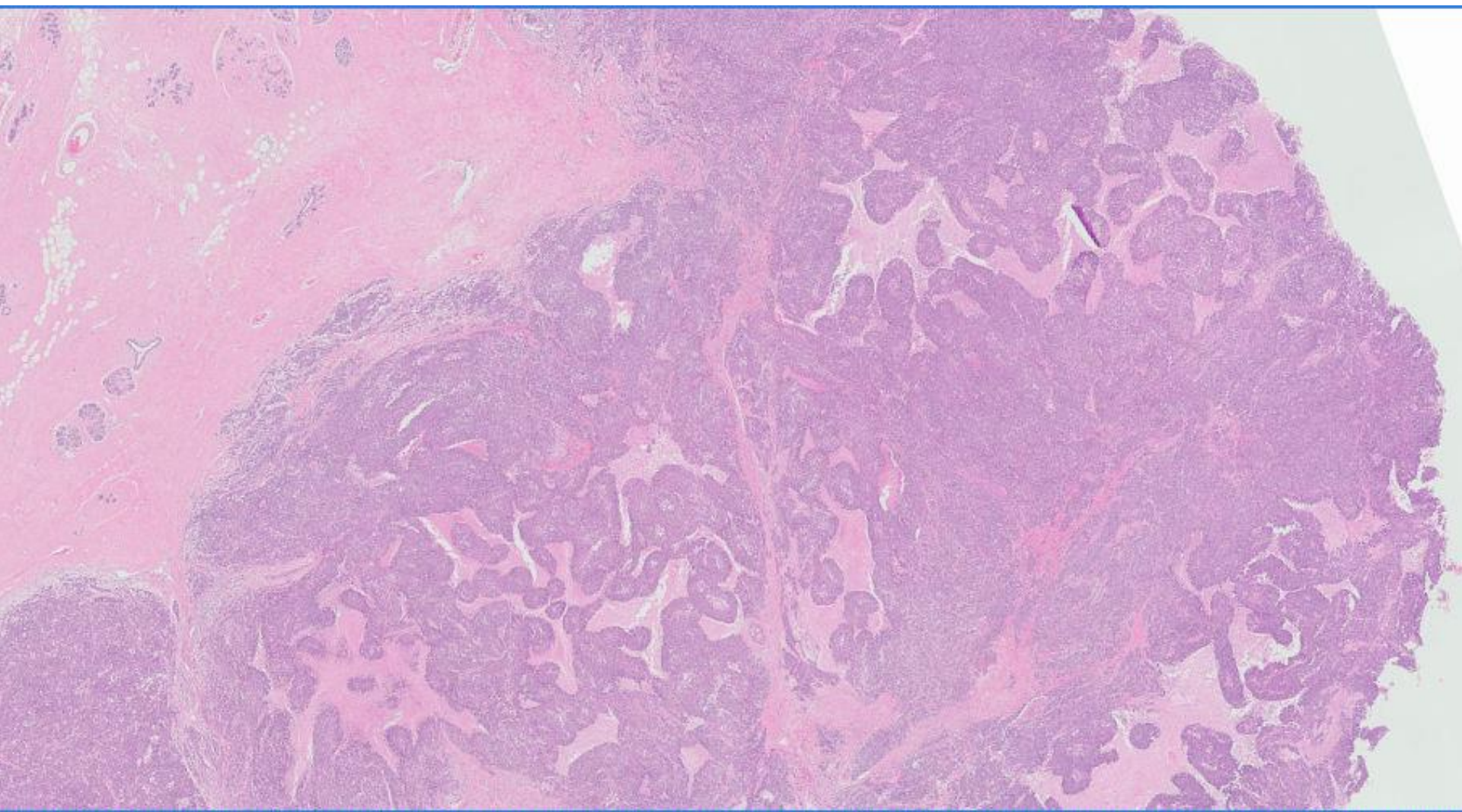
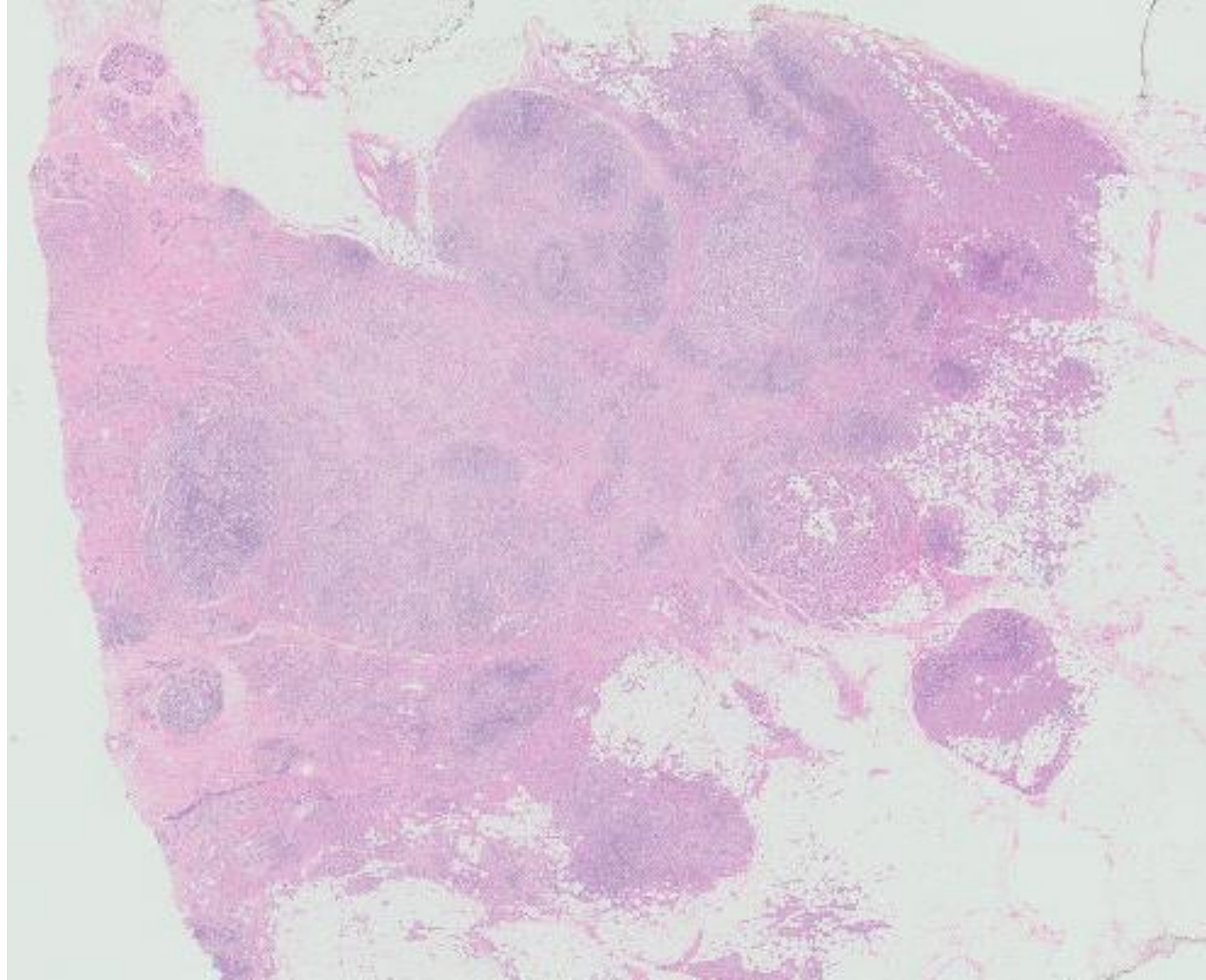


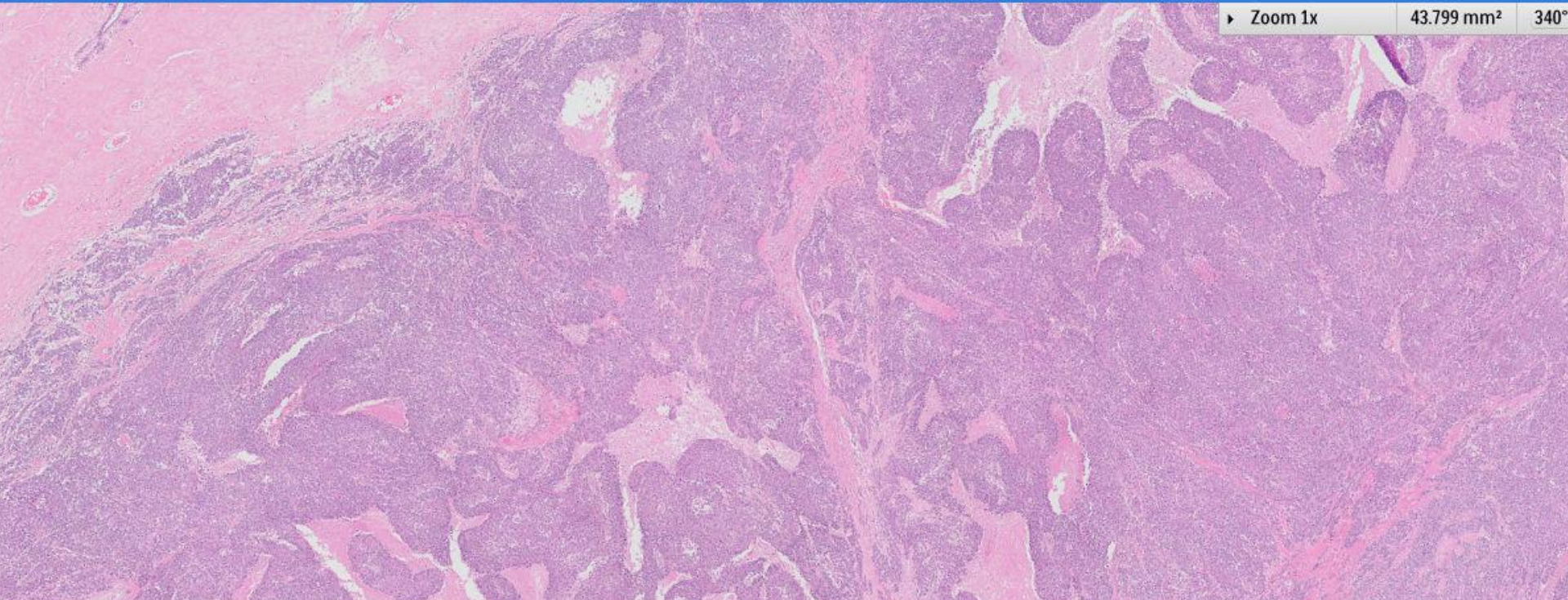
## Case 8

29 year old woman from Sri Lanka, diagnosed with breast carcinoma, sought oncological treatment at the National Cancer Centre Singapore.

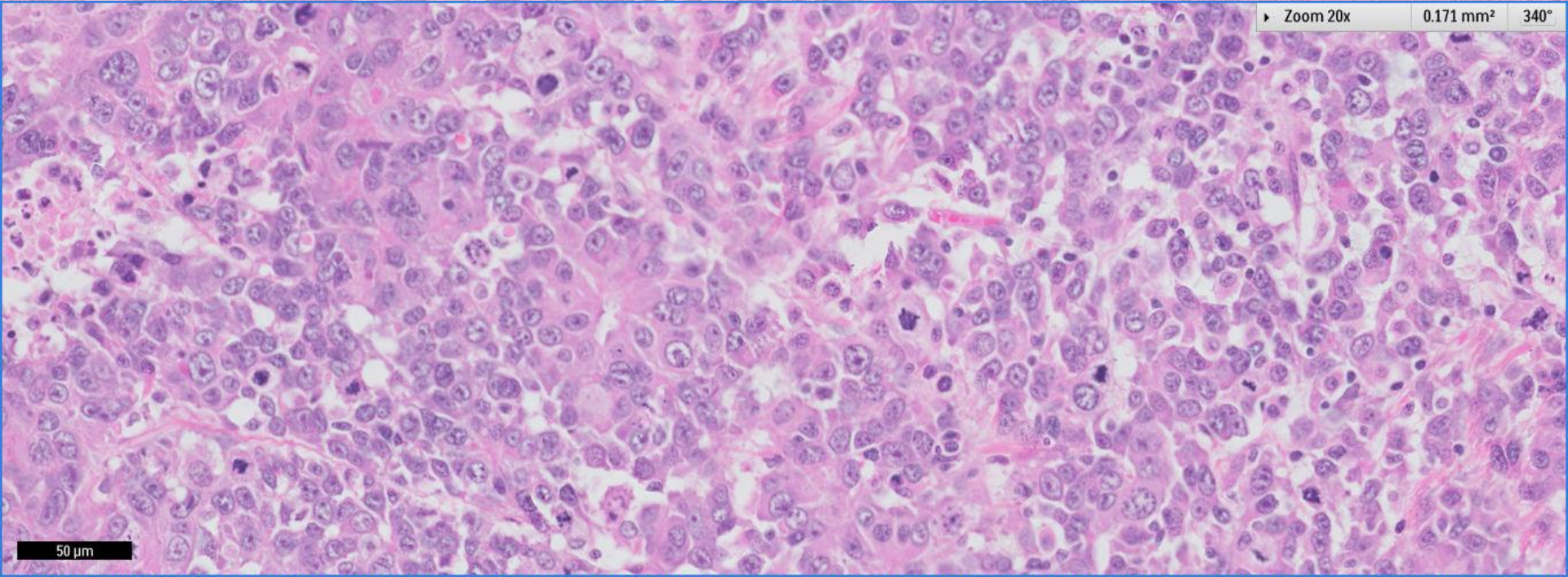
Materials of the breast tumour were submitted for histological review.





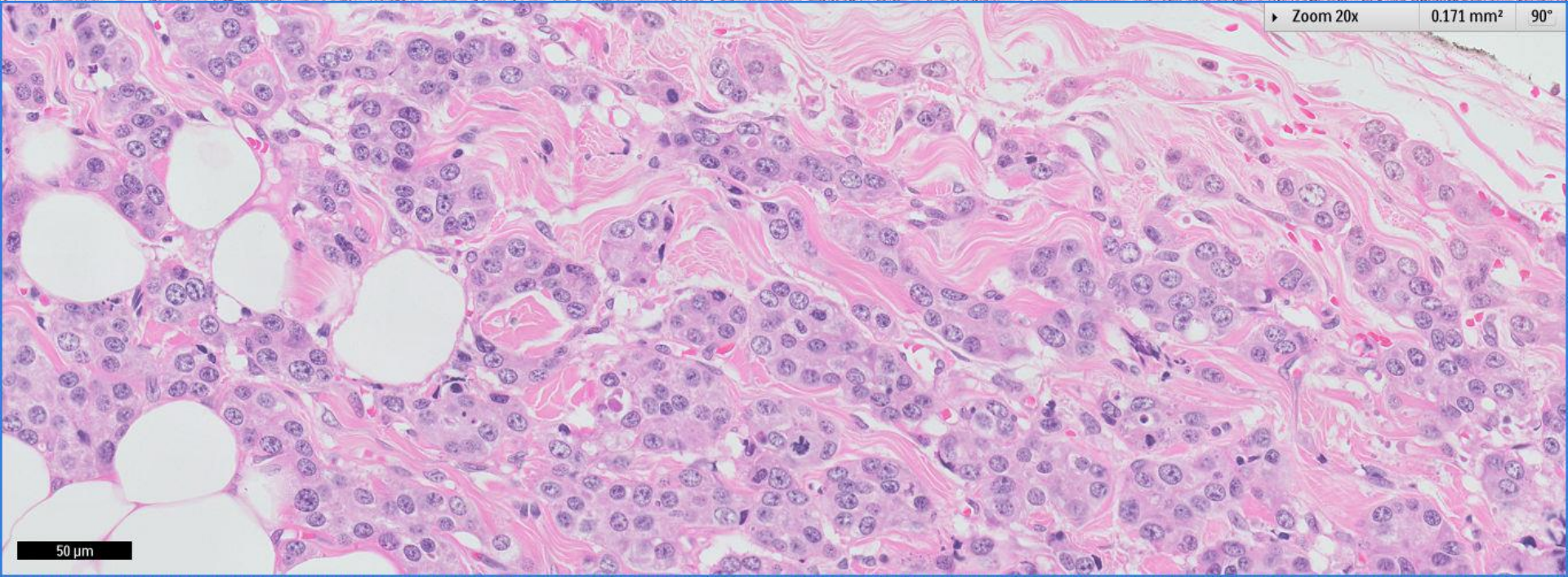
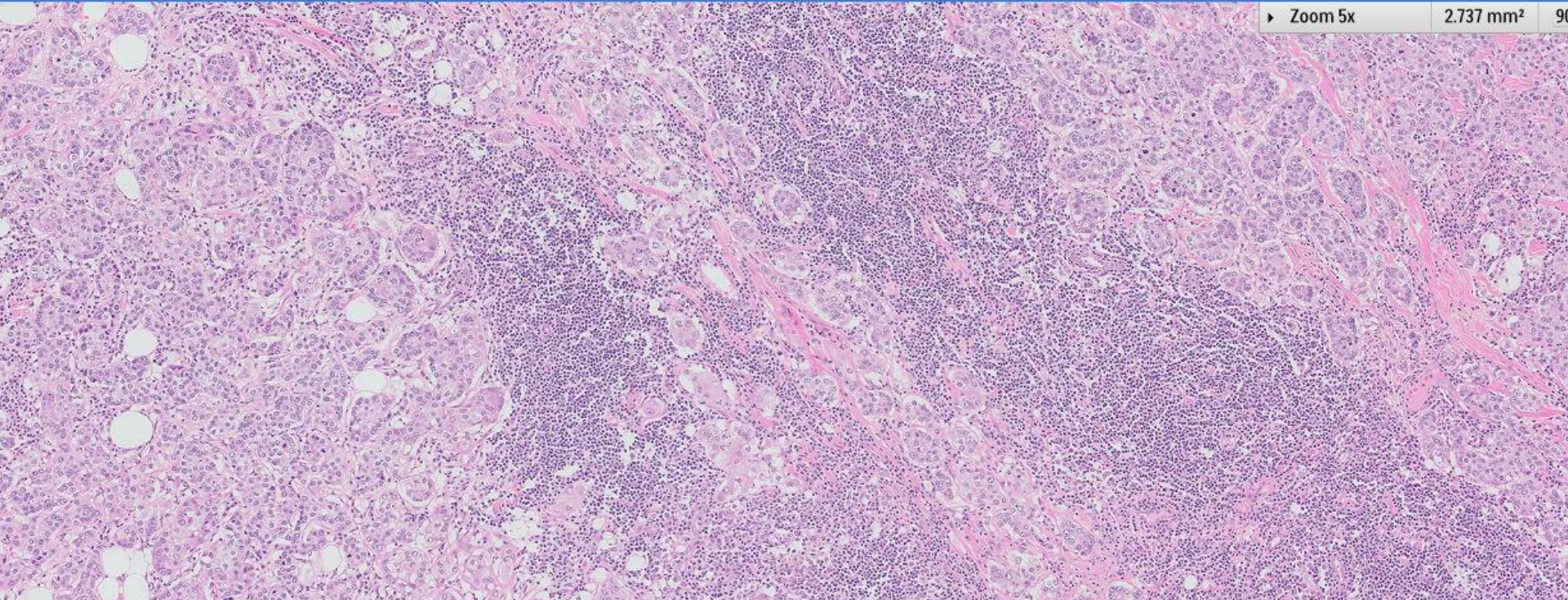


Zoom 1x 43.799 mm<sup>2</sup> 340°



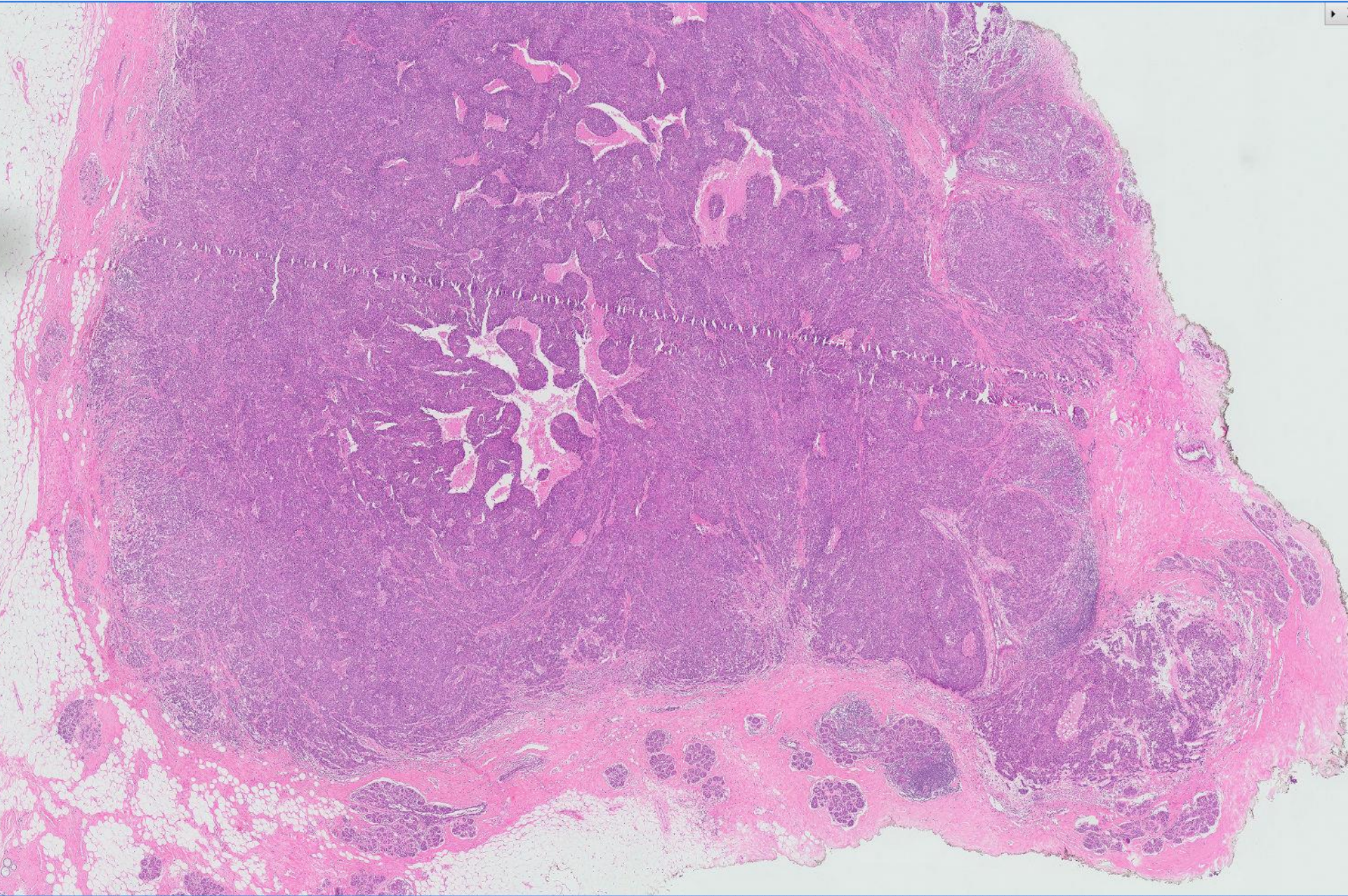
Zoom 20x 0.171 mm<sup>2</sup> 340°

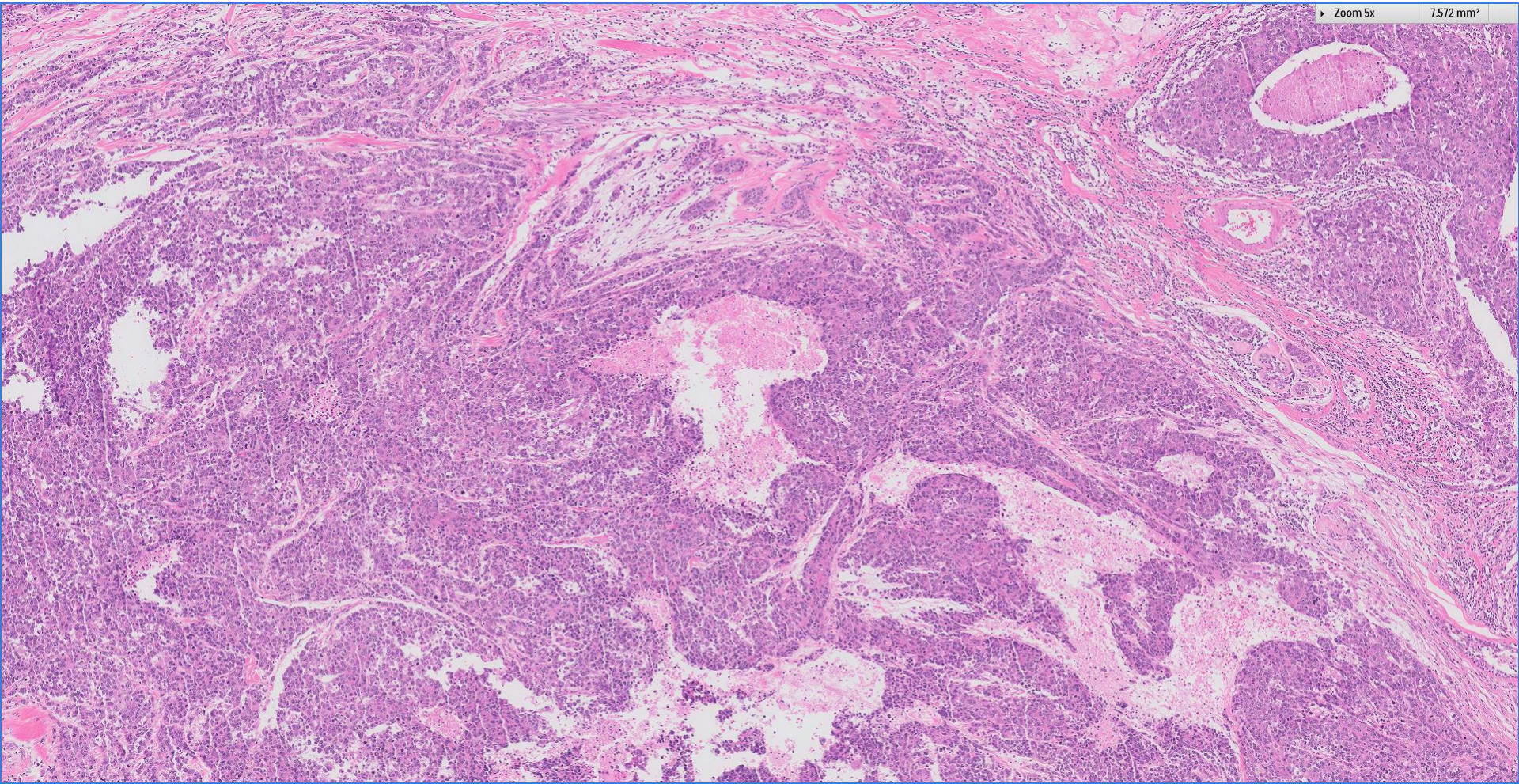
50 μm



# *Marina Bay Singapore*



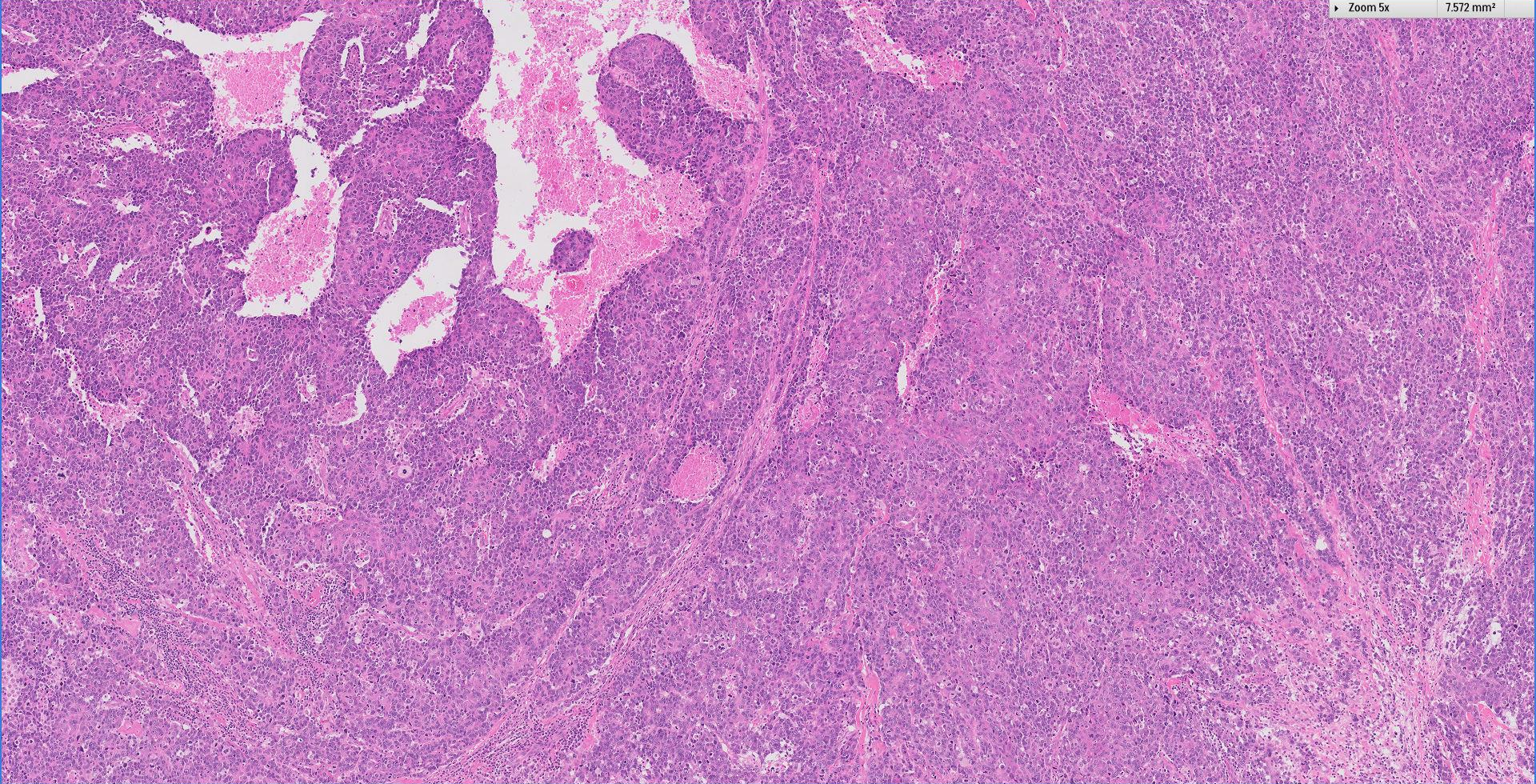






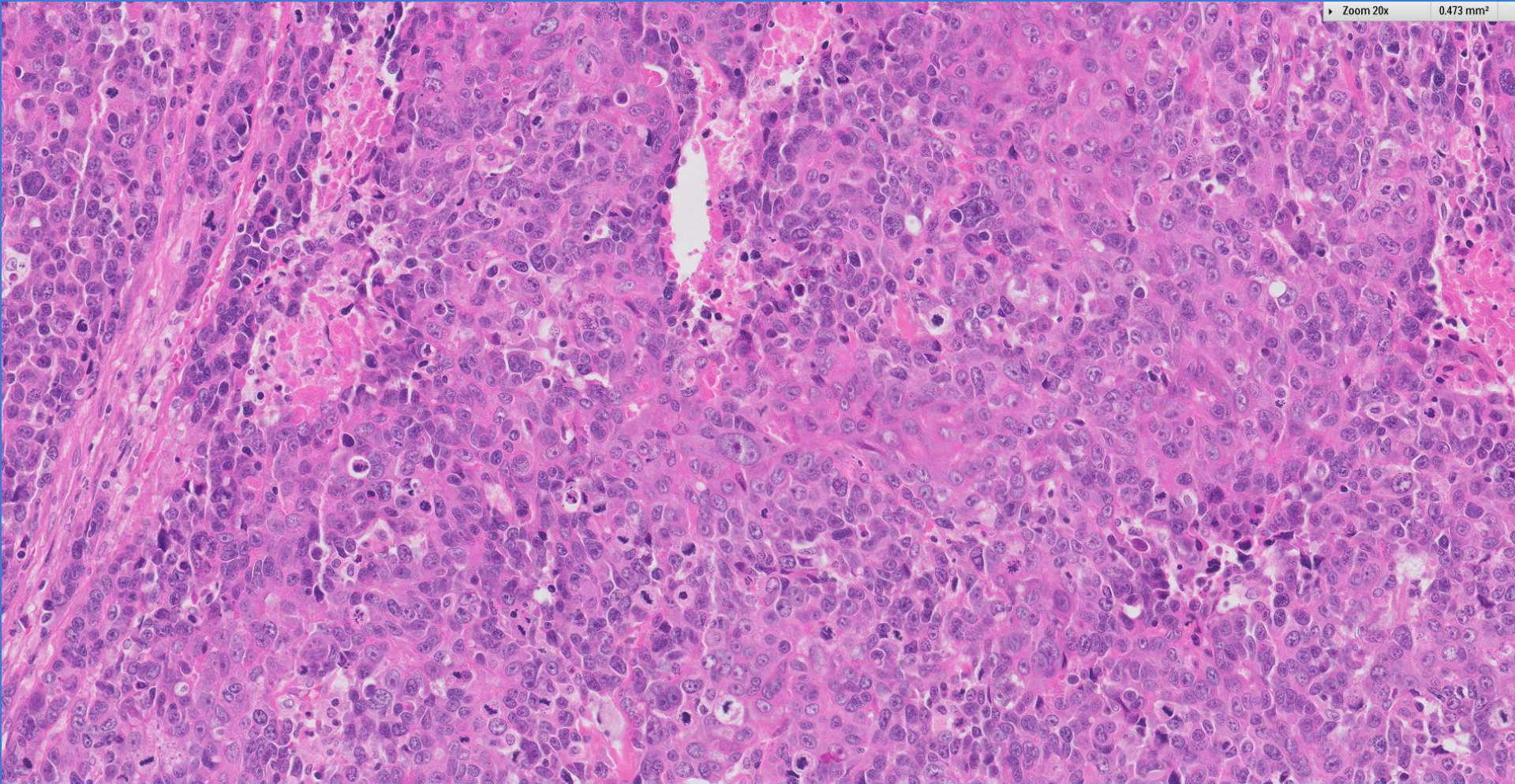
Zoom 5x

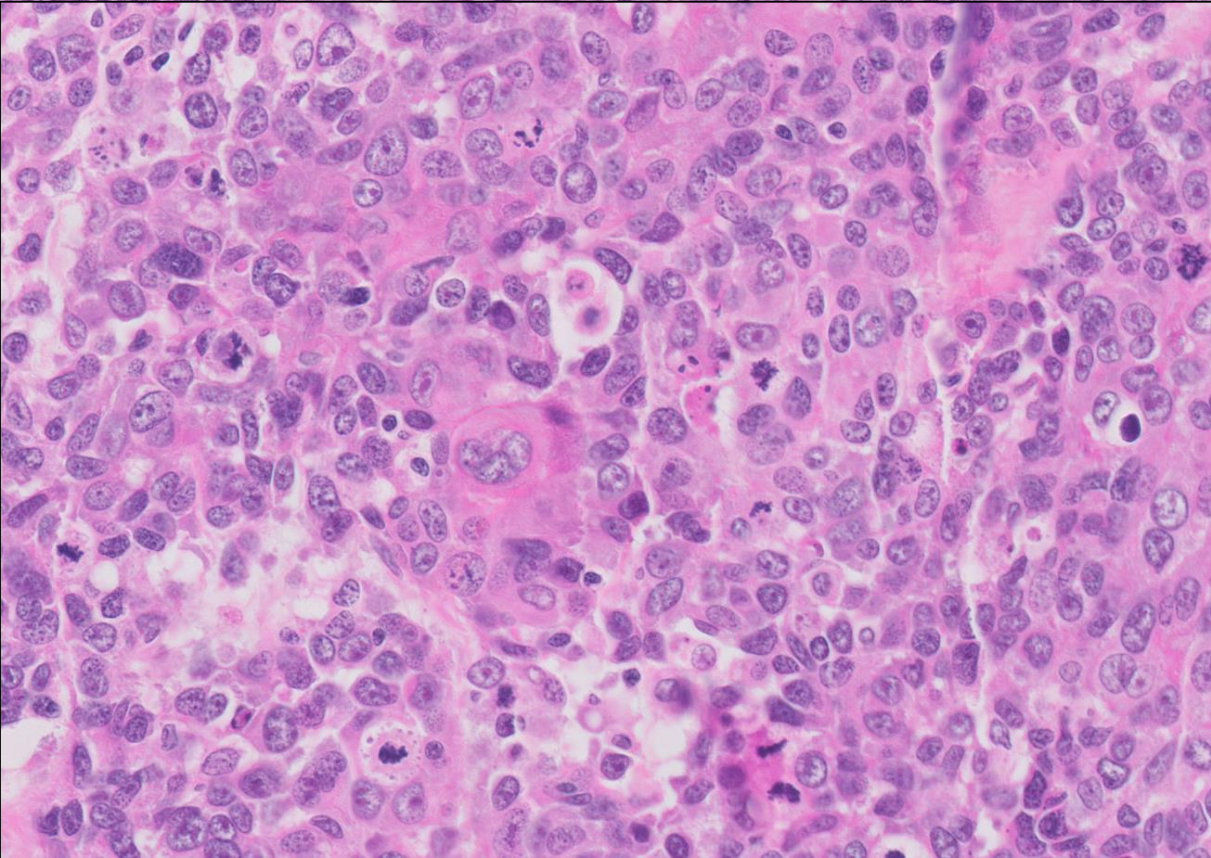
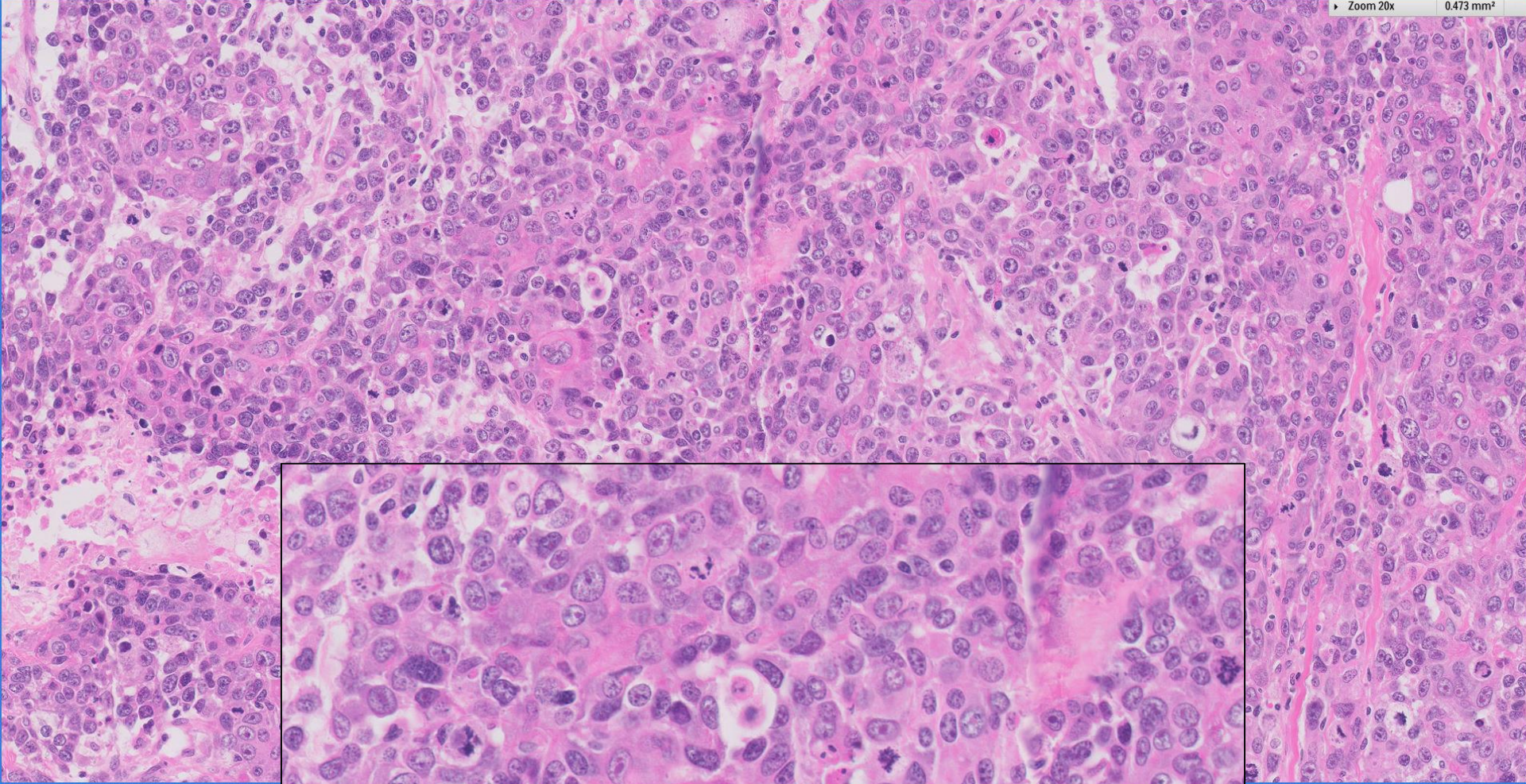
7.572 mm<sup>2</sup>

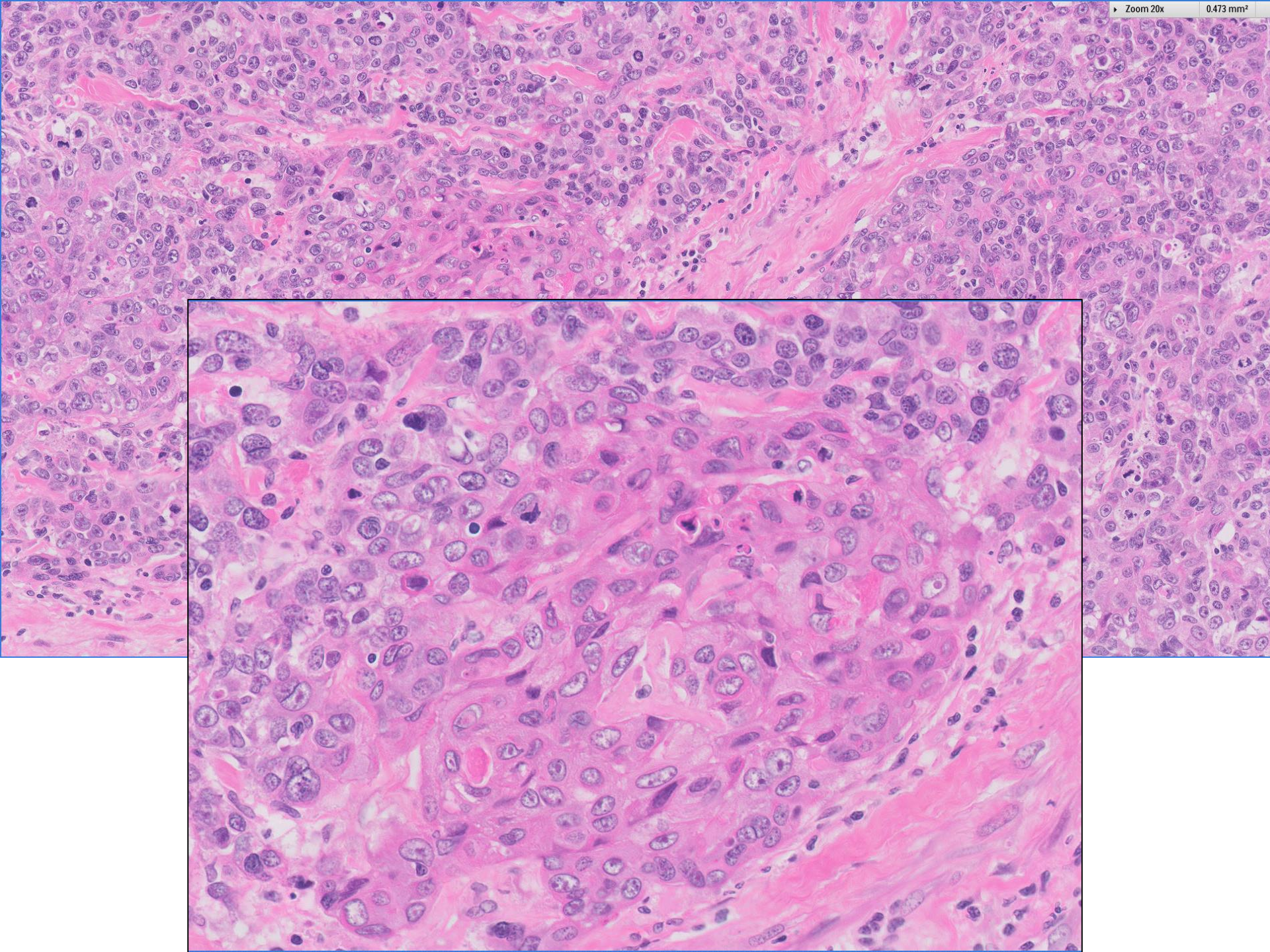


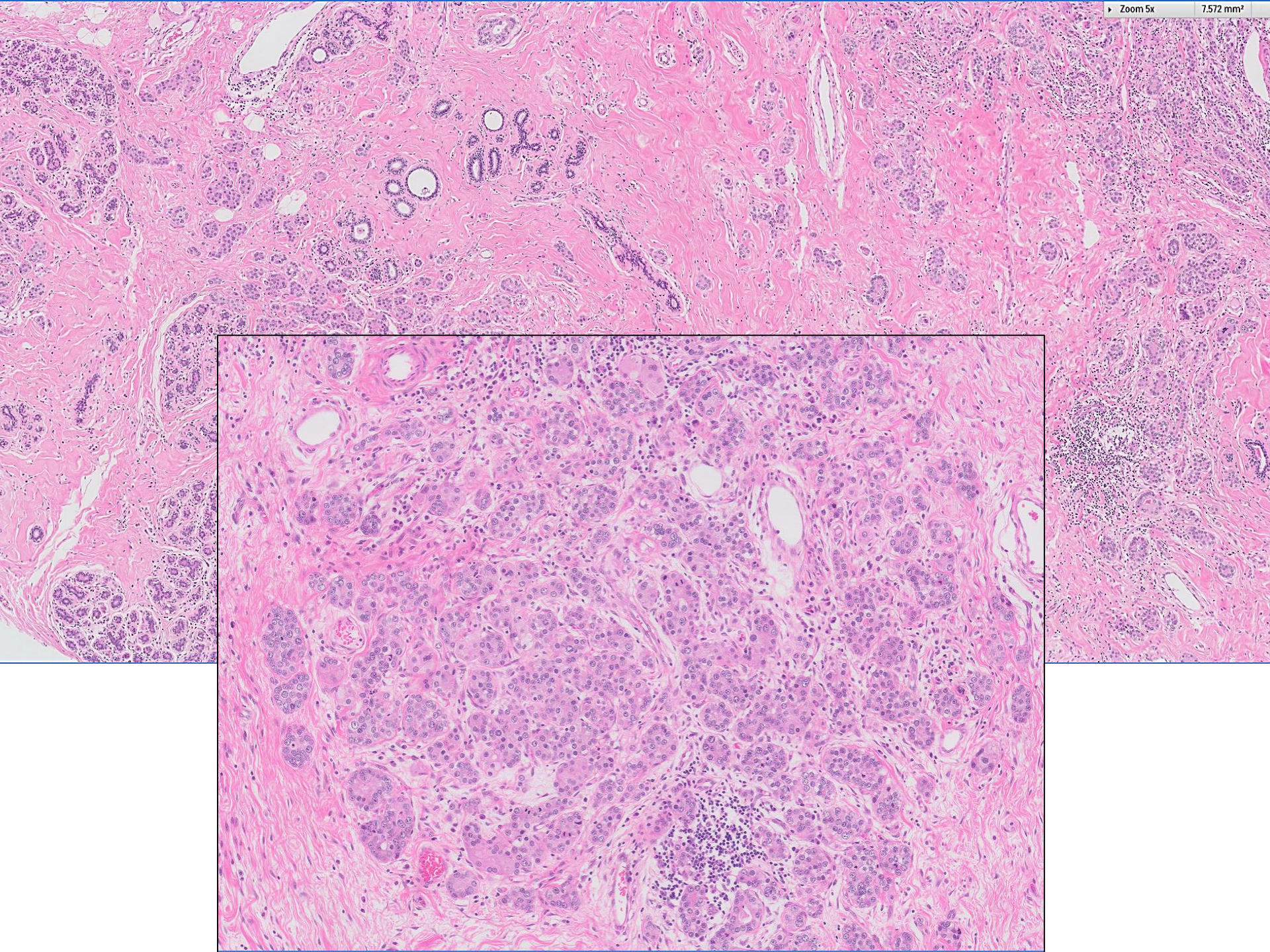
Zoom 20x

0.473 mm<sup>2</sup>



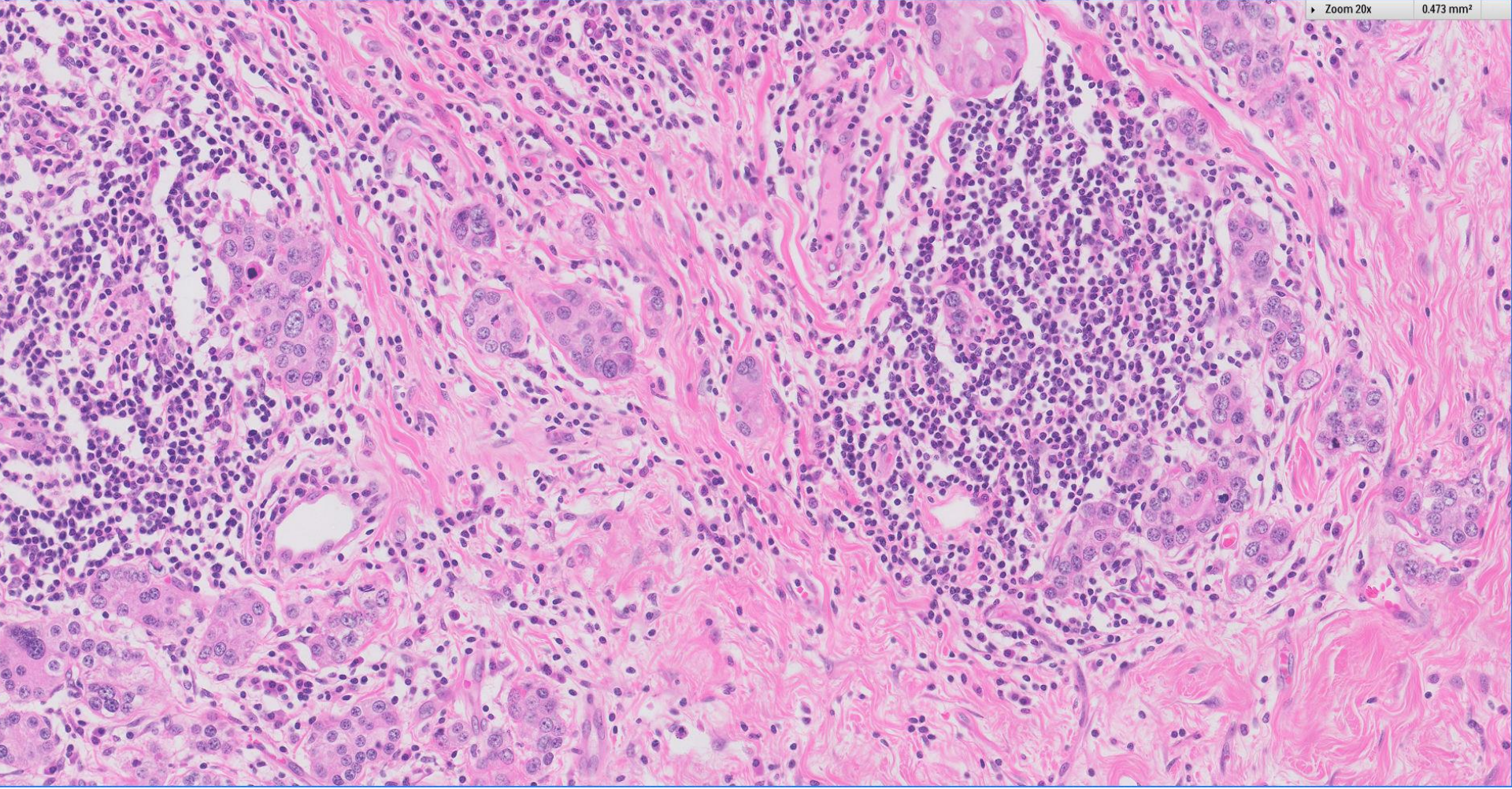




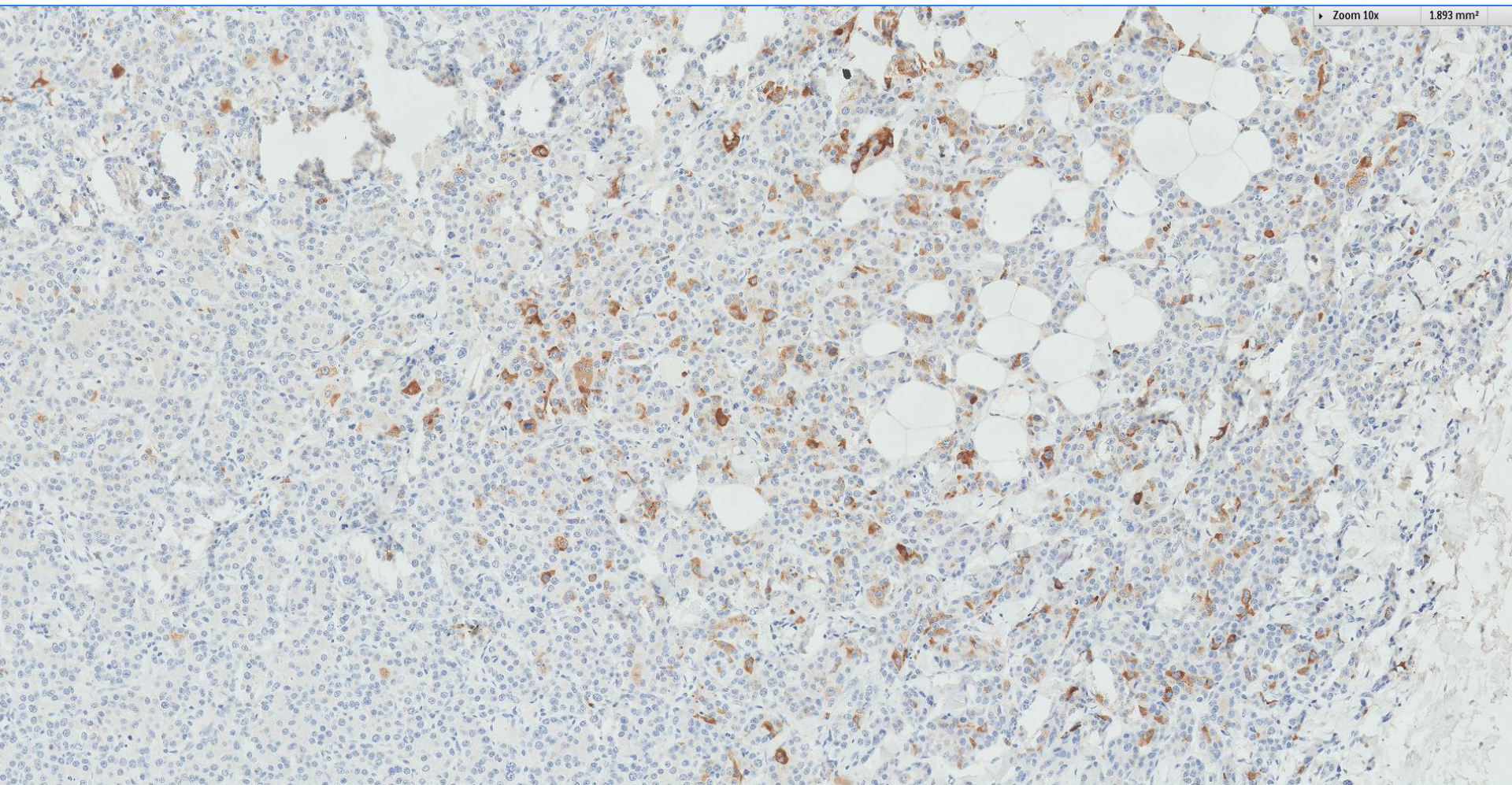


Zoom 20x

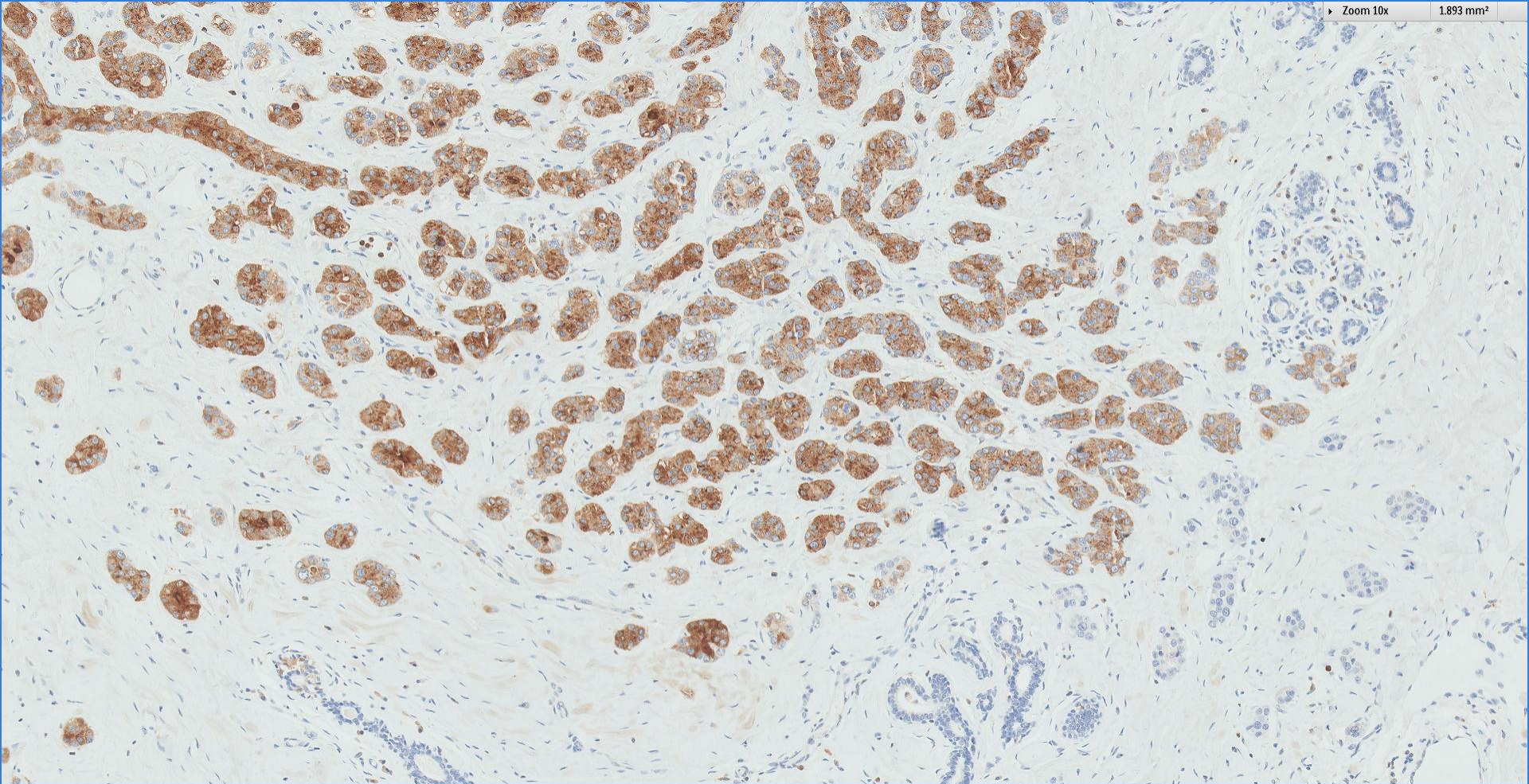
0.473 mm<sup>2</sup>



# Lysozyme

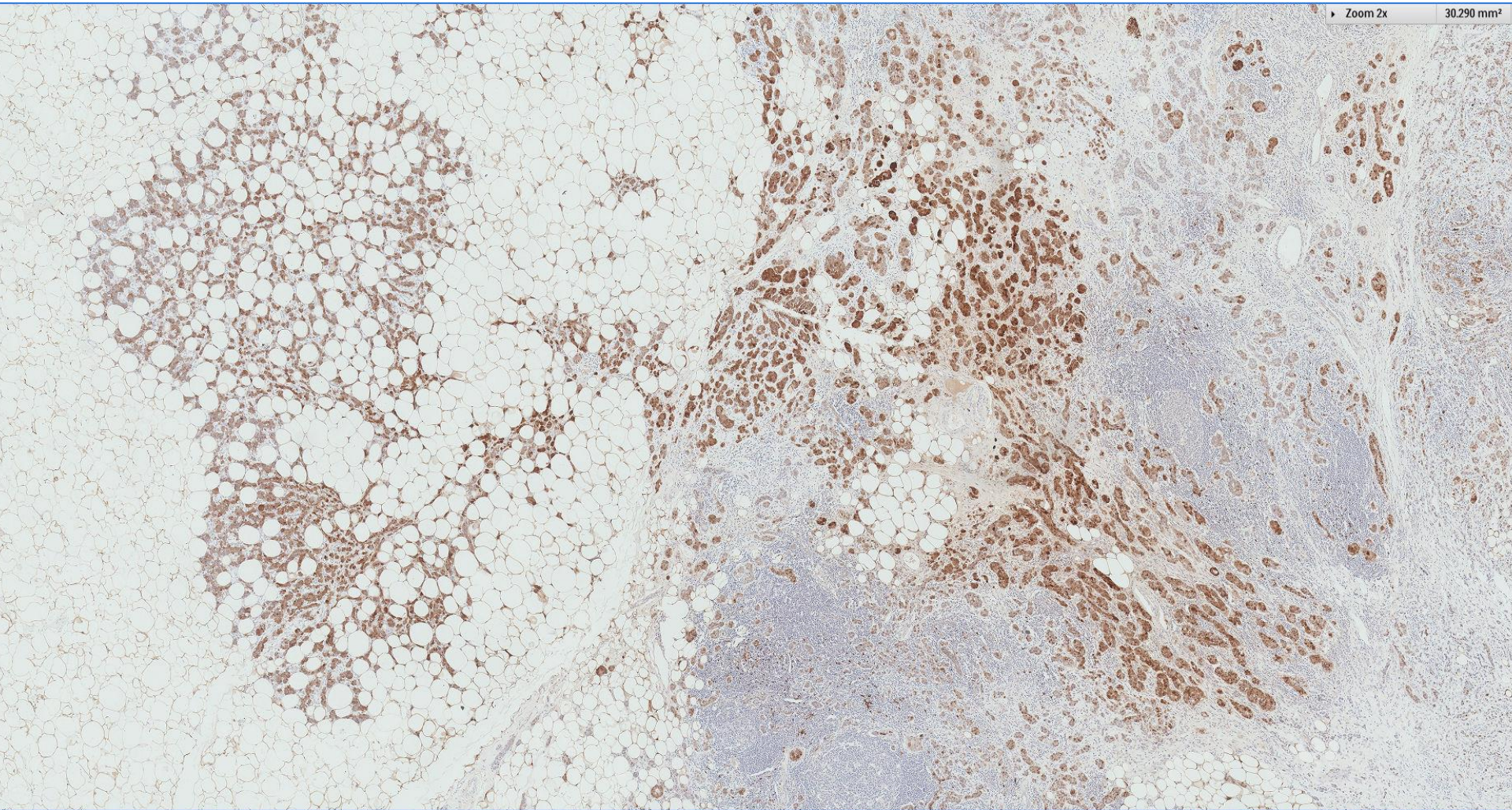


# Lysozyme

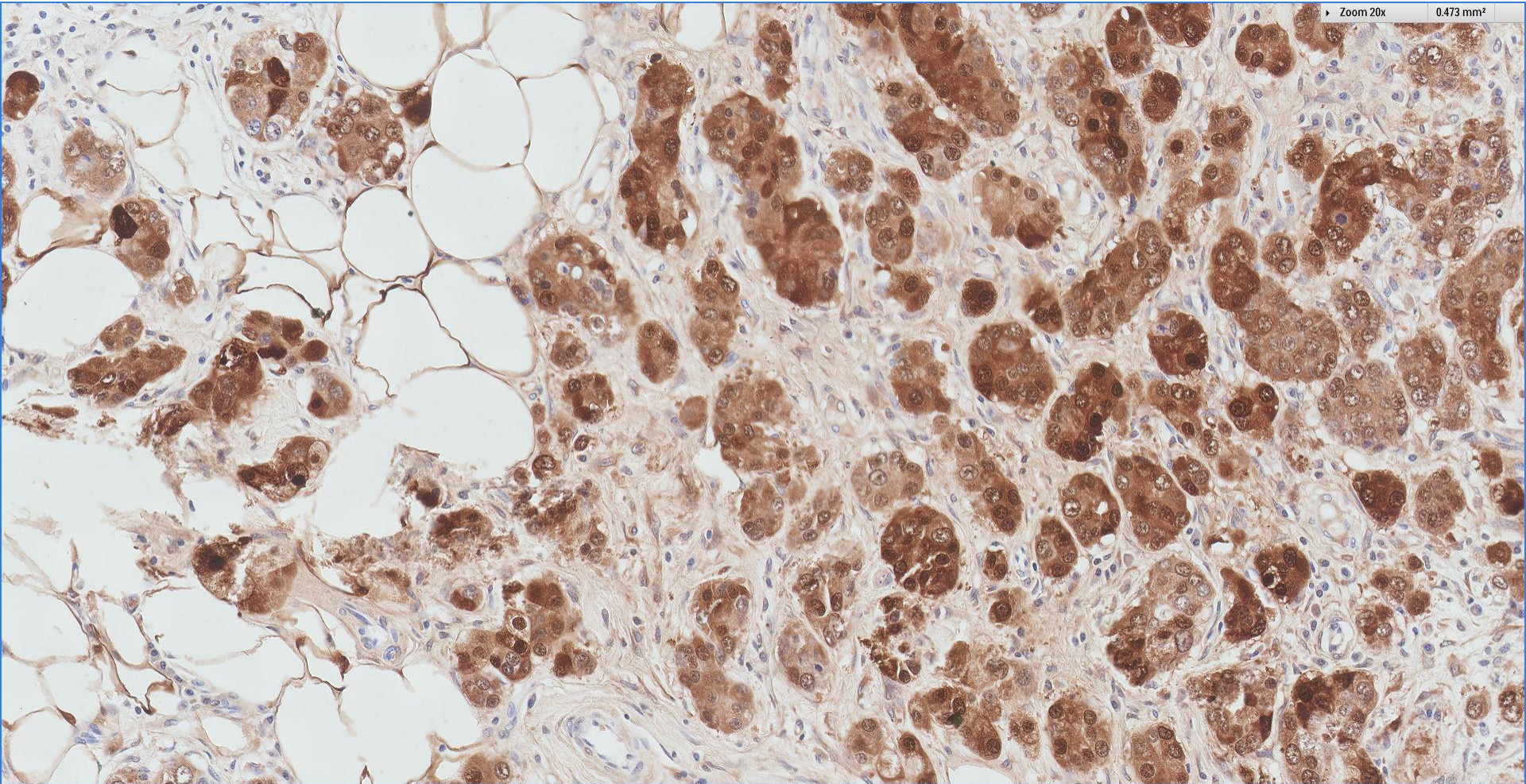




# S100



**S100**



# Diagnosis

Submitted materials, breast tumour ~

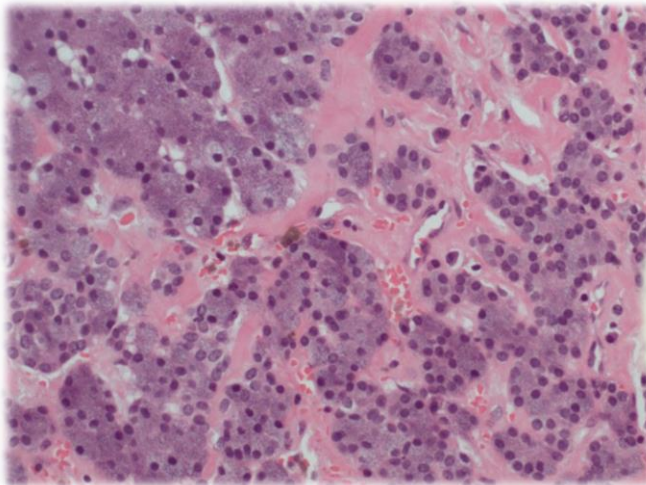
***Infiltrative ductal carcinoma, grade 3, with focal squamous differentiation and an acinic cell carcinoma component.***

***ER negative, PR negative, cerbB2 negative.***

# Acinic cell carcinoma

- A breast carcinoma similar to the acinic cell carcinoma of the parotid gland that shows serous differentiation with zymogen-type cytoplasmic granules.

*WHO 2012*



*Acinic cell carcinoma of salivary gland*

# Acinic cell carcinoma

- Rare tumour.
- True incidence is not known as studies on large series are lacking.
- First reported in 1996 by Roncaroli *et al* as the counterpart of similar tumours of the salivary gland.

*Virchows Arch 1996; 429: 69-74*

- Amylase producing breast carcinoma described by Inaji et al.

*Virchows Archiv A Pathol Anat 1991; 419:29-33*

- Approximately 50 cases have been reported to date.

*Histopathology 2015; epub*

- Affects women aged between 35 and 80 years (mean, 56 years).

# Acinic cell carcinoma

- Varies from well-differentiated and easily recognizable to structurally solid (dedifferentiated).
- Pattern:
  - Microcystic and microglandular
  - Solid with comedo-like necrosis
- Tumour cells:
  - Irregular round to ovoid nuclei
  - Visible single nucleoli
  - Mitoses can number up to 15 per 10 high-power fields
  - Abundant cytoplasm ~ granular, amphophilic to eosinophilic
  - Granules can be large and coarse, bright red in colour, reminiscent of those seen in Paneth cells and ultrastructurally similar to zymogen-like granules
- Cells with clear “hypernephroid” cytoplasm may predominate.

# Acinic cell carcinoma

- Tumour cells express high levels of antichymotrypsin, salivary gland amylase, lysozyme, EMA and S100 protein.
- GCDFP-15 can be focally positive.
- Consistently negative for ER, PR, HER2 (triple negative) and androgen receptors.

# Acinic cell carcinoma

- Small carcinomatous tubules can be present at the edge or within the tumour.
- Suggestion that these tubules represent malignant transformation of microglandular adenosis, and the term “microglandular carcinoma” has been used to describe some cases.



# Acinic cell carcinoma: *relationship with microglandular adenosis*

- Anecdotal reports of acinic cell carcinoma arising from microglandular adenosis (MGA).

~ *Falleti et al. Case reports in Pathology 2013*

~ *Zhong et al. Int J Clin Exp Pathol 2014; 7: 6149-56*

- Koenig et al described 19 cases of carcinoma arising in MGA:

‘...in 1 case, a basophilic fine granularity was apparent concentrated along the luminal aspect of the cytoplasm reminiscent of the serous cells of salivary glands.’

‘...acinic cell carcinoma rarely develops in the breast and potentially may even develop in MGA.’

~ *Int J Surg Pathol 2000; 8:303-315*

# Acinic cell carcinoma: *relationship with microglandular adenosis*

- Some morphological, immunohistochemical and ultrastructural features of these lesions are different.

|                            | <b>MGA</b>  | <b>Acinic cell carcinoma</b>      |
|----------------------------|---|-----------------------------------|
| <b>Basement membrane</b>   | Present around tubules  | Absent                            |
| <b>EMA</b>                 | Negative/focally positive                                       | Diffusely positive                |
| <b>Lysozyme</b>            | Negative/focally positive                                       | Diffusely positive                |
| <b>Electron microscopy</b> | Intact basement membrane surrounded by loose collagenous stroma | Zymogen granules within cytoplasm |

- Relationship between MGA and acinic cell carcinoma remains to be further elucidated.

**Table 1.** Clinicopathological features of acinic cell carcinomas analysed in this study

|                           | Age (years) | Gender | Tumour size (cm) | Location | Growth pattern | Grade | Pure or mixed | Type and grade non-AcCC component |
|---------------------------|-------------|--------|------------------|----------|----------------|-------|---------------|-----------------------------------|
| <b>AcCC of the breast</b> |             |        |                  |          |                |       |               |                                   |
| Case 1                    | 49          | F      | 1.5              | Breast   | Microglandular | 2     | Pure          | IDC-NST, grade 3                  |
| Case 3                    | 45          | F      | 2.1              | Breast   | Microglandular | 1     | Mixed         | IDC-NST, grade 2                  |
| Case 7                    | 36          | F      | 5                | Breast   | Clear cell     | 1     | Mixed         | IDC-NST, grade 3                  |
| Case 9                    | 55          | F      | 1.9              | Breast   | Microglandular | 1     | Mixed         | IDC-NST, grade 3                  |
| Case 10                   | 34          | F      | NA               | Breast   | Microglandular | 1     | Mixed         | IDC-NST, grade NA                 |
| Case 12                   | 42          | F      | 1.1              | Breast   | Microglandular | 1     | Pure          | IDC-NST, grade 3                  |
| Case 14                   | 34          | F      | 3.6              | Breast   | Microglandular | 1     | Mixed         | IDC-NST, grade 3                  |
| Case 15                   | 48          | F      | 2                | Breast   | Microglandular | 1     | Mixed         | Metaplastic, grade 3              |
| Case 16                   | 70          | F      | 1.4              | Breast   | Microglandular | 1     | Mixed         | IDC-NST, grade NA                 |
| Case 17                   | 35          | F      | 1.8              | Breast   | Microglandular | 1     | Pure          | IDC-NST, grade 3                  |

*Histopathology* 2015 DOI: 10.1111/his.12673

*Acinic cell carcinoma can coexist with infiltrative ductal carcinoma.*

# Acinic cell carcinoma

- Does not show the t(12:15) *ETV6-NTRK3* rearrangement typical of secretory carcinoma.  
*~ Reis-Filho et al. Histopathology 2008; 840-846*
- Prognostically considered to have a more favourable behaviour than conventional invasive ductal type cancers.
- Axillary lymph node metastases may be found.
- Death reported in one case *{J Clin Pathol 2002; 55: 545-7}*.

 Breast  
Pathology  
Course 2016



*Pathology Building 1958-2013, by Ong Kim Seng*