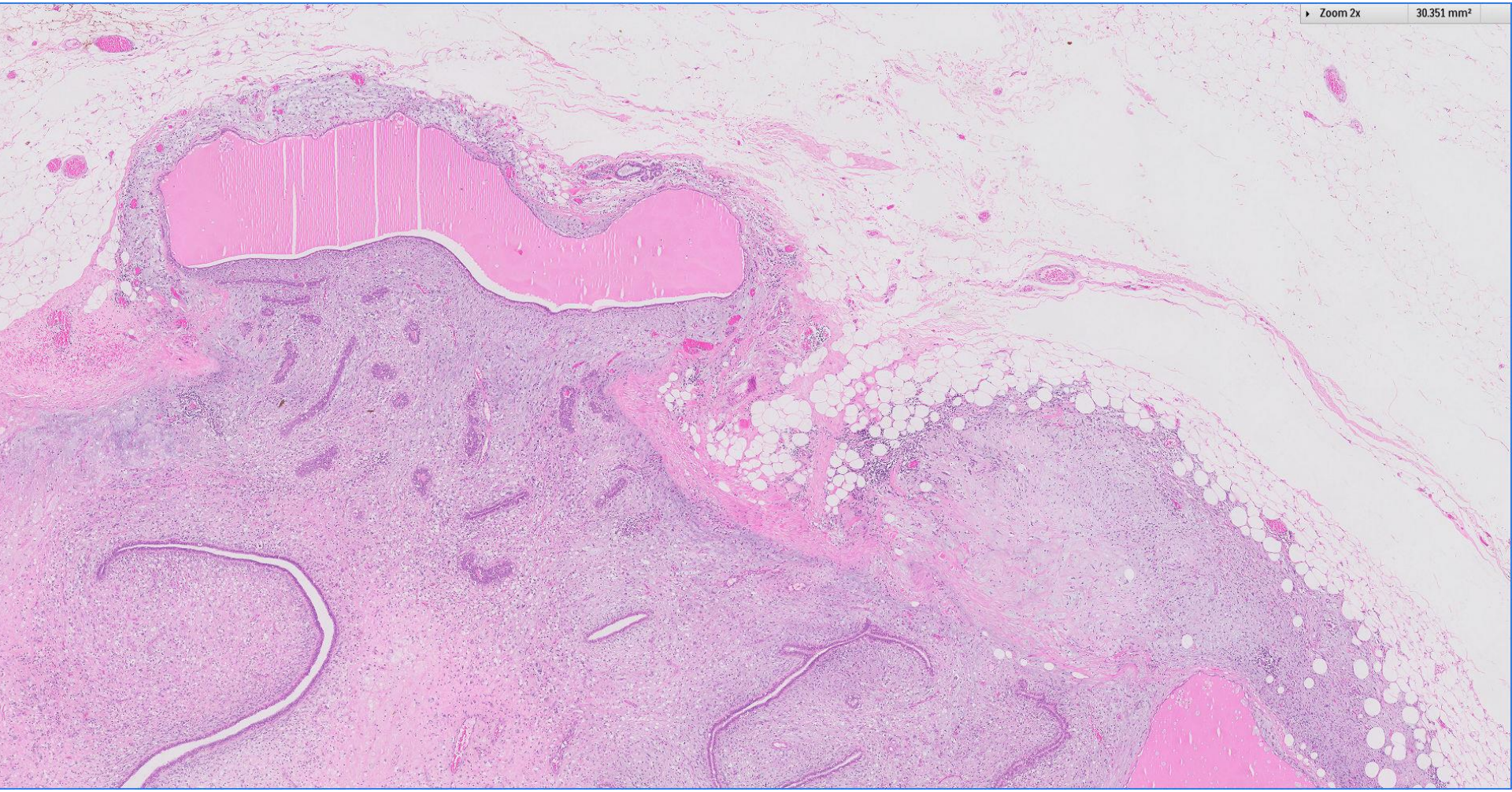
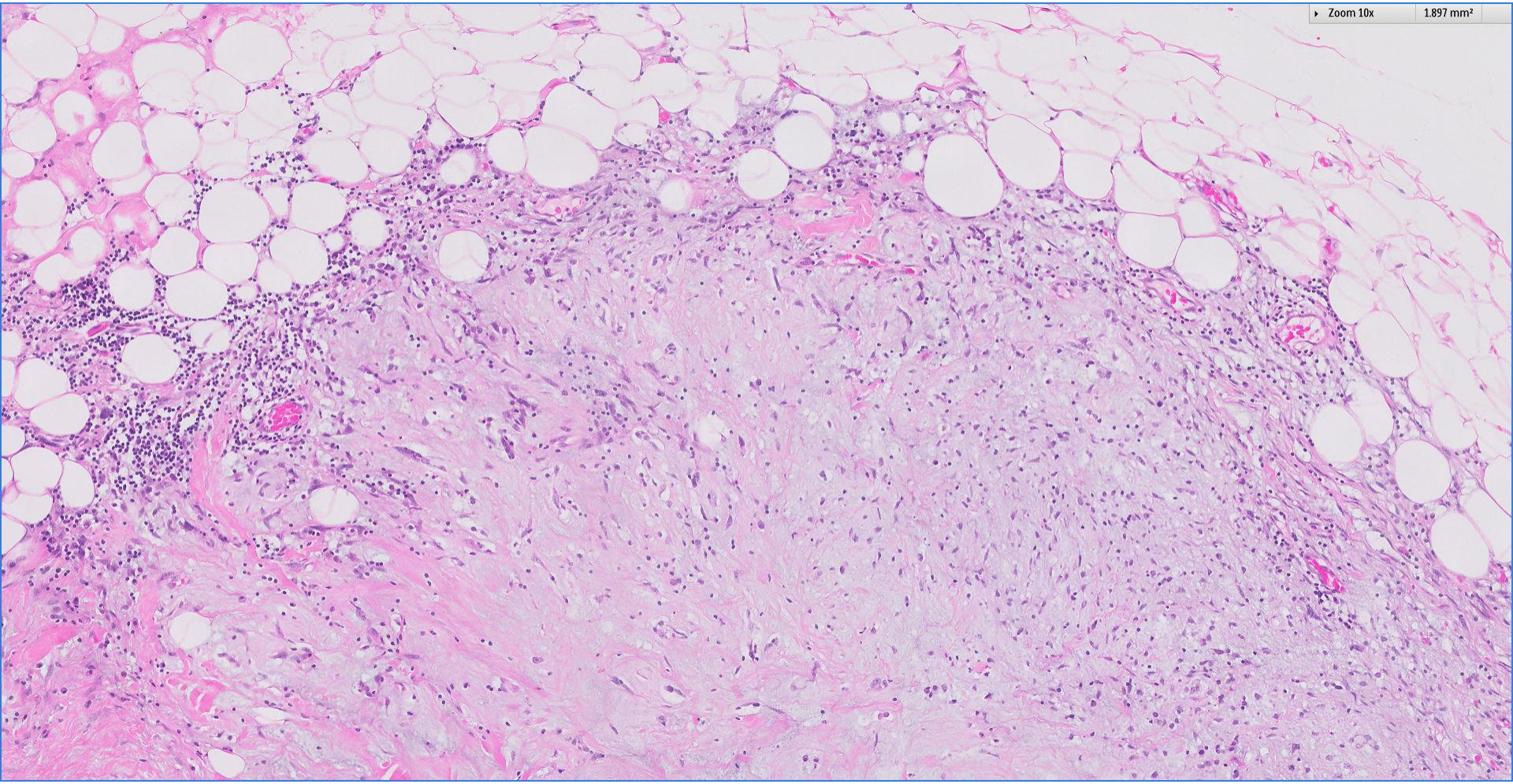
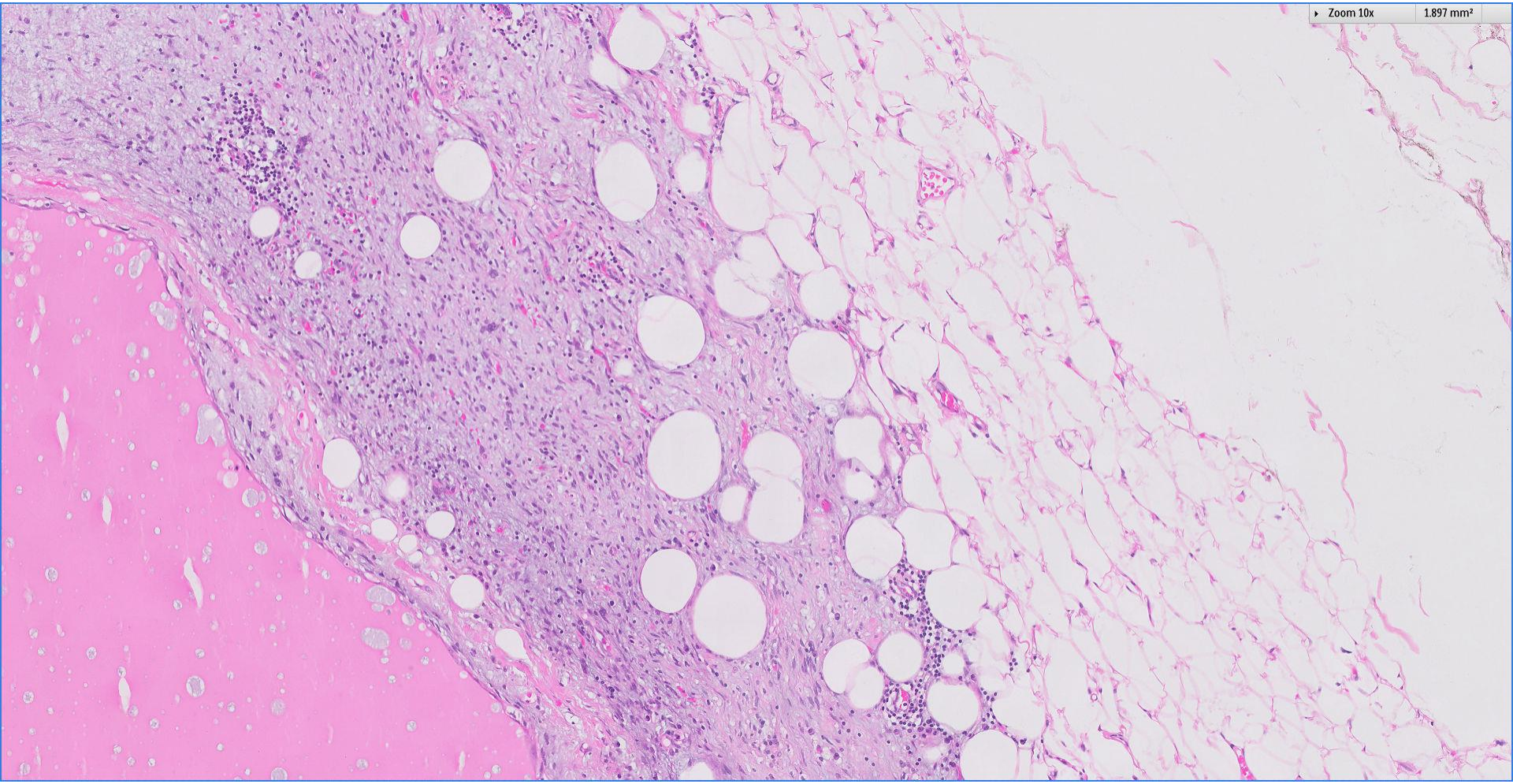

Zoom 1x
121.405 mm²


Zoom 10x
1.897 mm²


Zoom 5x
7.588 mm²


Zoom 2x
30.351 mm²


Zoom 10x
1.897 mm²


Zoom 10x
1.897 mm²

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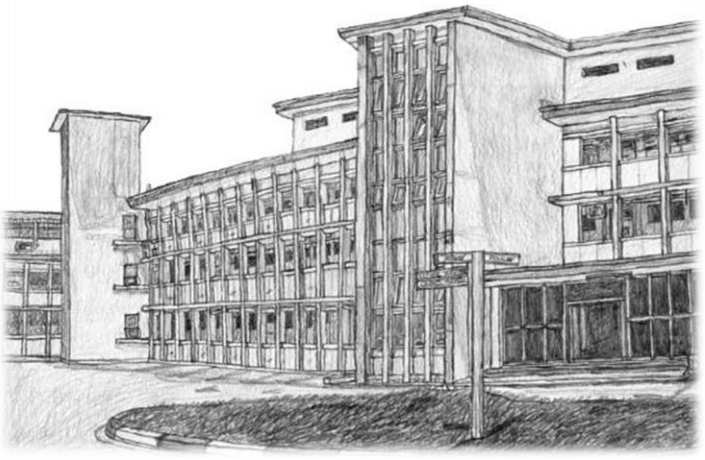
Diagnosis

Right breast lump, excision ~

Borderline phyllodes tumour, 2.5cm.



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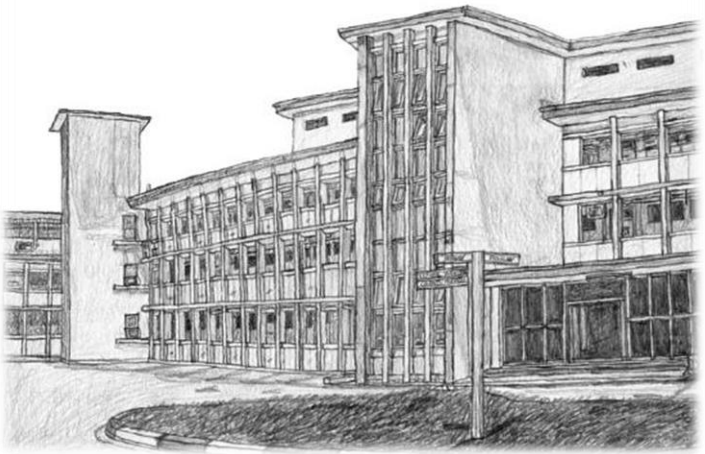
Core biopsy diagnosis of fibroepithelial lesions ~

predicting phyllodes tumours



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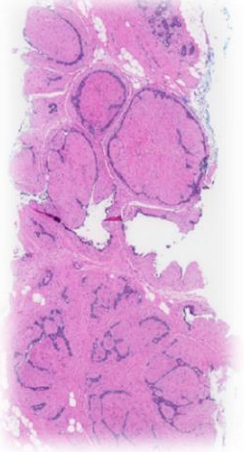


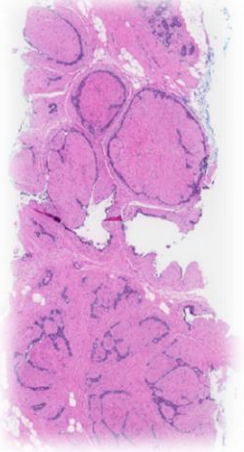
Phyllodes Tumour Subsequent to a Diagnosis of Fibroadenoma on Breast Core Needle Biopsy: Frequency and Characteristics

Timothy W Jacobs[1], Yunn-Yi Chen[2], Donald G Guinee[1], Peter R Eby[1], Aye Aye Thike[3], Poonam Vohra[2], Puay Hoon Tan[3]

1. Virginia Mason Medical Centre, Seattle, WA
2. UCSF, San Francisco, CA
3. Singapore General Hospital, Singapore

Courtesy of Dr Timothy Jacobs, platform presentation at USCAP 2014, San Diego California

Conclusions



- The incidence of PT subsequent to a diagnosis of FA on CNB is extremely low (*0.38%, 16 out of 4163 cases*).
- Most PT were categorized as benign (*14 benign, 2 borderline*).
- PT heterogeneity (e.g. FA-like areas) likely contributed to CNB-excision discrepancies.
- No pathologic features on CNB appeared to be prospectively predictive of PT at excision.
- Suspicious imaging features at time of CNB or on follow-up should prompt consideration for surgical excision.
- Diagnosing FA on CNB is reliable and safe, with adequate imaging correlation and follow-up.

Courtesy of Dr Timothy Jacobs, platform presentation at USCAP 2014, San Diego California

Core biopsy diagnosis of ***cellular fibroepithelial lesions*** – prediction of phyllodes tumour

Author	Reference	Key findings predicting phyllodes tumour
Jacobs et al	*Am J Clin Pathol 2005; 124: 342-354*	Marked stromal cellularity, mitoses in moderate stromal cellularity, Ki67 & topoisomerase IIα indices
Lee et al	*Histopathology 2007; 51: 336-344*	Stromal cellularity ≥ 50% stroma, stromal overgrowth, fragmentation, adipose within stroma
Resetkova et al	*Breast J 2010; 16:573-80.*	No predictive value of clinical, radiologic or pathologic data Suggested follow-up alone for a patient subset
Jara-Lazaro et al	*Histopathology 2010; 57: 220-232*	Marked stromal cellularity/atypia, stromal overgrowth, mitoses ≥ 2 per 10 hpf, ill-defined lesional borders, Ki67 & topoisomerase IIα indices ≥ 5%, reduced CD34 staining
Yasir et al	*Am J Clin Pathol 2014; 142: 362-369*	Mitoses, stromal overgrowth, fragmentation, adipose infiltration, heterogeneity, subepithelial condensation, nuclear pleomorphism

Tan *et al. Breast Cancer Research* (2016) 18:31
DOI 10.1186/s13058-016-0692-6

Breast Cancer Research

RESEARCH ARTICLE Open Access

A five-gene reverse transcription-PCR assay for pre-operative classification of breast fibroepithelial lesions

Wai Jin Tan[1], Igor Cima[1], Yukti Choudhury[1], Xiaona Wei[1], Jeffrey Chun Tatt Lim[2], Aye Aye Thike[2], Min-Han Tan[1] and Puay Hoon Tan[2,3*]

Methods: We profiled the transcriptome of a training set of 48 formalin-fixed, paraffin-embedded fibroadenomas and phyllodes tumors and further designed 43 quantitative polymerase chain reaction (qPCR) assays to verify differentially expressed genes. Using machine learning to build predictive regression models, we selected a five-gene transcript set (*ABCA8*, *APOD*, *CCL19*, *FN1*, and *PRAME*) to discriminate between fibroadenomas and phyllodes tumors. We validated our assay in an independent cohort of 230 core biopsies obtained pre-operatively.

Results: Overall, the assay accurately classified 92.6 % of the samples (AUC = 0.948, 95 % CI 0.913–0.983, $p = 2.51E-19$), with a sensitivity of 82.9 % and specificity of 94.7 %.

FibroPhyllo™ Tissue Test

The performance of the FibroPhyllo™ Tissue Test in pre-operative classification of breast fibroepithelial lesions was validated in a cohort study of 230 core biopsies with at least 2 years of follow-up[5].

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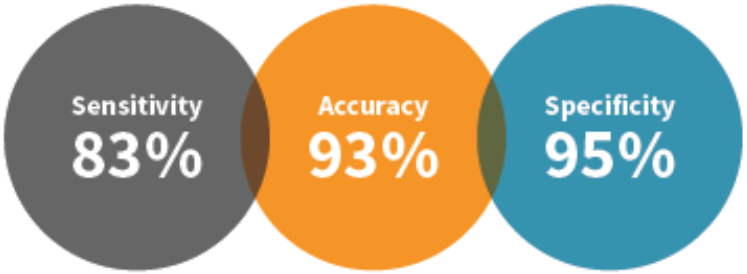
TEST PERFORMANCE



TEST REQUIREMENTS

1) FFPE Tissues - Core / Excisional Biopsies
   - Minimum 50 microns equivalent (e.g. 10 slides of 5 micron-thickness or 5 slides of 10 micron-thickness)
   - Slides uncharged and uncoated

2) Matched H&E slide with tumor region marked out

3) Matched histology report of tissue biopsy

4) Tissue curls are not be accepted

TURNAROUND TIME

7 days

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Lucence Service Laboratory
211 Henderson Road, #04-01/02 Henderson Industrial Park
Singapore 159552 Tel: +65 6909 0390 Fax: +65 6725 0590

SGH Pathology breast team declares no conflict of interest ~ financial or commercial, in this test

Validation of the Singapore nomogram for outcome prediction in breast phyllodes tumours in a large patient cohort

Tze Wei Chng,[1] Mihir Gudi,[2] Swee Ho Lim,[3] HuiHua Li,[4] Puay Hoon Tan[5]

J Clin Pathol 2018; 71: 125-128

Table 4 Cases with associated fibroadenoma-like areas or separate fibroadenomas

Year	Cases with concurrent fibroadenomas (separate fibroadenoma in ipsilateral or contralateral breasts, fibroadenoma-like areas within phyllodes tumours)	Cases with fibroadenoma-like areas within phyllodes tumours	Cases with separate fibroadenomas in ipsilateral or contralateral breasts
2013	11/26 (42.3%)	8/26 (30.8%) Benign: 12 Borderline: 0 Malignant: 0	3/26 (11.5%)
2014	13/23 (56.5%)	8/23 (34.8%) Benign: 6 Borderline: 1 Malignant: 1	5/23 (21.7%)
2015	16/29 (55.1%)	12/29 (41.4%) Benign: 6 Borderline: 1 Malignant: 1	4/29 (13.8%)
Total	40/78 (51.3%)	28/78 (35.9%)	12/78 (15.4%)

Summary

- Likelihood of phyllodes tumour following a core biopsy diagnosis of unambiguous fibroadenoma is very low.
- Occasional occurrences can be avoided by close clinicoradiological correlation, eg counselling for excision when a size threshold is exceeded, and when patient experiences symptoms, due to sampling limitations.
- Morphological parameters are helpful to some extent.
- Possibility of a molecular adjunctive test for arbitration.

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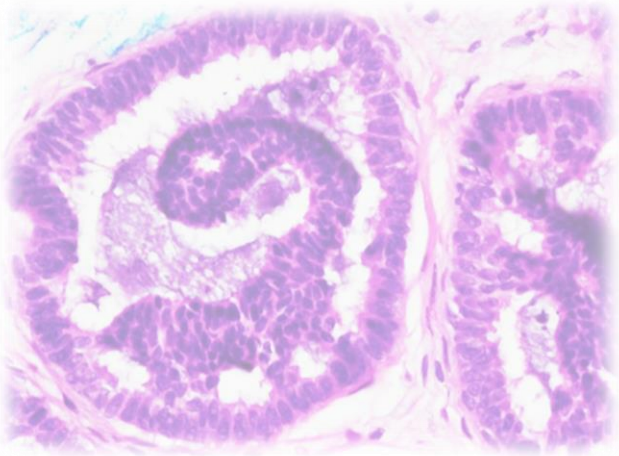
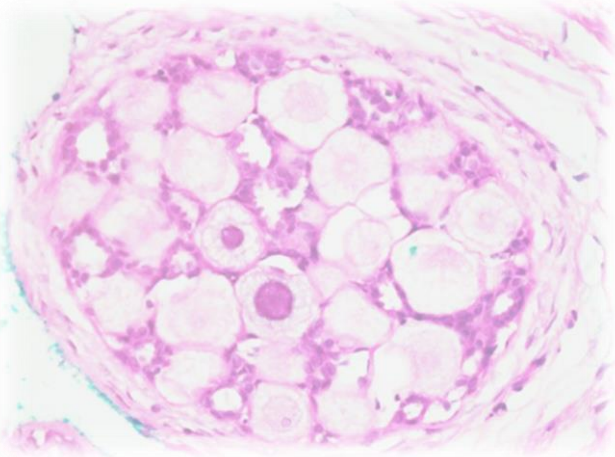
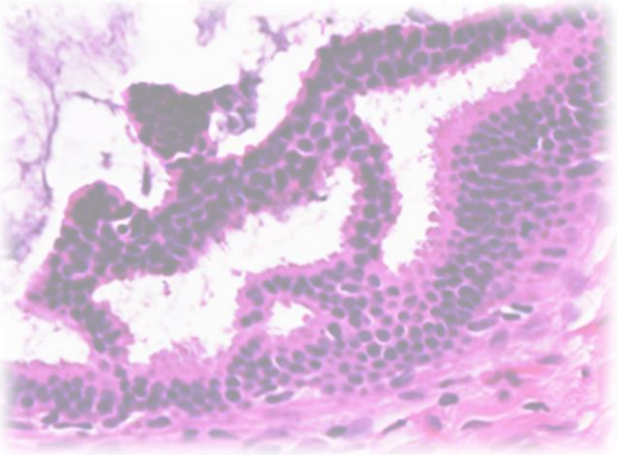
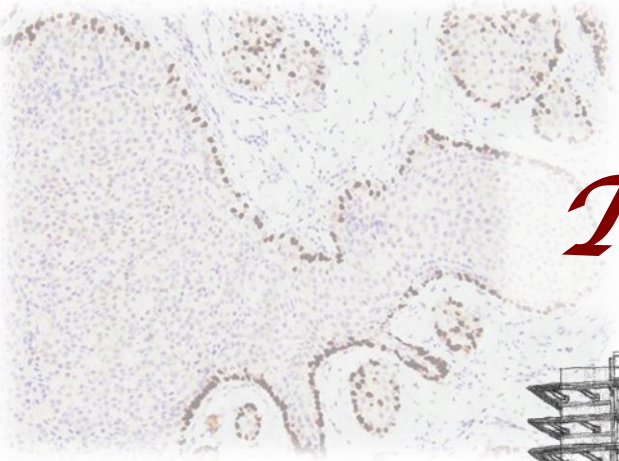

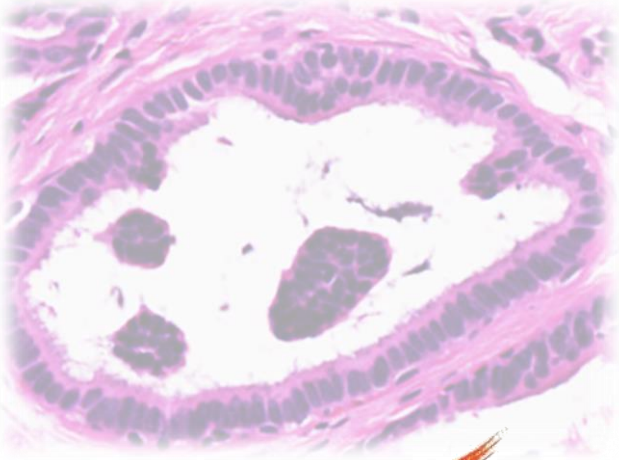

Thank you!

THE ACADEMIA, SINGAPORE GENERAL HOSPITAL 09.05.2014

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