

LASOP
Annual Resident &
Fellow Symposium

Monica Phillips, MD

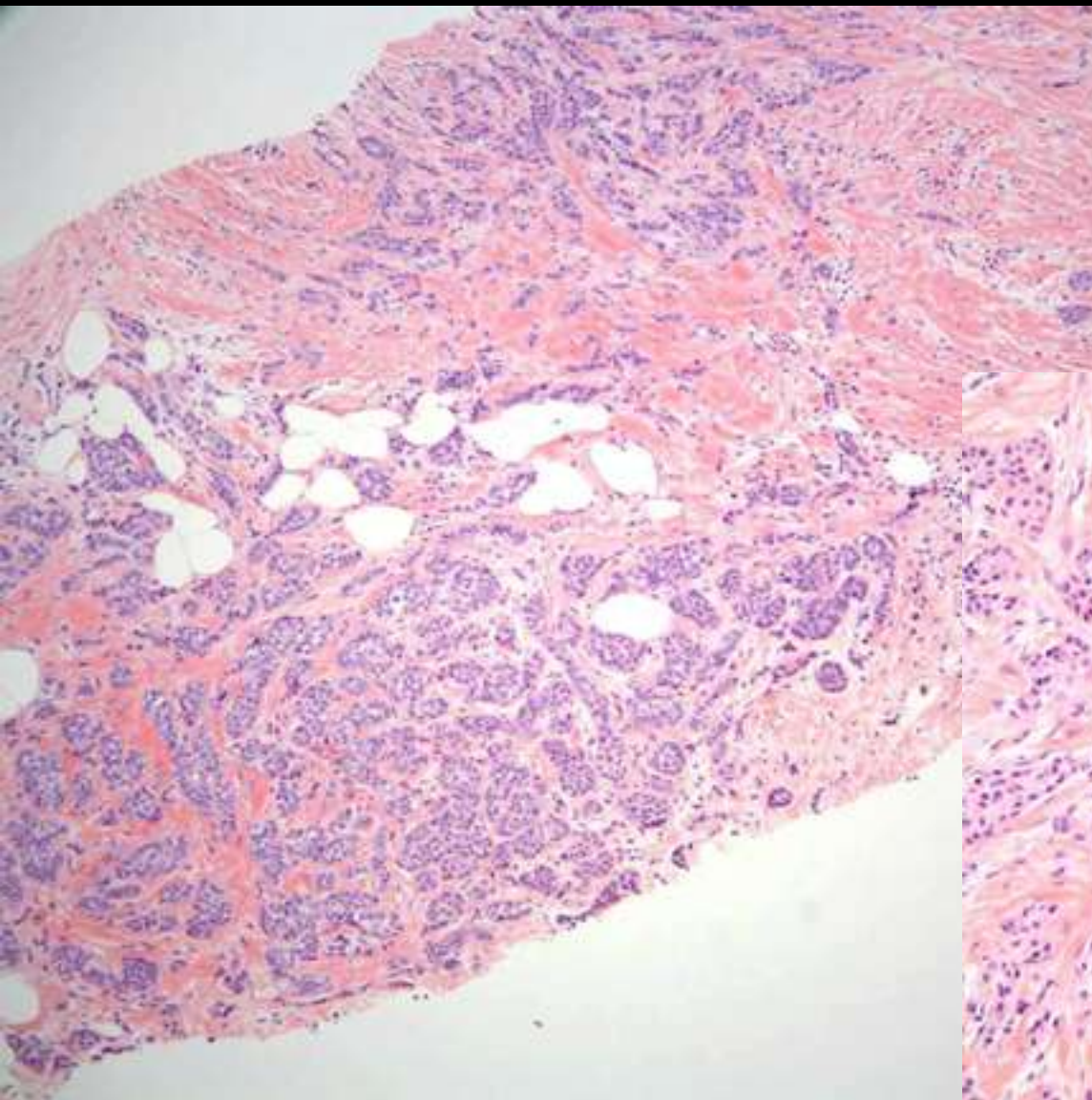
Surgical Pathology/Women's Health Fellow
PGY-5

UCLA Department of Pathology &
Laboratory Medicine

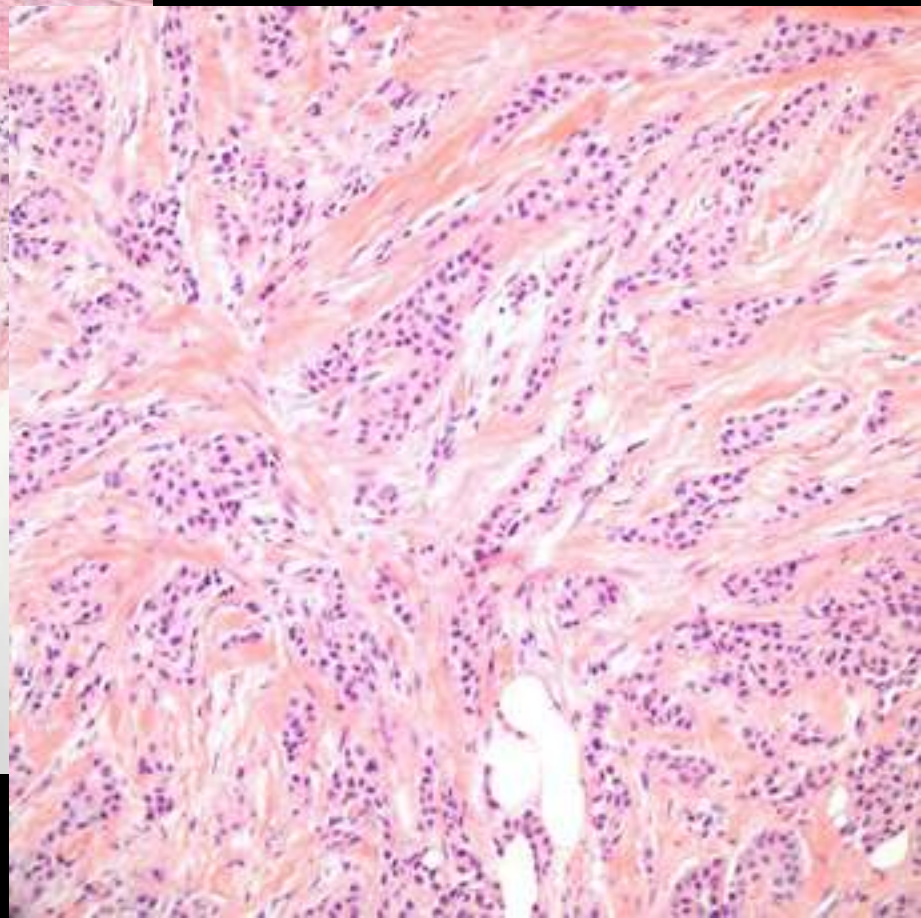
Patient History

- 53 year old Caucasian female
 - Screening mammography at outside hospital:
 - **Left, spiculated breast mass**
 - **1.6 cm greatest dimension**
 - **BI-RADS 4B**
 - Core needle biopsy performed at UCLA

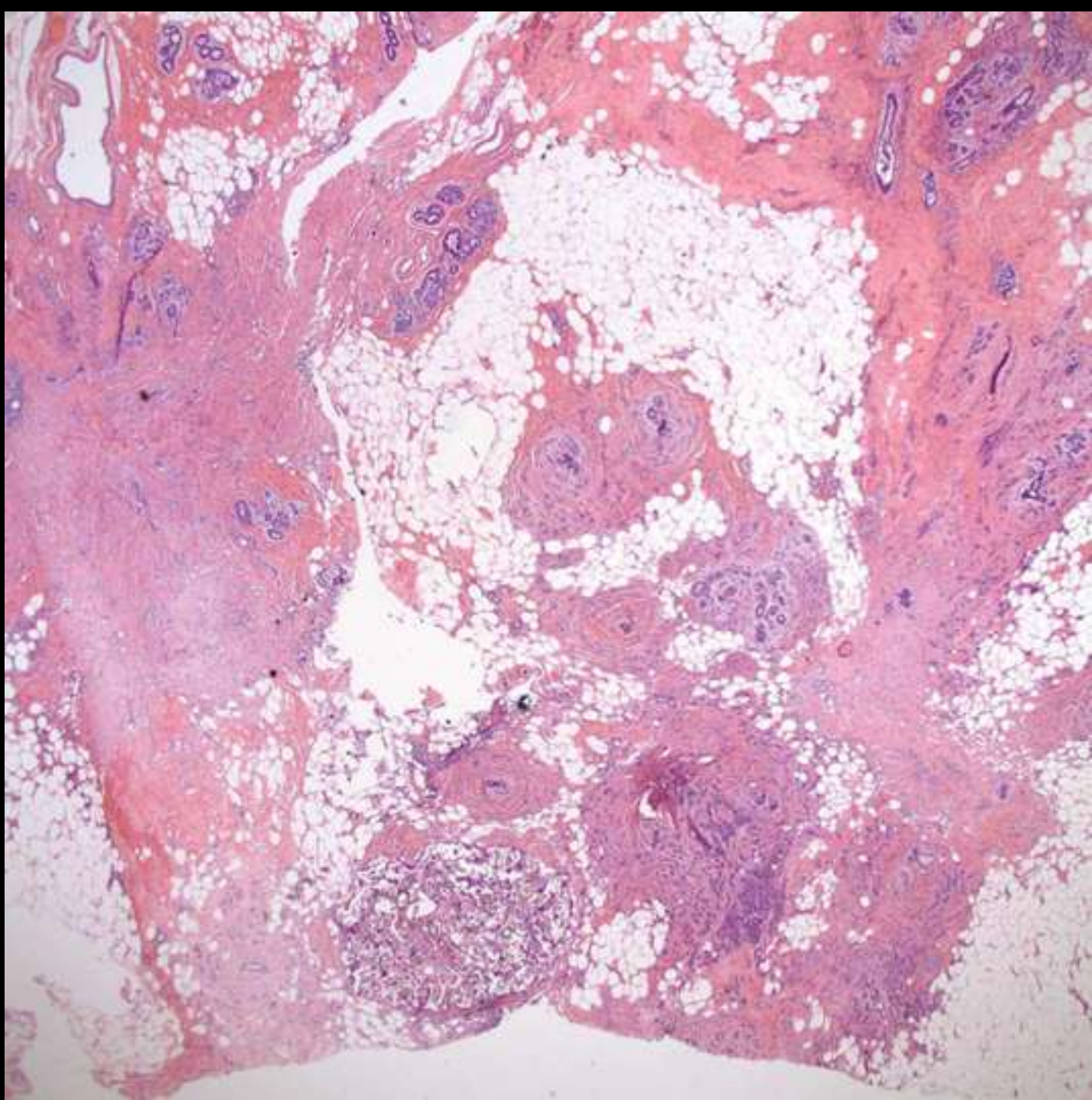
Core Needle Biopsy



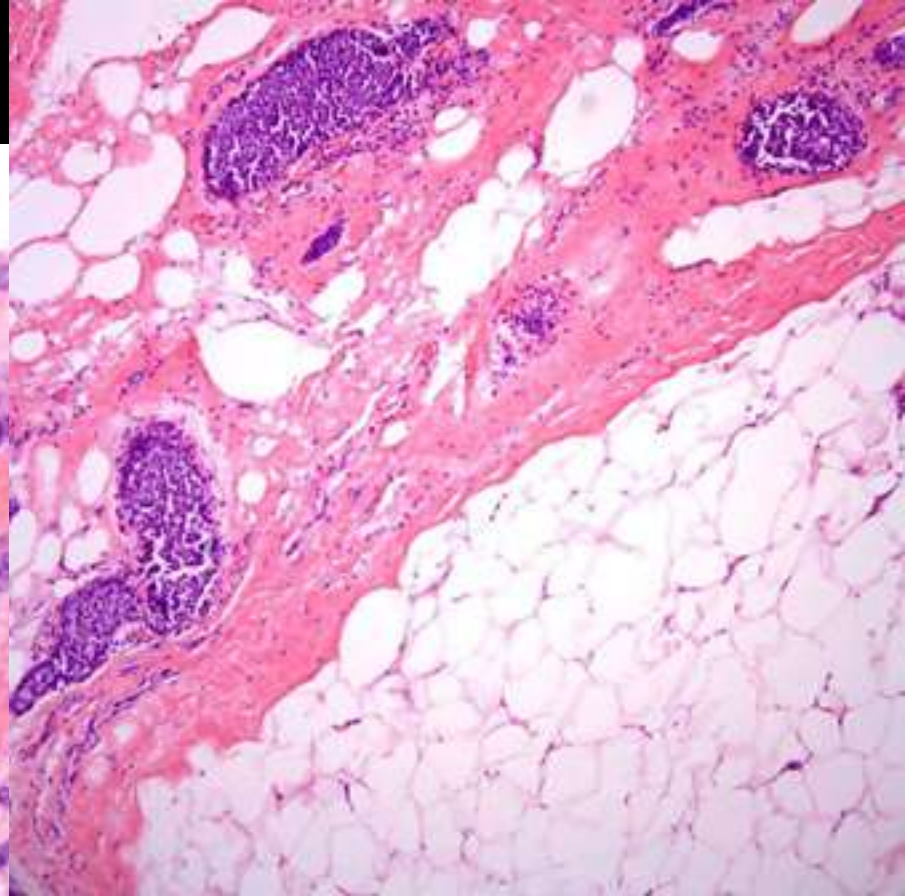
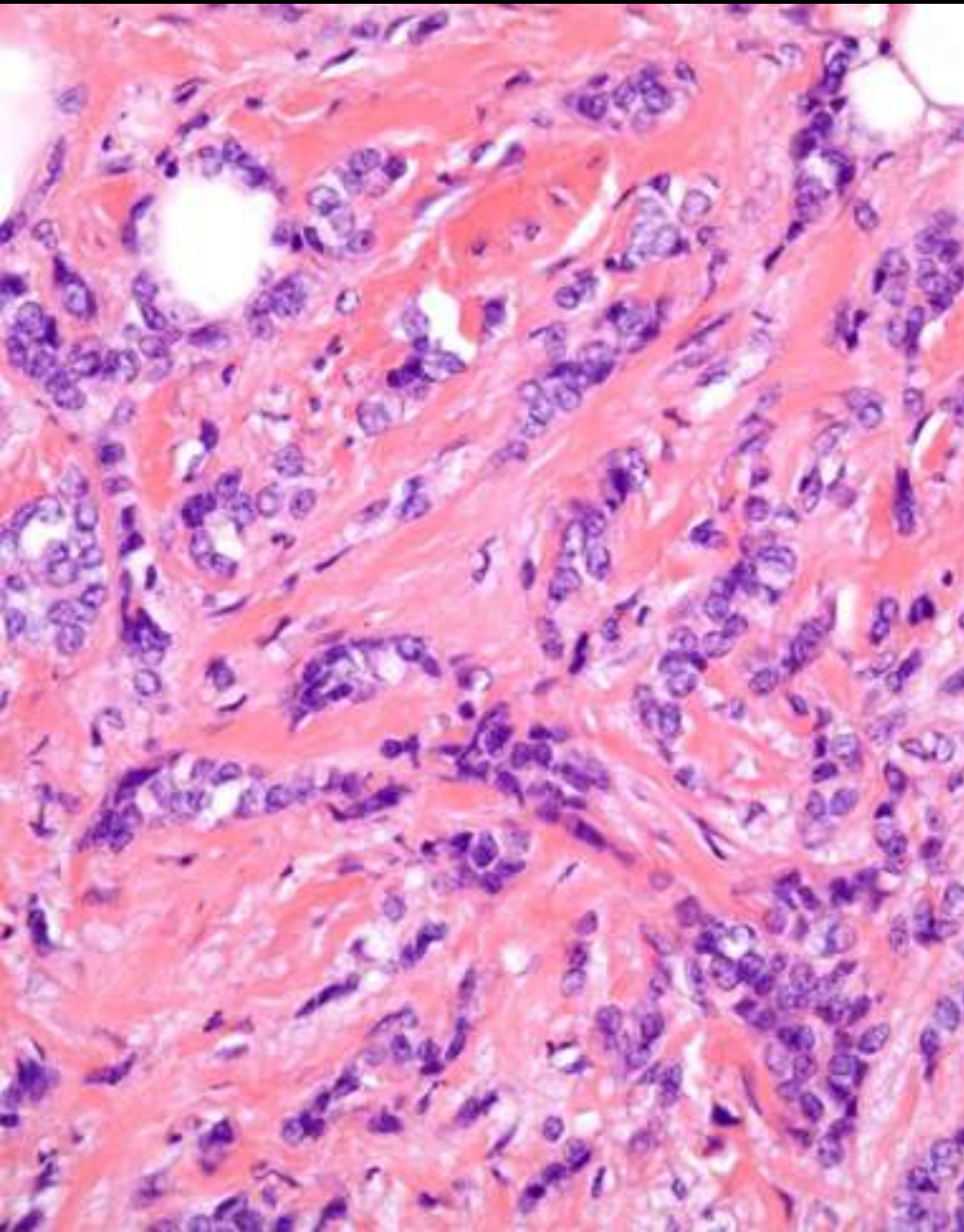
**Invasive ductal carcinoma
with lobular features
MBR score: 6/9
Grade 2**



**Lumpectomy
3 weeks later**



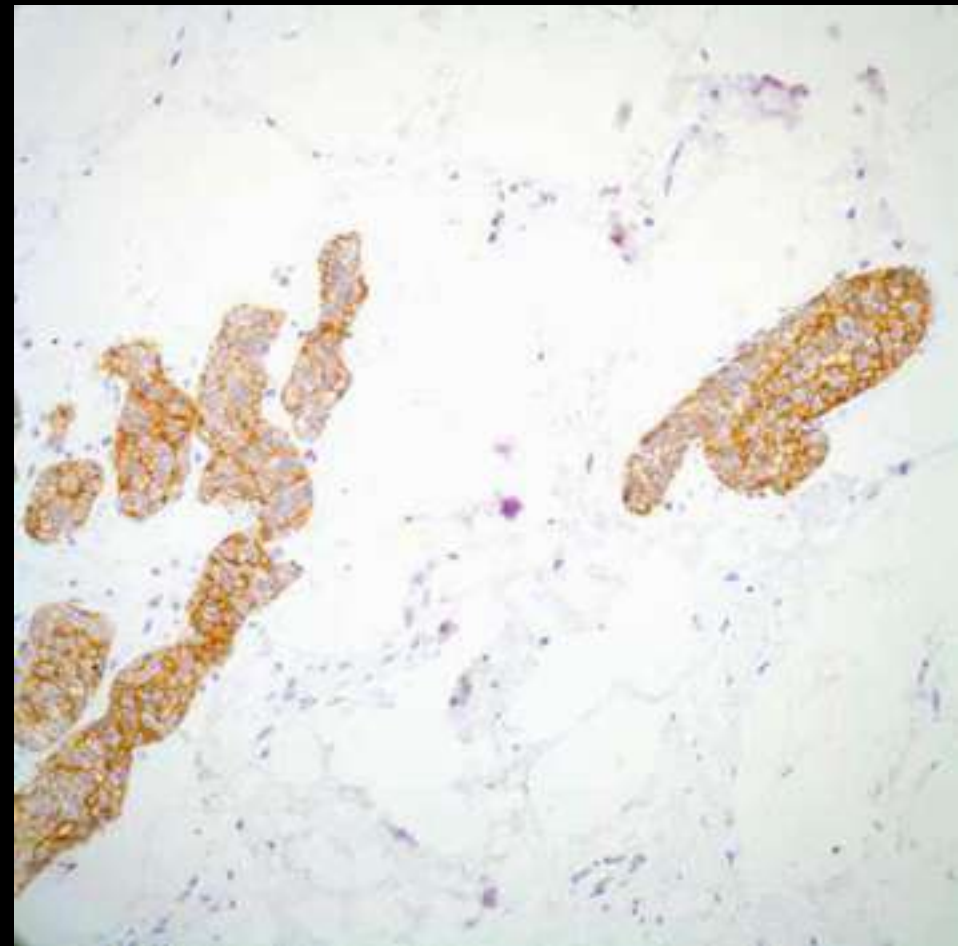
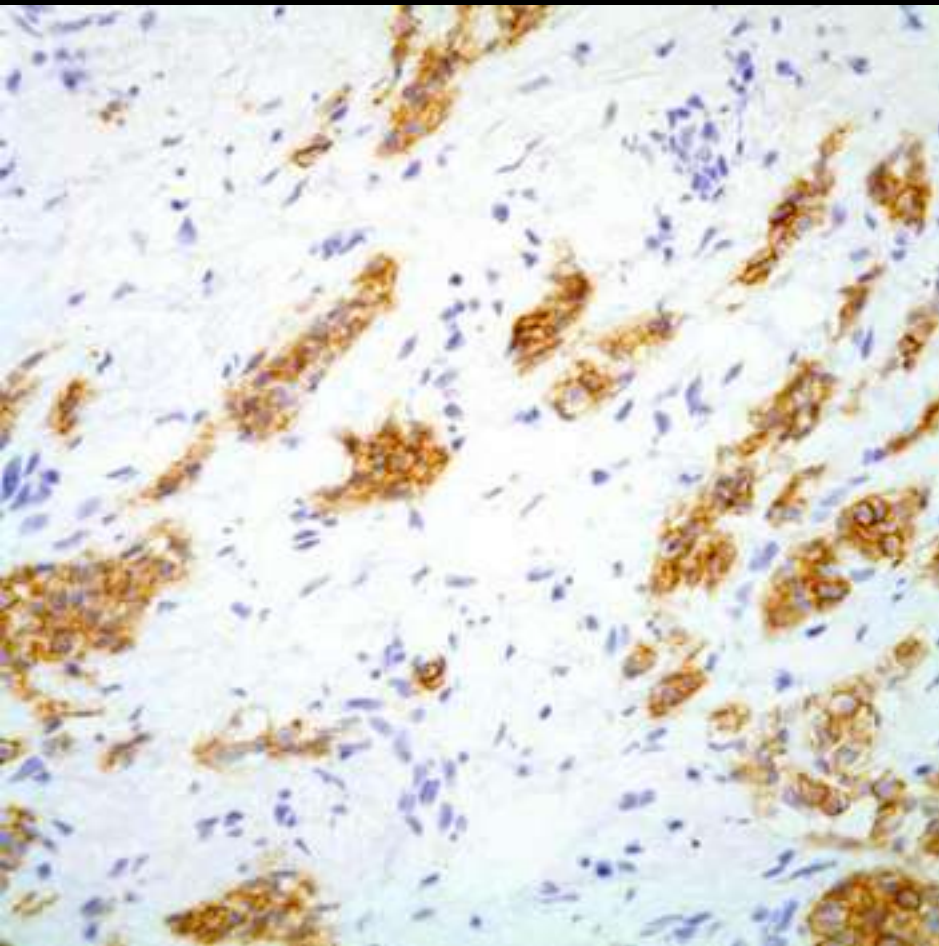
Invasive carcinoma



In situ



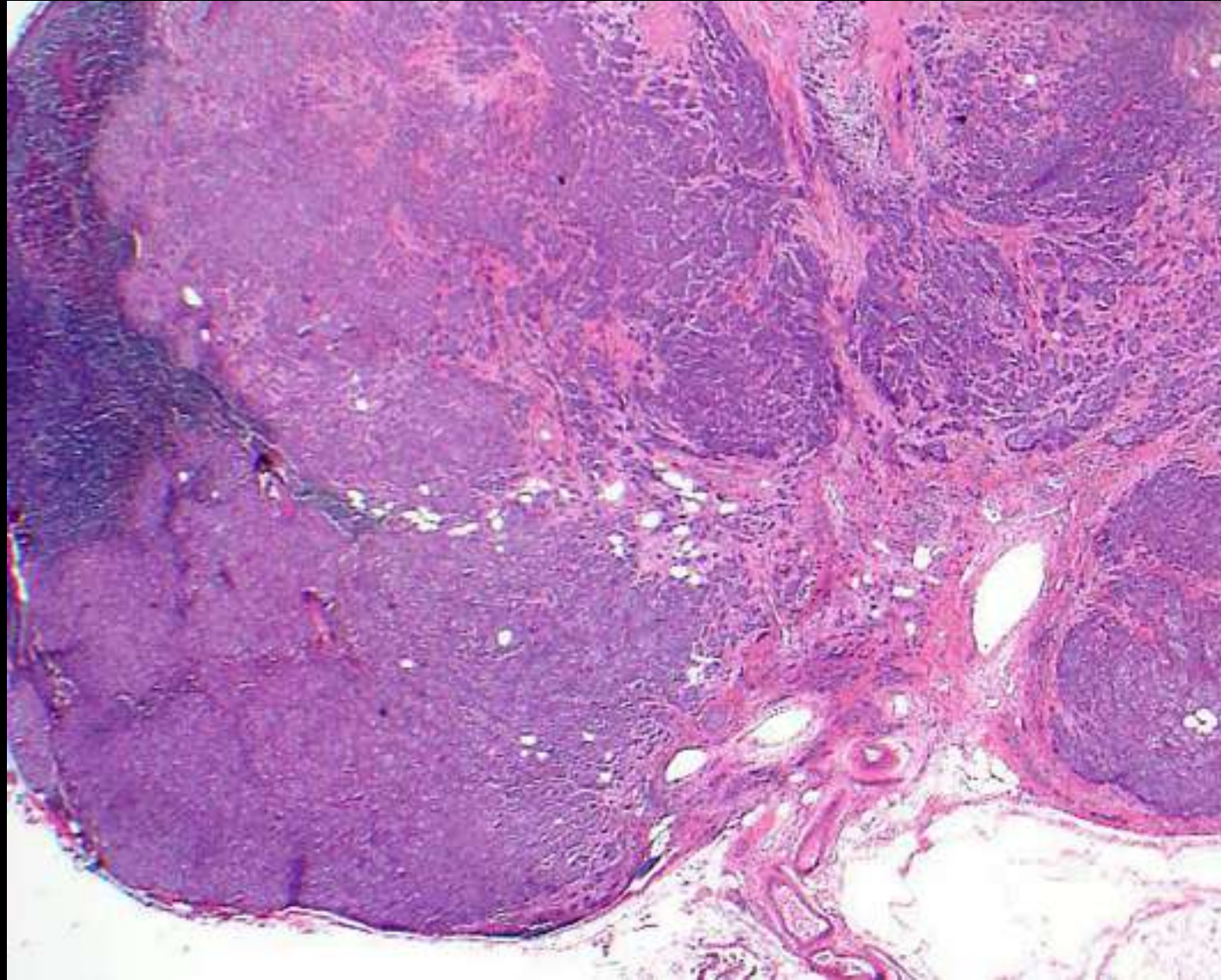
Lumpectomy E-Cadherin



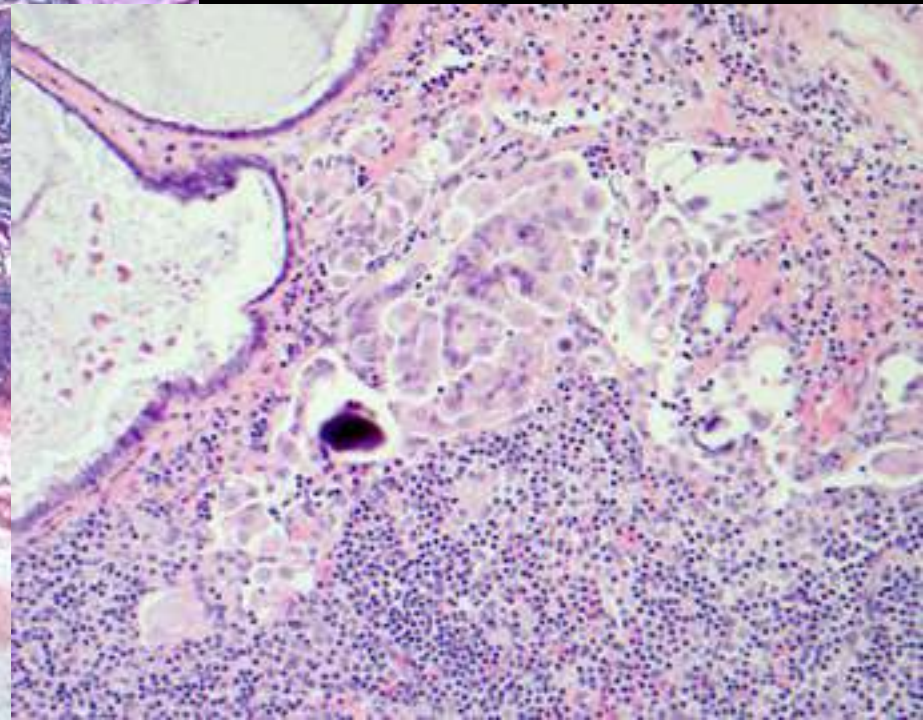
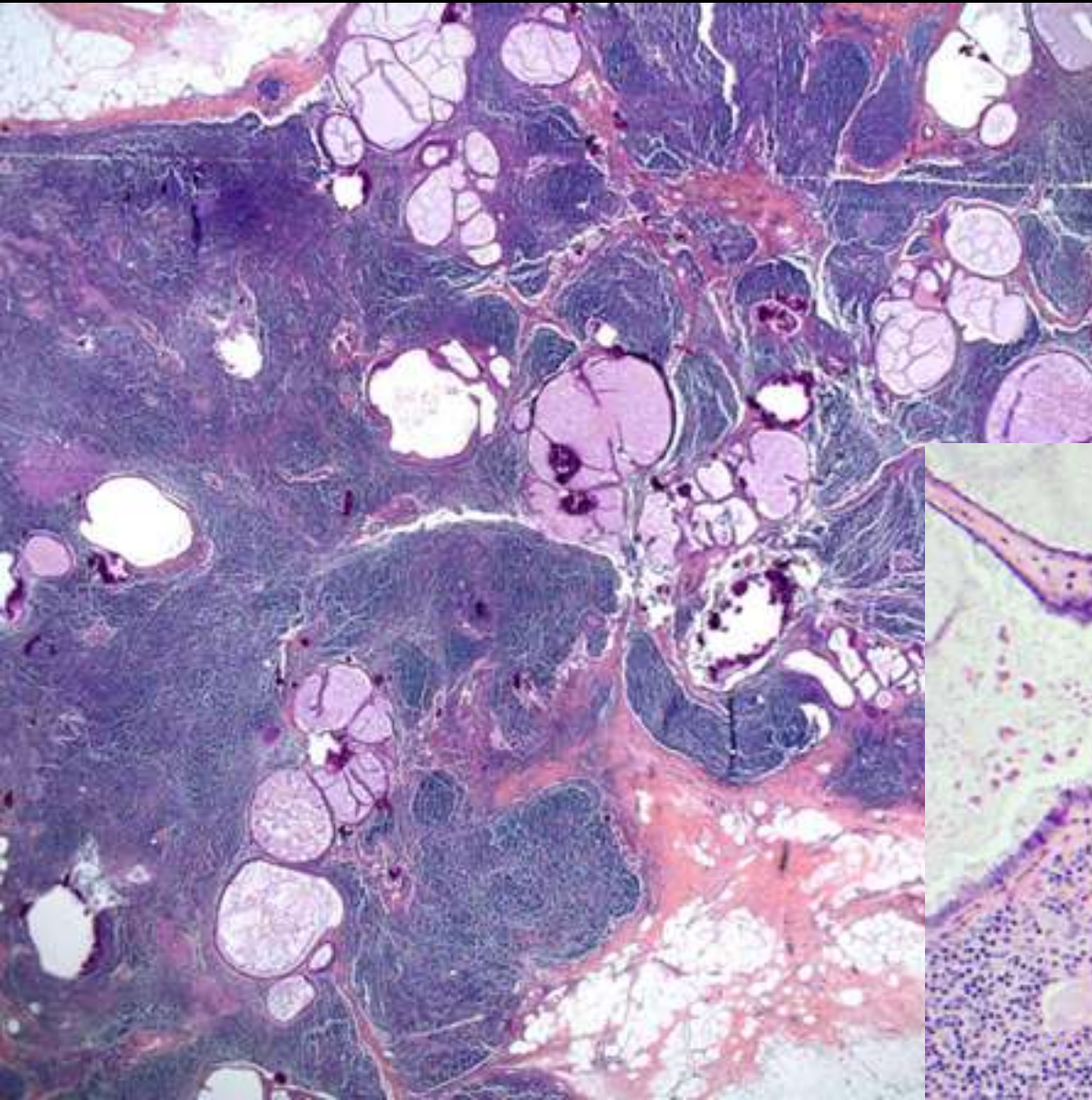
Supportive of ductal differentiation

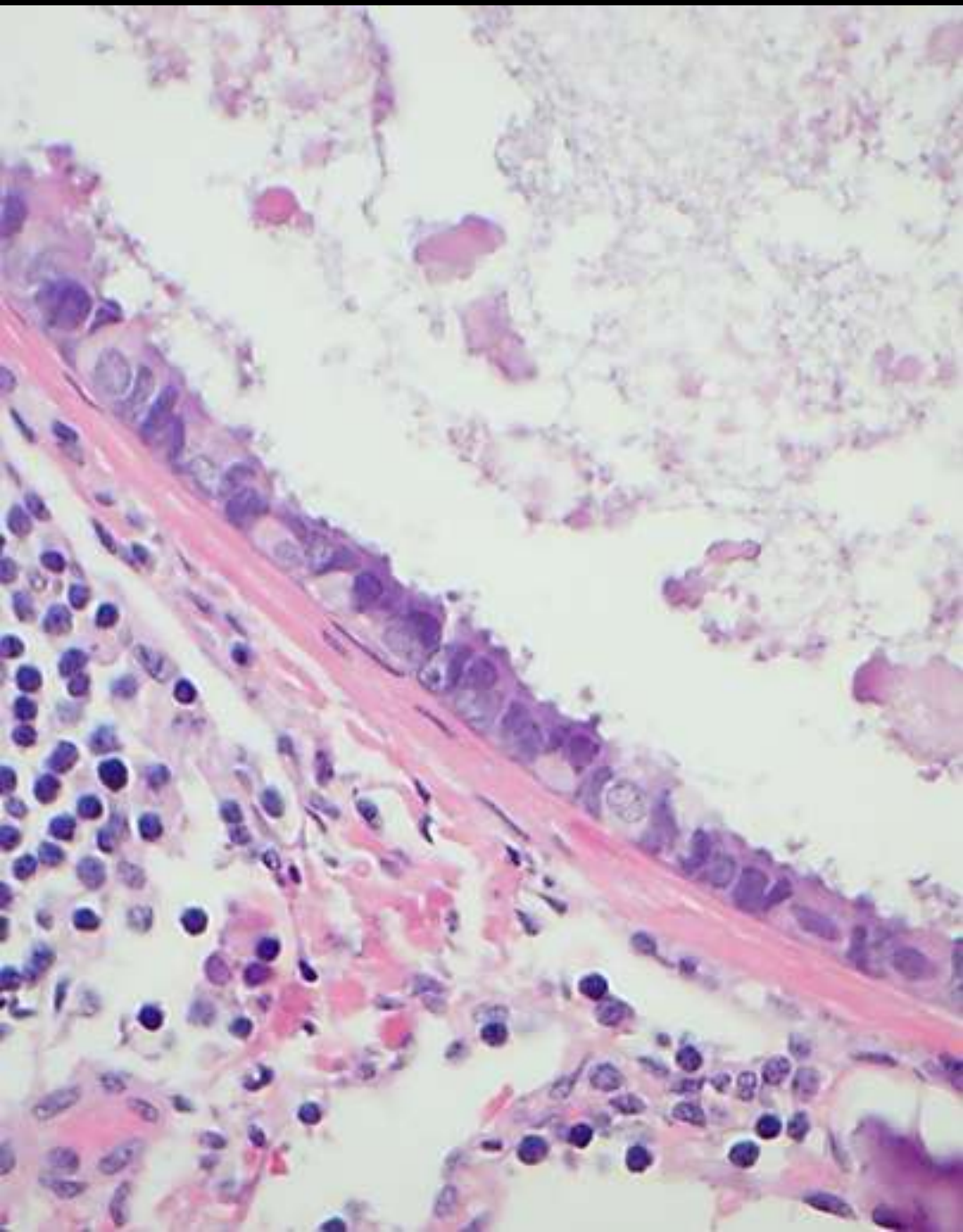
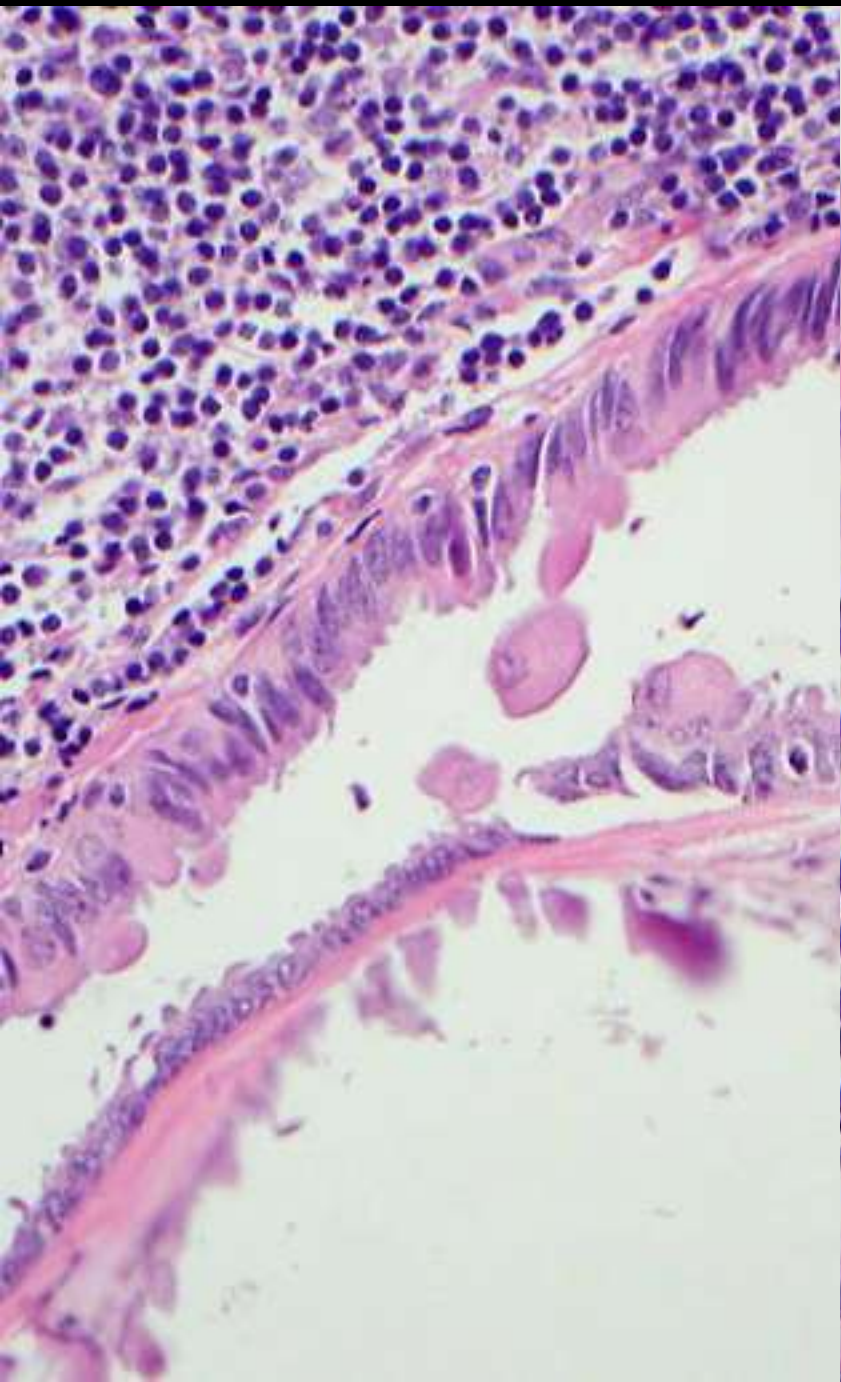
Sentinel node lymph node #1

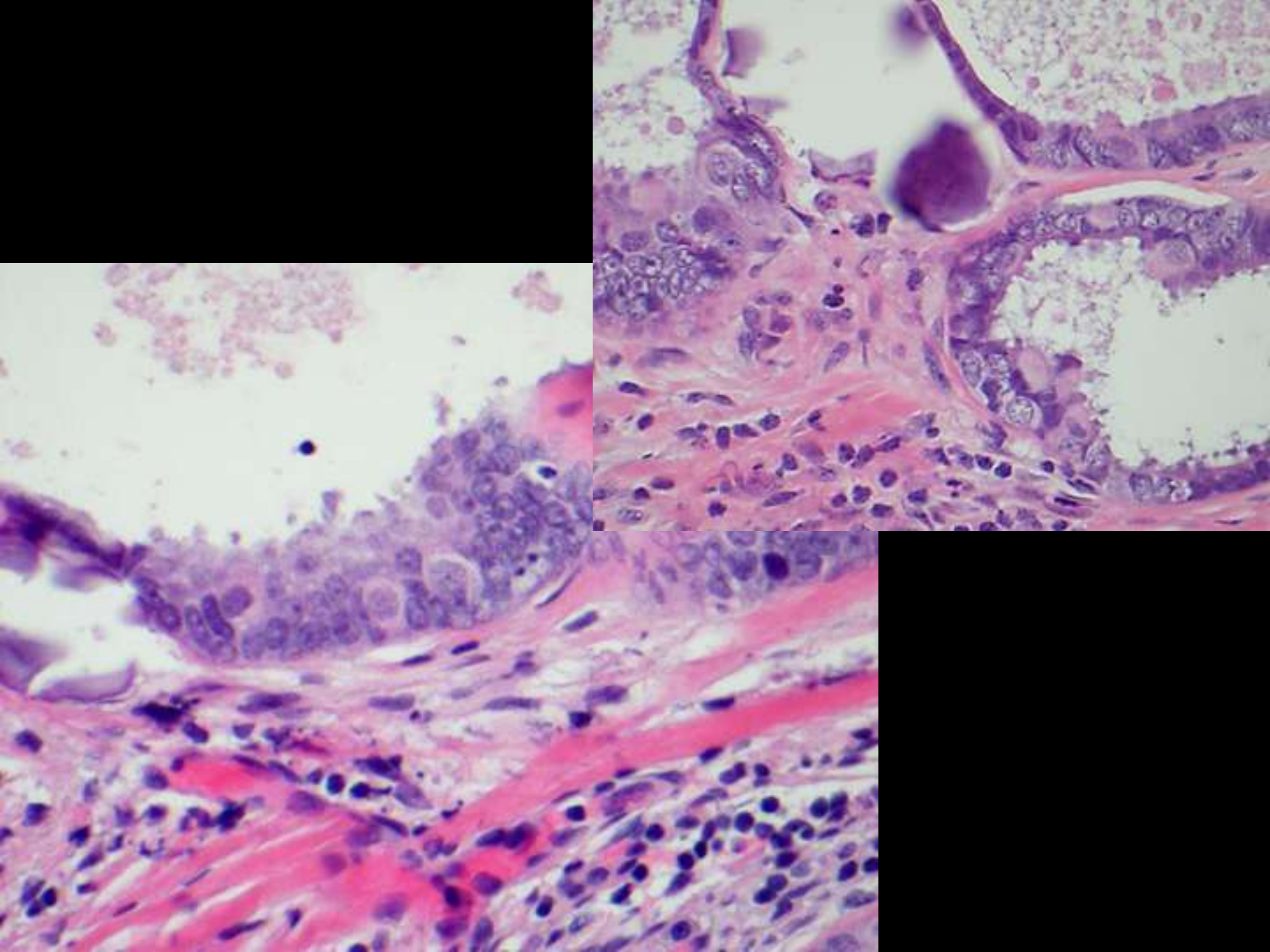
**Macrometastasis
1.2 cm**

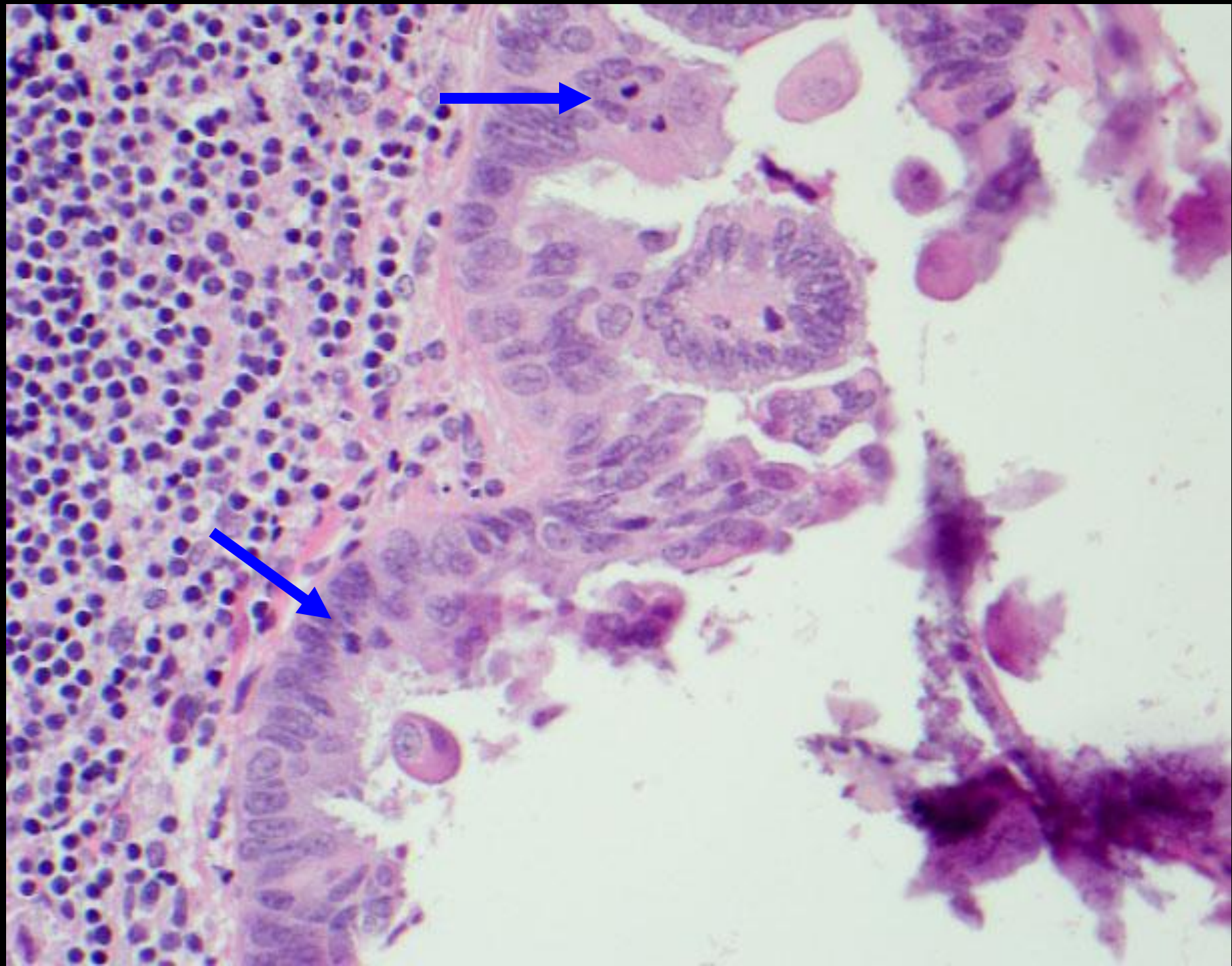


Sentinel node lymph node #2

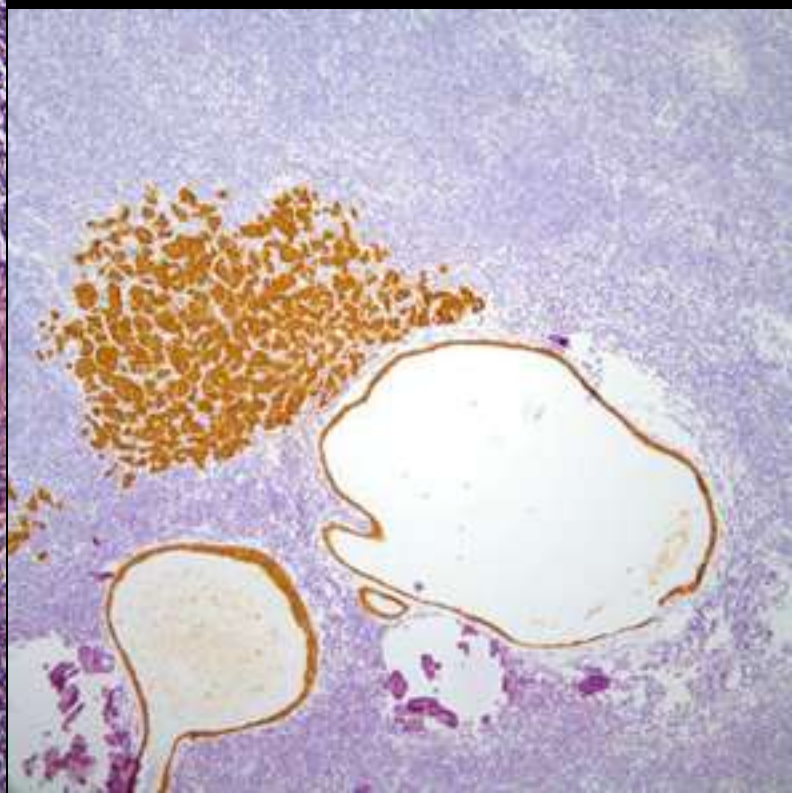
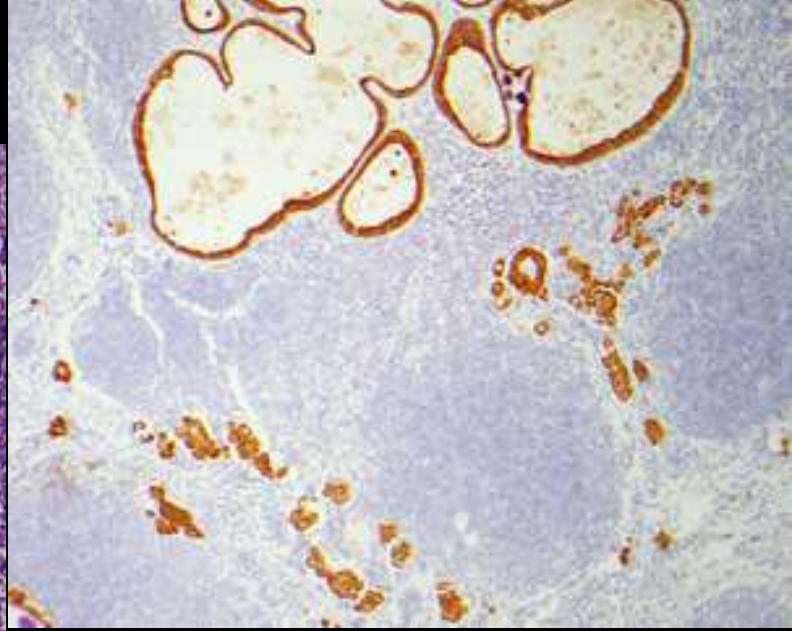
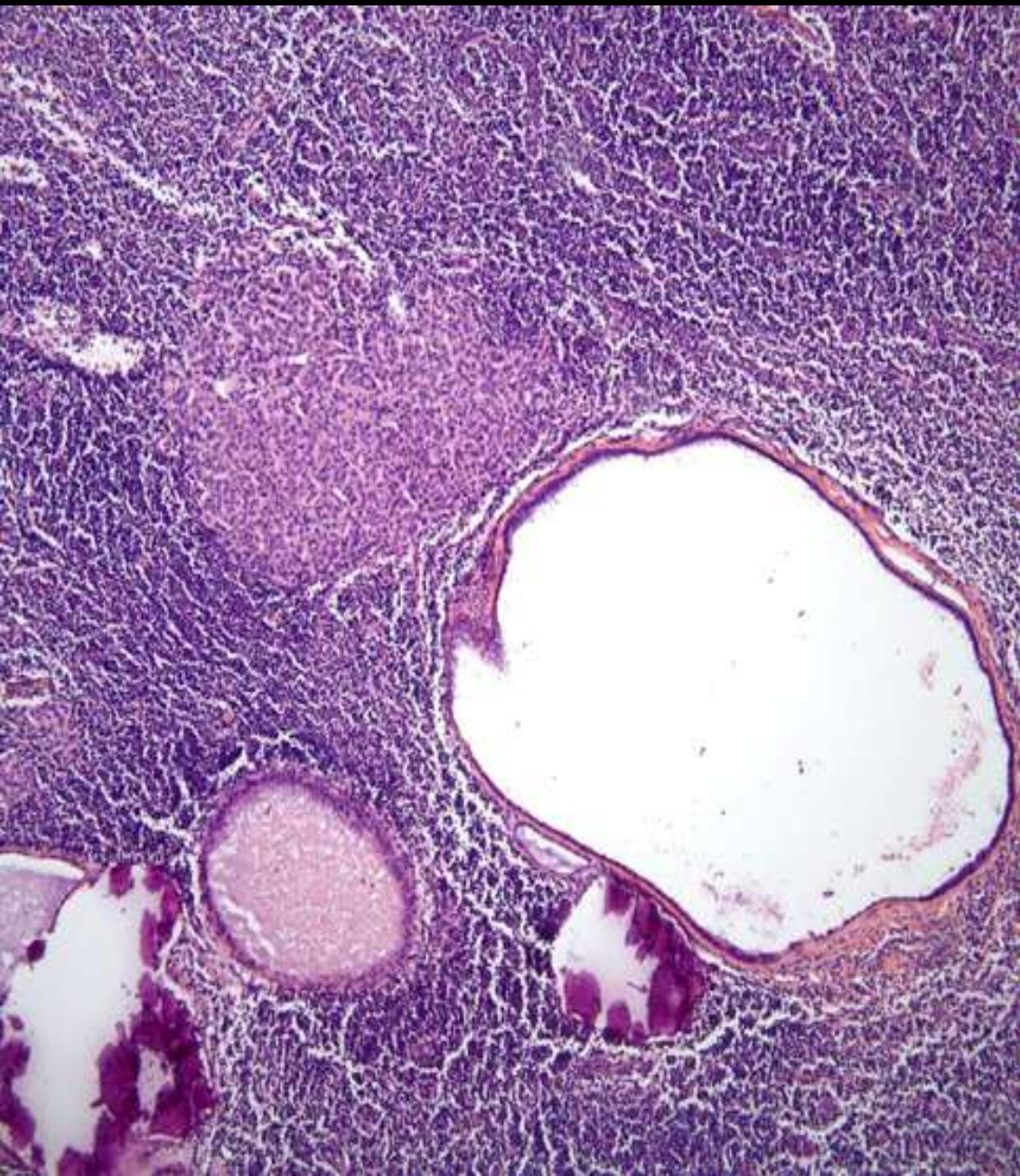


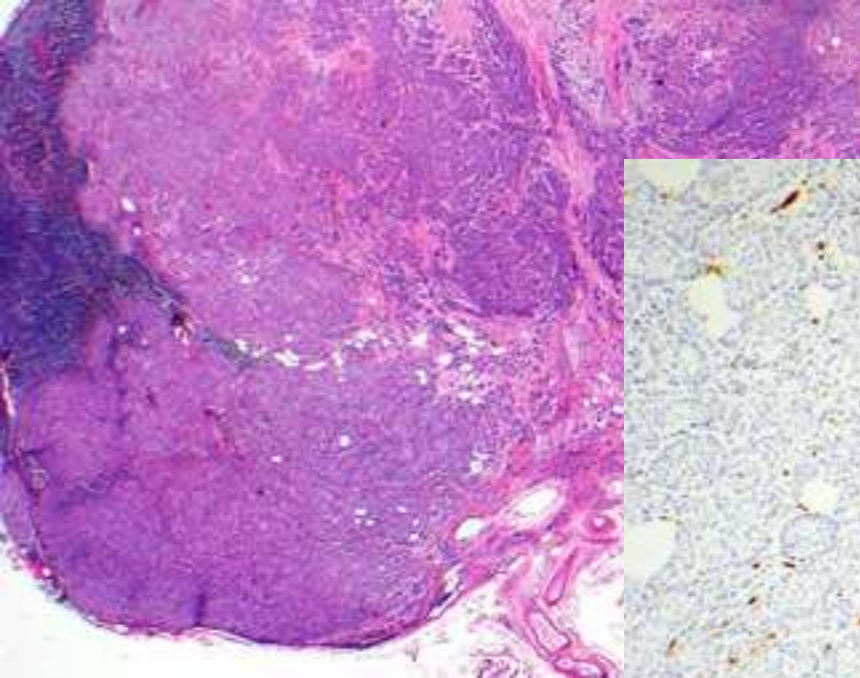




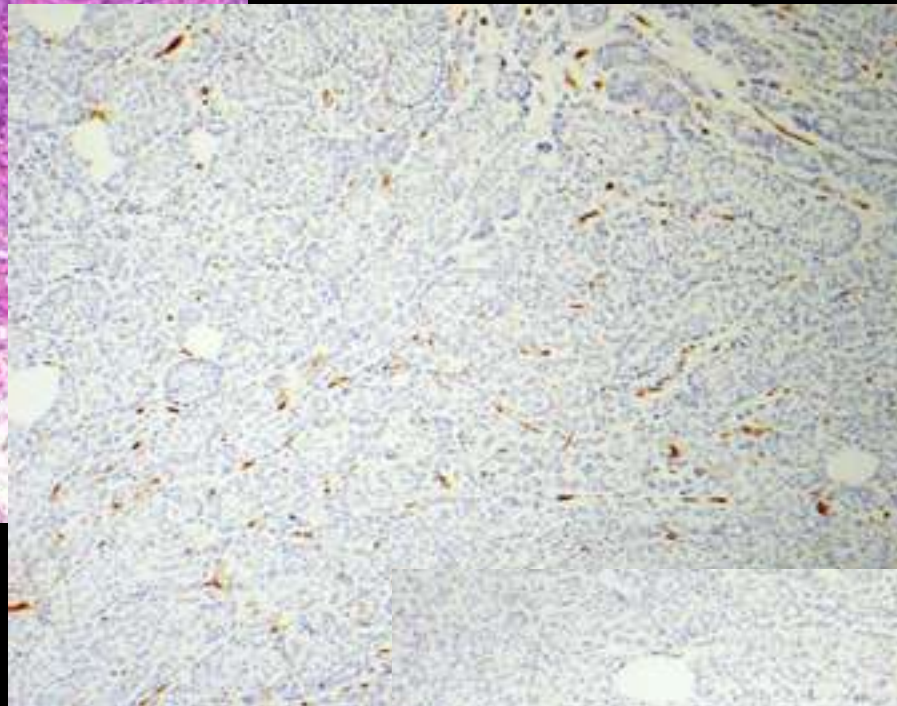


CK 7

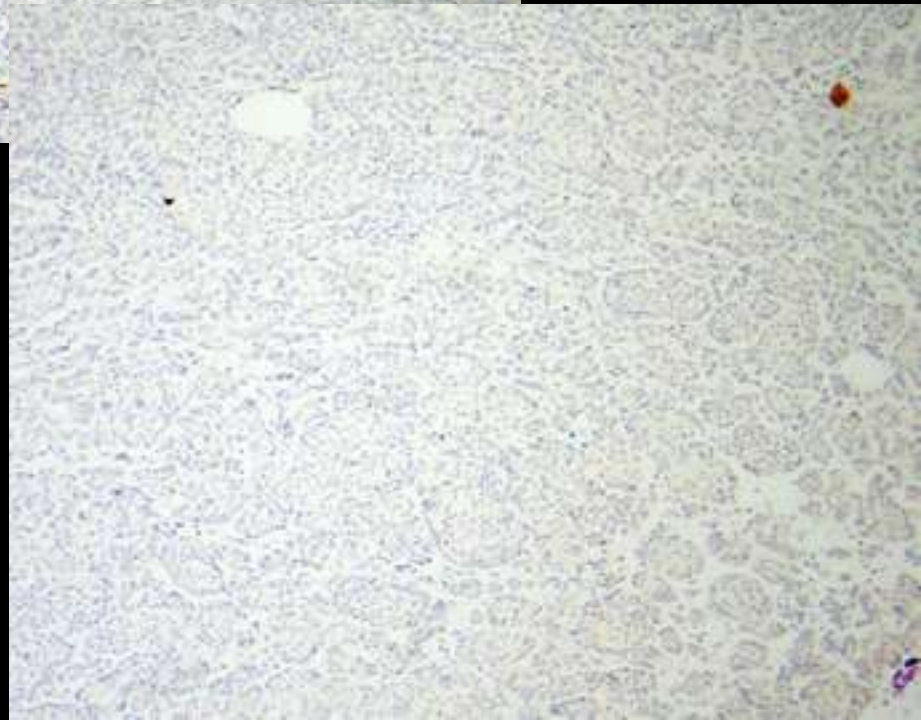


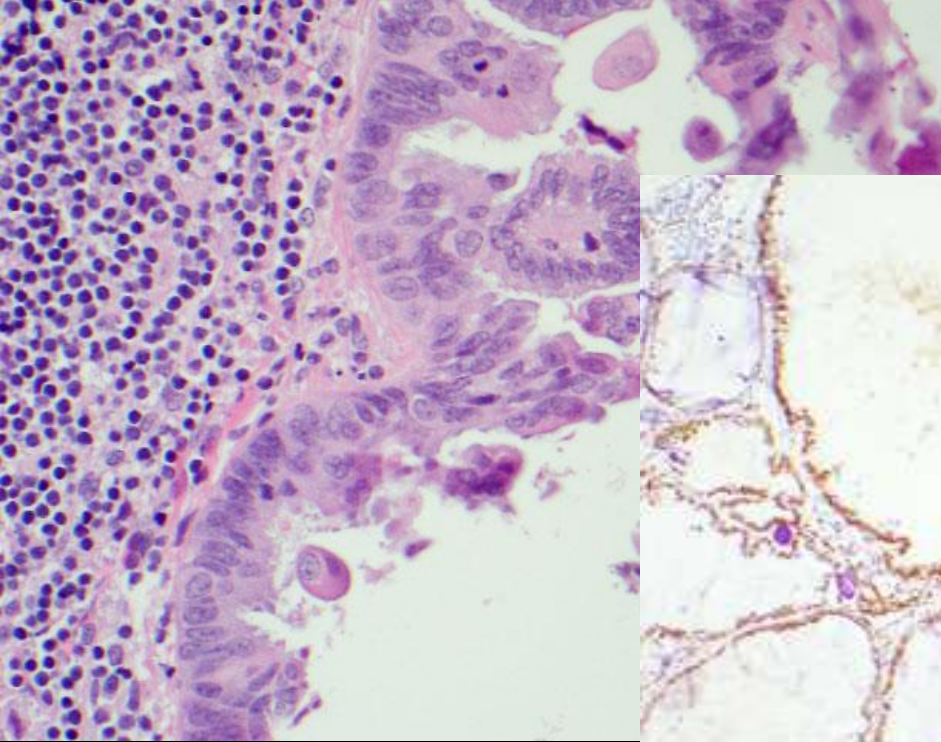


WT-1

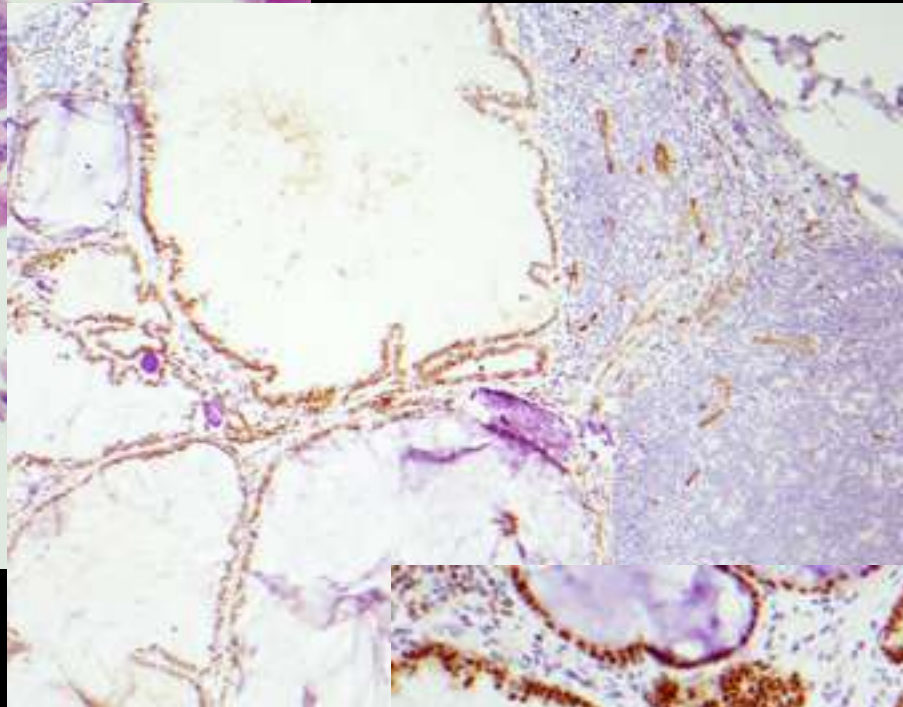


PAX 8

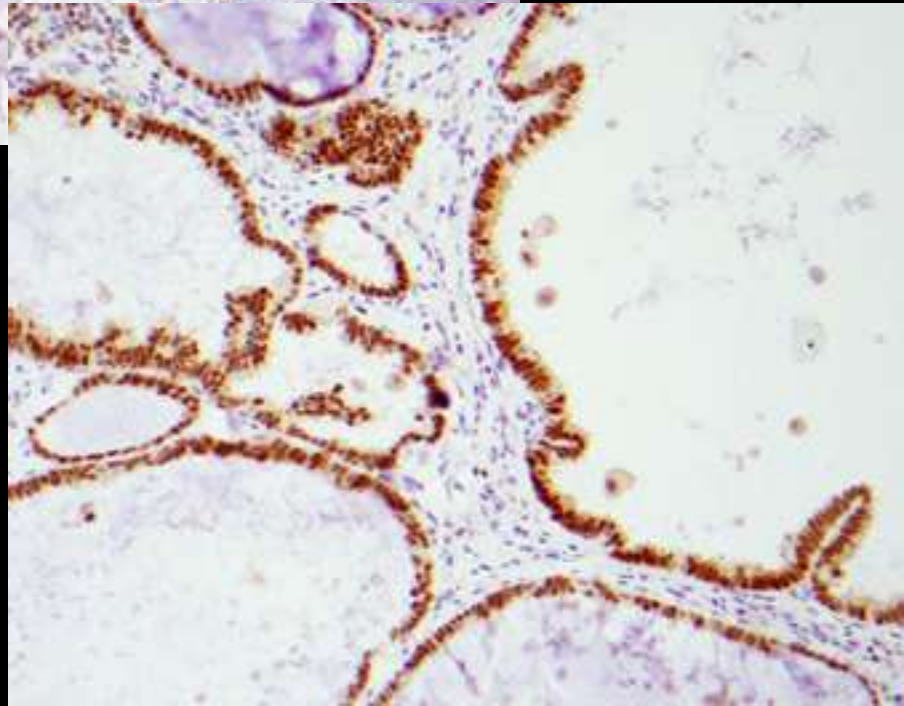


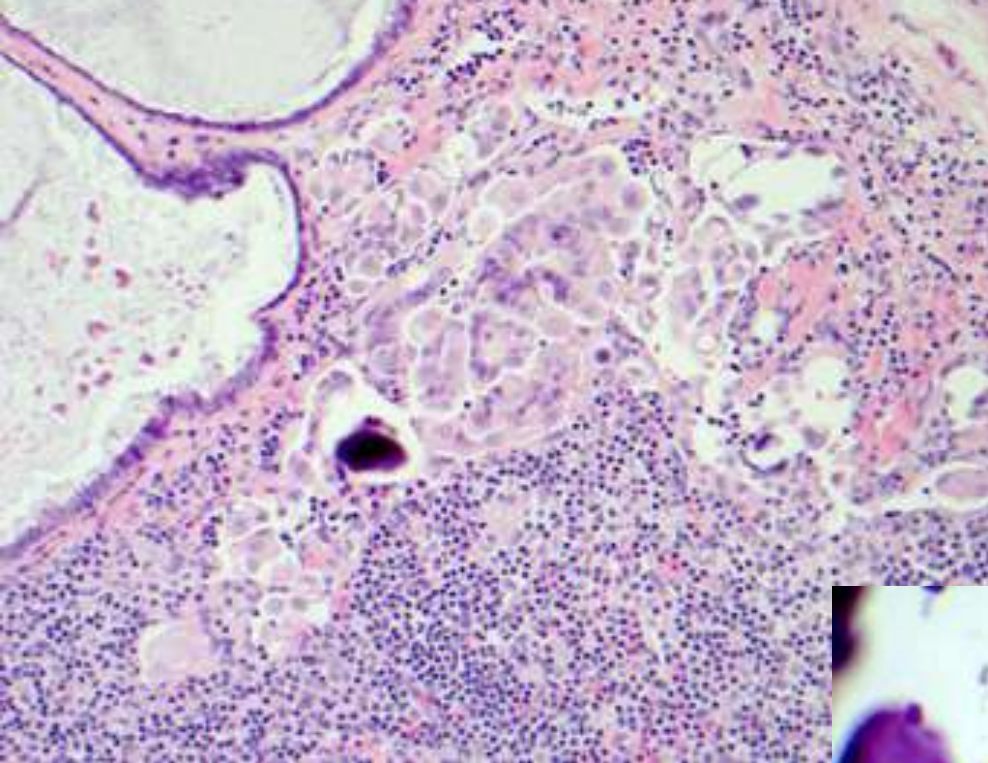


WT-1

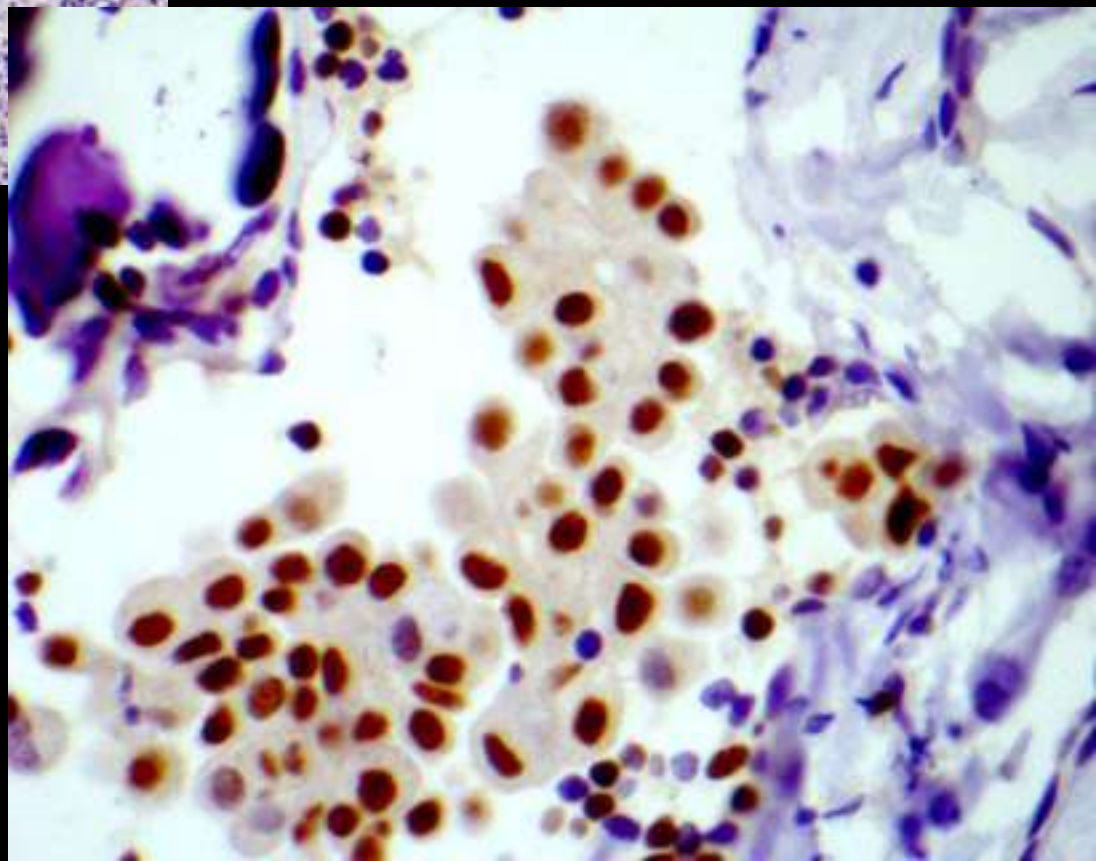


PAX 8





PAX 8



Diagnosis

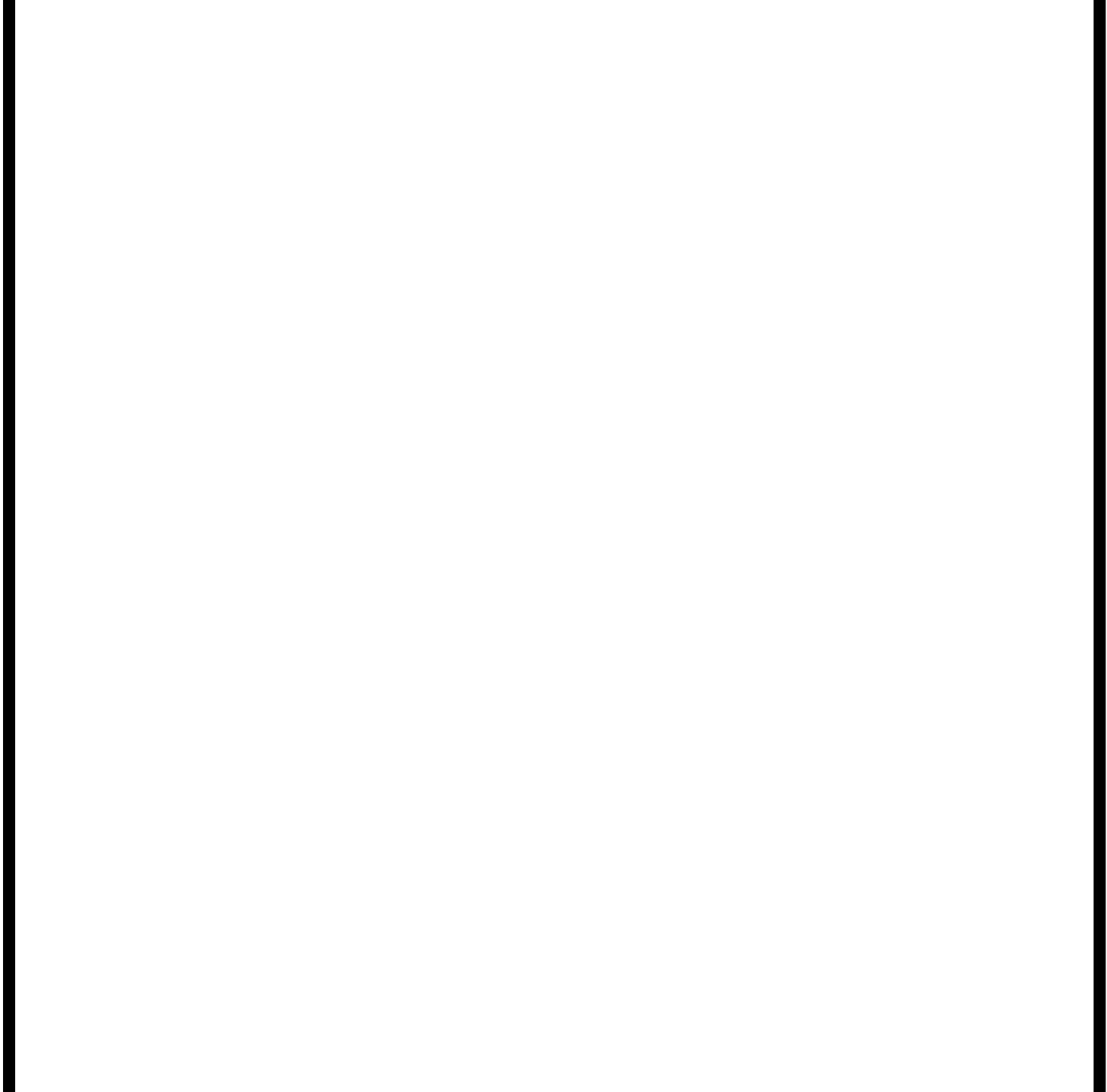
- Invasive ductal carcinoma with lobular features
 - Grade 2, 2.3 cm, ER/PR +, HER2 -
- Ductal carcinoma in situ (DCIS), solid and cribriform types, intermediate nuclear grade
- Metastatic carcinoma in two sentinel lymph nodes (SLN) (macro and micrometastasis)
- Atypical endosalpingiosis with calcifications (present in 3 of 4 sentinel nodes) (see [Comment](#))
- pT2N1a

Comment / Differential Dx

- Given the unexpected finding of Mullerian-type tissue involving axillary lymph nodes, additional work-up is recommended to exclude the possibility of an ovarian or other Mullerian-type neoplasm as indicated.
 - No known ovarian or peritoneal lesions at the time of lumpectomy and SLN dissection

Follow up

- PET scan (3 months later)
 - Intense FDG uptake within left adnexal mass (containing calcification) requires further evaluation with pelvic ultrasound



Follow up

- Ultrasound
 - Complex solid left adnexal mass, 6.2 cm in maximum diameter, previously measuring ~5 cm on ultrasound from 3 years prior from outside hospital (not known to us)
 - Imaging appearance is nonspecific and although is most consistent with dermoid, tissue diagnosis may be warranted

Operative course

Bilateral salpingo-oophorectomy with D&C:

- Frozen intraoperative consultation: at least borderline papillary serous neoplasm

Further surgical treatment initiated:

- Robotic assisted laparoscopic hysterectomy
- Bilateral salpingo-oophorectomy
- Bilateral pelvic lymph node dissection
- Left para-aortic lymph node dissection
- Omental biopsy
- Pelvic washing

Left Ovary

Serous borderline tumor

Size: 3.7 cm

Microinvasion: 0.2 cm

Right Ovary

Serous borderline tumor

Size: 1.0 cm

Pelvic LN

Endosalpingiosis

Pelvic Washing

Atypical cells

IHC: mammaglobin and GCDFP15 negative

Diagnosis

- Bilateral serous borderline tumor, multiple areas of microinvasion (serous tumor of low malignant potential)
- All lymph nodes negative, some with benign endosalpingiosis
- Pelvic washing with atypical cells consistent with serous borderline tumor
- pT1cN0Mx

Follow Up Addendum to Lumpectomy

- In view of the finding of bilateral serous borderline tumors of the ovaries, focal areas of the Müllerian-type tissue present in the axilla may be considered non-invasive implants in a background of endosalpingiosis. No invasion is identified.

Discussion

- Metastases of ovarian serous neoplasms to breast and/or axillary lymph nodes is rare
- Presents a diagnostic pitfall as breast and ovarian carcinoma can be similar
 - Papillary architecture seen in majority of serous ovarian carcinoma metastases
 - Need to rule out invasive micropapillary breast carcinoma

Recine, et al 2004¹

Cystic inclusions in SLN differential diagnosis

	Benign Inclusion	Endosalpingiosis	Metastatic Micropapillary Carcinoma	Metastatic Ovarian Carcinoma
Architecture	Simple	Simple/complex	Complex	Complex
Cytology	Bland	Bland	Atypical	Atypical
IHC	P63 + SMMHC +	Mammaglobin- GCDFP - WT-1 + Pax-8 +	Mammaglobin+ GCDFP + EMA pattern WT-1 - Pax-8 -	Mammaglobin- GCDFP - WT-1 + Pax-8 +

Benign inclusion in the lymph node

p63

SMMHC

Micropapillary Breast Carcinoma
EMA “inside out” appearance

Metastatic serous papillary carcinoma

Psammomatous calcifications

High grade nuclei with marked pleomorphism

Review of literature

- Rare reports of ovarian serous carcinoma with metastases to axillary lymph nodes¹
- One case of collision metastasis of breast and ovarian carcinoma in the axillary nodes²
- In a long term follow up series of 137 serous borderline tumors, one case with advanced stage and invasive implants metastasized to an axillary lymph node³

Patient follow up

- Patient doing well status 2 years post diagnosis
- Received adjuvant chemotherapy and radiation for breast carcinoma
- Ongoing aromatase inhibitor therapy
- Borderline serous tumors of ovary with non-invasive implants have a very good prognosis with recommended long term follow up^{3,4}
- Resection only for ovarian tumor with ongoing annual CT scans
- Bilateral salpingo-oophorectomy may have a beneficial effect on breast carcinoma

References

1. Recine MA, Deavers MT, Middleton LP, et al. Serous carcinoma of the ovary and peritoneum with metastases to the breast and axillary lymph nodes: a potential pitfall. *Am J Surg Pathol*. 2004;12:1646-51.
2. Sughayer MA, Zakarneh L, Abu-Shakra R. Collision metastasis of breast and ovarian adenocarcinoma in axillary lymph nodes: a case report and review of the literature. *Pathol Oncol Res*. 2009;3:423-7.
3. Prat J, De Nictolis M. Serous borderline tumors of the ovary: a long-term follow-up study of 137 cases, including 18 with a micropapillary pattern and 20 with microinvasion. *Am J Surg Pathol*. 2002;9:1111-28.
4. Silva EG, Gershenson DM, Malpica A, et al. The recurrence and the overall survival rates of ovarian serous borderline neoplasms with noninvasive implants is time dependent. *Am J Surg Pathol*. 2006;11:1367-71.

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