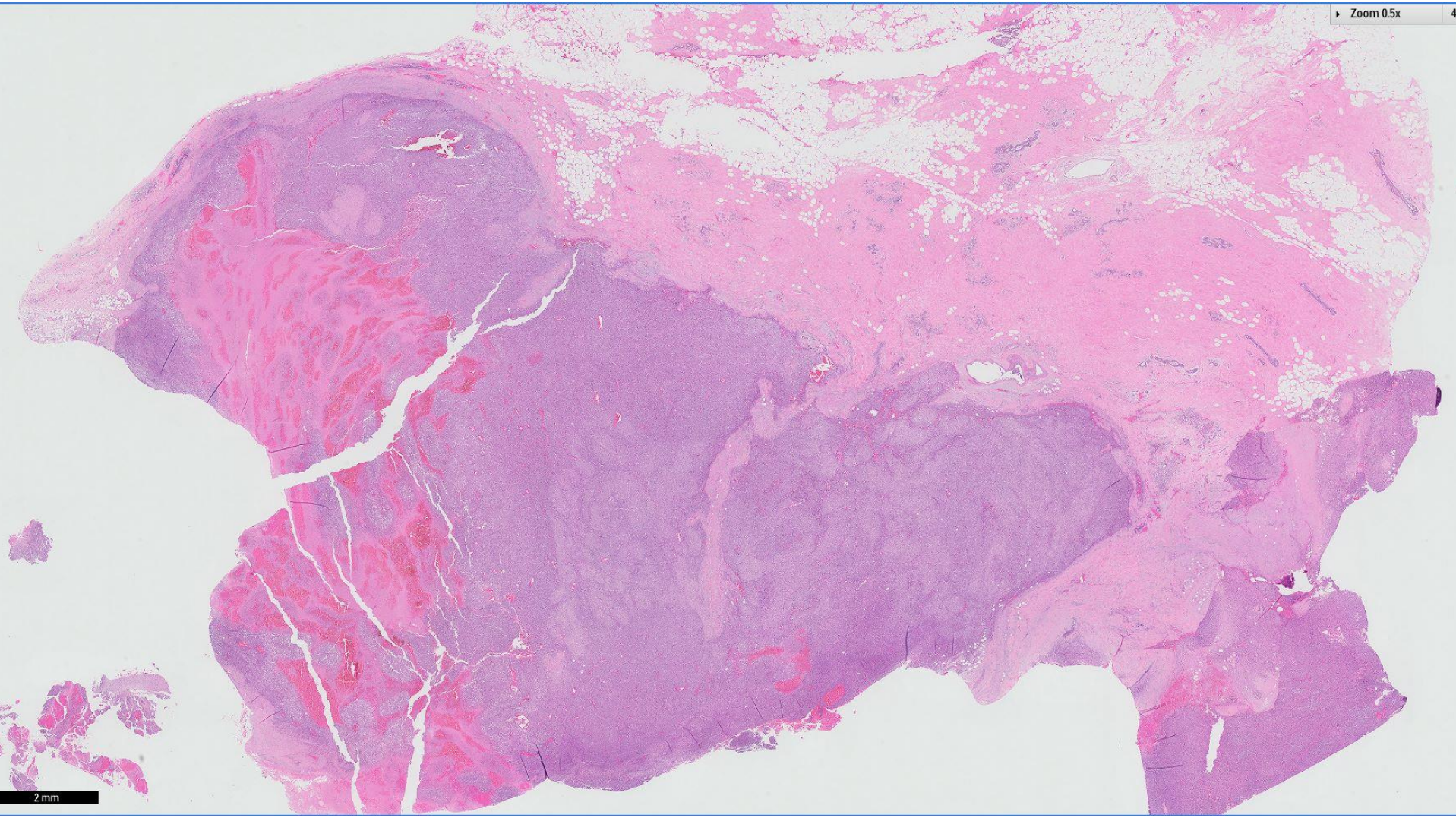


# *Case 5*

59 year old woman with a large left breast mass measuring 80mm.

Tumour from the mastectomy specimen.

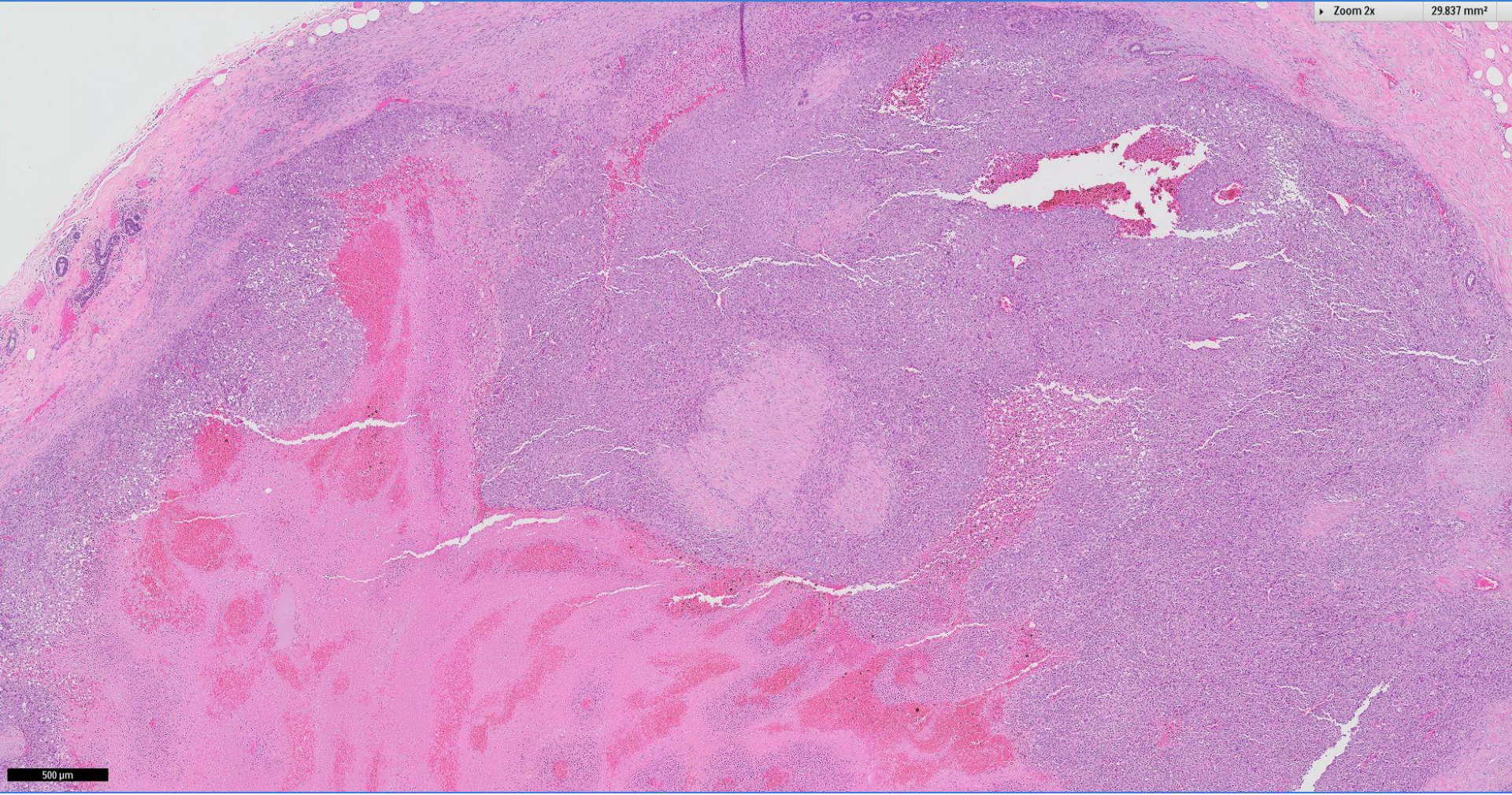




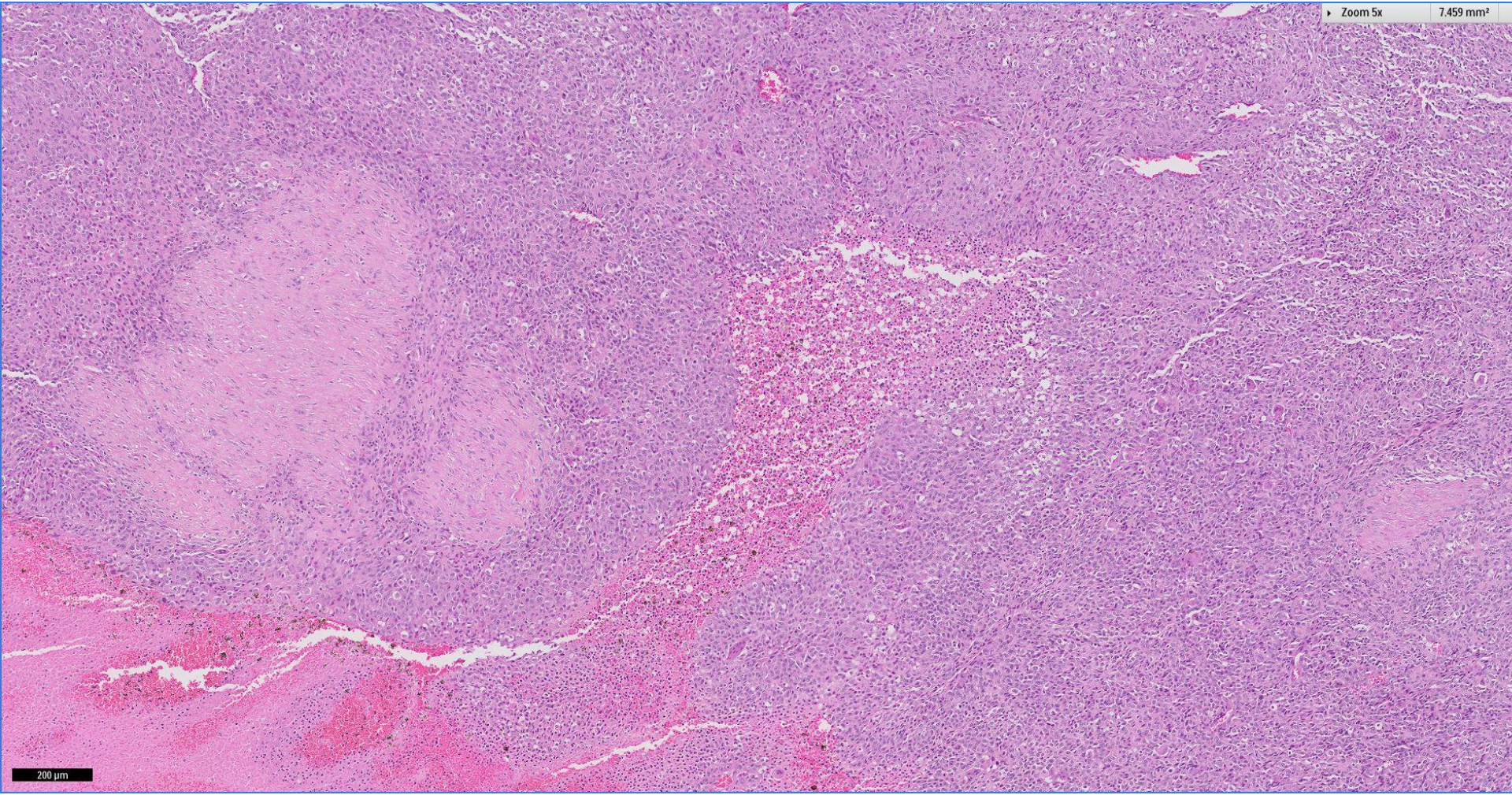
2 mm

Zoom 2x

29.837 mm<sup>2</sup>



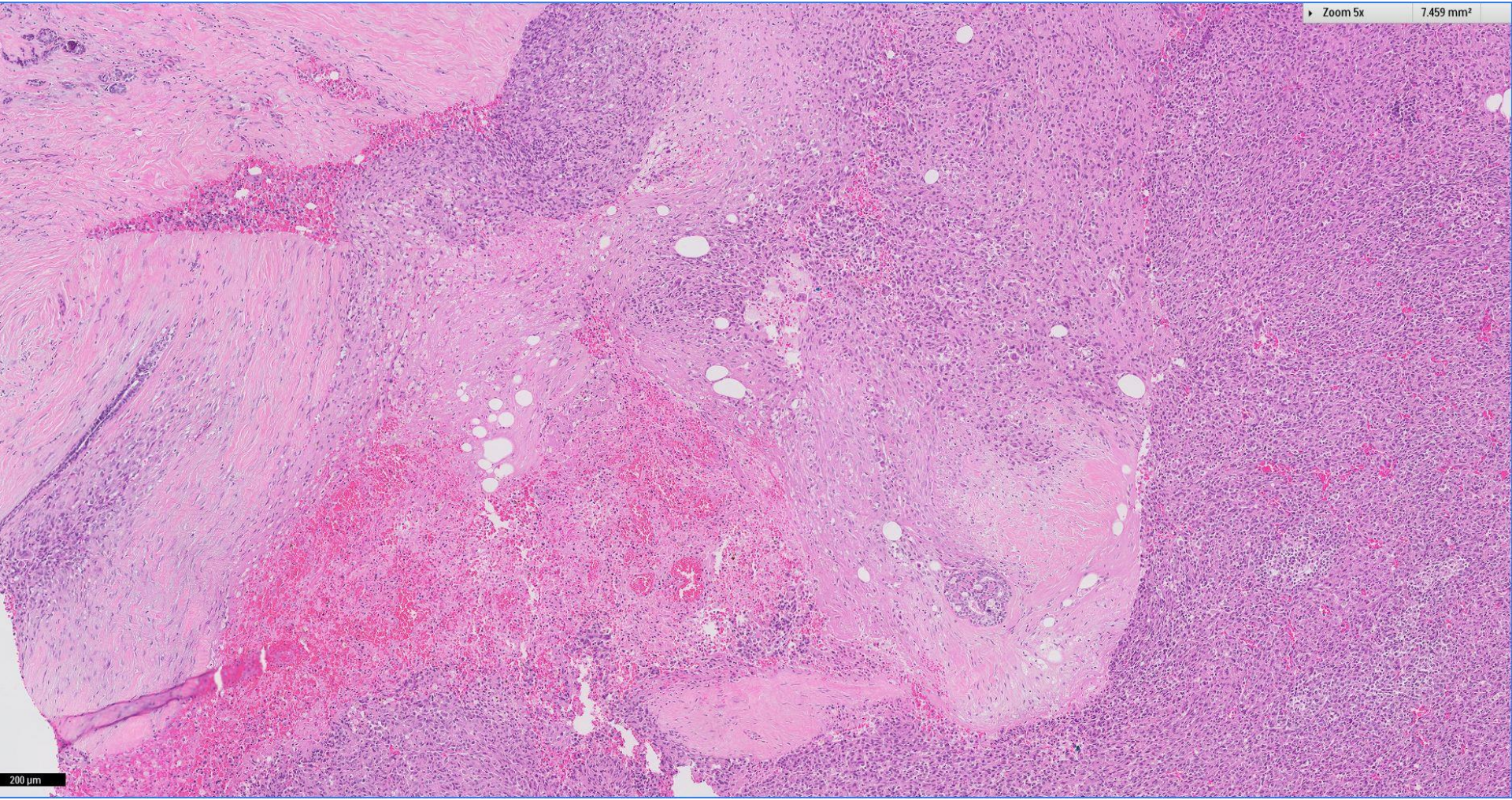
500 μm



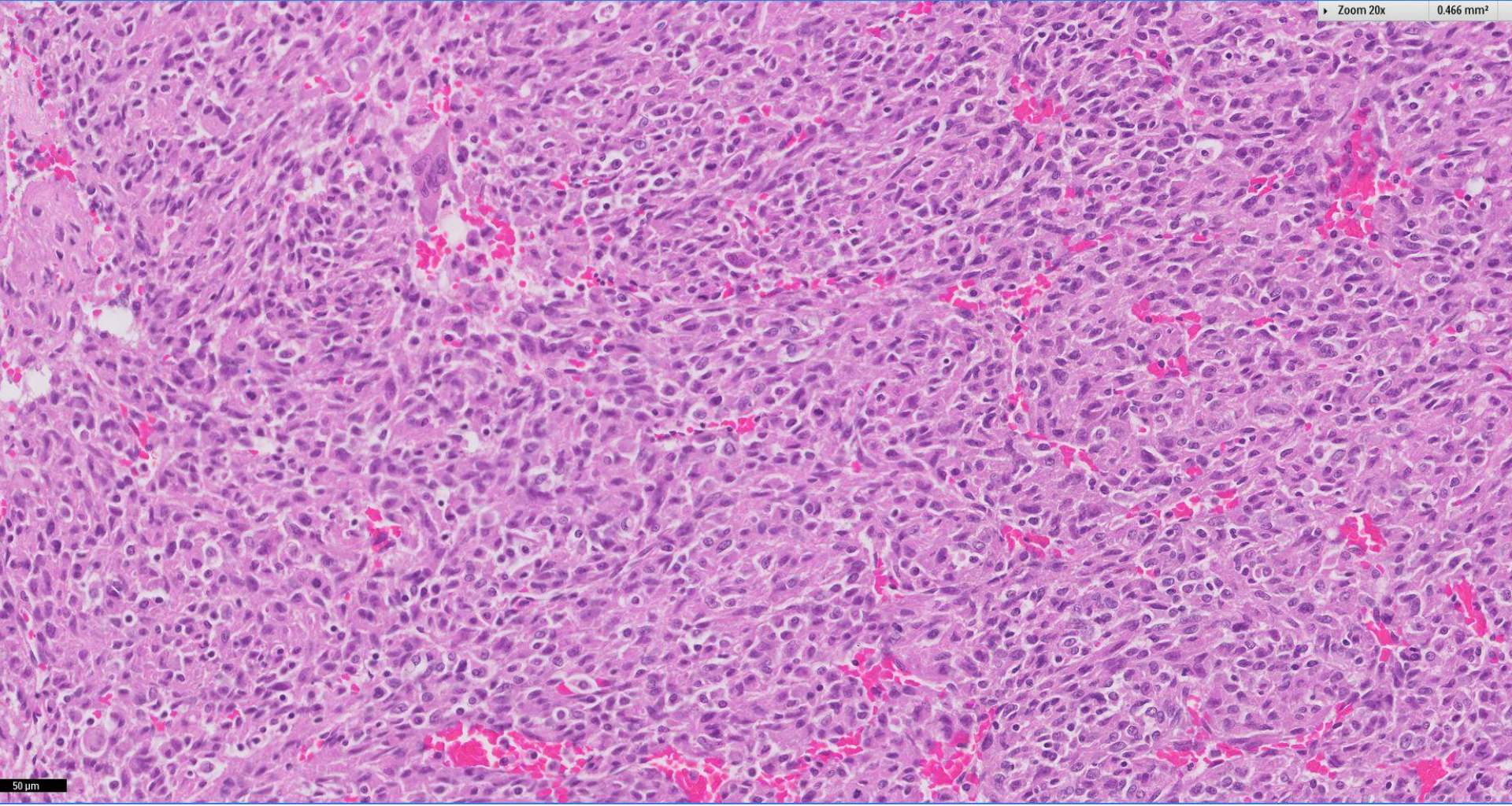
200 μm

Zoom 5x

7.459 mm<sup>2</sup>



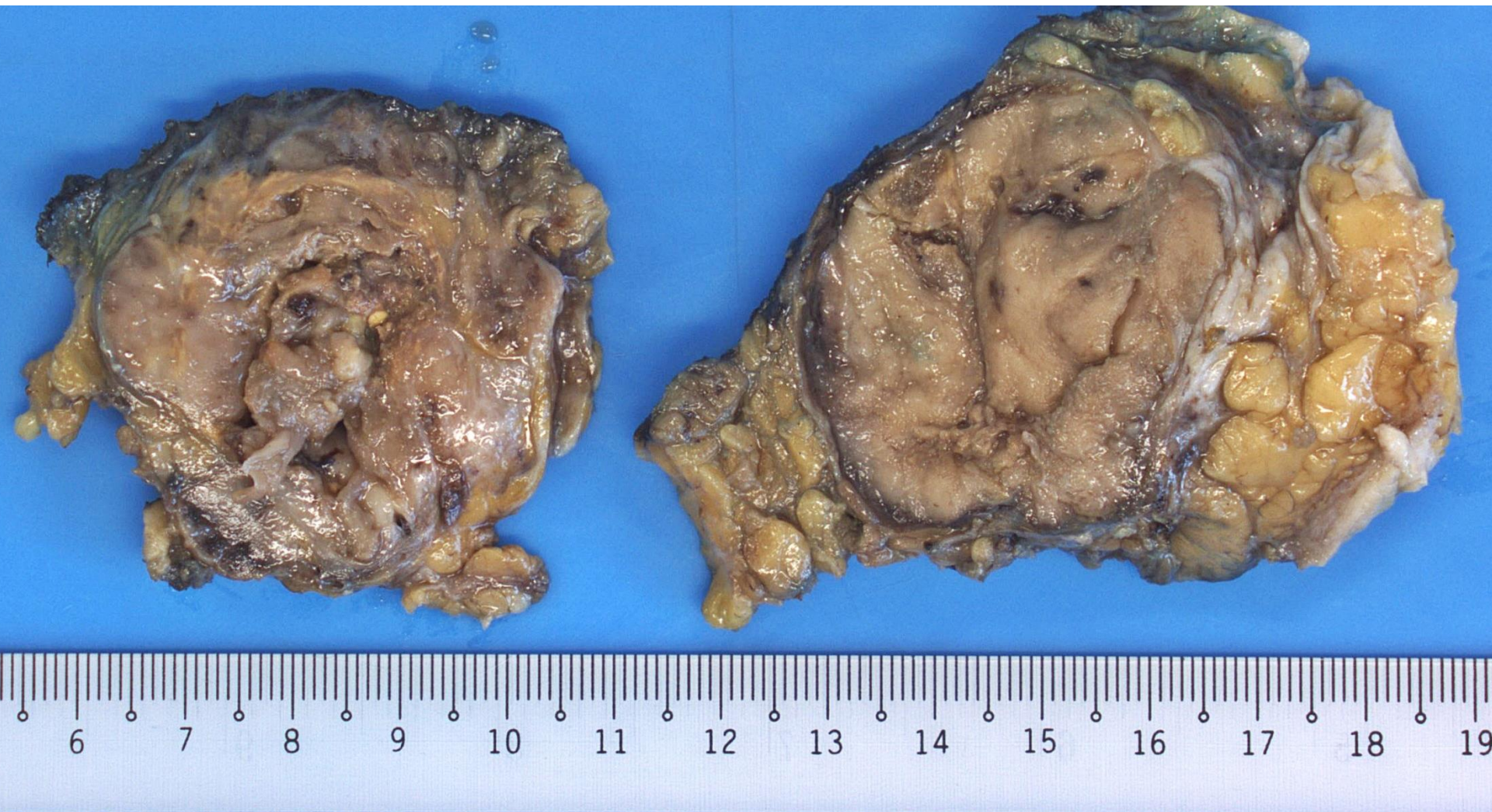
200  $\mu$ m



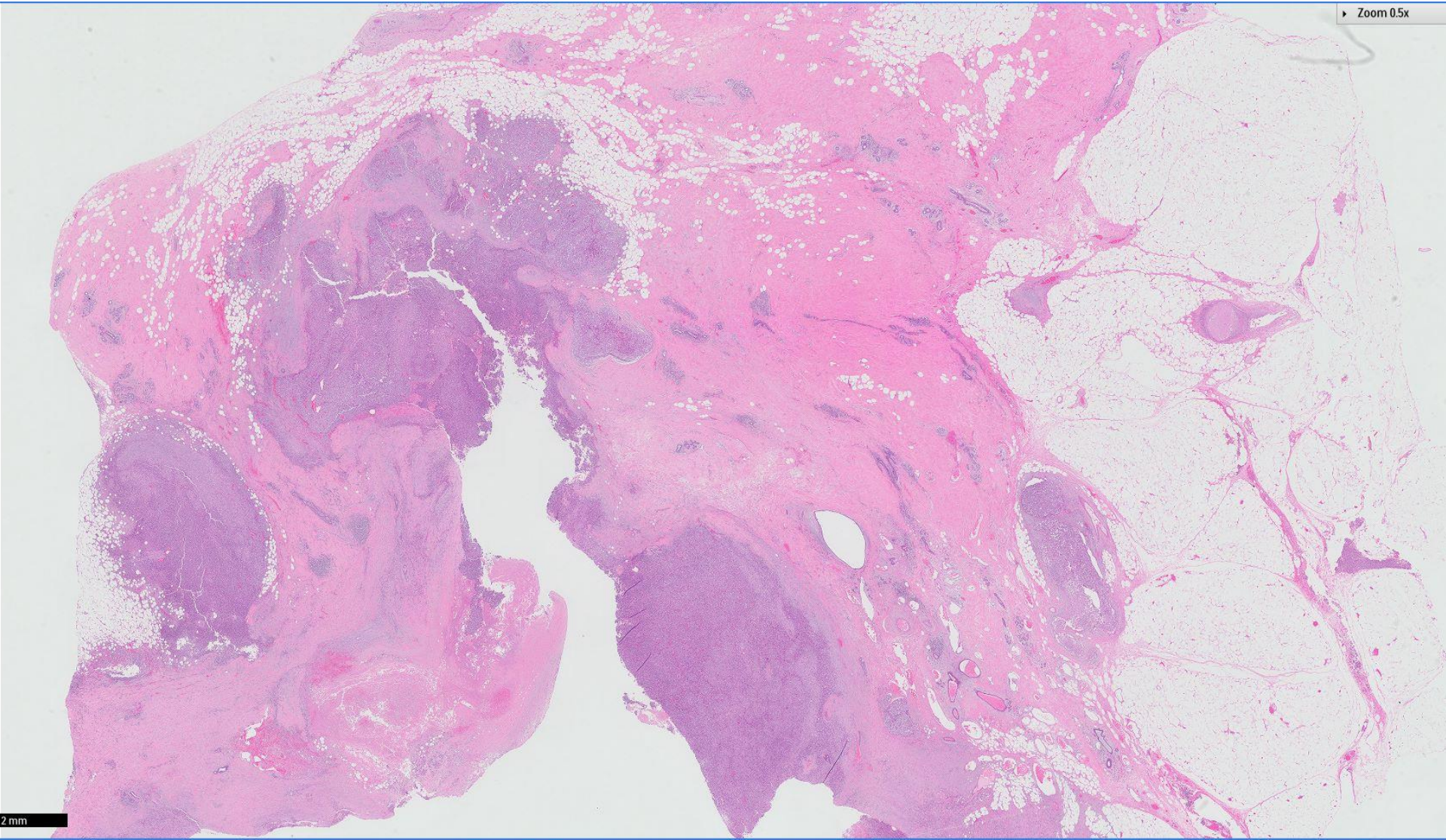


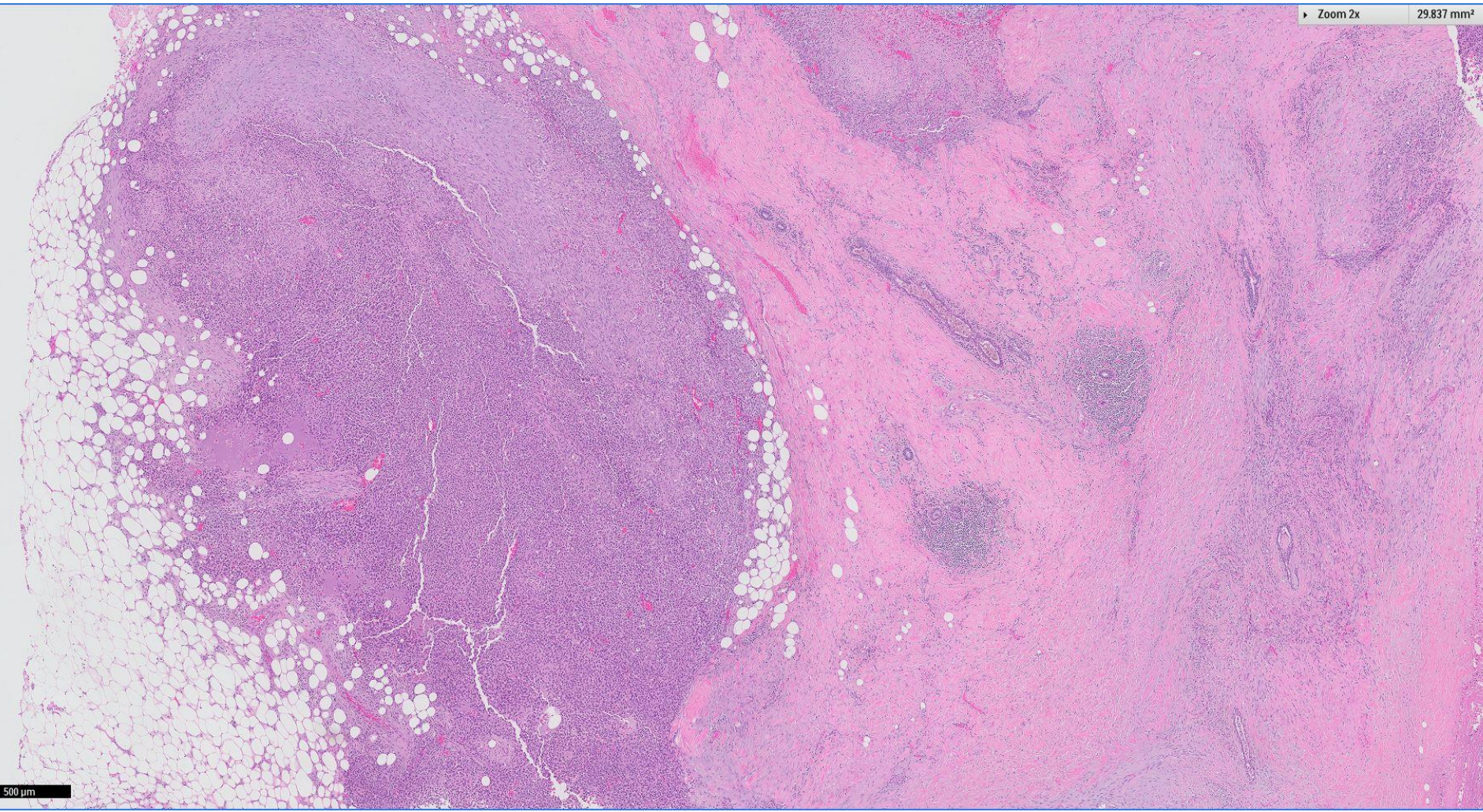
 Singapore  
General Hospital  
SingHealth

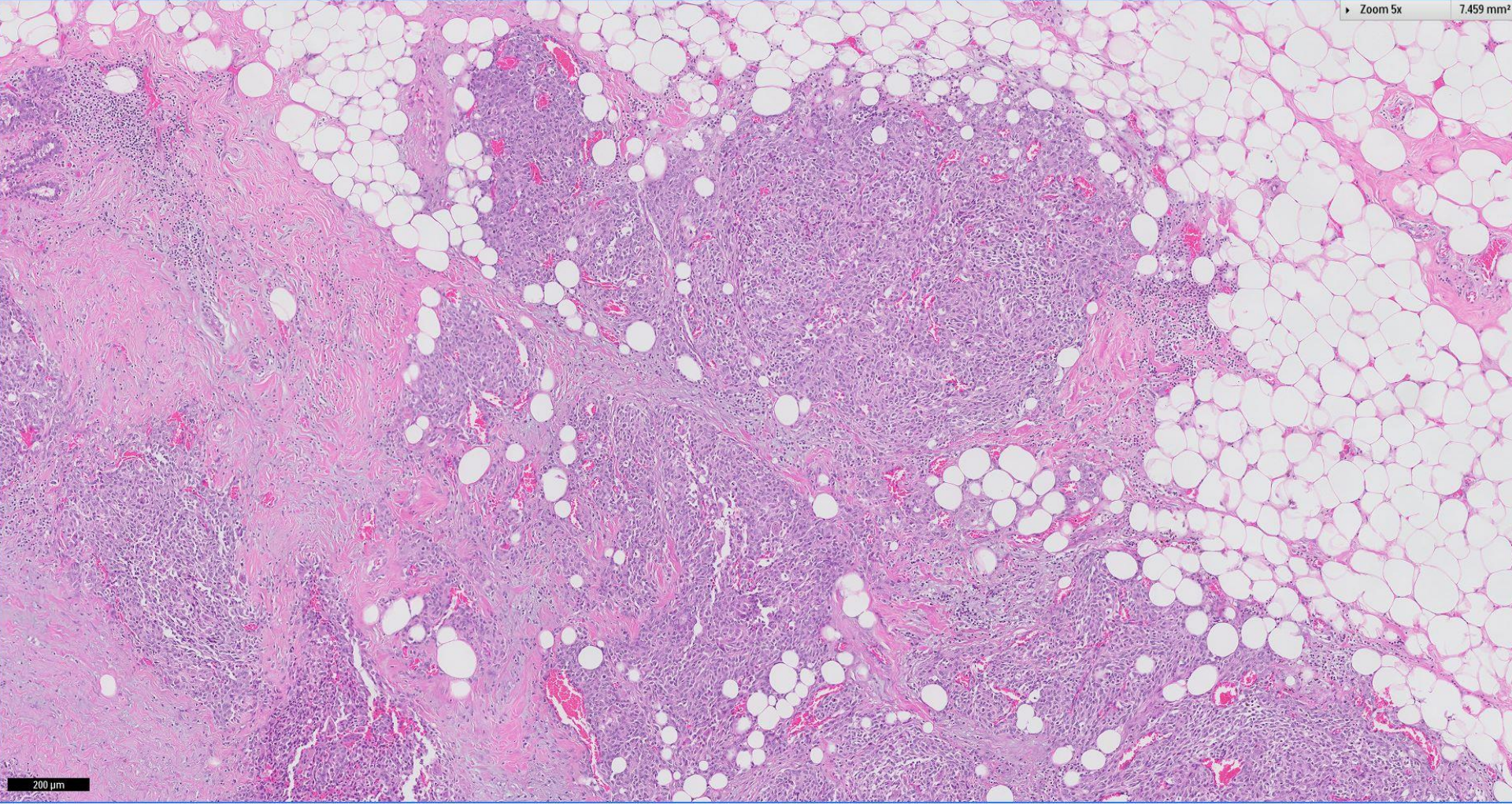
Academia





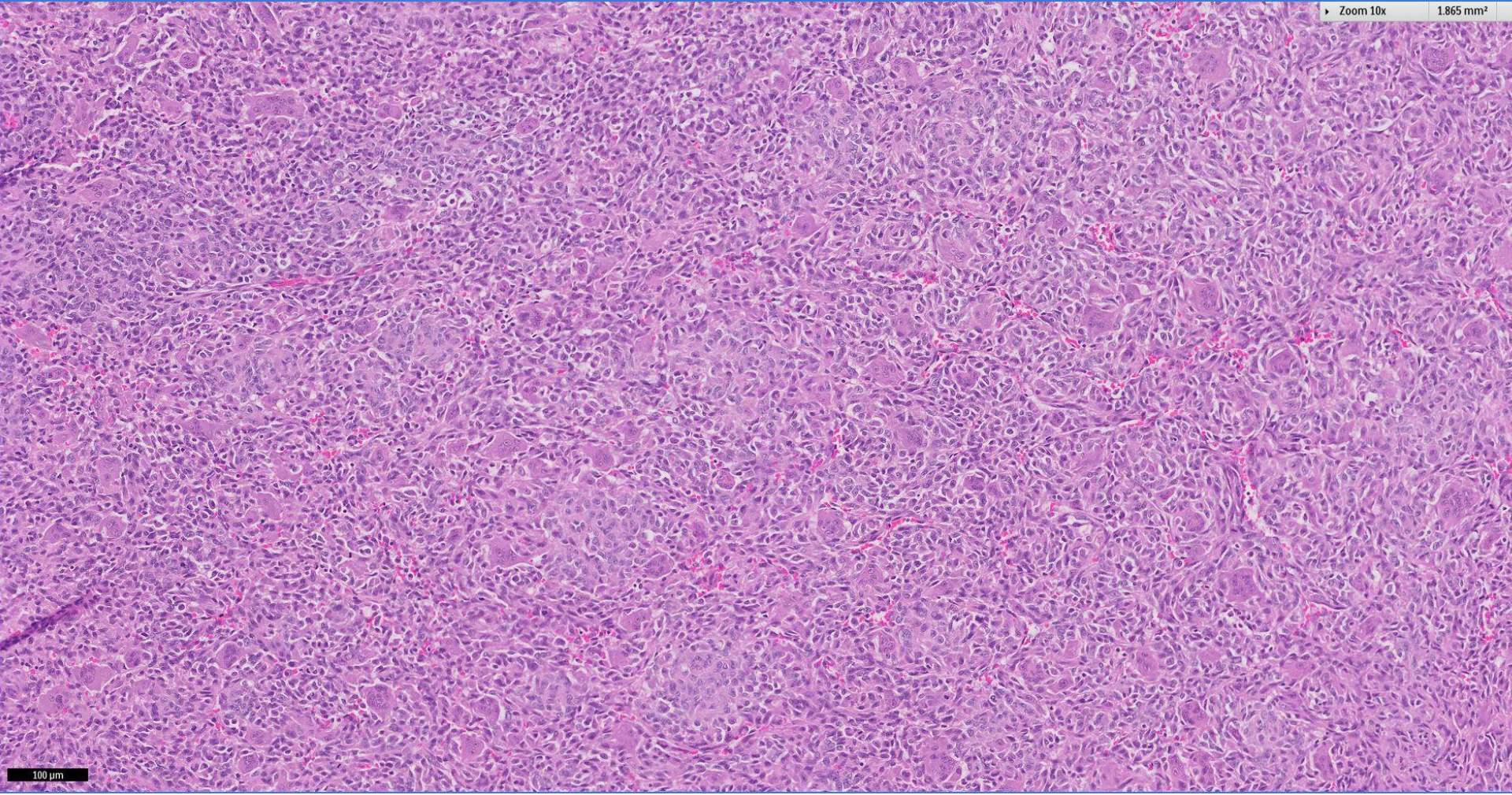






Zoom 10x

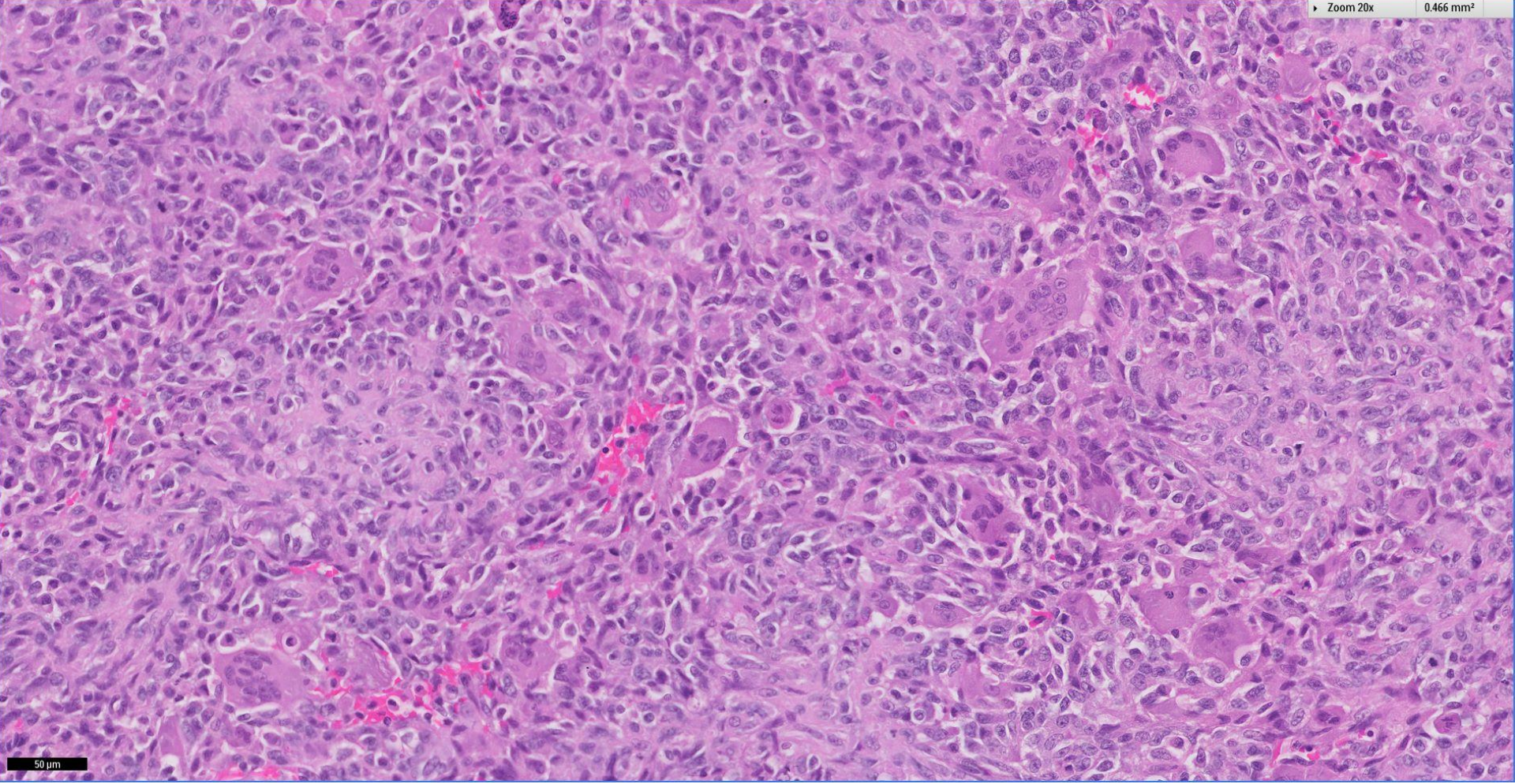
1.865 mm<sup>2</sup>



100  $\mu$ m

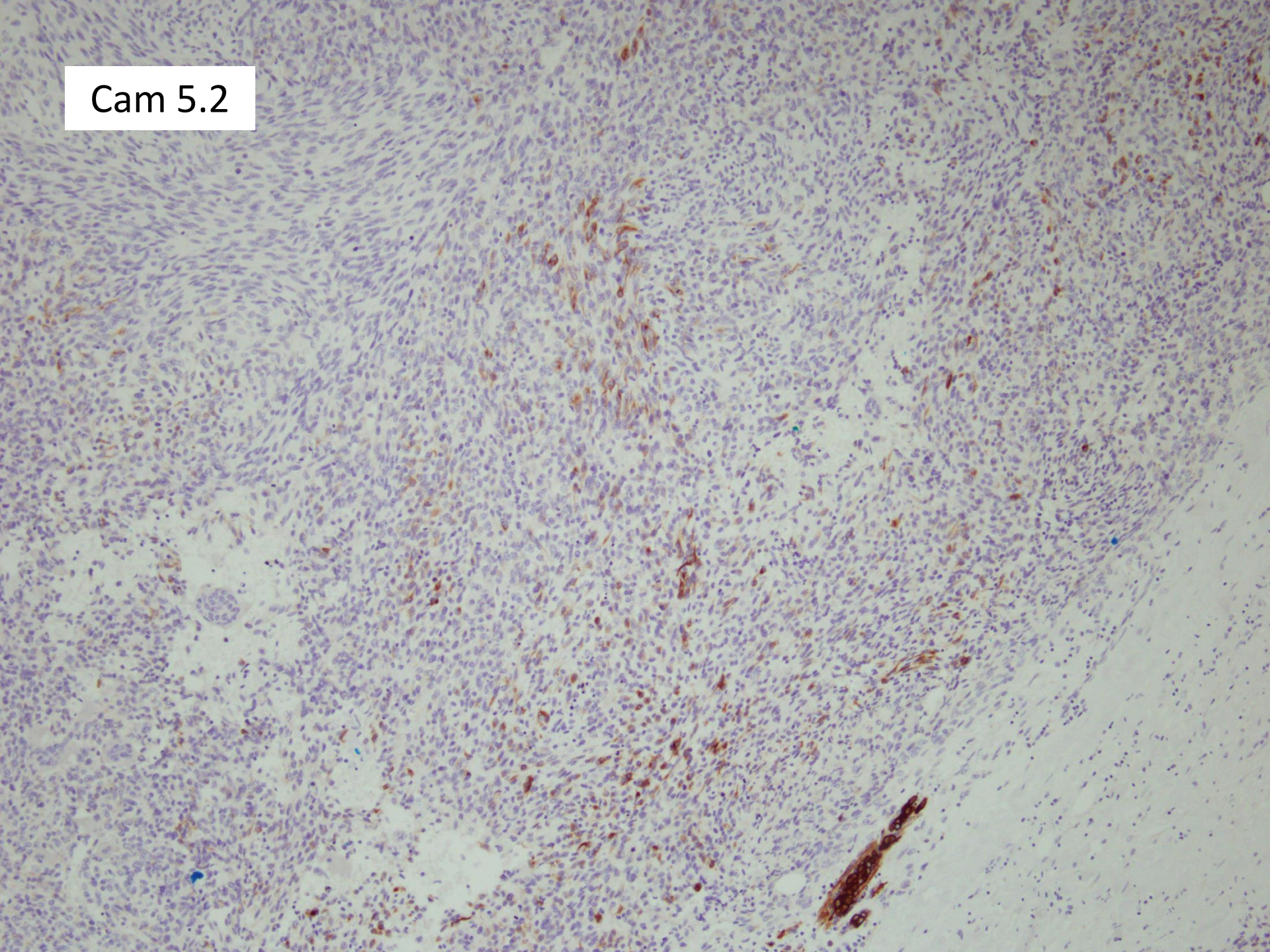
Zoom 20x

0.466 mm<sup>2</sup>

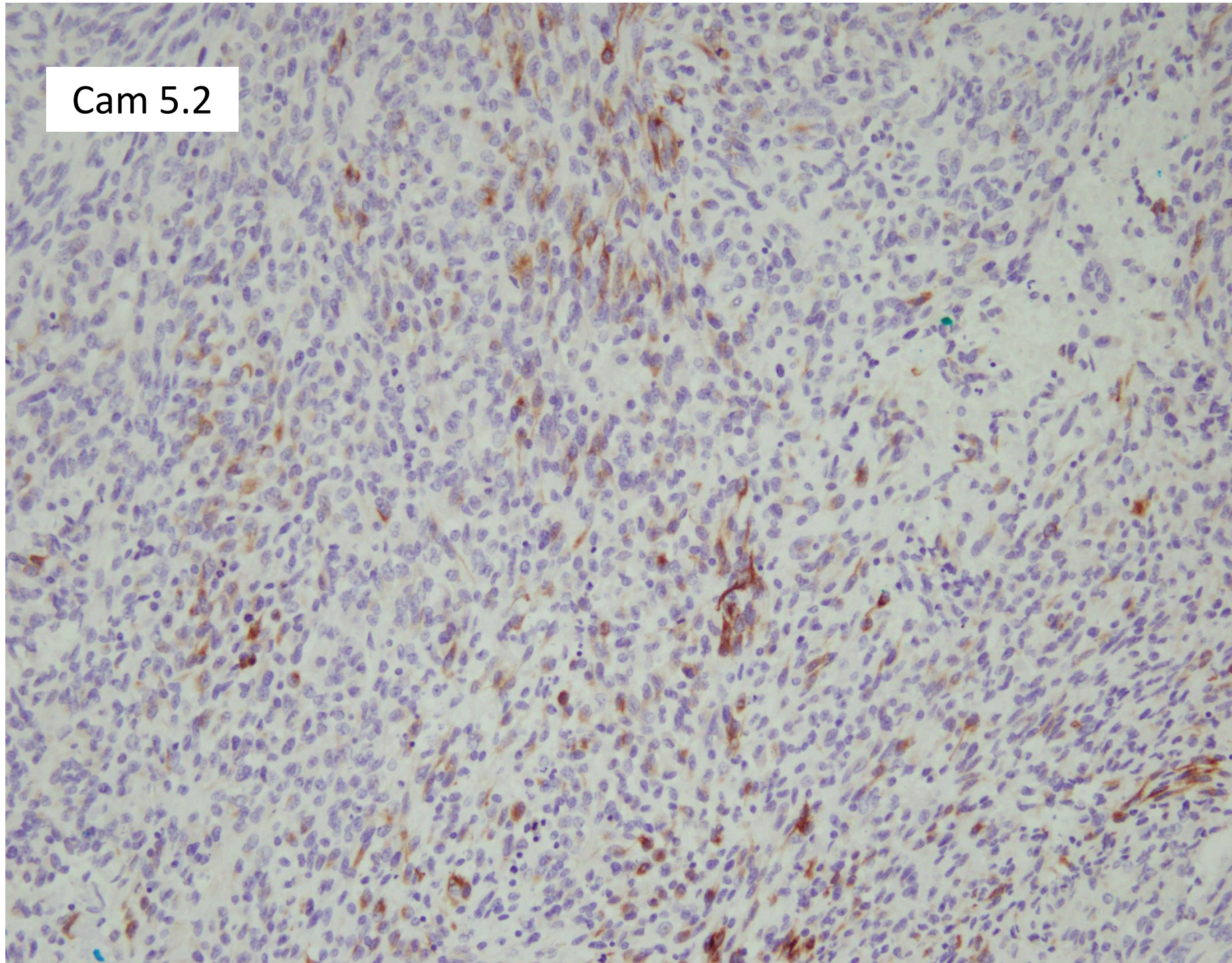


50  $\mu$ m

Cam 5.2



Cam 5.2



# Other immunohistochemical results

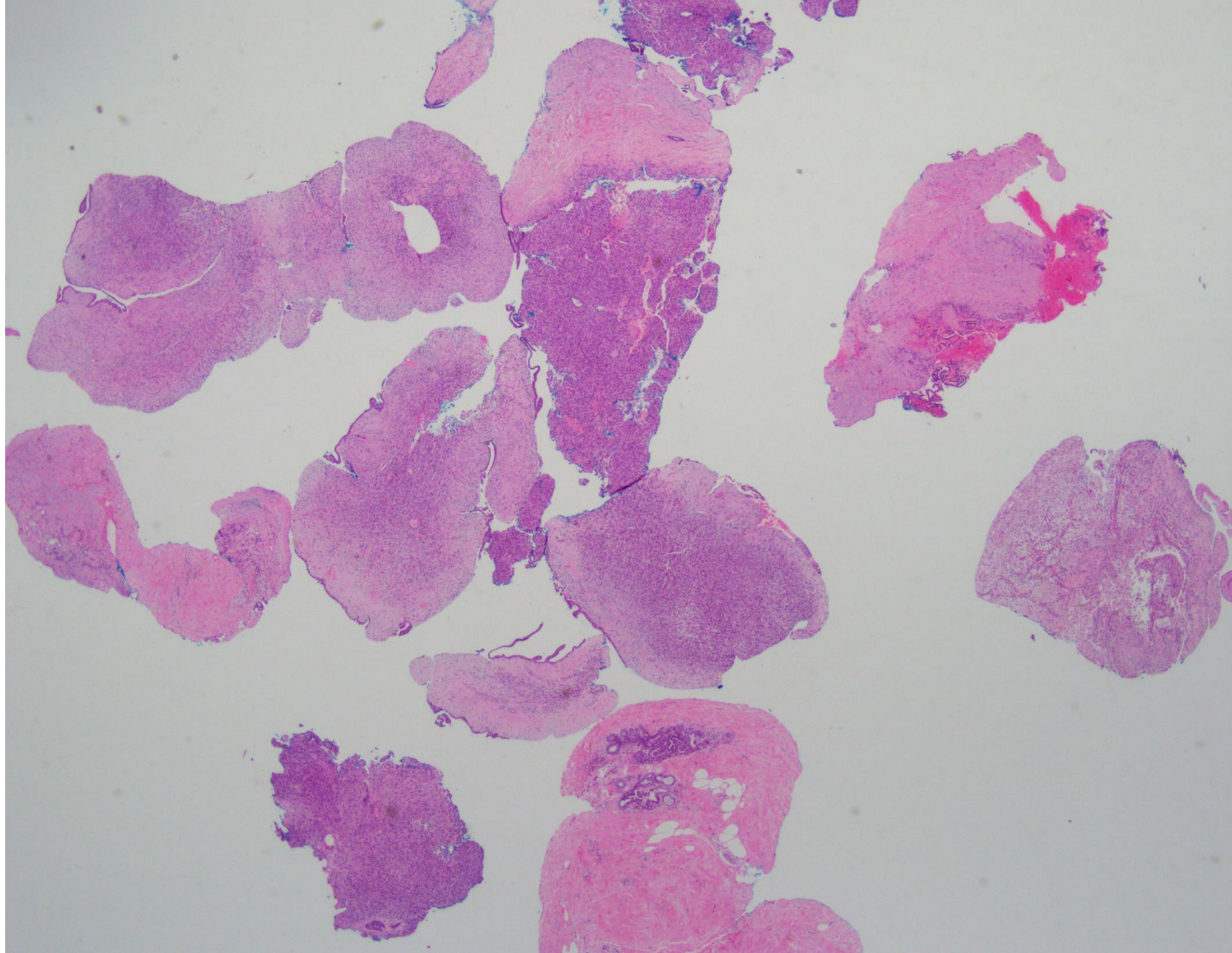
- MNF116 negative.
- CK14 negative.
- p63 negative.

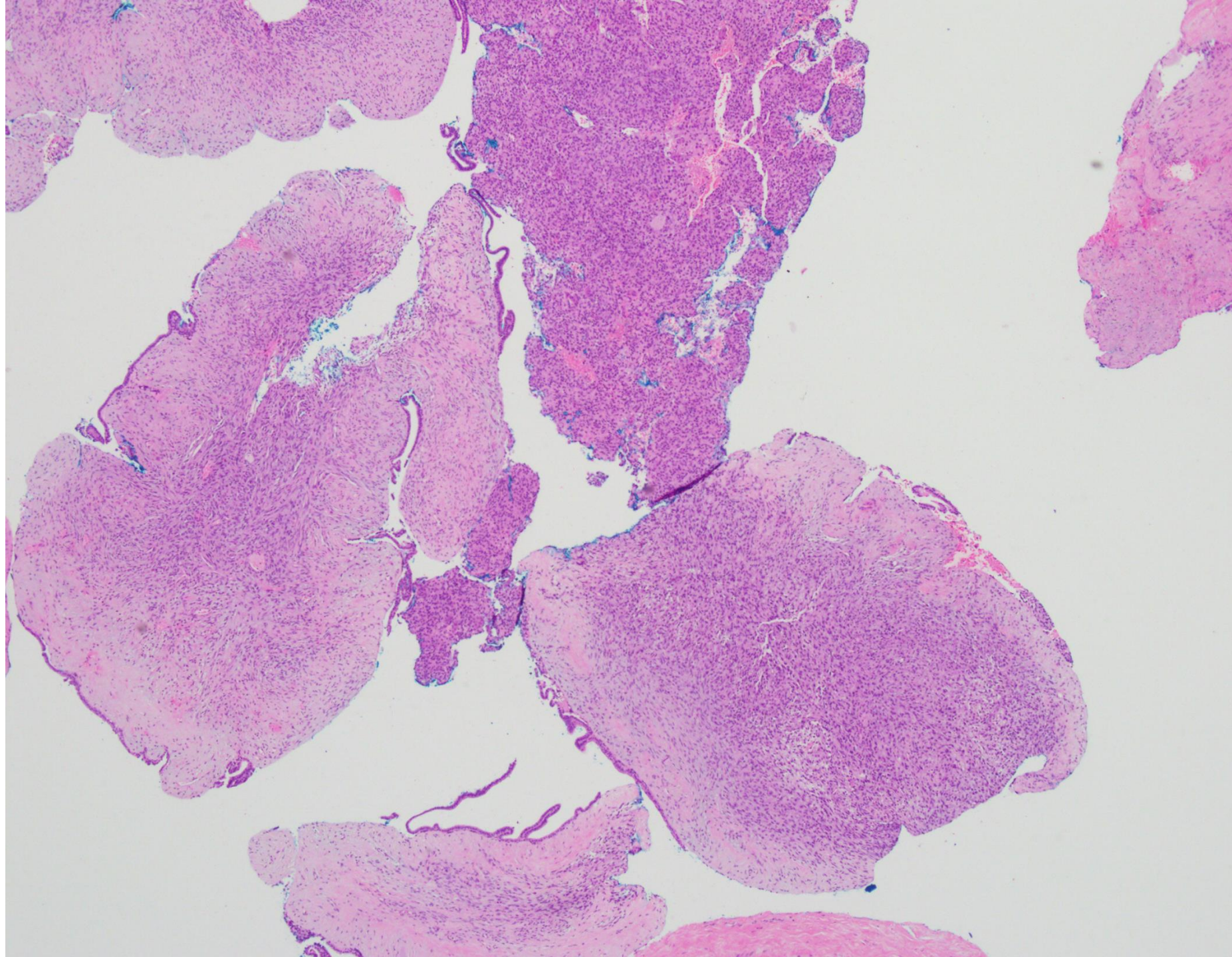


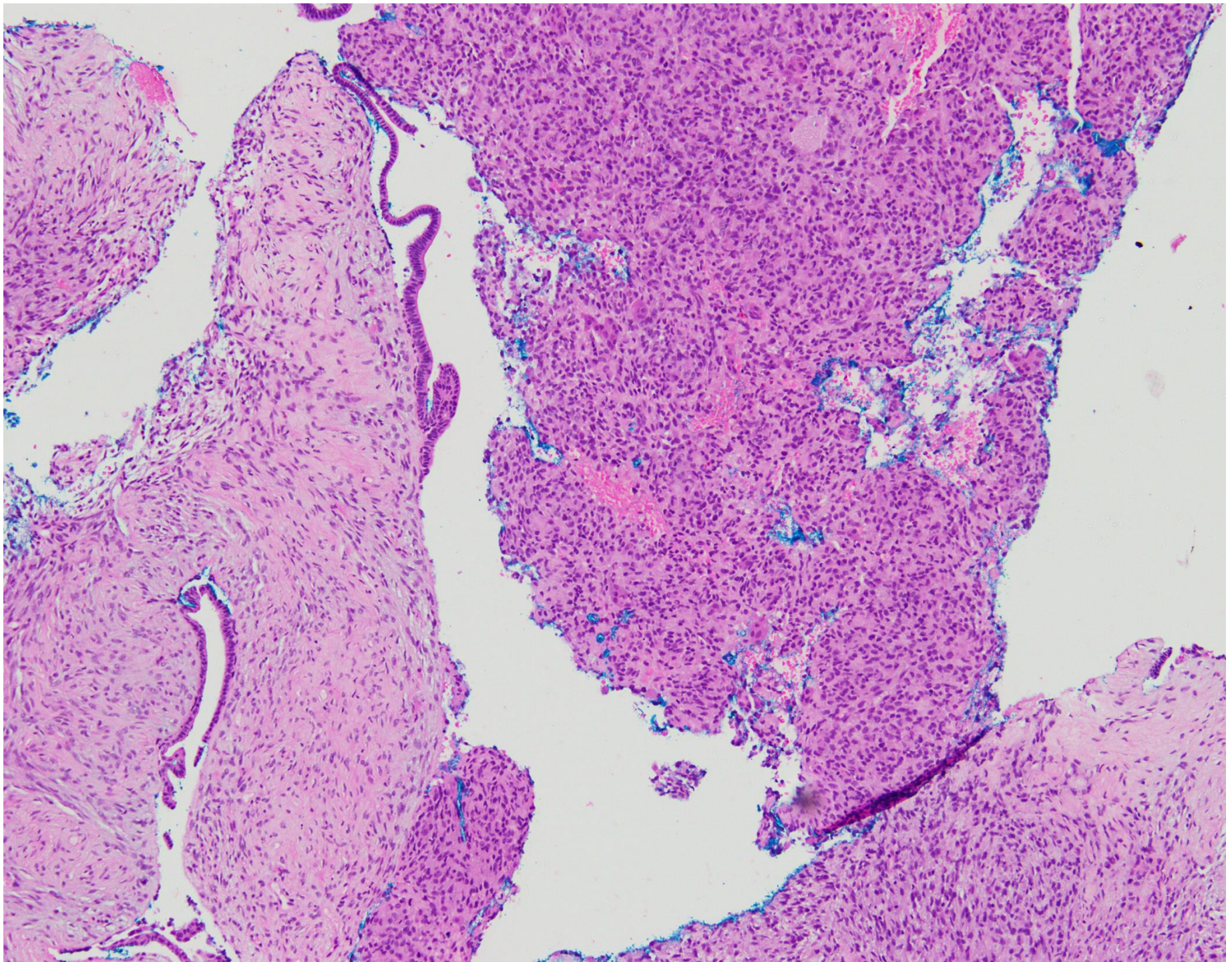


# Prior core biopsy









Left breast, mastectomy:

*Malignant phyllodes tumour*



# Malignant phyllodes tumour

- Malignant PTs are diagnosed when the tumour shows a combination of:
  - Marked nuclear pleomorphism of stromal cells
  - Stromal overgrowth defined as absence of epithelial elements in one low-power microscopic field containing only stroma
  - Increased mitoses ( $\geq 10$  per 10 HPF)
  - Increased stromal cellularity which is usually diffuse
  - Infiltrative borders
- Malignant PTs are also diagnosed when malignant heterologous elements are present even in the absence of other features.
- Owing to overgrowth of sarcomatous components, the epithelial component may only be identified after examining multiple sections with diligent sampling of the tumour.

**Table 11.01** Histological features of fibroadenoma, benign, borderline and malignant phyllodes tumours

| Histological feature                                                                                                                                                                                                                                                         | Fibroadenoma                                             | Phyllodes tumour                                      |                                                           |                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------|--------------------------------------|
|                                                                                                                                                                                                                                                                              |                                                          | Benign                                                | Borderline                                                | Malignant <sup>a</sup>               |
| <b>Tumour border</b>                                                                                                                                                                                                                                                         | Well-defined                                             | Well-defined                                          | Well-defined, may be focally permeative                   | Permeative                           |
| <b>Stromal cellularity</b>                                                                                                                                                                                                                                                   | Variable, scanty to uncommonly cellular, usually uniform | Cellular, usually mild, may be non-uniform or diffuse | Cellular, usually moderate, may be non-uniform or diffuse | Cellular, usually marked and diffuse |
| <b>Stromal atypia</b>                                                                                                                                                                                                                                                        | None                                                     | Mild or none                                          | Mild or moderate                                          | Marked                               |
| <b>Mitotic activity</b>                                                                                                                                                                                                                                                      | Usually none, rarely low                                 | Usually few (< 5 per 10 HPF)                          | Usually frequent (5–9 per 10 HPF)                         | Usually abundant (≥ 10 per 10 HPF)   |
| <b>Stromal overgrowth</b>                                                                                                                                                                                                                                                    | Absent                                                   | Absent                                                | Absent, or very focal                                     | Often present                        |
| <b>Malignant heterologous elements</b>                                                                                                                                                                                                                                       | Absent                                                   | Absent                                                | Absent                                                    | May be present                       |
| <b>Distribution relative to all breast tumours</b>                                                                                                                                                                                                                           | Common                                                   | Uncommon                                              | Rare                                                      | Rare                                 |
| <b>Relative proportion of all phyllodes tumours</b>                                                                                                                                                                                                                          | —                                                        | 60–75%                                                | 15–20%                                                    | 10–20%                               |
| HPF, high-power fields.                                                                                                                                                                                                                                                      |                                                          |                                                       |                                                           |                                      |
| <sup>a</sup> While these features are often observed in combination, they may not always be present simultaneously. Presence of a malignant heterologous element qualifies designation as a malignant phyllodes tumour, without requirement for other histological criteria. |                                                          |                                                       |                                                           |                                      |

# Keratins in phyllodes tumours

## Take-home messages

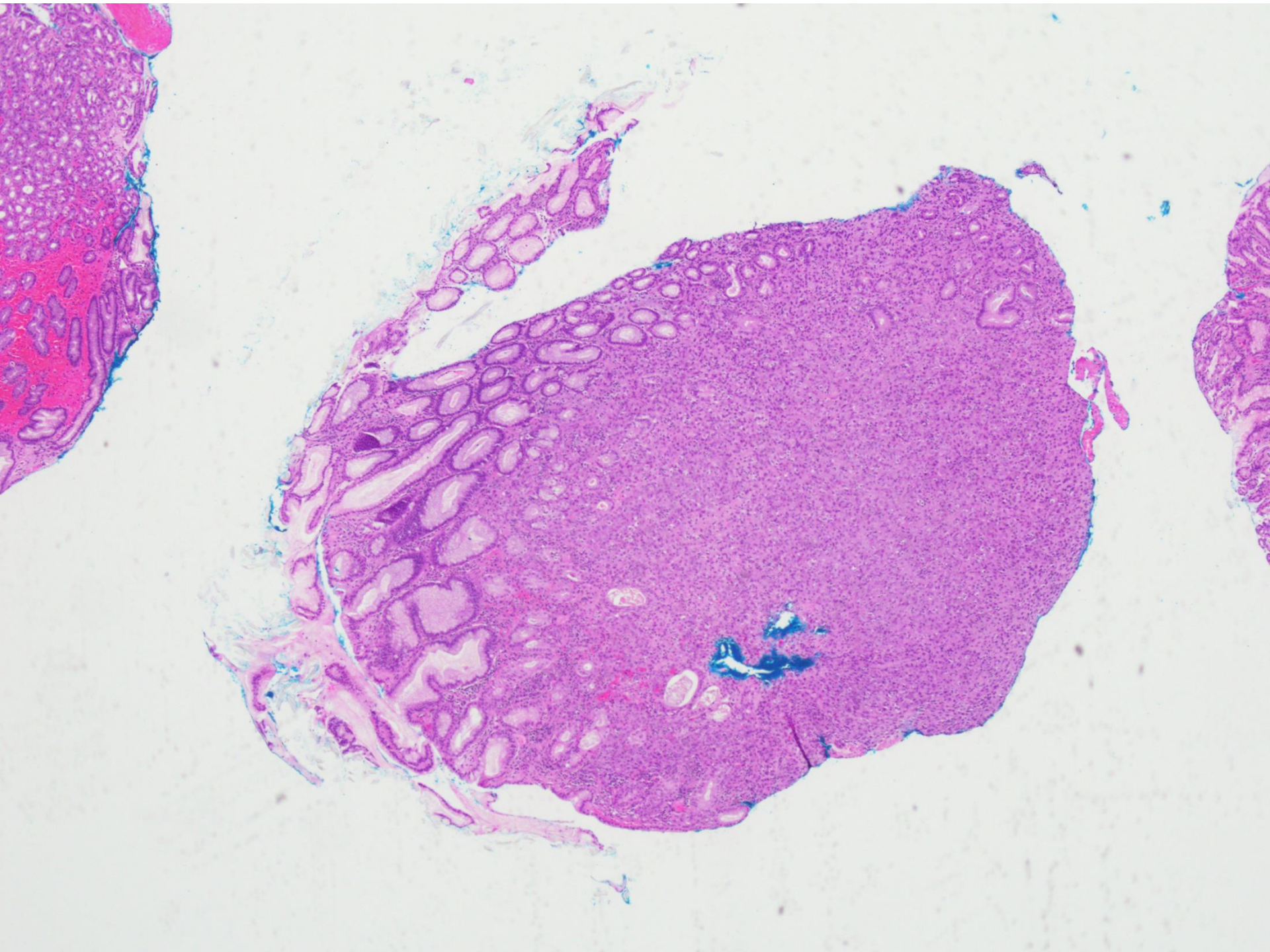
- ▶ Phyllodes tumours of the breast may express keratins in stromal cells on immunohistochemistry, albeit focal and patchy in distribution.
- ▶ CD34 stromal staining is associated with phyllodes tumour grade, with benign tumours showing a higher proportion of positivity.
- ▶ None of the phyllodes tumours display stromal p63 reactivity.
- ▶ On limited material such as core biopsies, focal keratin expression of a spindle cell breast tumour needs to be interpreted with caution, and should not be immediately concluded as a tumour of metaplastic origin.

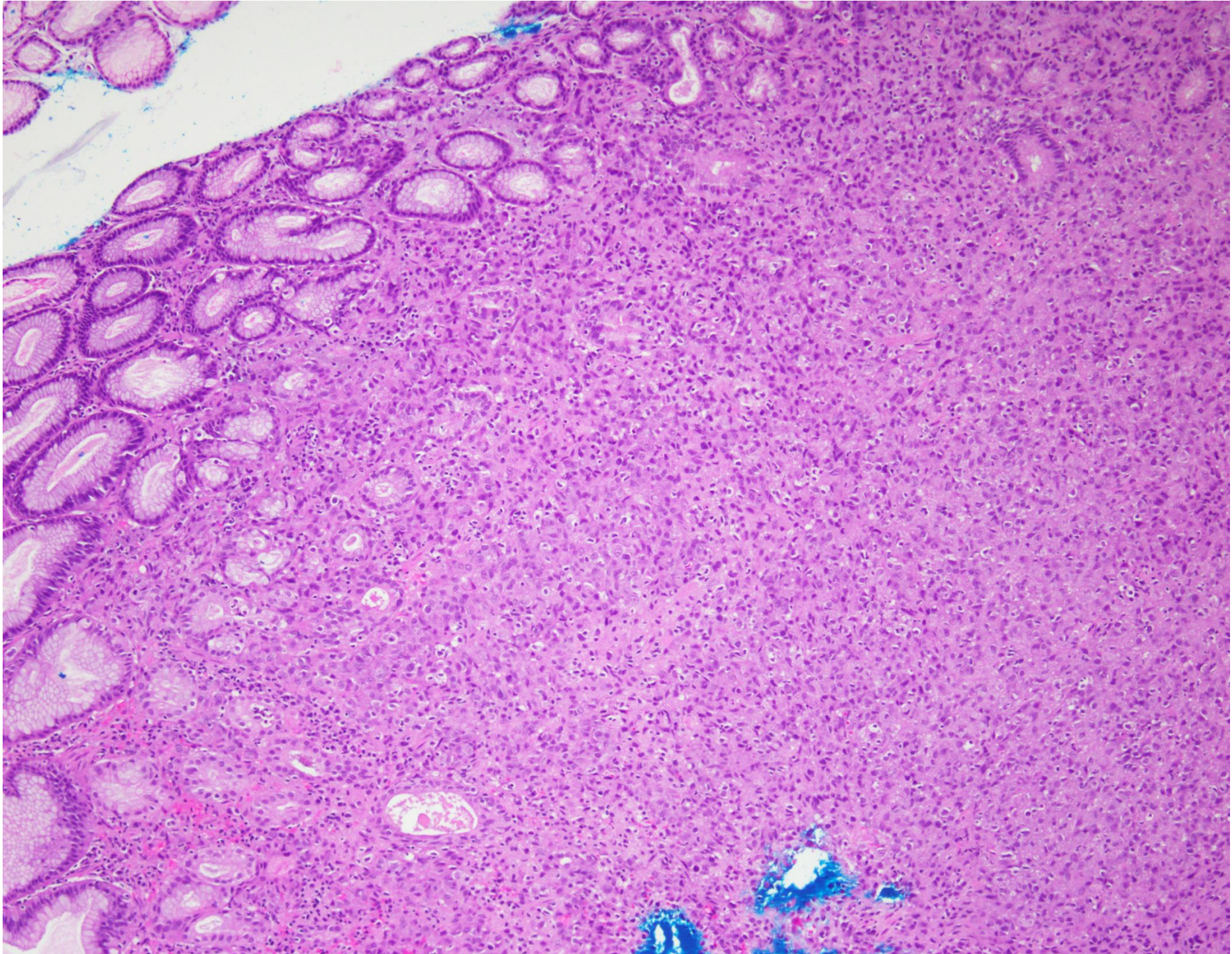


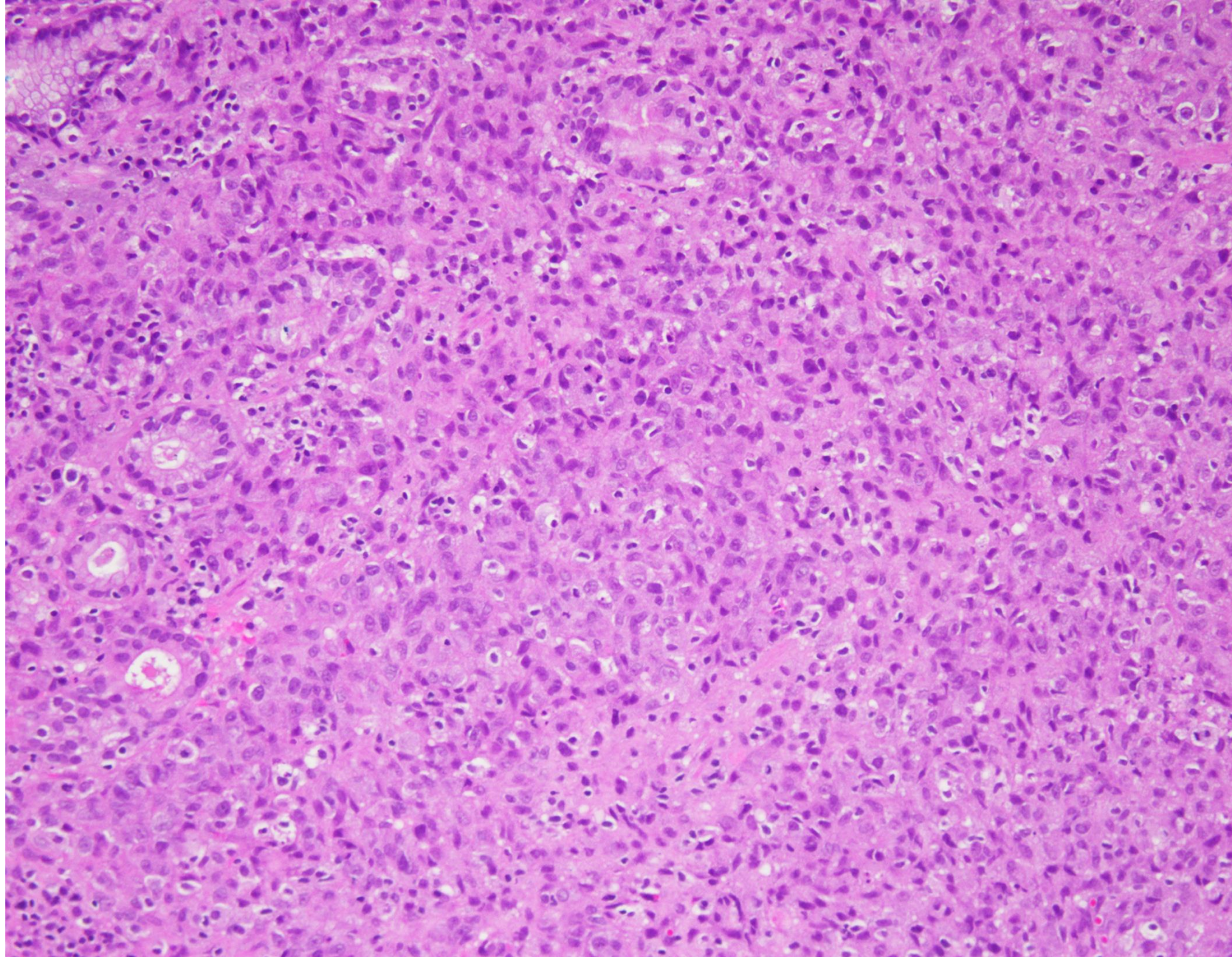
# Follow-up

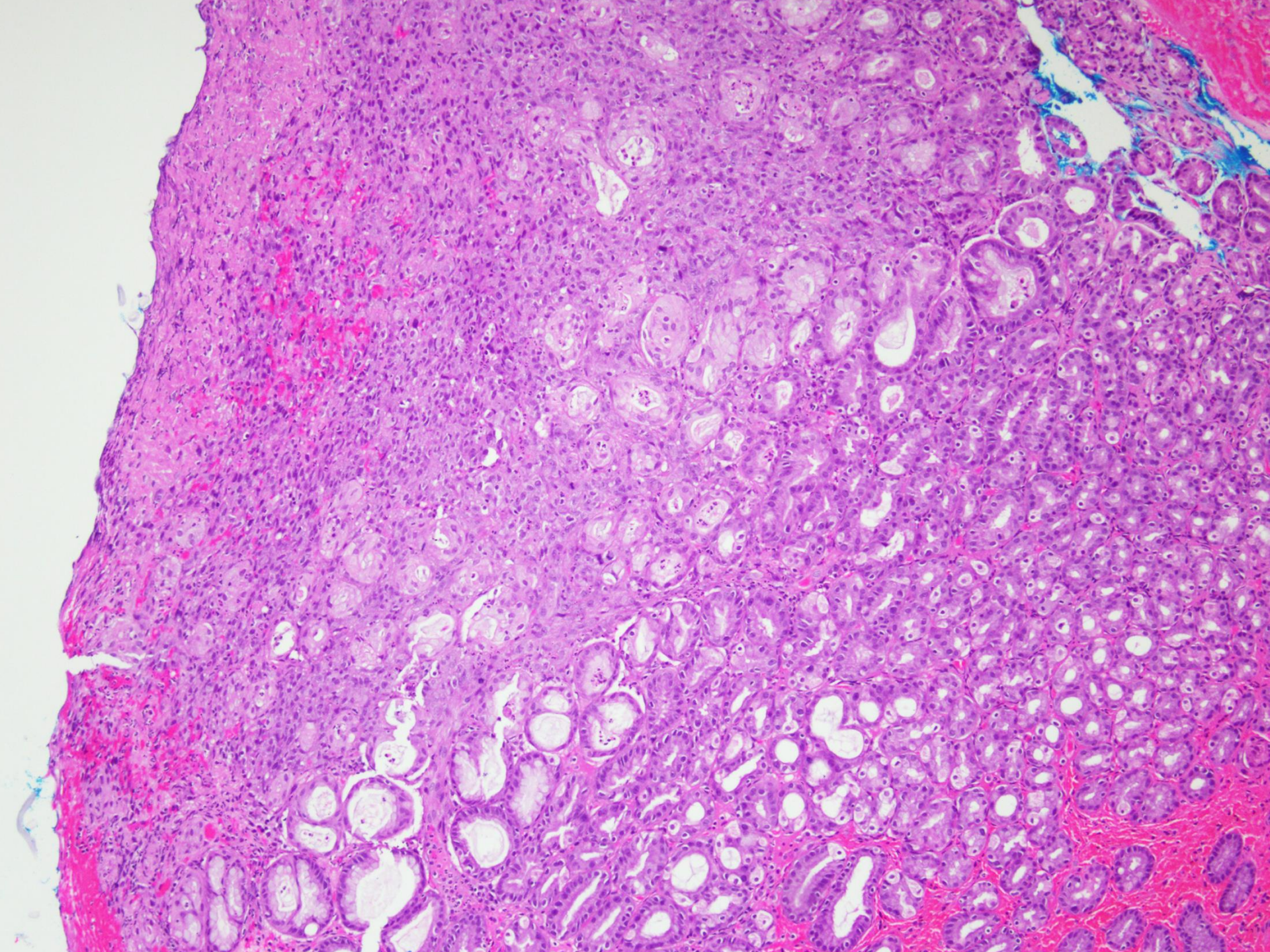
- Underwent upper gastrointestinal endoscopy 4 months after the mastectomy.
- Biopsies from oesophagus, stomach and duodenum.

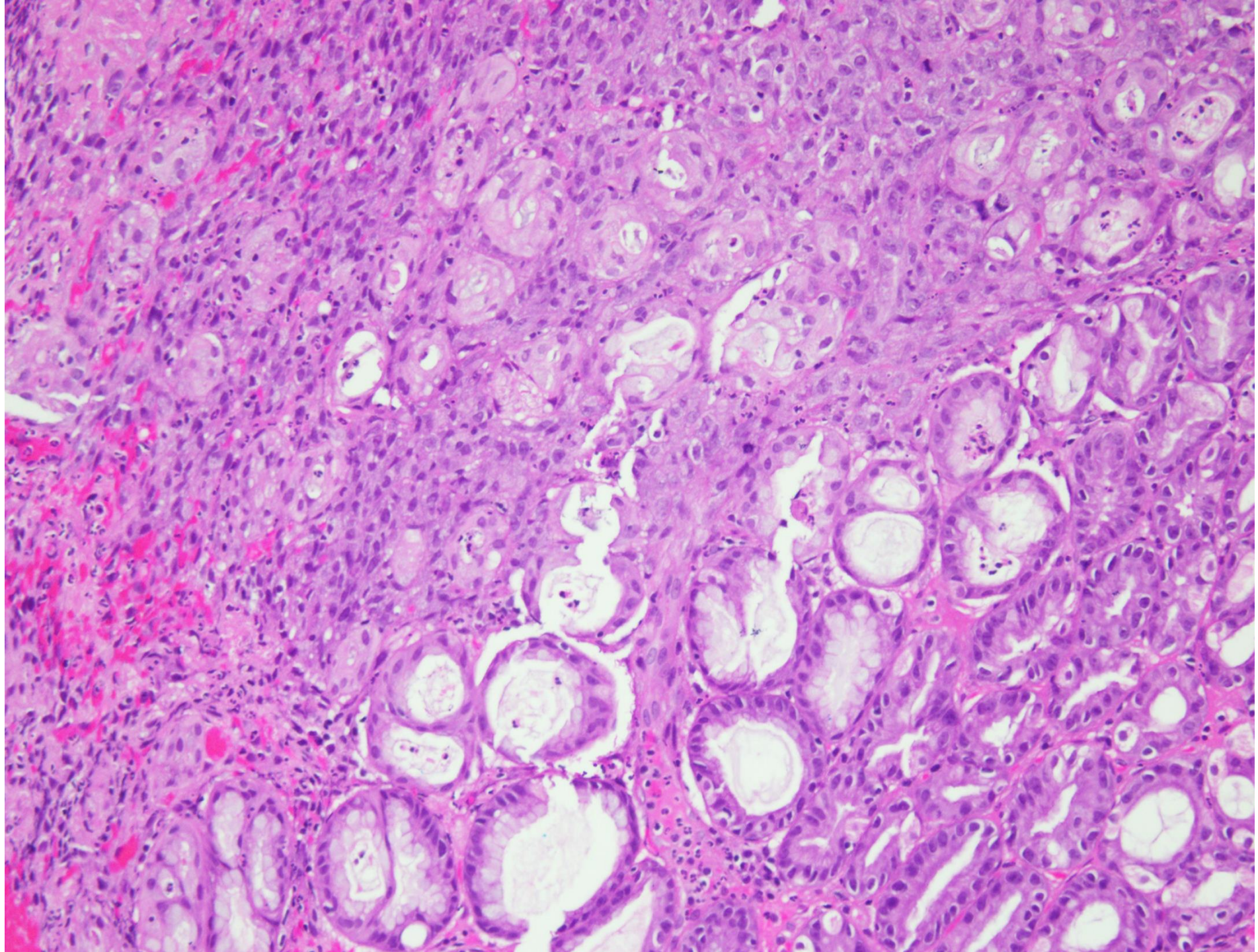


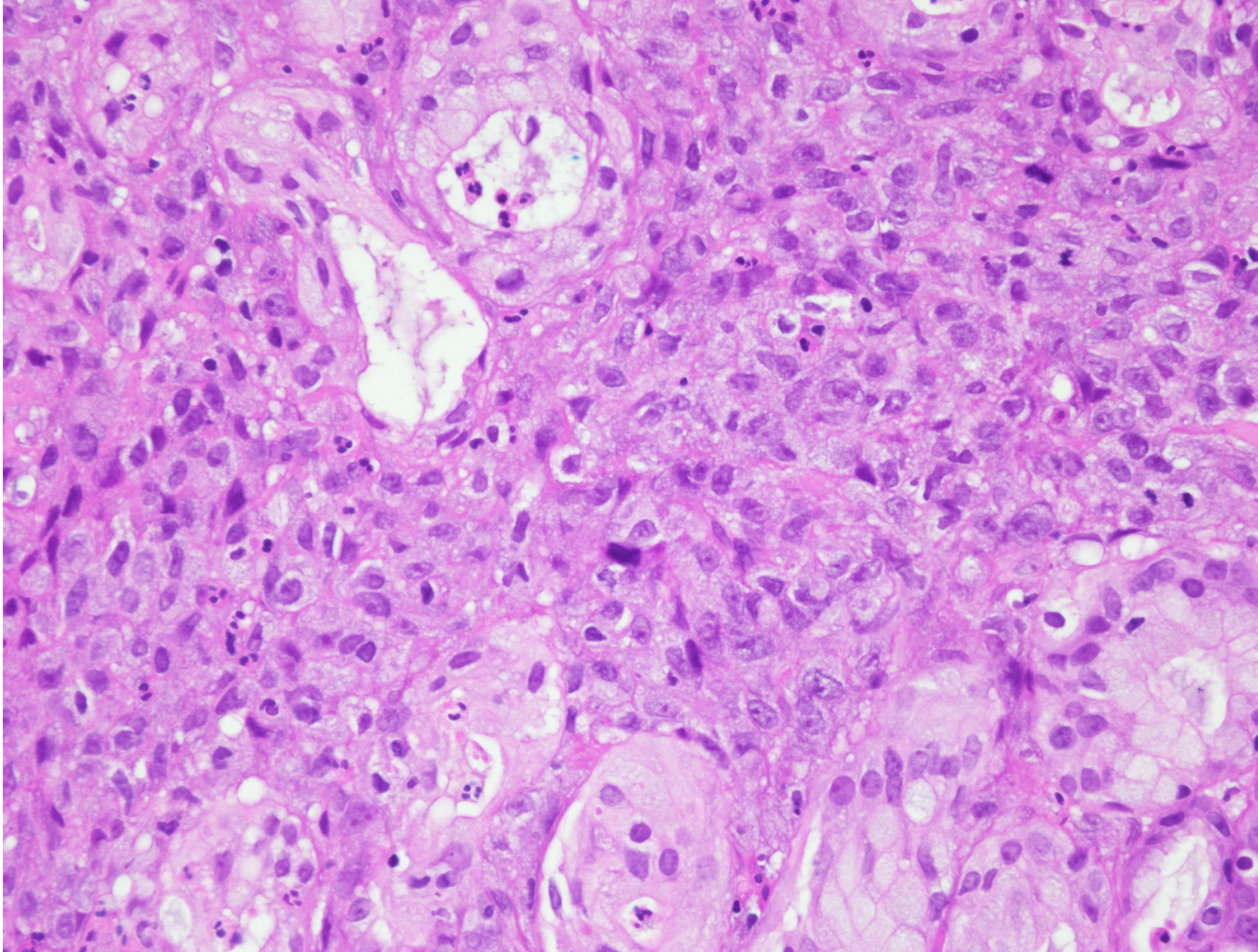












# Immunohistochemistry

- MNF116, BerEP4, LCA, CD3, HMB45 negative.
- CD68 highlights histiocytes, but abnormal spindle & epithelioid cells negative.





Gastric & duodenal biopsies:

*Metastatic malignant phyllodes  
tumour*

*Oesophageal biopsy: No malignancy*



# Metastasis & phyllodes tumours

- Phyllodes tumour recurrence is mainly local, but malignant and rarely borderline tumours may develop distant metastases in a relatively small number of patients.
- Most metastases occur in the lung and skeleton, but have been described in almost every organ system.



## CORRESPONDENCE

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Cardiopulmonary  
thromboembolism of  
epithelioid angiosarcoma  
arising from malignant  
phyllodes tumour of the  
breast

*Goh et al J Clin Pathol. 2014 May;67(5):450-4.*

**Table 6** Sites of metastases of PT

| Site                                 | Number (%) |
|--------------------------------------|------------|
| Lung and pleura                      | 9 (75.1%)  |
| Lung and Liver                       | 1 (8.3%)   |
| Vertebra                             | 1 (8.3%)   |
| Soft tissue (infraclavicular tumour) | 1 (8.3%)   |
| Total                                | 12 (100%)  |

Histologically confirmed cases include three metastases to the lung and one metastasis to the left infraclavicular region. Remaining cases were radiologically detected.

PT, phylloides tumours.

Tan PH, Thike AA, Tan WJ, *et al.* *J Clin Pathol*

*J Clin Pathol.* 2012 Jan;65(1):69-76.

 Breast  
Pathology  
Course 2014

