



Ovarian Serous Borderline Tumor: An Update and Potential Pitfalls

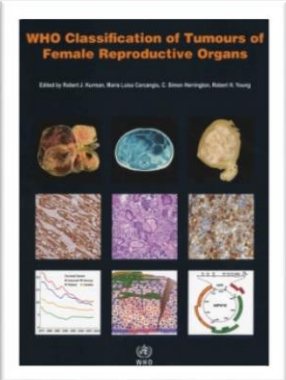
Beirut, Lebanon 2016

Anaís Malpica, M.D.
Professor
Department of Pathology

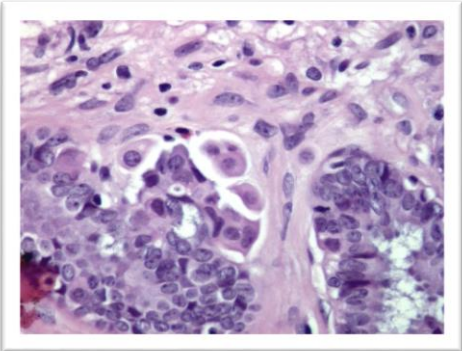
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~~Cancer Center~~
Making Cancer History®

Serous Borderline Tumor

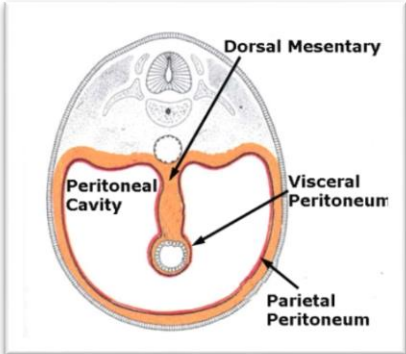
Nomenclature Issues, Ovarian Tumor



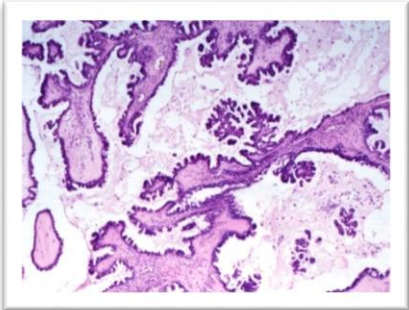
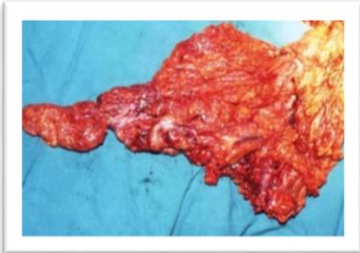
Microscopic Features



Extra-ovarian Findings and Nomenclature Issues

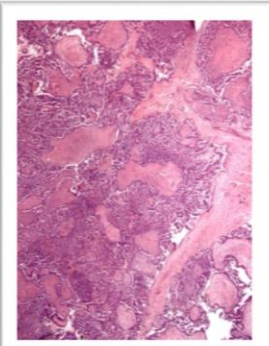


Microinvasion

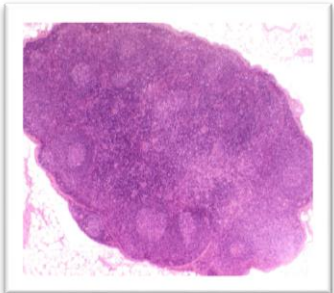


Classic

Pregnancy related changes



Micropapillary/cribriform pattern



Serous Borderline Tumor

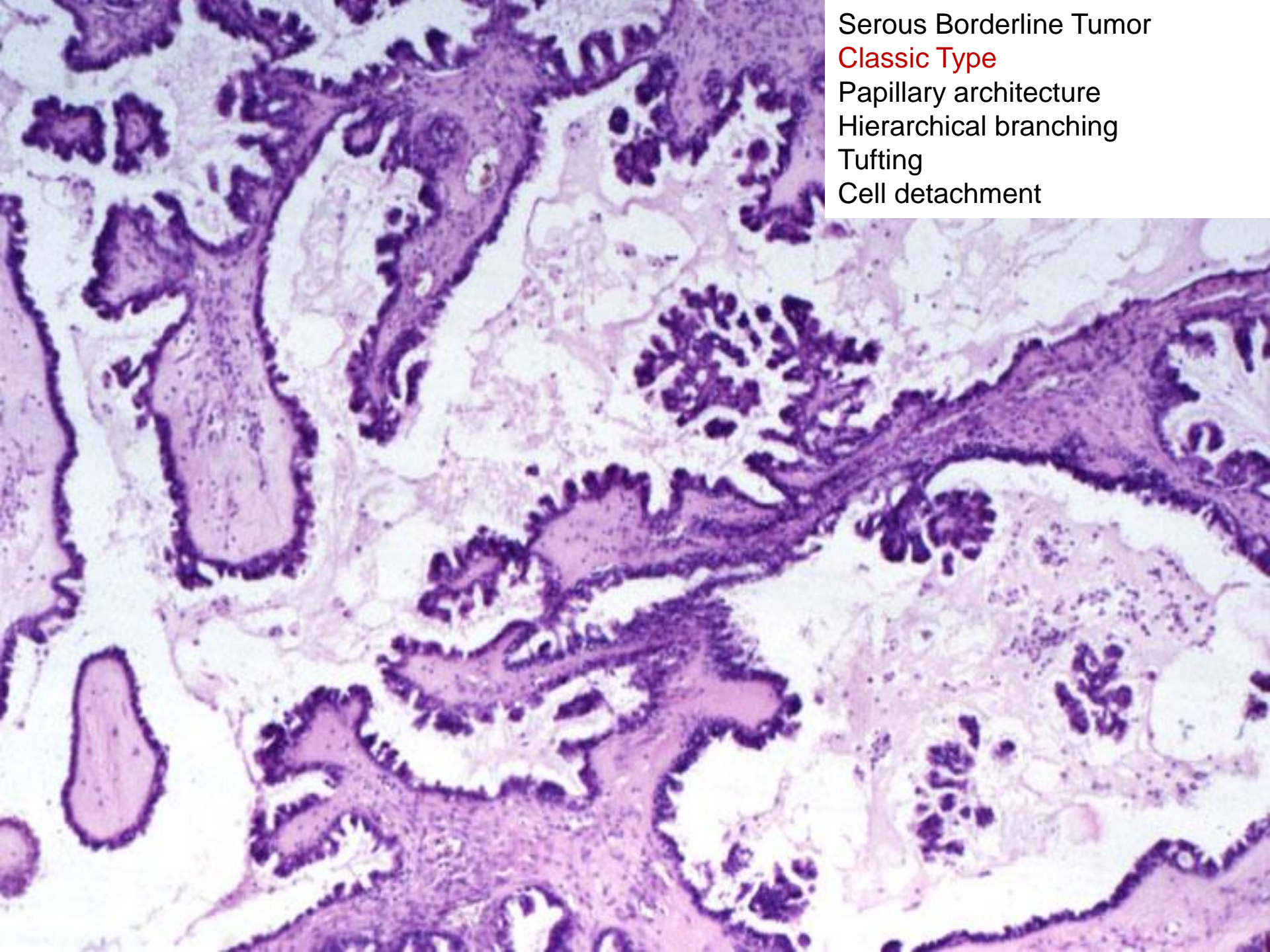
Classic Type

Papillary architecture

Hierarchical branching

Tufting

Cell detachment



Nomenclature Issue # 1

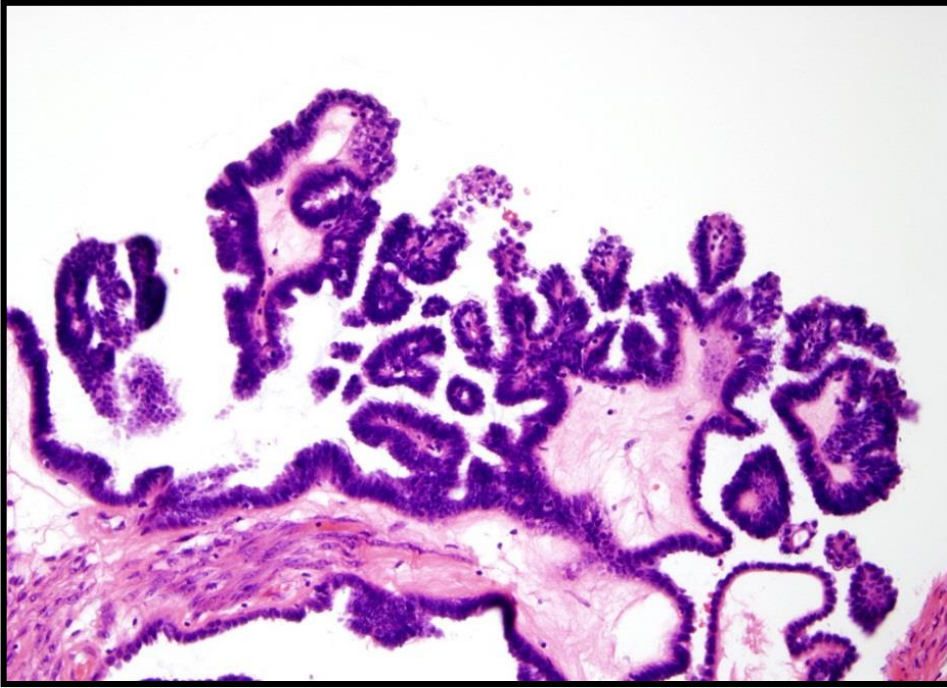
Serous
Cystadenoma or
Cystadenofibroma
(Benign)

versus

Serous Borderline
Tumor (Serous
Tumor of Low
Malignant
Potential/Atypical
Proliferative Serous
Tumor)

How much of this?

To use this



serous borderline tumor/
serous tumor of low
malignant
potential/atypical
proliferative serous tumor

10% of this pattern is needed (WHO 2014)
Cut-off proposed several years ago, at that time it was non-
evidence based

Original Article

Defining an Appropriate Threshold for the Diagnosis of Serous Borderline Tumor of the Ovary: When Is a Full Staging Procedure Unnecessary?

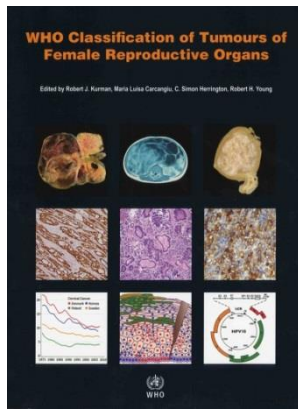
Kimberly H. Allison, M.D., Elizabeth M. Swisher, M.D., Katrina M. Kerkering, M.D.,
and Rochelle L. Garcia, M.D.

Summary: How much borderline change in an otherwise typical ovarian serous cystadenoma should warrant classification as a serous ovarian “borderline tumor?” We correlated estimated volume and percent borderline change with stage in 56 cases of serous ovarian neoplasms (excluding carcinomas) diagnosed as at least focal borderline change to see if we could define an appropriate threshold for the diagnosis of borderline tumor that would justify full surgical staging. Forty-three cases were completely staged, 6 had “fertility-sparing” but otherwise complete staging, and 7 cases had “limited” staging. Thirty-eight cases were stage 1a-1c, and 18 were greater than stage 1. Cases with stage 1 disease had a significantly lower mean volume of borderline change sampled of 2.0 compared with 5.6 cm³ in cases with greater than stage 1 disease ($P = 0.0002$). All high-stage cases had at least 1.0 cm³ or more of borderline change sampled (range, 1.0–12). Cases with stage 1 disease had a significantly lower mean estimated total percent borderline change of 34.8% compared with 77.2% in cases with greater than stage 1 disease ($P < 0.0001$). All high-stage cases had 20% or more total borderline change (range, 20%–100%). In addition, a grossly exophytic growth pattern component was highly predictive of high stage ($P \leq 0.0001$). Two cases recurred—both were advanced-stage and high-percent borderline change. There were no deaths due to disease (mean follow-up, 85 months). Our study supports a conservative 10% cutoff for classification as a “borderline tumor,” and that complete surgical staging is not necessary when a serous neoplasm with an intracystic growth pattern has less than 10% or 0.5-cm³ borderline change. **Key Words:** Borderline—Low-malignant potential—Ovary—Borderline change—Staging.



This study supports the use of the 10% cutoff

No staging is necessary when an **intracystic** tumor has less than 10% of borderline change



2014

Serous cystadenoma, adenofibroma and surface papilloma

Foci that qualify as serous borderline tumour/atypical proliferative serous tumour (SBT/APST) may be present and, if < 10% of the epithelial volume, are designated serous cystadenoma/fibroma with focal epithelial proliferation {1117,1729}. Small papillary growths with bland, serous-type epithelium on the surface of the ovary are designated serous surface papillomas.

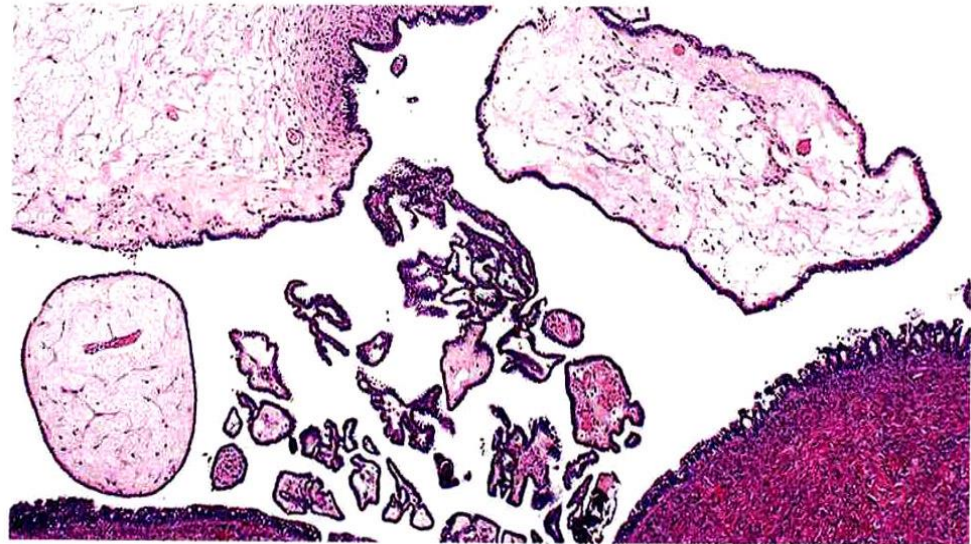
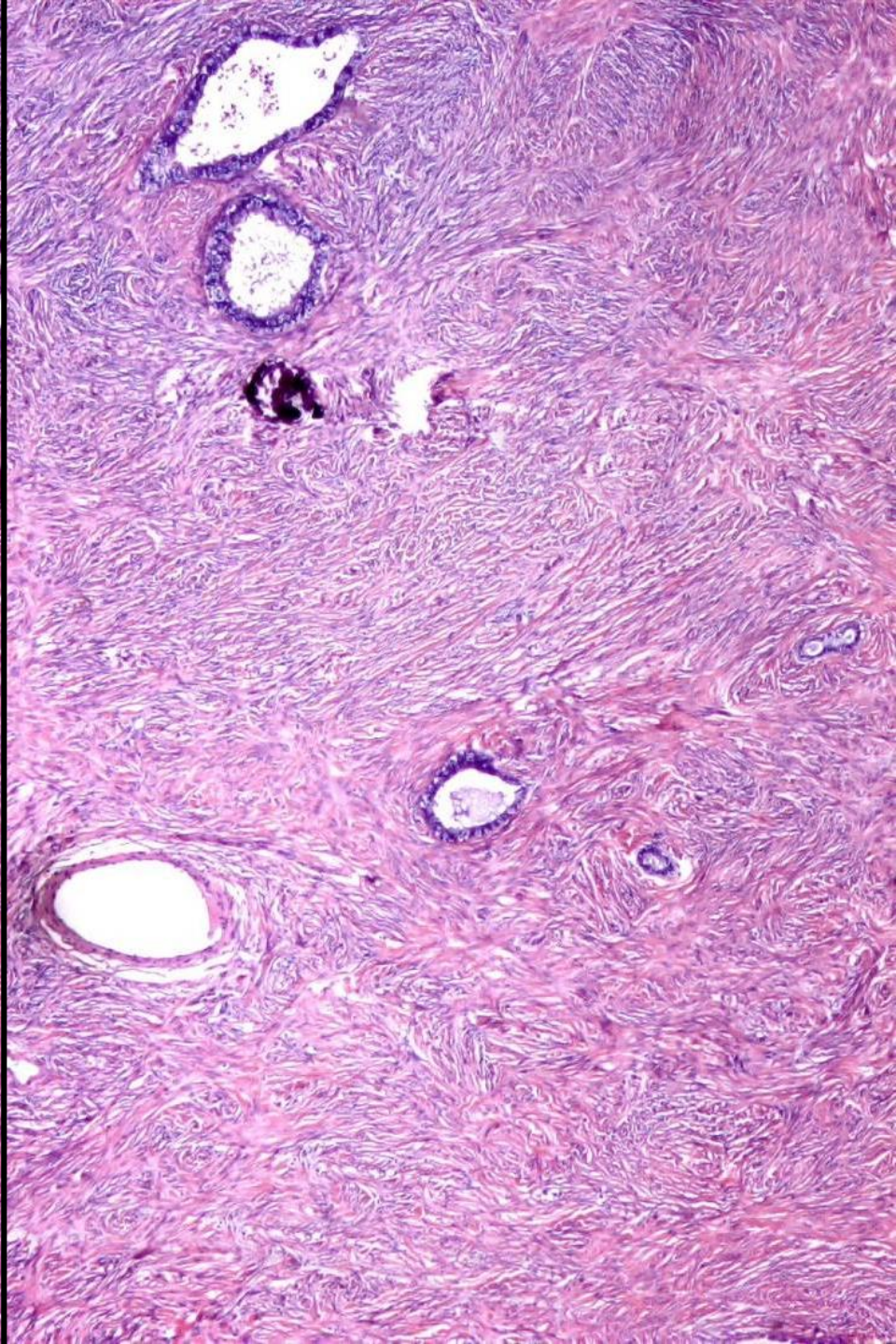
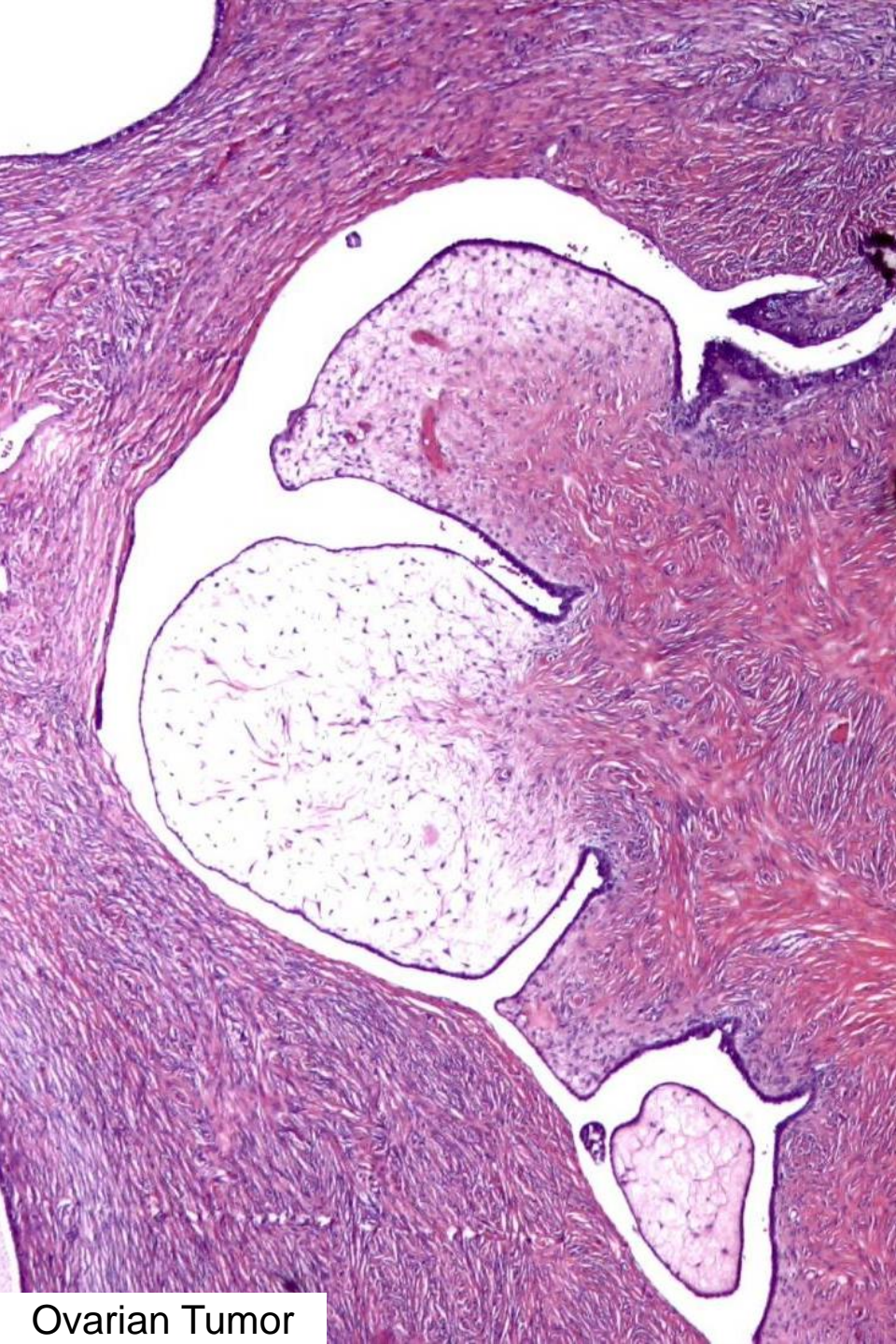
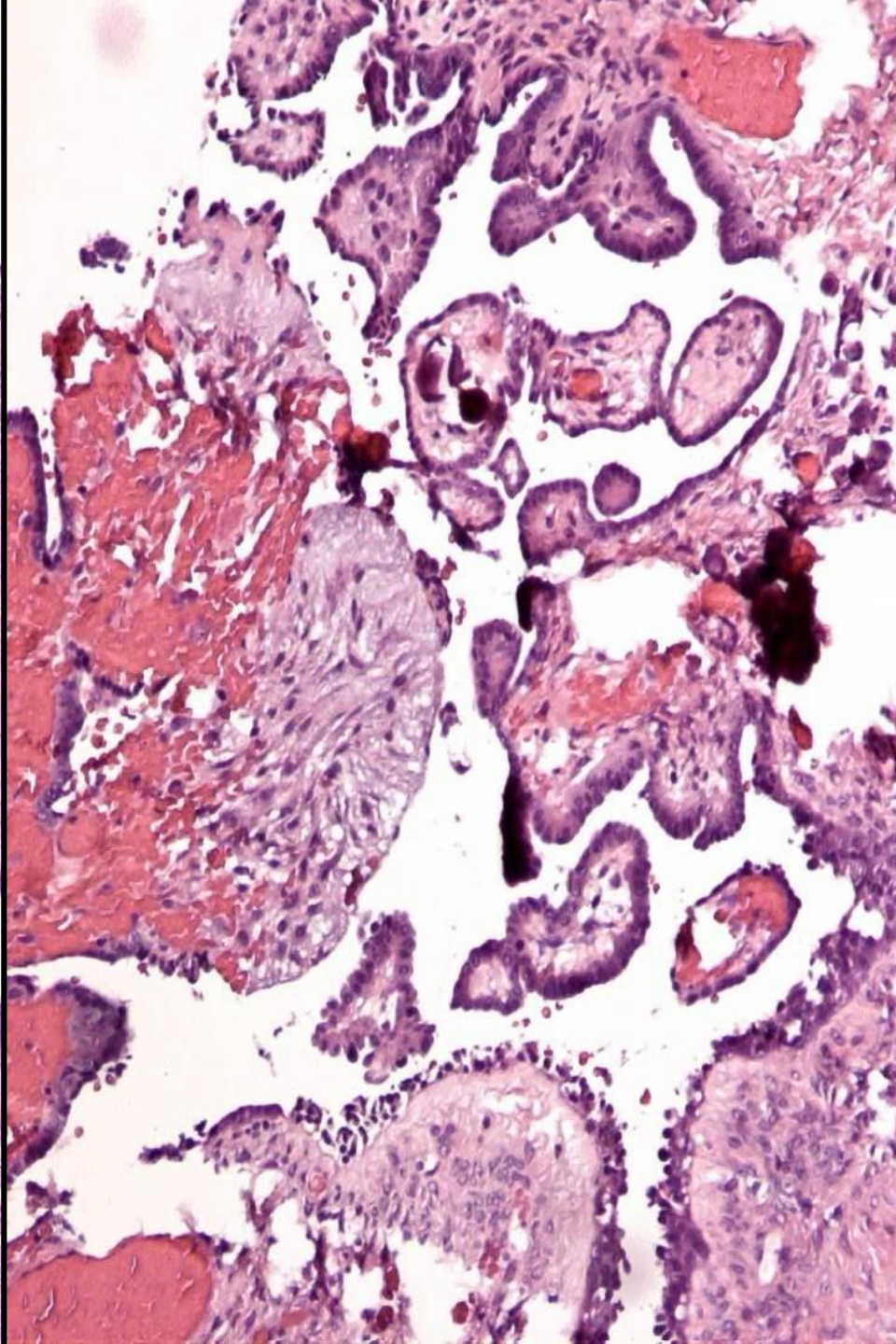
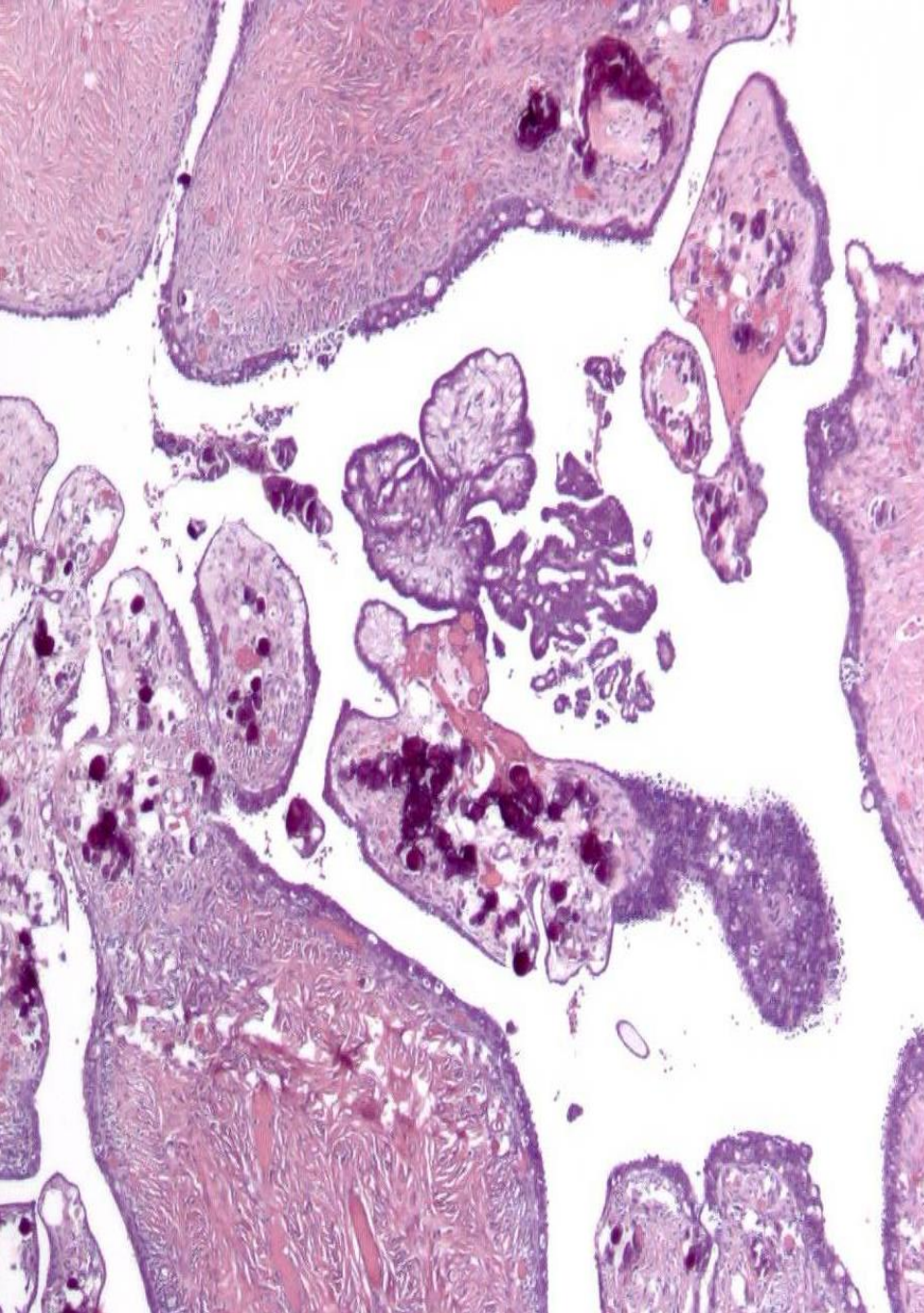


Fig. 1.02 Serous cystadenofibroma with focal epithelial proliferation. The epithelial proliferation is < 10% of the neoplasm.

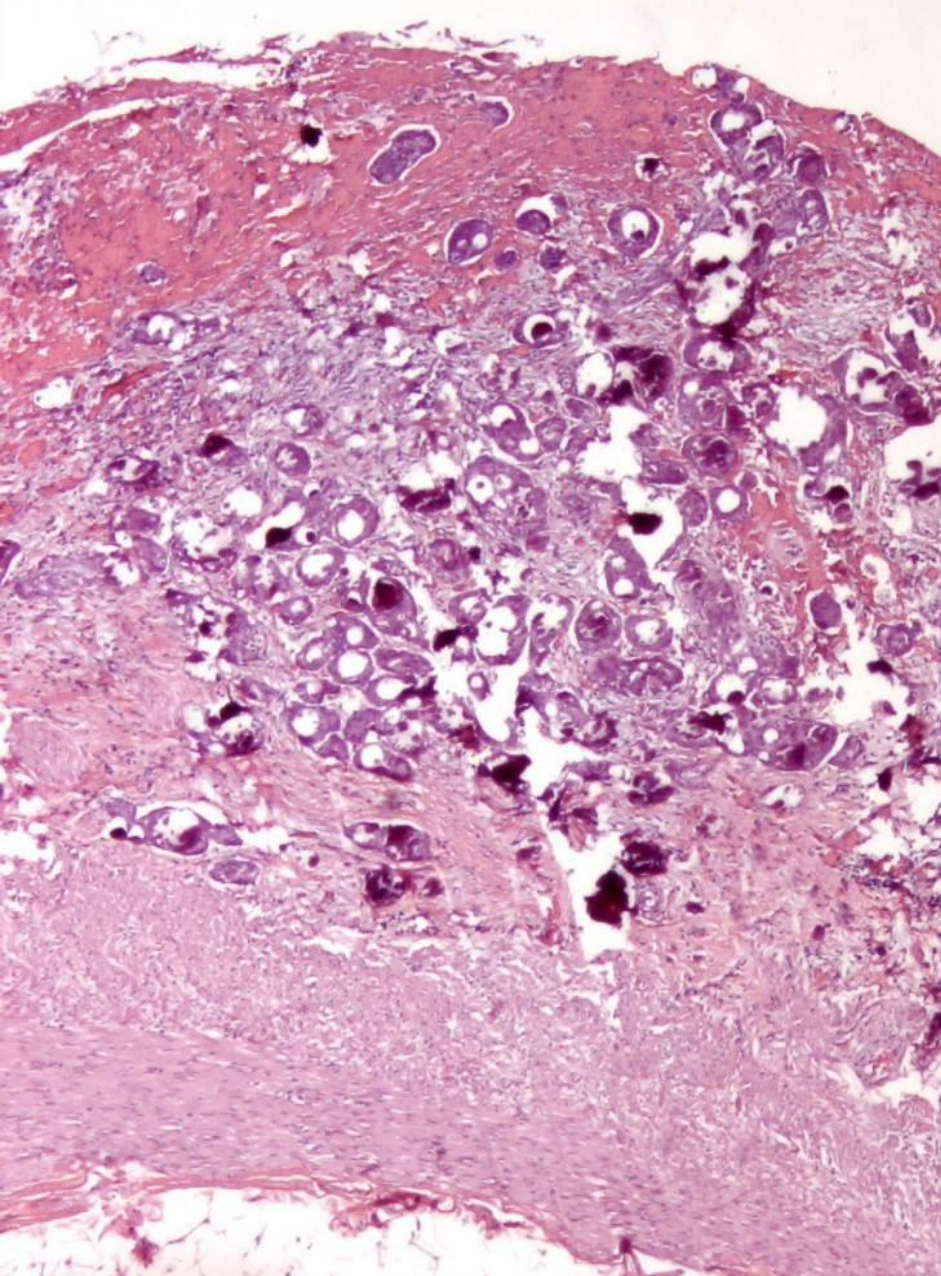
“ A surface atypical component is logically more potentially significant than an intracystic one and should be noted in a comment”



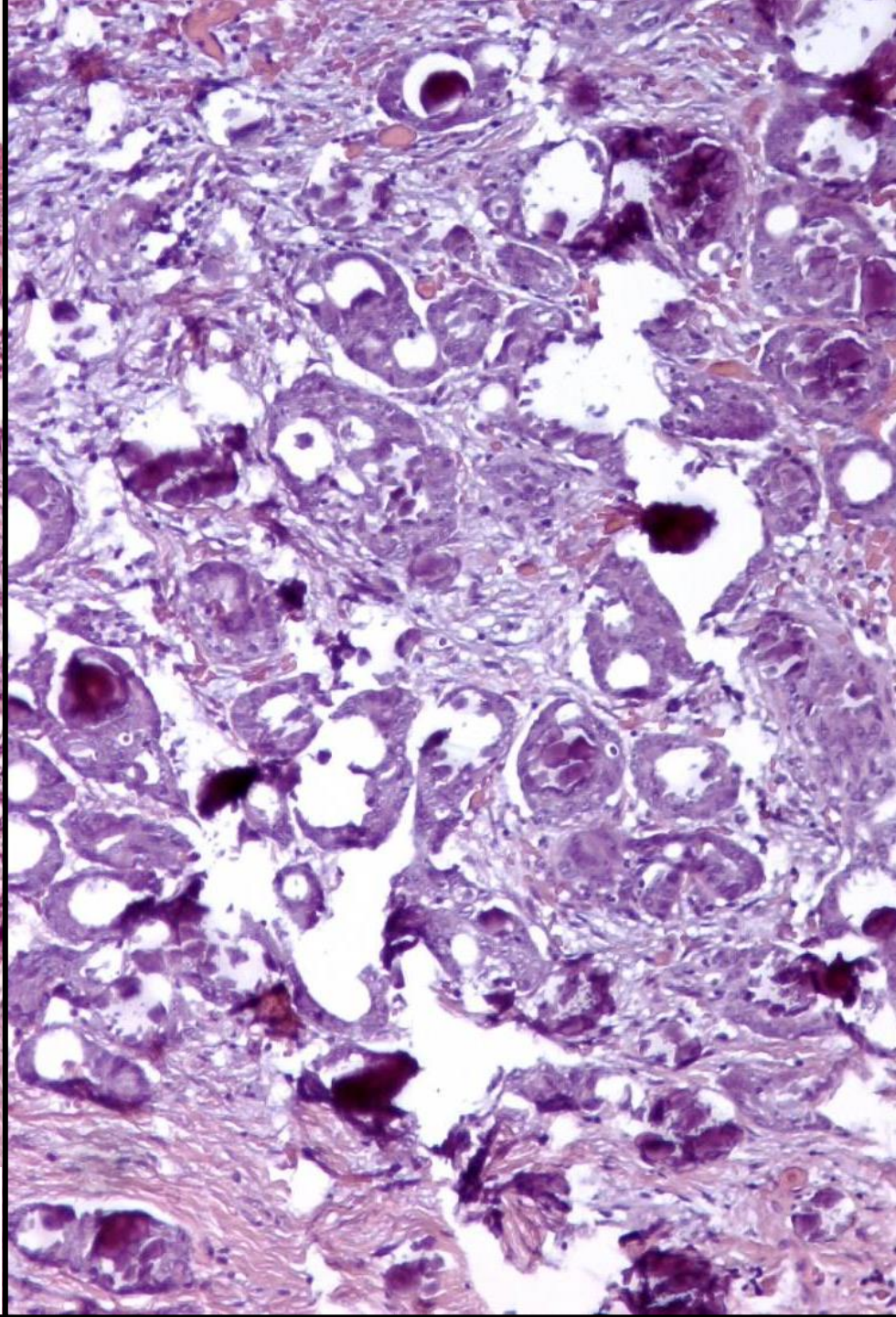
Ovarian Tumor



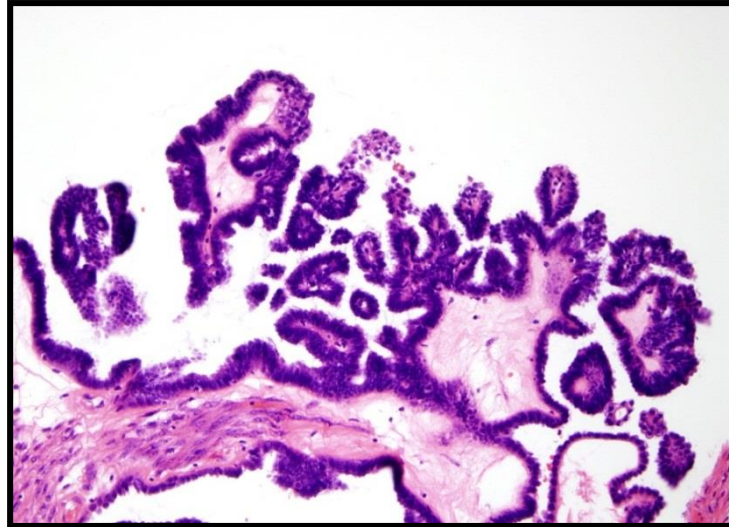
Ovarian Surface with Tumor



Periappendiceal tumor
detected 6 months later



In our experience, cases with less than 10% of this pattern and with involvement of the ovarian surface can have recurrences or extra-ovarian disease



It is difficult to determine what represents the ovarian surface in most cases seen in our consultation practice

Therefore, we tend to use the term “serous borderline tumor” regardless of the volume of this component

If less than 10%, we add “focal” to the diagnosis

Nomenclature Issue # 2

Serous Borderline
Tumor (Serous
Tumor of Low
Malignant Potential)

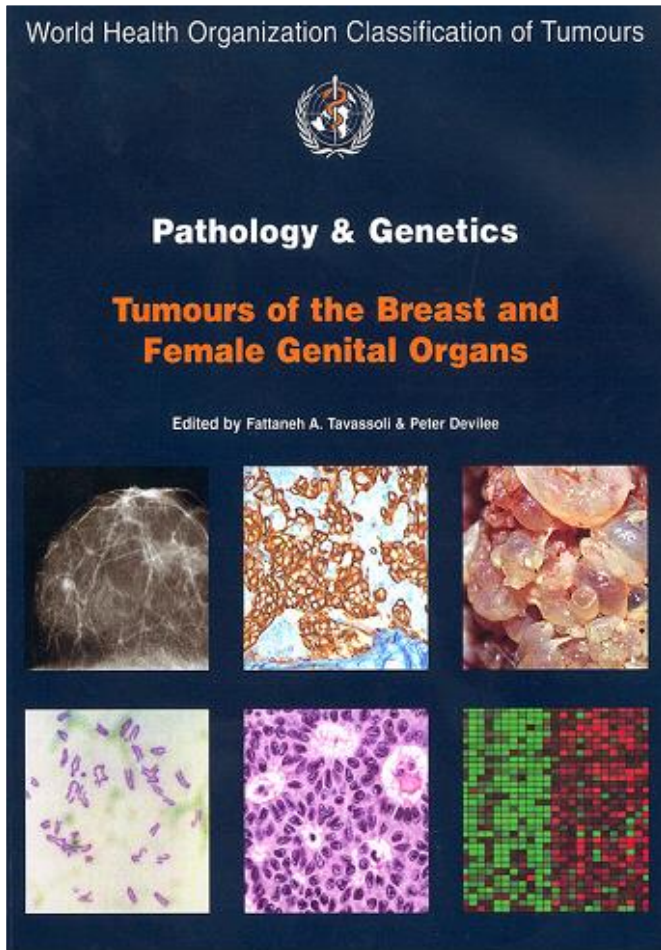
versus

Atypical Proliferative
Serous Tumor

Constant Change in the Nomenclature

- Taylor (1929) → Epithelial Semimalignant Tumor
- FIGO (1961) → ~~Cystadenocarcinoma~~ of Low Malignant Potential
- WHO (1973) → Borderline Tumor or Tumor of Low Malignant Potential
- Russell (1982) → Proliferative Tumor
- Kurman (1993) → Atypical Proliferative Tumor

WHO (2003) → Serous Borderline Tumor (Serous Tumor of Low Malignant Potential)



- It is not advisable to use the term “Atypical Proliferative Tumor”
 - Problems to obtain staging
 - Some cases evolve to carcinoma
 - A few cases have involvement of extra-abdominal or extra-pelvic sites after the initial dx

Nomenclature

Serous borderline tumour / Atypical proliferative serous tumour

Definition

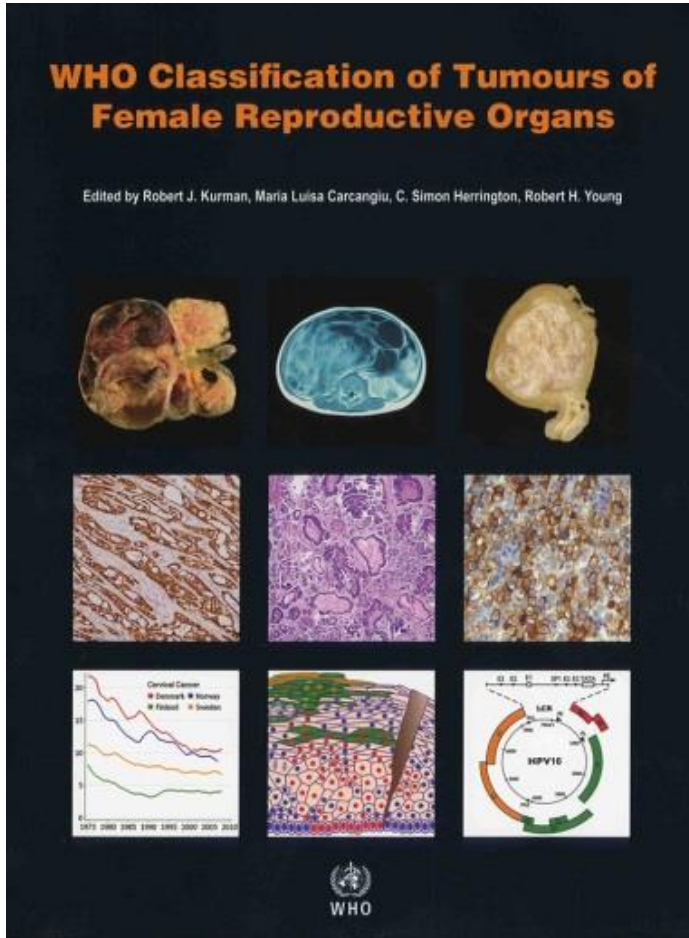
Serous borderline tumours/atypical proliferative serous tumours (SBT/APSTs) are non-invasive tumours that display greater epithelial proliferation and cytological atypia than benign serous tumours but less than low-grade serous carcinoma (LGSC).

ICD-O code

8442/1

Synonym

Serous tumour of low malignant potential
(not recommended)



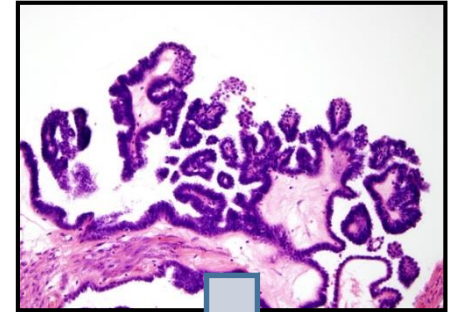
2014

Ovarian Serous Borderline Tumor



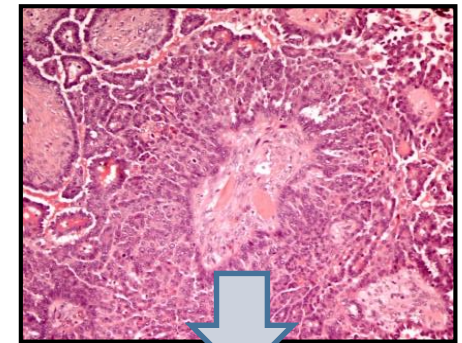
Dr. Robert Kurman

Good Actor



Atypical Proliferative
Serous Tumor

Bad Actor

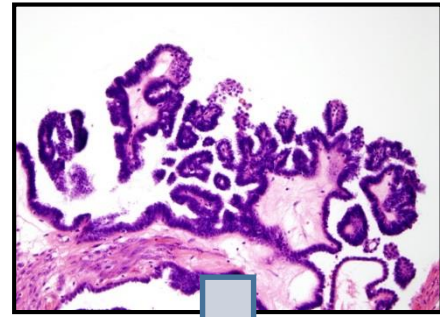


Non-Invasive Low Grade
Serous Carcinoma

Ovarian Serous Borderline Tumor/Serous Tumor of Low Malignant Potential vs. Atypical Proliferative Serous Tumor

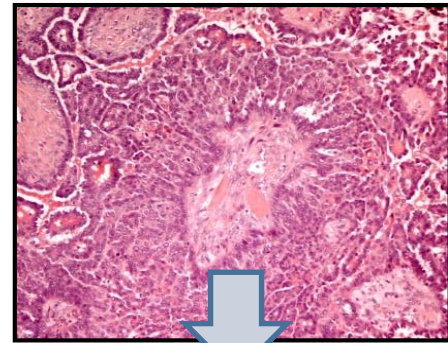
Life will be perfect if we could apply this algorithm to all cases

Good Actor



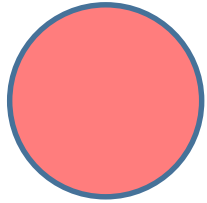
Atypical Proliferative Serous Tumor

Bad Actor

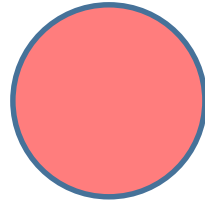


Non-Invasive Low Grade Serous Carcinoma

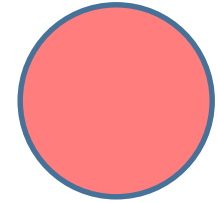
Multifocality in Serous Neoplasms of the Gynecological Tract



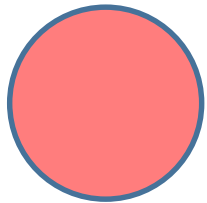
Ovary, serous borderline tumor



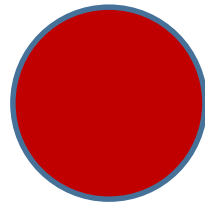
Peritoneum, implant



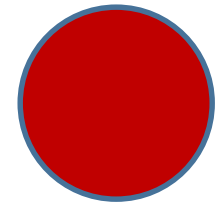
Lymph node, involvement



Ovary, serous borderline tumor



Peritoneum, low grade serous carcinoma



Lymph node, low grade serous carcinoma

Ovarian Serous Borderline Tumor/Serous Tumor of Low Malignant Potential vs. Atypical Proliferative Serous Tumor

ORIGINAL ARTICLE

The Recurrence and the Overall Survival Rates of Ovarian Serous Borderline Neoplasms With Noninvasive Implants is Time Dependent

Elvio G. Silva, MD, David M. Gershenson, MD,† Anais Malpica, MD,* and Michael Deavers, MD**

Am J Surg Pathol, November 2006

Serous Tumors Involving Extra-abdominal/Extra-pelvic Sites After the Diagnosis of an Ovarian Serous Neoplasm of Low Malignant Potential

Anais Malpica, M.D., Michael T. Deavers, M.D., David Gershenson, M.D., Guillermo Tortolero-Luna, M.D., Ph.D., and Elvio G. Silva, M.D.

Am J Surg Pathol 25(8): 988–996, 2001.



ORIGINAL ARTICLE

Ovarian Serous Tumors of Low Malignant Potential (Borderline Tumors)

*Outcome-Based Study of 276 Patients With Long-Term
(≥ 5 -Year) Follow-Up*

*Teri A. Longacre, MD, Jesse K. McKenney, MD, Henry D. Tazelaar, MD,
Richard L. Kempson, MD, and Michael R. Hendrickson, MD*

(Am J Surg Pathol 2005;29:707–723)

- 6.8% of the cases progressed to low grade serous carcinoma
- Interval: 7 to 288 months (58% ≥ 60 months)

Counterpoints

- Clinicians cannot catch up with this periodic change of nomenclature
- How can we ensure staging, a very important prognostic factor, if we designate a tumor as “atypical proliferative tumor”?
- The aggressive treatments used in the past are not longer used
- What are the expectations of the patients who received this diagnosis?

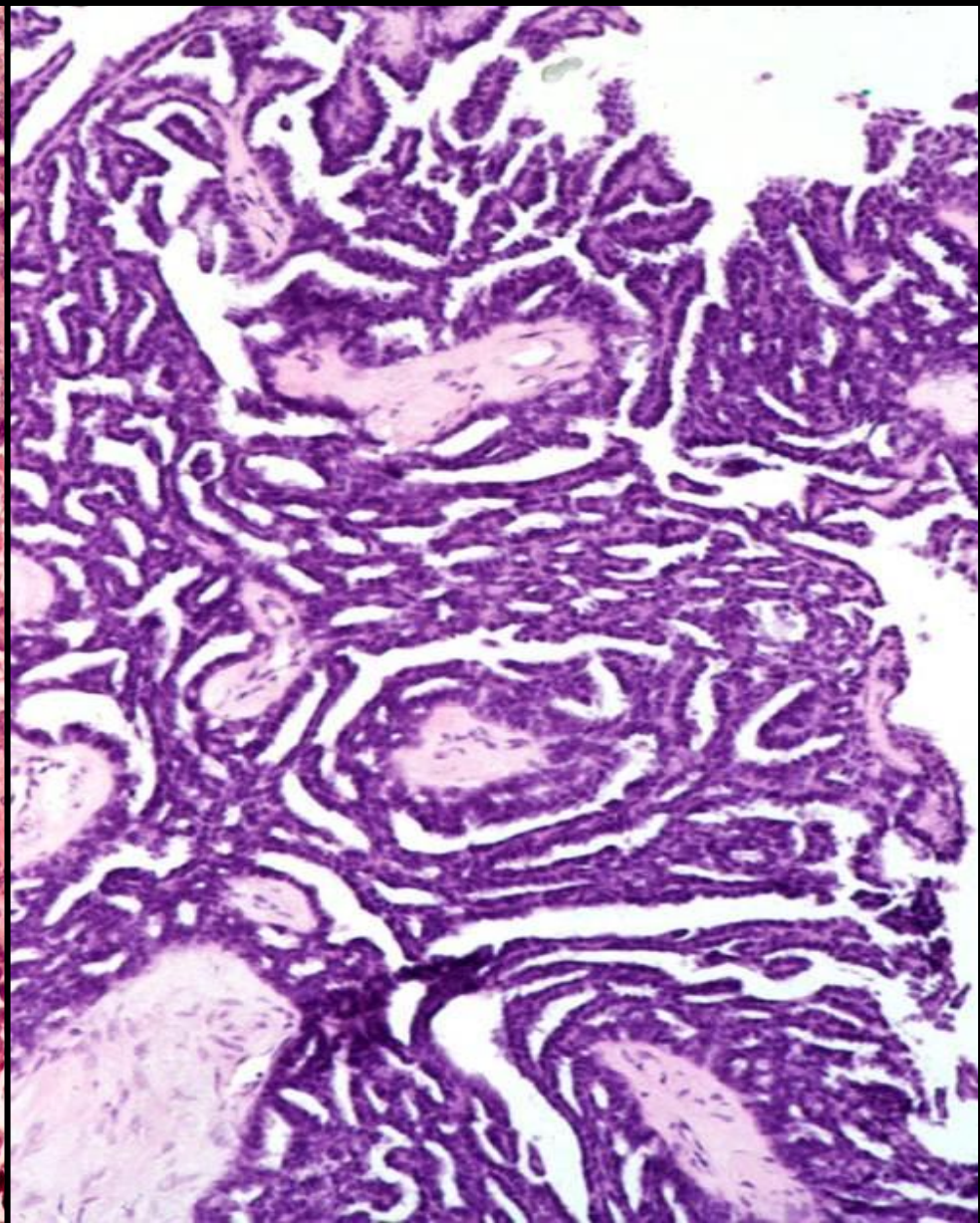
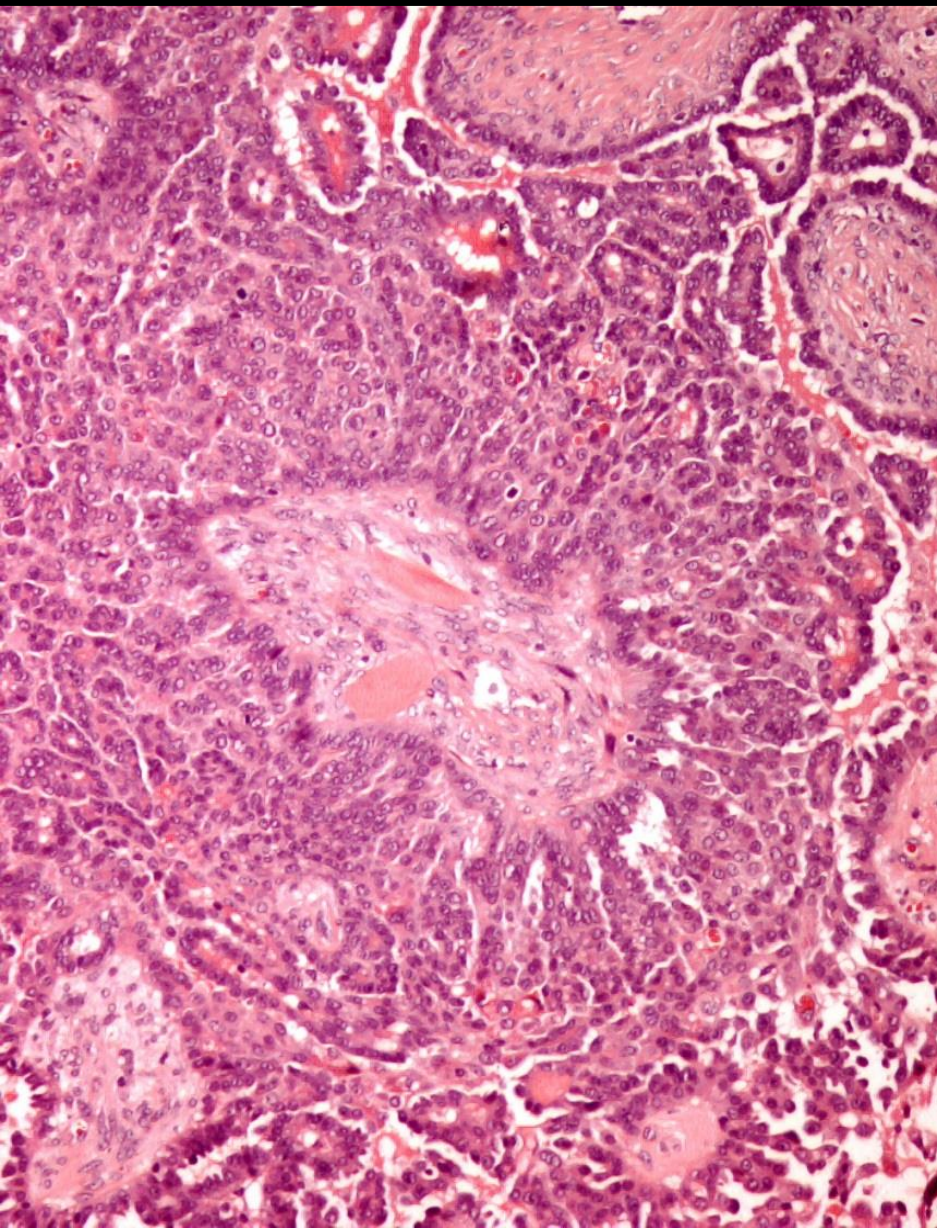
Nomenclature Issue # 3

Serous Borderline
Tumor (Serous Tumor of
Low Malignant Potential)
with a
Micropapillary/Cribriform
Pattern

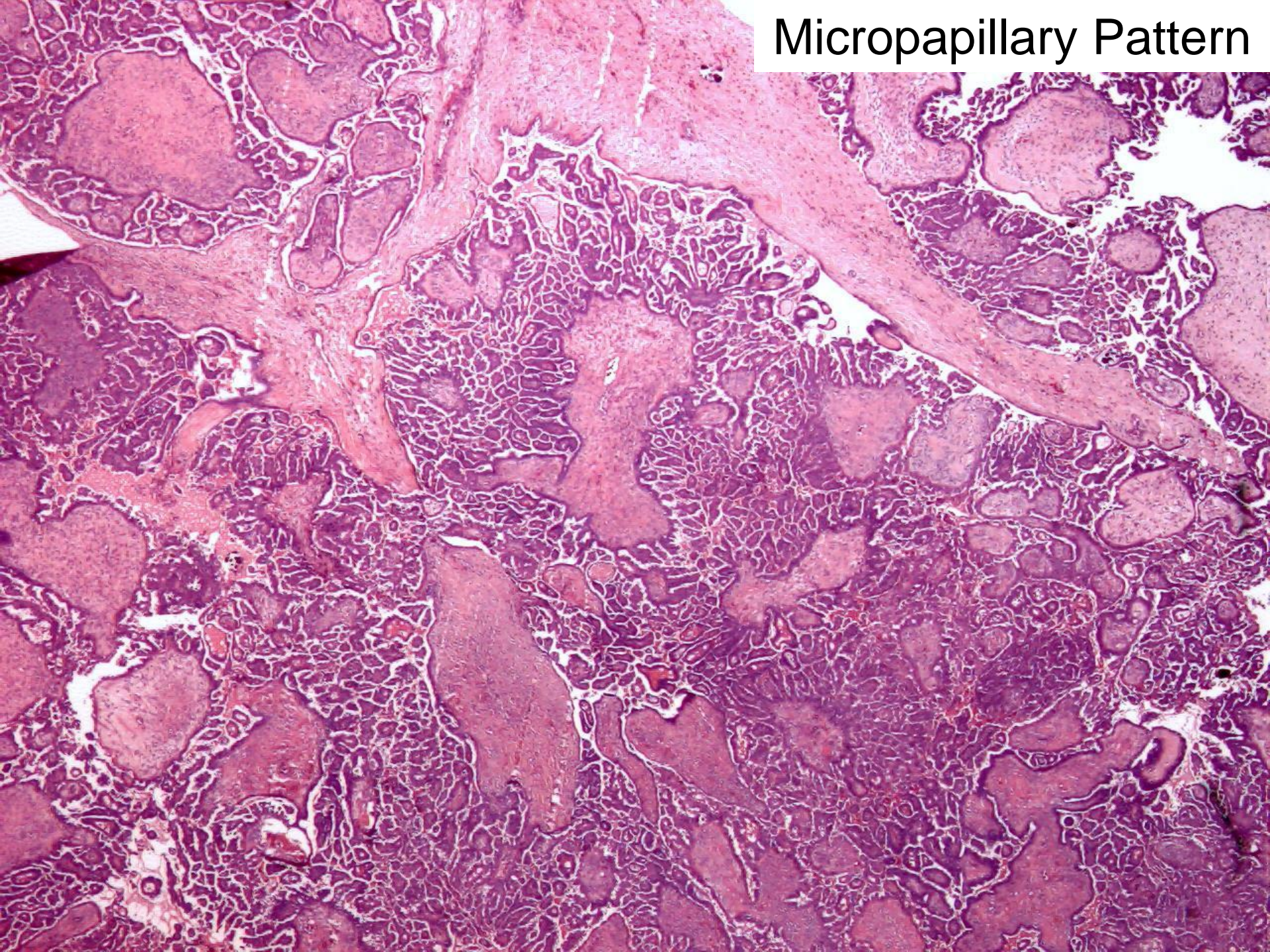
versus

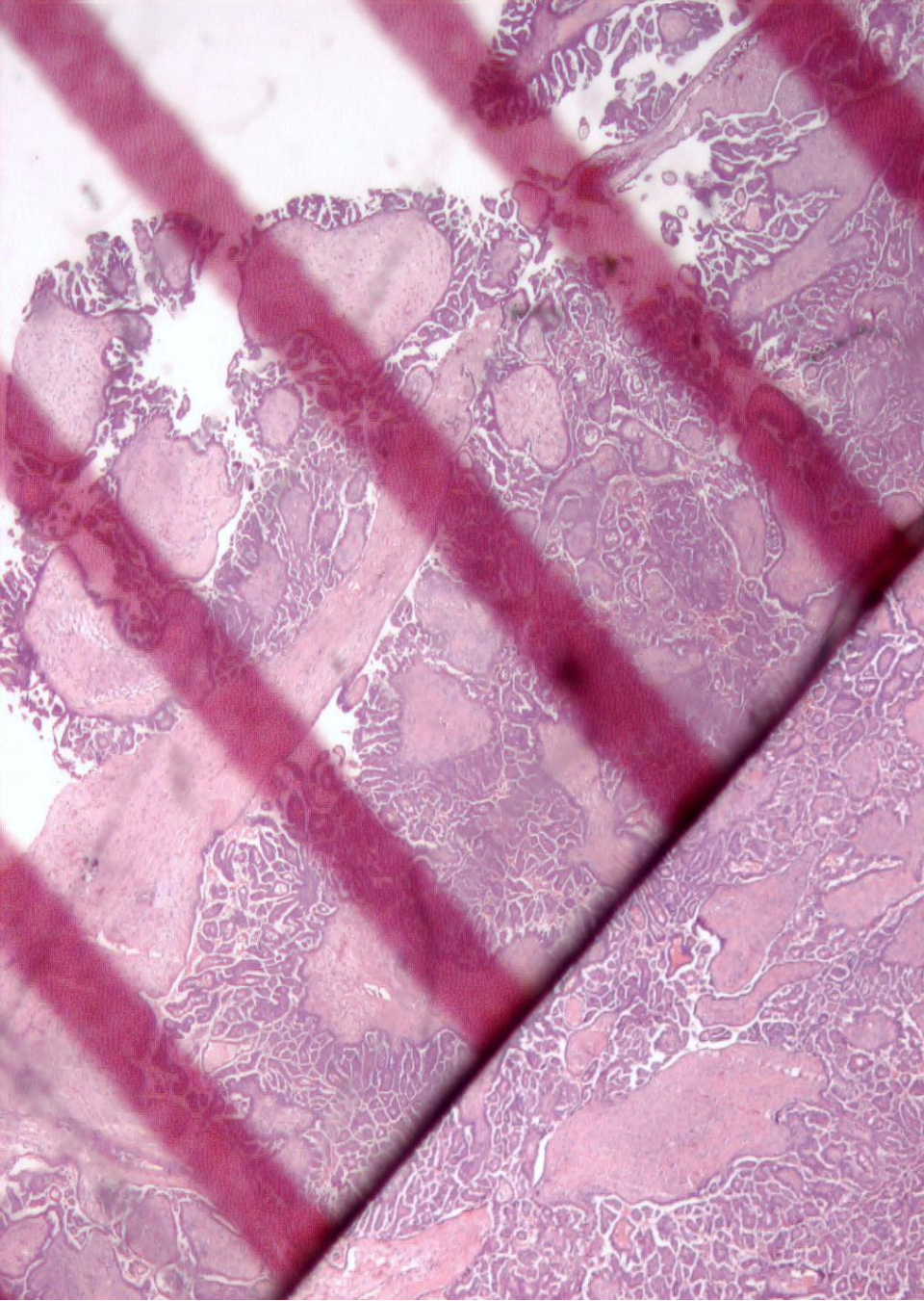
Non-Invasive
Low Grade
Serous
Carcinoma

Serous Borderline Tumor (Serous Tumor of Low Malignant Potential) with a Micropapillary/Cribriform Pattern

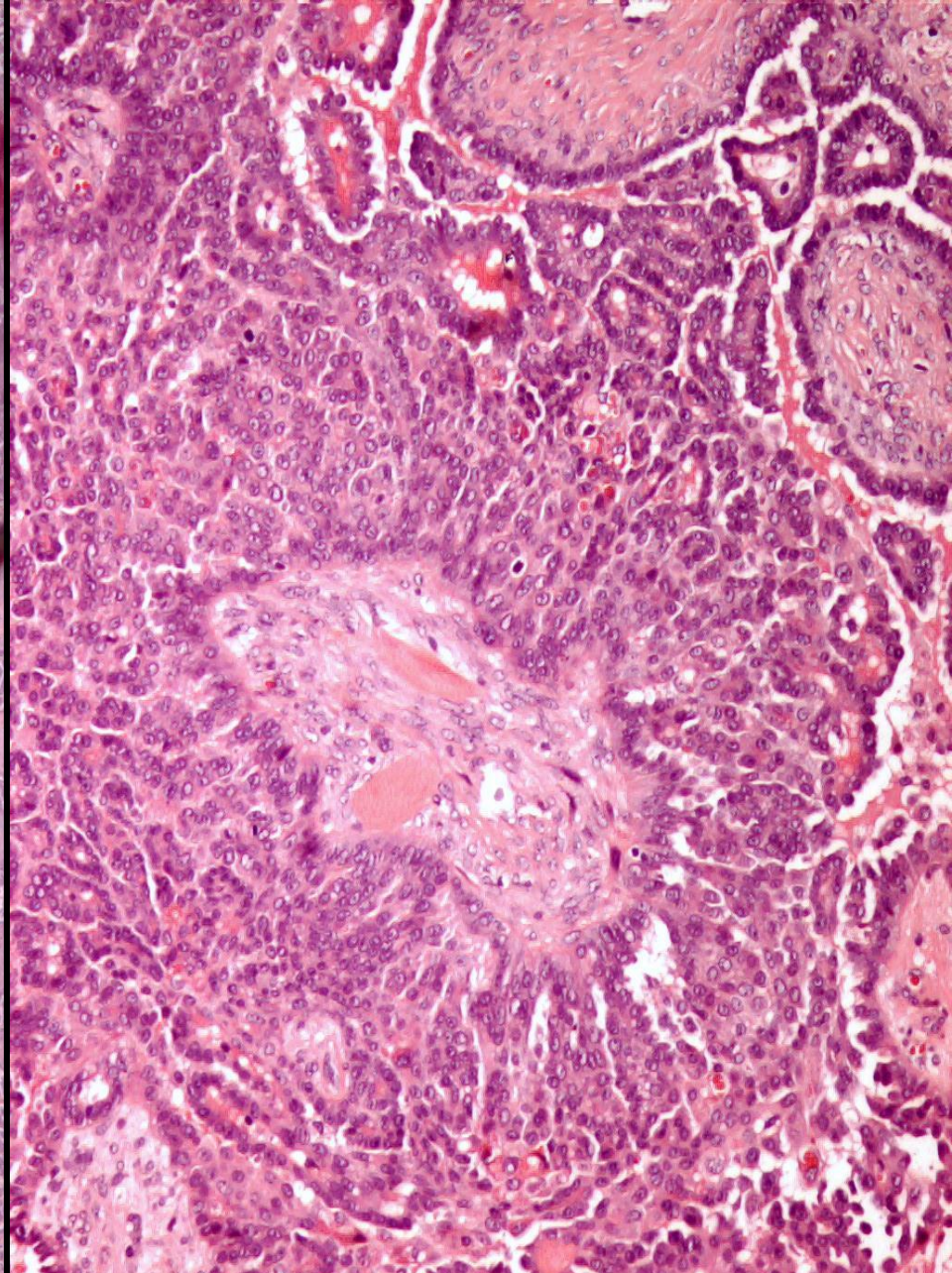


Micropapillary Pattern



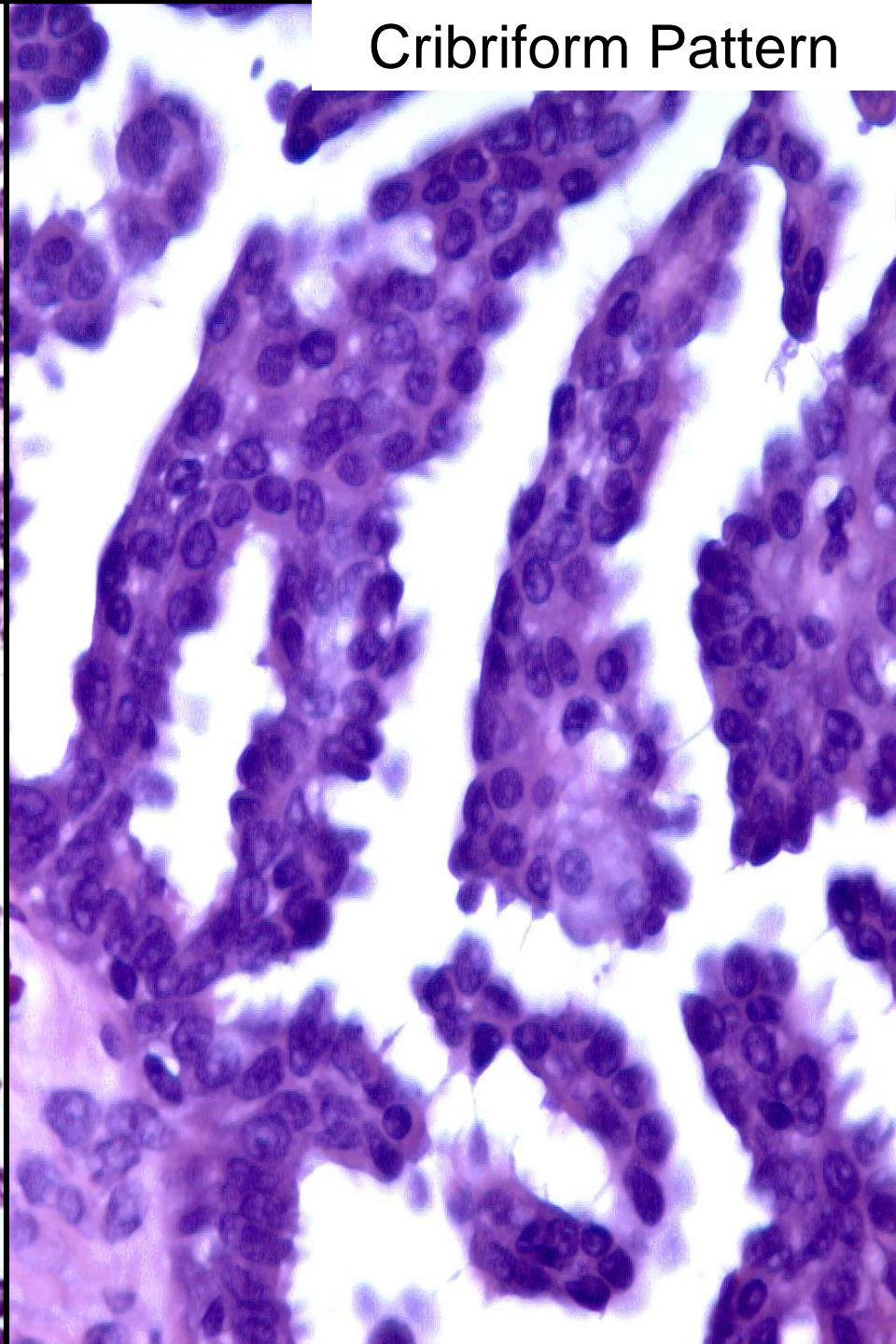
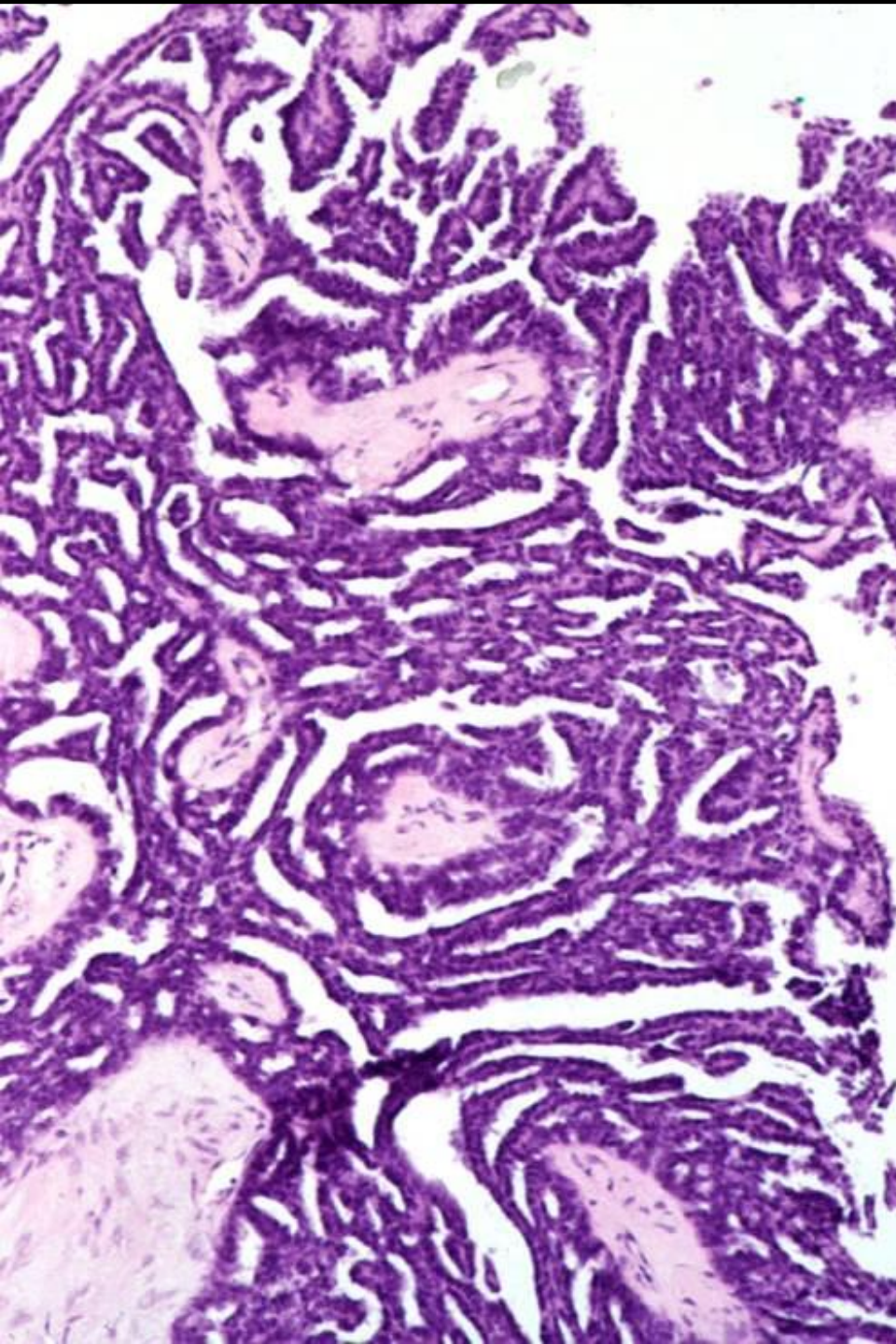


Size = 5mm, one dimension



Epithelial papillae with a length ≥ 5 the width of the papillae

Cribriform Pattern



Ovarian Serous Borderline Tumor/Serous Tumor of Low Malignant Potential with a Micropapillary/Cribriform Pattern

- ↑ bilaterality
- ↑ exophytic growth on the ovarian surface
- ↑ advanced stage disease
- ↑ recurrences

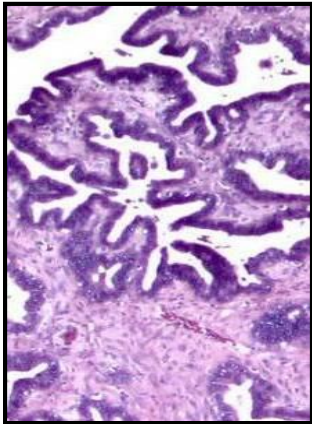
Counterpoints

- Clinicians cannot catch up with this periodic change of nomenclature
- The clinicopathologic features that characterize this type of tumor have to be known by clinicians and pathologists
- It has to be kept in mind that both types of borderline tumors –classic and micropapillary/cribriform- can progress to serous carcinoma

99 cases of advanced stage ovarian serous tumor of low malignant potential and long term follow up



18 cases Serous LMP with MP/CP



81 classic Serous LMP cases

14 (78%) cases with progression or recurrence

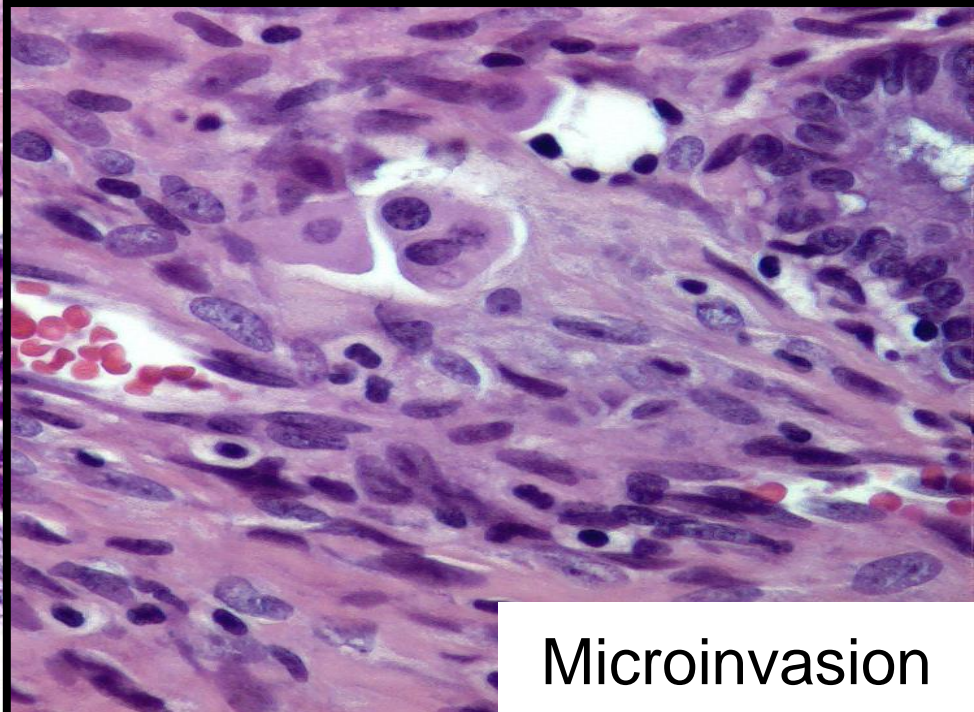
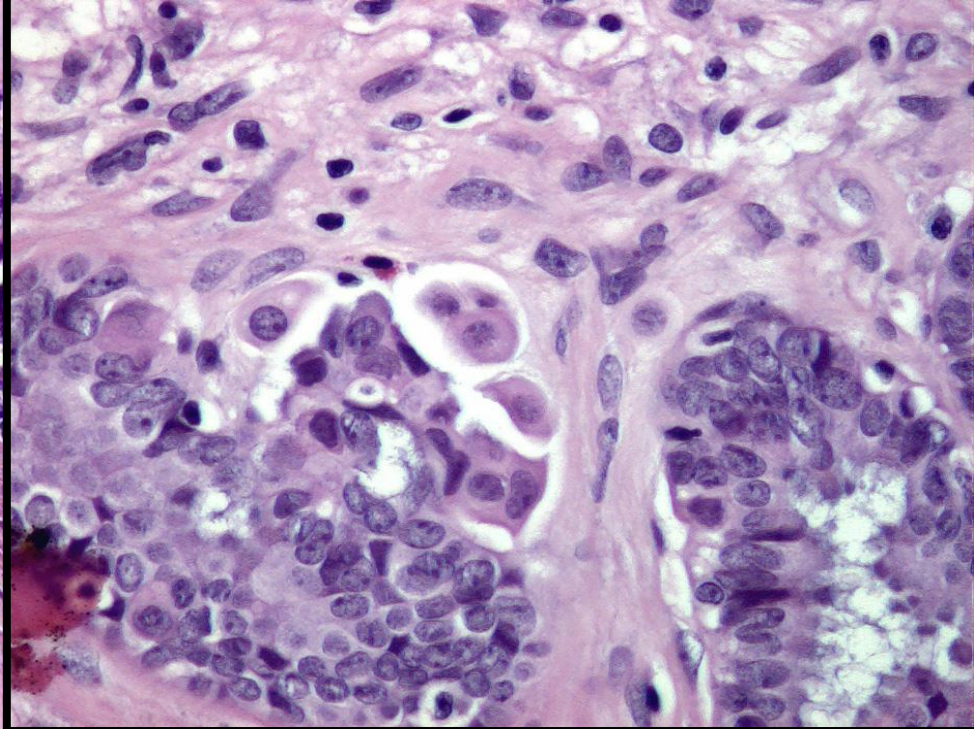
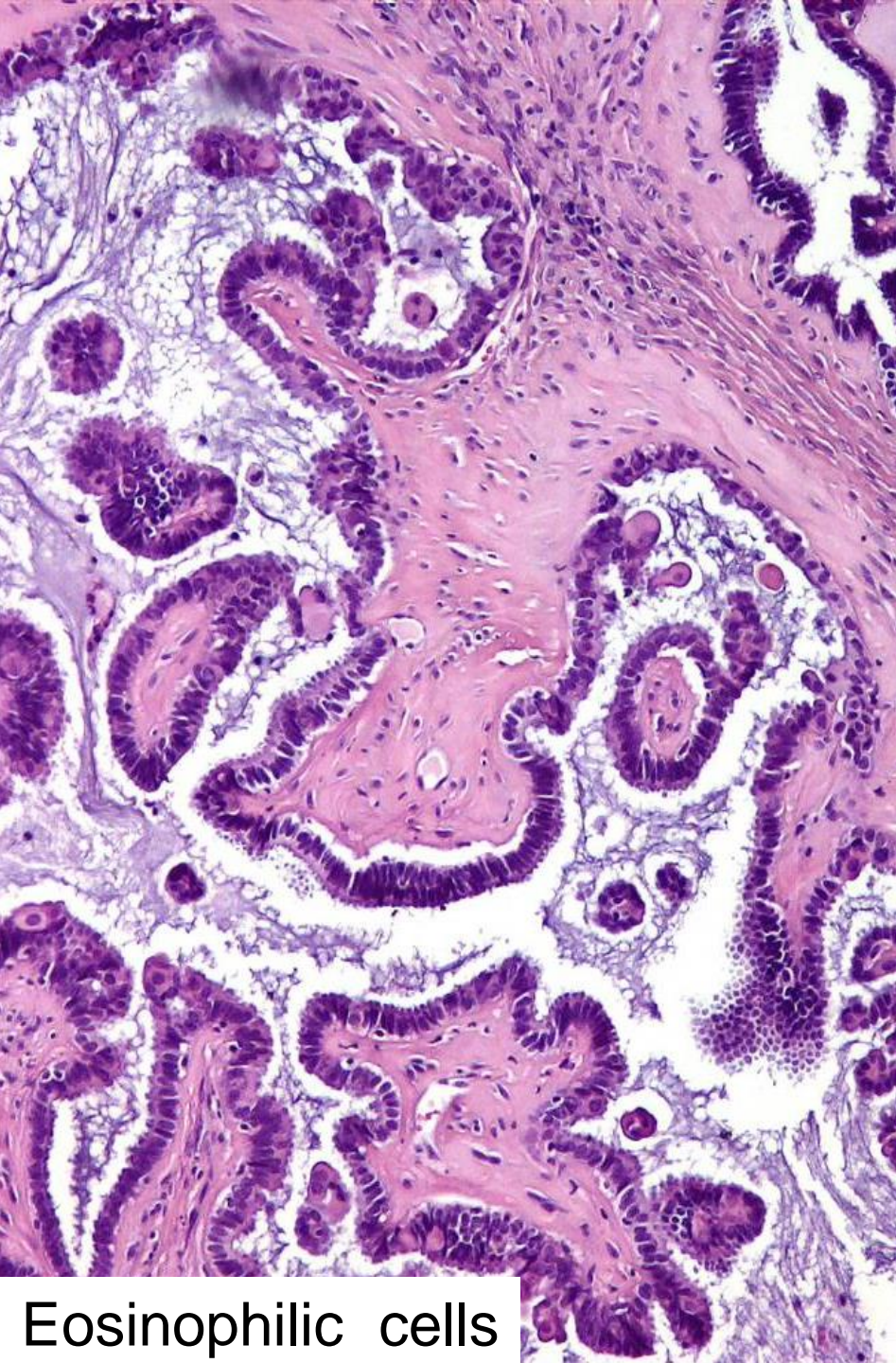
25 (31%) cases with progression or recurrence

11 (79%) cases with low grade serous carcinoma

17 (68%) cases with low grade serous carcinoma

Serous Borderline Tumor

- Microinvasion
 - Invasion in the stroma of the tumor ≤ 3 mm without stromal reaction
 - < 5 mm (WHO 2014)
 - Incidence
 - Stage I, 10-18%
 - Stages II-III-IV, 55%
 - Pregnant patients, 75%

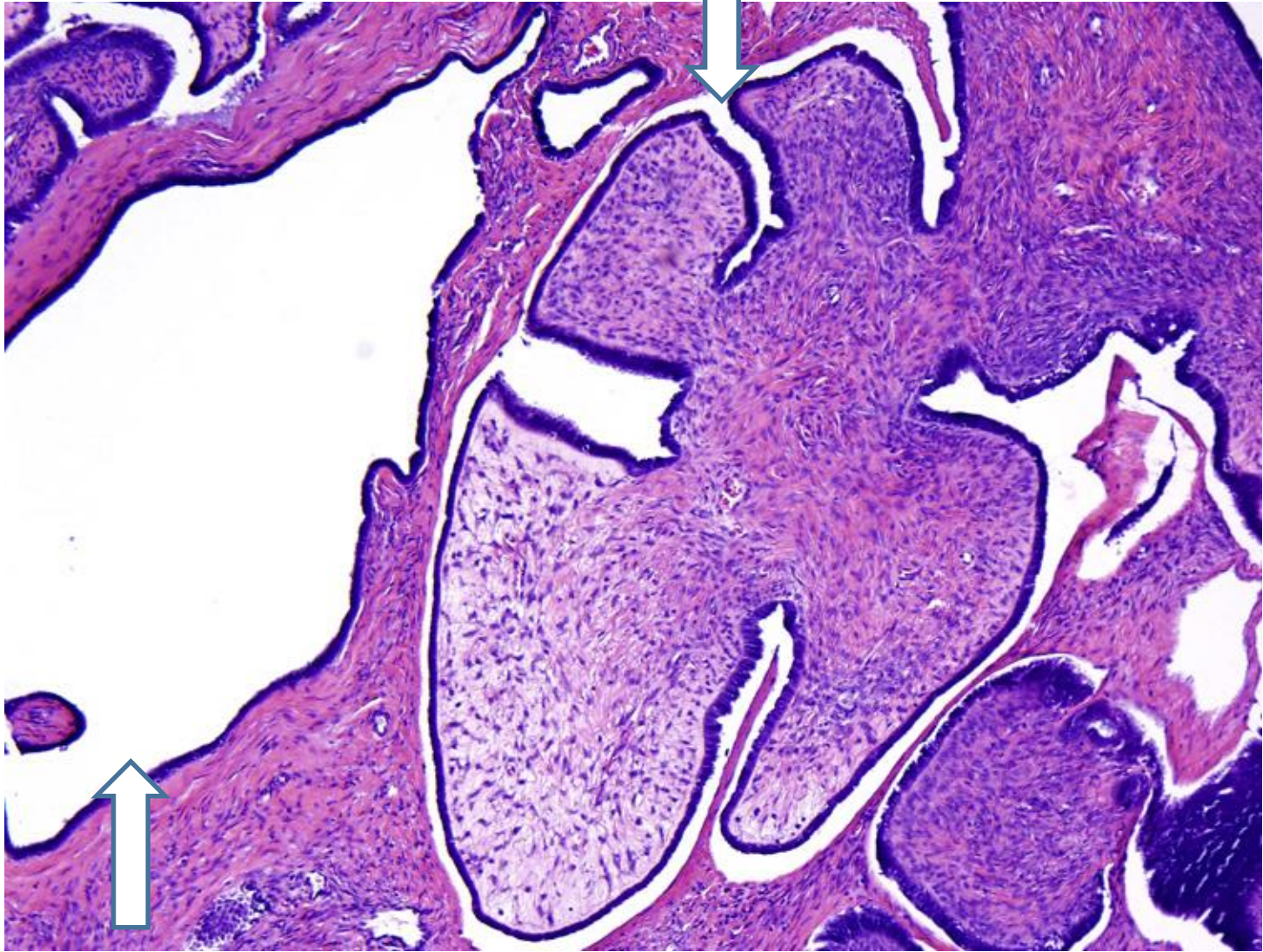


Eosinophilic cells

Microinvasion

Be careful

Spaces in areas of invasion lack lining epithelium



Tangentially cut cystic space,
note the lining epithelium

Lineal dimension $\leq 3\text{mm}$
Obtain recuts and submit additional sections to rule
out definitive invasion (low grade serous carcinoma)

Serous Borderline Tumor

- Microinvasion
 - In initial studies, it appeared not to affect the prognosis
 - Longacre TA et al., 2005
 - Microinvasion correlated with a decrease in survival
 - Mc Kenney J et al, 2006
 - 18% of cases with F/U died of disease or had progression of disease
 - No adverse results in pregnant patients

1202 Microinvasion in Ovarian Serous Tumor of Low Malignant Potential – Does It Matter?

RP Masand, A Malpica, P Ramalingam. Baylor College of Medicine, Houston, TX; MD Anderson Cancer Center, Houston, TX.

Background: The significance of microinvasion (MI) in ovarian serous tumors of low malignant potential (OV-SLMP) is controversial. Early reports indicated that OV-SLMP with MI were of low stage with favorable outcome and associated with pregnancy. Subsequent studies have shown that MI in OV-SLMP was associated with higher stage disease, disease progression and/ or death due to disease. The aim of this study is to present our experience with cases of MI in typical OV-SLMP.

Design: 31 cases of OV-SLMP with MI and follow-up were retrieved from our files over a period of 16 years (1995-2010). Cases with micropapillary/cribriform pattern (MP/CP) were excluded. The following parameters were recorded: patients' (pts) age, pregnancy status, tumor size and laterality, ovarian surface involvement, focal vs multifocal MI, non-invasive vs invasive implants, stage of disease and outcome.

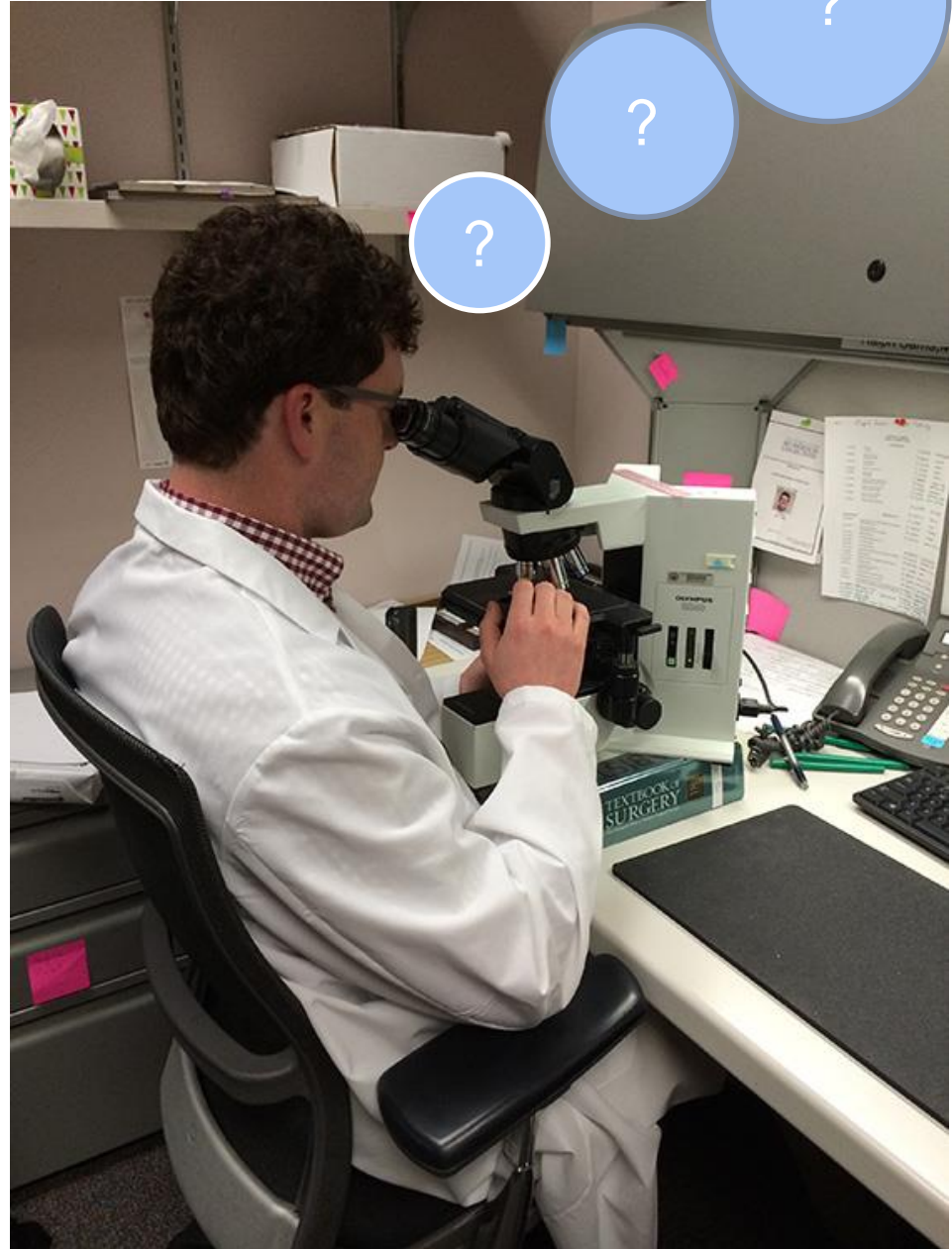
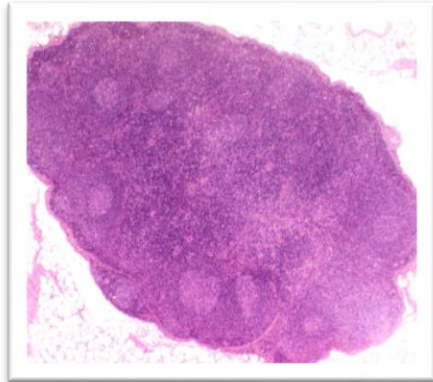
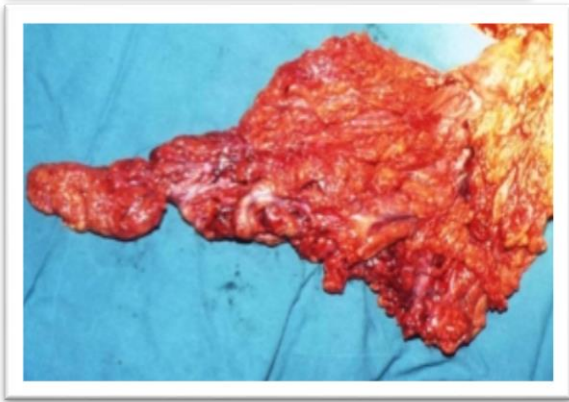
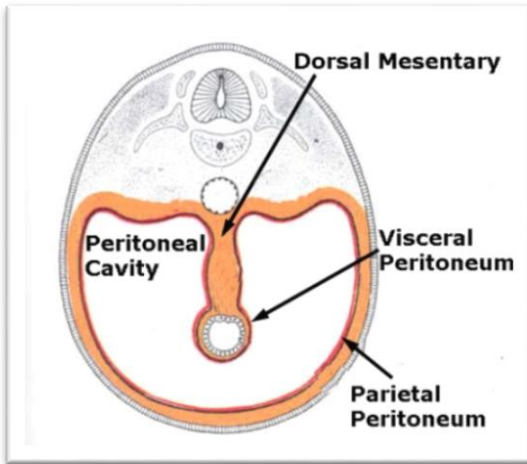
Results: Pts' age ranged from 18-82 yrs (median 47yrs). 2 pts were pregnant. Tumor size ranged from 2.5 cm to 25 cm (median 8.5cm); laterality was: left (6), right (9) and bilateral (16). Ovarian surface involvement was present in 10 cases and absent in 19 cases. In 2 cases, this information was not available. In 6 cases, MI was multifocal (MF), whereas in 25 cases, focal MI was seen. Cases were staged as follows: Stage I (11), Stage II (1), Stage III (12). No staging was performed in 7 cases. 7 patients had non-invasive implants (NI-IM), 6 had invasive implants (I-IM). Follow-up ranged from 6-261 months (median 58 months). 26 patients (84 %) were alive with no evidence of disease, 2 were alive with evidence of disease, 3 died of unrelated causes. One patient progressed to low grade serous carcinoma in 4 years, however she died of urothelial carcinoma. The 2 pregnant patients were alive with no evidence of disease at 27 and 106 months.

Conclusions: OV-SLMP with MI appears to be associated with bilaterality, ovarian surface involvement and advanced stage disease. Focal versus MF MI does not appear to correlate with clinical outcome. Only 2 pregnant patients were present in our study and had favorable outcomes as previously reported. An unexpected finding noted in our study was a higher incidence (46%) of invasive implants in these cases. Additional studies will be necessary to determine if this latter finding is truly associated with OV-SLMP with MI.

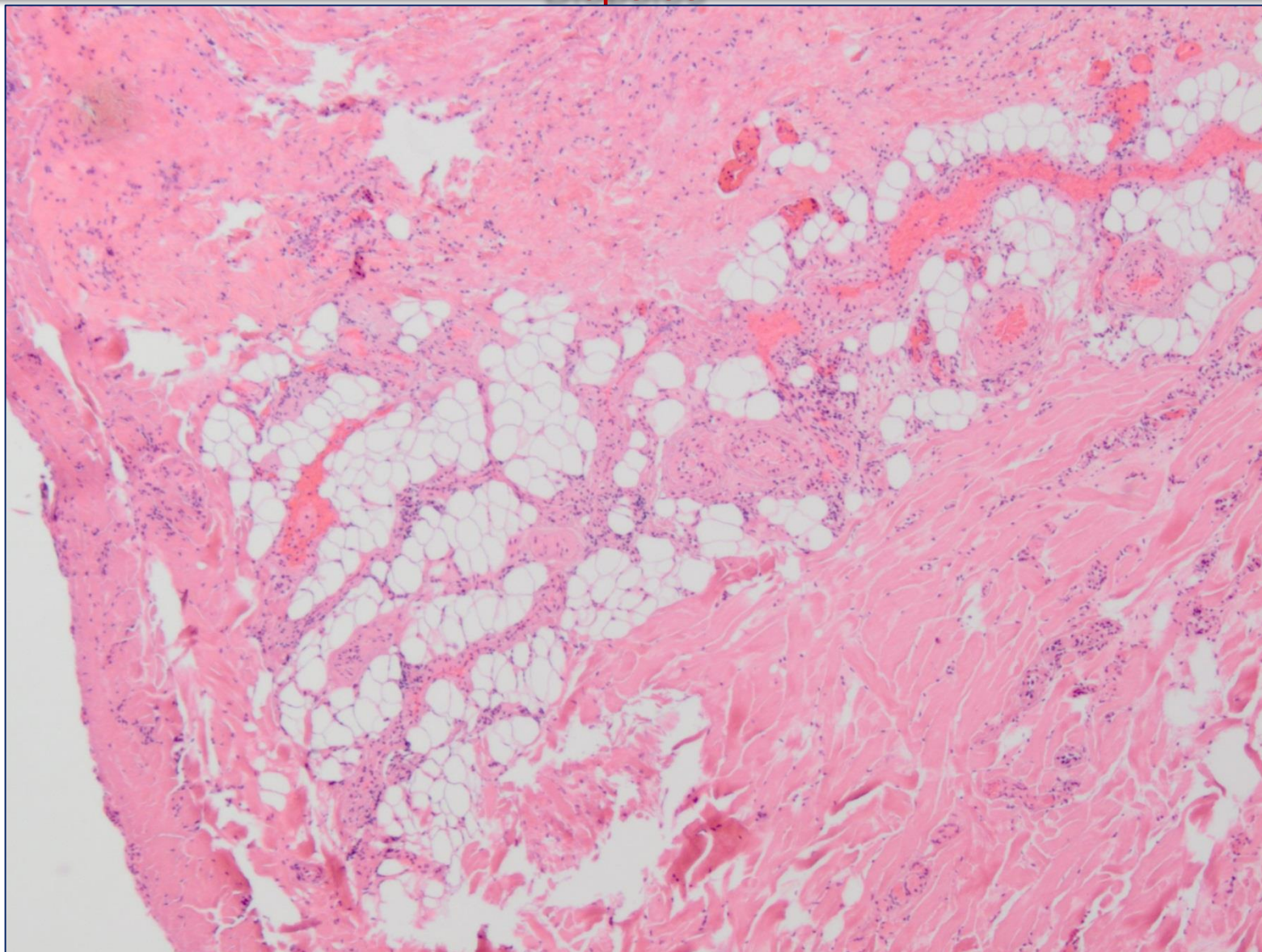


↑ Bilaterality
↑ Ovarian Surface
Involvement
↑ Advanced Stage

Staging Specimens

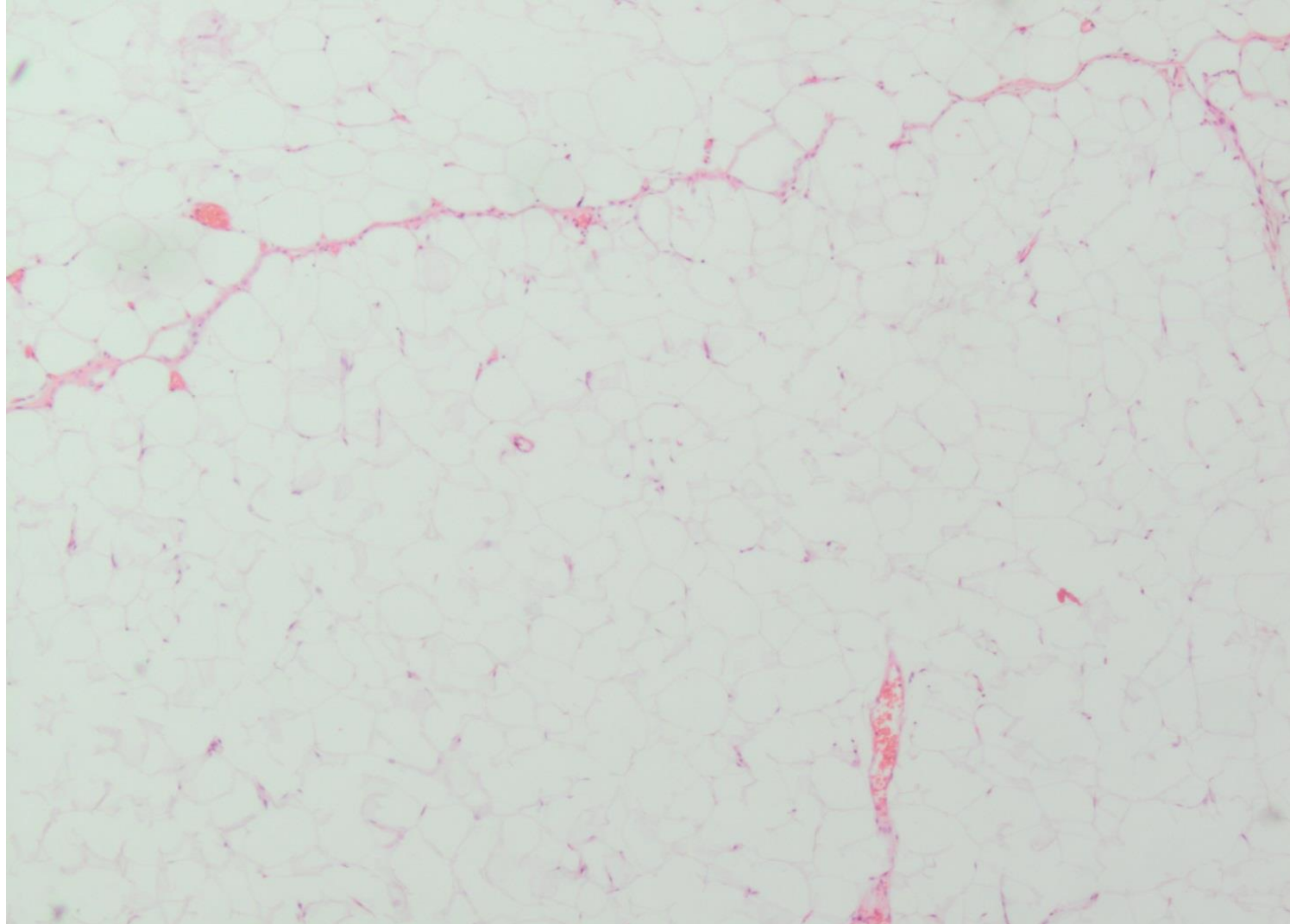


Looking for Extraovarian Disease: How to Handle the Pelvic Wall Biopsies



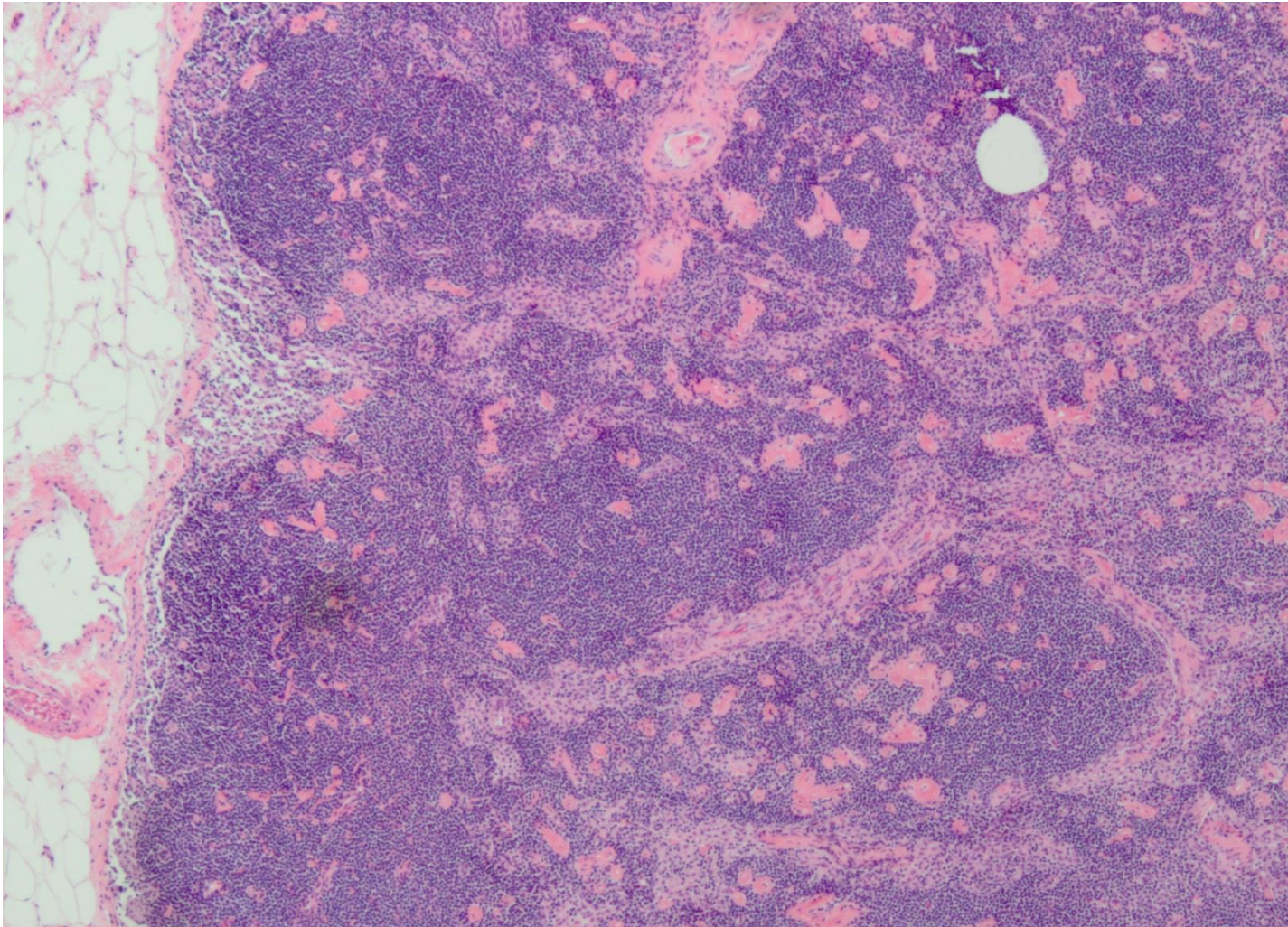
Pelvic wall tissue: 1) to be submitted in toto, 2) vessels can be prominent

Looking for Extraovarian Disease: How to Handle the Omentum



Omentum: 1) firm/gritty/nodular (1 section/cm greatest dimension), 2) unremarkable (1 section/2 cm greatest dimension)

Looking for Extraovarian Disease: How to Handle the Lymph Nodes



Lymph node: 1) to submit in toto; 2) to section at 2-3 mm intervals

What can you find in these specimens?

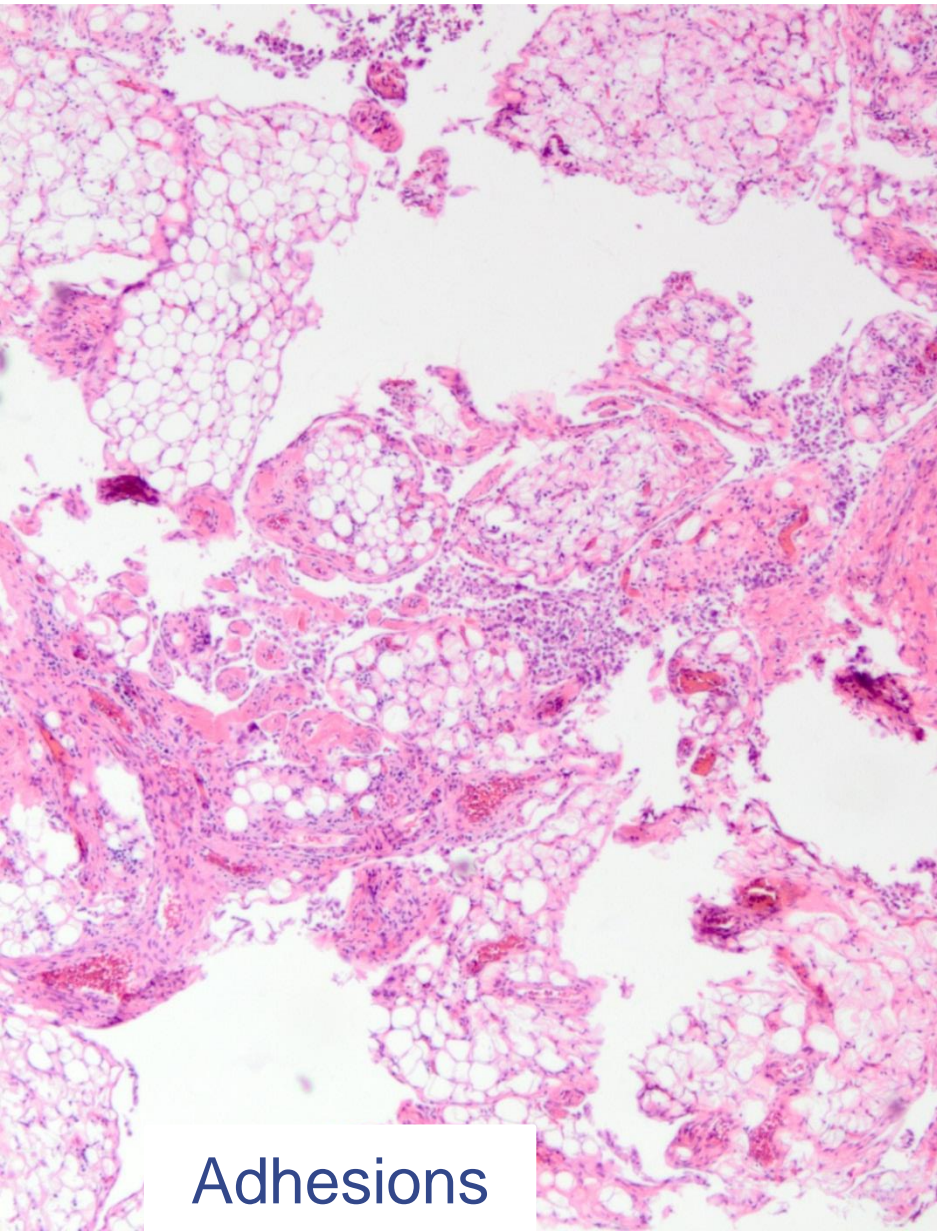
Nothing

Something that means nothing

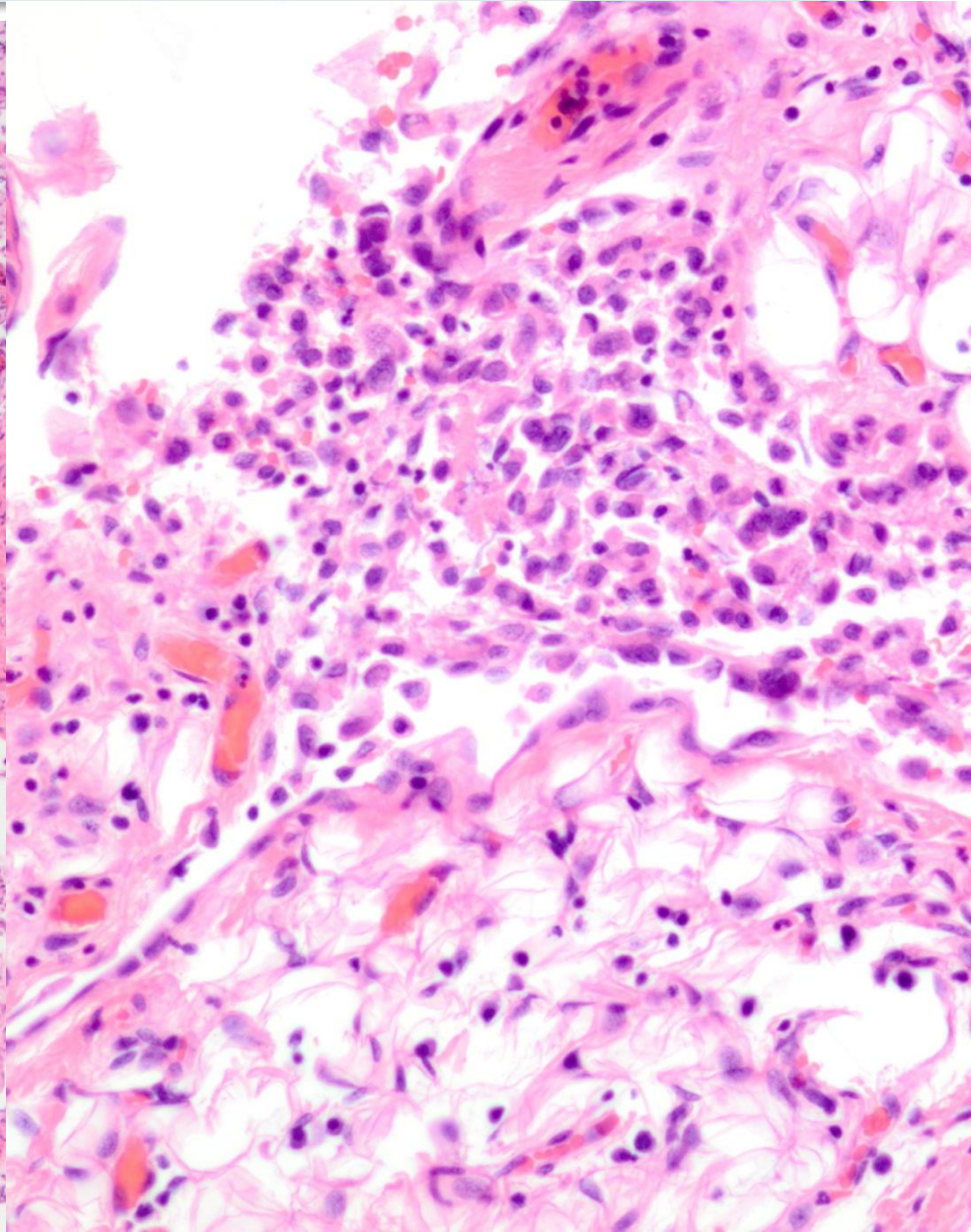
Something that indicates something, but is practically nothing

Something that means something

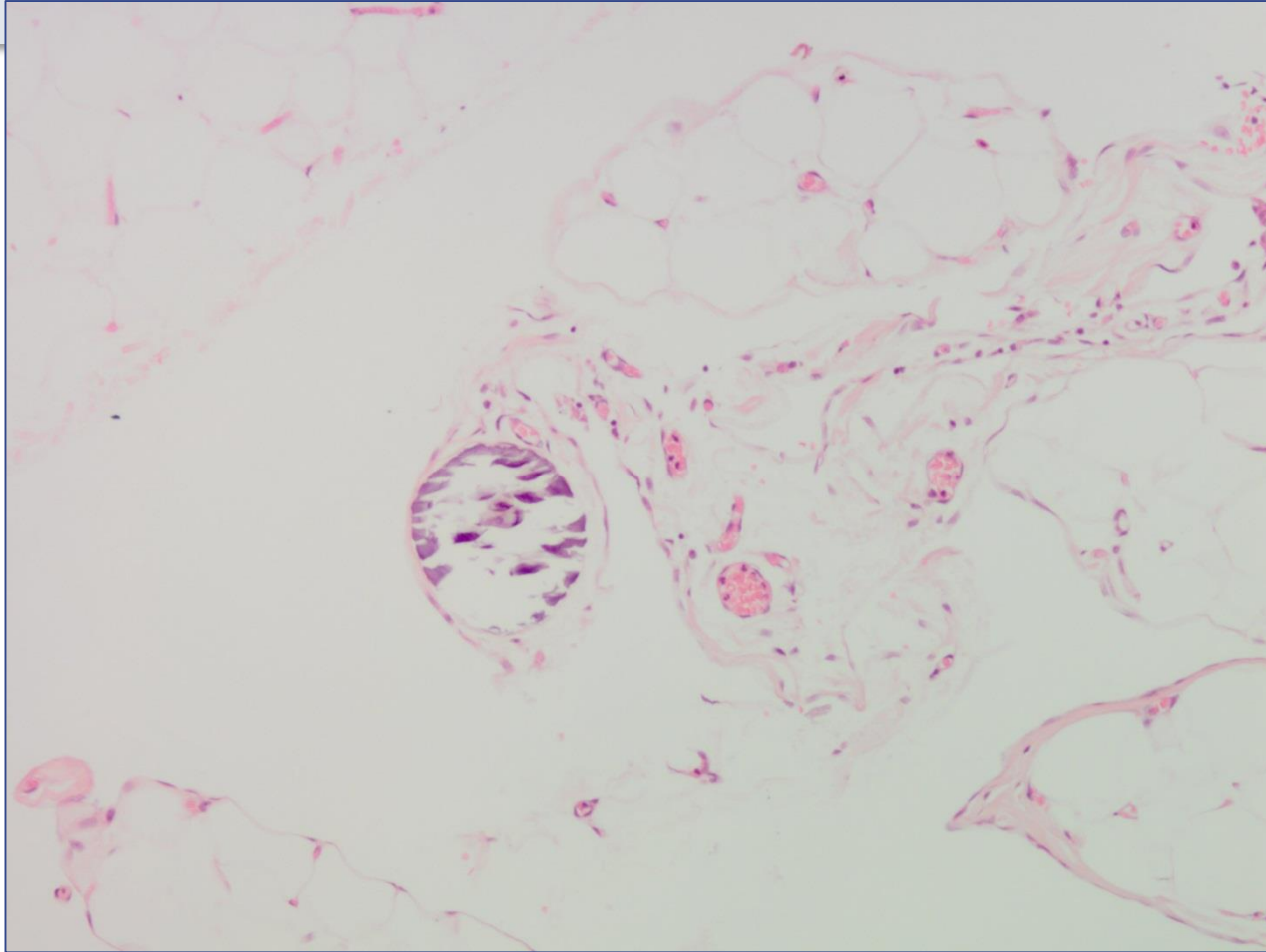
Something that means nothing



Adhesions



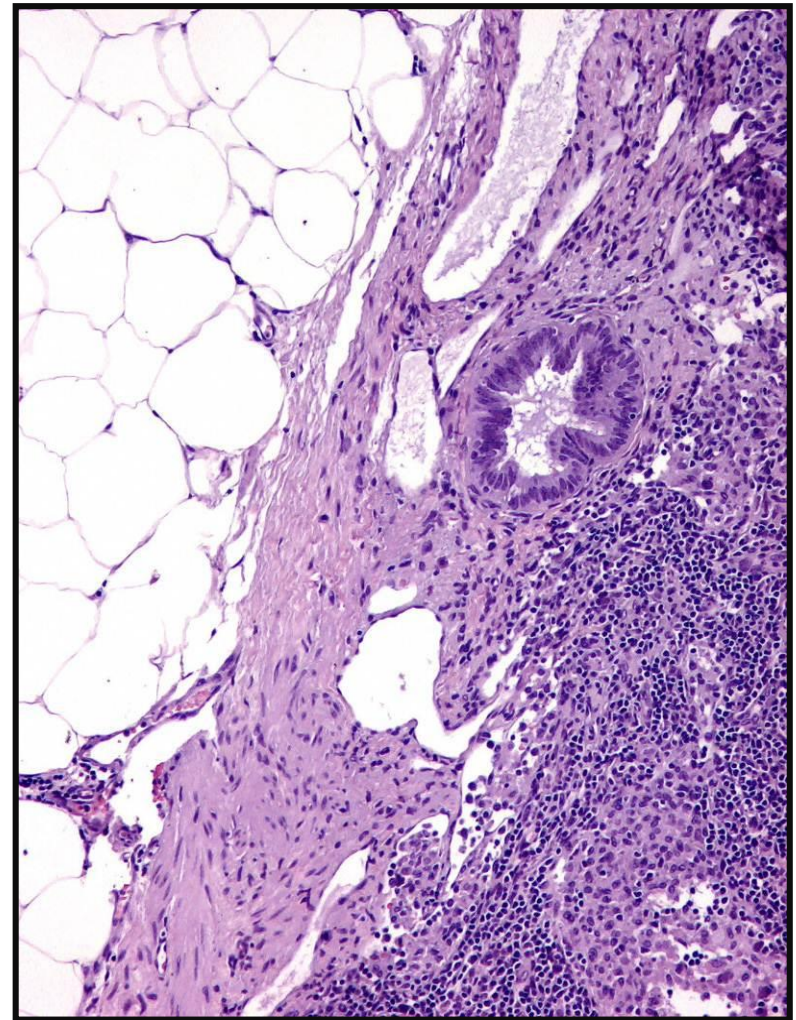
Something that means nothing



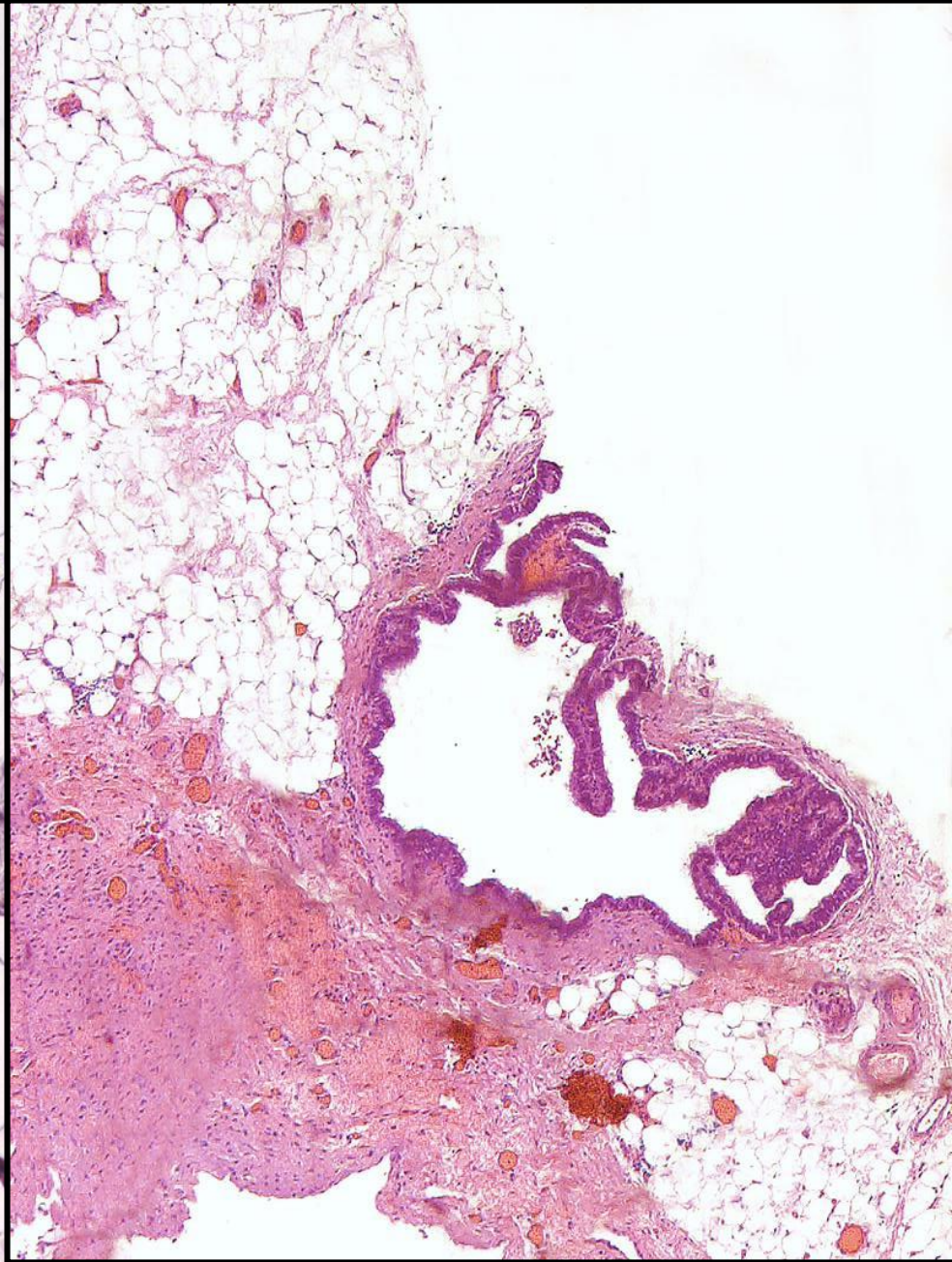
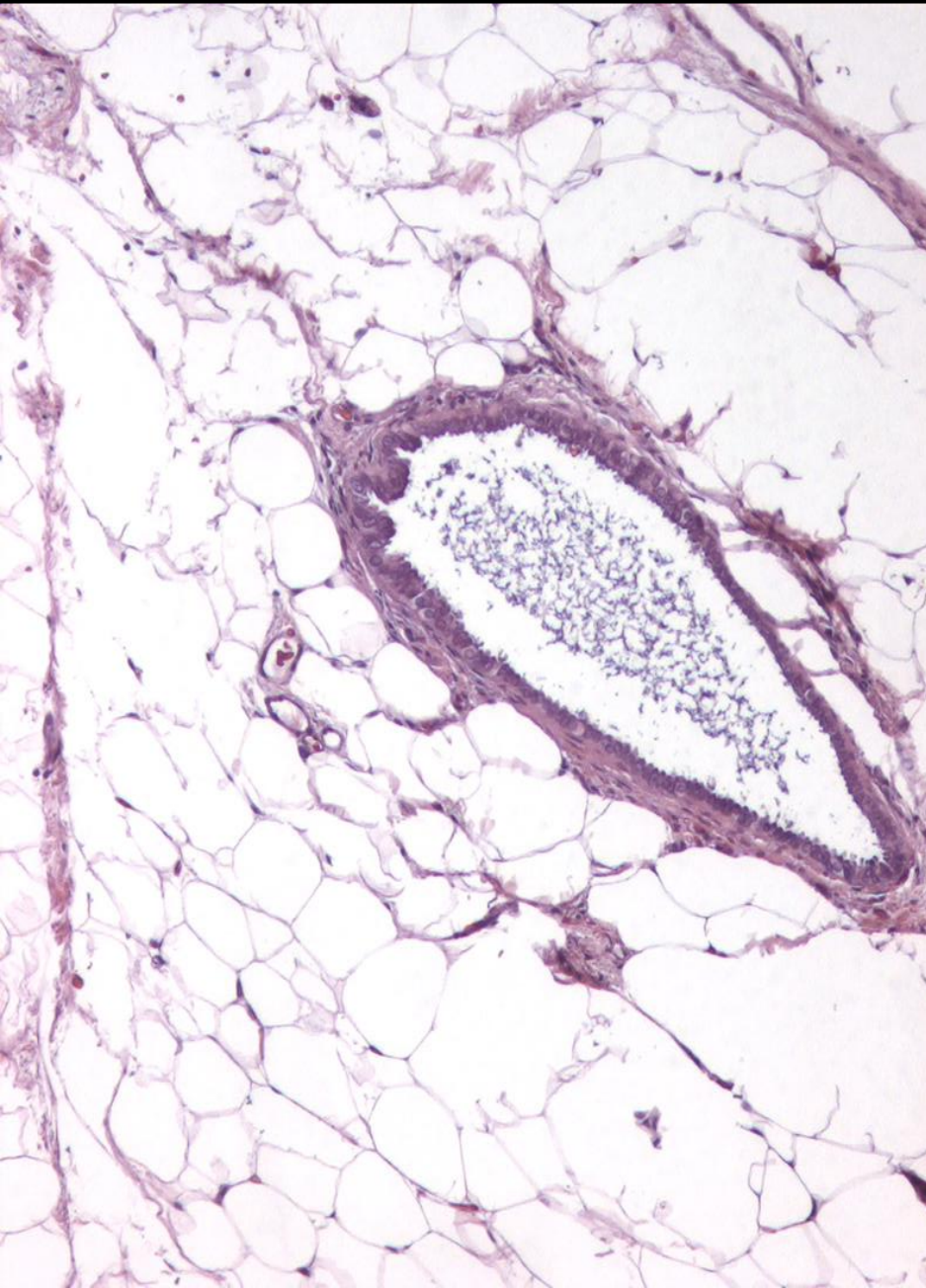
Rare psammoma bodies in a properly sampled specimen

Endosalpingiosis Associated with Ovarian Serous Borderline Tumor

- Peritoneal
 - In up 50% to 71% of the cases
- Lymph node
 - In up to 33% of the cases
 - In 58% to 63% of the cases with lymph node involvement by serous tumor of low malignant potential



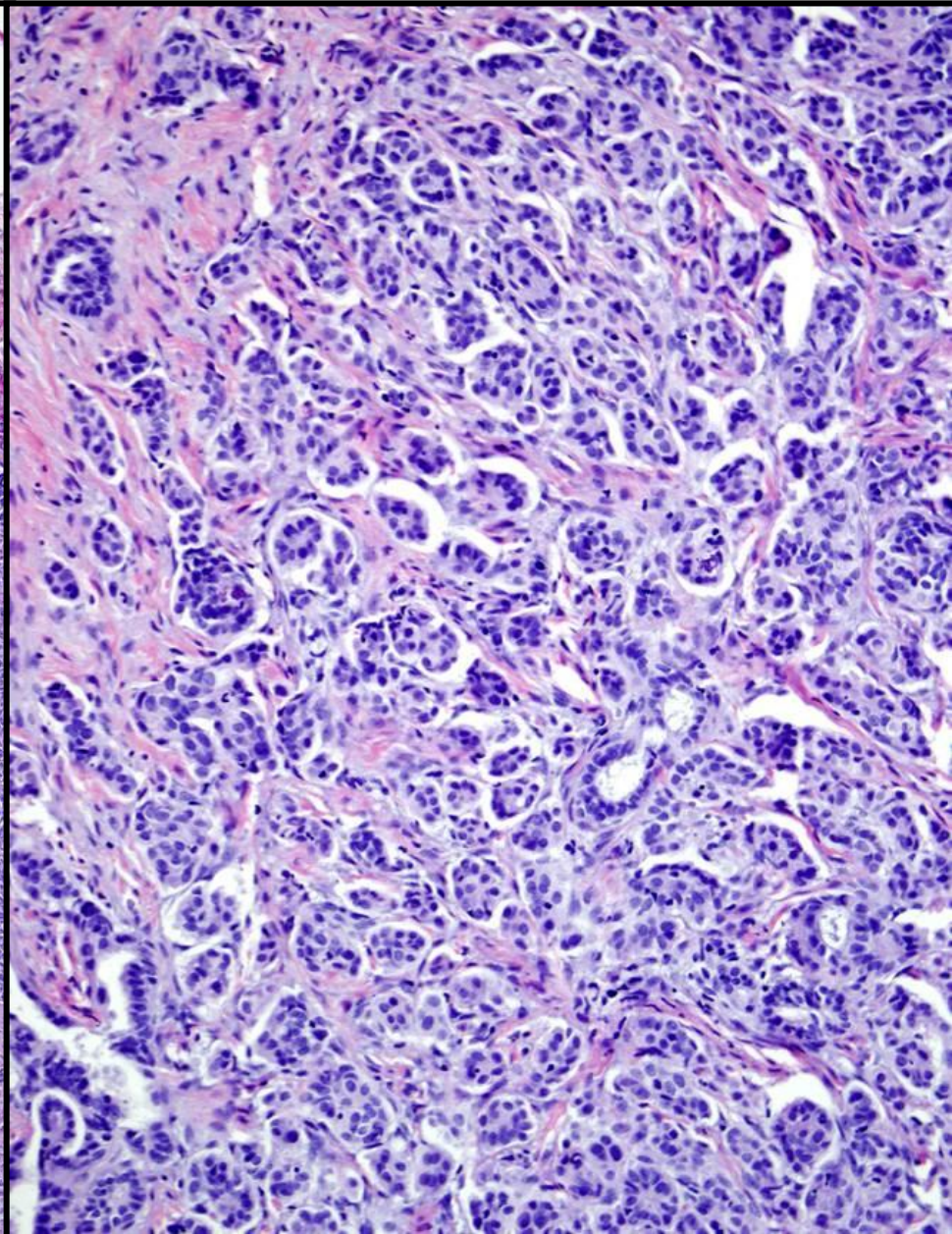
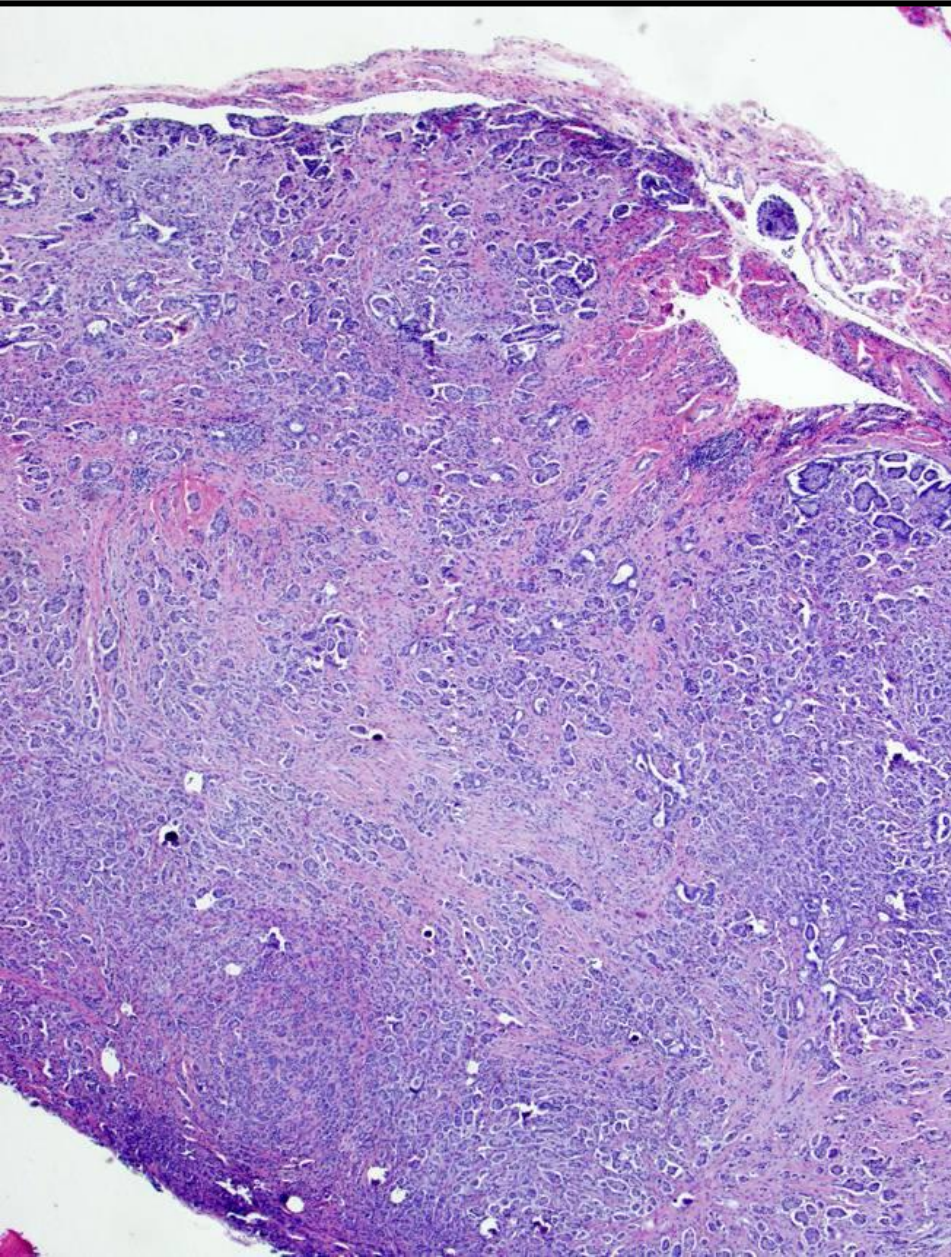
Endosalpingiosis in omentum, no cell detachment

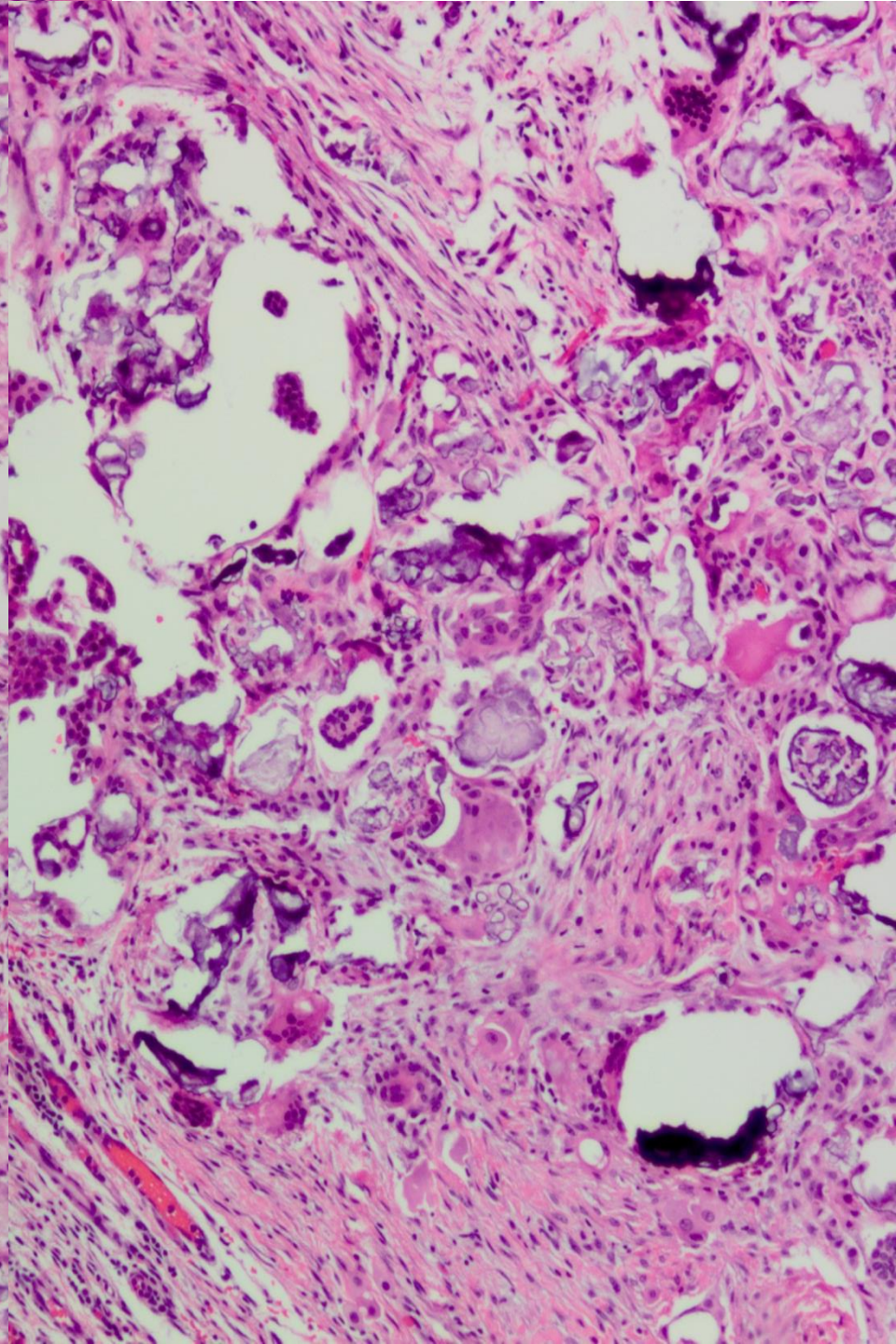
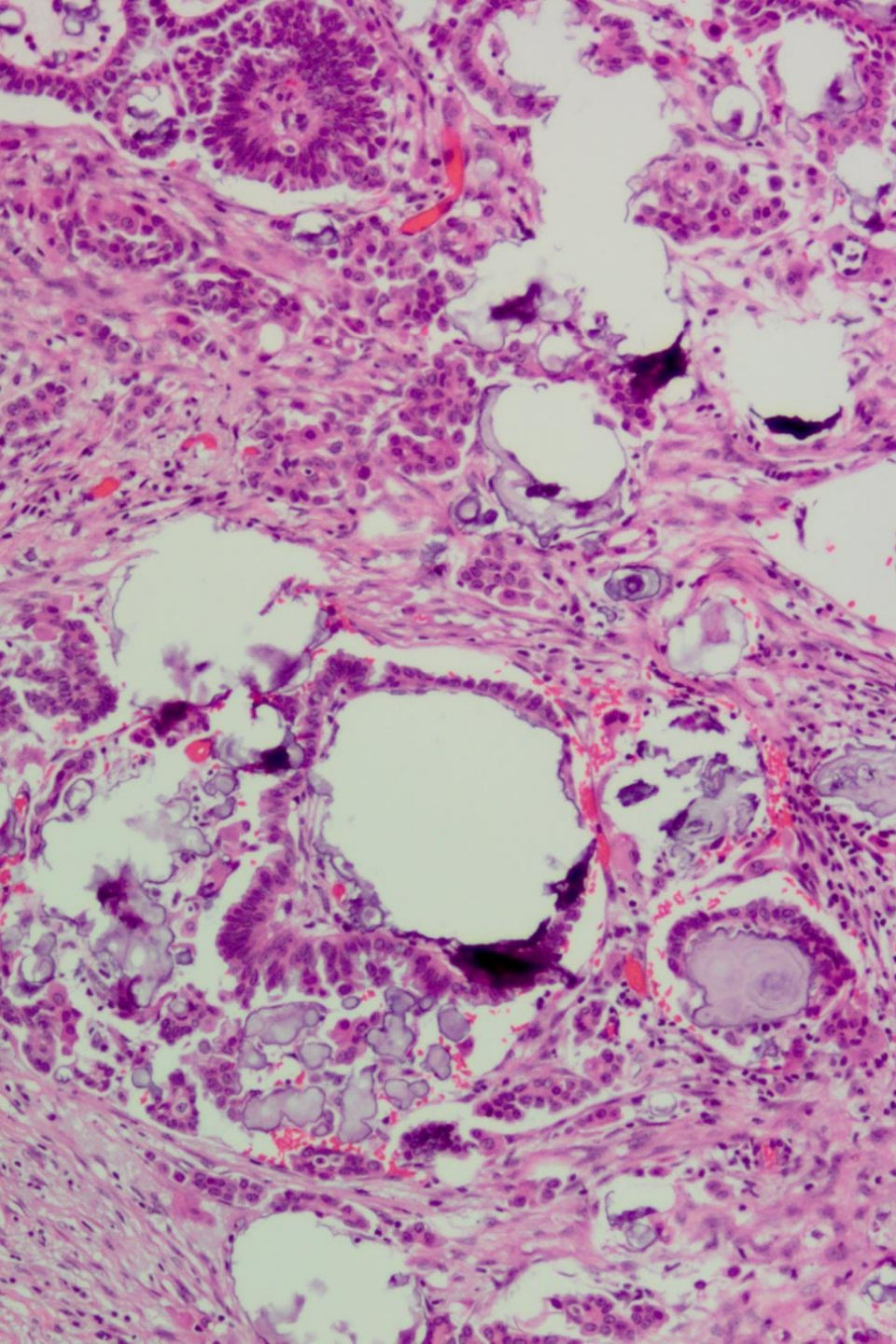


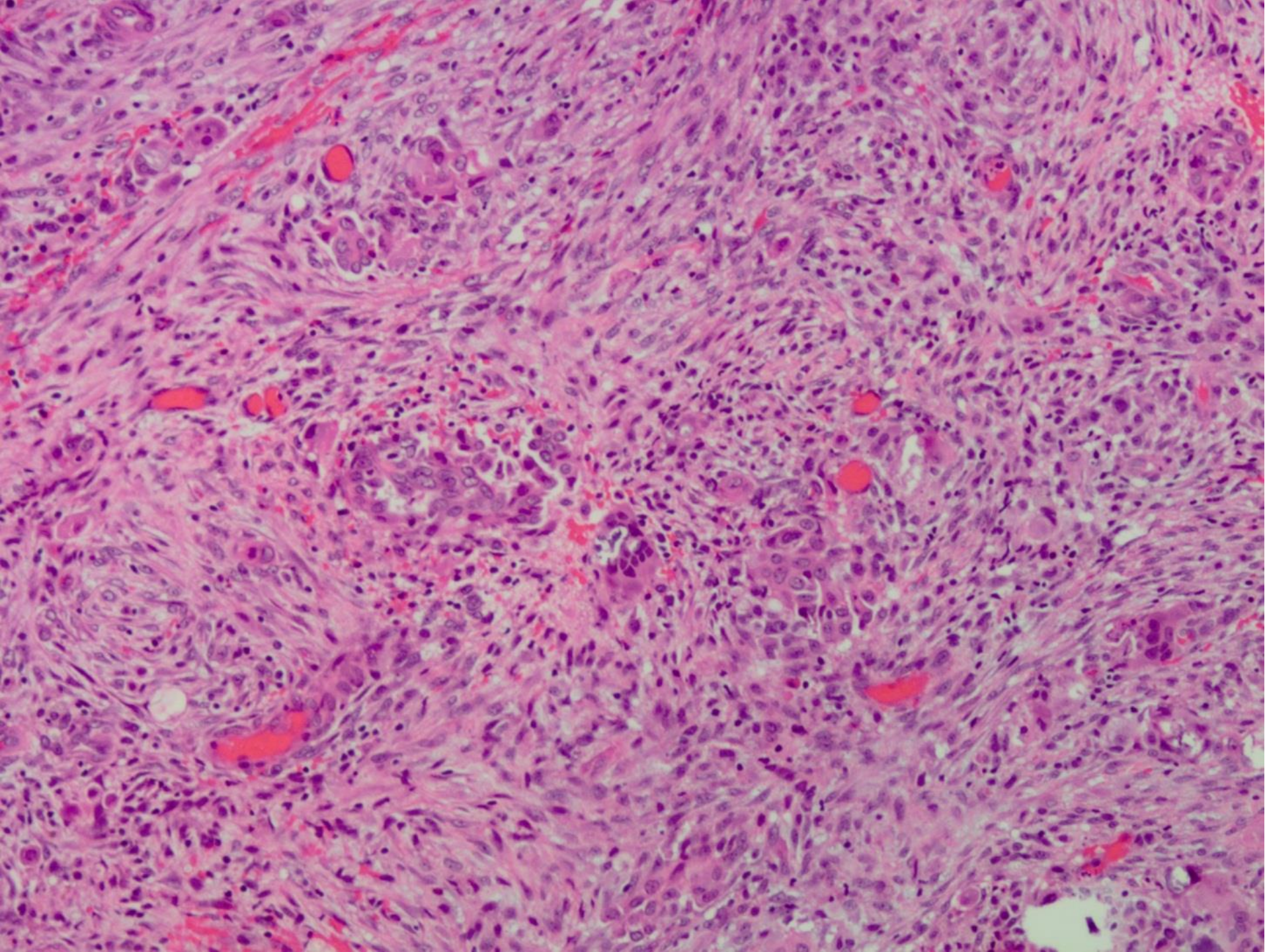
How to Evaluate Extraovarian Disease?

- Gauge the amount of epithelium
- Ensure that there is NO marked pleomorphism and numerous mitoses
- Evaluate the interface of the “serous growth” and the vicinity
- Evaluate growth pattern

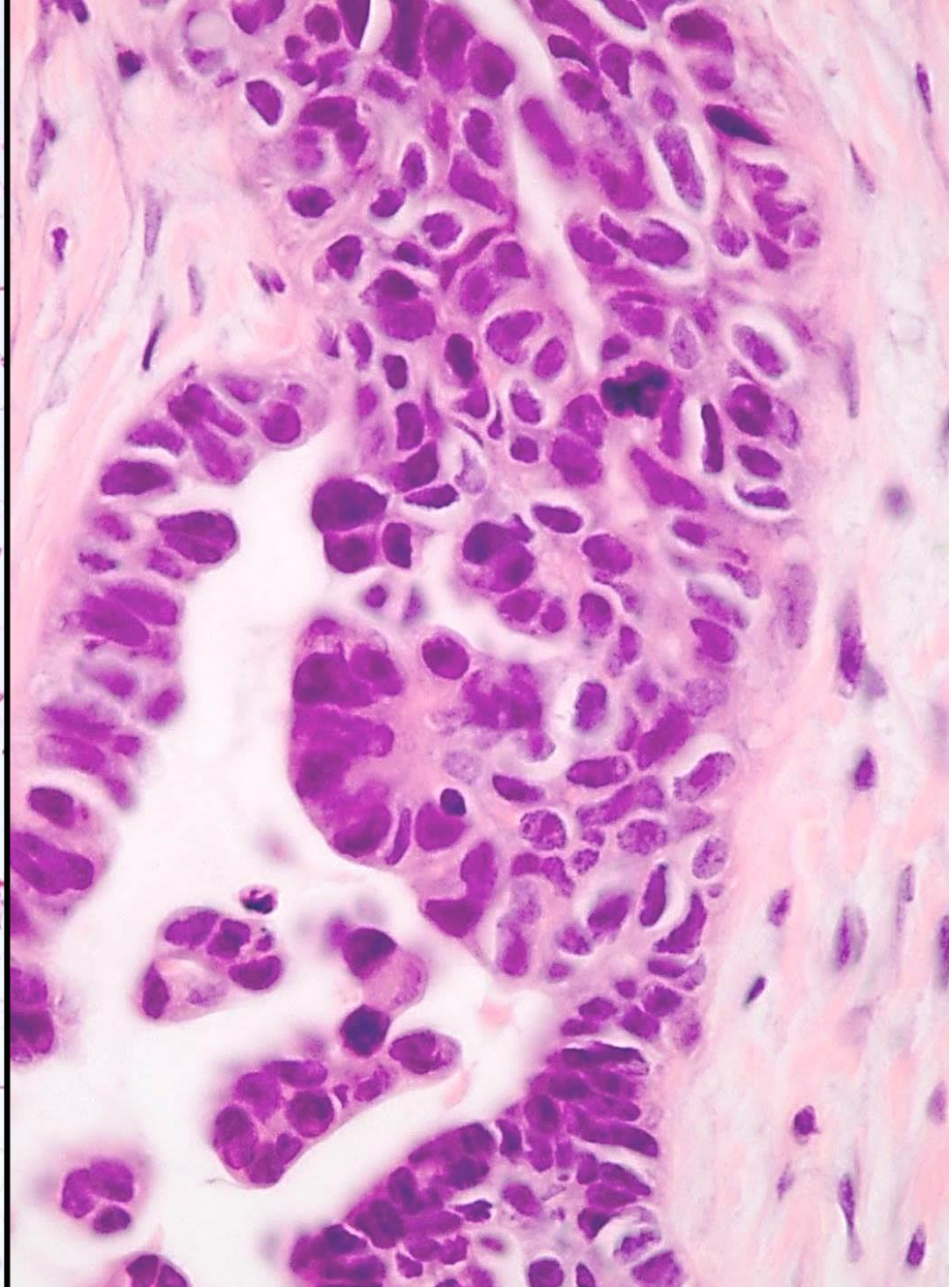
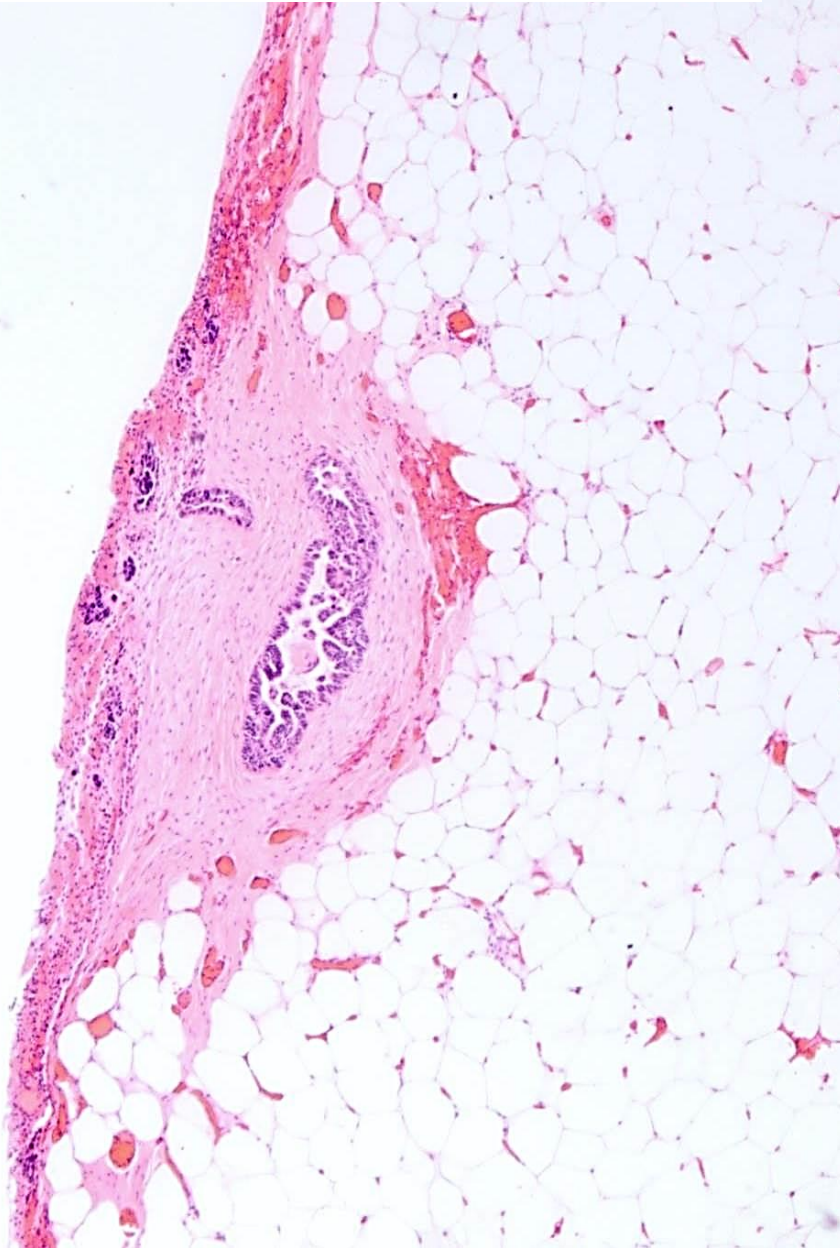
Be Aware that the Extra-Ovarian Epithelial Proliferation
Can Be Florid = Low Grade Serous Carcinoma



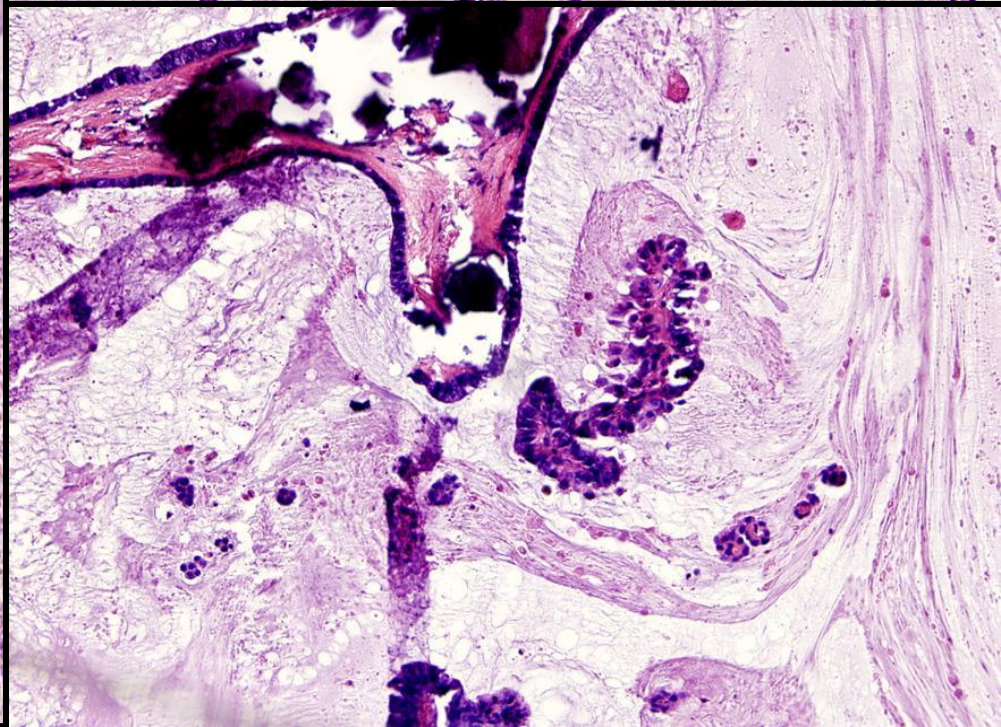
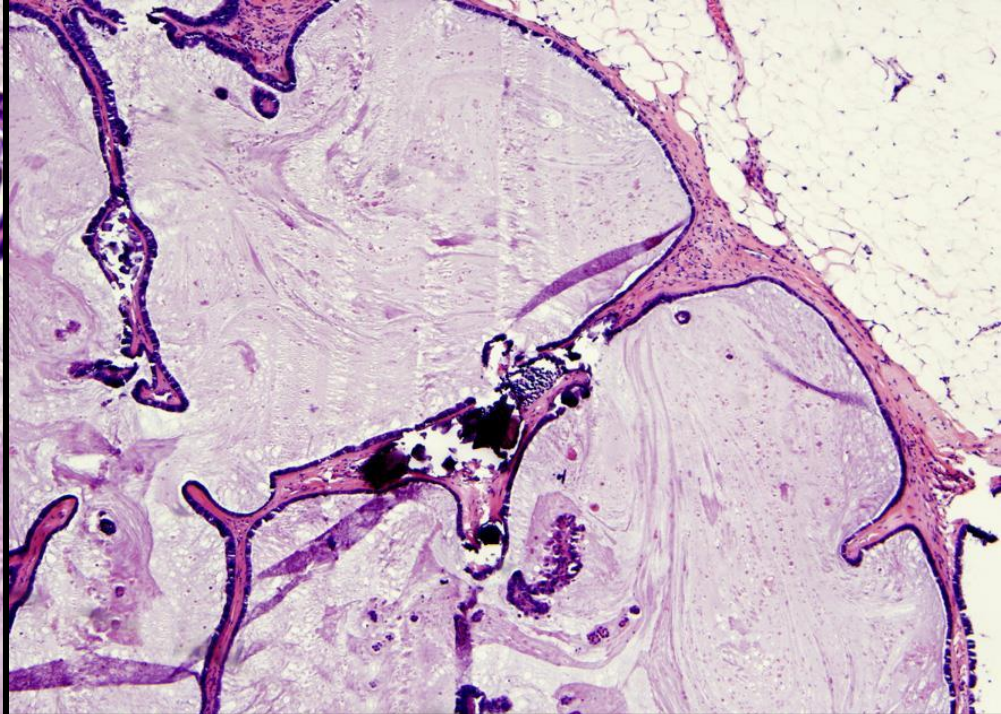
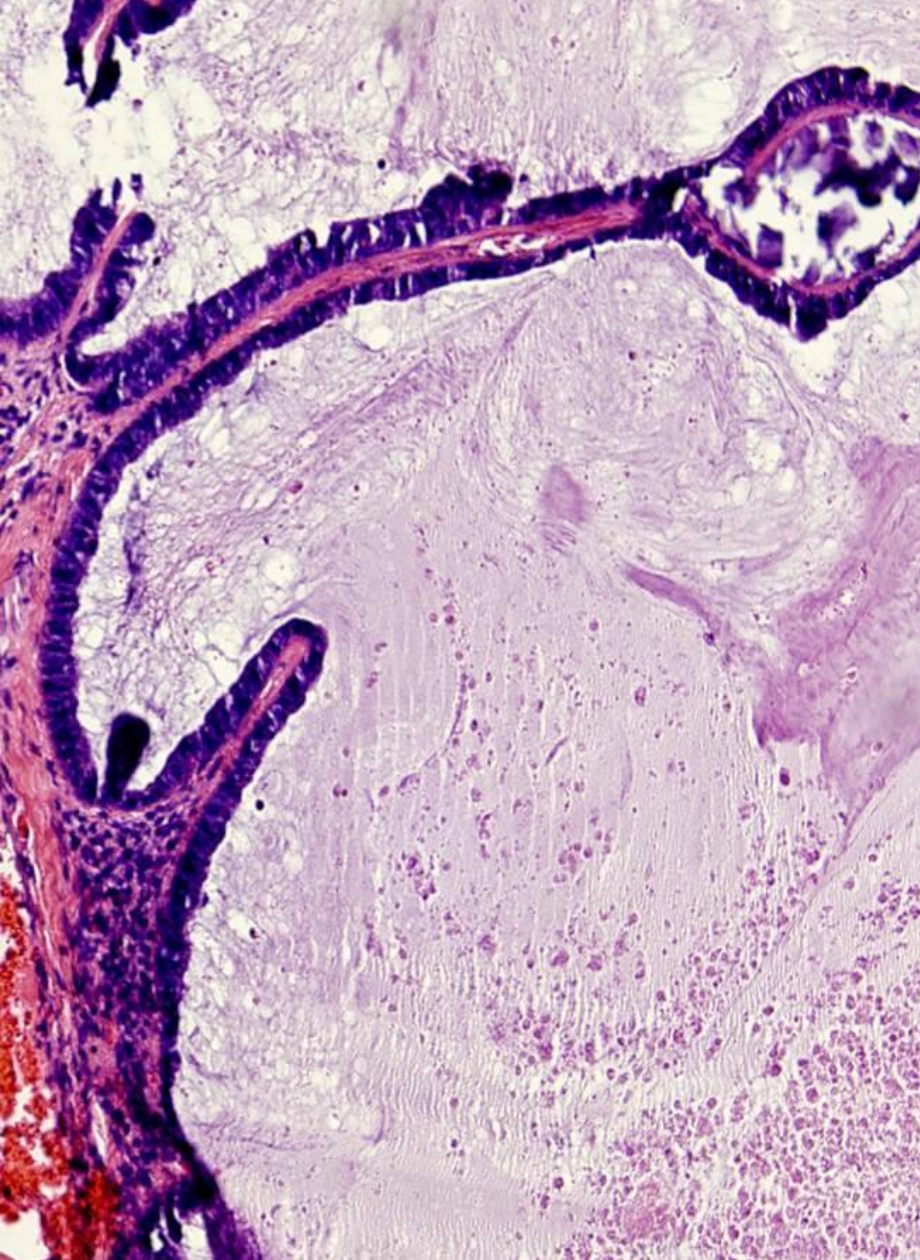




Pay attention to the cytologic features

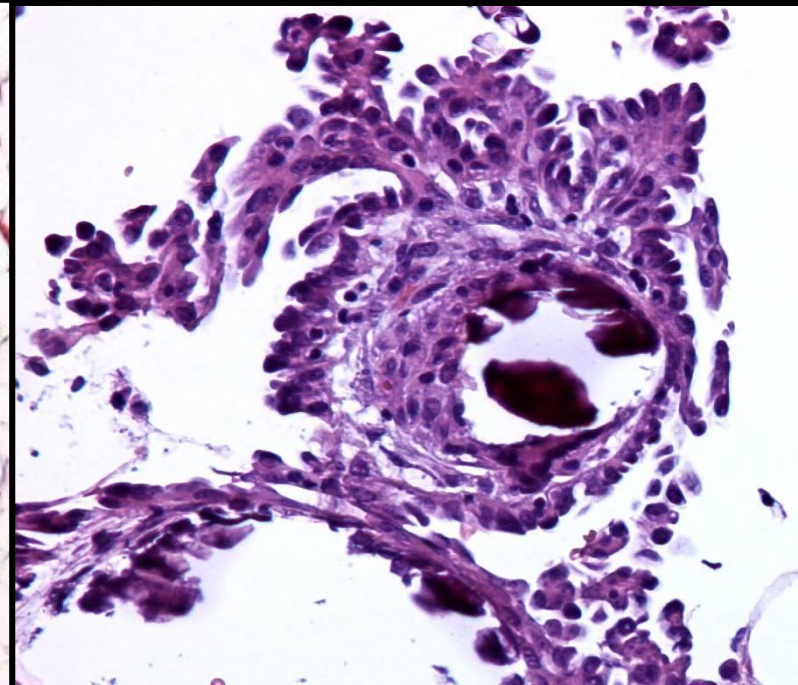
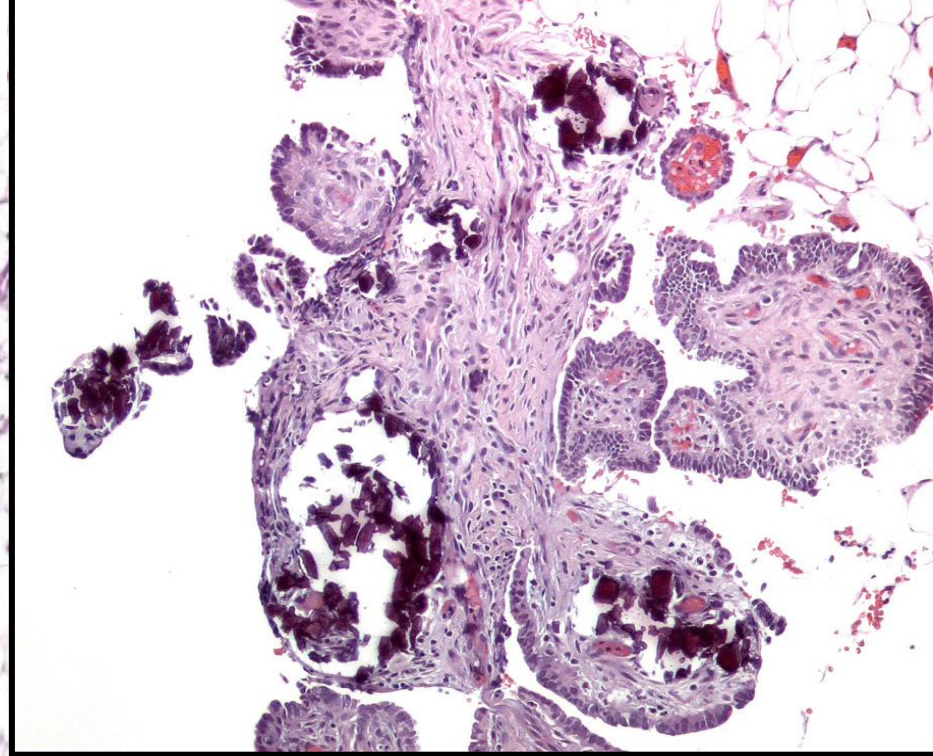
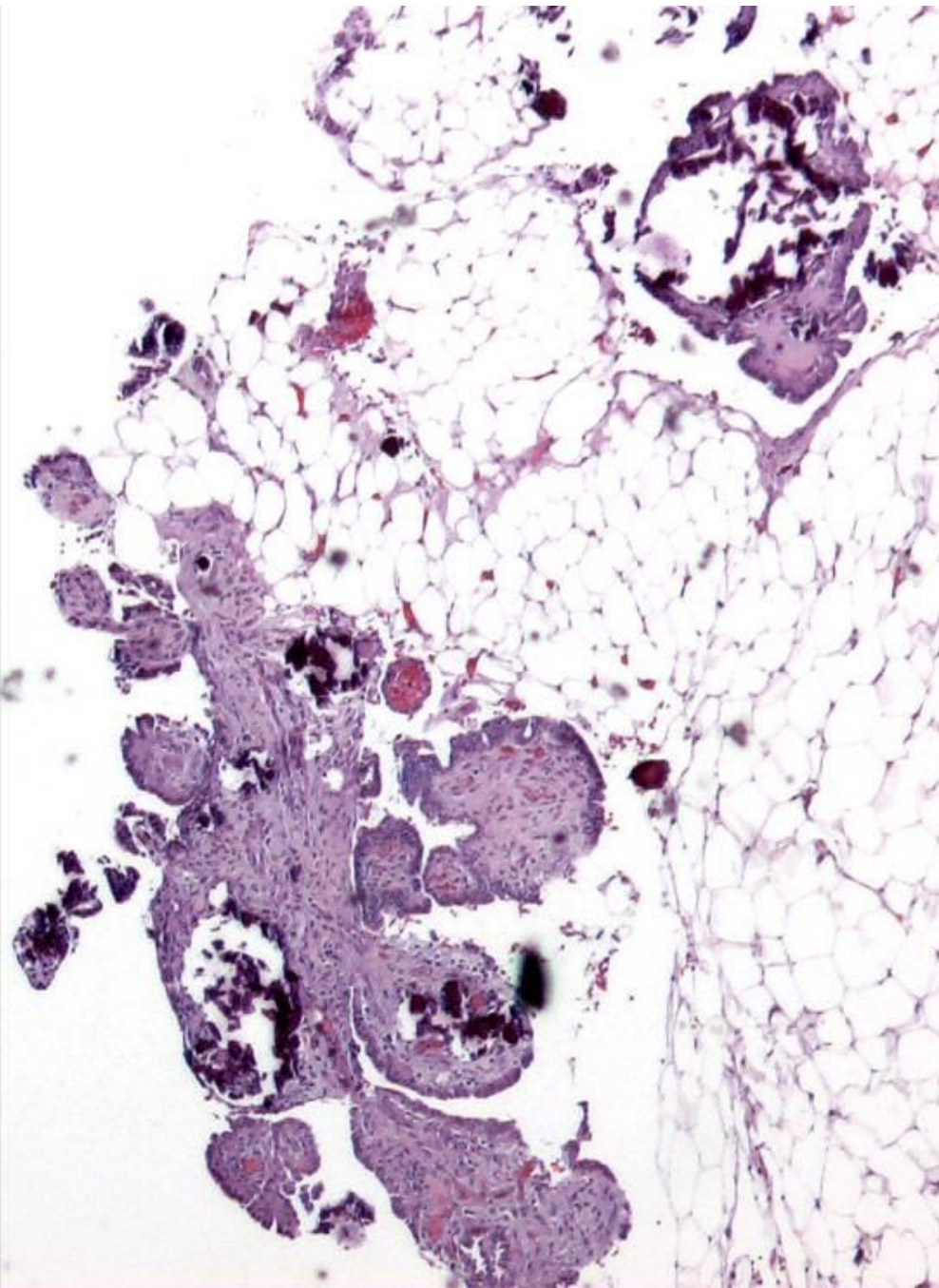


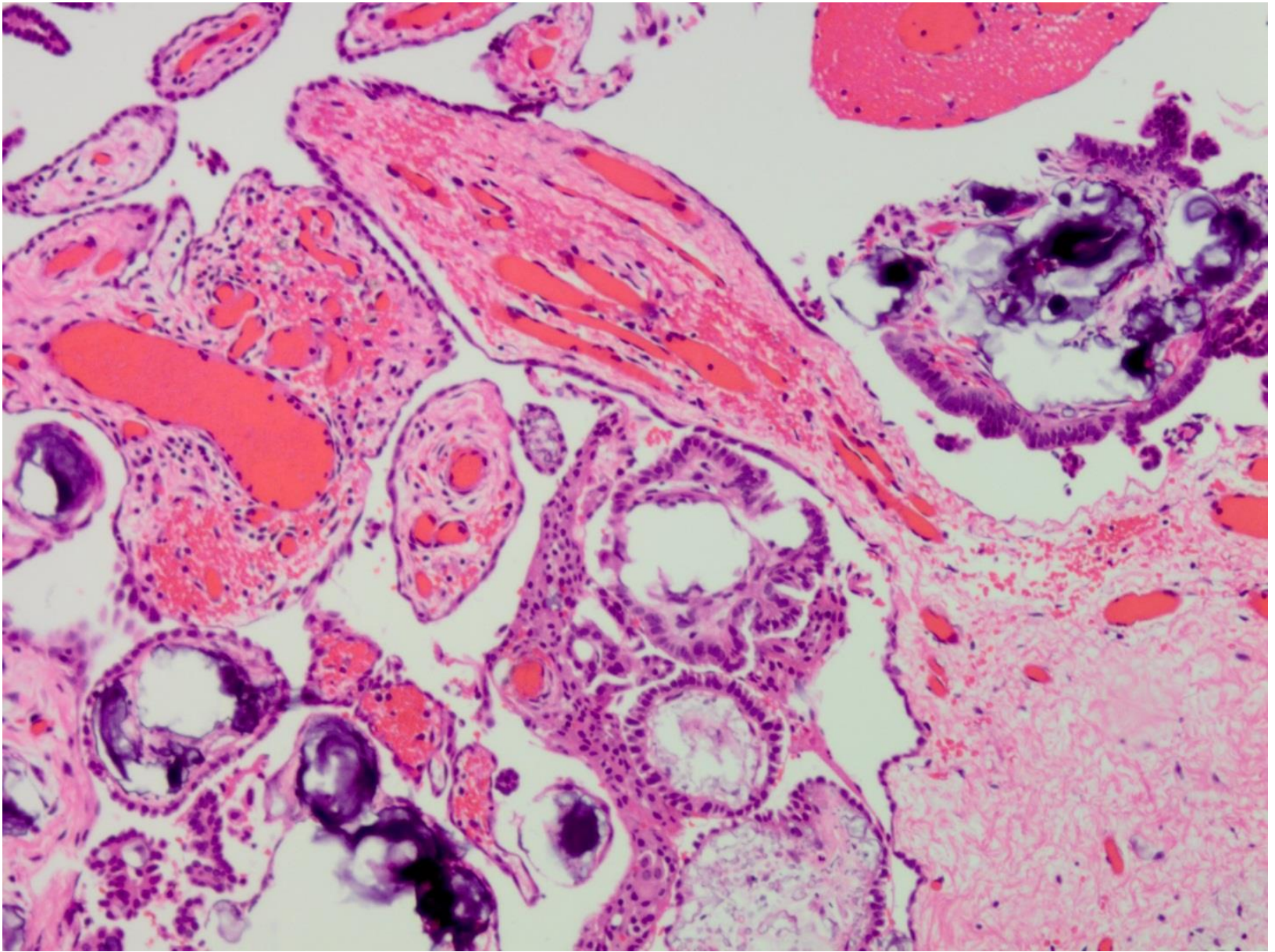
High grade serous carcinoma, not to be mistaken for non-invasive implant



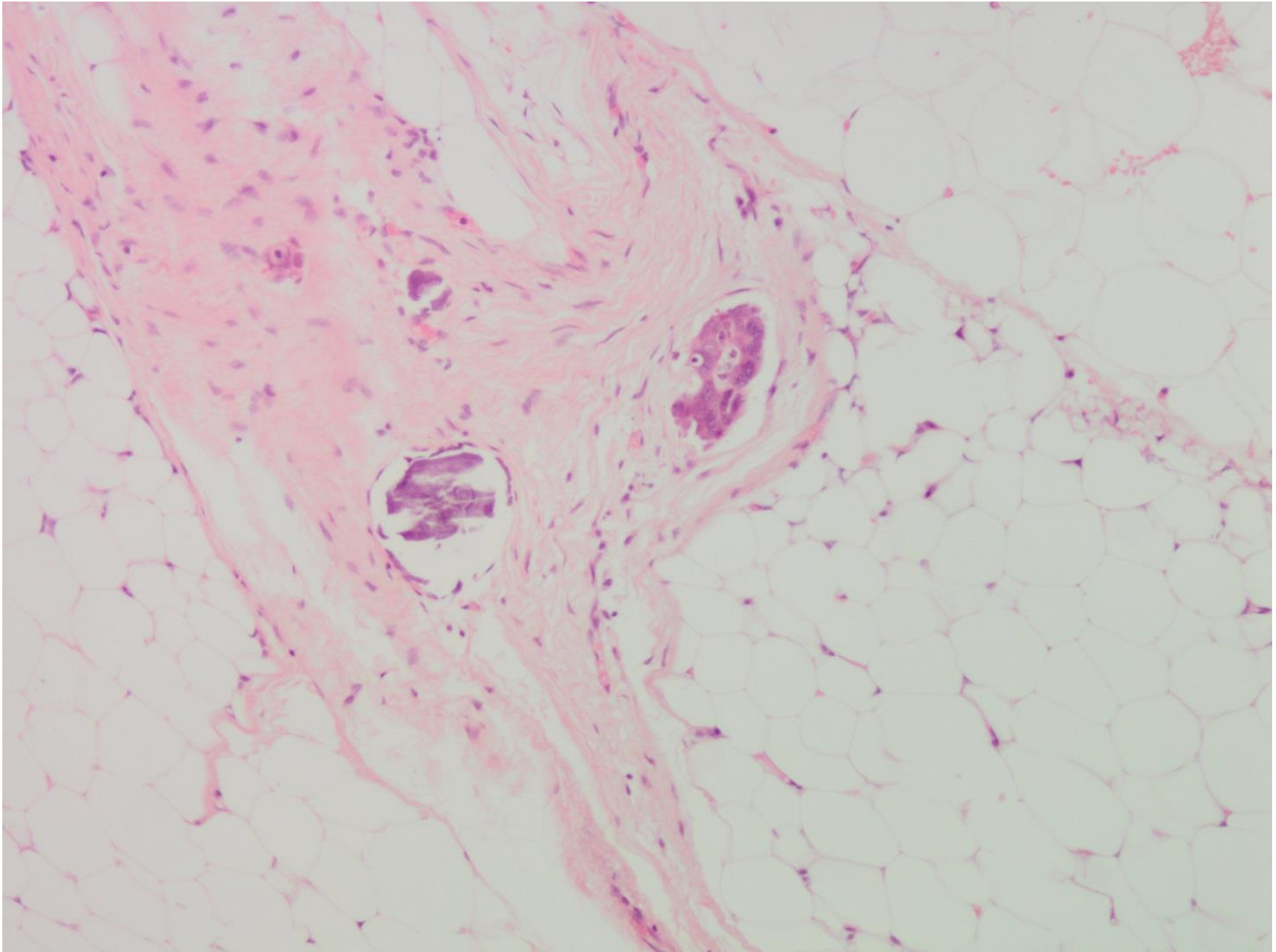
Non-invasive implant,
epithelial type

Non-invasive implant, epithelial type



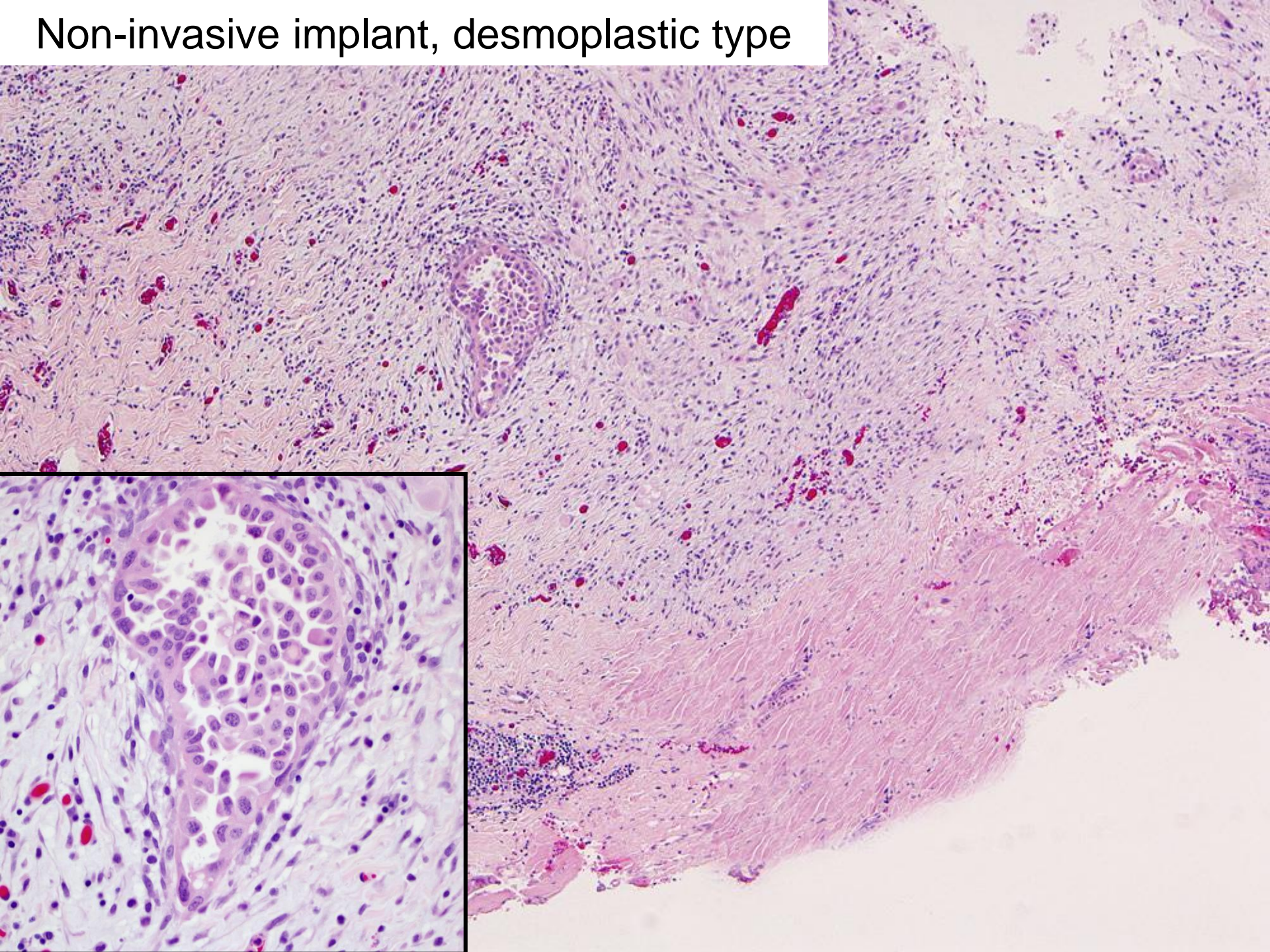


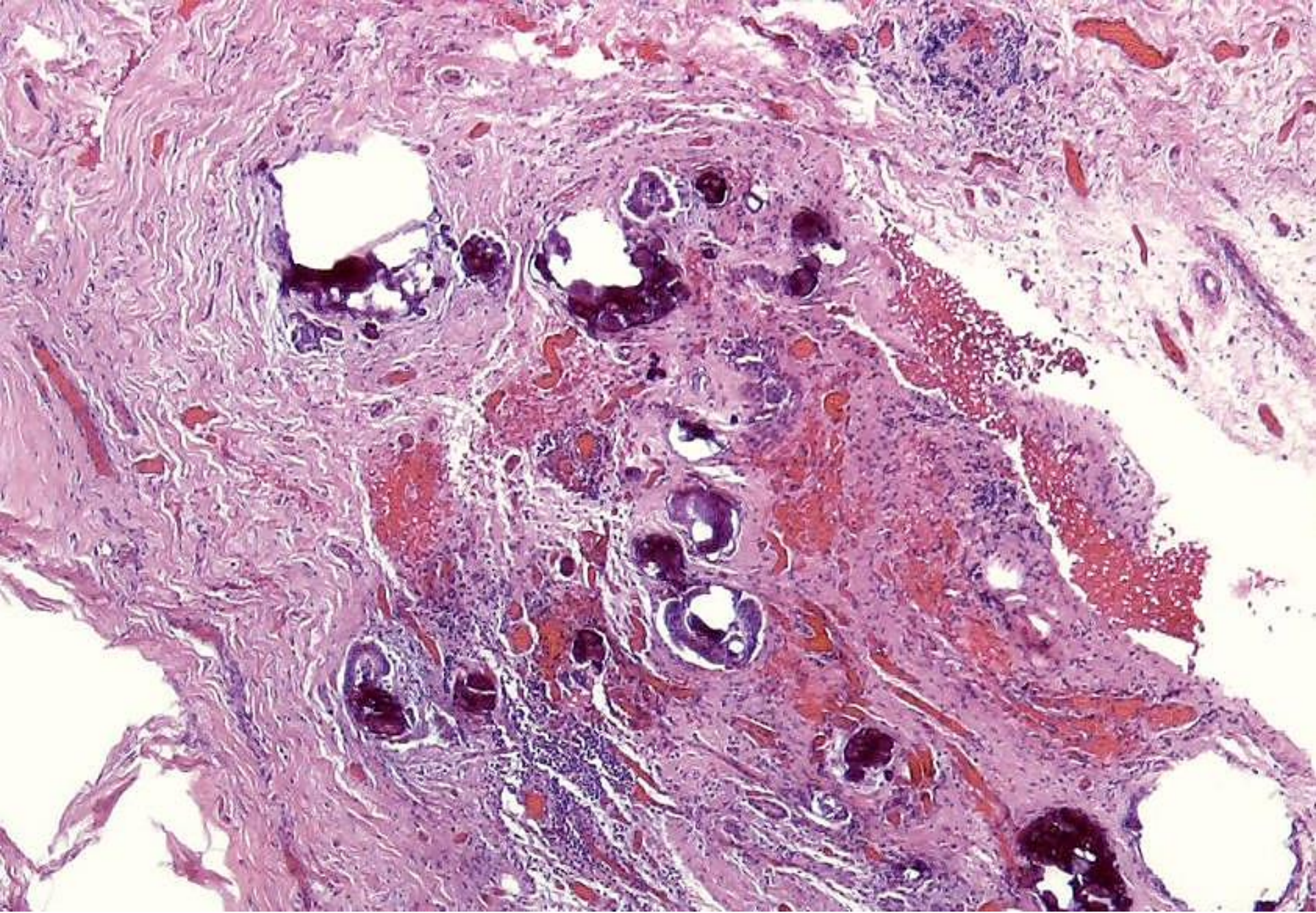
Non-invasive serous implant



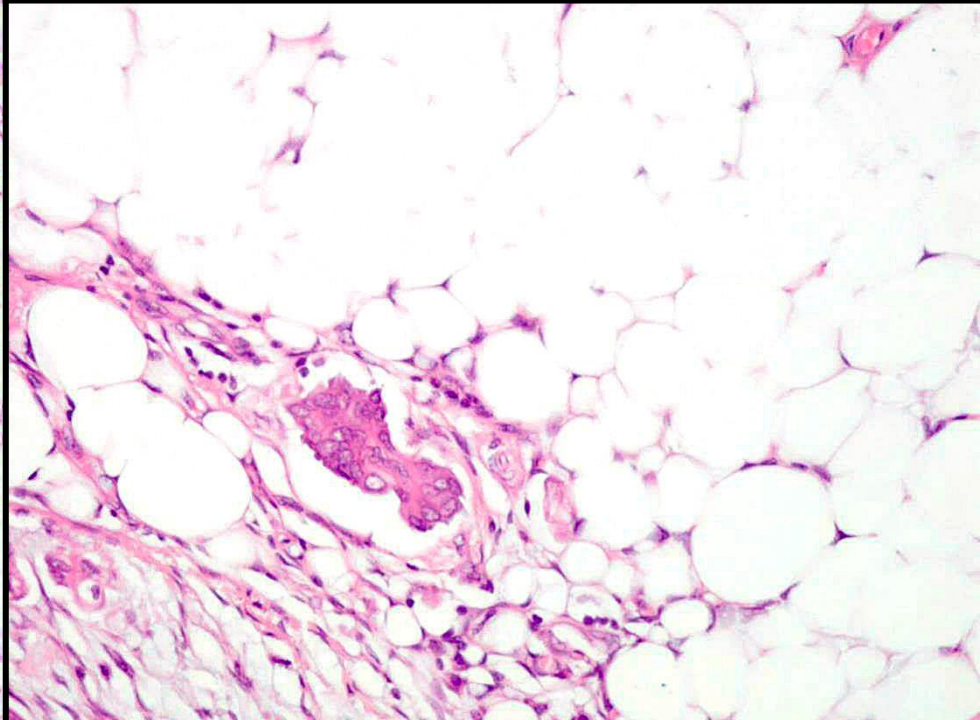
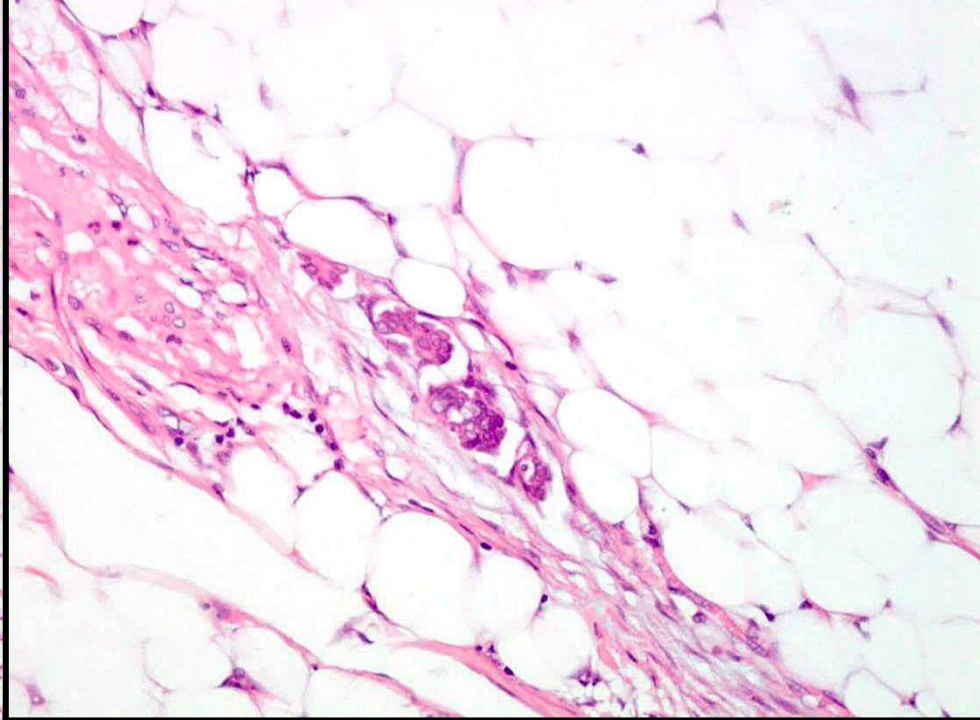
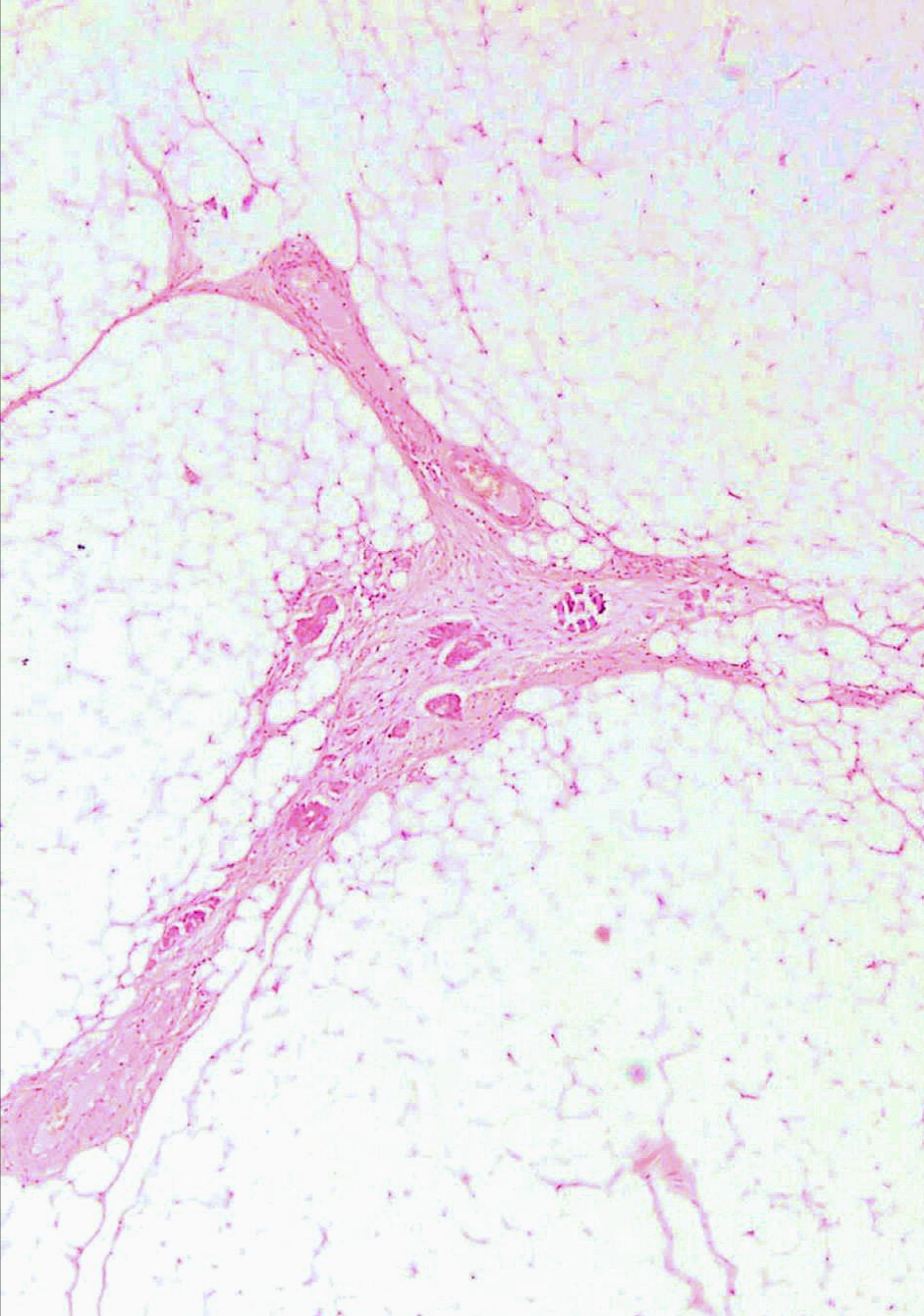
Non-invasive serous implant

Non-invasive implant, desmoplastic type





Invasive implant

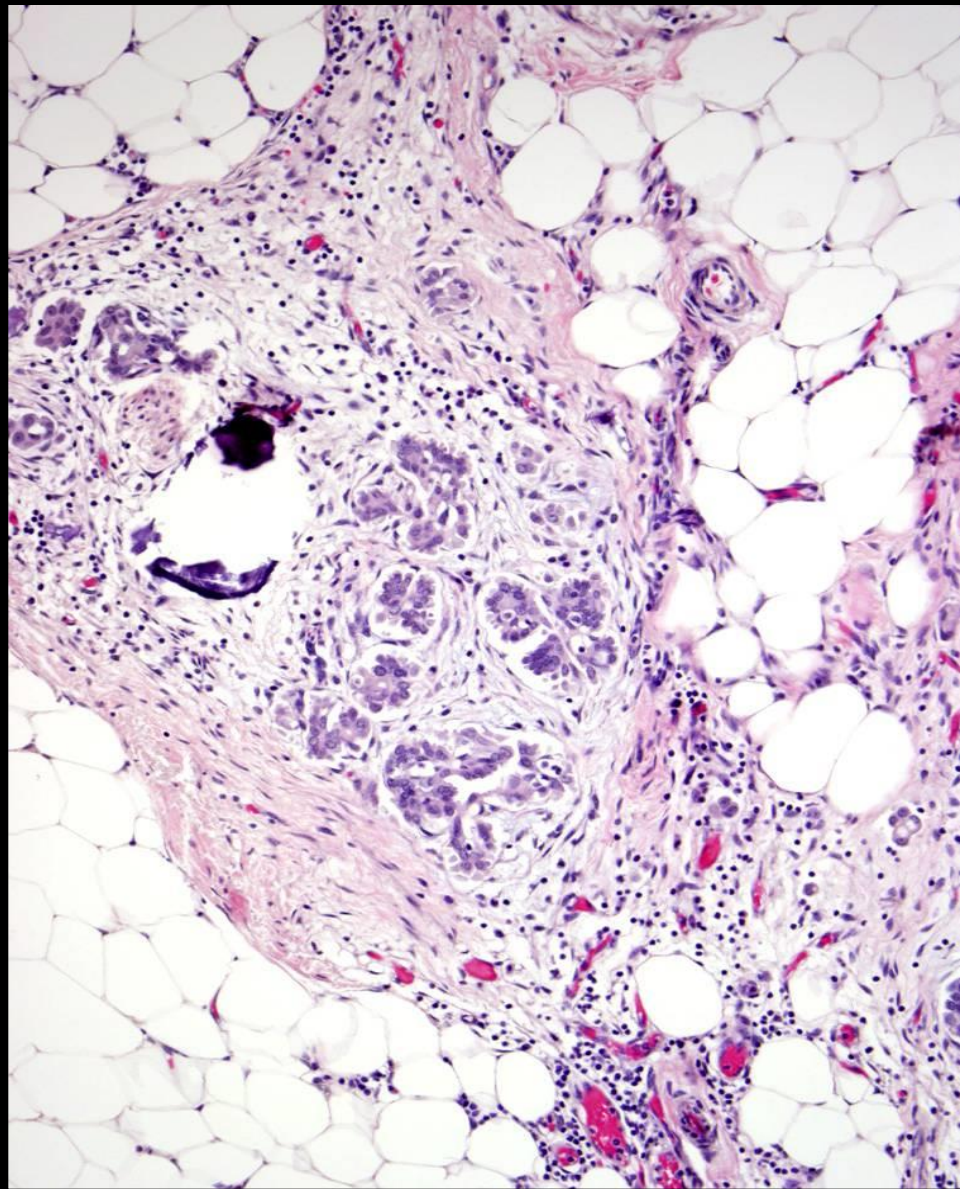
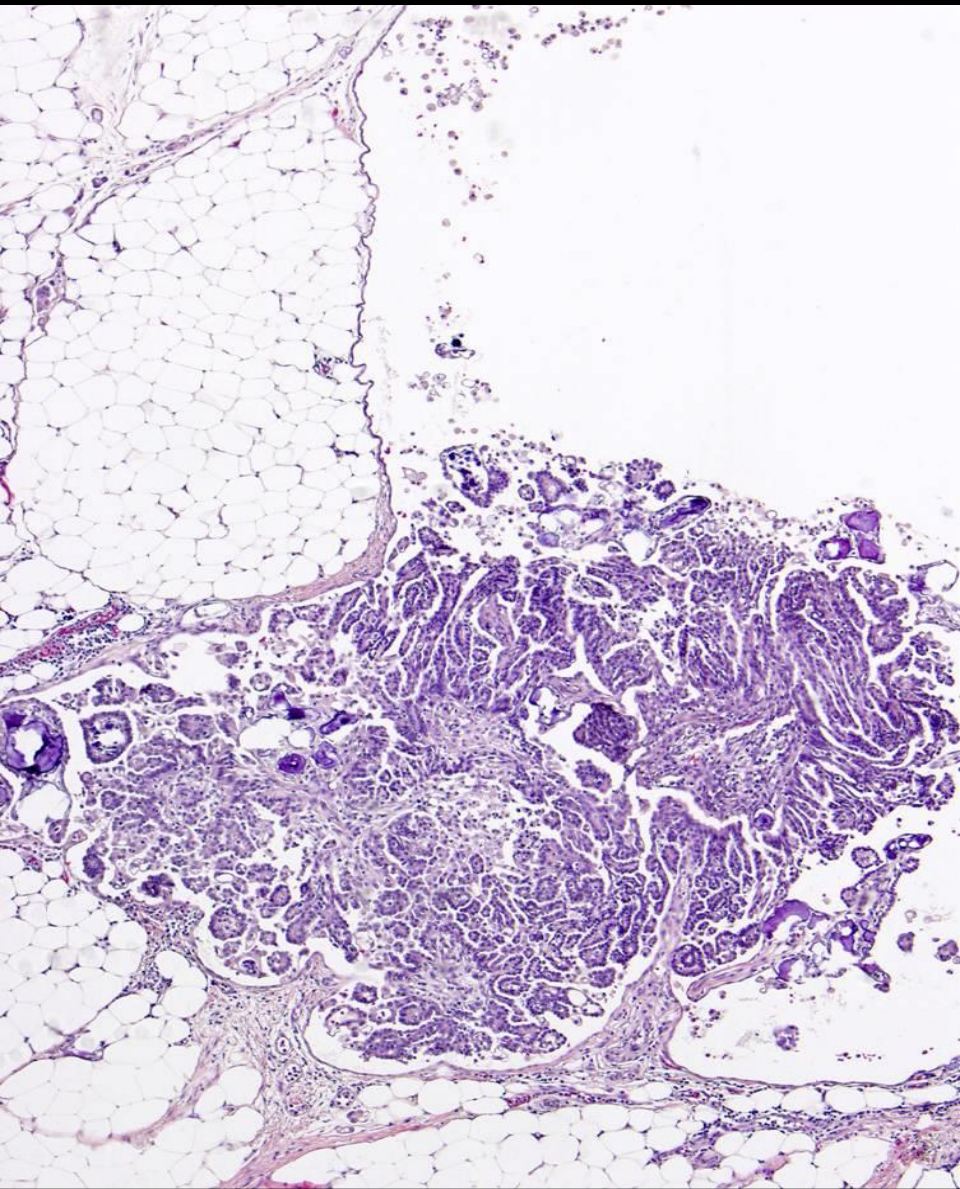


Invasive implant

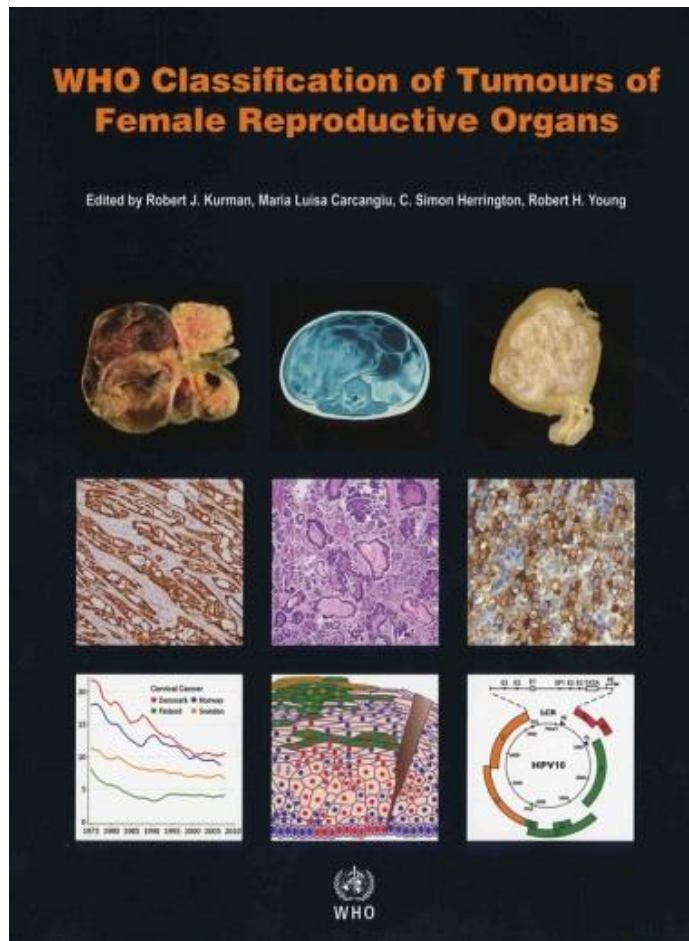
Emergent Approach – Invasive Implants

Micropapillary Pattern

Clusters of Cells in Spaces Devoid of Epithelial Lining



Nomenclature Issue # 4



Non invasive implants
should be designated as
implants

Invasive implants should
be designated as low
grade serous carcinoma

Implants

- No-Invasive Implants
→ Excellent prognosis in most studies

Overall survival: 95.3%

- Invasive Implants
→ Poor prognosis

Overall survival: 66%

Seidman and
Kurman, 2000

The Recurrence and the Overall Survival Rates of Ovarian Serous Borderline Neoplasms With Noninvasive Implants is Time Dependent

Elvio G. Silva, MD,* David M. Gershenson, MD,† Anais Malpica, MD,* and Michael Deavers, MD*

Abstract: Ovarian serous borderline neoplasm with noninvasive implants traditionally have been considered to be nonaggressive tumors associated with an excellent prognosis. However, in our experience, recurrences commonly develop as patients are followed over many years. Eighty cases of advanced-stage ovarian serous borderline tumor with noninvasive implants were identified; the minimum follow-up period for these cases was 5 years or until the death of the patient. The following cases were excluded: patients treated by cystectomy, patients who died of other causes, patients who developed other tumors, and patients who had as the only positive material after resection of the primary borderline neoplasm a tumor detected on a second look or third look operation. Hematoxylin and eosin-stained slides from the original ovarian tumor and the staging biopsies were reviewed in all cases. Slides of the recurrent tumor were available in all cases except for 2 in which the diagnosis was established clinically. The presence or absence of a micropapillary/ciriform pattern and microinvasion in the ovarian tumor was recorded. Follow-up was obtained from the patients' charts. Fischer exact test was used for statistical analysis. The patients' ages ranged from 17 to 67 years (median 36 y). Seventy-three patients were treated by total abdominal hysterectomy and bilateral salpingo-oophorectomy. Seven patients were treated by total abdominal hysterectomy and unilateral salpingo-oophorectomy. The International Federation of Gynecology and Obstetrics stage was as follows: stage II (29 cases), stage III (50 cases), and stage IV (1 case). After surgery, 58 patients were treated with chemotherapy, 7 with radiotherapy, and 1 with hormonal therapy. The follow-up ranged from 5 to 31 years (median 15.7 y). Thirty-five patients (44%) developed recurrences. Only 10% of the patients had a recurrence in less than 5 years, 19% had their recurrences between 5 and 10 years, 10% between 10 and 15 years, and 5% more than 15 years after resection of the primary neoplasm. The only statistically significant feature associated with recurrence was the presence of a micropapillary/ciriform pattern, although this pattern

was present in only 26% of the cases that recurred. Of the 35 patients who had a recurrence, 2 were diagnosed clinically, both are alive with progressive disease at 1 and 5 years after the diagnosis of the recurrence; 6 had recurrent serous borderline tumors, all are without evidence of disease with a follow-up ranging from 7 to 18 years after resection of the ovarian borderline tumor (median 14 y); and 27 patients subsequently developed low-grade serous carcinoma, 7 are alive with progressive disease with a follow-up ranging from 10 to 29 years (median 15 y) and 20 died of disease between 3 to 25 years after resection of the ovarian borderline tumor (median 16 y). In summary, the true recurrence rate of ovarian serous borderline tumors with noninvasive implants can only be obtained through a long follow-up. In this group of patients, 77% and 34% of the subsequent tumors developed 5 years and 10 years after diagnosis of the ovarian tumor, respectively. Histologic examination of the recurrent tumor is important in determining further therapy and prognosis for these patients; all patients who recurred with borderline tumor are without evidence of disease, whereas 74% of the patients who recurred with low-grade serous carcinoma died of disease. We propose that patients be followed for a minimum of 10 years to evaluate for recurrences and for 20 years to evaluate for survival.

Key Words: ovary, serous borderline tumor, serous neoplasm of low malignant potential, noninvasive implant, implant, recurrence

(*Am J Surg Pathol* 2006;30:1367-1371)

Ovarian serous borderline tumors with noninvasive implants have been considered relatively indolent tumors with a 5-year survival rate of 95%; however, the reported recurrence rate for this type of tumor has been variable, ranging from 8% to 32%.^{1-5,7,9,11-13,16-18} The wide range of these results may be related to differences in the length of follow-up obtained in the various studies.

To investigate this issue, we studied the clinicopathologic features, including recurrence rate and overall survival, of 80 cases of ovarian serous borderline tumors with noninvasive implants and patient follow-up of at least 5 years or until death.

From the Departments of *Pathology, and †Gynecologic Oncology, The University of Texas, M.D. Anderson Cancer Center, Houston, TX. Presented in part at the 94th Annual Meeting of the United States and Canadian Academy of Pathology, San Antonio, TX, March 2005. Reprints: Elvio G. Silva, MD, Department of Pathology, Box 85, M.D. Anderson Cancer Center, 1515 Holcombe Boulevard, Houston, TX 77030 (e-mail: esilva@mdanderson.org). Copyright © 2006 by Lippincott Williams & Wilkins

Am J Surg Pathol • Volume 30, Number 11, November 2006

1367

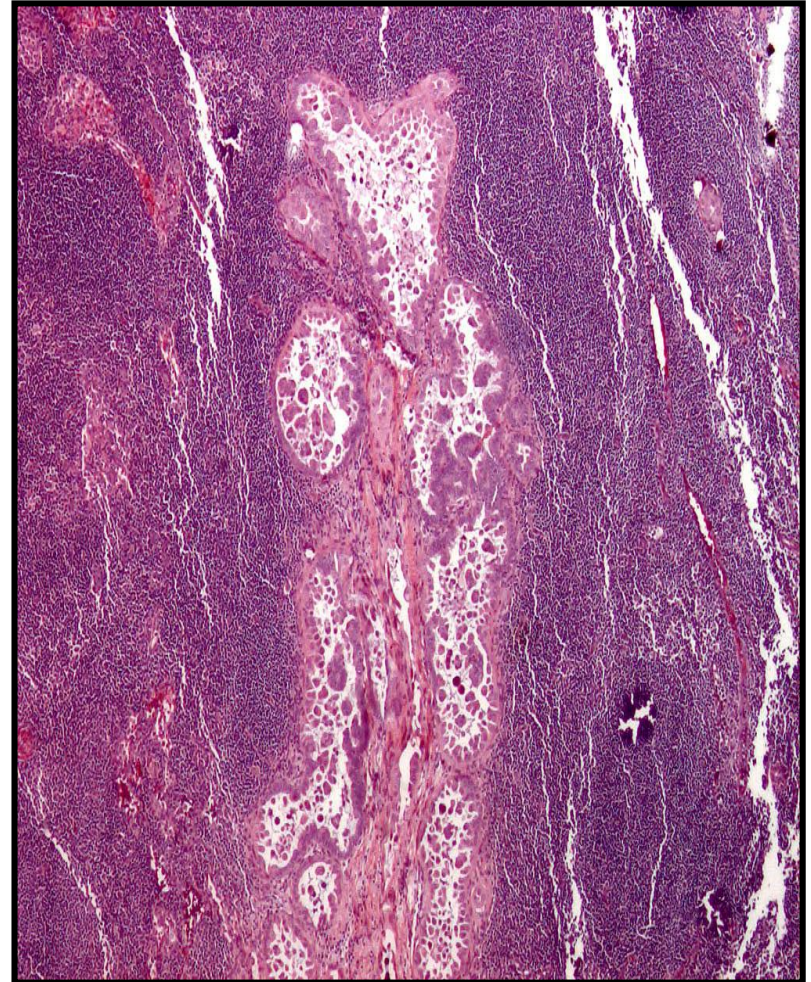
80 cases
44% with recurrences
10% in < 5 years
19% in 5-10 years
10% in 10 -15 years
5% in >15 years

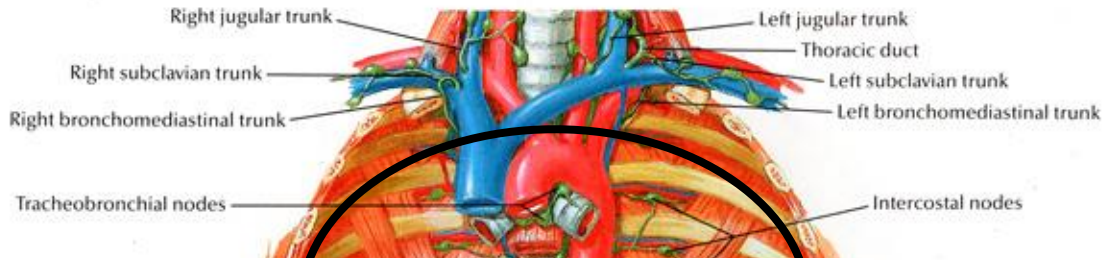
Ovarian Serous Borderline Tumor with Lymph Node Involvement

Limited Experience

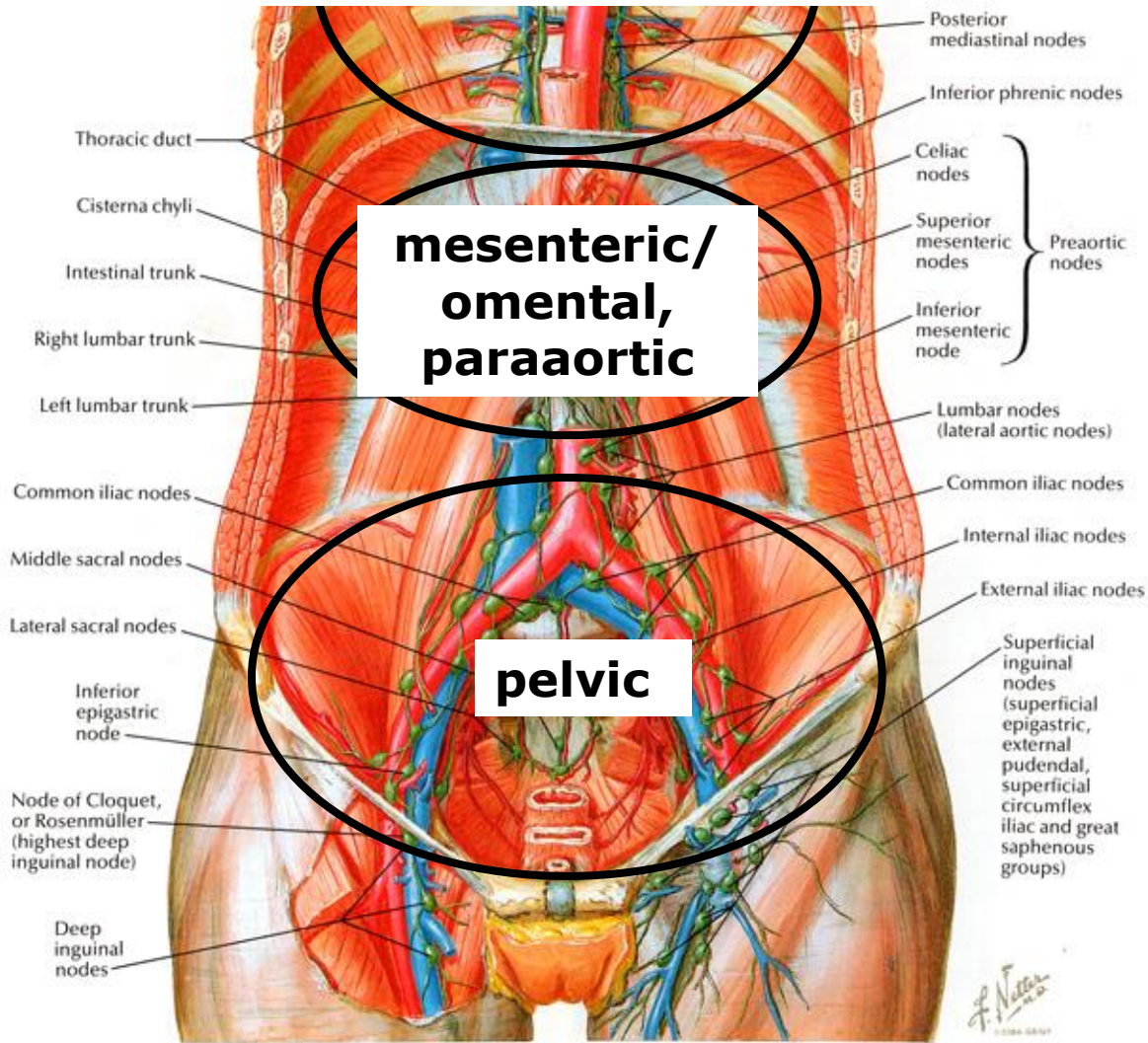
- Incidence 21% to 42% of the cases
- No significant difference in the survival of cases with or without lymph node involvement
- Upstaged 13% of the cases

Longacre TA et al., 2005
McKenney JK et al., 2006





supradiaphragmatic



**mesenteric/
omental,
paraaortic**

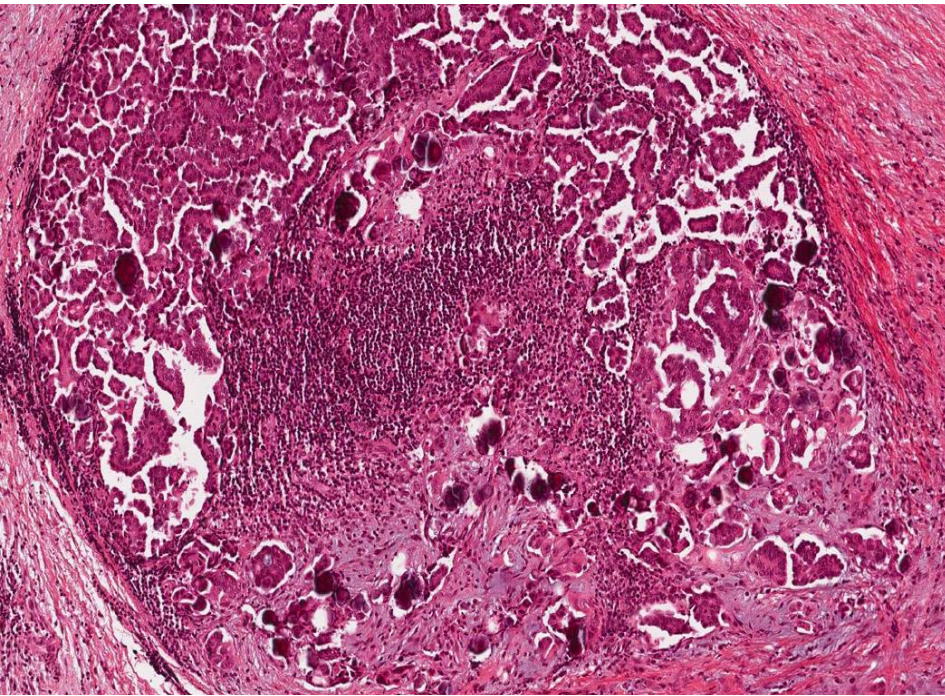
pelvic

Lymph Node Involvement in Ovarian Serous Tumors of Low Malignant Potential: A Clinicopathologic Study of Thirty-six Cases

Bojana Djordjevic, MD and Anais Malpica, MD

Am J Surg Pathol 2010;34:1–9

- It can be the only site of extra-ovarian involvement (22% of the cases)
- **Grossly unremarkable lymph nodes** are not at a decreased risk of lymph node involvement (LNI)
- It is not an independent predictor of disease free-survival or overall survival

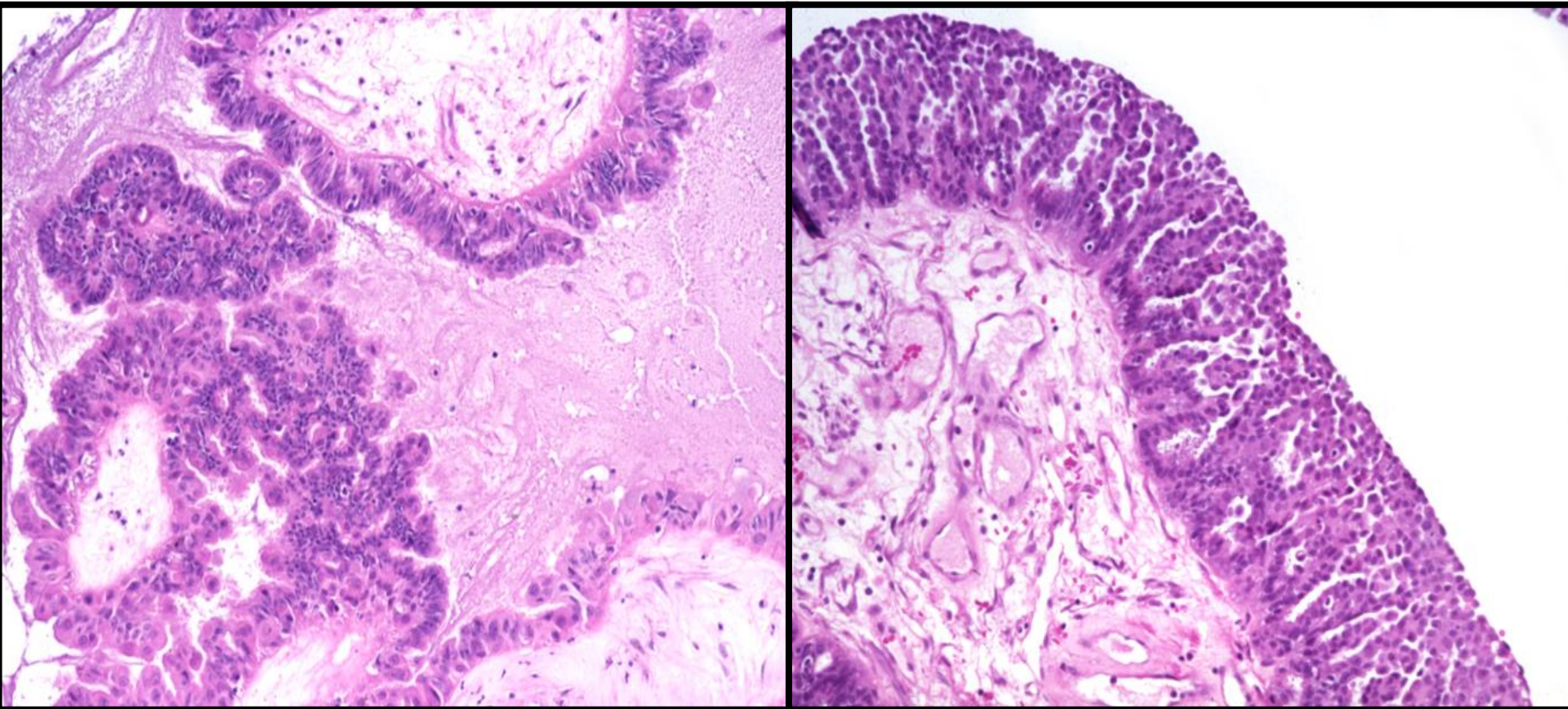


Low grade serous carcinoma =
epithelial proliferation >50%
of an intermediate field (x10)
and desmoplasia



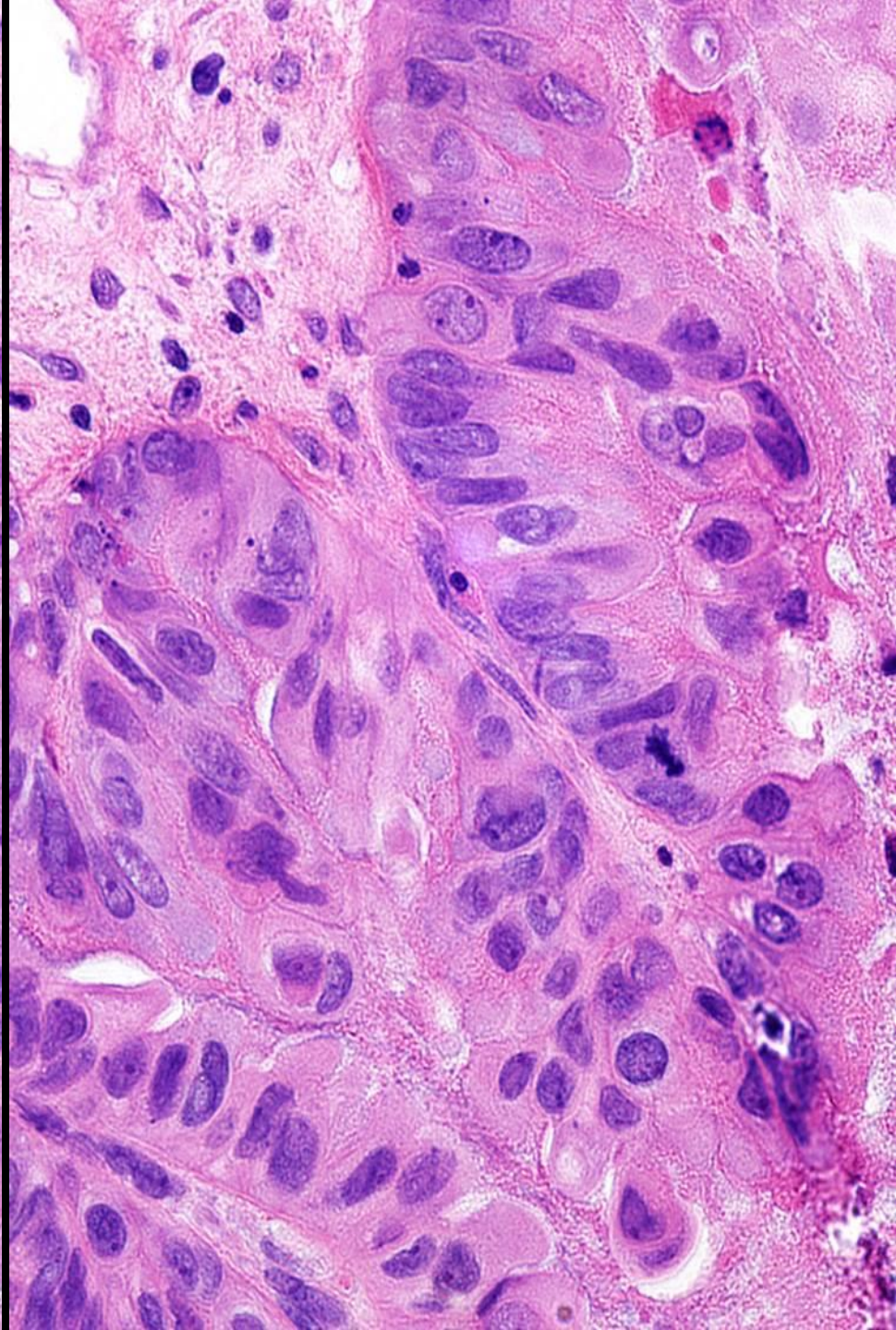
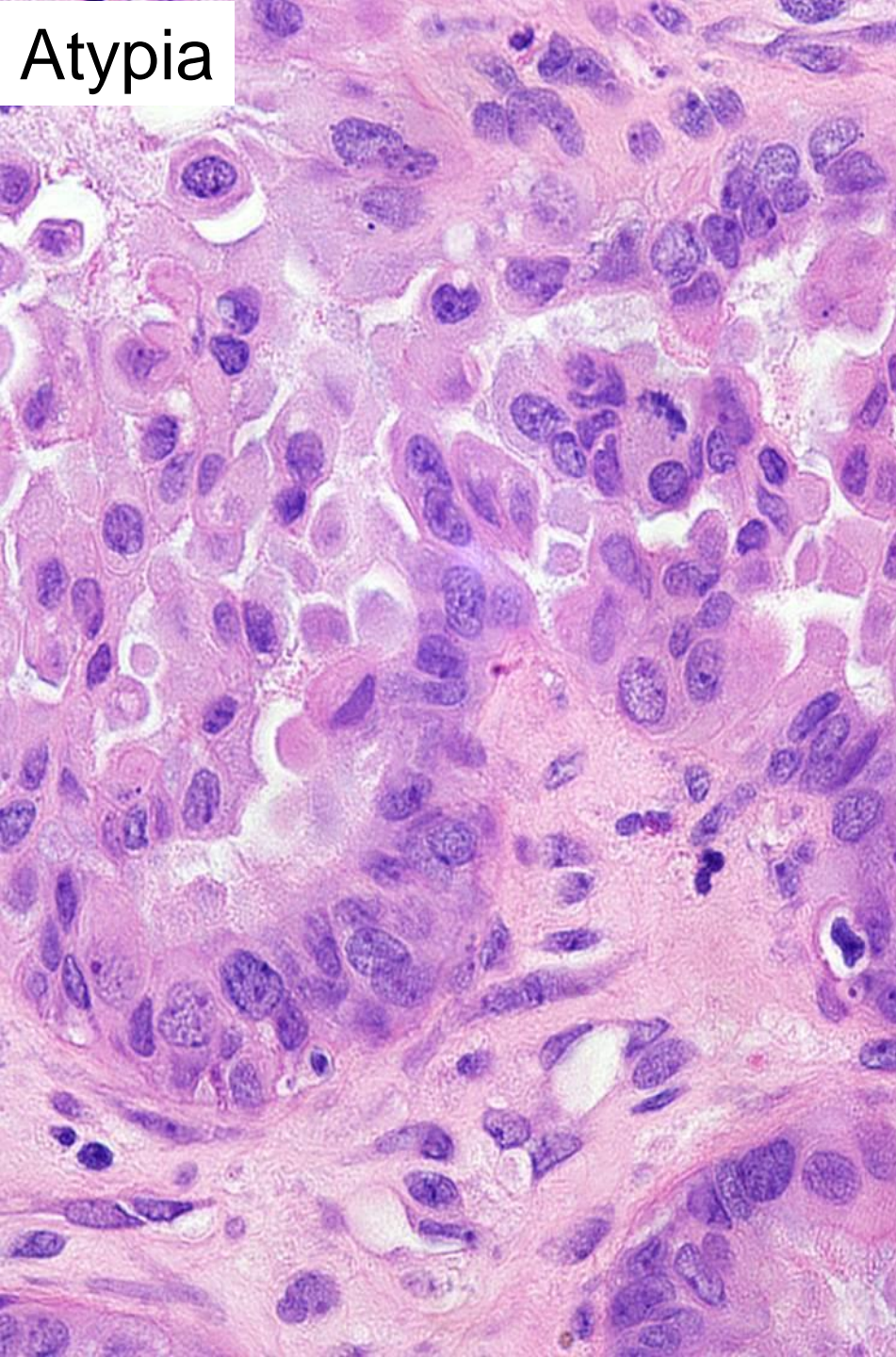
Lymph node involved by
serous tumor of low
malignant potential and
endosalpingiosis, epithelial
proliferation is < 50% of an
intermediate field without
parenchymal destruction

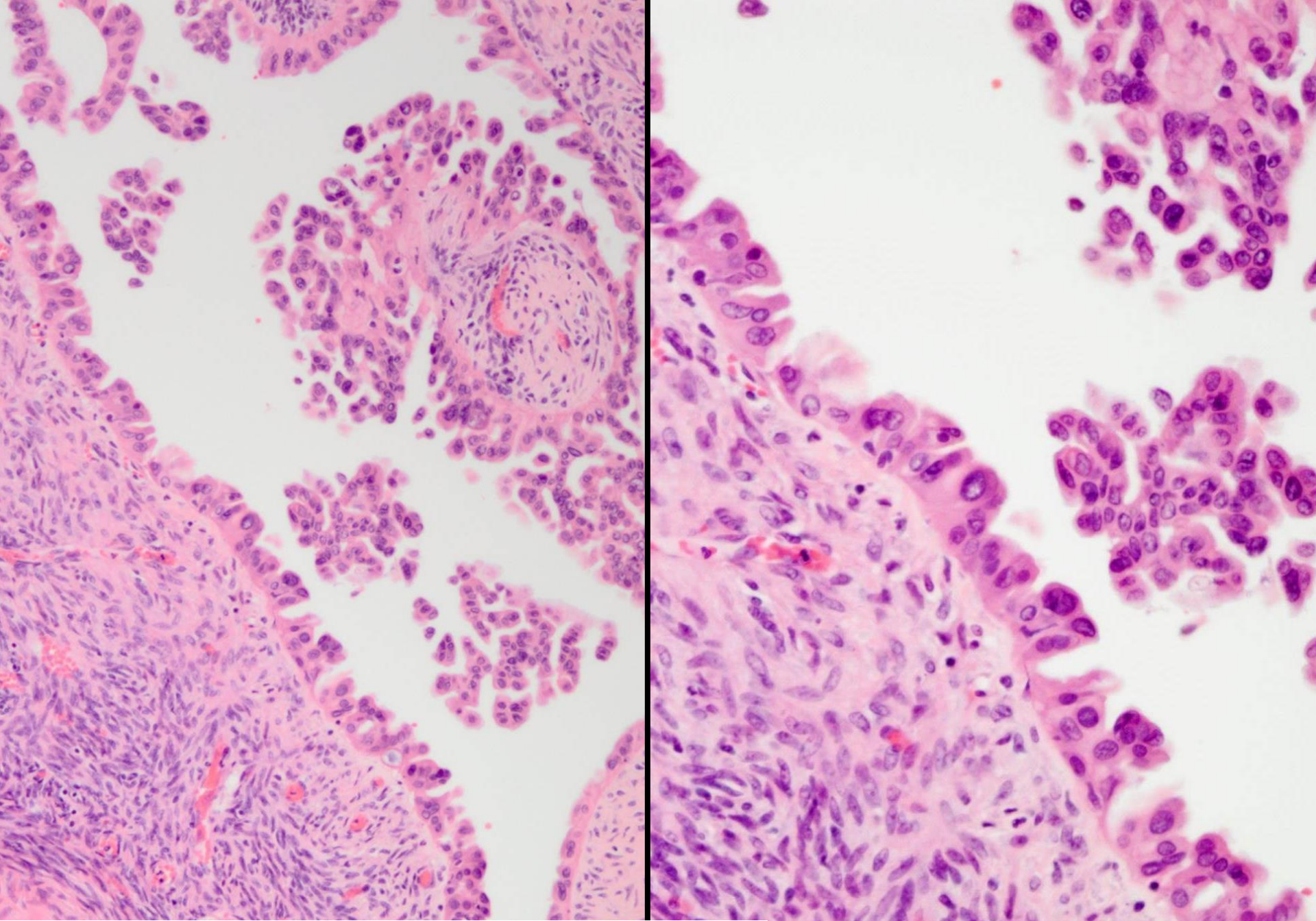
Pregnancy Related Changes



Marked Epithelial Proliferation

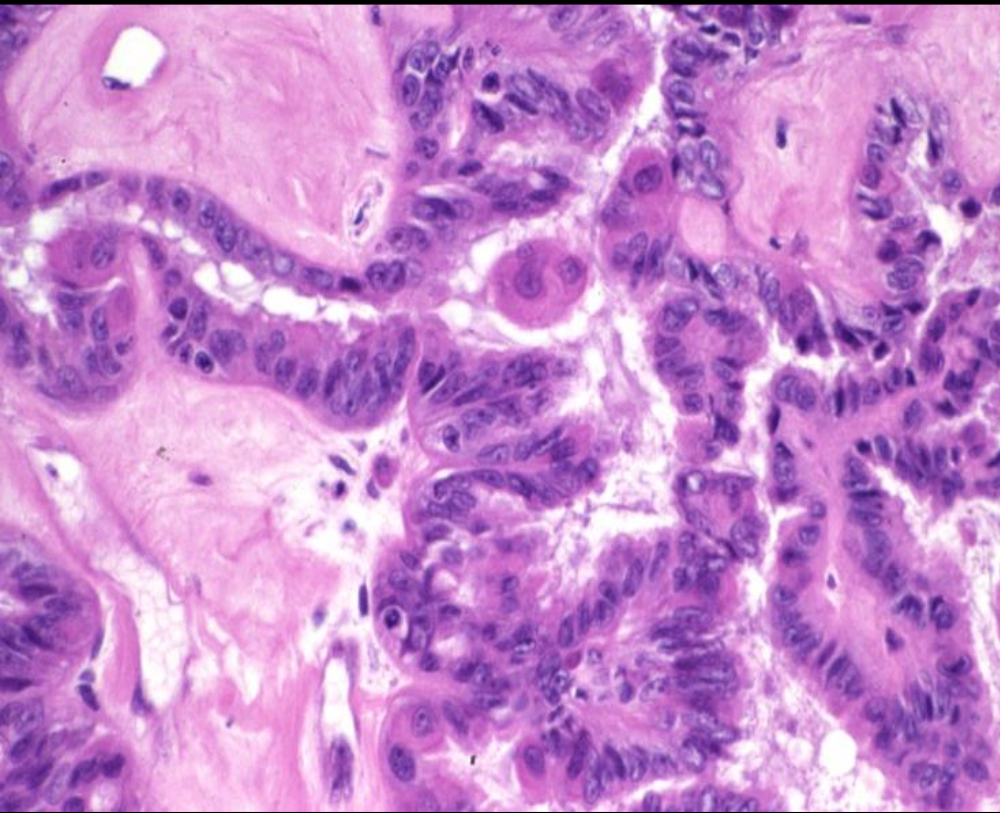
Atypia



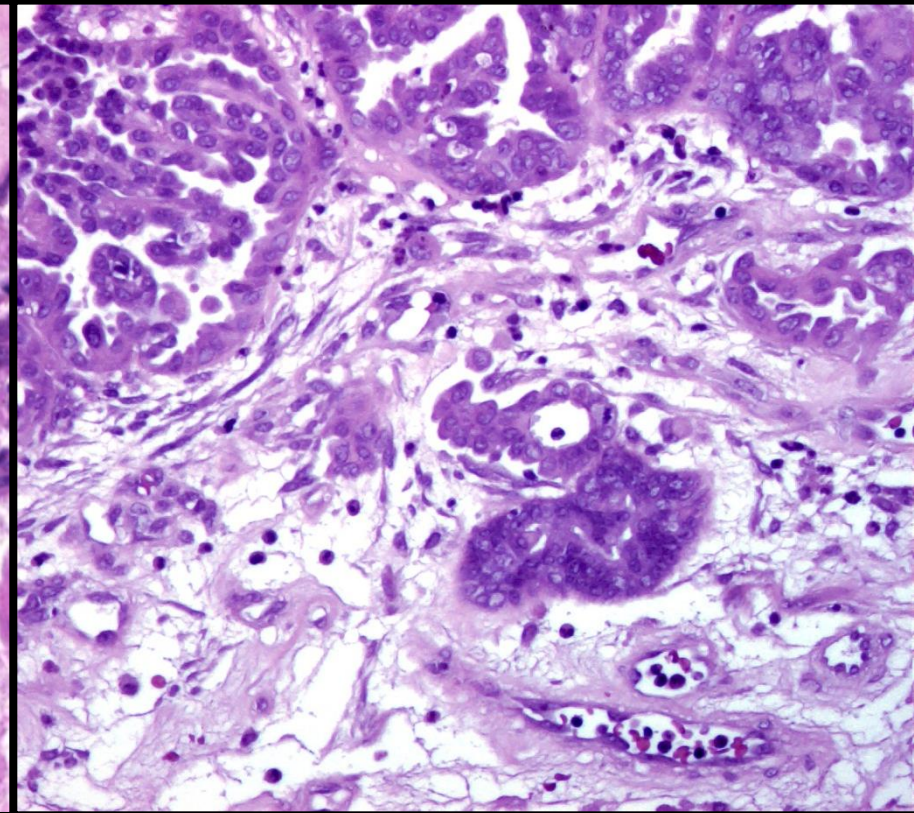


Atypia and epithelial proliferation

Pregnancy Related Changes

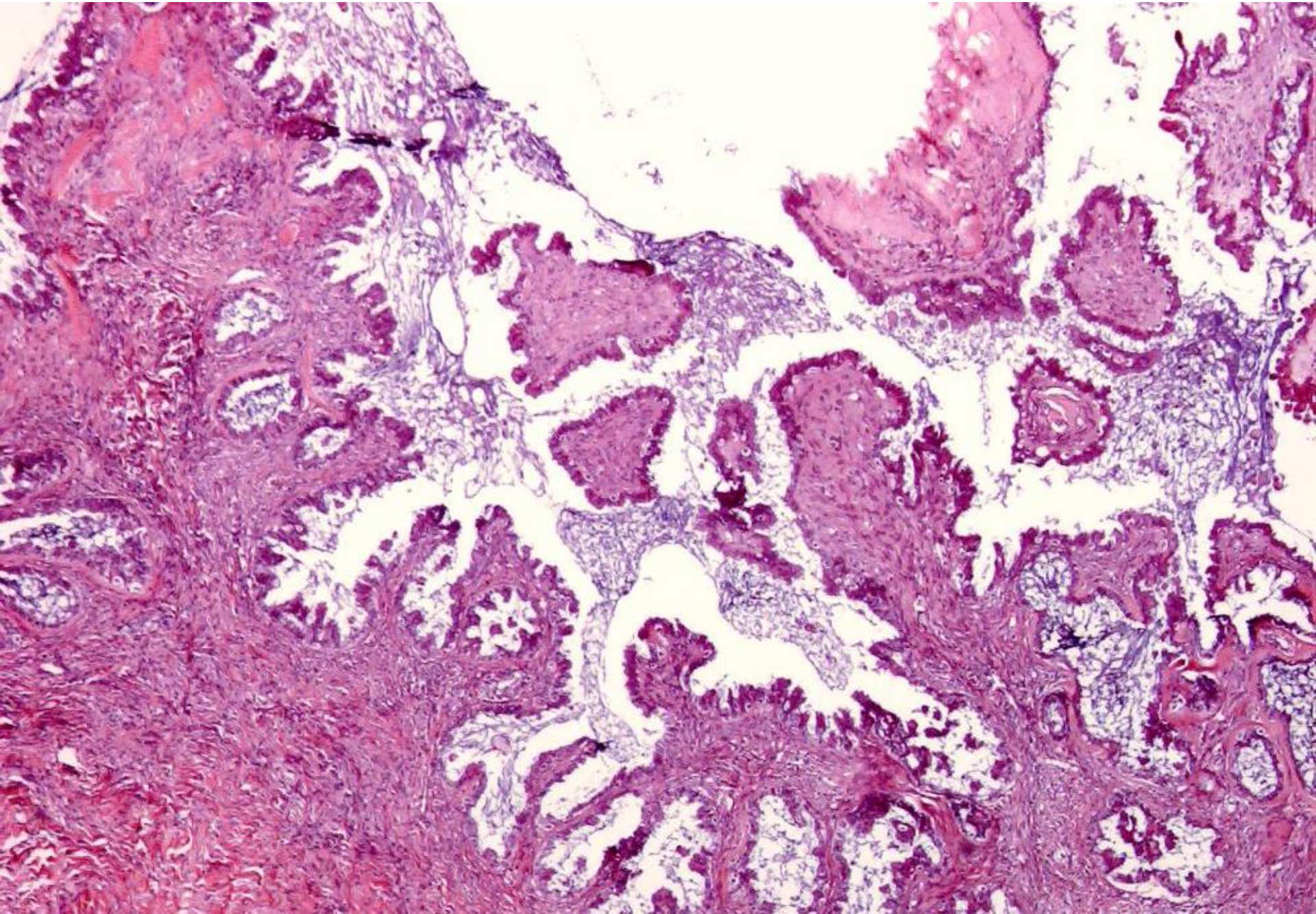


Numerous
Eosinophilic Cells

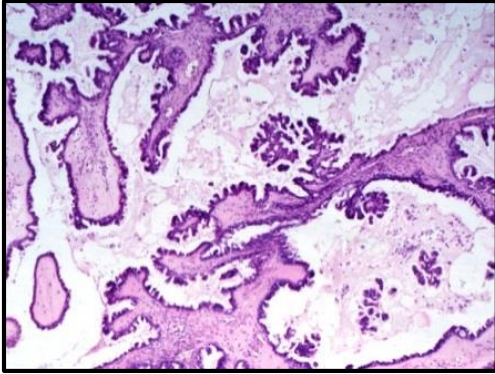


Frequent
Microinvasion

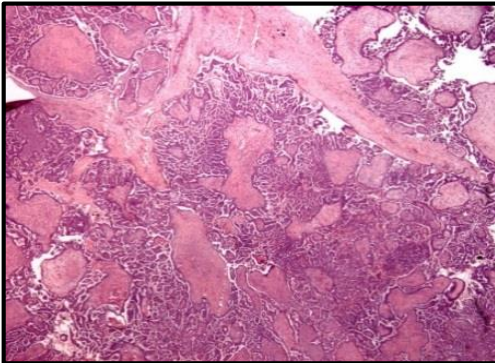
Extracellular Mucin



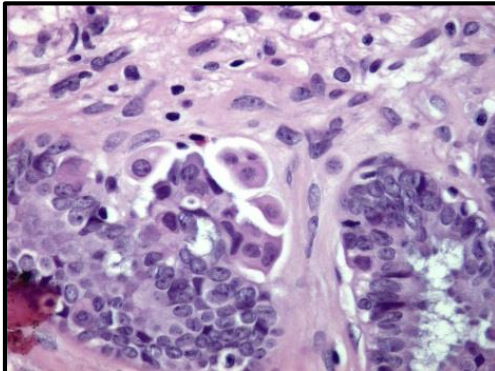
Summary



Classic pattern of serous borderline tumor
Be careful with the 10% cut off if the tumor involves the ovarian surface

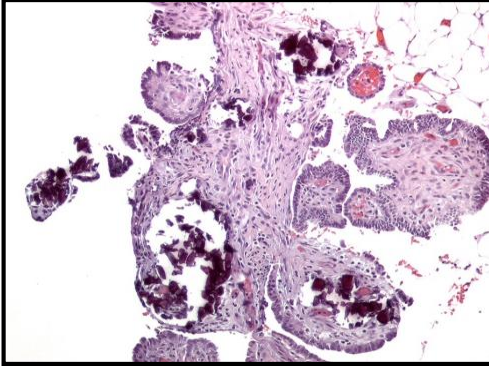


Micropapillary/cribriform pattern of serous borderline tumor
Do not use the term non-invasive low grade serous carcinoma

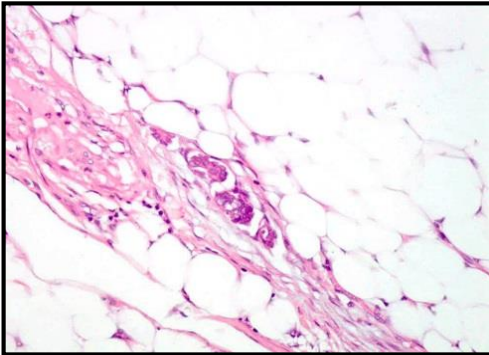


Microinvasion: up to 3 mm
vs. 5 mm (WHO 2014)

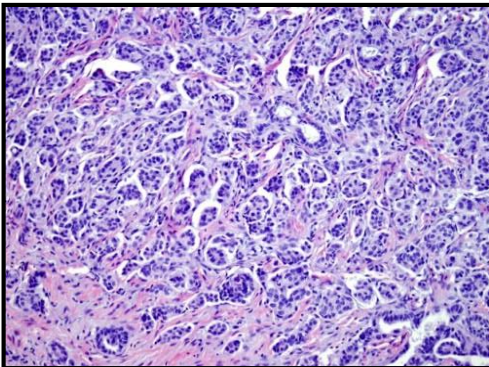
Summary



Non invasive implant (implant)



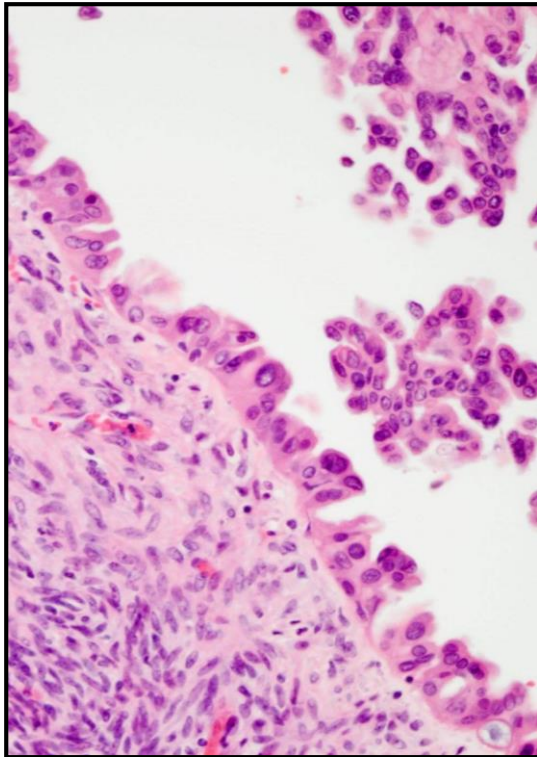
Low volume tumor infiltrating adipose tissue or fibroconnective= favor to retain the term “invasive implant” rather than low grade serous carcinoma



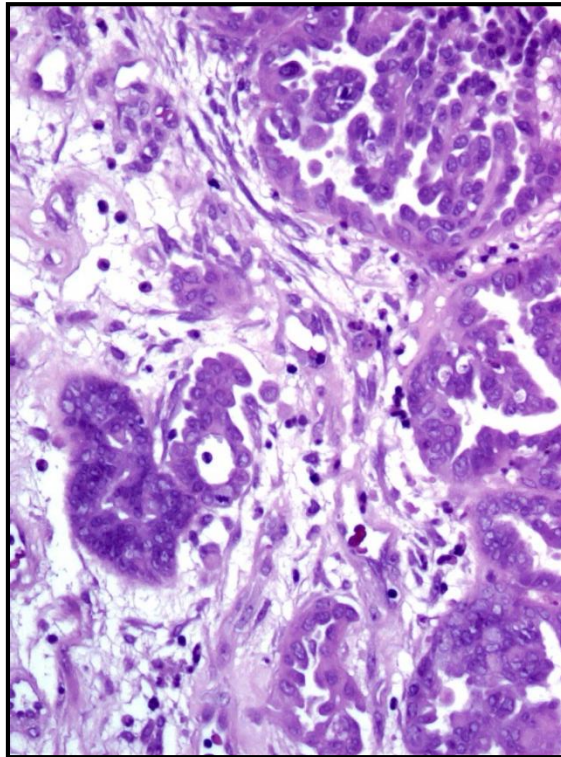
High volume tumor infiltrating adipose tissue or fibroconnective= low grade serous carcinoma

Summary

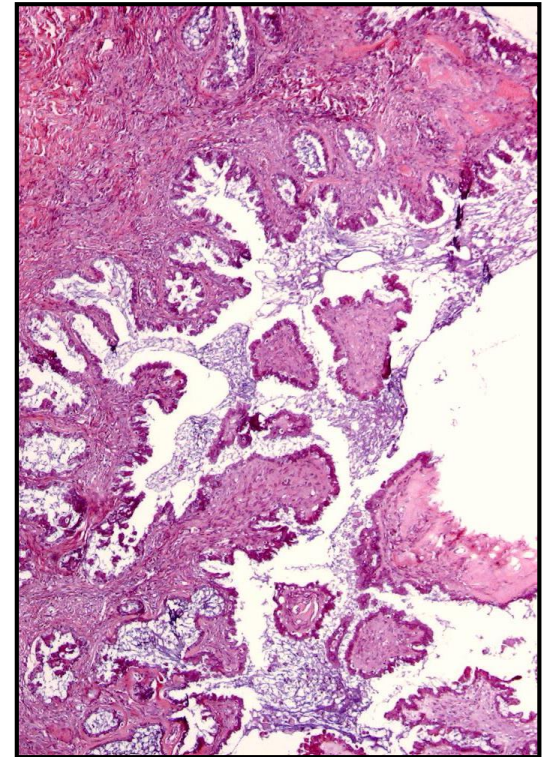
Serous Borderline Tumor in Pregnancy



Epithelial
proliferation and
atypia



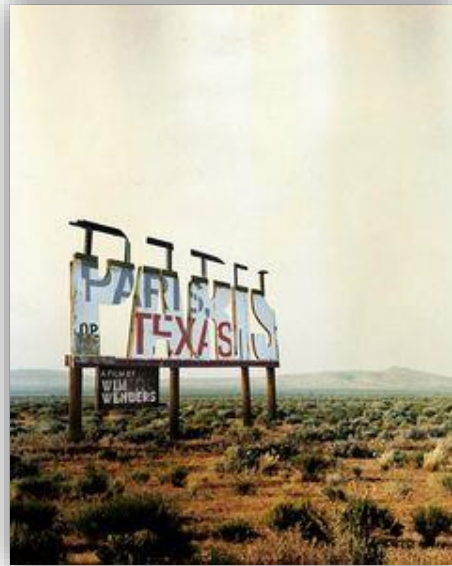
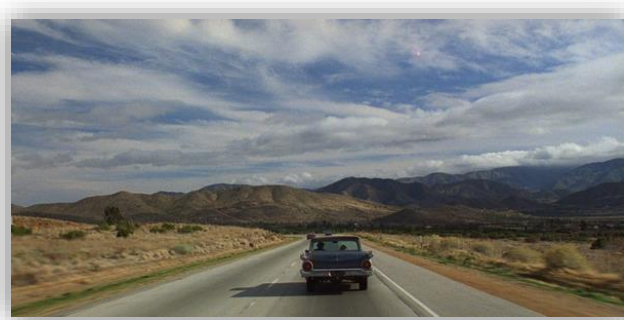
Microinvasion



Extracellular
mucin

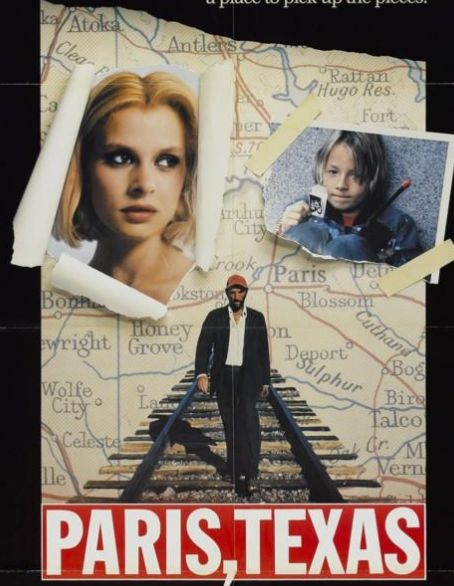


West Texas, between Marfa and Fort Davis



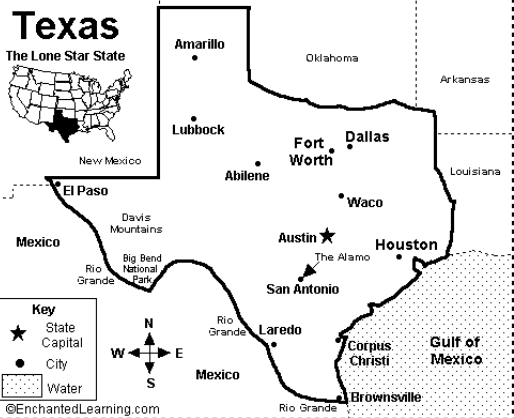
Unanimous Winner - GRAND PRIZE PALME D'OR - Cannes Film Festival

a place for dreams.
a place for heartbreak.
a place to pick up the pieces.



PARIS, TEXAS

TWENTIETH CENTURY FOX FILM CORPORATION Presents
A ROAD MOVIE FILM PRODUCTION / ARGOS FILMS PRODUCTION of a WIM WENDERS film
Starring HARRY DEAN STANTON - NASTASSJA KINSKI - DEAN STOCKWELL - AUDRE CLÉMENT and featuring HUNTER CARSON
in PARIS, TEXAS written by SAM SHEPARD Adaptation by L.M. KIT CARSON Director of Photography ROBBY MÜLLER
Music by RY COODER Executive Producer CHRIS SIEVERWICH Produced by DON GUEST Directed by WIM WENDERS



The more opinions
you have, the less
you see.
Wim Wenders