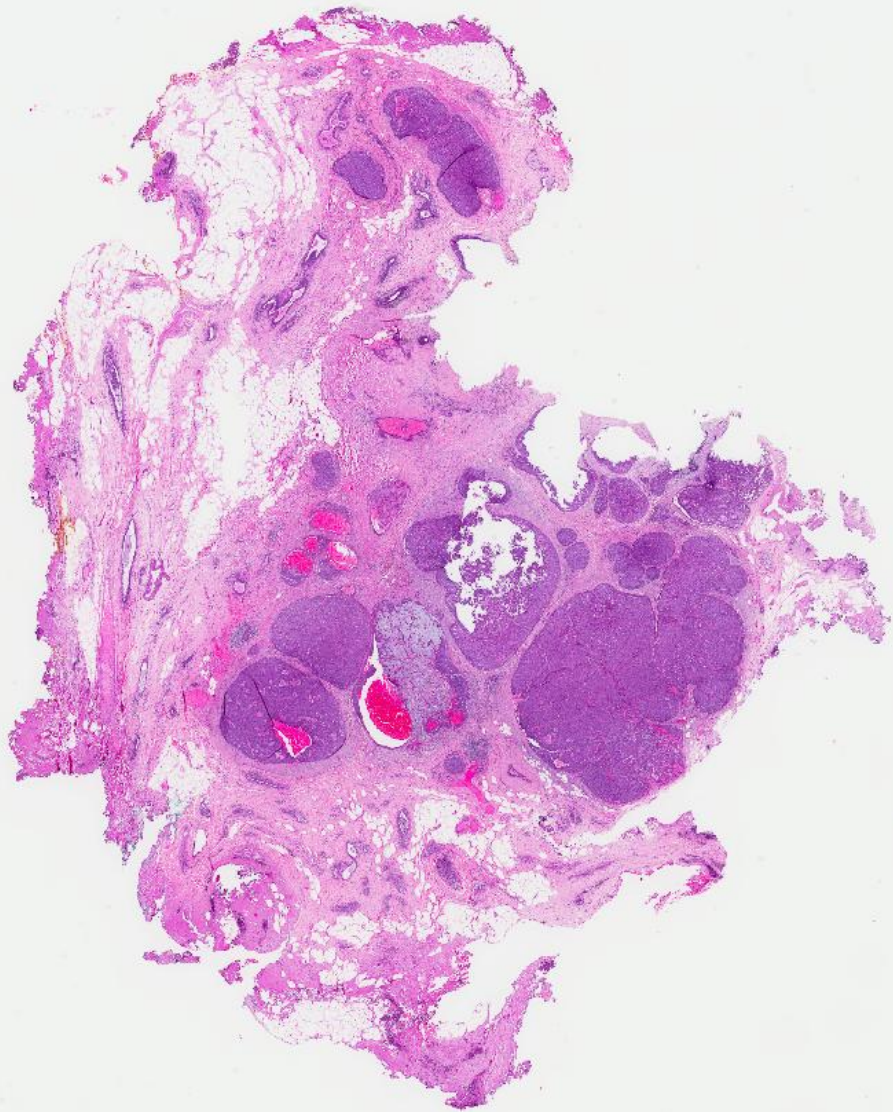
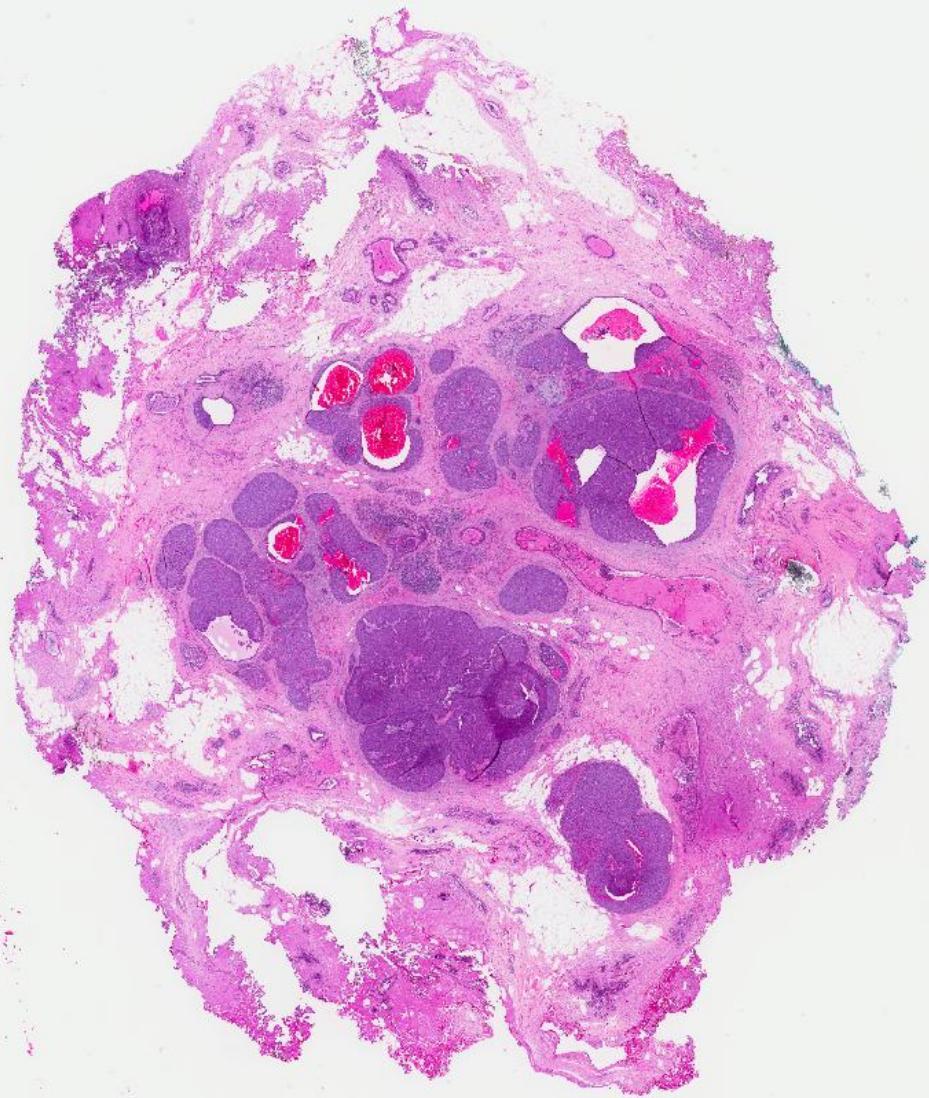
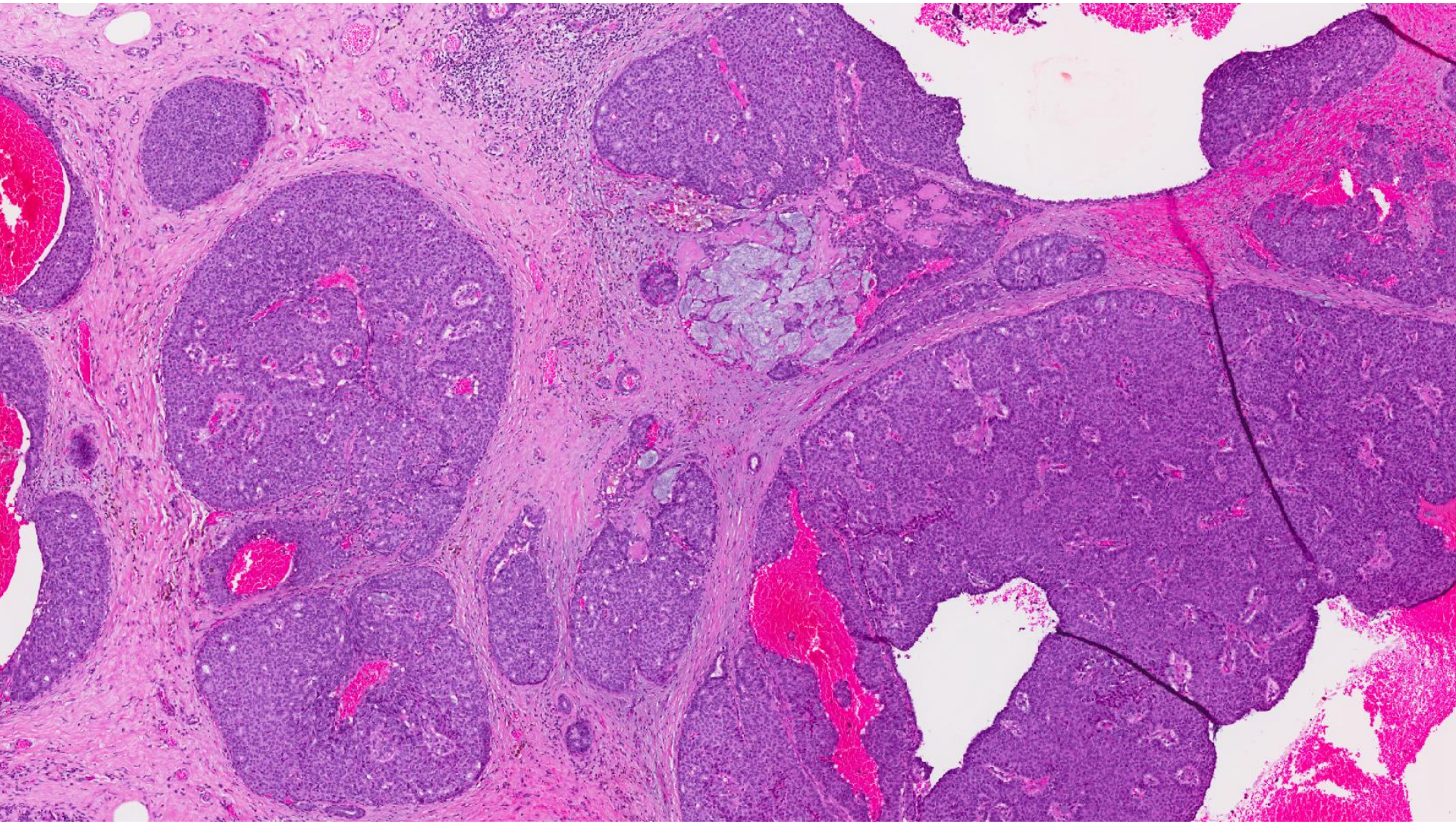
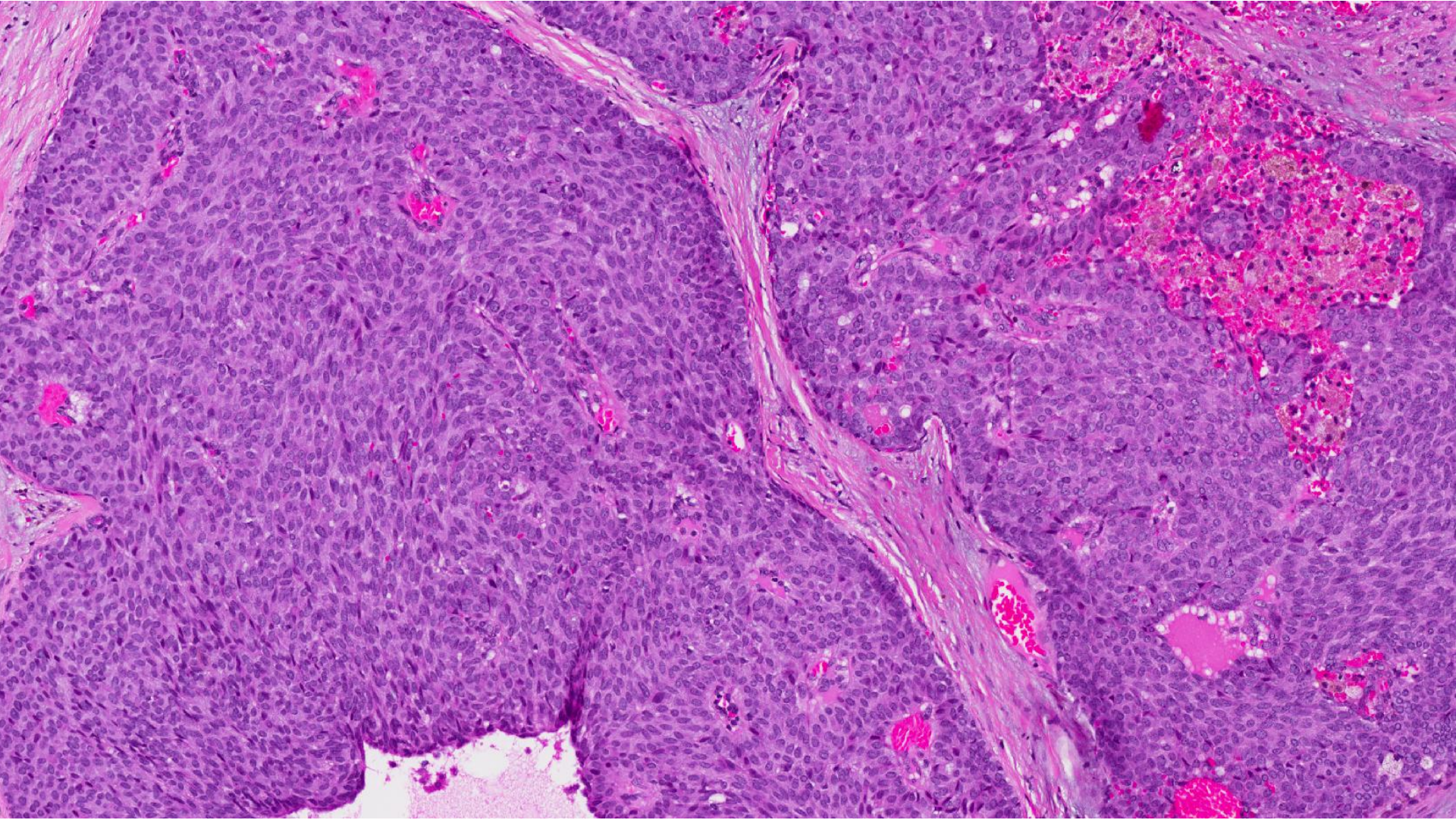


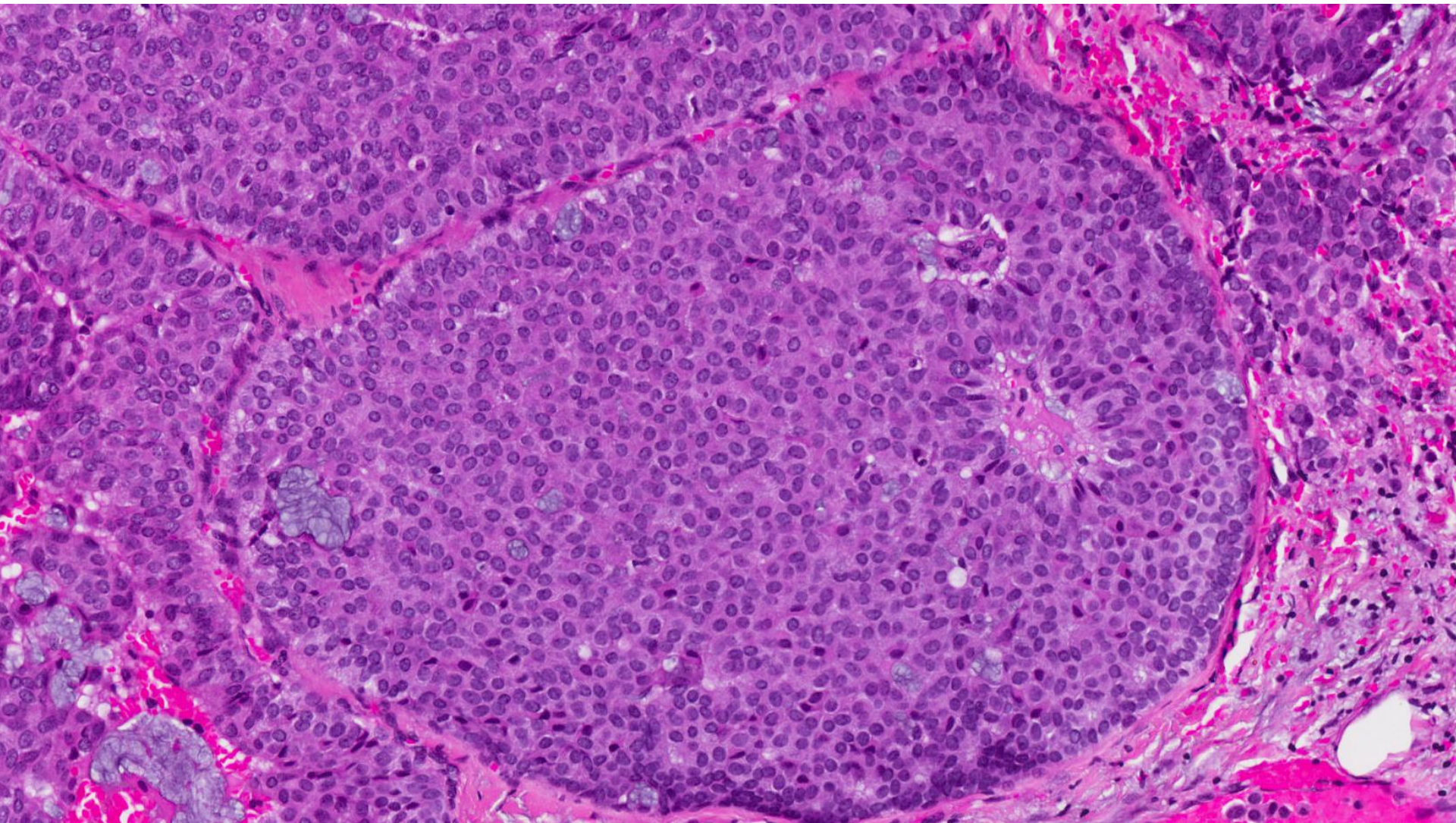
# Case 11

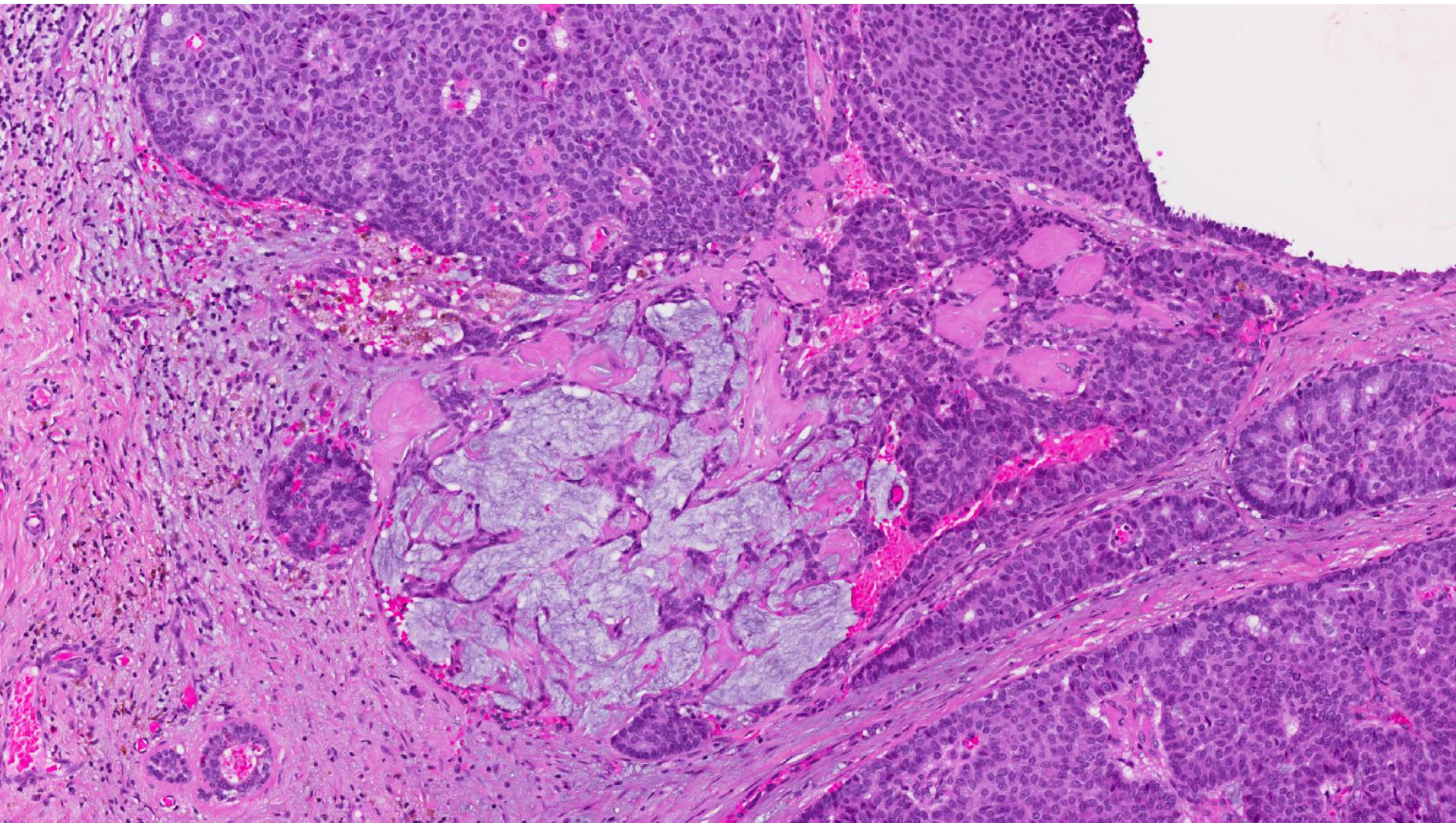
69 year old Chinese lady presented with a right breast lump in the subareolar region.  
Excision biopsy was performed.



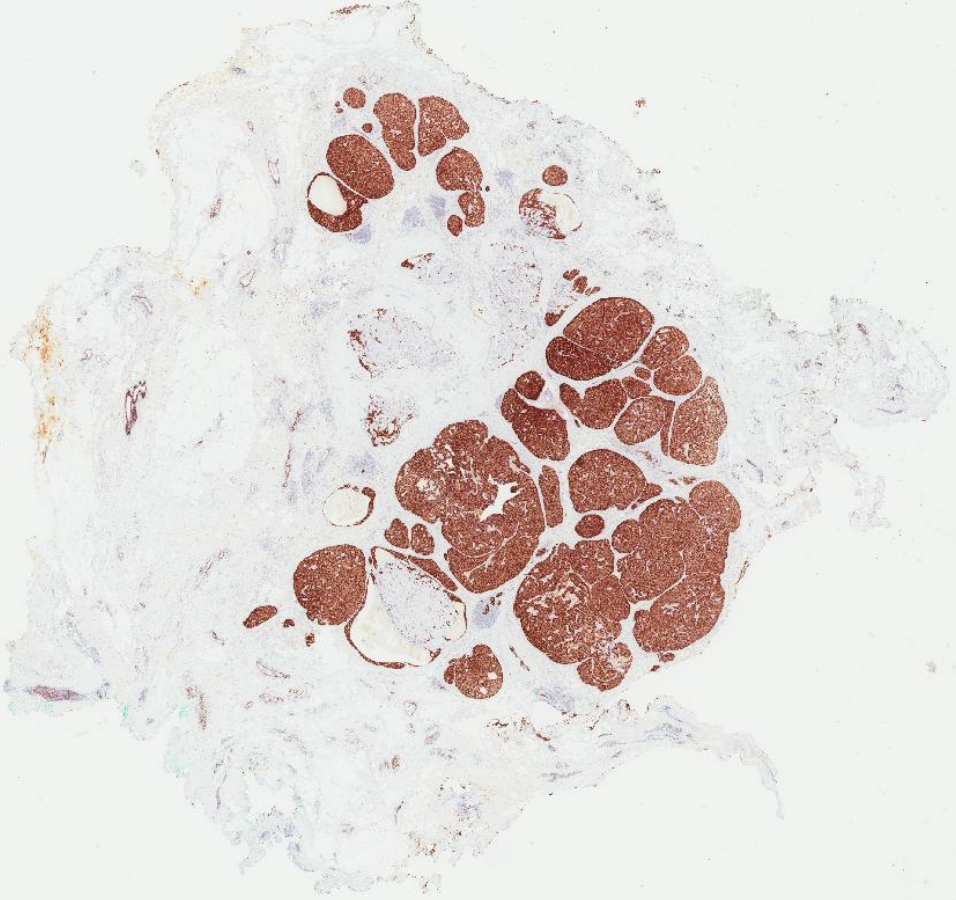
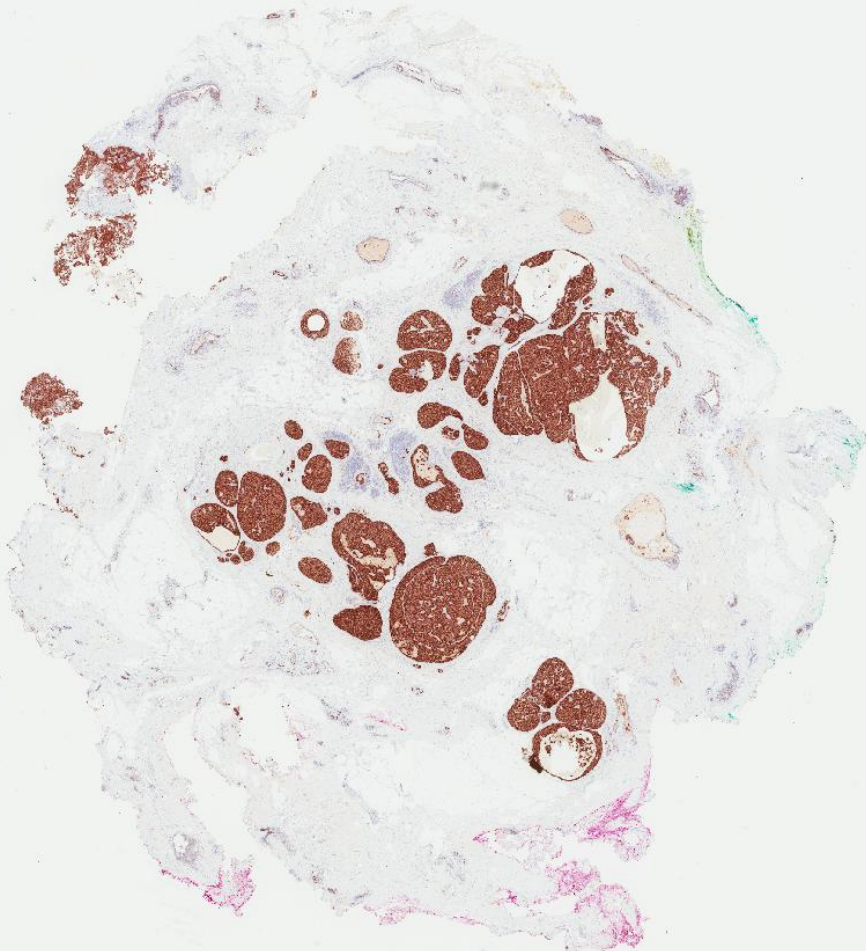




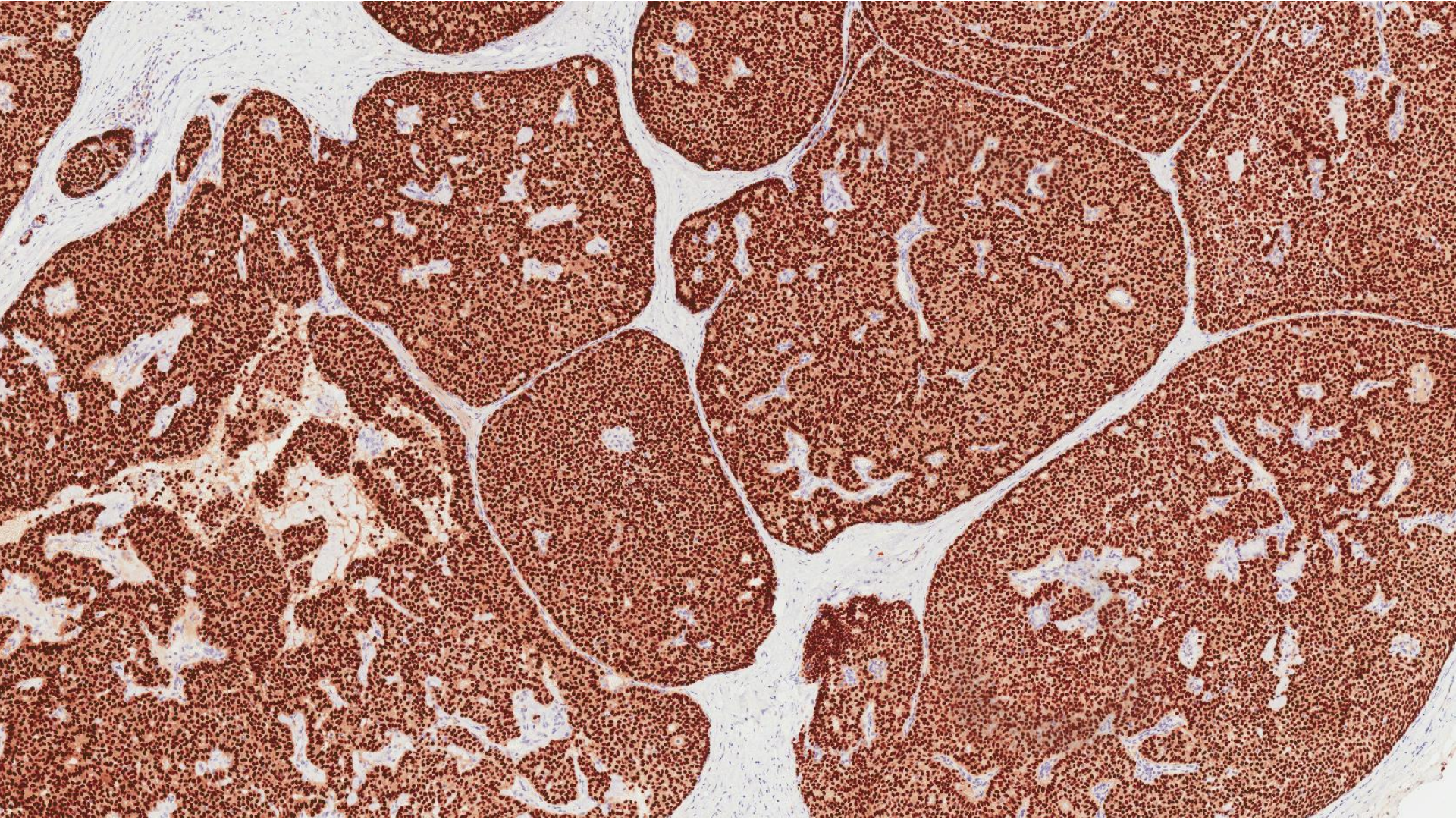




ER

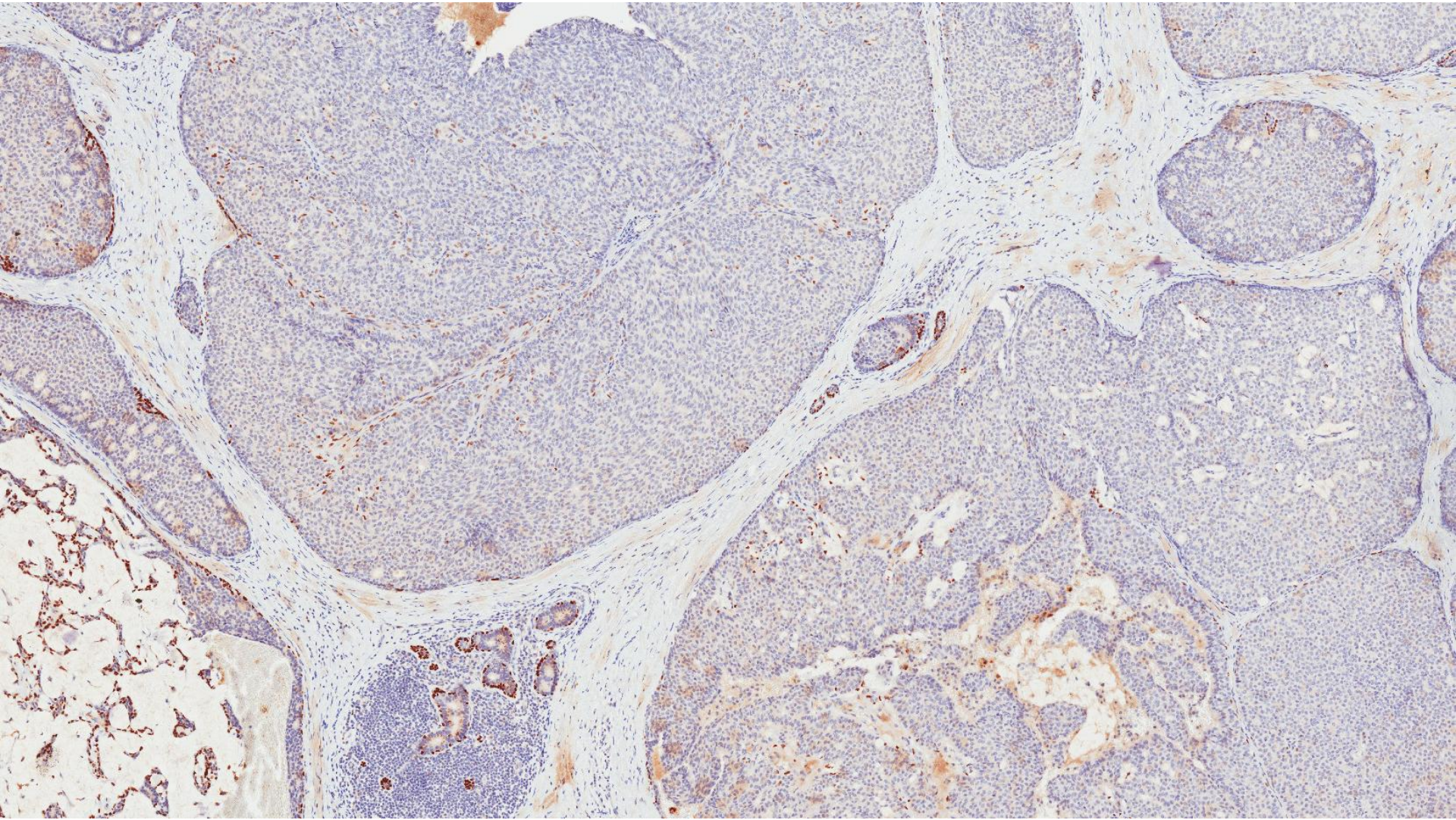


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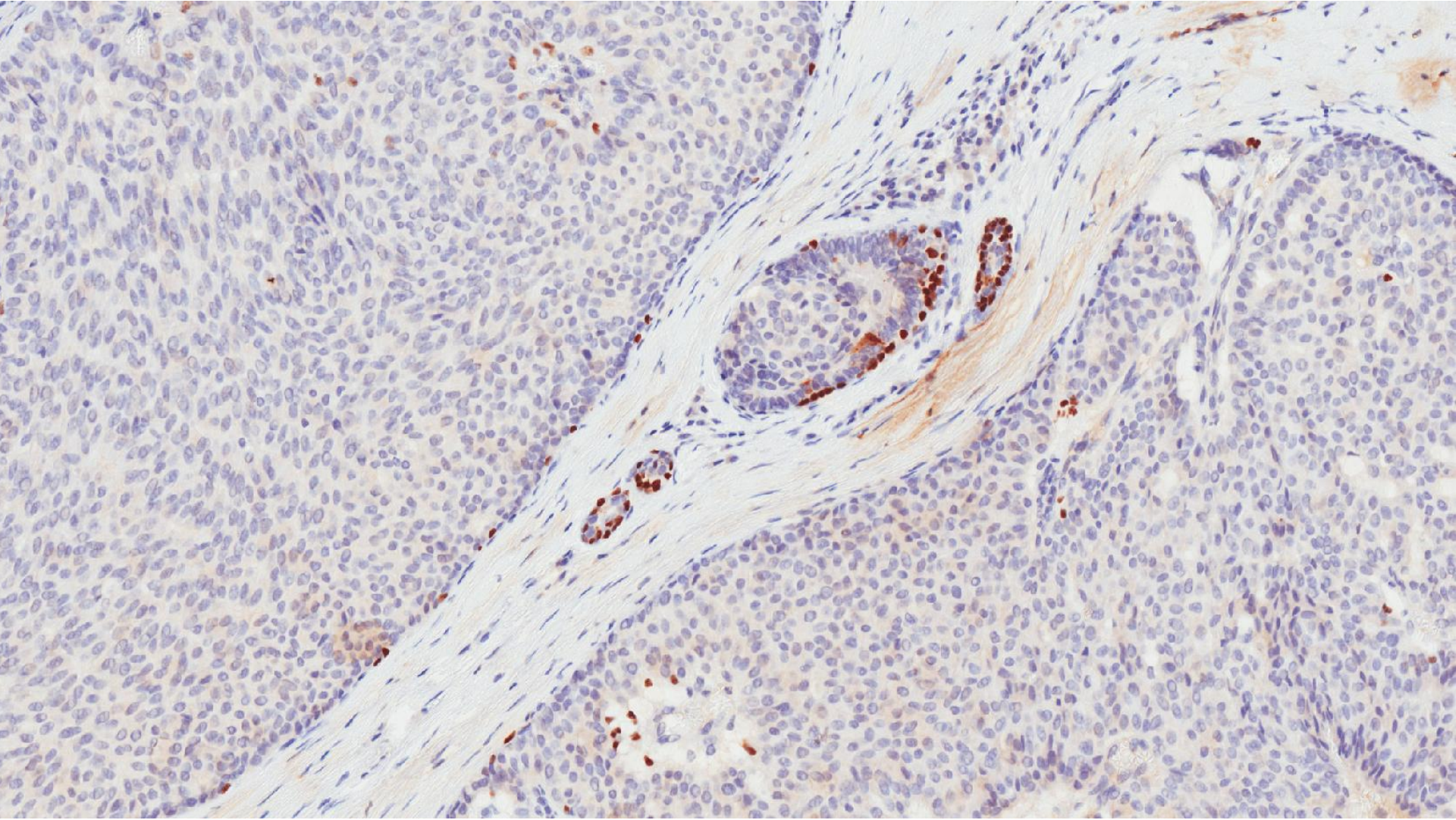




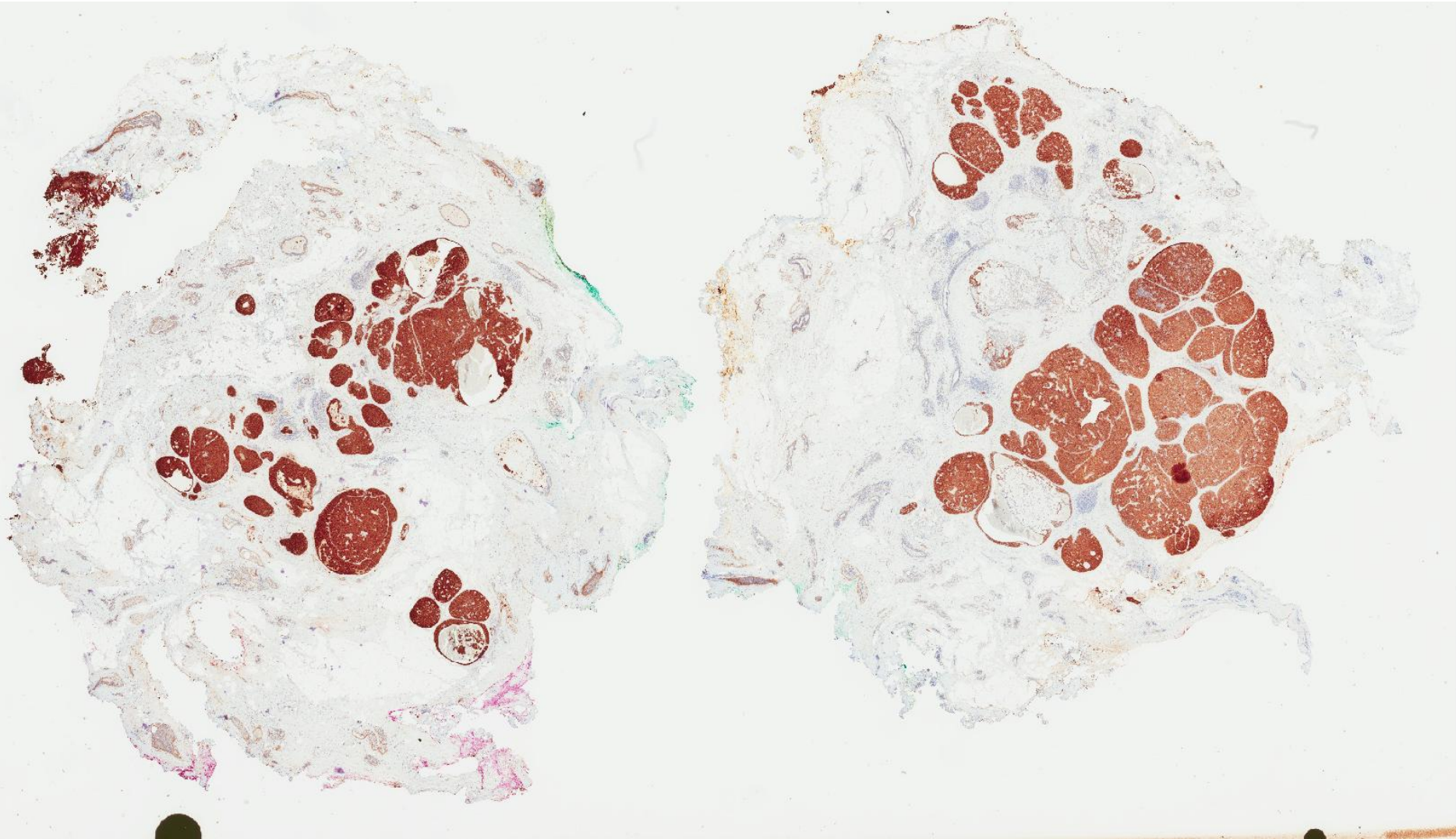
p63



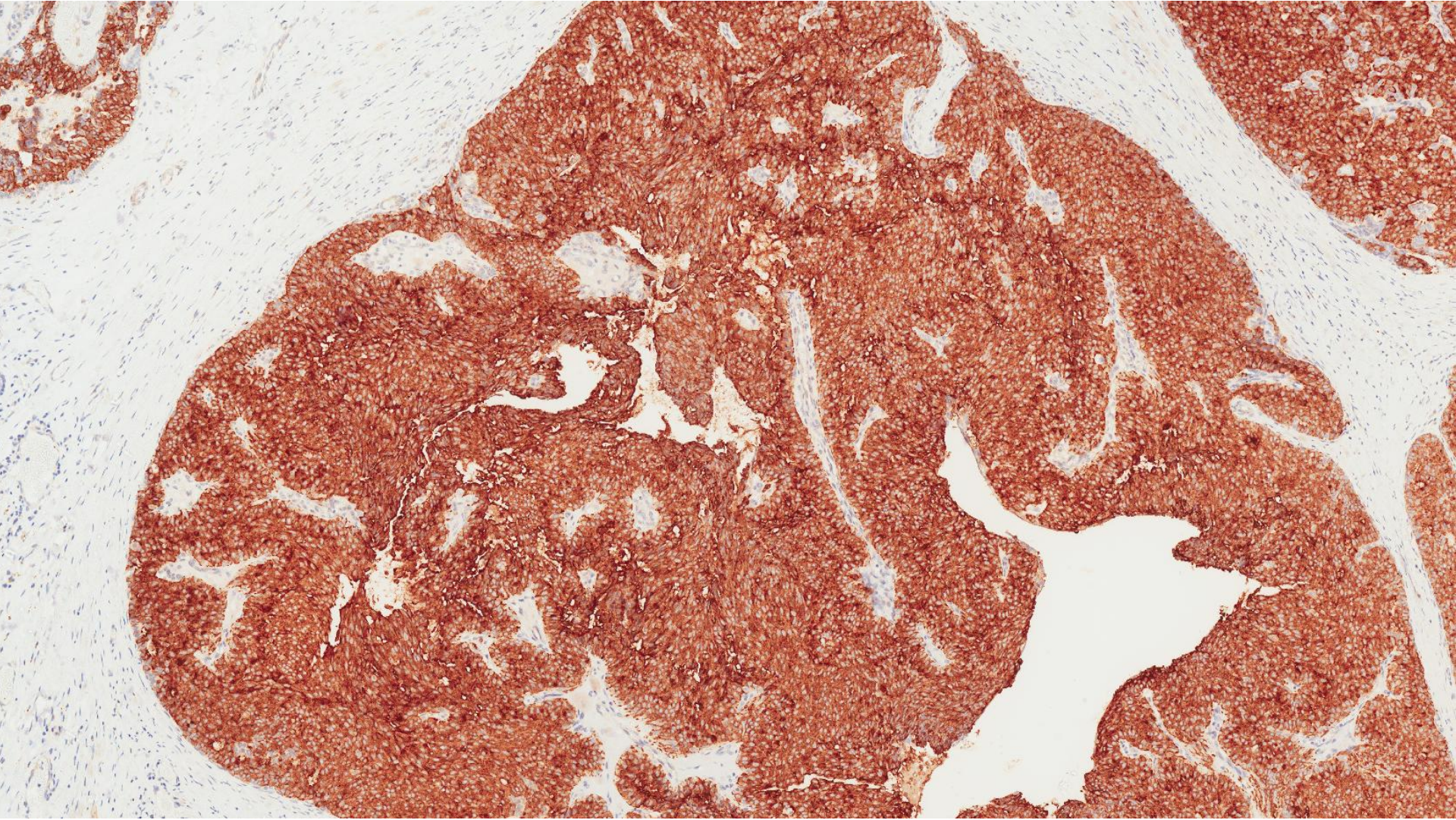
p63



# Synaptophysin



# Synaptophysin



# Diagnosis

Solid papillary carcinoma (in situ),  
low nuclear grade with  
neuroendocrine differentiation

# 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

- Uncommon histological pattern.
- Accounts for less than 1% of breast carcinomas.
- Mostly postmenopausal women, with the mean age in the 7<sup>th</sup> decade of life.
- Clinical features:
  - Mammographic abnormality or palpable mass.
  - Bloody nipple discharge in 20-25% of cases.

# Solid papillary carcinoma

- Macroscopy:
  - Whitish-grey or yellowish-brown, fleshy firm or soft, nodular circumscribed mass.
  - Size ranges from a few mm to several cm.
- Histopathology:
  - Multiple circumscribed cellular masses composed of closely apposed, expanded and solidified rounded duct-like structures arranged in contiguous, sometimes 'geographic' patterns.
  - Often lack peripheral myoepithelium.
  - Those with retained myoepithelium are considered variants of DCIS.
  - How to categorise lesions where cellular nests lack myoepithelial cells is controversial.



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

- Precise distinction between in situ and invasive disease is difficult.
- 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.

# Solid papillary carcinoma

- Histopathology:
  - Cellular proliferation is homogeneous and cohesive.
  - Fine imperceptible vessels is a clue to the underlying papillary nature.
  - Streaming and spindled appearance of epithelial cells.
  - Extracellular mucin.
  - Perivascular pseudorosettes.
- Invasive component classified accordingly:
  - Mucinous, neuroendocrine, ductal, lobular, mixed, etc.

# Solid papillary carcinoma

- Immunoprofile:
  - Neuroendocrine differentiation with positive staining for synaptophysin and chromogranin, observed in about half of cases.
  - Hormone receptor positive, HER2 negative.
  - Absence of HMWK.
- Differential diagnosis:
  - Intraductal papilloma.
  - Florid usual ductal hyperplasia.

# Solid papillary carcinoma

- Genetics:
  - Luminal phenotype on gene expression array analysis.
  - Close relationship with mucinous B carcinomas at the transcriptomic level.
- Prognosis and predictive factors:
  - Regarded as in situ disease in the absence of convincing invasion.
  - Metastases can occur without frank invasion, but rare.
  - When conventional invasive carcinoma is present, tumour behaviour is according to stage and grade of invasive elements.

**Table 7.01** Histopathological characteristics of papillary lesions of the breast

	<b>Intraductal papilloma</b>	<b>Papilloma with ADH or DCIS</b>	<b>Papillary DCIS</b>	<b>Encapsulated papillary carcinoma</b>	<b>Solid papillary carcinoma</b>
<b>Presentation</b>	Single (central papilloma) or multiple lesions (peripheral papillomas)	Single (central papilloma) or multiple lesions (peripheral papillomas)	Multiple lesions	Single lesion	Single or multiple lesions
<b>Architecture</b>	Generally broad, blunt fronds	Generally broad, blunt fronds	Slender fronds, sometimes branching	Slender fronds, sometimes branching	Solid with inconspicuous delicate fibrovascular septa
<b>Myoepithelial cells</b>	Present throughout and at periphery	Mostly present throughout and at periphery May be attenuated in areas of ADH/DCIS	Absent or scant in papillae Present in attenuated form at the periphery of ducts	Usually absent throughout and at periphery	Absent within the solid papillary proliferation May be present or absent at the outer contours of the nodules
<b>Epithelial cells</b>	Heterogeneous non-neoplastic cell population: – Luminal cells – Myoepithelial cells – UDH – Apocrine metaplasia and hyperplasia	Focal areas of cells with architectural and cytological features of ADH or DCIS (usually low-grade) Background of heterogeneous non-neoplastic cell population	Entire lesion occupied by a cell population with architectural and cytological features of DCIS of low, intermediate or rarely high nuclear grade	Entire lesion occupied by a cell population with architectural and cytological features of DCIS of low, intermediate or rarely high nuclear grade Cribriform and solid patterns may be present	Entire lesion occupied by a cell population with architectural and cytological features appearing to be mostly of low nuclear grade Spindle cell component Neuroendocrine differentiation frequent Mucin production may be seen, which can be intracellular or extracellular

ADH, atypical ductal hyperplasia; DCIS, ductal carcinoma in situ; UDH, usual ductal hyperplasia.

**Table 7.02** Immunohistochemical features of papillary lesions of the breast

	p63		Keratins of high molecular weight (K5/6, K14)	Estrogen receptor and progesterone receptor (PR)
	Papillary fronds	Periphery of lesion		
<b>Intraductal papilloma</b>	Positive	Positive	Positive: – Myoepithelial cells – UDH (heterogeneous positivity)  Negative: – Apocrine metaplasia	Positive (patchy): – Luminal cells – UDH (heterogeneous positivity)  Negative: – Apocrine metaplasia
<b>Papilloma with ADH or DCIS</b>	Positive in papilloma May be scant in the ADH/DCIS component	Positive	Positive: – Myoepithelial cells – UDH (heterogeneous positivity)  Negative: – Apocrine metaplasia – ADH/DCIS	Positive (patchy): – Luminal cells – UDH (heterogeneous positivity)  Negative: – Apocrine metaplasia  Positive strong and diffuse: – ADH/DCIS
<b>Papillary DCIS</b>	Negative	Positive	Negative: – Neoplastic cell population	Positive strong and diffuse: – Neoplastic cell population
<b>Encapsulated papillary carcinoma</b>	Negative	Usually negative	Negative: – Neoplastic cell population	Positive strong and diffuse: – Neoplastic cell population
<b>Solid papillary carcinoma</b>	Solid-papillary areas are negative	May be negative or positive	Negative	Positive strong and diffuse

ADH, atypical ductal hyperplasia; DCIS, ductal carcinoma in situ; UDH, usual ductal hyperplasia.