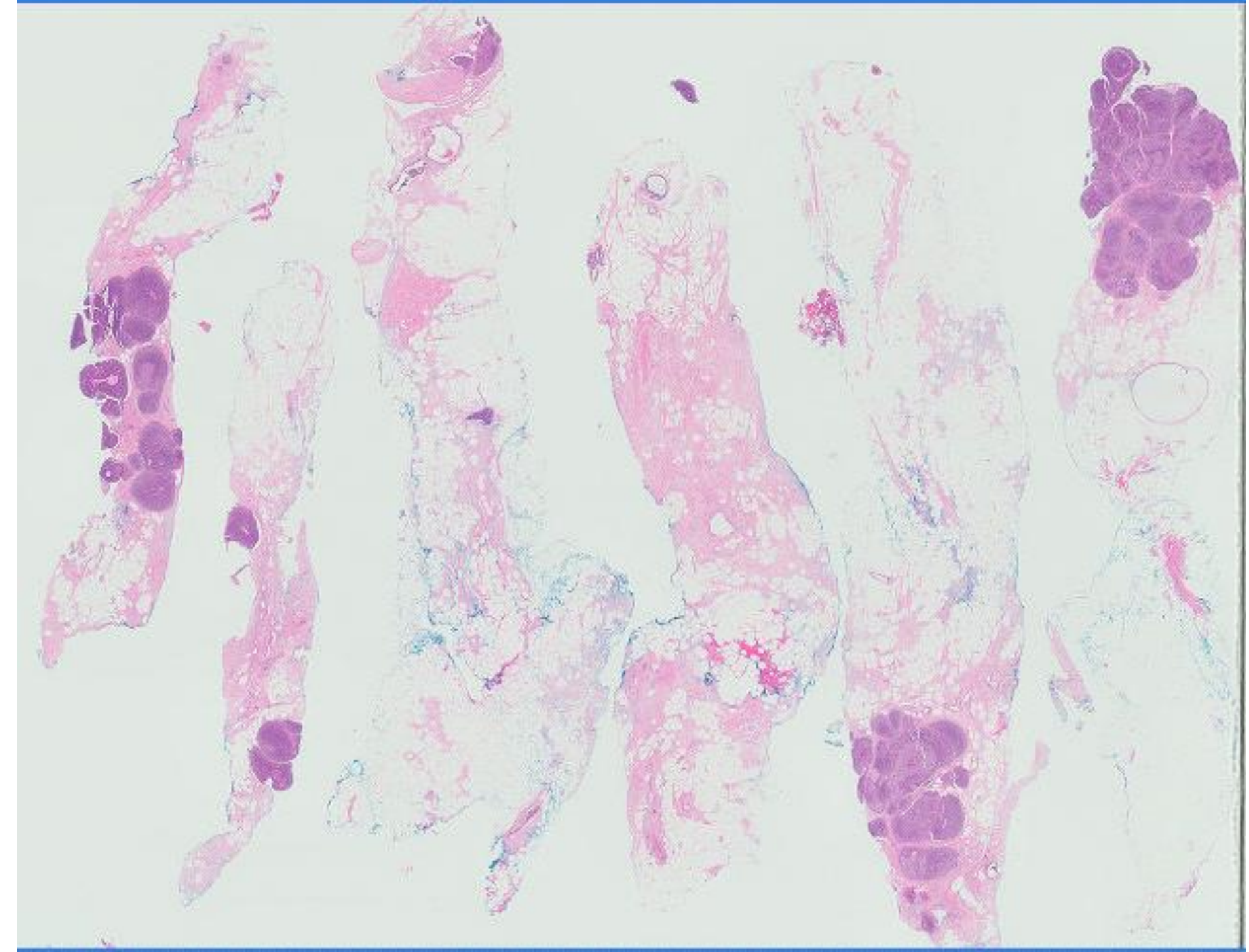
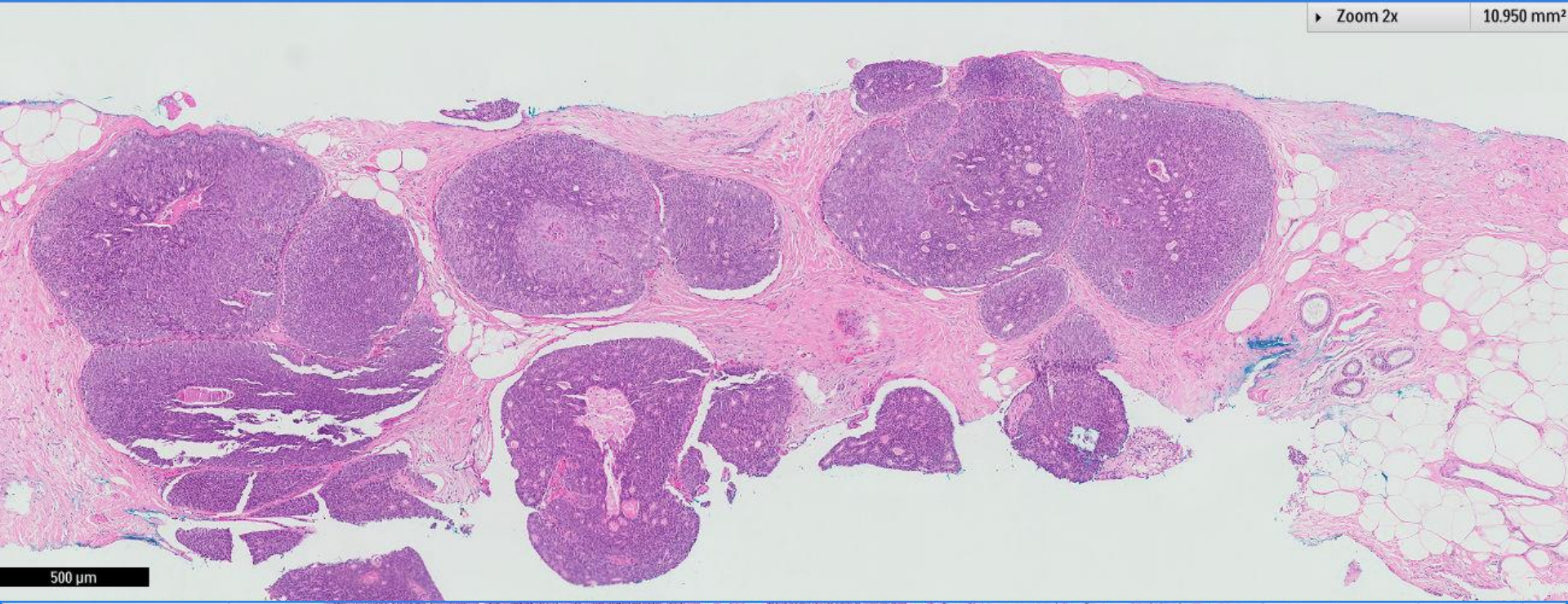
Breast Pathology Course 2016

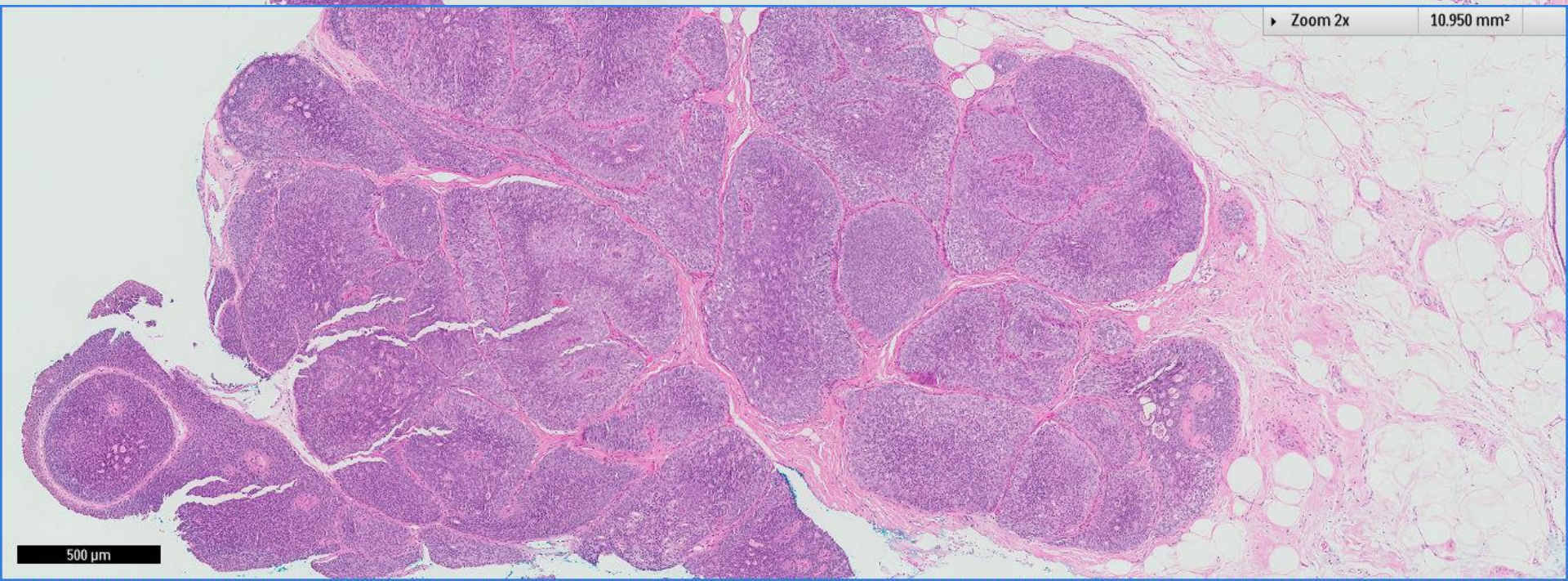
Case 5

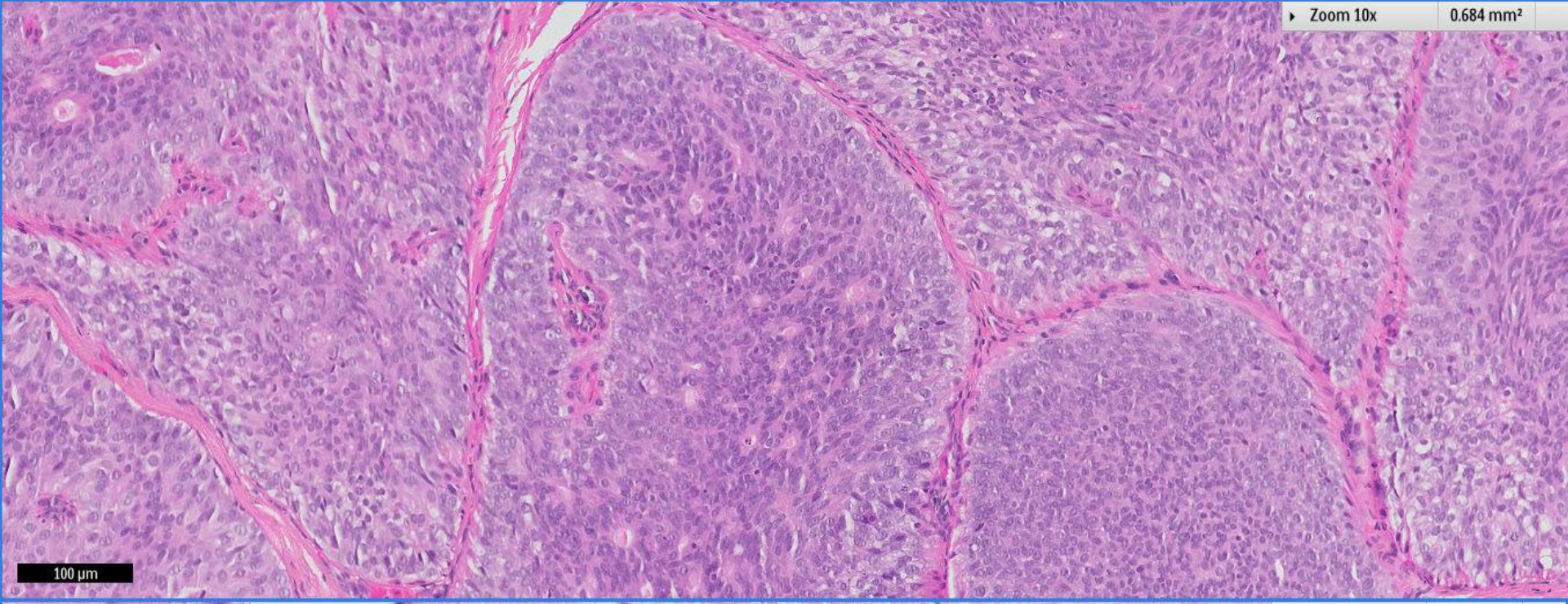
65 year old Indonesian woman underwent an ultrasound guided mammotome biopsy of a left breast nodule (case 5).

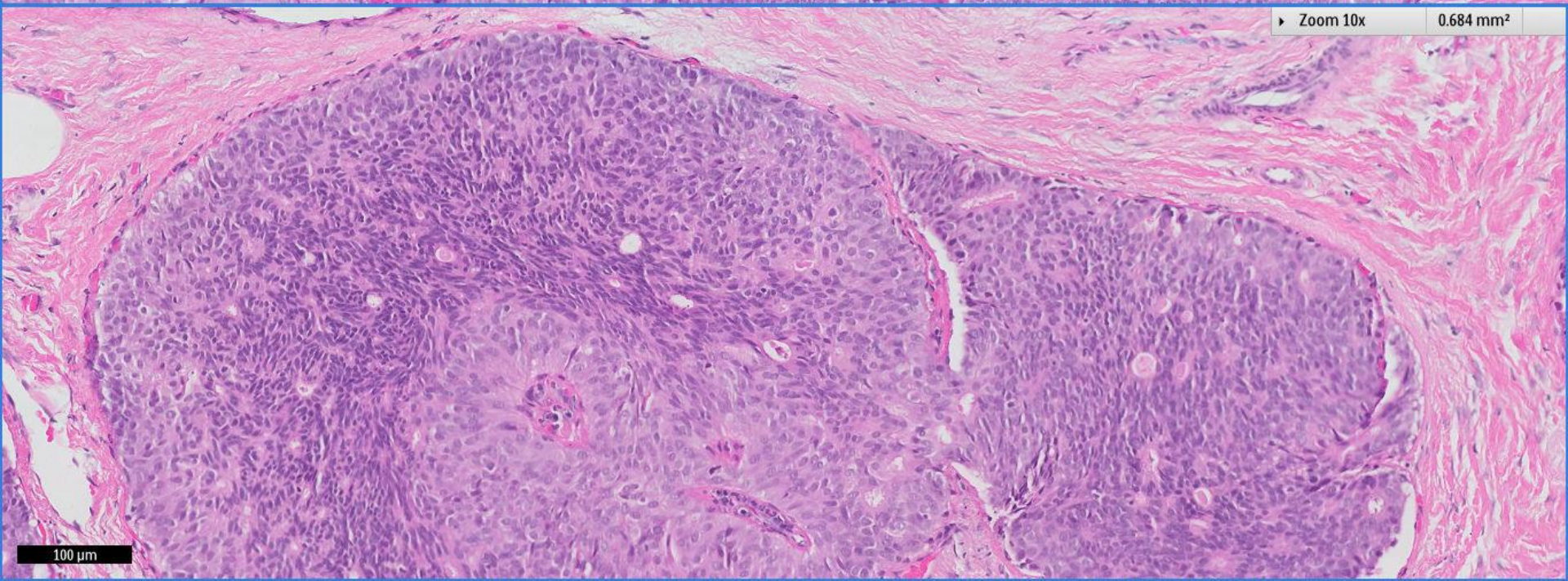
About a week prior to this biopsy, she was diagnosed with invasive carcinoma with ductal features on a trucut biopsy of a right breast lump.

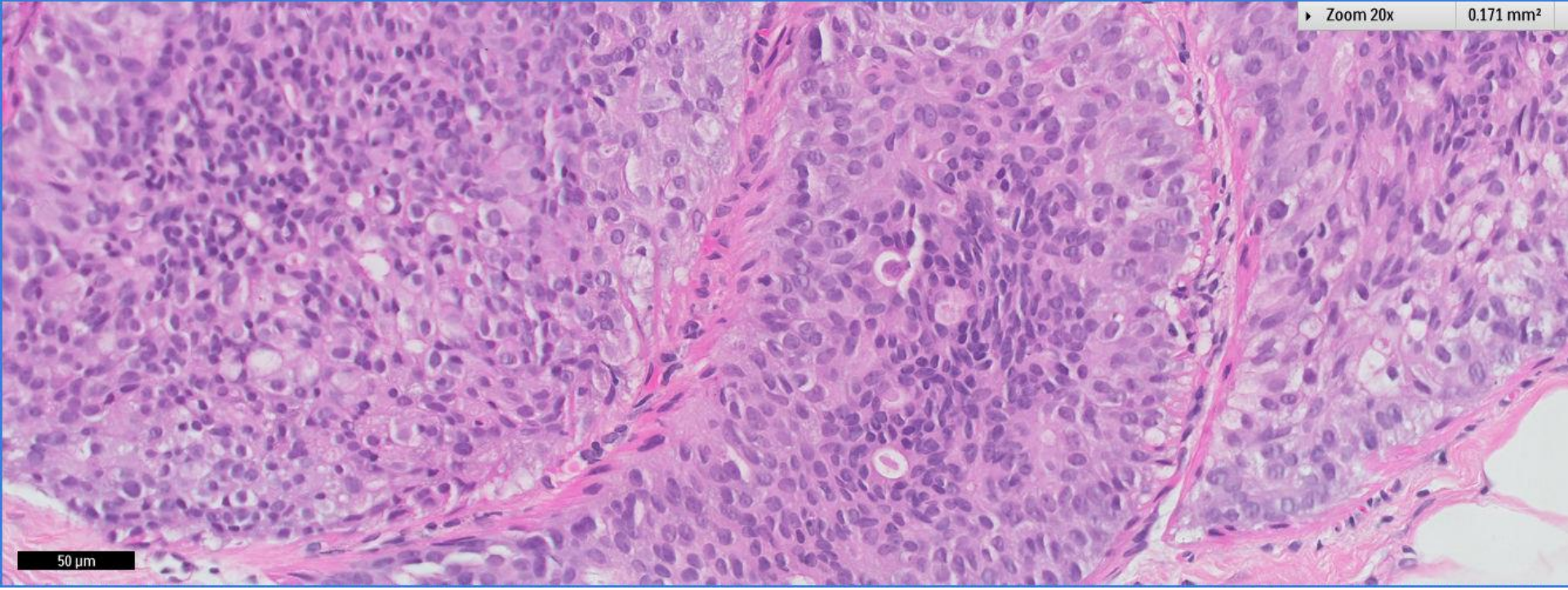


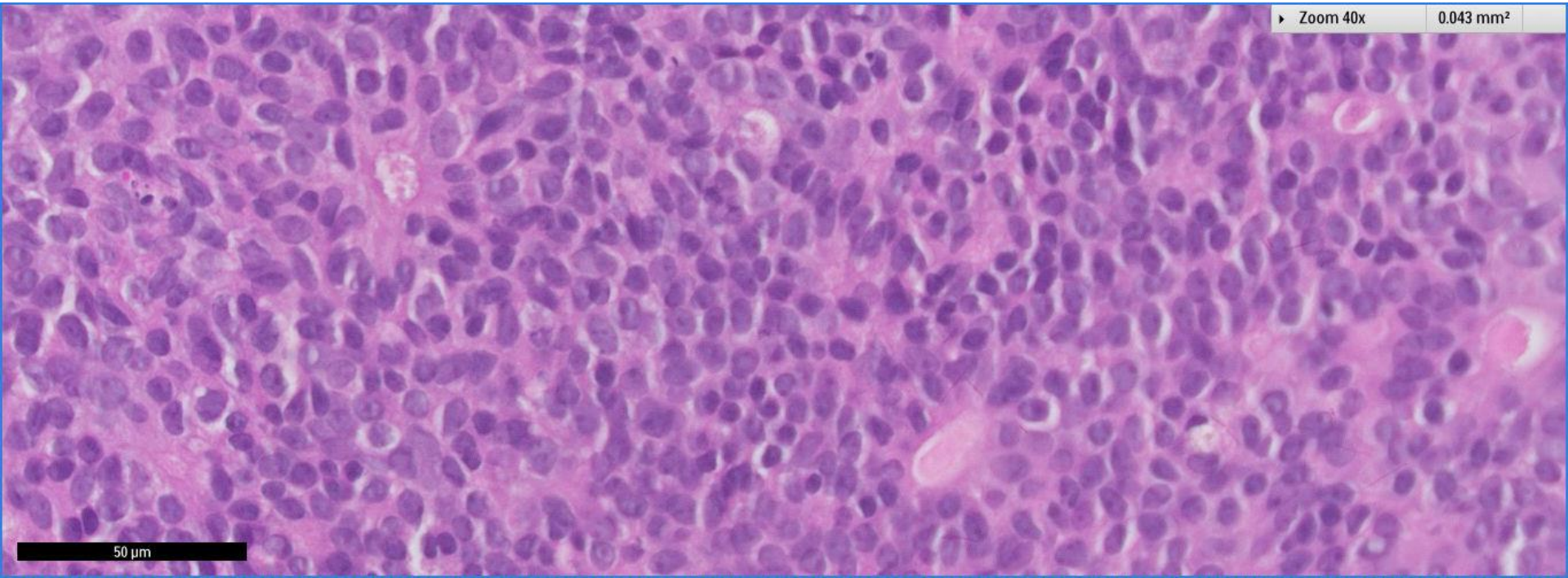

Zoom 2x
10.950 mm²
500 µm

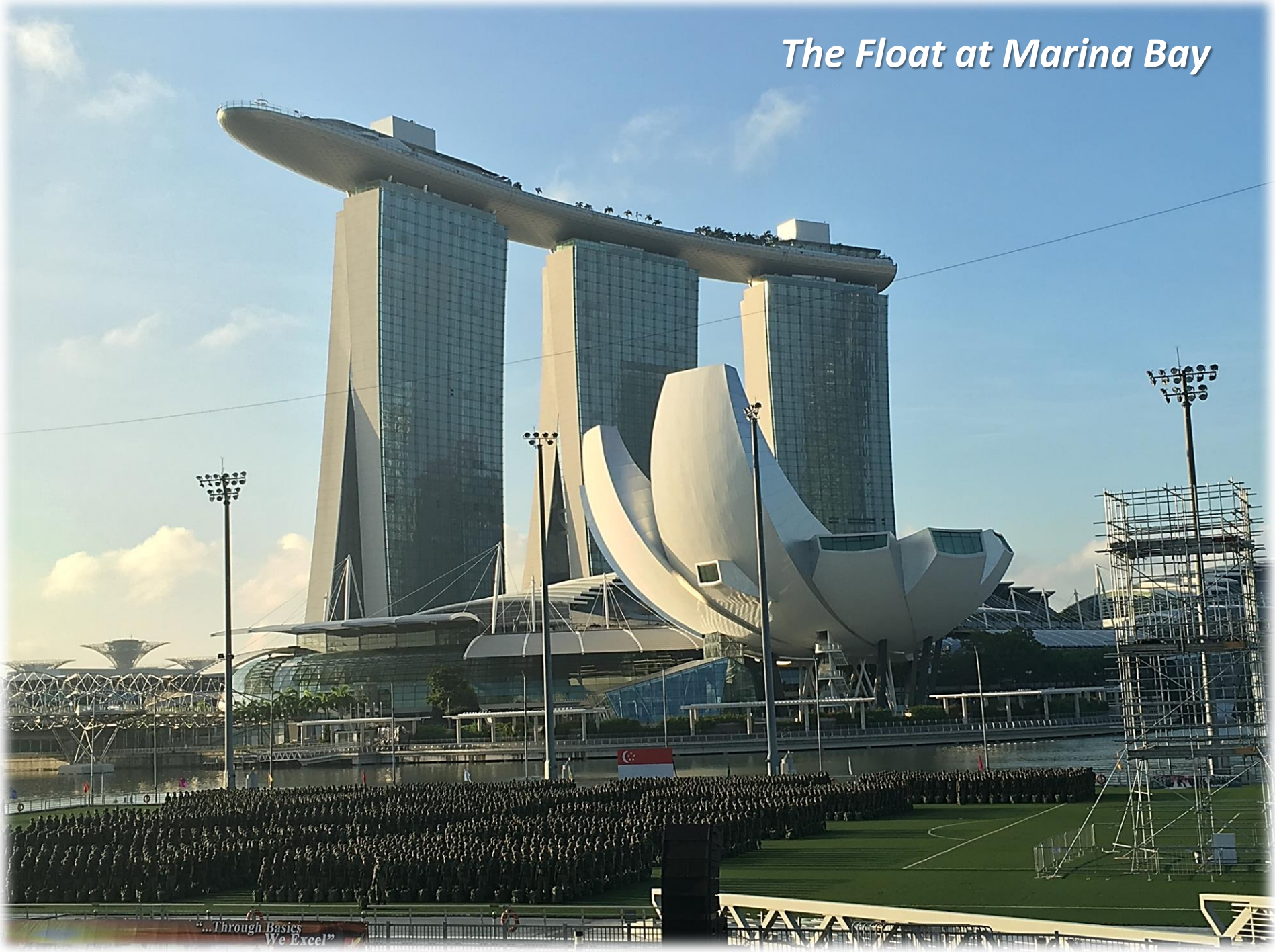

Zoom 2x
10.950 mm²
500 µm

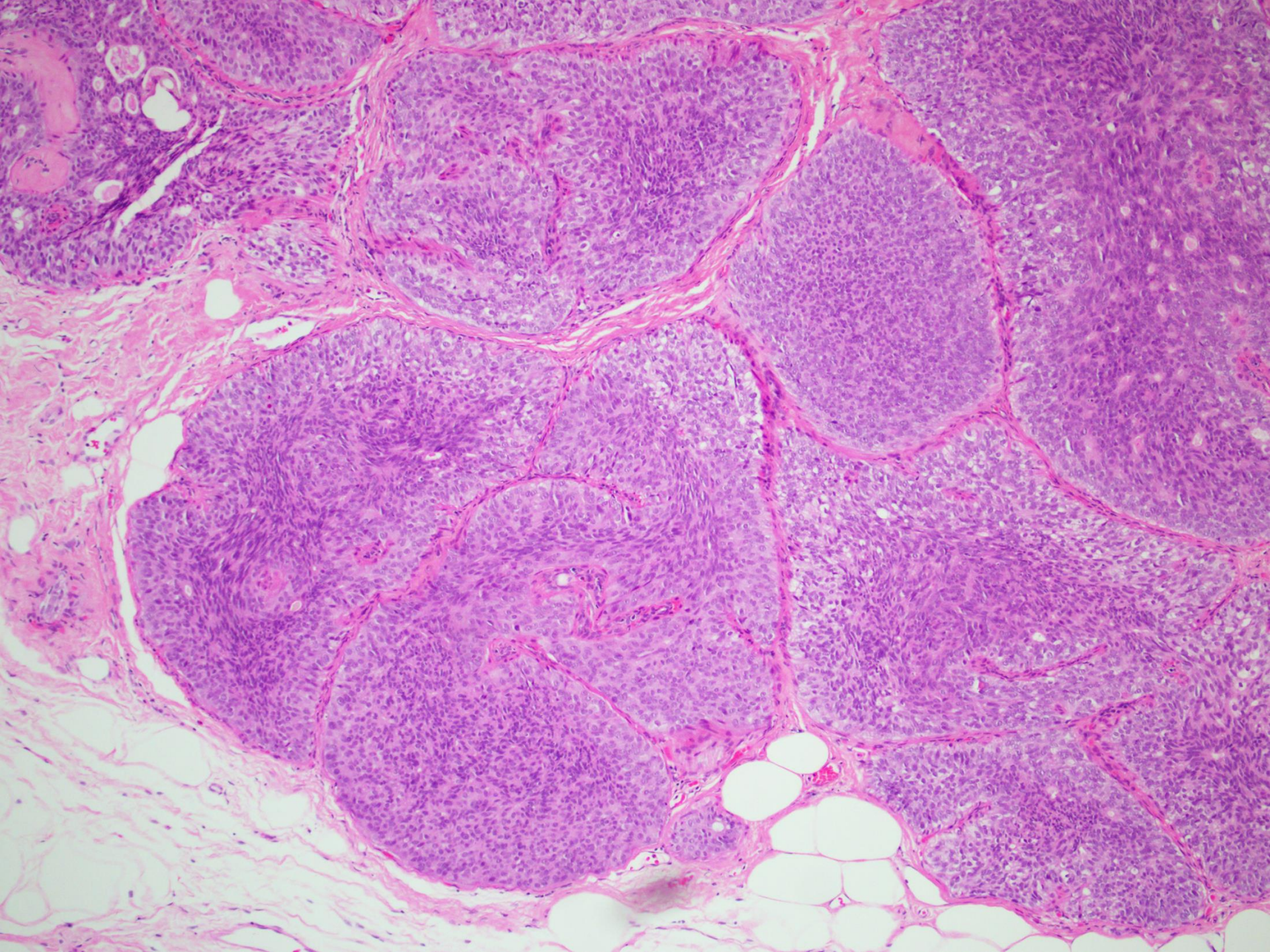

Zoom 10x
0.684 mm²
100 µm

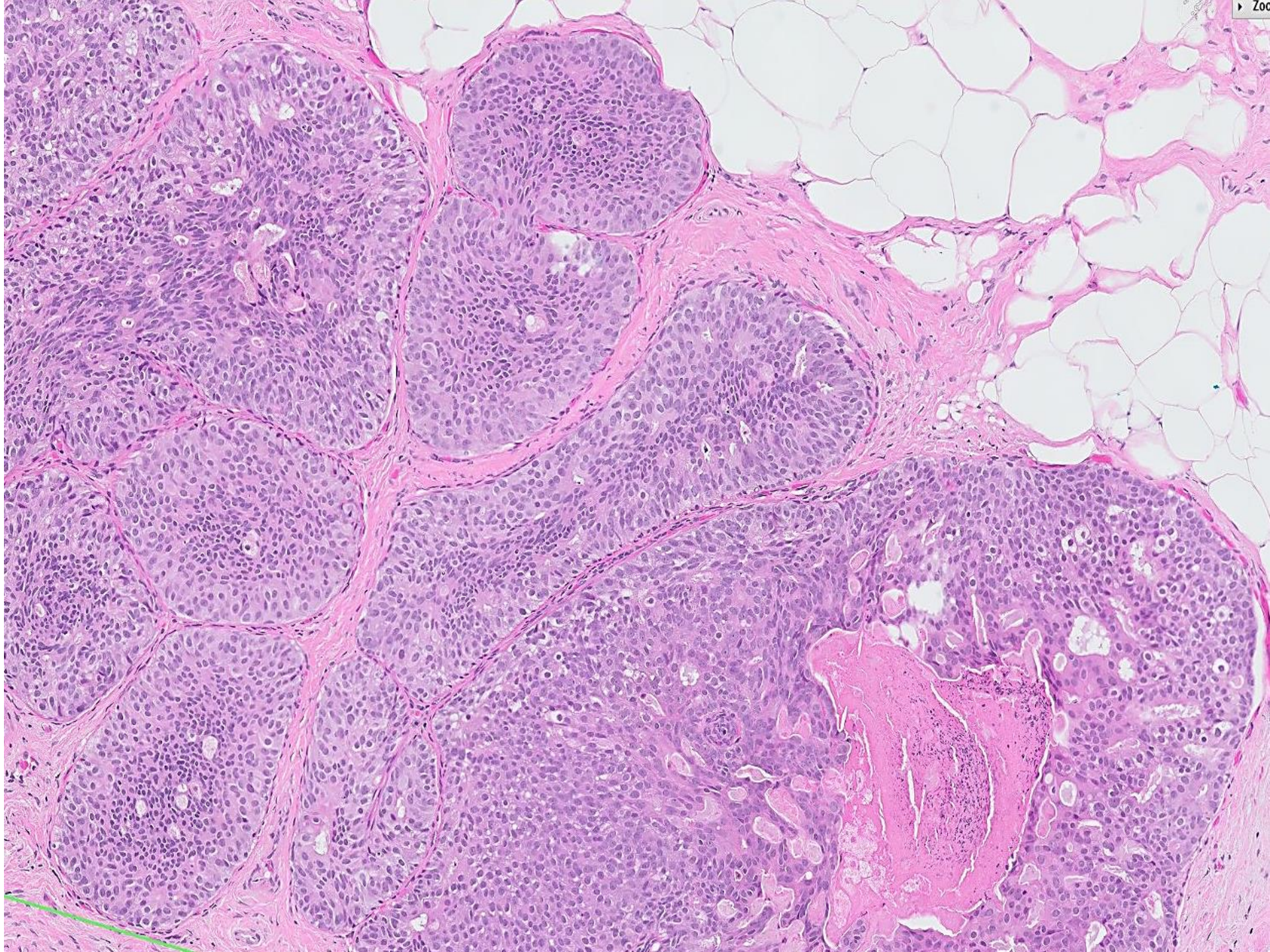

Zoom 10x
0.684 mm²
100 µm

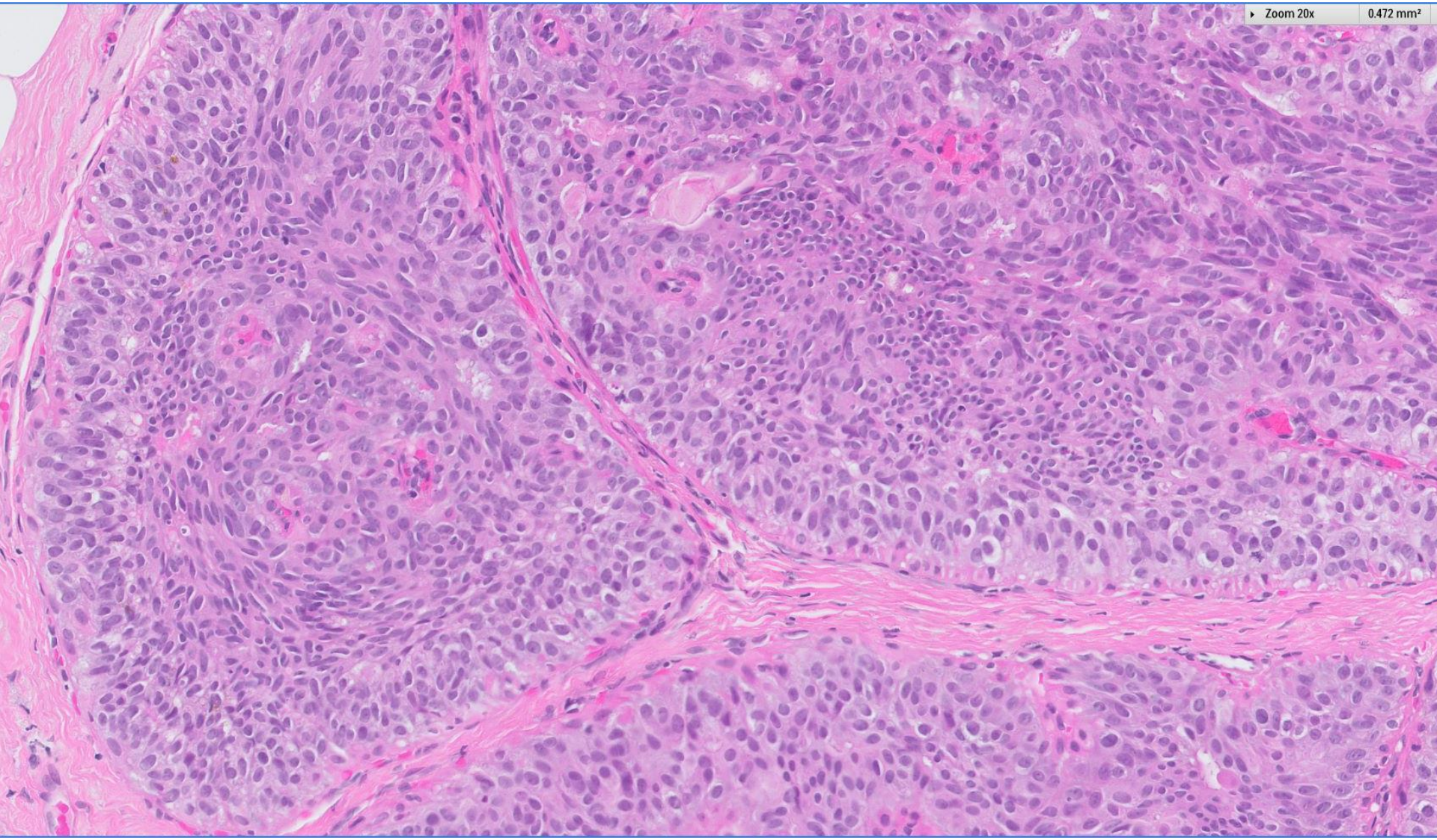

Zoom 20x
0.171 mm²
50 µm

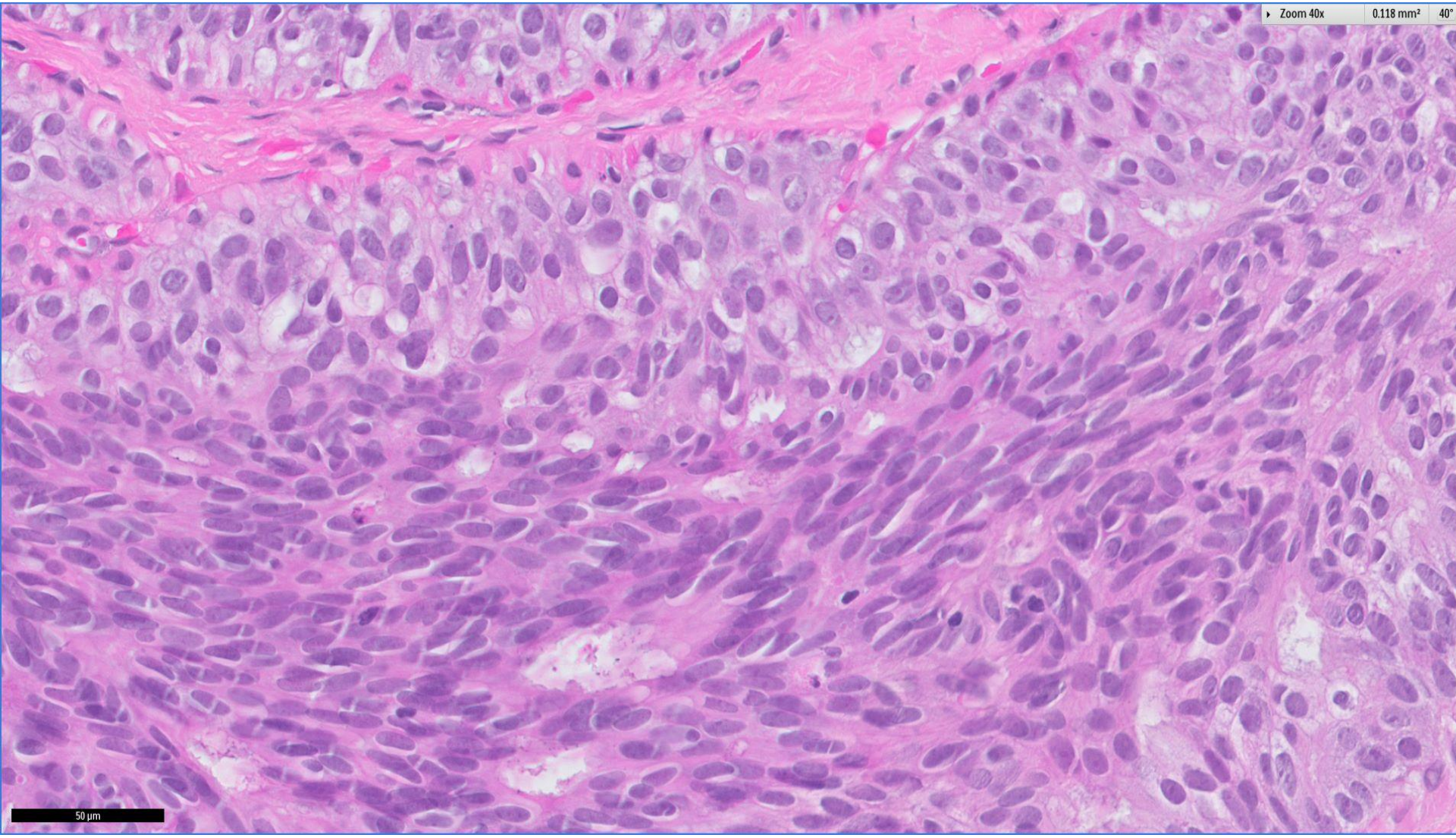

Zoom 40x
0.043 mm²
50 µm

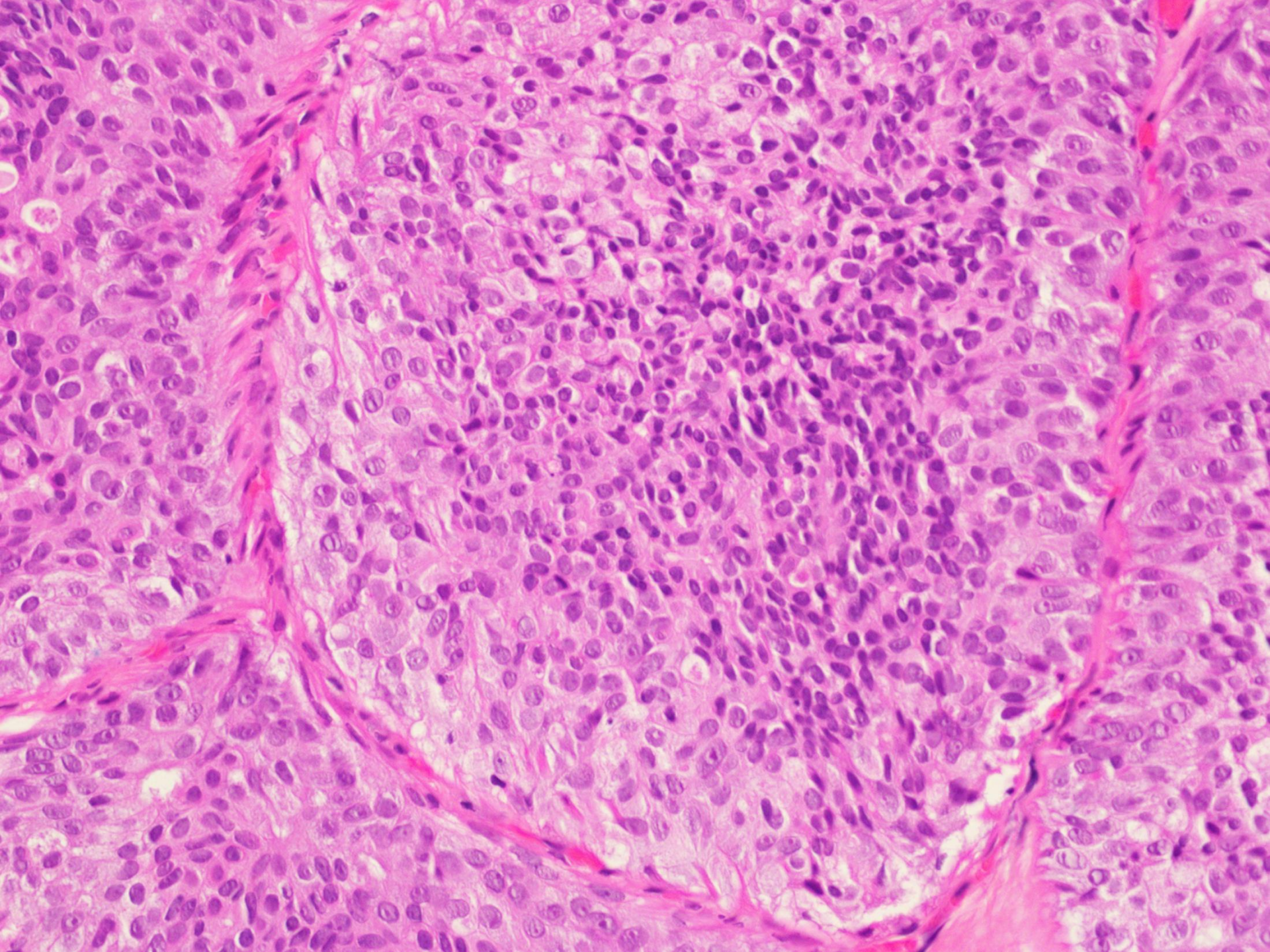

The Float at Marina Bay
"...Through Basics
We Excel"

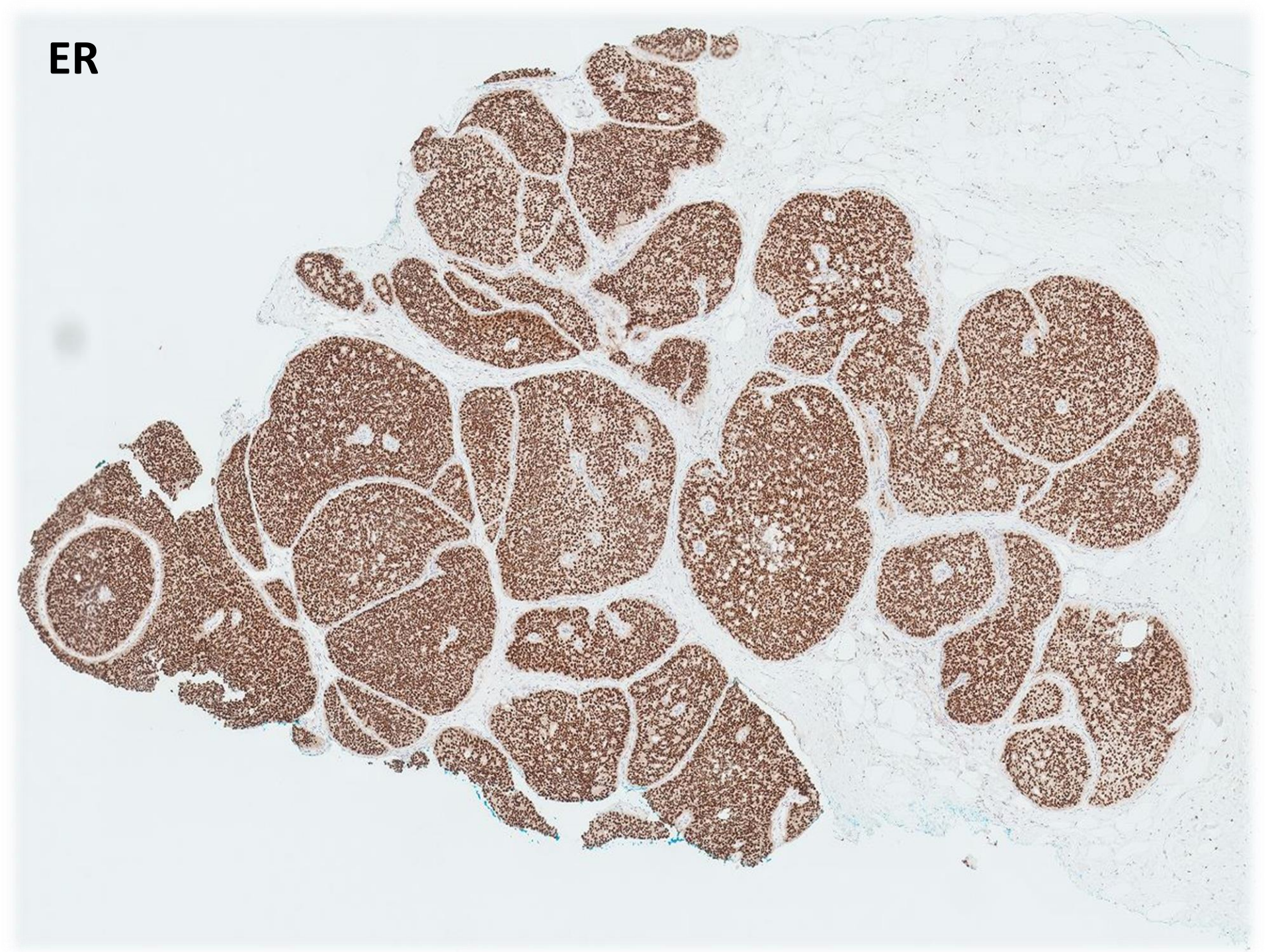




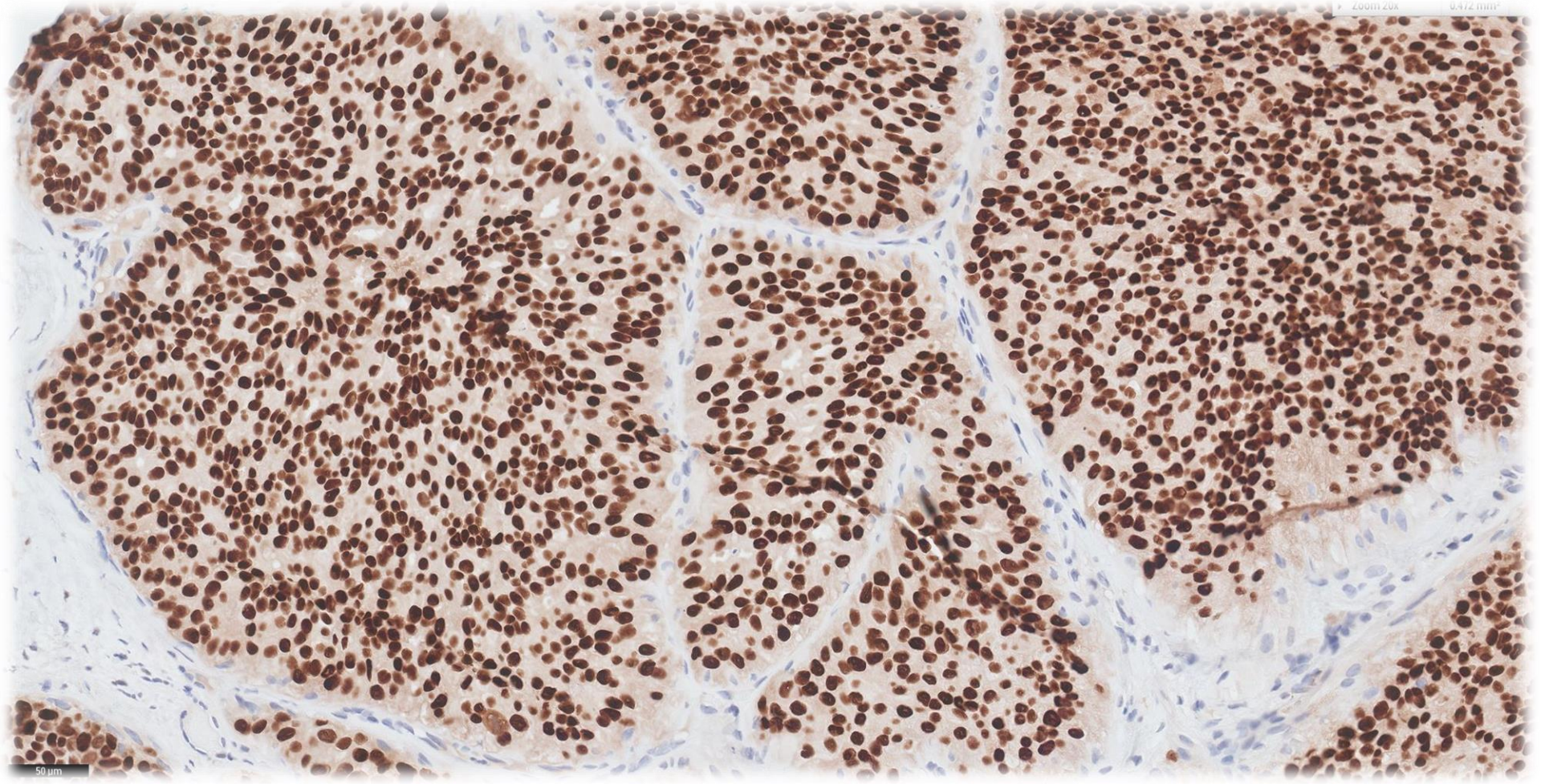

Zoom 20x
0.472 mm²


Zoom 40x
0.118 mm²
40°
50 µm

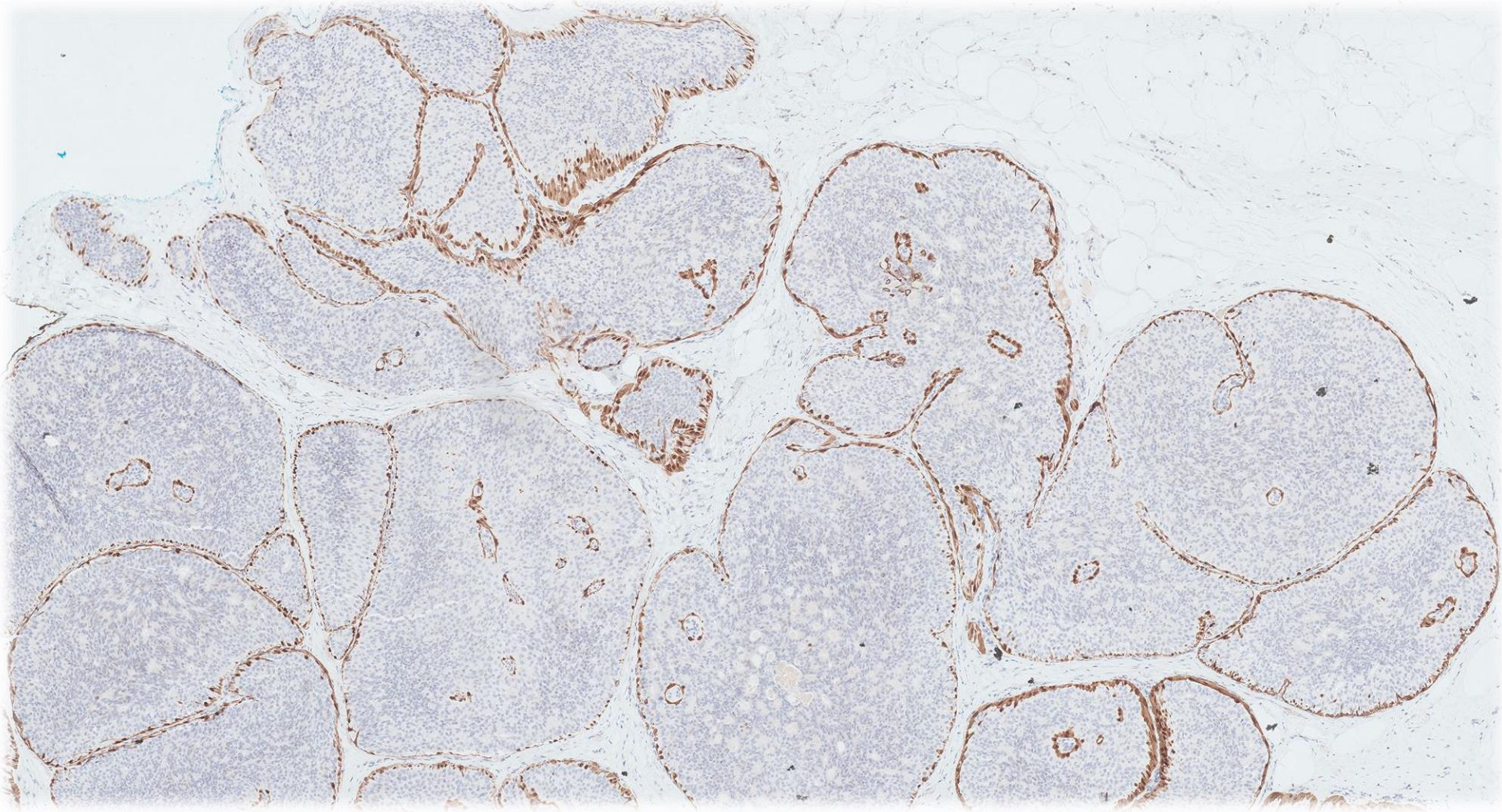



ER

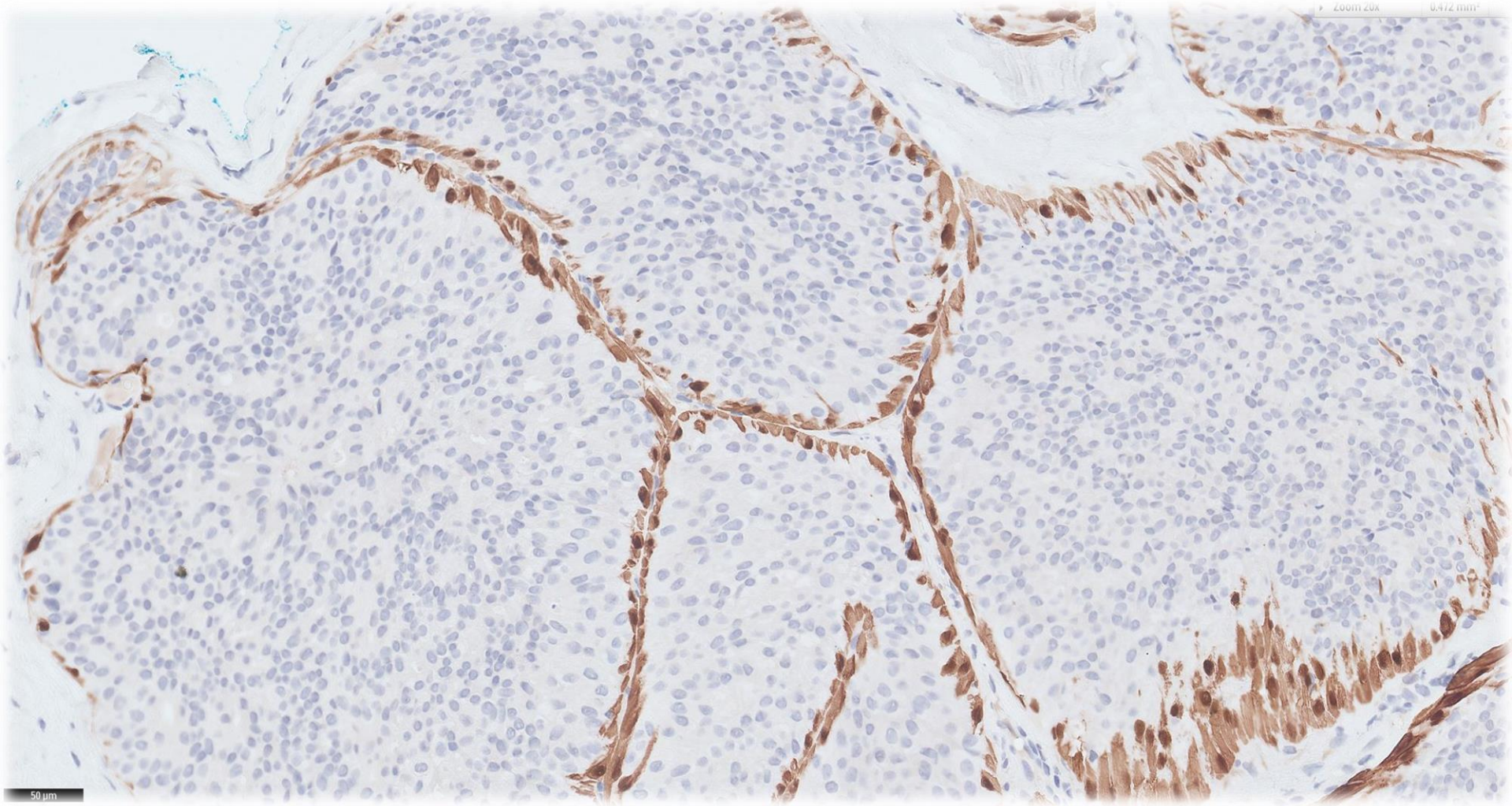
ER

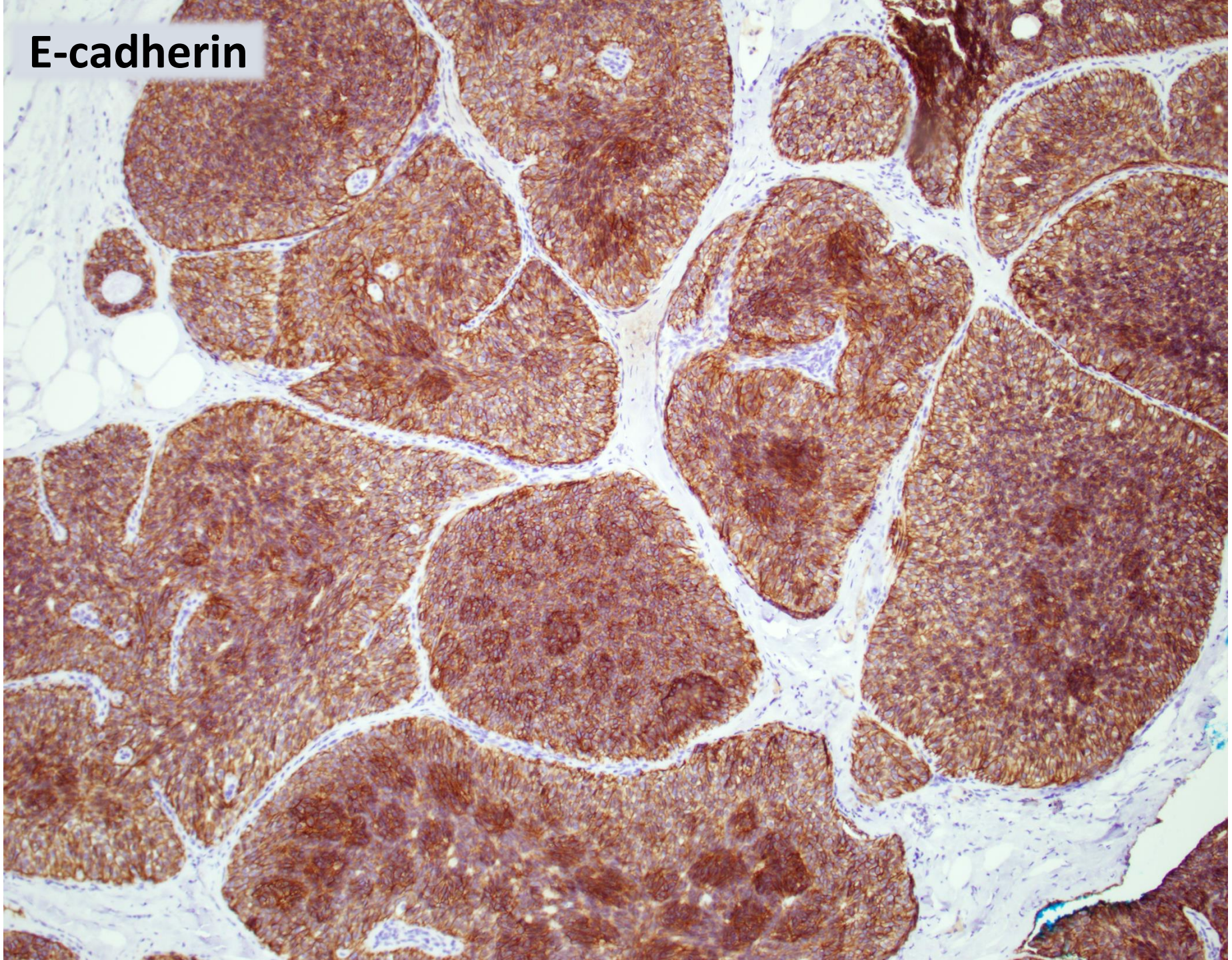


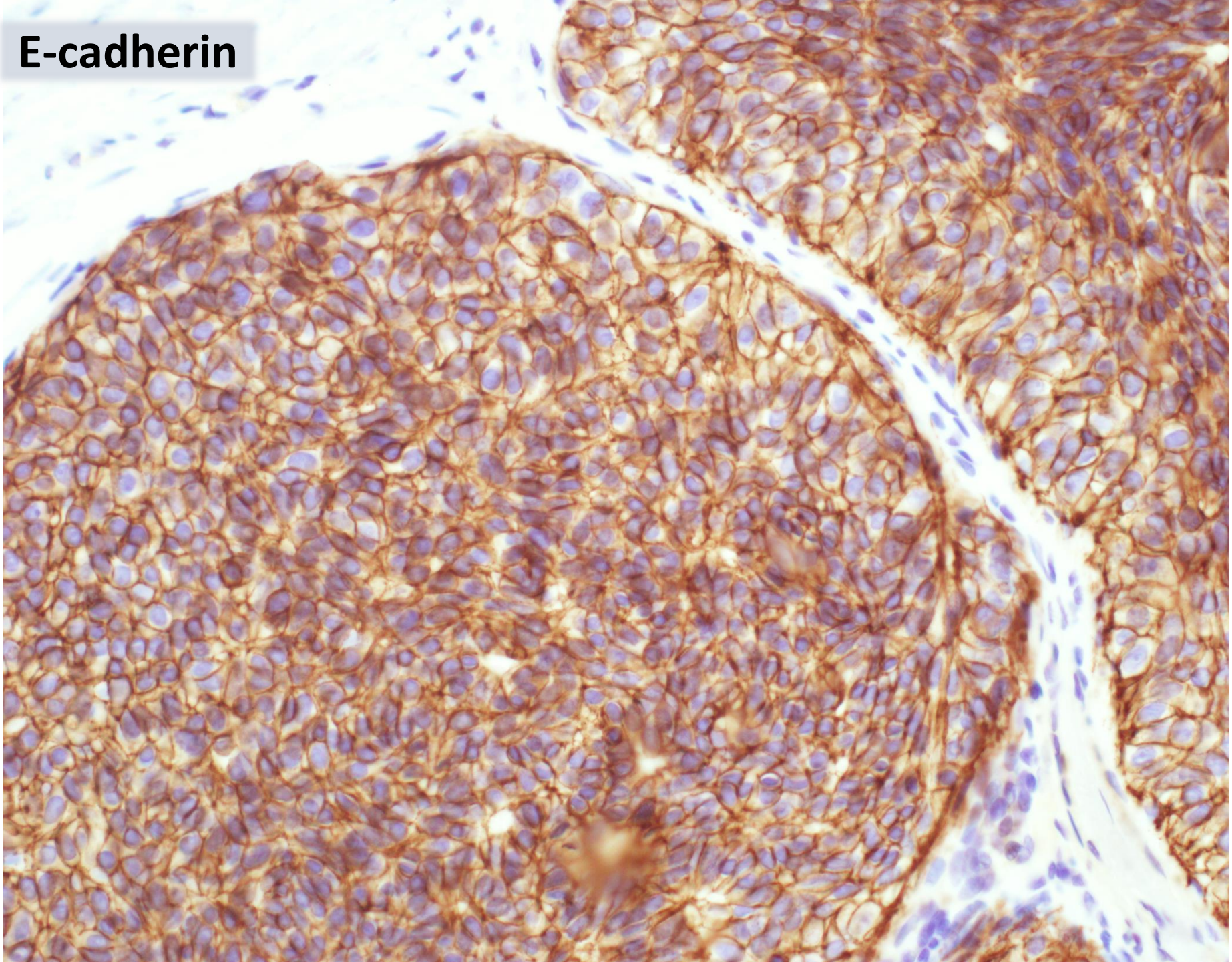
CK14/p63



CK14/p63




E-cadherin


E-cadherin

Diagnosis

Ultrasound guided mammotome biopsy, left breast nodule:

In situ carcinoma with solid papillary features.

5mm in largest dimension on a single core.

ER positive, PR positive.

(synaptophysin negative)

Key points

- Solid papillary carcinoma
- Neuroendocrine expression
- Dimorphic morphology

Solid papillary carcinoma

- Distinctive form of papillary carcinoma characterised by closely apposed expansile cellular nodules.
- Fibrovascular cores are delicate and often inconspicuous.
- Neuroendocrine differentiation is frequent.
- May be associated with conventional invasive carcinoma, with mucinous and/or neuroendocrine features.
- Synonyms:
  - Neuroendocrine breast carcinoma.
  - Spindle cell DCIS.
  - Neuroendocrine DCIS.
  - Endocrine DCIS.

Solid papillary carcinoma: *in situ or invasive disease?*

- Precise distinction between in situ and invasive disease is difficult.
- Lesions with preserved myoepithelial cells are considered variants of in situ disease.
- If there is uncertainty about invasion, the lesion should be regarded as in situ disease and staged as Tis.
- Presence of geographic jigsaw pattern with ragged and irregular margins, together with absence of myoepithelial cells, may be regarded by some as invasive disease.
- ***Diagnosis of solid papillary carcinoma without qualification as in situ or invasive disease is discouraged.***

Clinicopathologic Characteristics of Solid Papillary Carcinoma of the Breast

Benjamin Yongcheng Tan, FRCPath, Aye Aye Thike, MMedSci,**
*Ian O. Ellis, FRCPath,† and Puay Hoon Tan, FRCPA**

Am J Surg Pathol 2016 Oct;40(10):1334-42.

- 250 cases of in situ & invasive breast cancer with NE differentiation.
- Tumours with solid papillary carcinoma (SPC) component significantly associated with ER, PR, chromogranin expression, spindled morphology, older age.
- Invasive carcinomas with SPC components were more likely to be of smaller size (≤ 20 mm), low grade (grade 1), and to occur in older patients (above median age), compared with cases of invasive carcinoma lacking an SPC component.
- In situ SPCs were significantly associated with mucin production and demonstrated improved disease-free survival over cases of conventional ductal carcinoma in situ with neuroendocrine differentiation.

Papillary lesions on core biopsy – how should they be handled?

Whereas the presence of atypical features or carcinoma in a papillary neoplasm on core biopsy necessitates surgical excision, whether a papillary lesion with benign appearances observed on core biopsy also requires excision is less clear.[6] An approach adopted in many institutions and screening programmes is for partially sampled benign papillary lesions to be completely excised, owing to the risk of undersampling a worse lesion,[6–8] and this may be accomplished through a mammotome procedure. Some studies however, suggest that papillary lesions with benign findings on core biopsy may be followed up.[9–11] Micropapillomas that are incidentally discovered on core biopsies do not require further management.

REVIEW

Papillary and neuroendocrine breast lesions: the WHO stance

Puay Hoon Tan,[1] Stuart J Schnitt,[2] Marc J van de Vijver,[3] Ian O Ellis[4] & Sunil R Lakhani[5,6,7]

Histopathology. 2015 May;66(6):761-70.

Solid papillary carcinoma (in situ) ~ *neuroendocrine expression*

- More than 50% show neuroendocrine differentiation with positive staining for synaptophysin, chromogranin.
- Not all lesions demonstrate neuroendocrine protein expression ~
  - Sensitivity of antibodies used.
  - Presence of ultrastructural neurosecretory granules without protein expression.
  - True absence of neuroendocrine expression.

Histopathology 2004, 45, 343–351

Ductal carcinoma *in situ* with spindle cells: a potential diagnostic pitfall in the evaluation of breast lesions

Immunohistochemical and ultrastructural findings

Case	ER	PR	CerbB2	Synaptophysin	Chromogranin	CK5/6	CK14	34βE12	SMA	EM
1	+	−	+	−	−	−	−	−	−	No NS granules
2				+ (90%)	−				−	
3	+	+	−	+ (90%)	+ (30%)	−	10%	25%	−	
4	+	+	−	+ (90%)	+ (90%)	5%	10%	30%	−	
5	+	+	−	−	−	−	3%	3%	−	NS granules
6	+	−	−	−	−	5%	10%	5%	−	No NS granules
7	+	+	−	+ (40%)	+ (25%)	10%	25%	25%	−	
8	+	+	−	+ (80%)	+ (70%)	−	−	−	−	
9	+	+	−	+ (40%)	−	5%	5%	5%	−	
10	+	+	−	+ (100%)	+ (90%)	5%	<5%	5%	−	
11	+	+	−	+ (90%)	+ (50%)	−	−	5%	−	

EM, electron microscopy; NS, neurosecretory.

Dimorphic pattern of DCIS

- Intraductal papillary carcinoma may show a dimorphic cell population, with tumour cells with clear cytoplasm adjacent to the basement membrane resembling myoepithelial cells (WHO 2012).
- Myoepithelial immunostains are negative in these cells.

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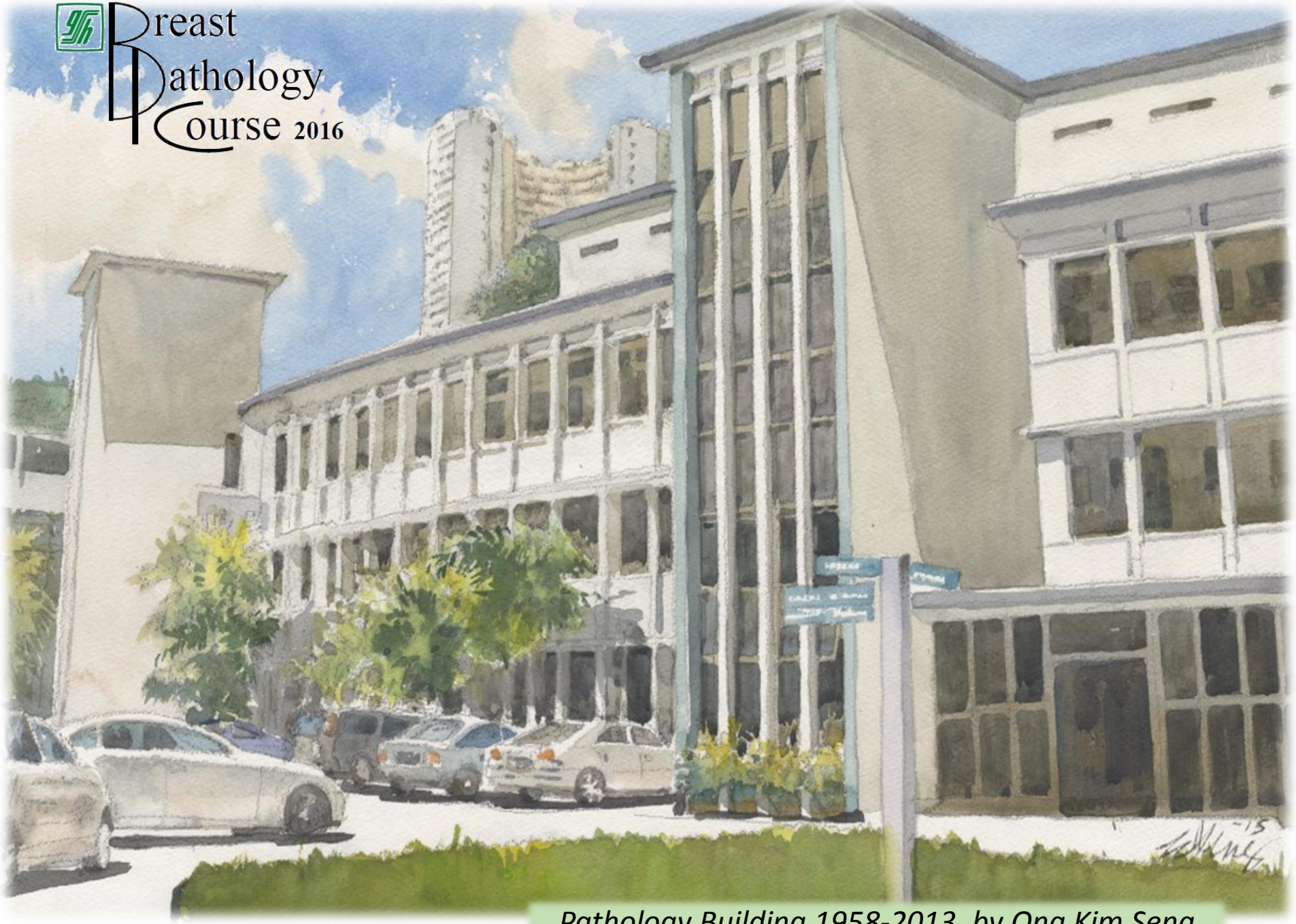

Pathology Building 1958-2013, by Ong Kim Seng