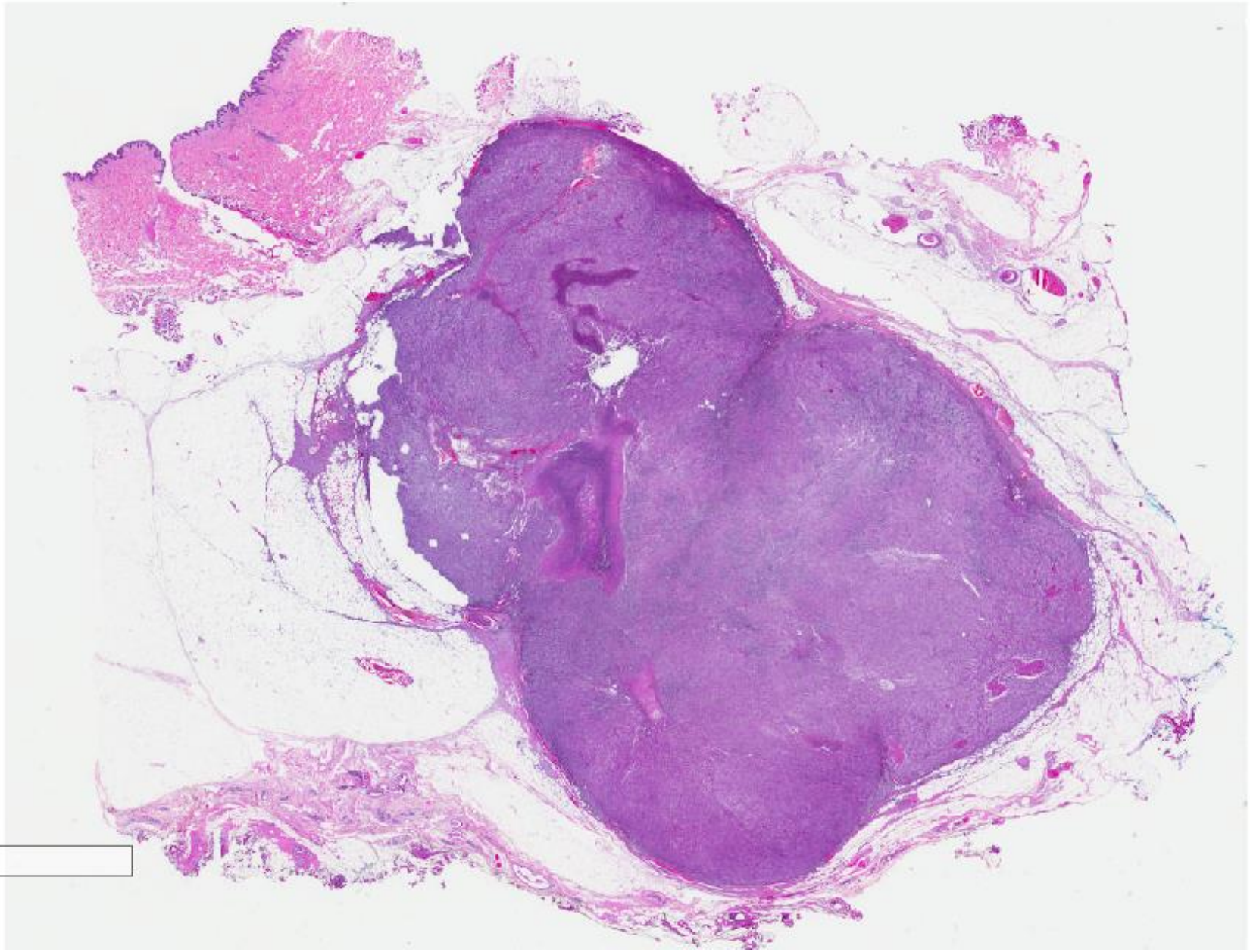
Case 18

49 year old Malay lady with a past history of renal cell carcinoma presented with a right breast mass.

A fine needle aspiration was performed followed by excision of the right breast mass.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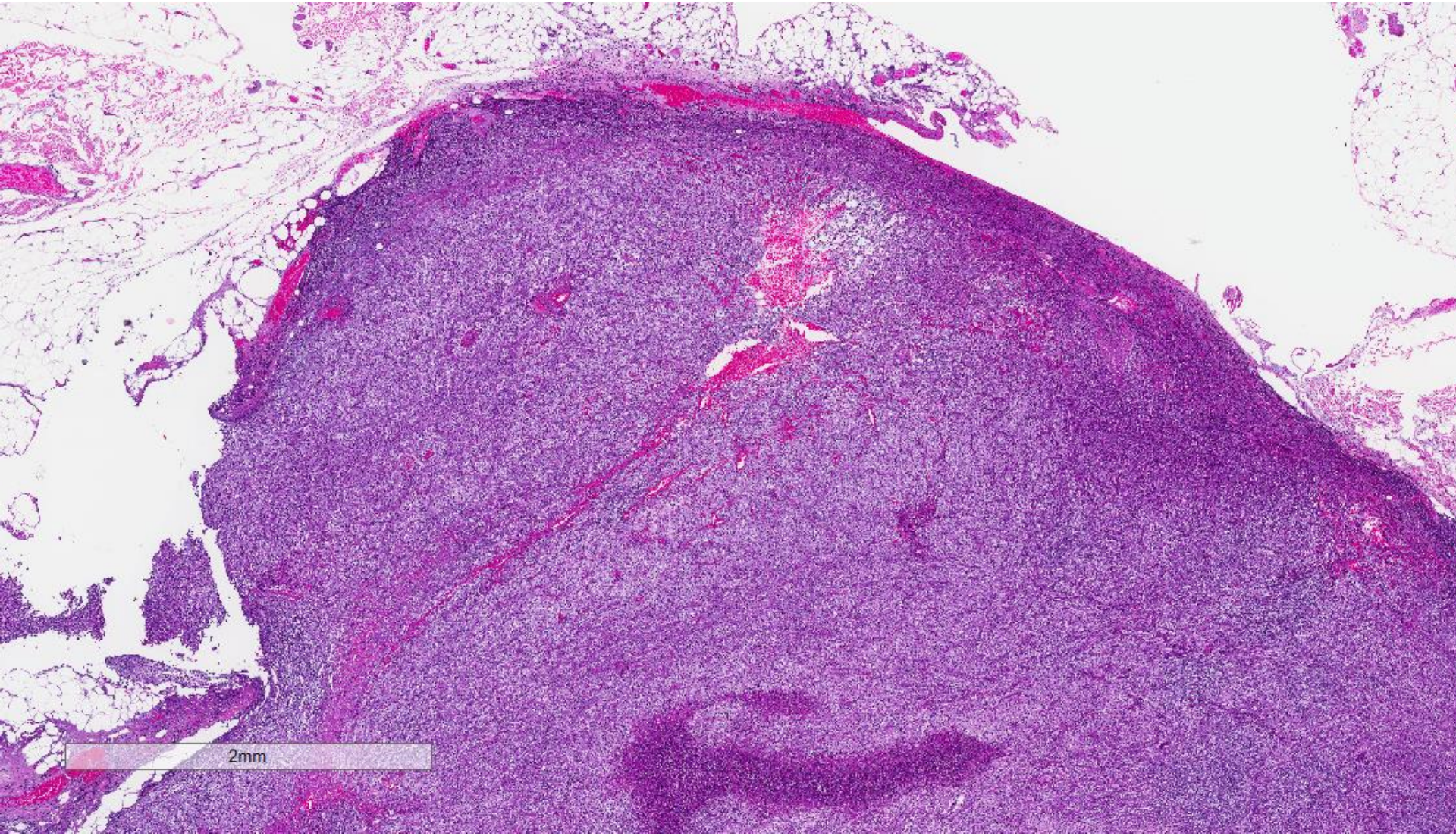
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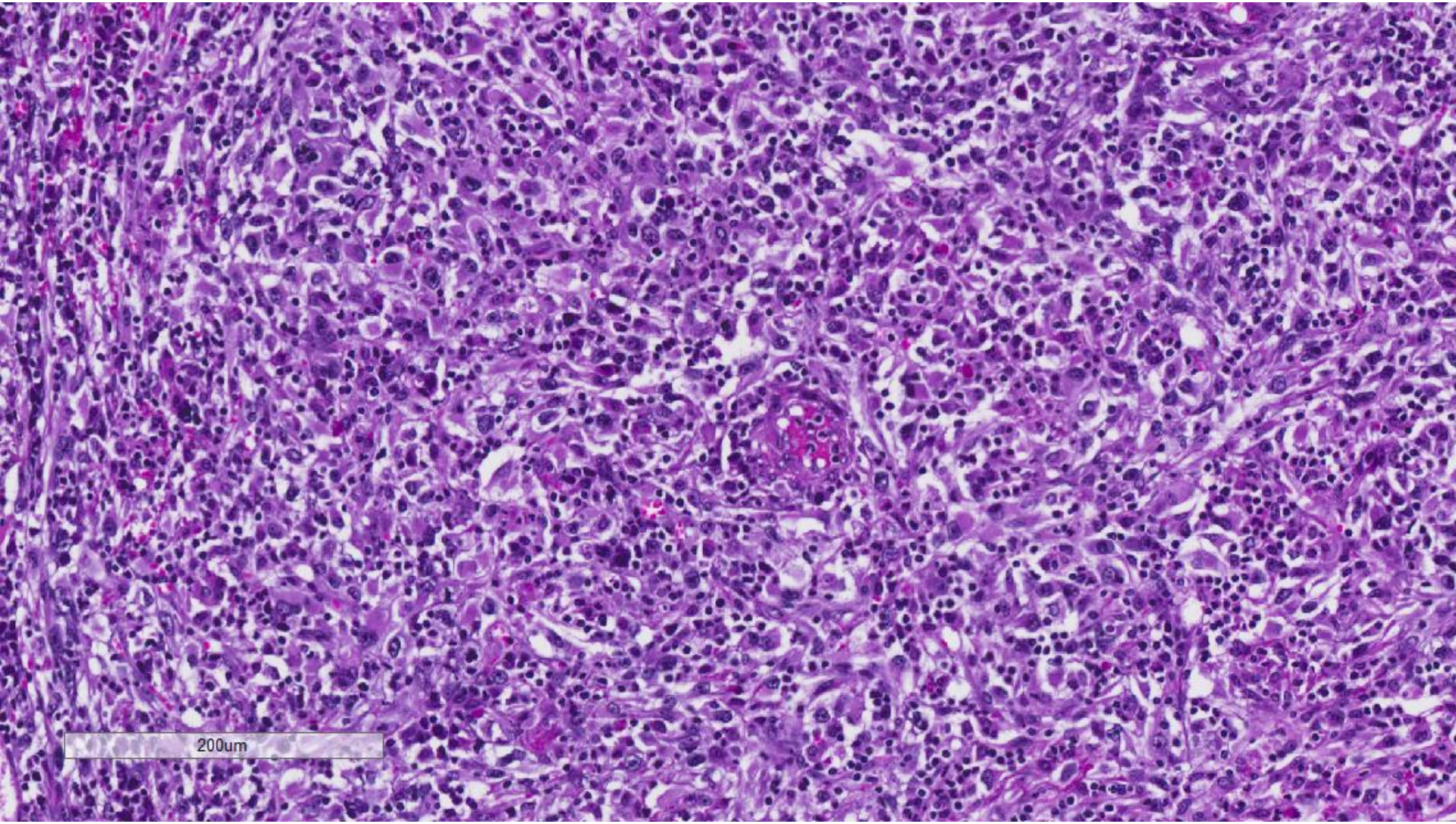
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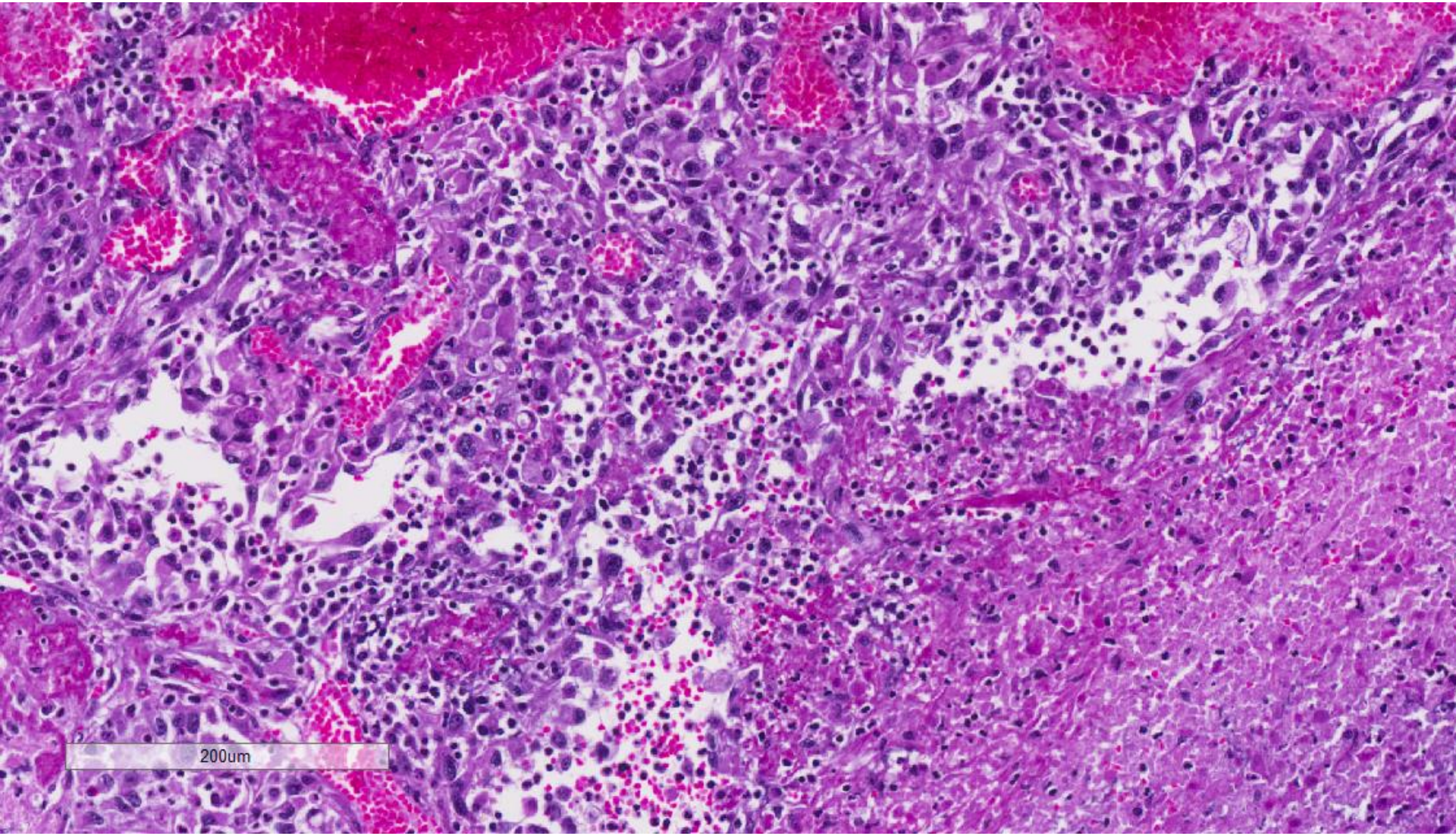
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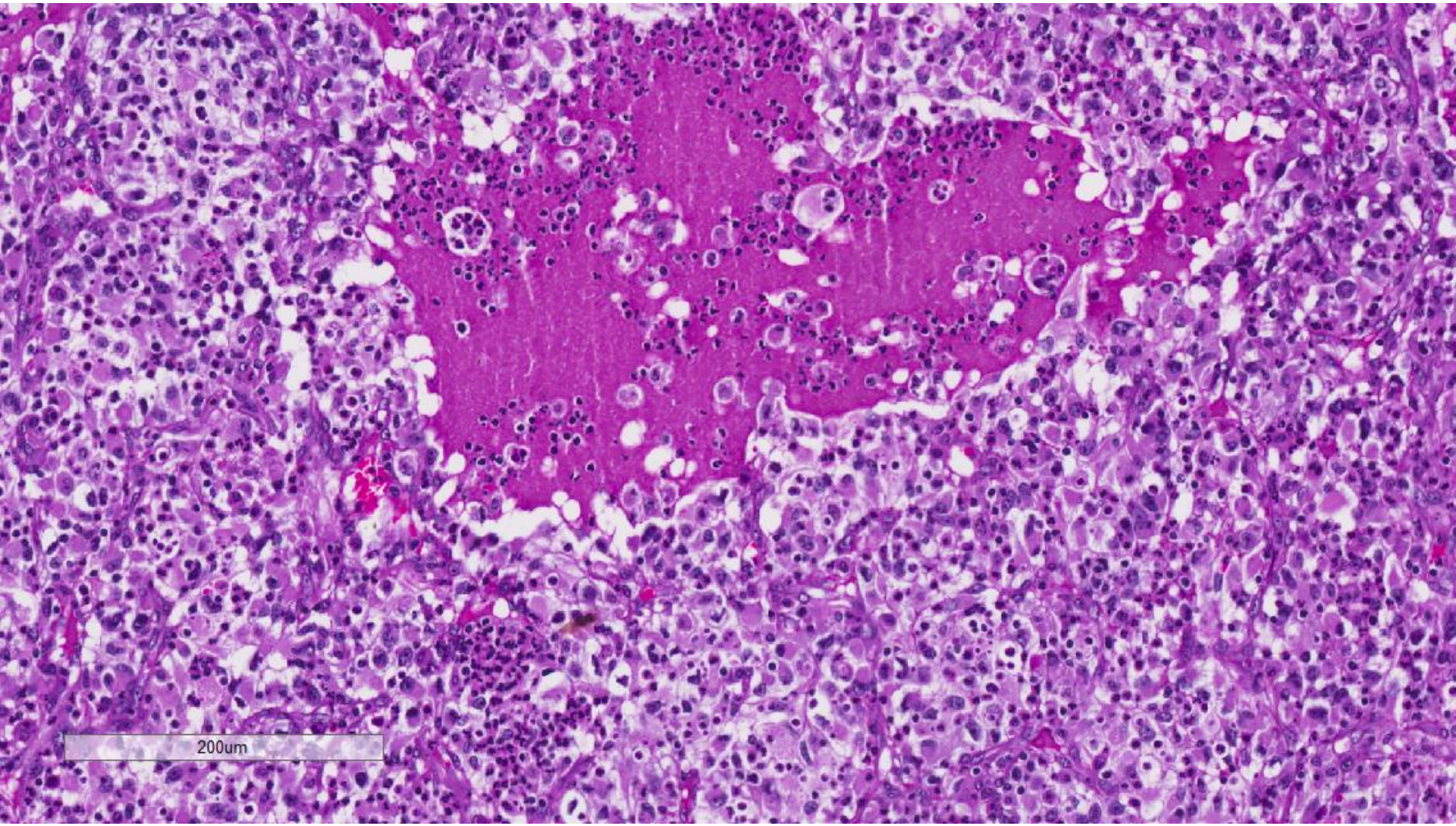
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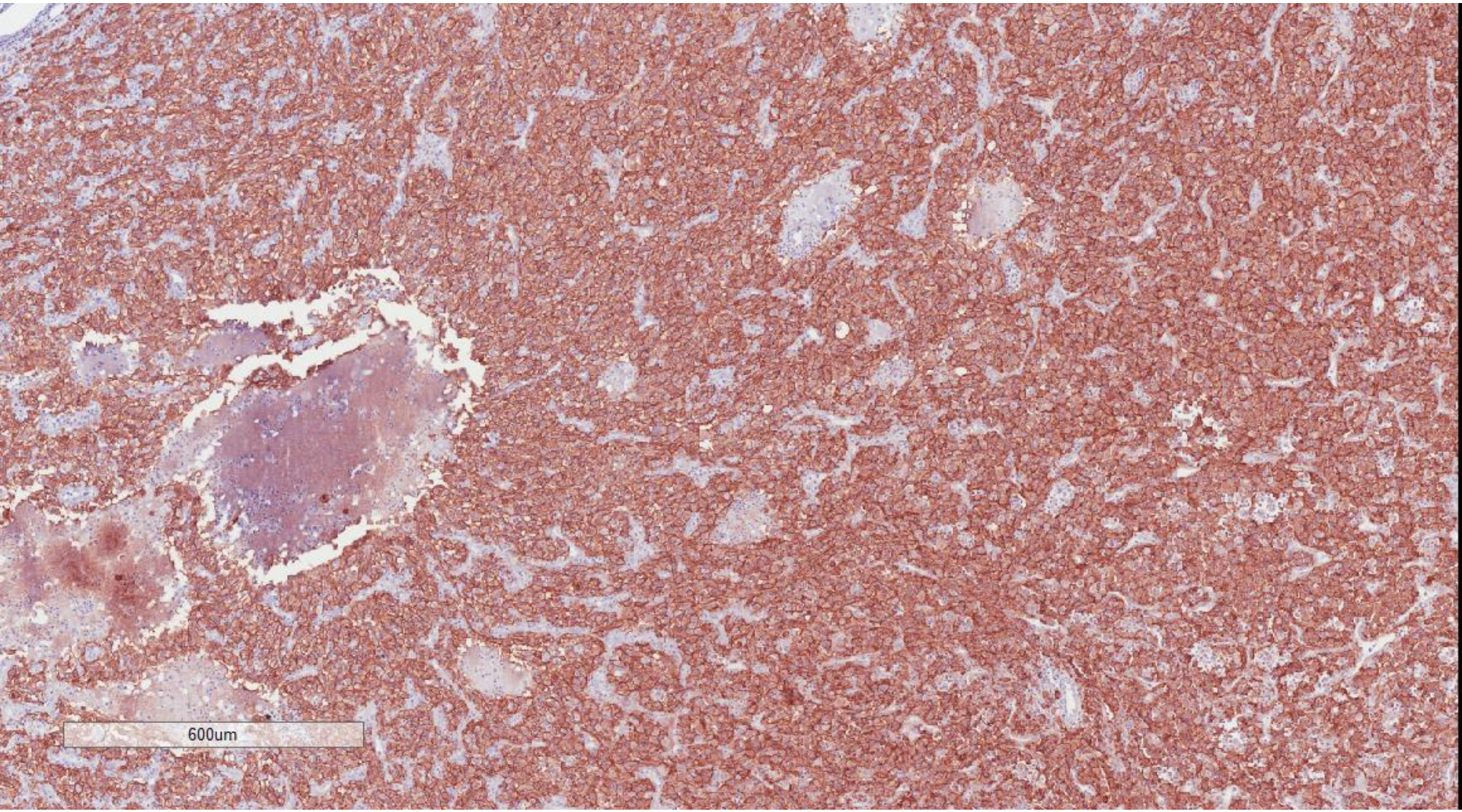
CAIX



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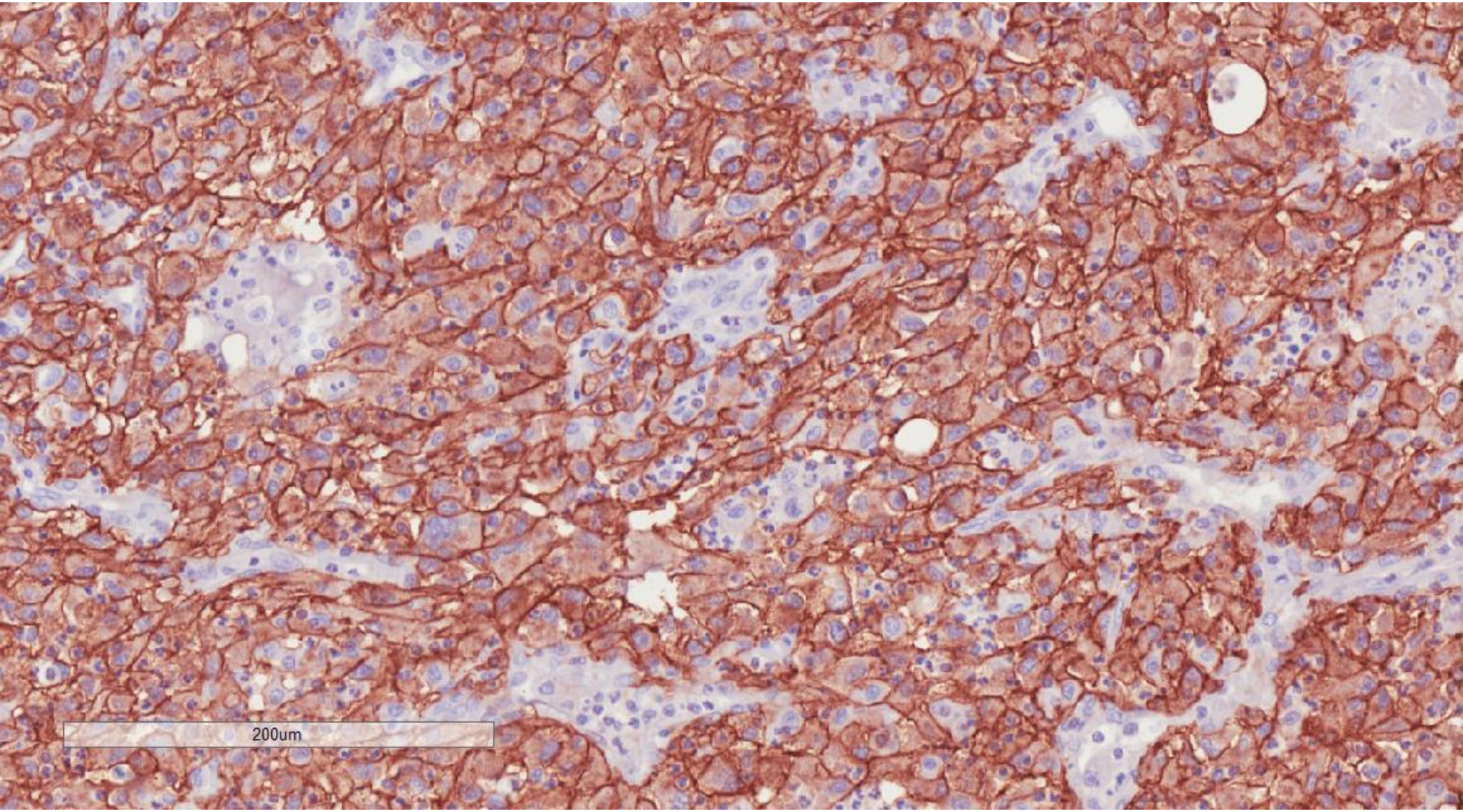
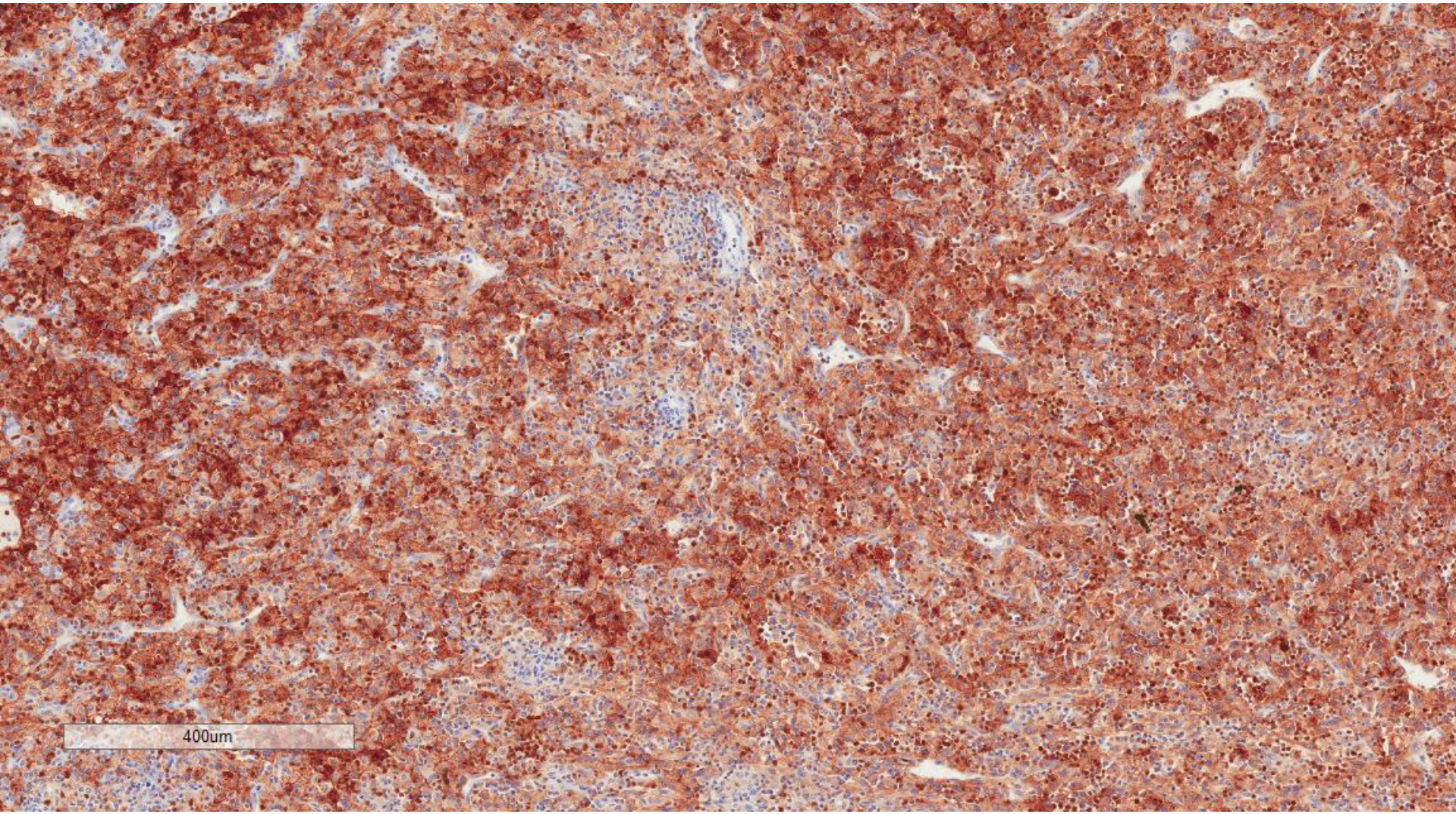
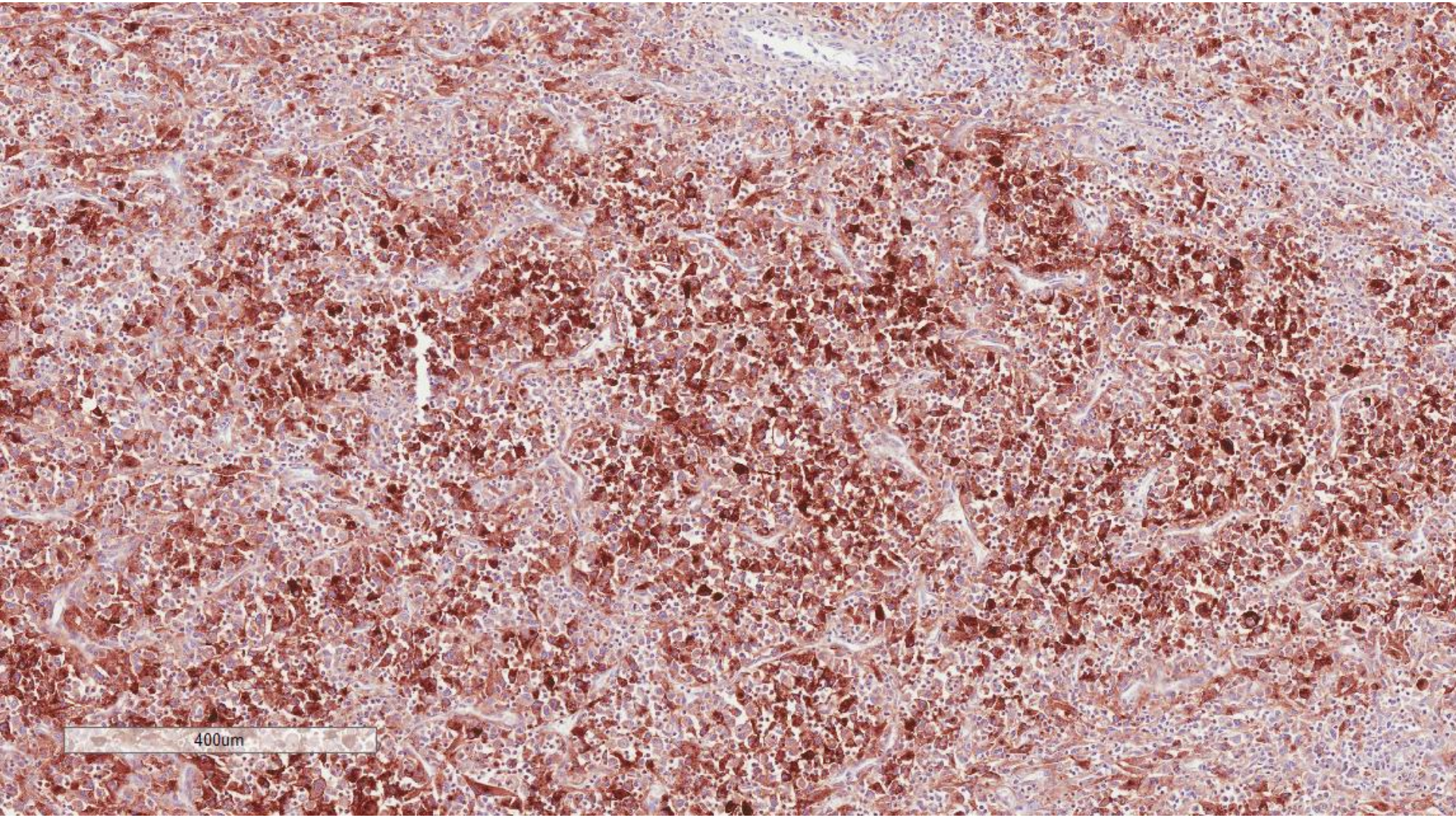
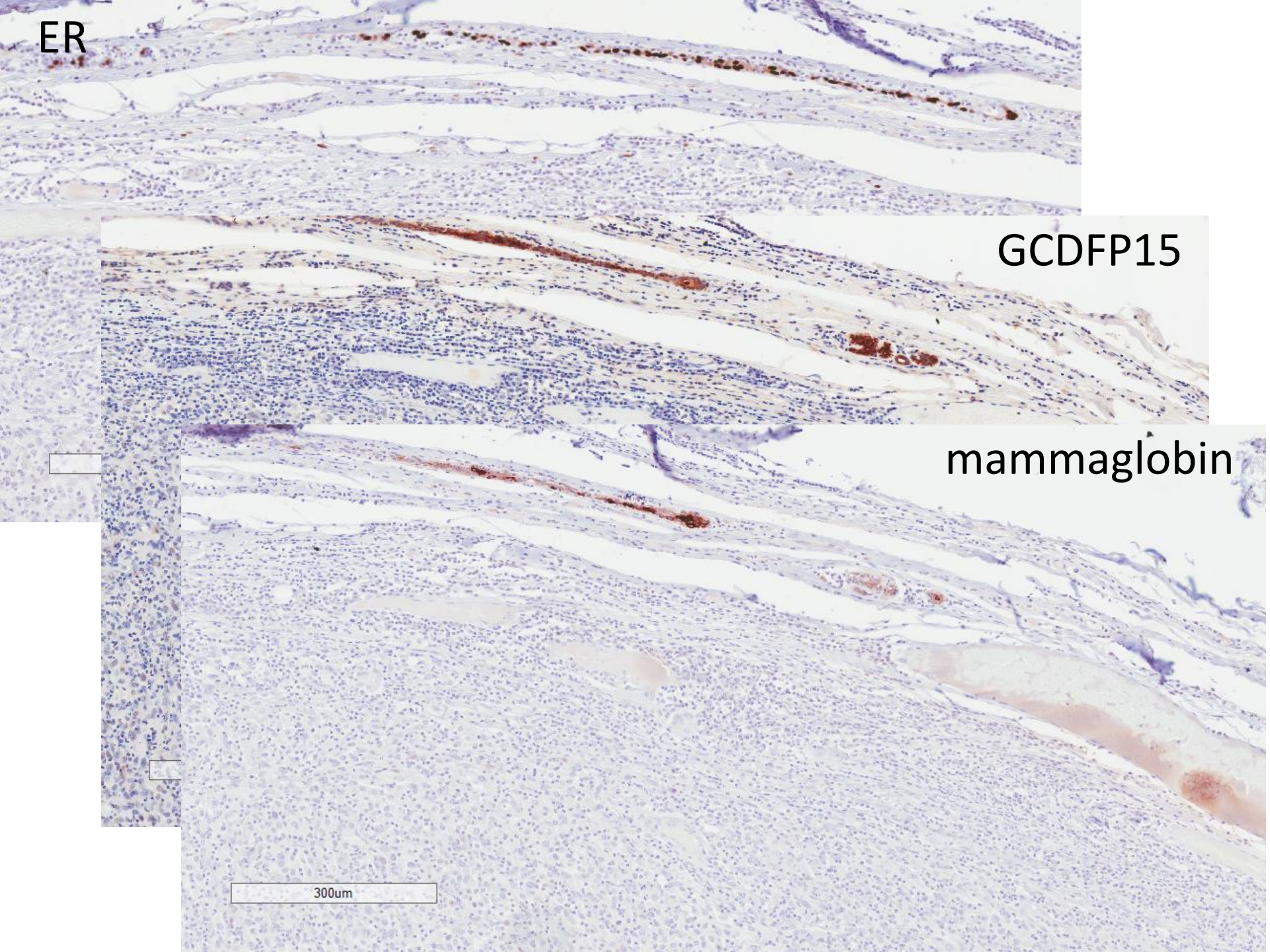


CD10



EMA




ER
GCDFP15
mammaglobin
300um

Metastatic renal cell carcinoma to the breast

Metastasis to the breast

- A wide range of extramammary malignancies can metastasize to the breast.
- Common types are haematological malignancies, melanoma, carcinomas of the lung, ovary, prostate, kidney and stomach and carcinoid tumours.
- In children, rhabdomyosarcoma and lymphoma are the most common.

Metastasis to the breast

- In clinical series, metastases to the breast represent about 0.2% to 1.3% of malignant tumours in the breast.
- Frequency is higher at post mortem examination.
- Much more common in women.

Metastasis to the breast

- In about 30% of cases, the breast lesion is the first sign of malignancy.
- In those with a history of malignancy, the interval between initial diagnosis and mammary metastasis varies between 1 month and 15 years.
- A long interval is particularly seen in some tumour types, eg melanoma and ovarian carcinoma.
- The patient usually presents with a rapidly growing, painless, firm, palpable mass.

Metastasis to the breast

- Mammography most commonly shows a well-defined rounded mass.
- Multiple masses are present in a minority.
- Calcification is rare, apart from metastases from serous papillary carcinoma of the ovary.
- Spiculation is much less common than in primary mammary carcinoma.
- Ultrasound shows a hypoechoic mass, sometimes heterogeneous or poorly defined.

How not to miss an extramammamary metastasis to the breast I

- Unusual morphology in 2/3 patients.
- Clinical history in 1/3 patients.
- Histological clues:
  - Small cell carcinoma ≈ lung origin.
  - Clear cell carcinoma ≈ renal origin.
  - Papillary carcinoma ≈ ovarian, thyroid origin.
  - Pigment and intranuclear inclusions ≈ melanoma.
  - Irregular nuclei ≈ lymphoma.
  - Elastosis and carcinoma in situ ≈ breast primary.
  - Calcifications ≈ favour breast primary, except for ovarian papillary serous carcinoma.

How not to miss an extramammamary metastasis to the breast II

- Compare with primary tumour morphology.
- Role of immunohistochemistry:
  - Breast carcinoma is CK7, ER, PR, GCDFP-15 positive, CK20 negative.
  - TTF1 useful marker of pulmonary adenocarcinoma.
  - WT1 favours ovarian serous papillary carcinoma.
  - S100 is positive in melanoma, but can stain breast carcinomas also, therefore other markers eg melanA, HMB45, keratins are needed.
  - Panel approach.