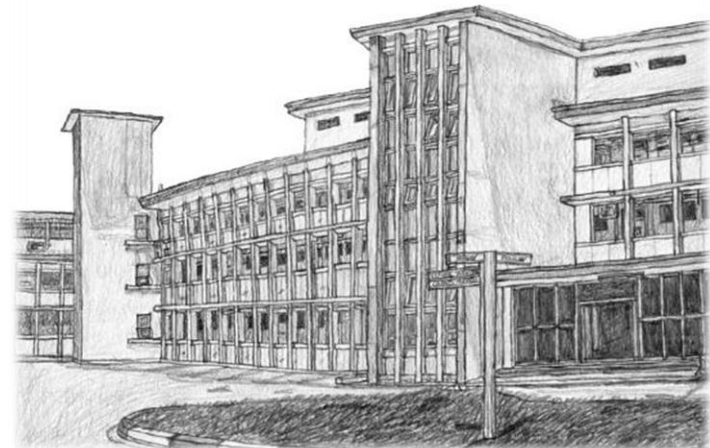
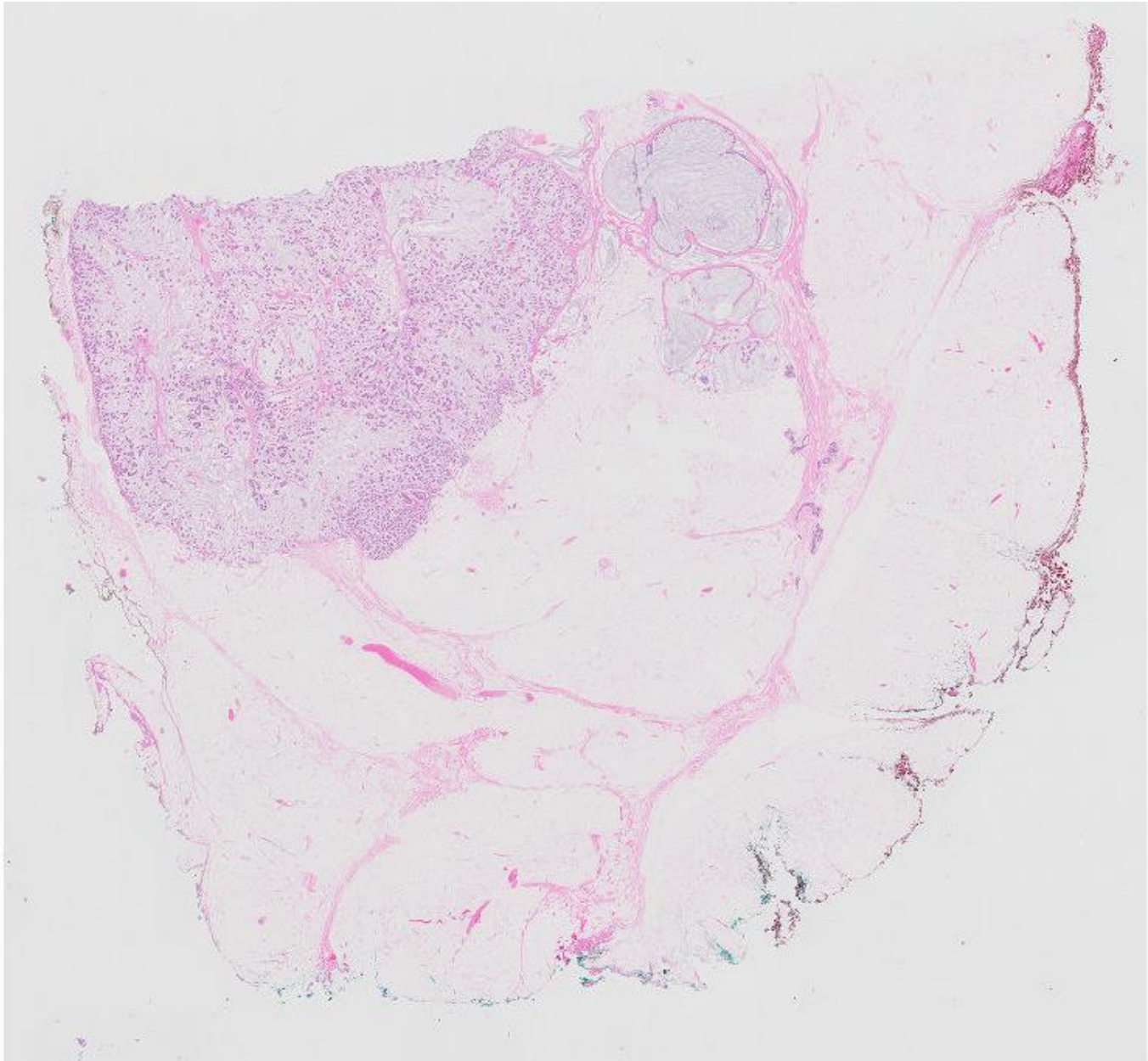


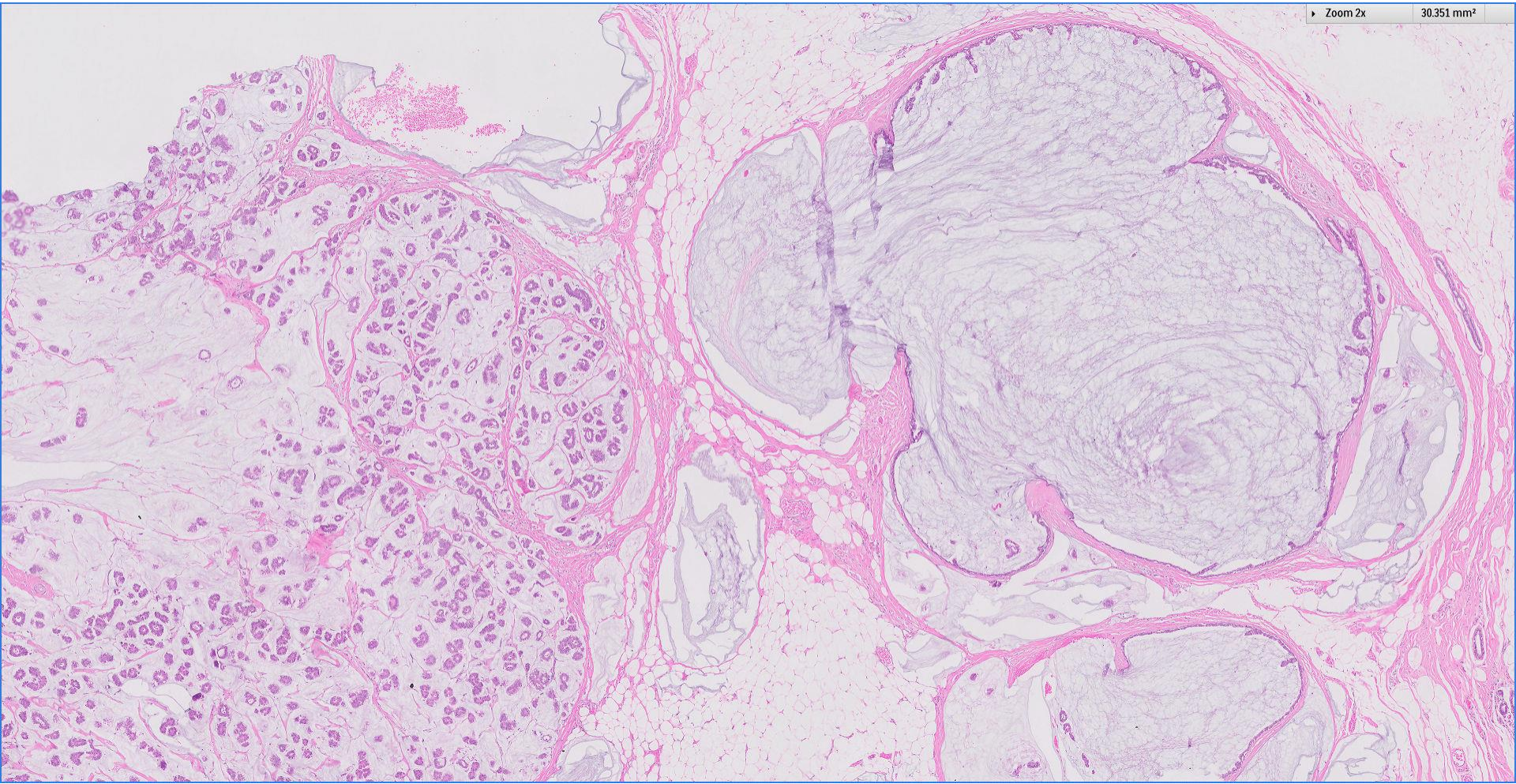
Case 28

41 year old female.

Left breast wide excision. Macroscopic examination revealed a 2.5cm, well-circumscribed, pale grey gelatinous tumour.

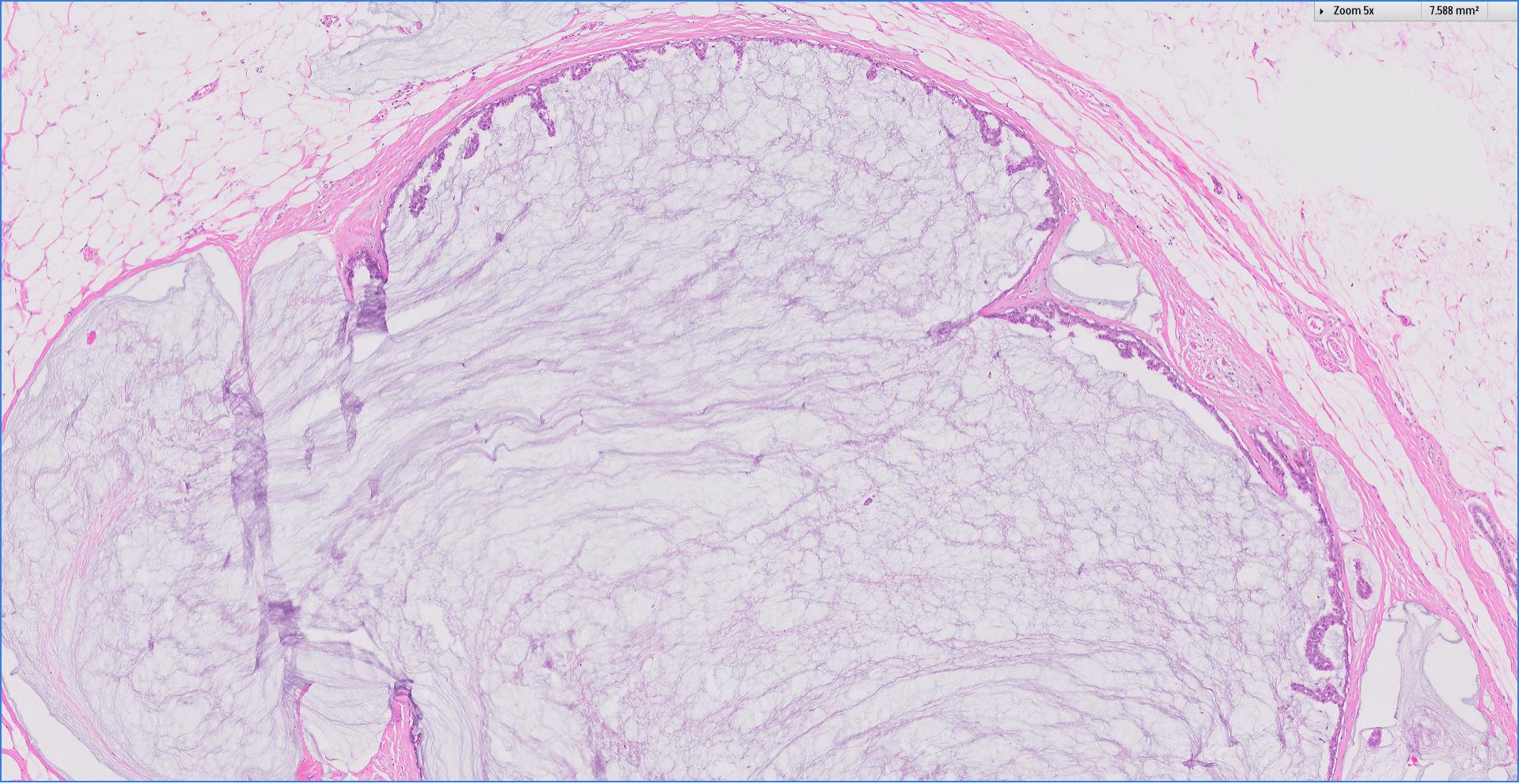






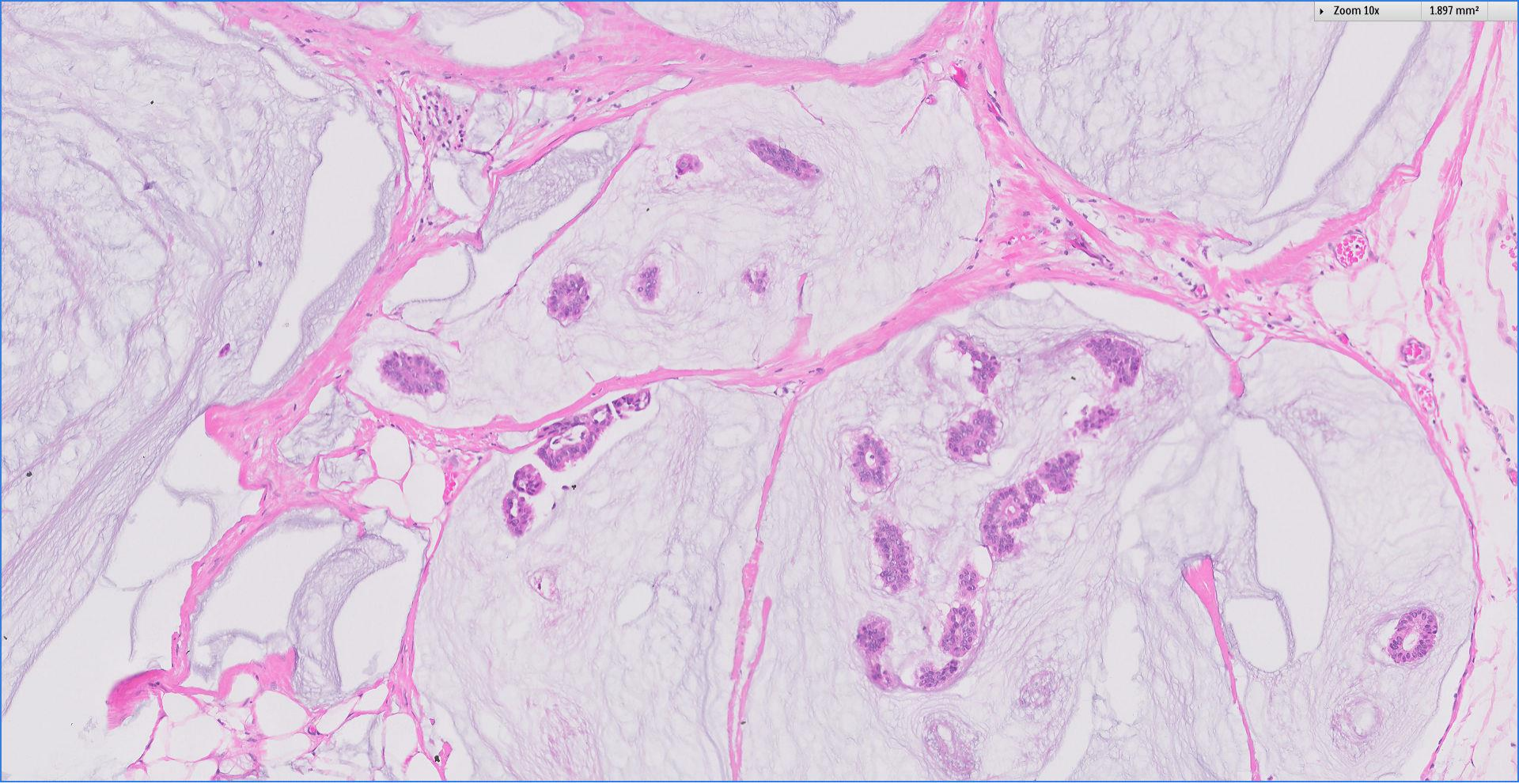
Zoom 5x

7.588 mm²



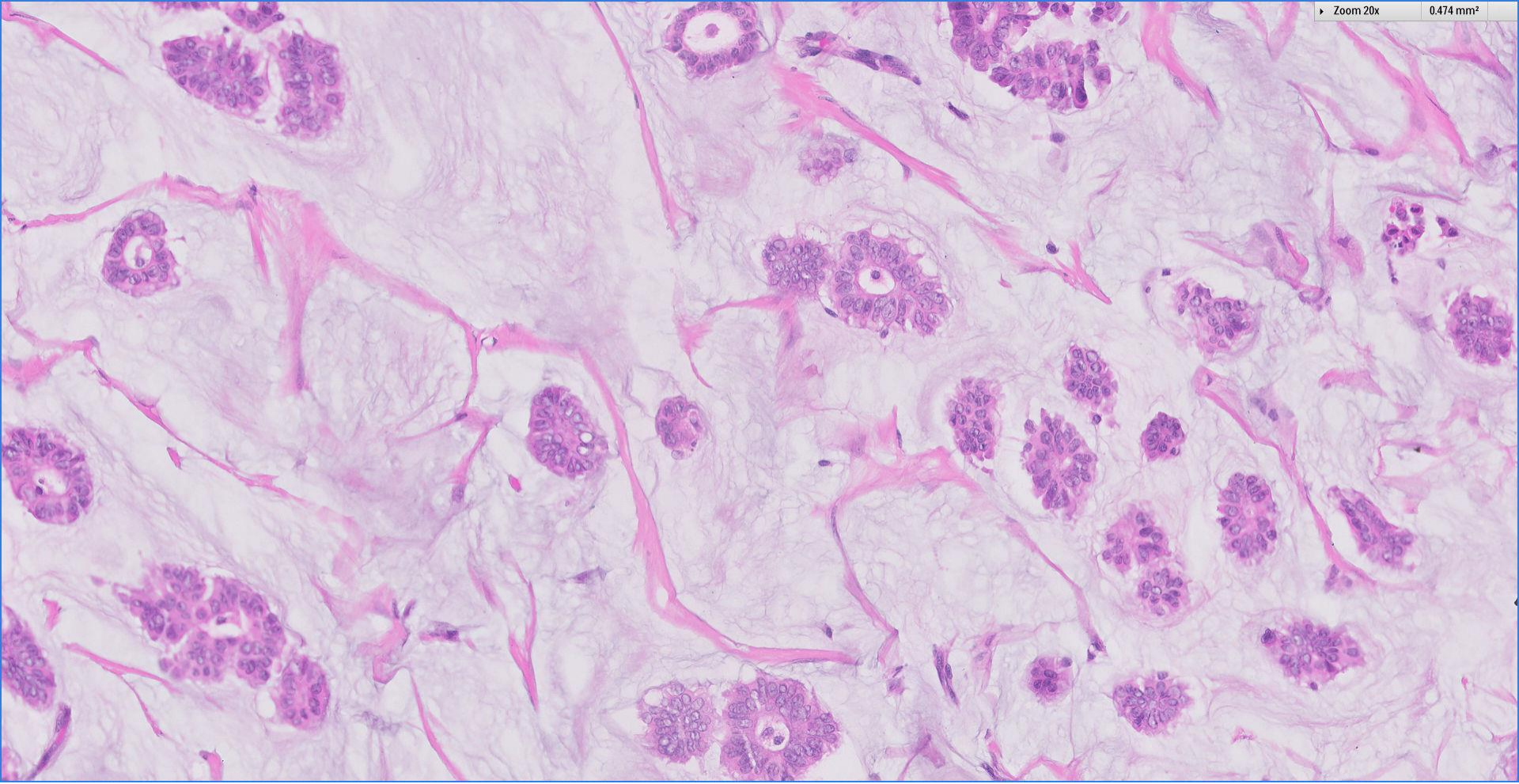
Zoom 10x

1.897 mm²

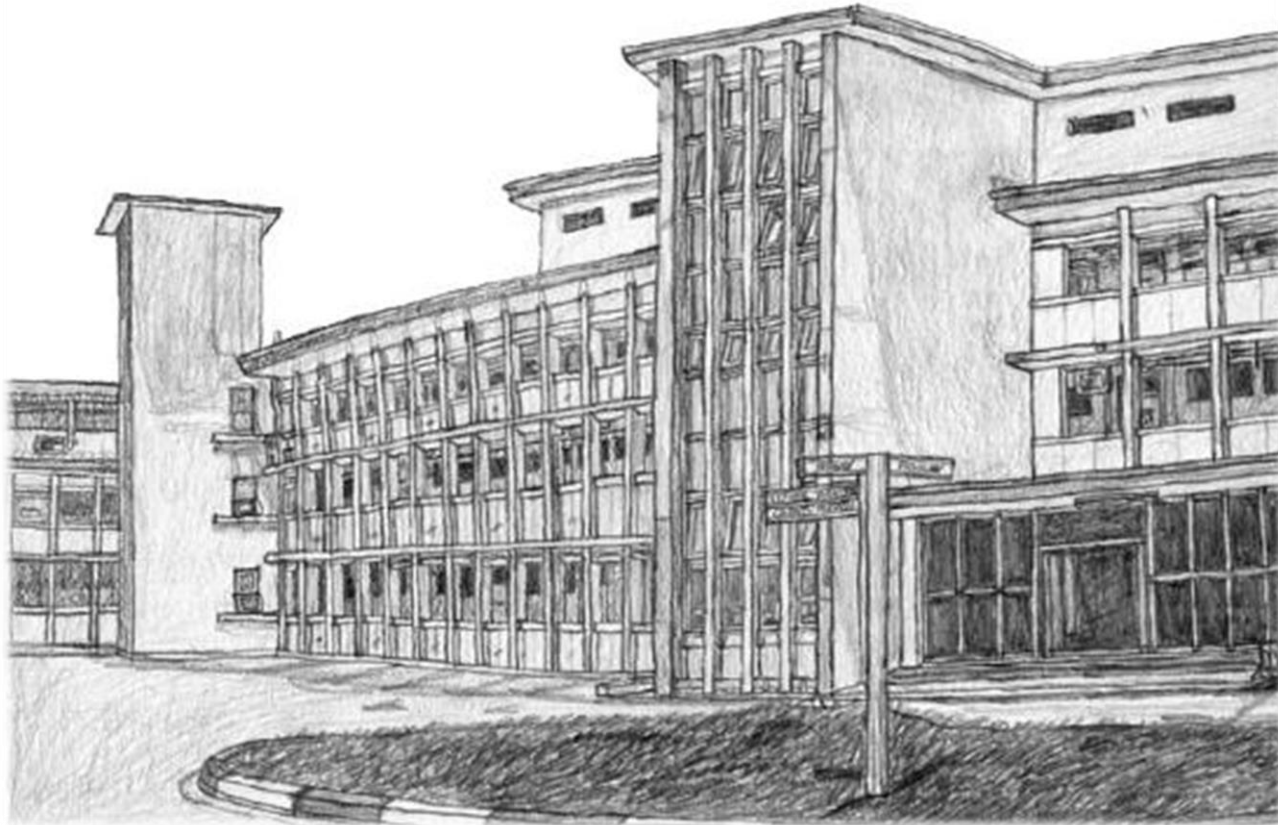


Zoom 20x

0.474 mm²



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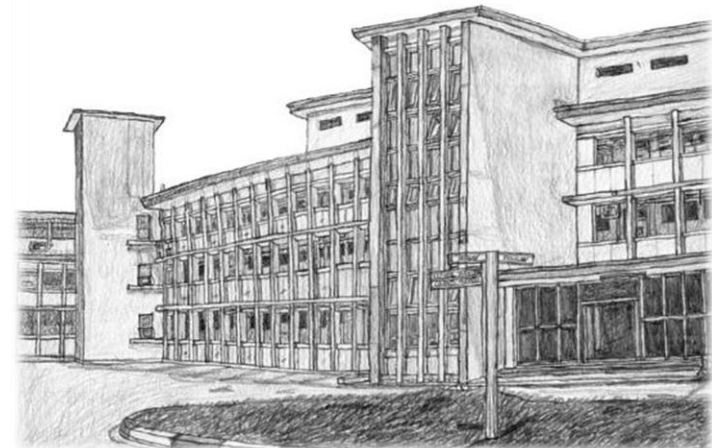
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Diagnosis

Left breast wide excision ~

Mucinous carcinoma, grade 1, 2.5cm, with adjacent mucocele-like lesion with low grade ductal carcinoma in situ.



Mucinous carcinoma

- Also known as muroid, colloid or gelatinous carcinoma.
- Consists of malignant epithelial nests floating within extracellular mucin.
- Accounts for about 2% of all breast cancers.
- Occurs in older women usually above 55 years of age.
- **Imaging Features ~**
 - Mammographically, it presents as a dense mass.
 - Slightly ill-defined borders, but there can be partially circumscribed margins.
 - Mucinous contents give rise to posterior enhancement on sonography and high T2W signal on MRI, mimicking a benign mass.

Mucinous carcinoma

Macroscopic Pathology

Mucinous or gelatinous mass.

Grossly circumscribed.

May demonstrate haemorrhage and lobulated contours.

Microscopic Pathology

Malignant epithelial nests, usually with low or intermediate nuclear grade, are seen within mucin pools.

Both paucicellular (Capella type A) and hypercellular (Capella type B) tumours are described.

Usually hormone receptor positive and *cerbB2* (HER2) negative.

Hypercellular mucinous carcinoma often demonstrates neuroendocrine differentiation.

Mucinous carcinoma ~ differential diagnosis

- Mucocele-like lesion with detached epithelium.
- Mixed ductal-mucinous carcinoma.
- Solid papillary carcinoma with mucin production.

Mucocele-like lesion with detached epithelium

- Disruption of cyst walls in MLL can dislodge epithelium into the extruded mucin pools, raising concern for a mucinous carcinoma histologically.
- Especially problematic when MLL is accompanied by DCIS, making the detached epithelium similarly neoplastic and suspicious for mucinous carcinoma when found suspended within mucin.
- Review the epithelial changes in MLL ~ if entirely benign, benignity for the detached epithelium is likely.
- If the detached epithelial nests are few, focal, and observed in the vicinity of previous instrumentation tracts, they are unlikely to represent invasive carcinoma.
- Immunohistochemistry for the presence of myoepithelial cells may be helpful in indicating a non-invasive process, but only if positive.
- Sometimes it may be difficult to be entirely sure, and the possibility of microinvasion cannot be ruled out.

- Neovascularisation in mucinous DCIS is described, postulating that neoplastic mucin promotes formation of vessels and subsequent invasion of tumour cells into mucinous stroma.
- This finding may be a subtle but helpful clue in favouring the presence of a malignant neoplastic process.



Mucocele-like lesion with ductal carcinoma in situ

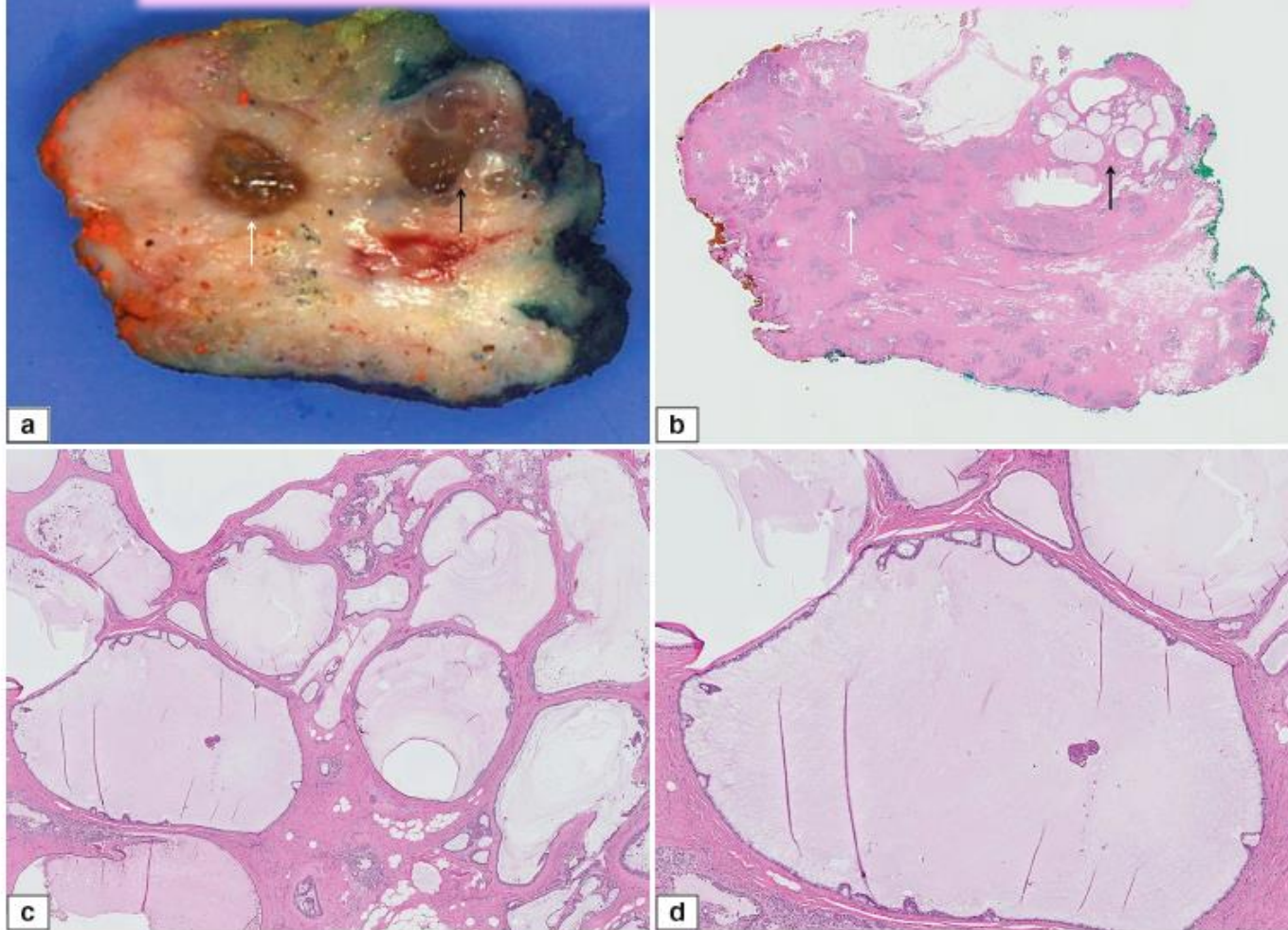
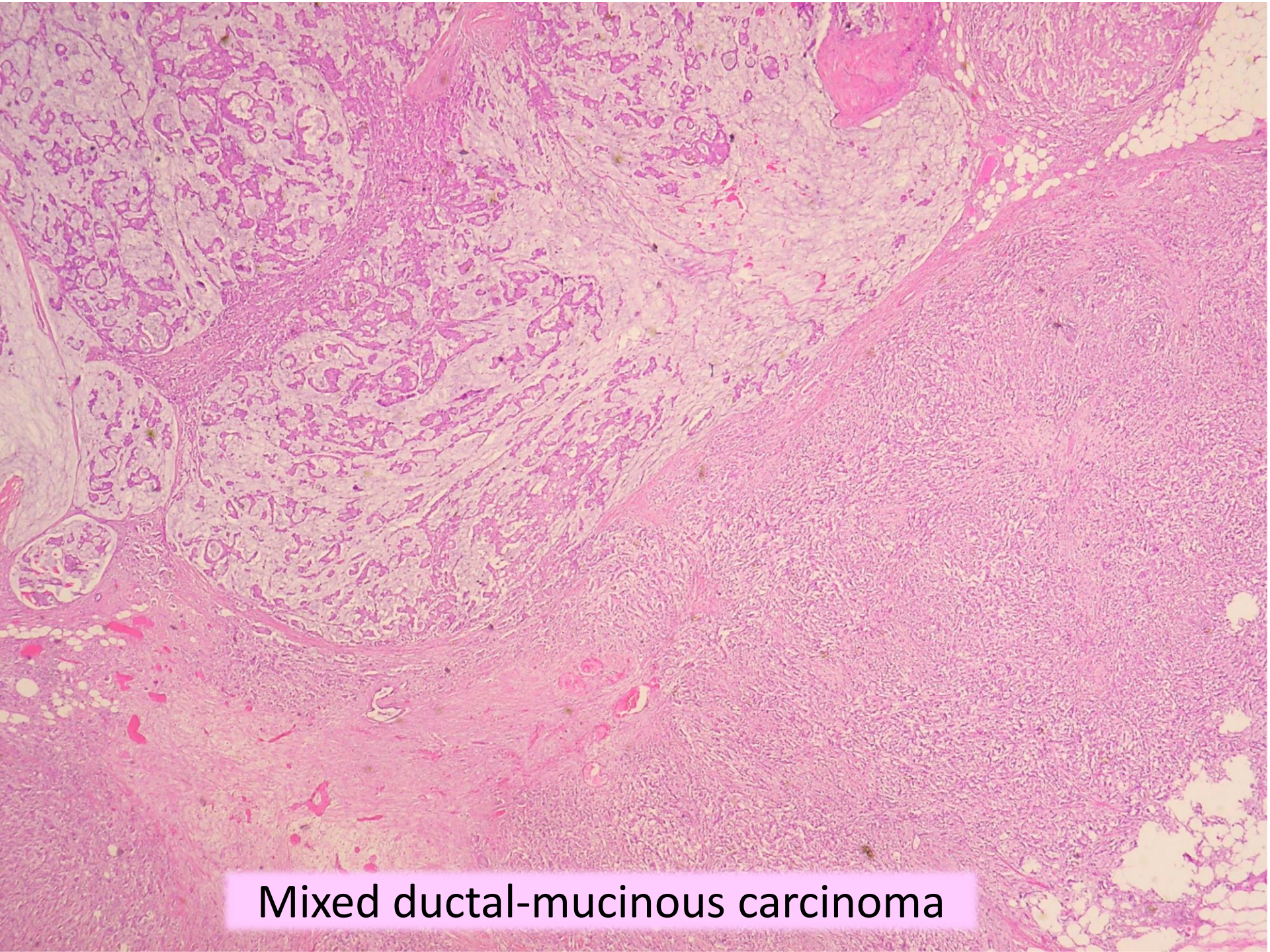


Fig. 6.15 Mucocele-like lesion with ductal carcinoma in situ. (a) Hookwire localisation excision biopsy of radiologically detected calcifications in the right breast shows a cluster of mucin-filled cysts near the tissue edge (*black arrow*). A yellowish-brown nodule (*white arrow*) is present, representing the previous mammotome biopsy site. Histological findings of the prior mammotome biopsy showed a mucocele-like lesion with atypical ductal hyperplasia accompanied by calcifications. (b) Corresponding histological section reveals distended cysts (*black arrow*) aggregated near the inked surgical edge of the tissue. The previous mammotome biopsy site is noted (*white arrow*). (c) The cystically dilated ducts are lined by flattened epithelium that is punctuated by rigid epithelial arches. Mucin distends the duct lumens, with spillage into the surrounding stroma. While the degree of epithelial architectural atypia

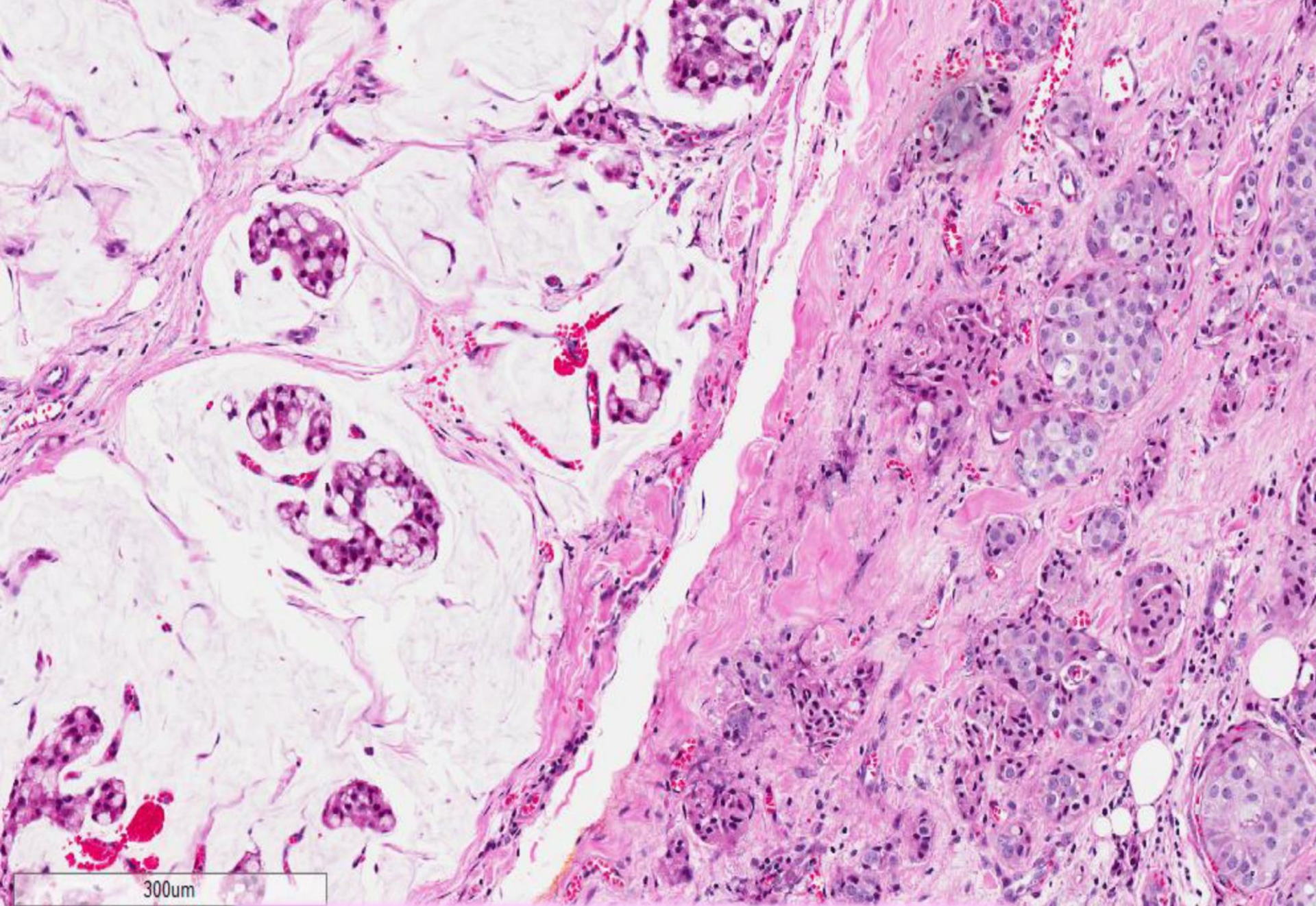
depicted in this illustration may not qualify for a diagnosis of low grade ductal carcinoma in situ and may be considered atypical ductal hyperplasia in the absence of further ductal epithelial abnormalities, presence of a greater extent (> 2mm; or 2 or more affected ducts) of cytoarchitecturally abnormal epithelial changes could be regarded as ductal carcinoma in situ. Careful assessment of the extent of involvement is important to avoid overdiagnosing small foci of atypical epithelial alterations as ductal carcinoma in situ. (d) Higher magnification shows cytoarchitecturally abnormal epithelial changes in the wall of this distended duct. Stiff epithelial arches with secondary rigid lumens are seen. These abnormal alterations were found in several contiguous sections of the breast tissue, indicating a significant disease extent fulfilling the size criterion of low nuclear grade ductal carcinoma in situ

Mixed ductal-mucinous carcinoma

- Mucinous differentiation in more than 50% but less than 90% of the tumour, with ductal features in the remainder.



Mixed ductal-mucinous carcinoma



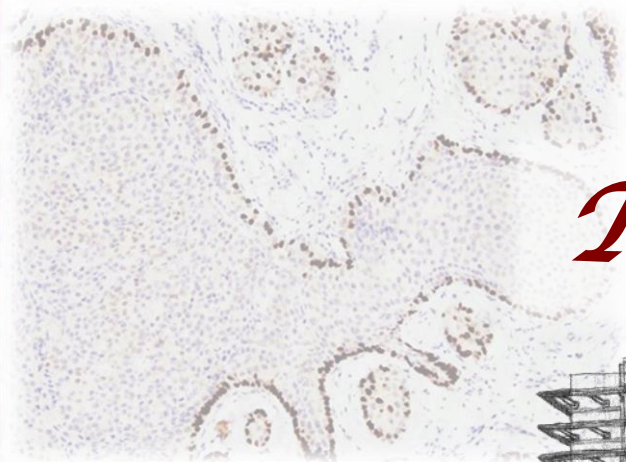
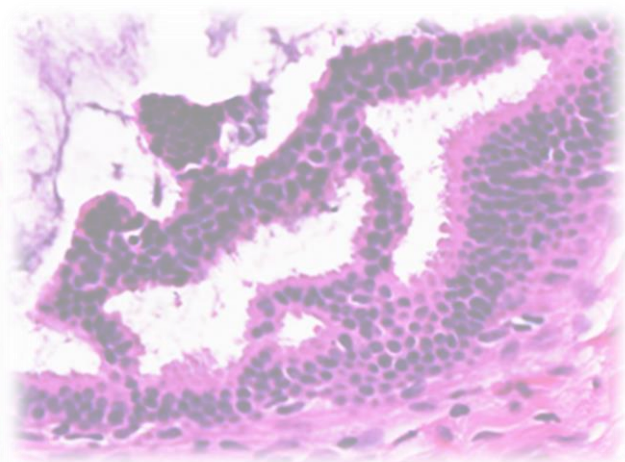
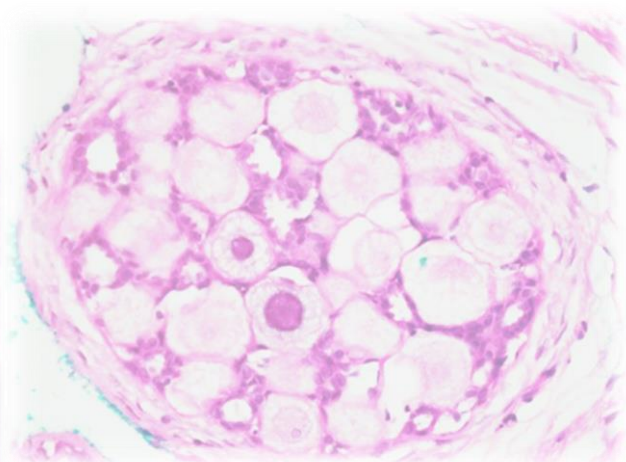
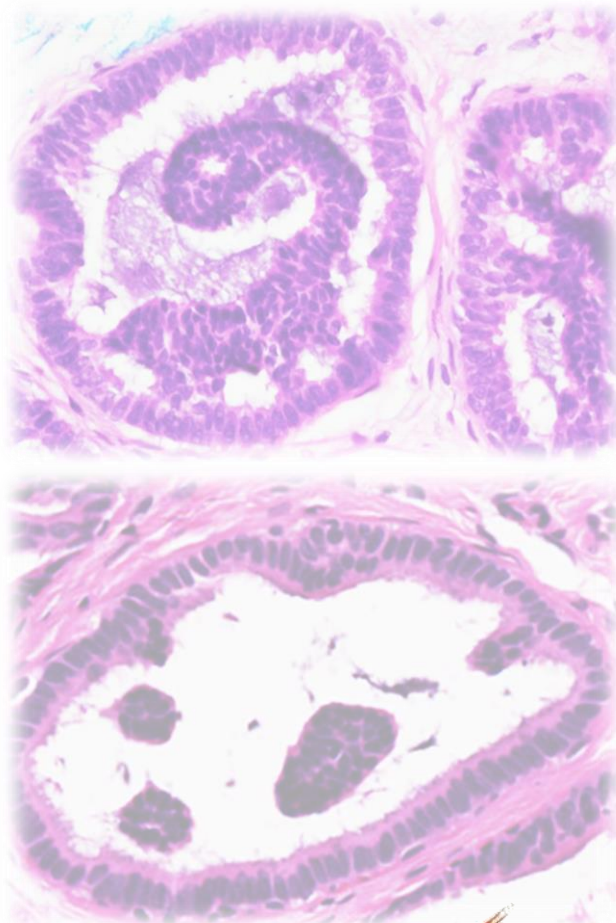
300um

Mixed ductal-mucinous carcinoma

Solid papillary carcinoma with mucin production

- May coexist with mucinous carcinoma.
- Categorisation as mucinous carcinoma requires suspension of tumour within mucin pools.
- In solid papillary carcinoma (in situ or invasive), fine vessels extend into the midst of the tumour, with mucin within tumour cell cytoplasm or among tumour cells, rather than tumour cells being suspended within mucin lakes.

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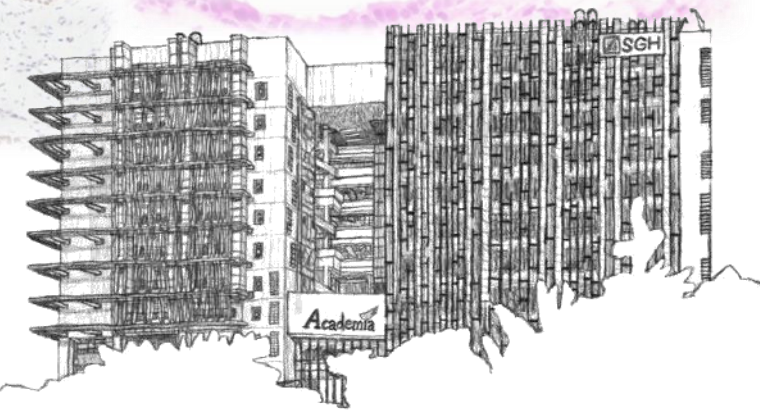


Thank you!

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