Interesting Digital Slide Case Presentations

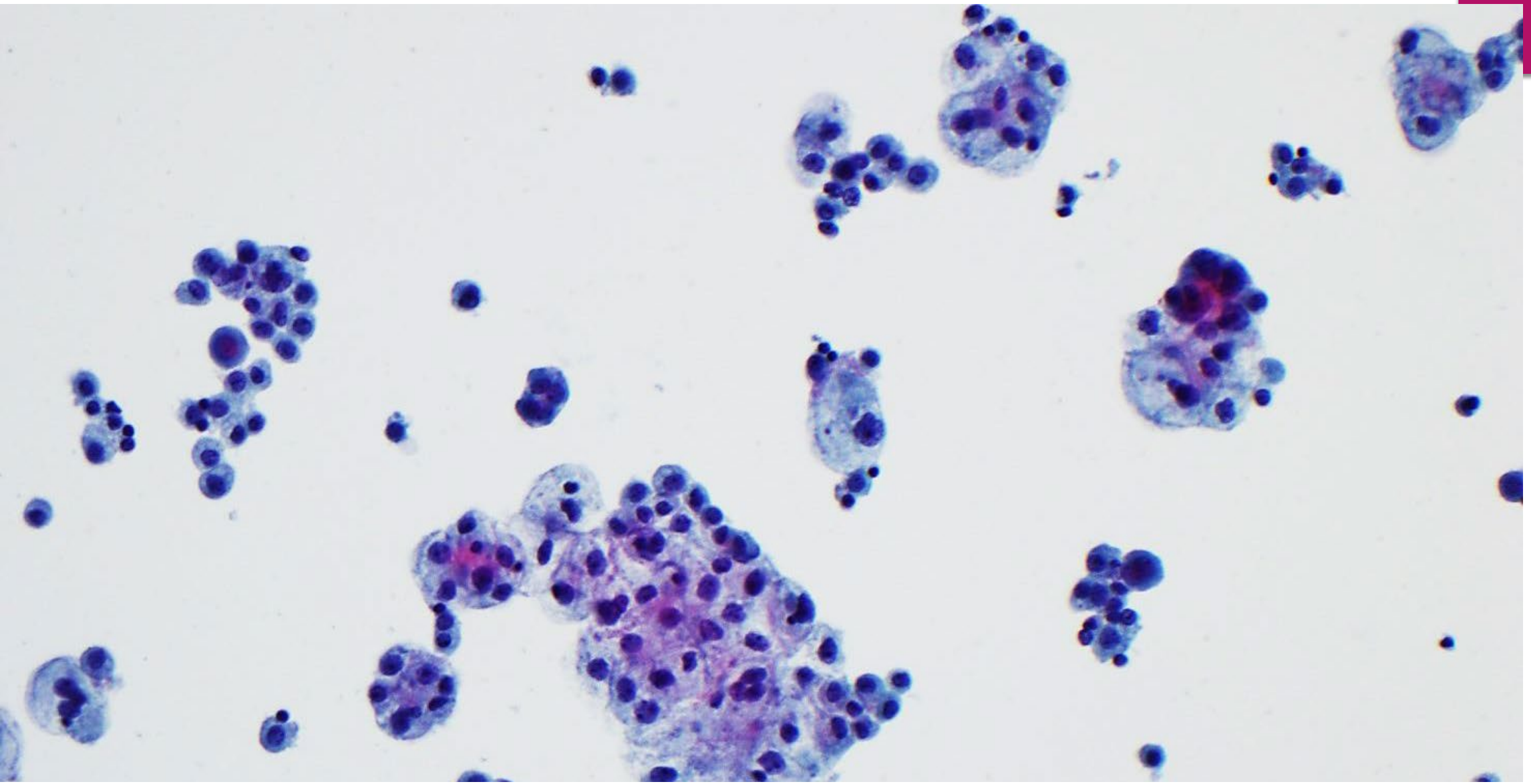
DONNA K. RUSSELL, M.ED, CT(ASCP)HT, CFIAC

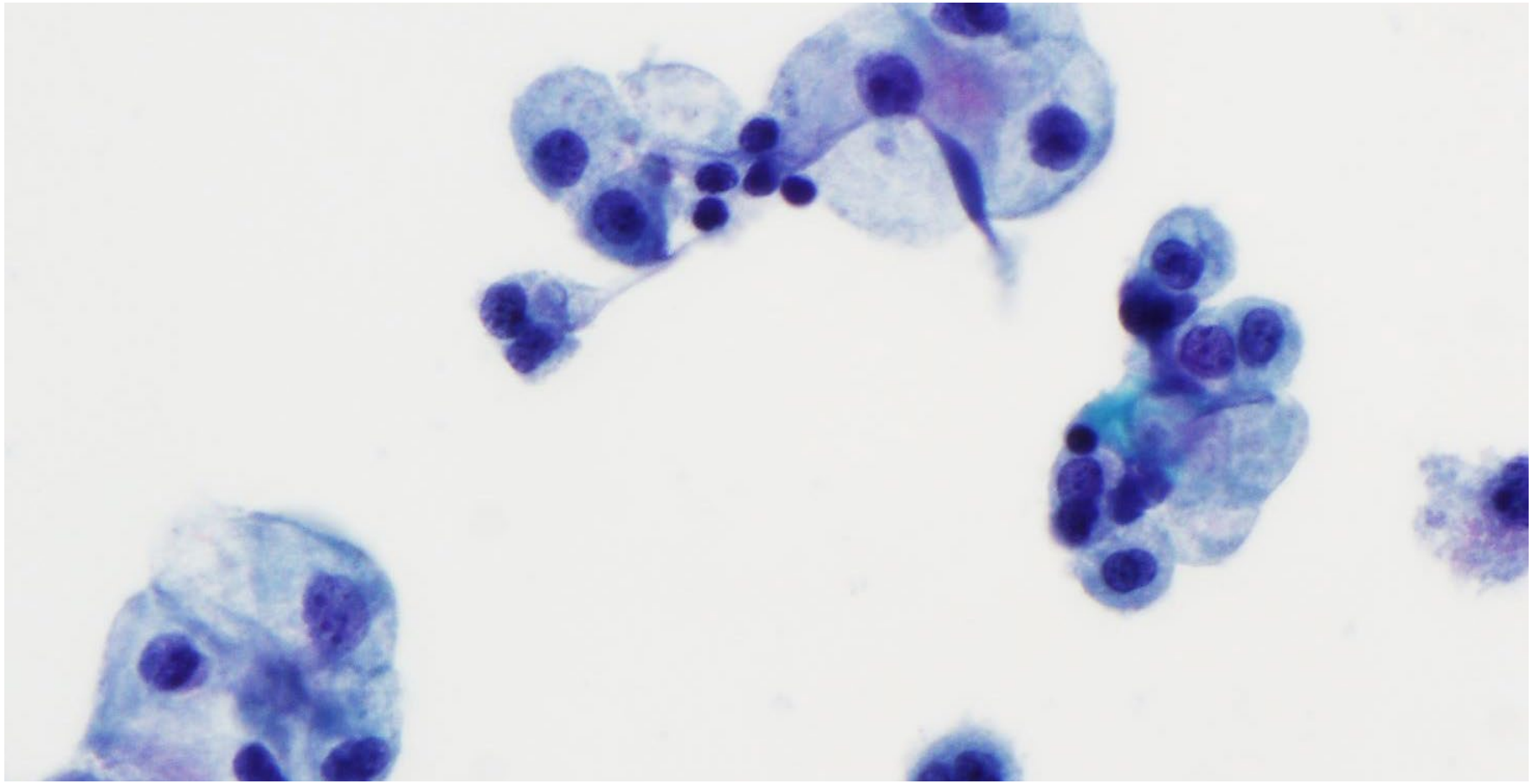
UR MEDICINE

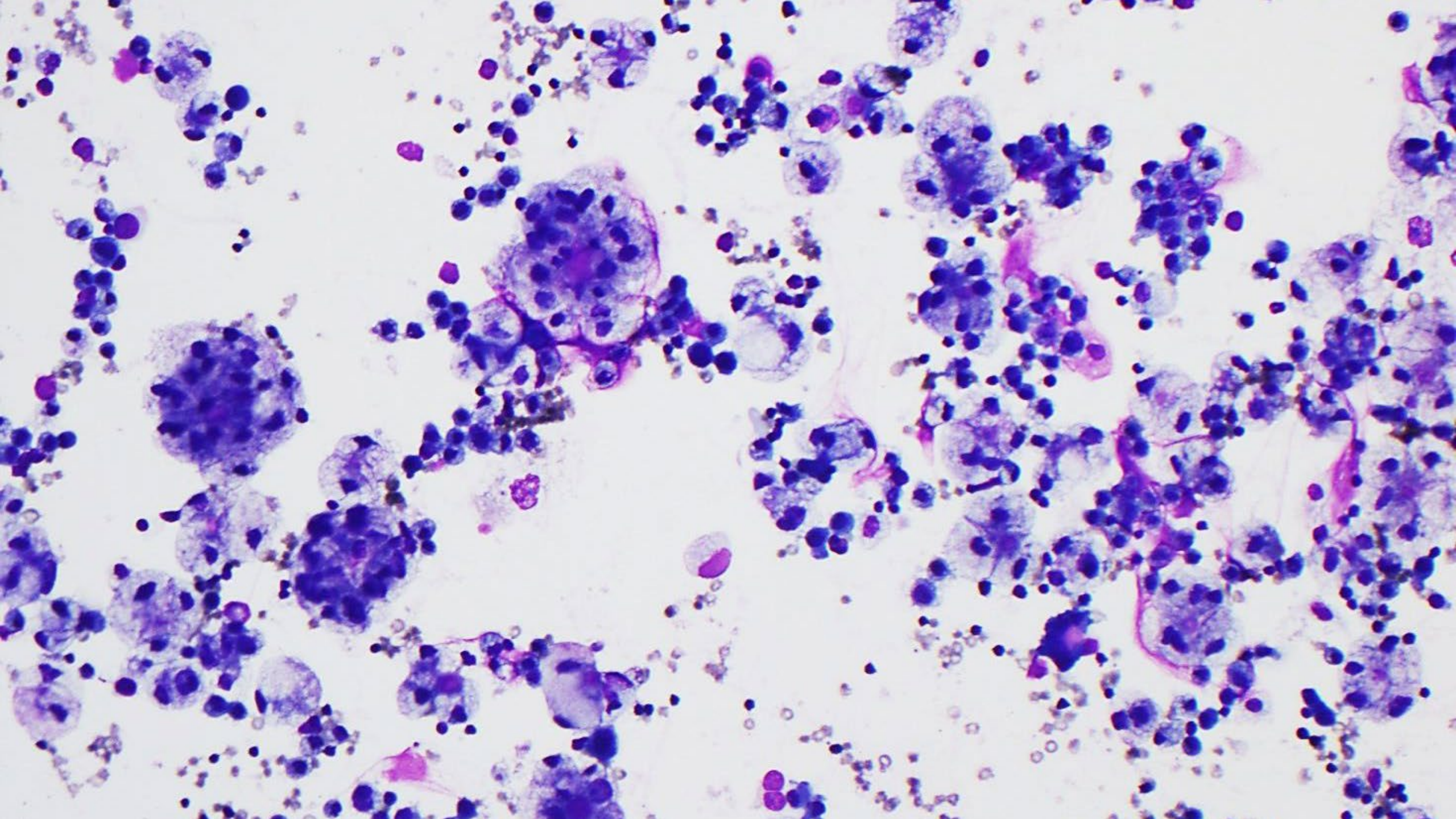
ROCHESTER, NEW YORK

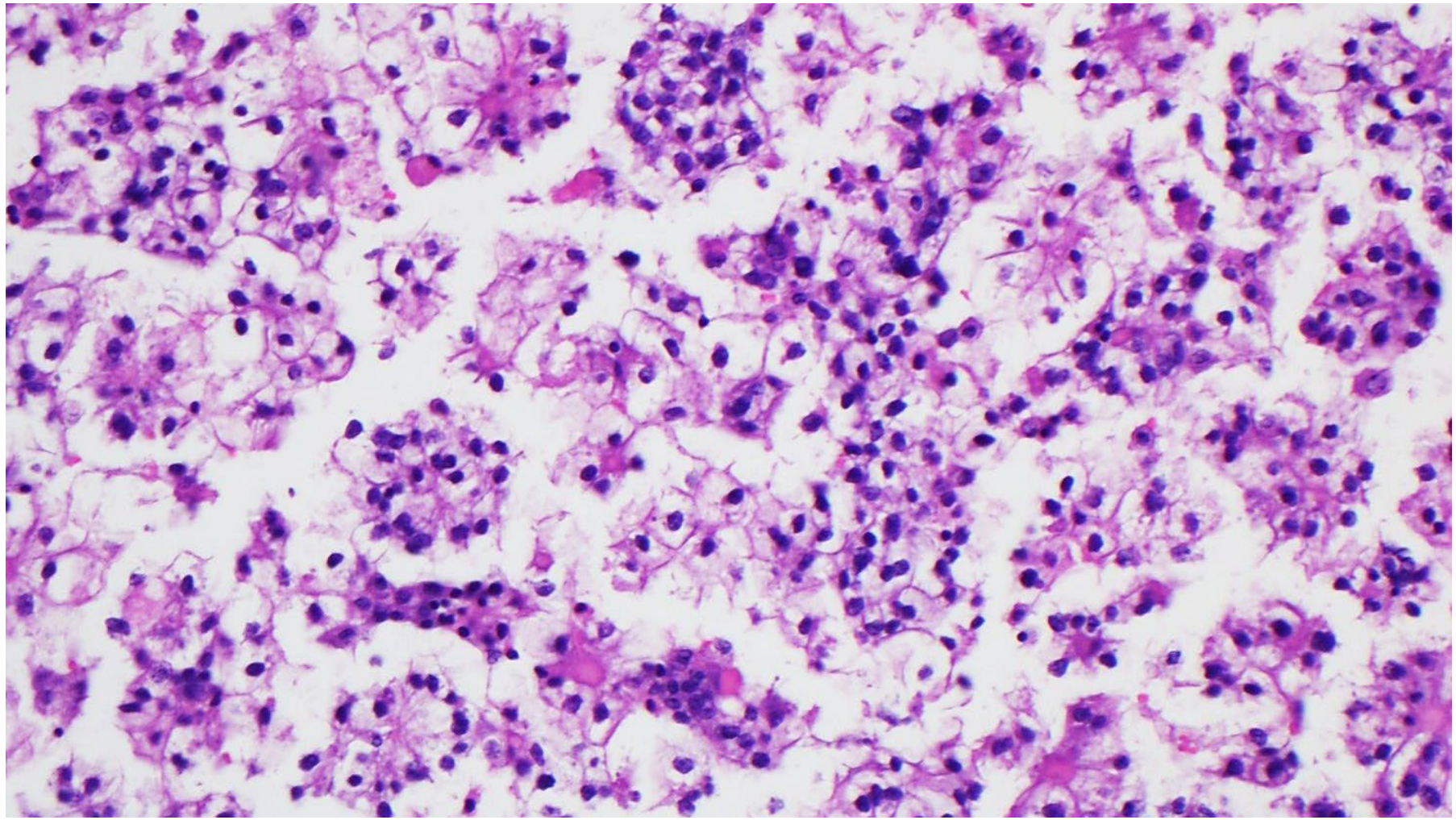
CASE 1

- 64 year-old man
- Long smoking history
- Flank pain
- 550 mL of amber fluid
- Pleural effusion; left







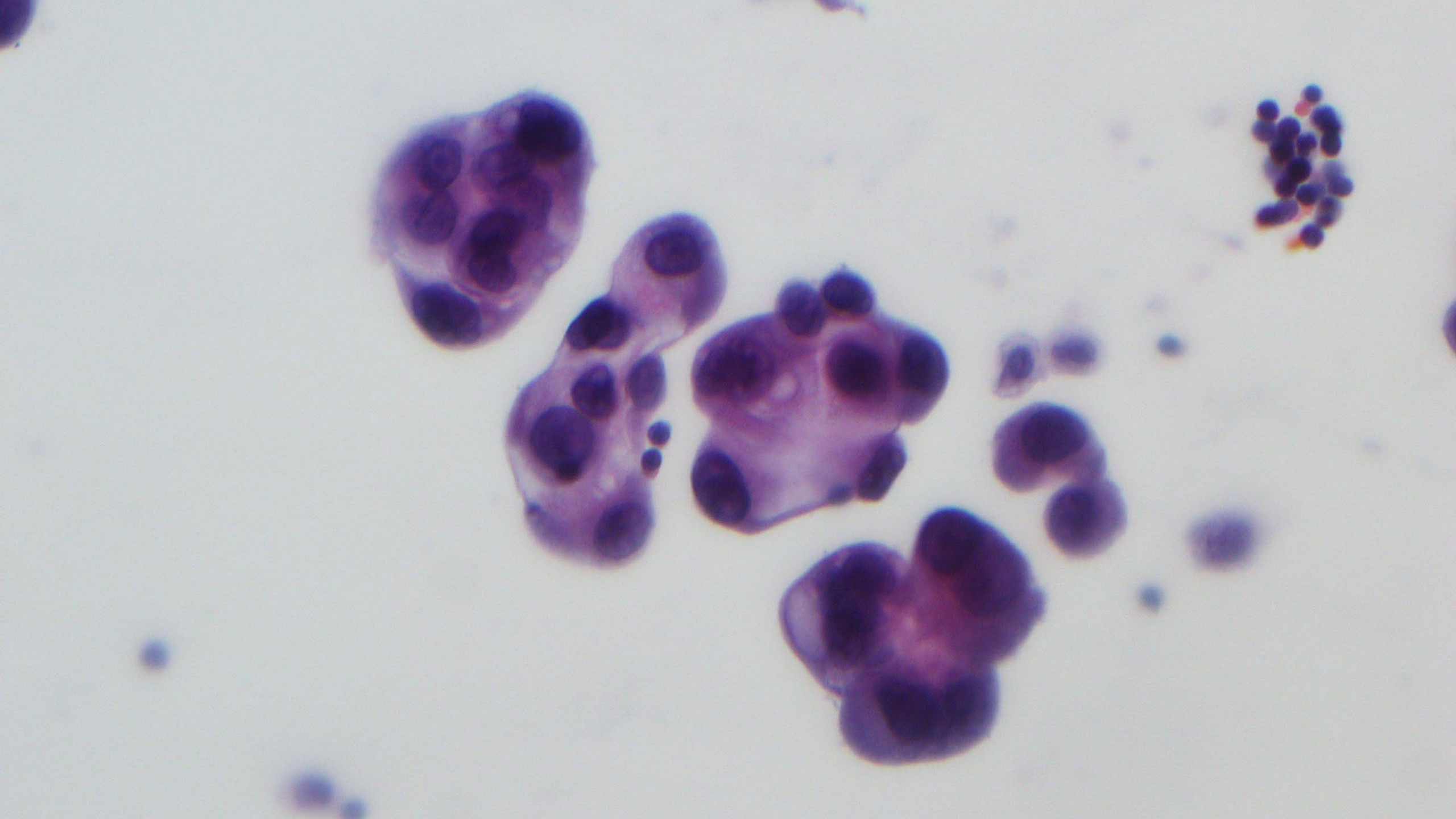


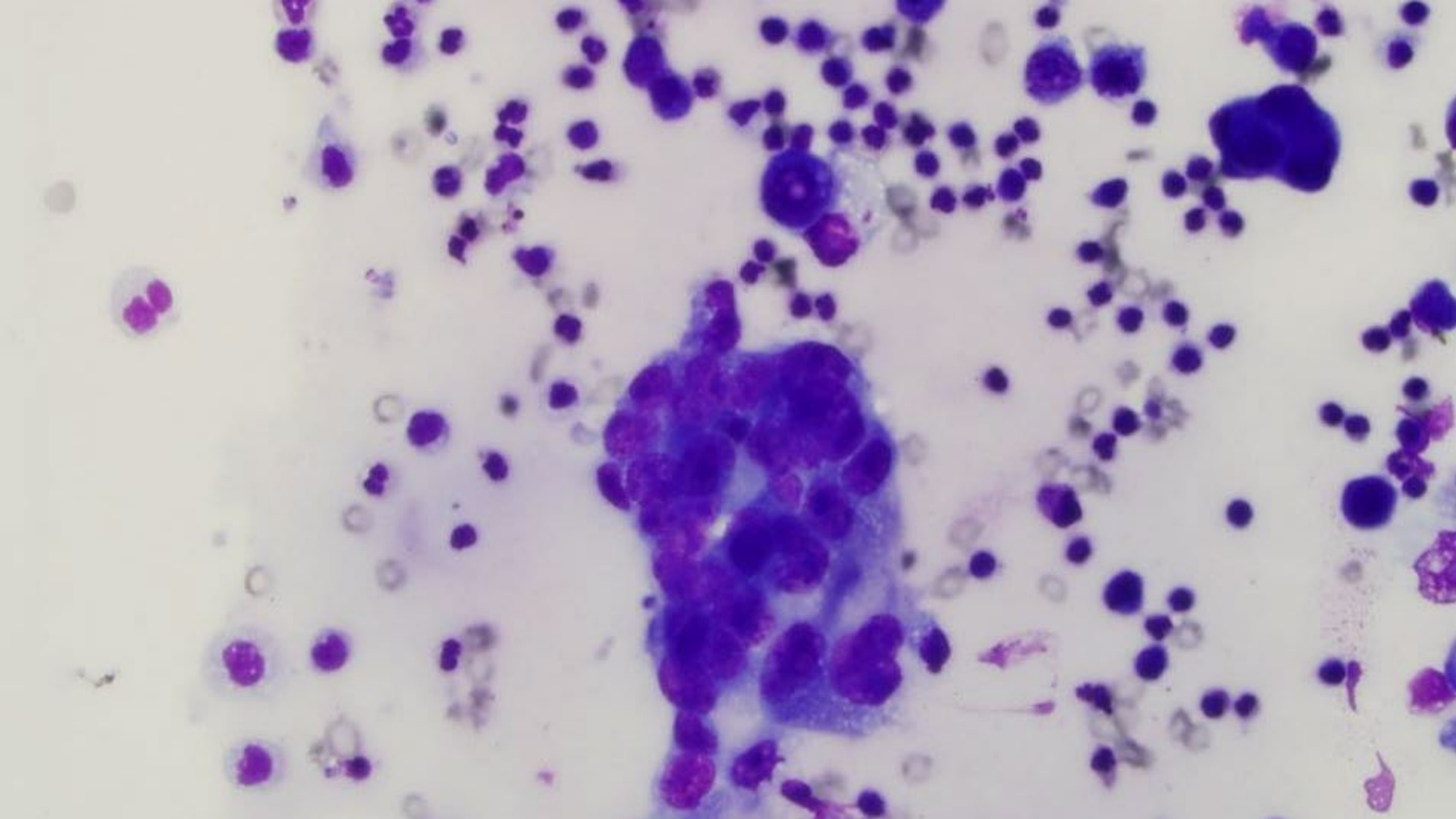
Case 1: What is your interpretation?

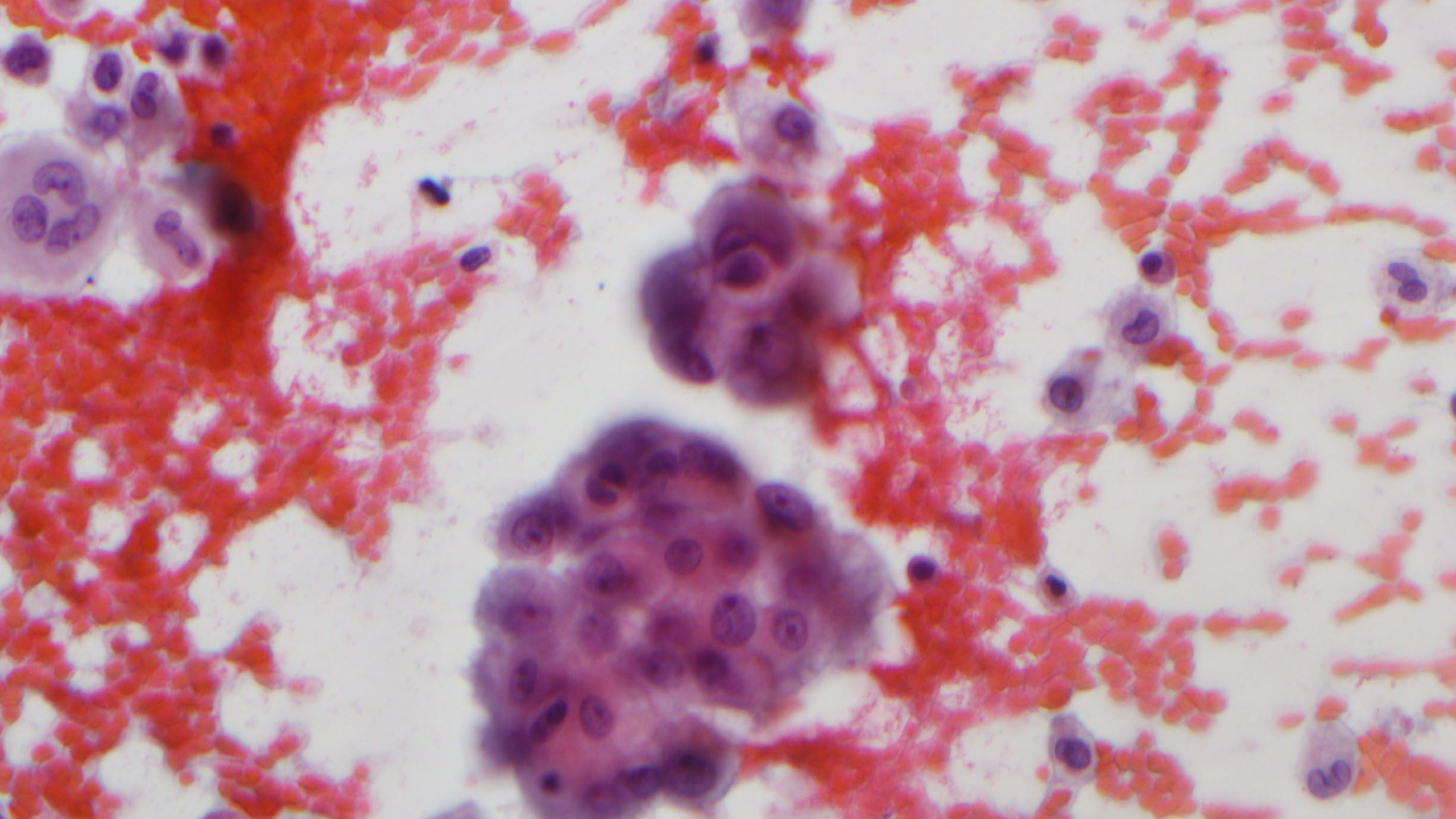
- Metastatic adenocarcinoma, lung
- Metastatic adenocarcinoma, colon
- Metastatic renal cell carcinoma
- Reactive mesothelial cells

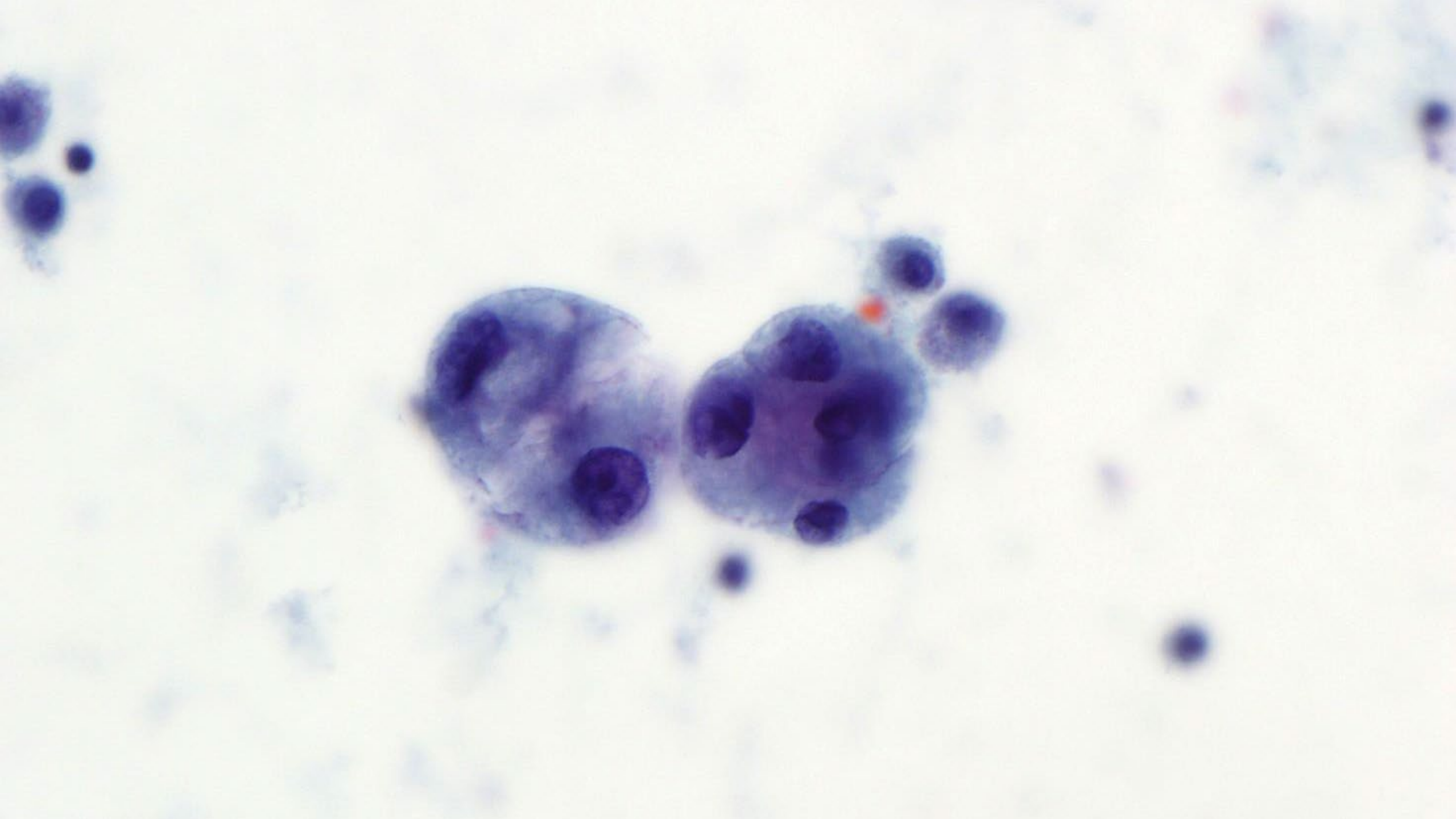
Differential Diagnosis

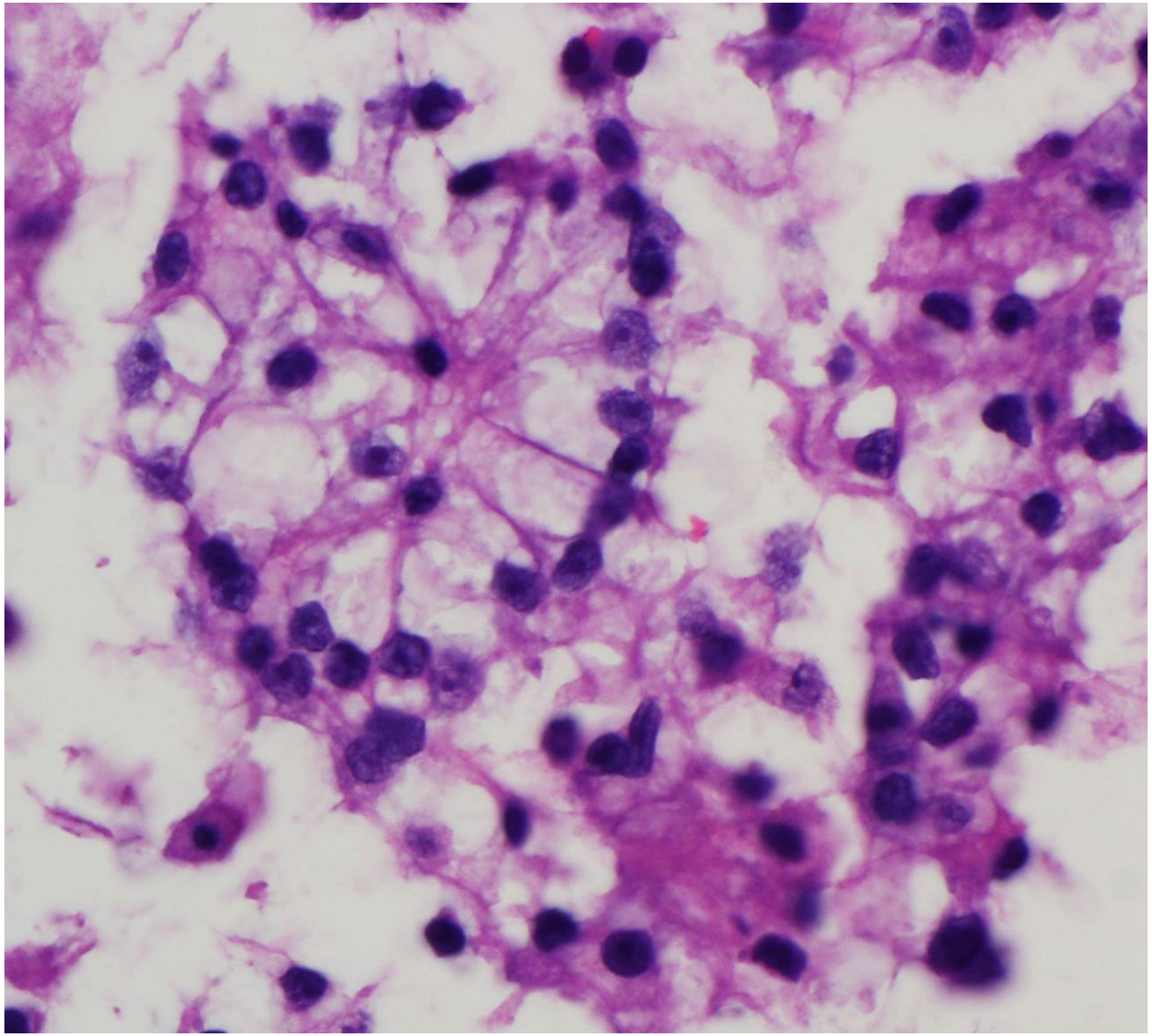
- Metastatic adenocarcinoma, lung
- Metastatic adenocarcinoma, colon
- Reactive mesothelial cells
- Metastatic renal cell carcinoma



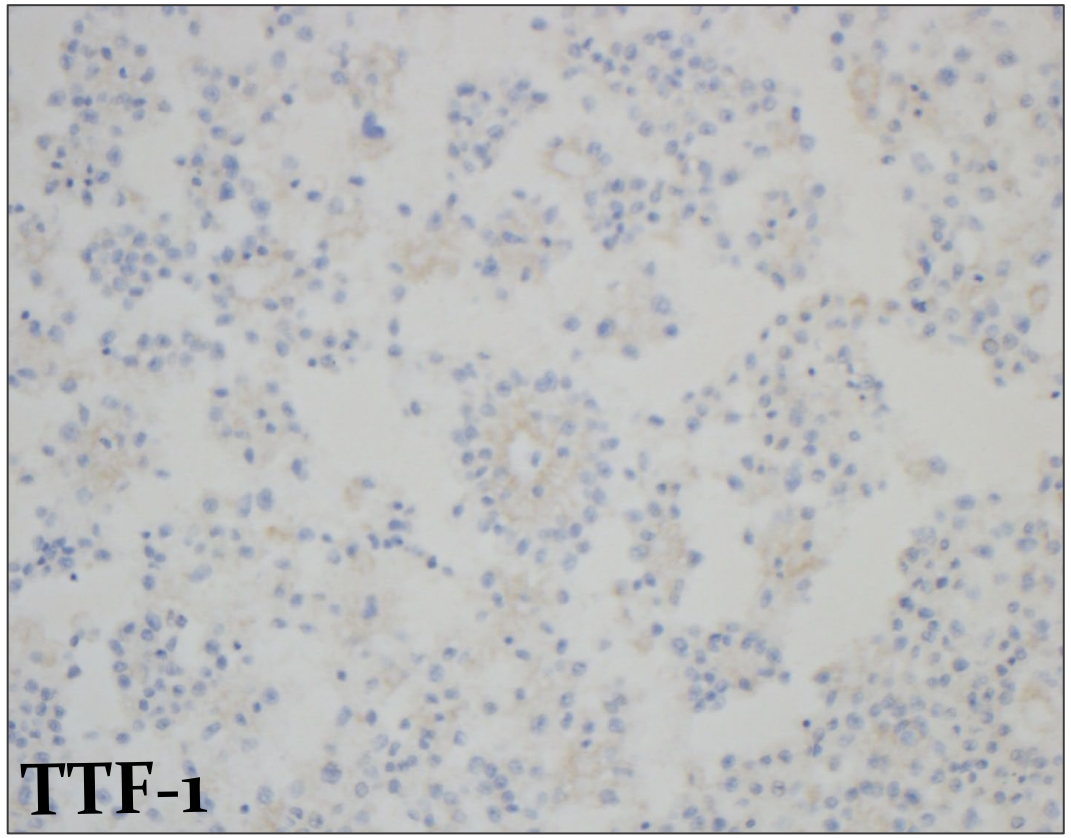


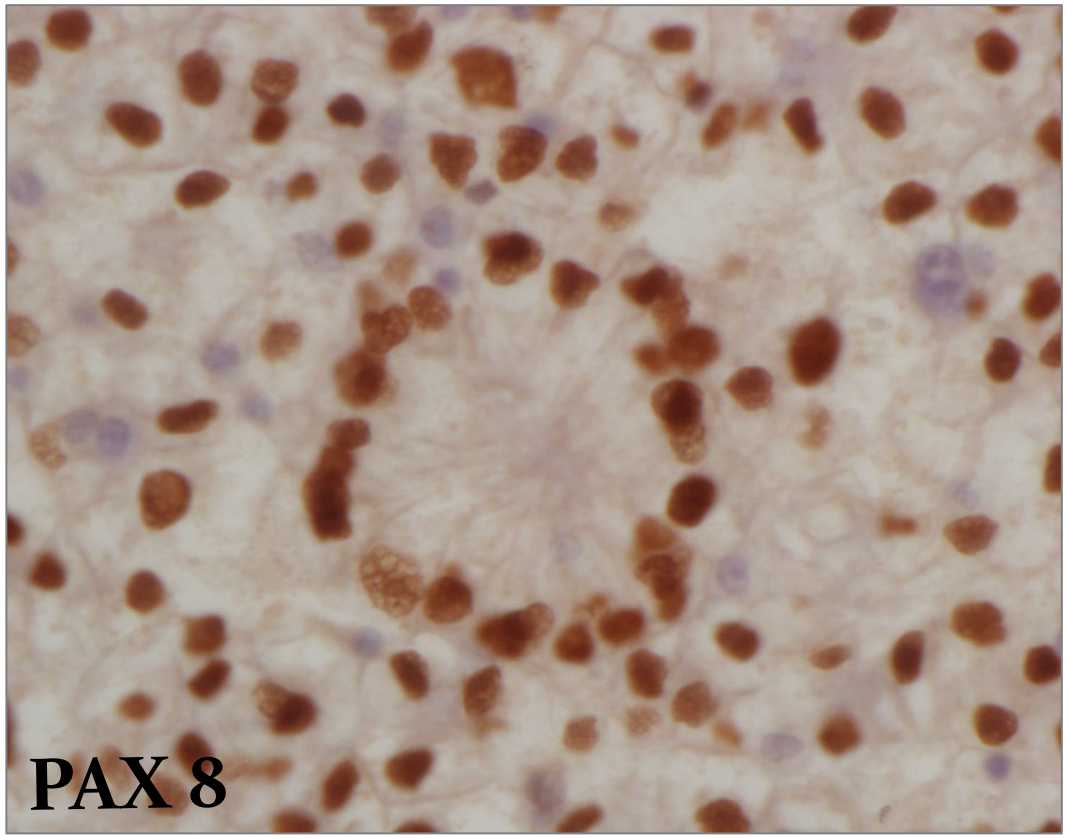






Immunohistochemistry



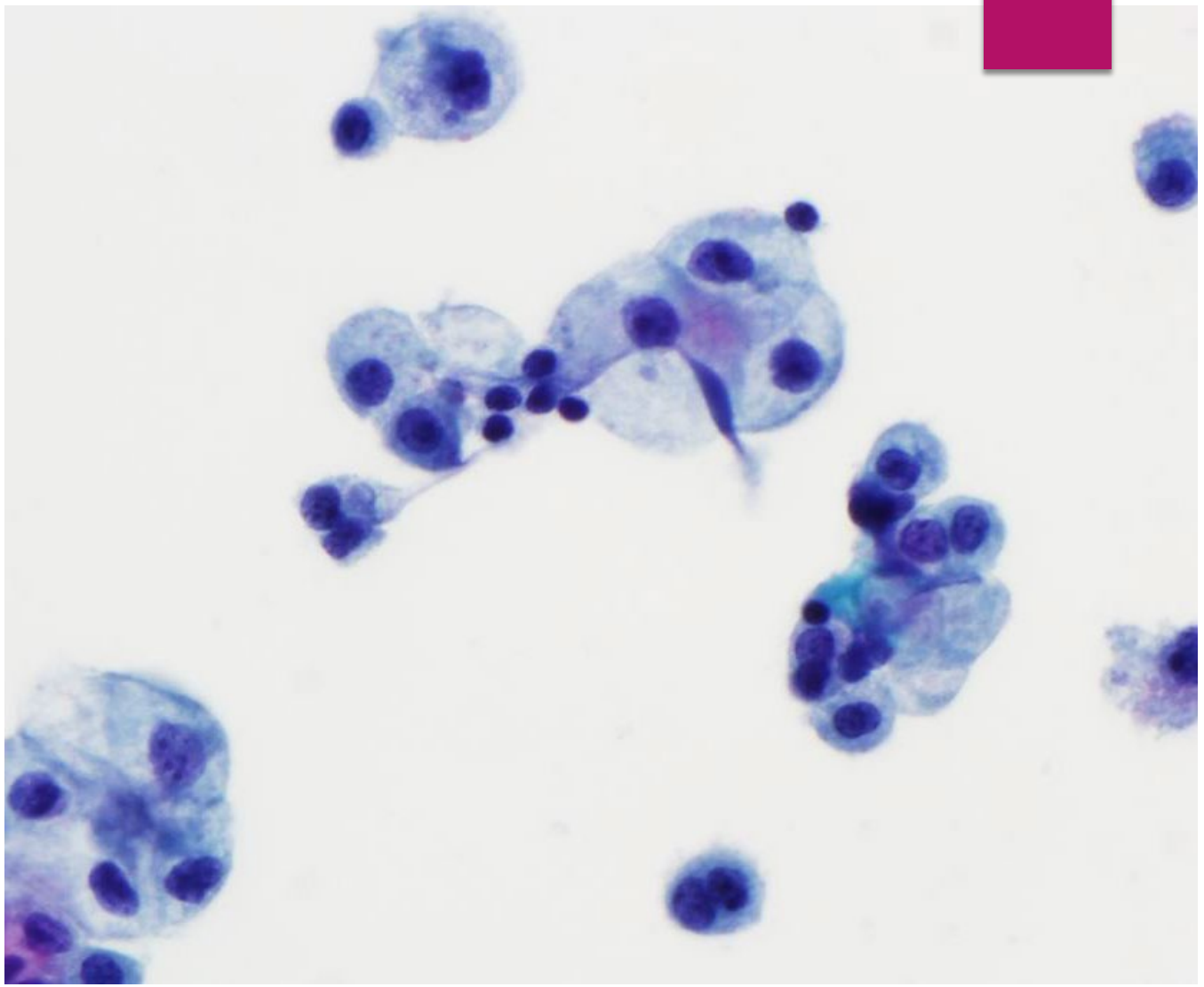


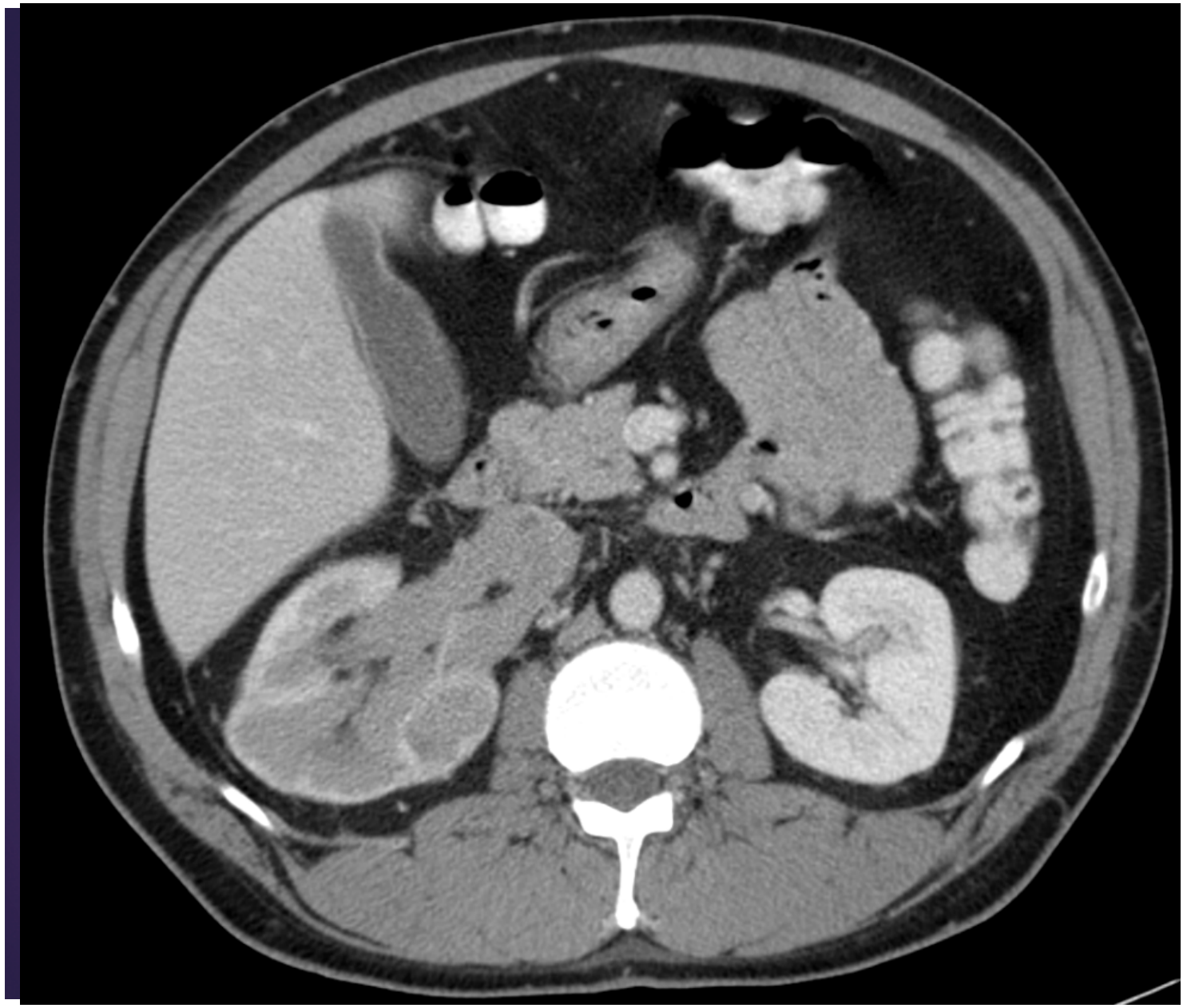
Cytopathologic Interpretation:

Pleural fluid; left:

- Positive for malignancy; metastatic renal cell carcinoma

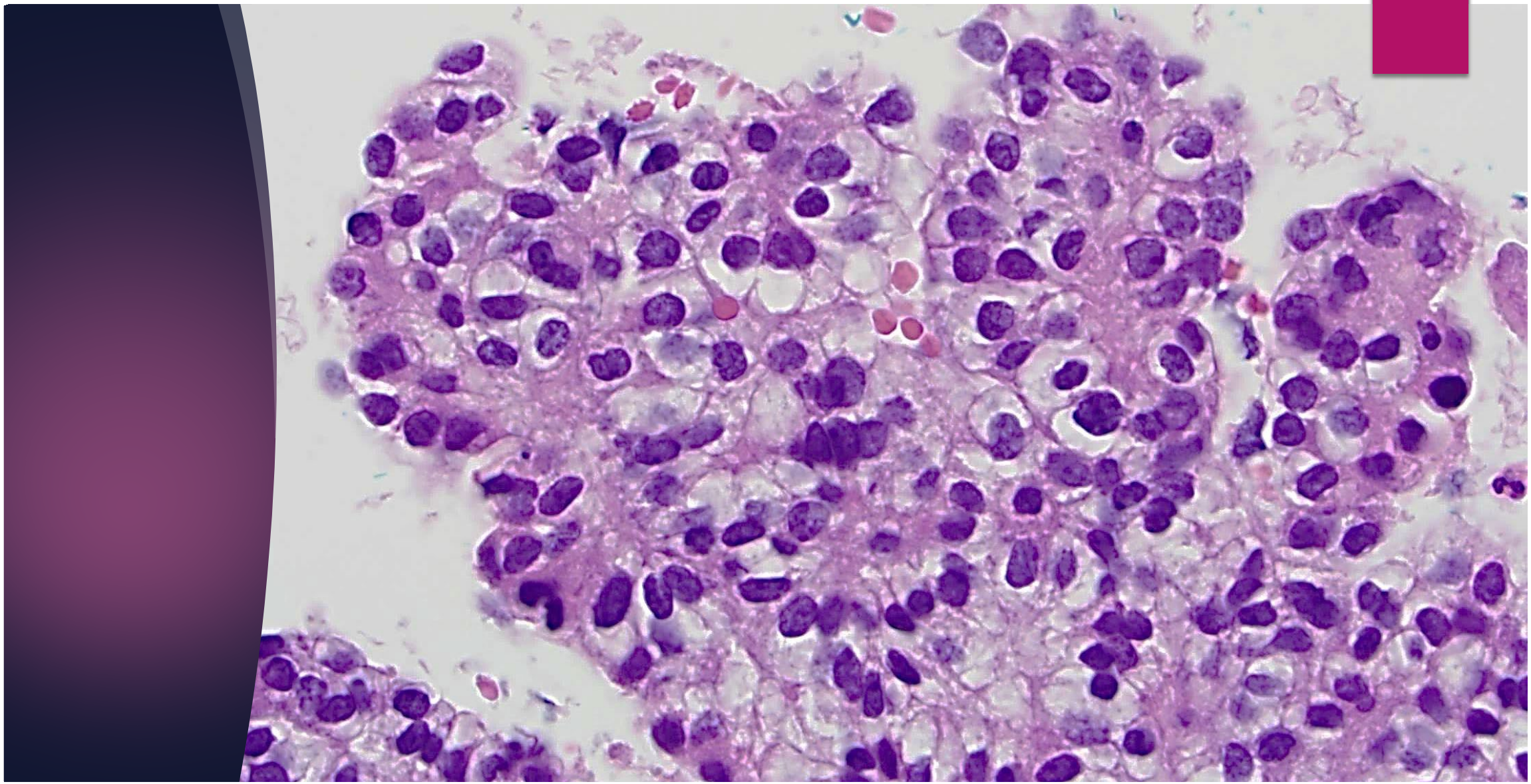
- IHC stains show that the tumor cells mark with RCC and Pax-8. These staining results support renal origin



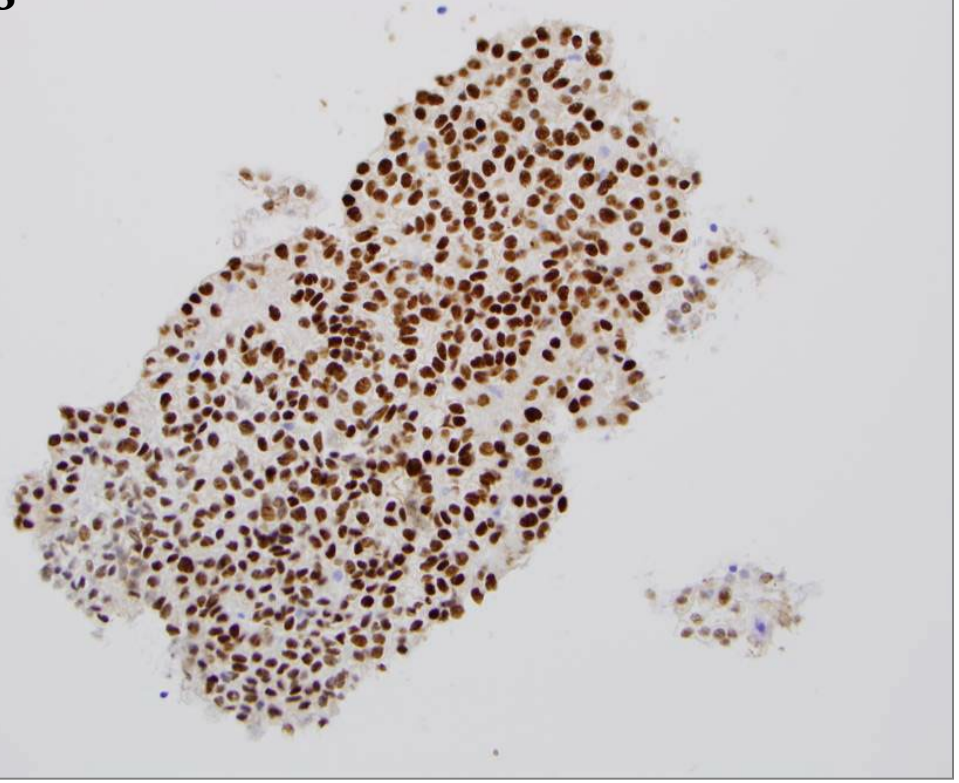


Radiology:

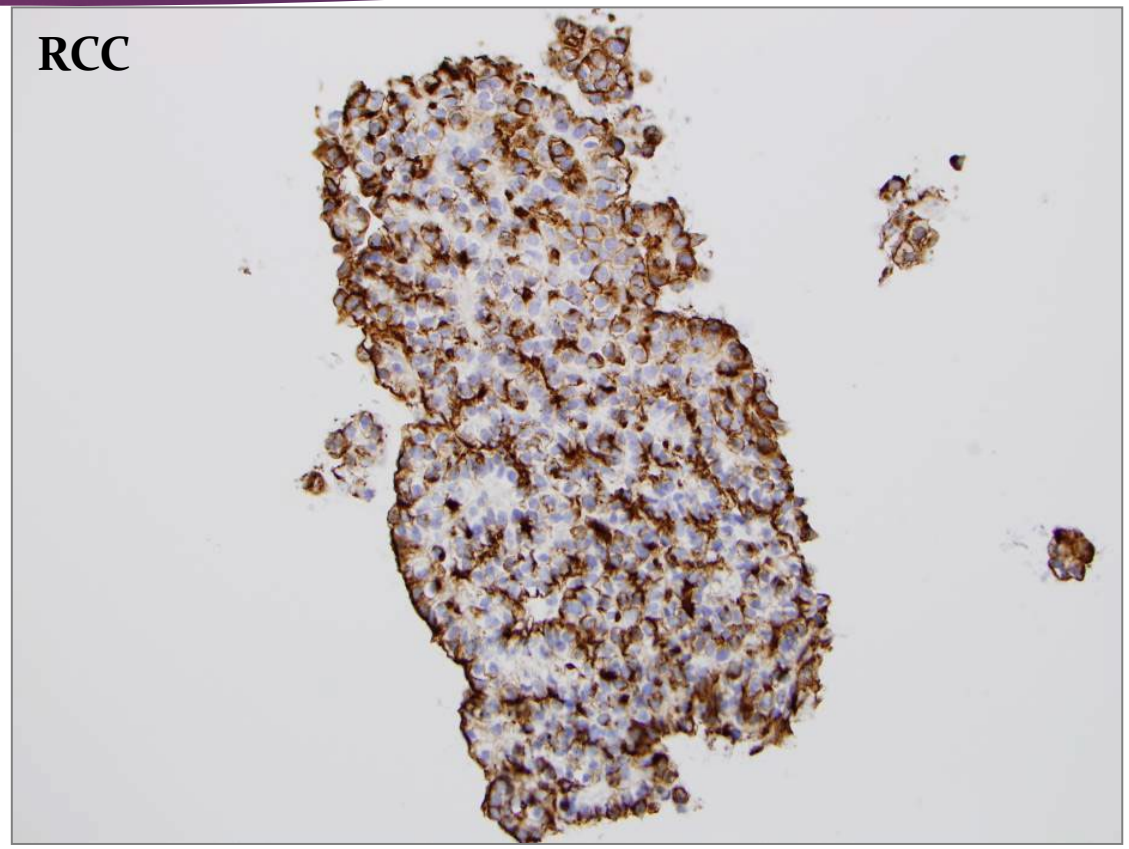
KIDNEY MASS, ENLARGED ABDOMINAL LYMPH NODE



PAX 8



RCC



Metastatic Renal Cell Carcinoma

Pathologic features indicating metastatic potential:

- **High Furhman nuclear grade: 4**
- **Tumor extends into vessels**
- **Small and large vascular invasion present**
- **Positive surgical margin**
- **Tumor size: 4 cm**

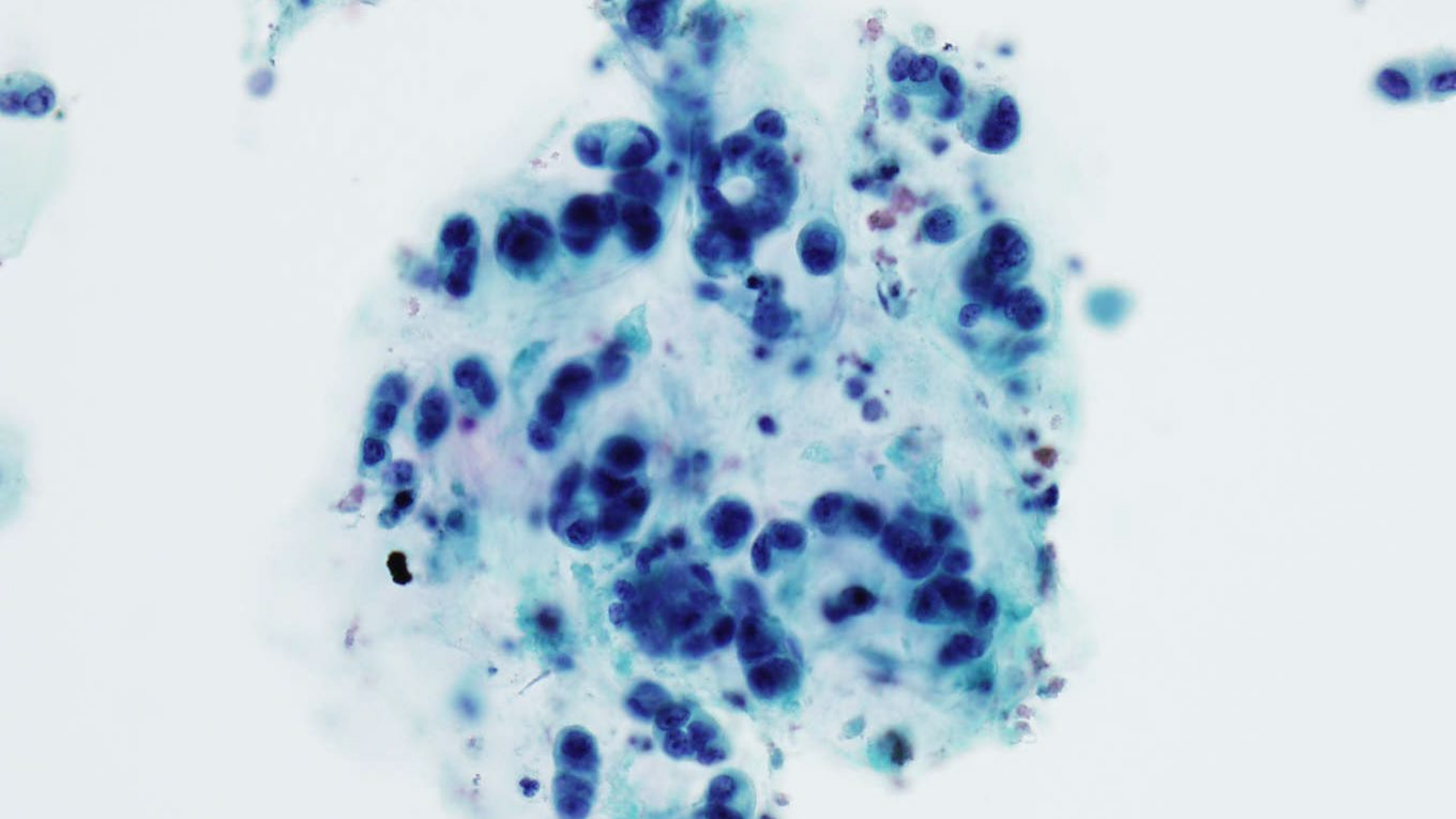
Most common locations for distant metastases:

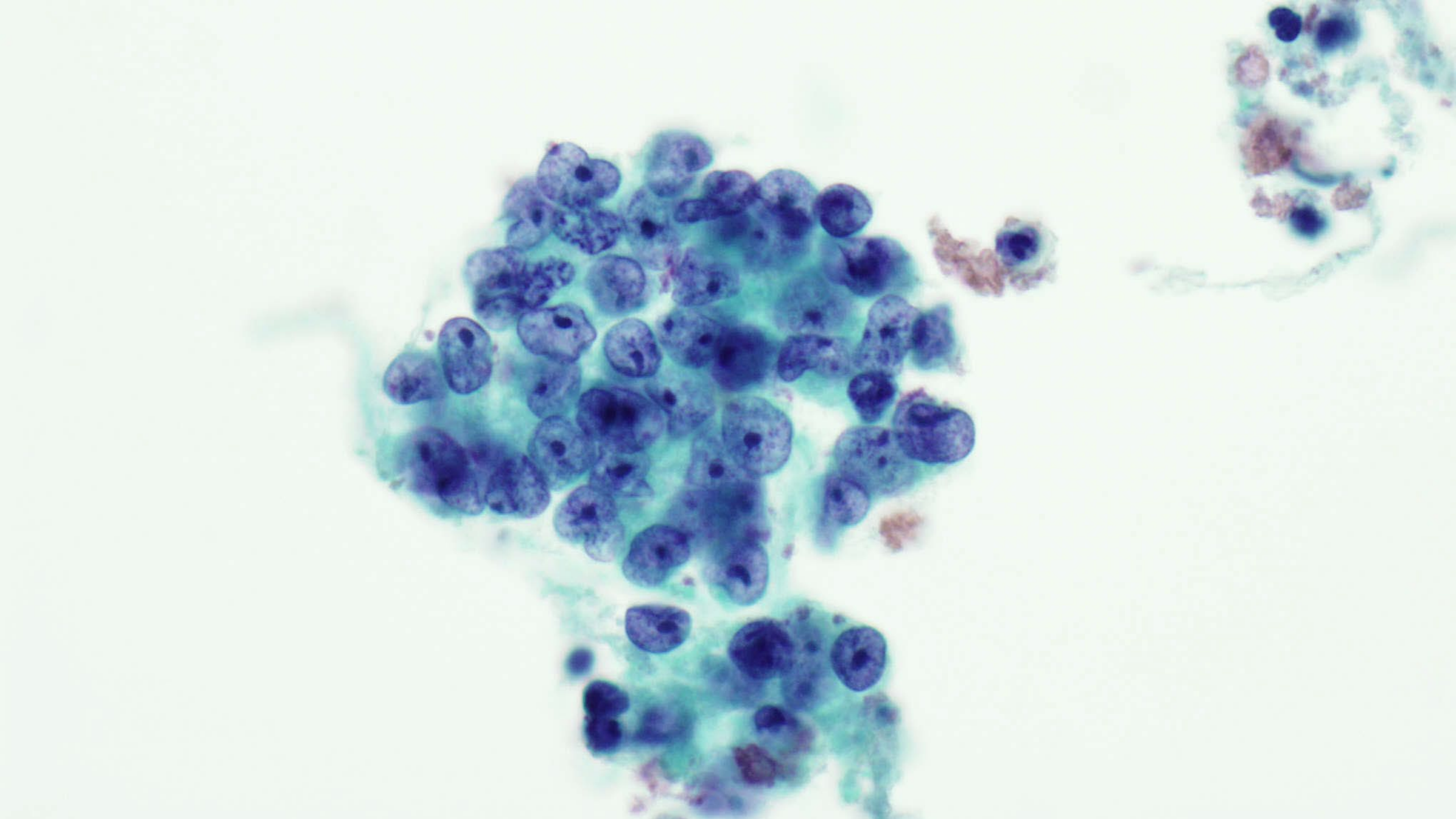
Lung and bone

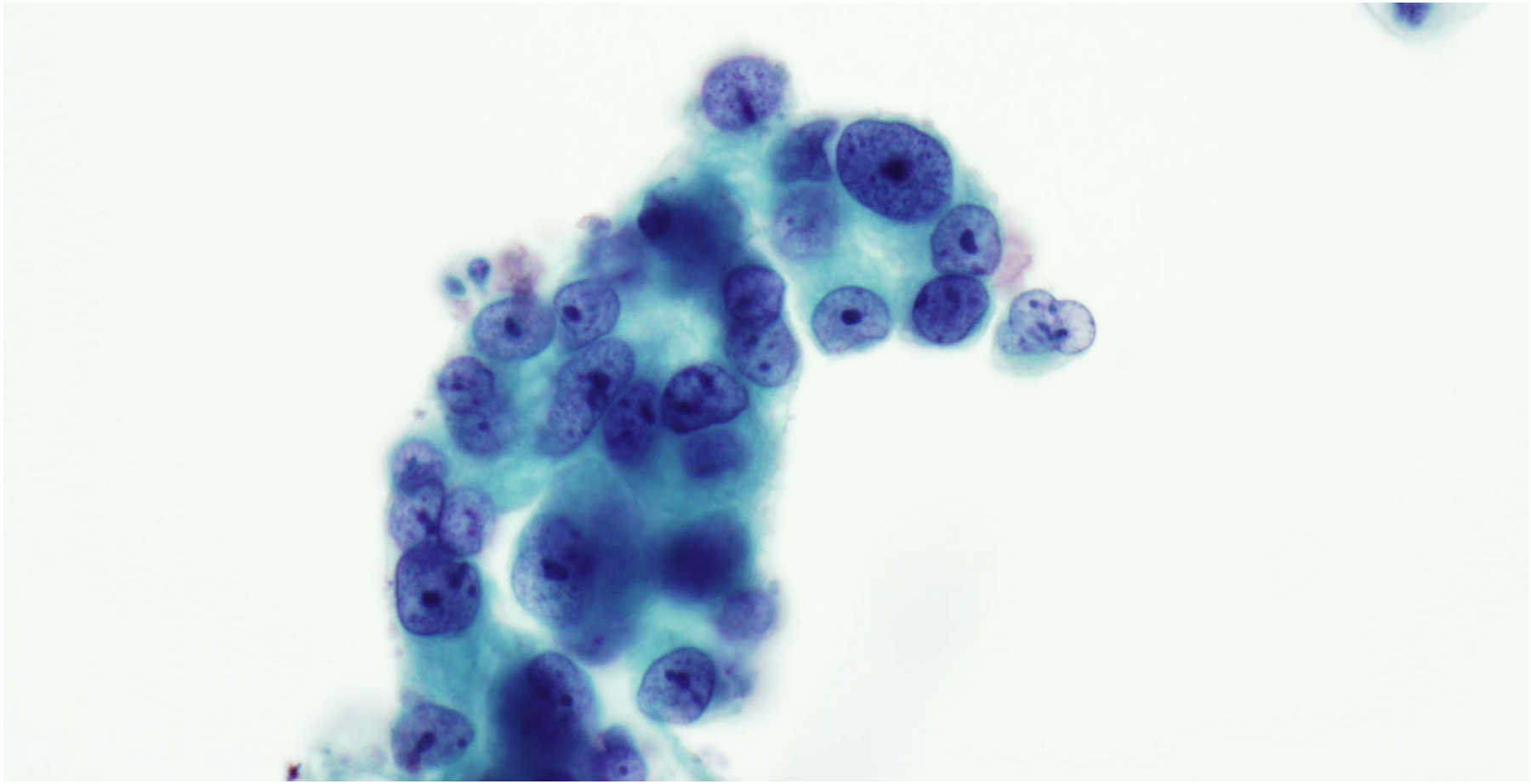
Notorious for metastasis to unusual locations: nasal cavities, thyroid, heart, bladder, oral cavity, testes, prostate, pituitary gland

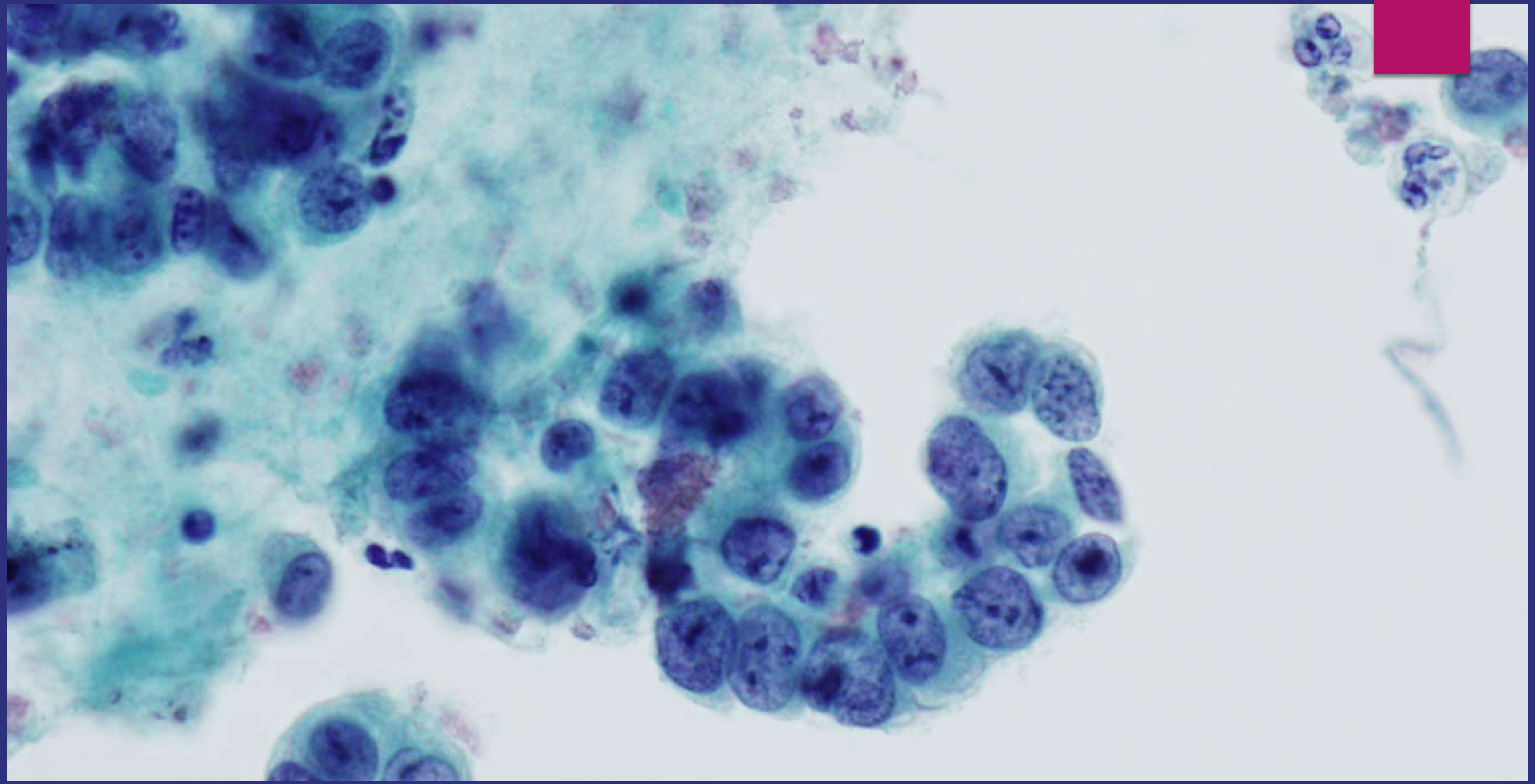
CASE 2

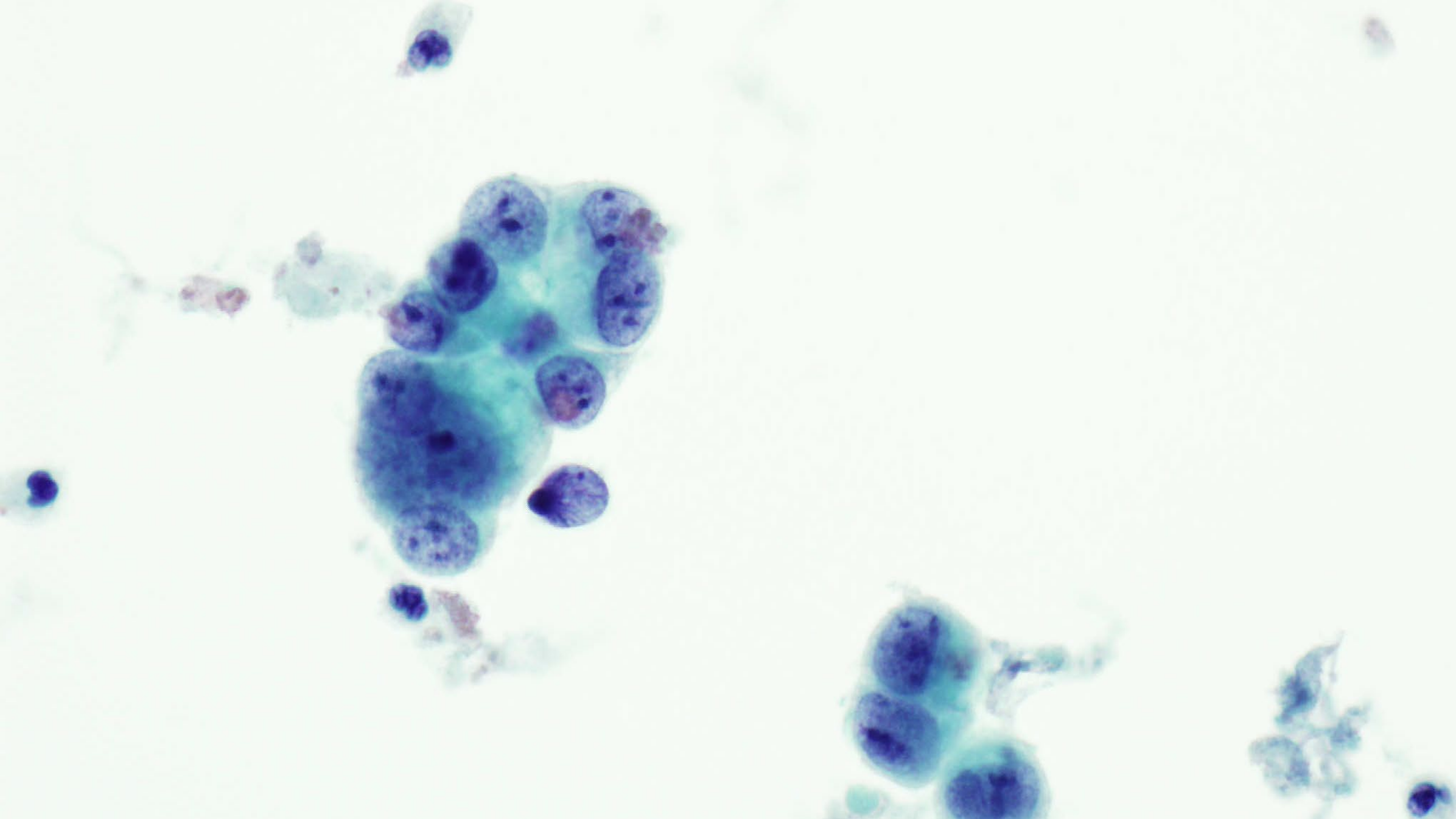
- 64 YEAR-OLD MAN
- LONG SMOKING HISTORY
- FLANK PAIN
- 550 ML OF AMBER FLUID
- PLEURAL EFFUSION; LEFT









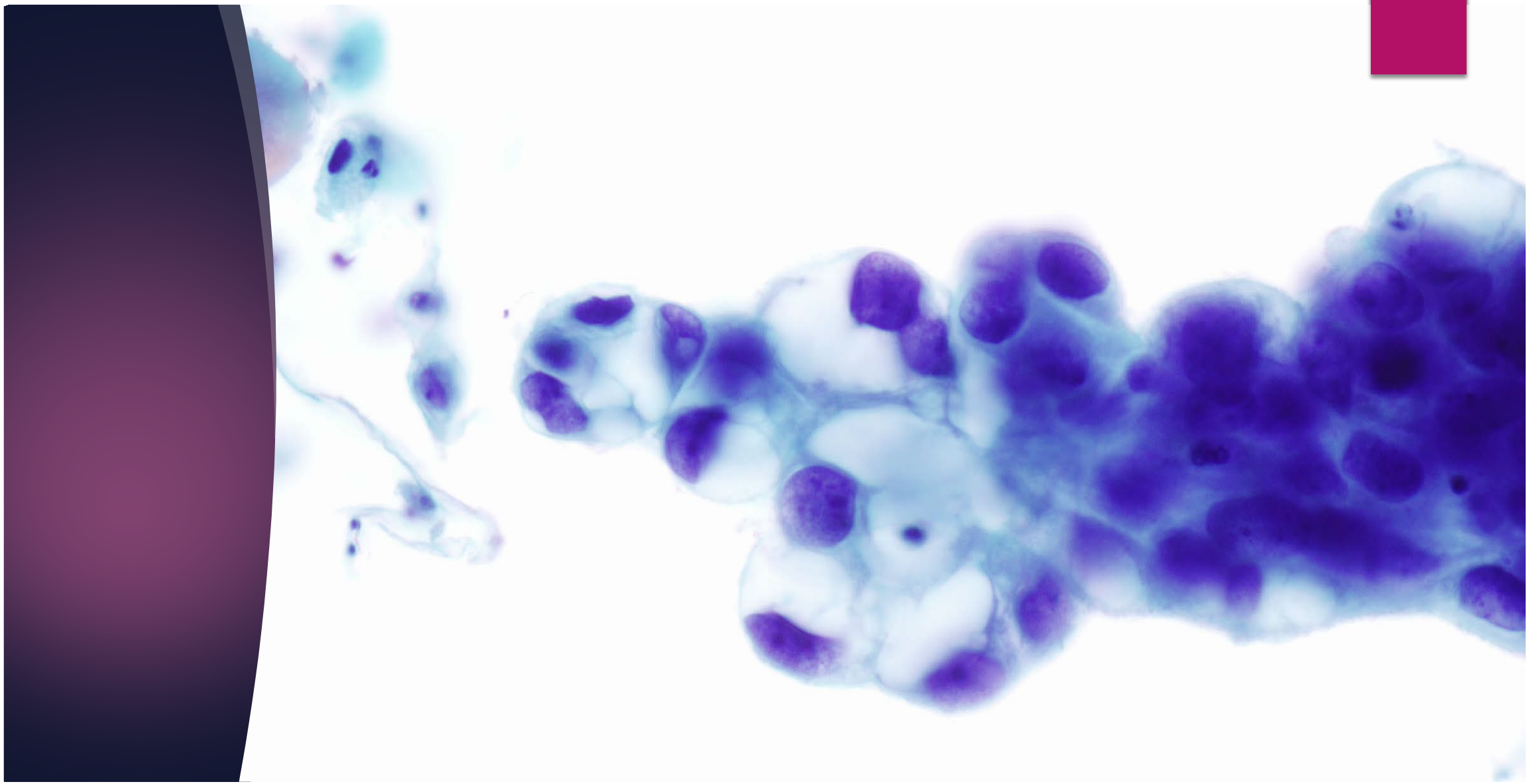


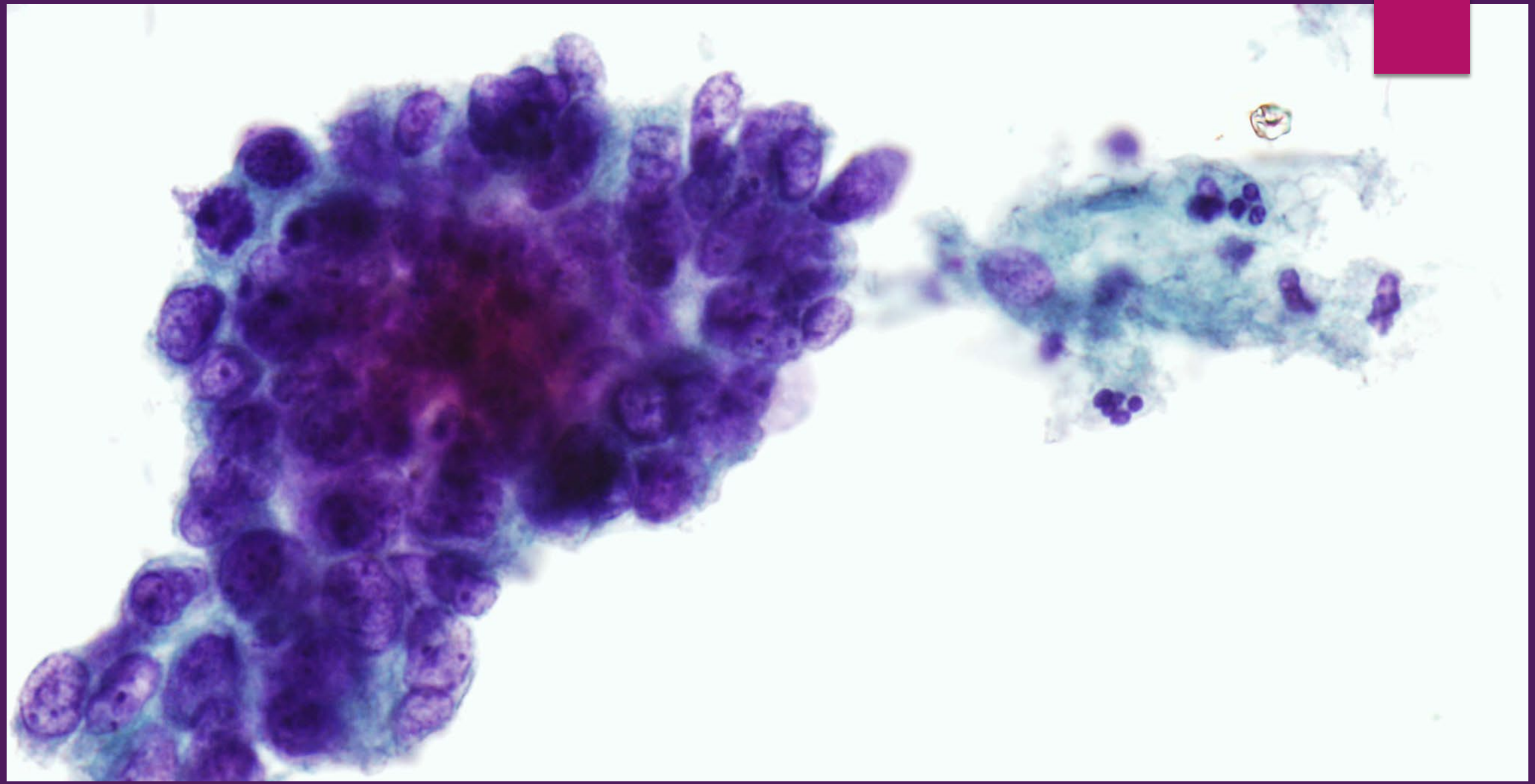
Case 2: What is your interpretation?

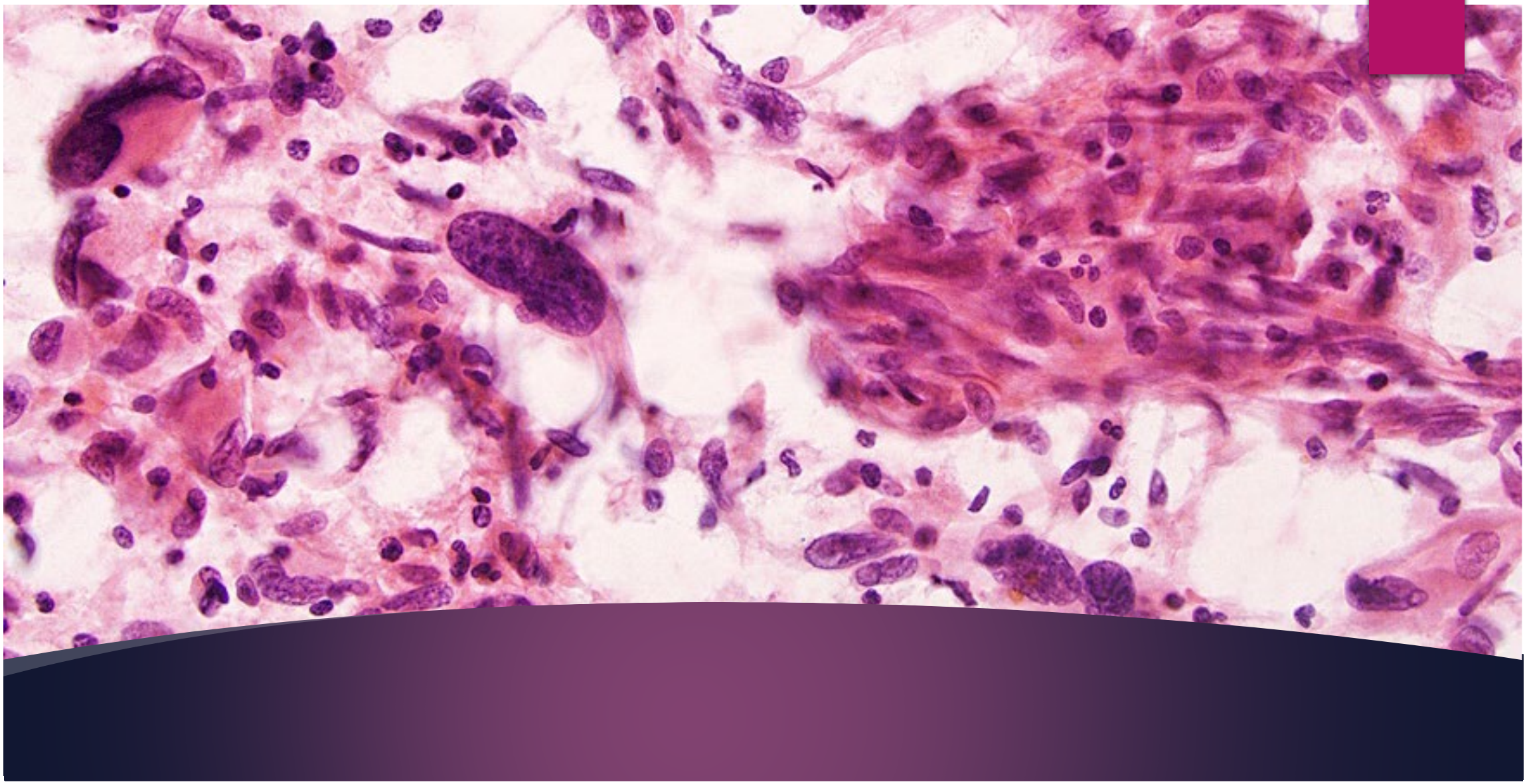
- Endometrial carcinoma
- Metastatic melanoma
- Metastatic ovarian carcinoma
- Metastatic colonic adenocarcinoma

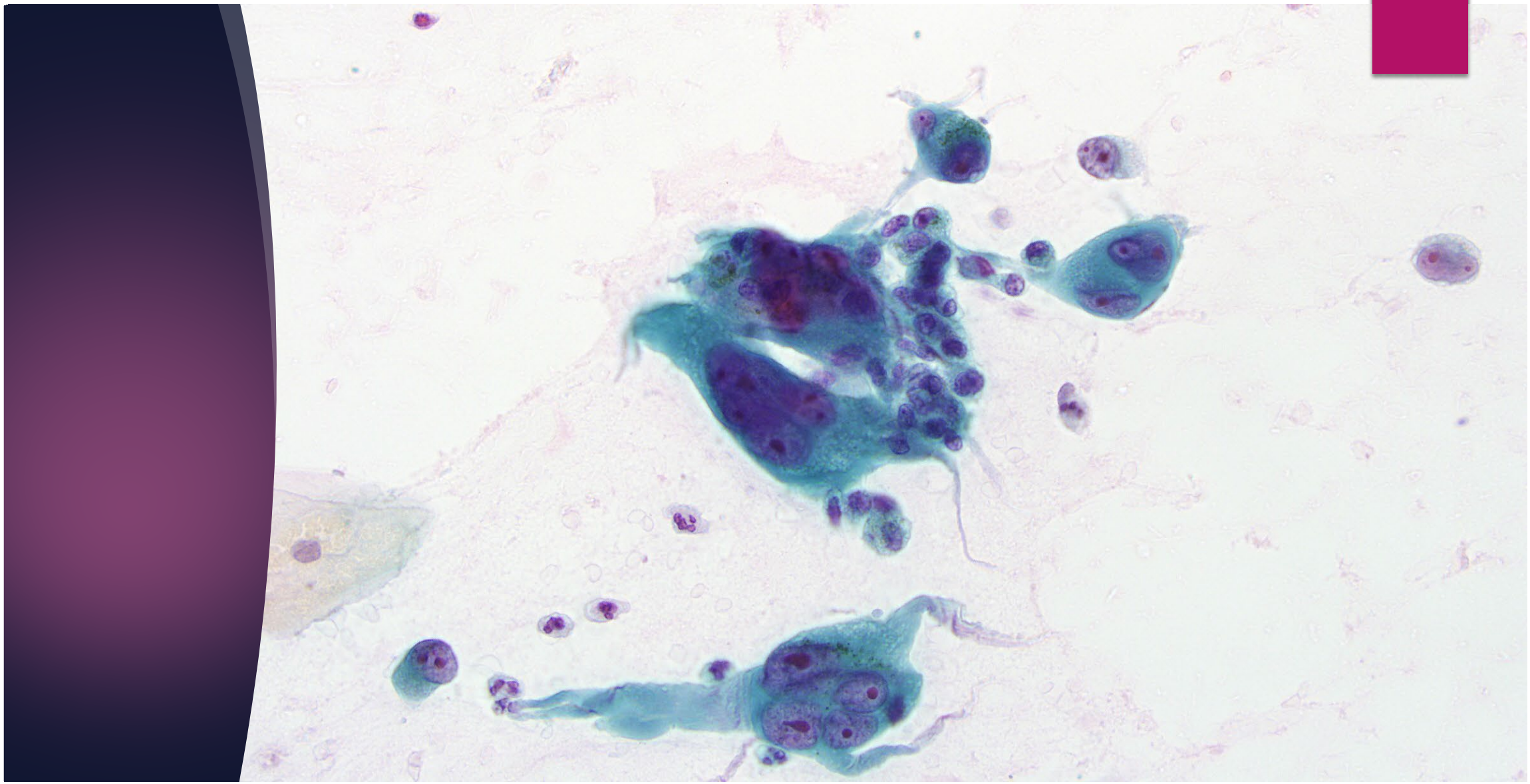
Differential Diagnosis

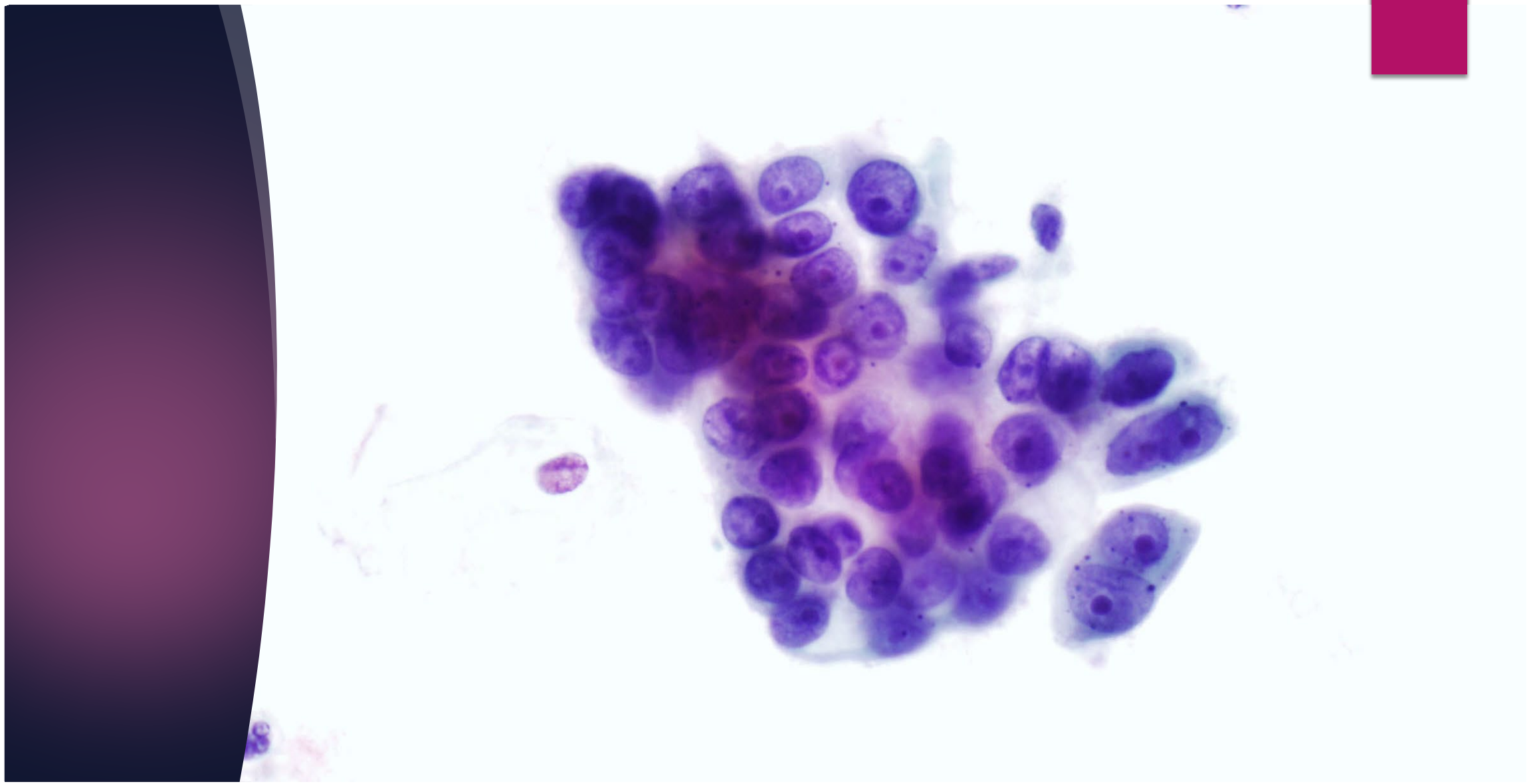
- Endometrial adenocarcinoma
- Endocervical adenocarcinoma
- Sarcoma
- Malignant Melanoma
- Metastatic adenocarcinoma
  - -Ovarian
  - -Fallopian tube
  - -Breast
  - -Lung

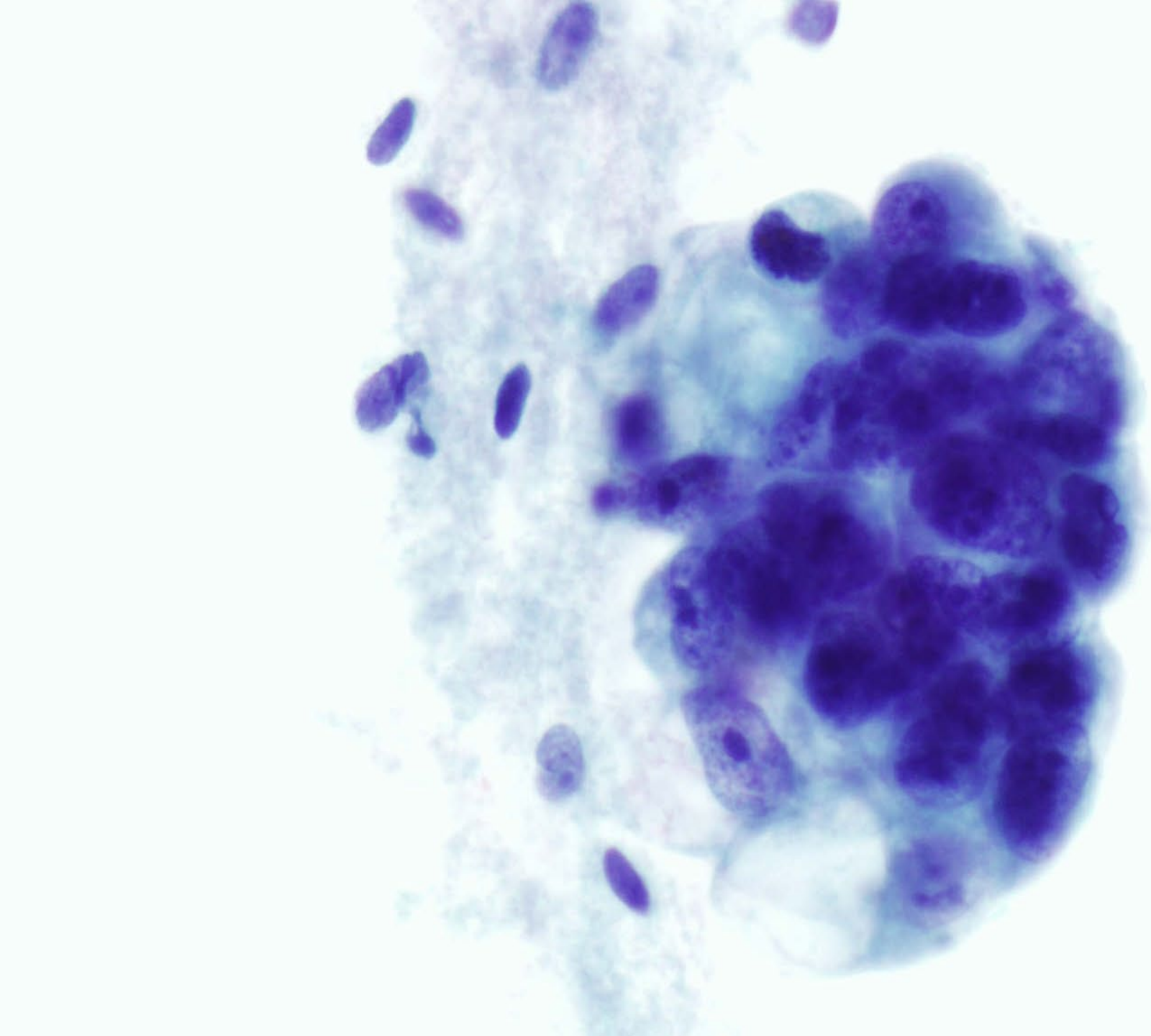


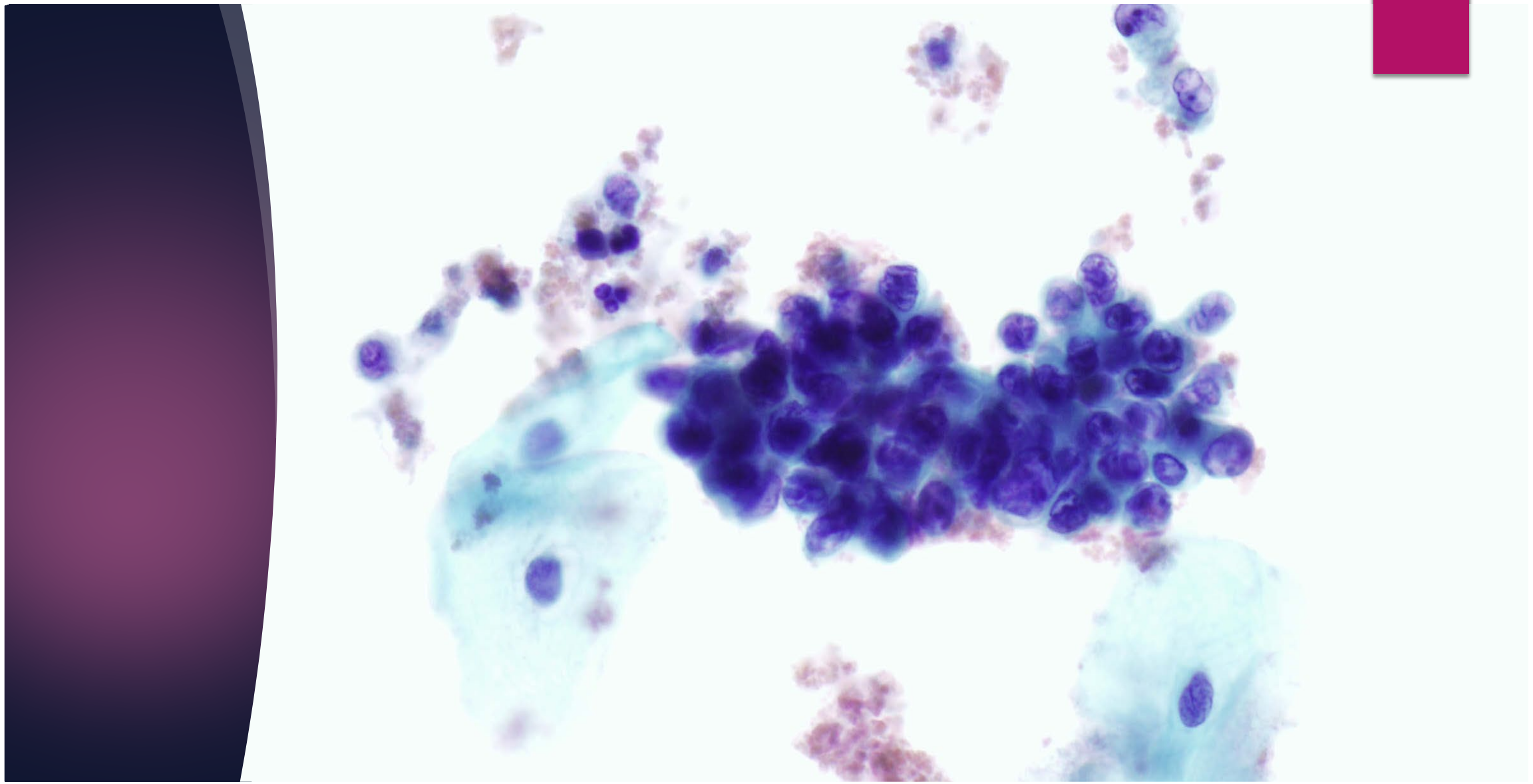


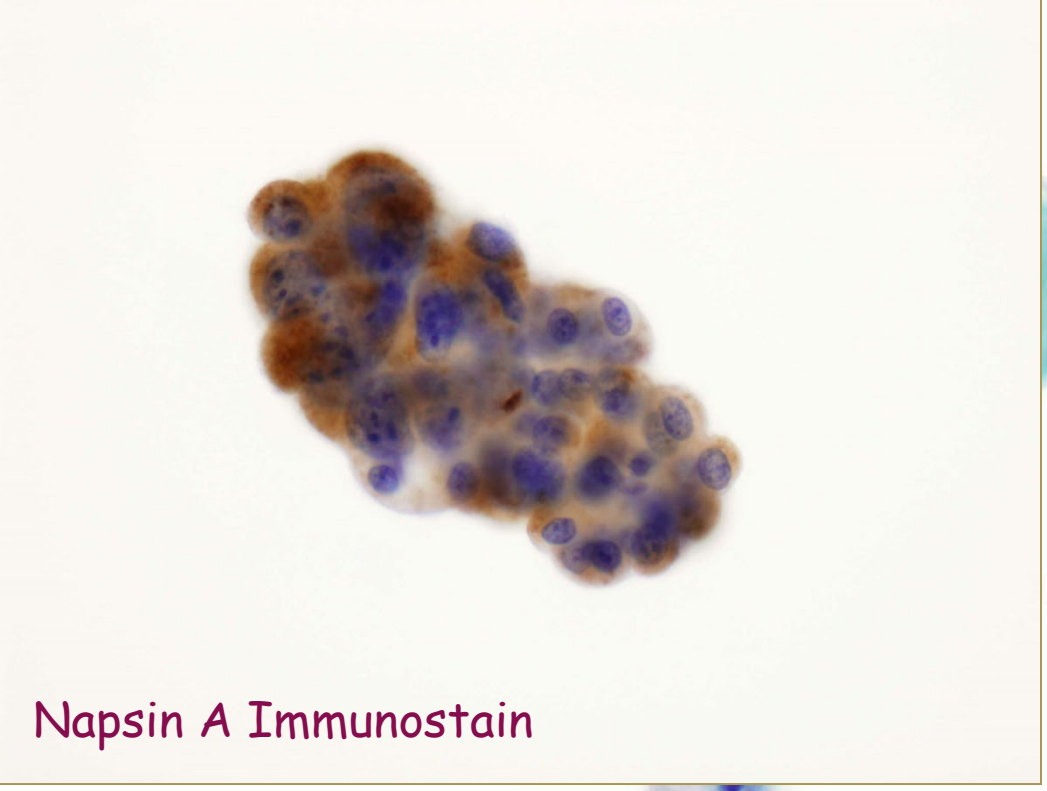




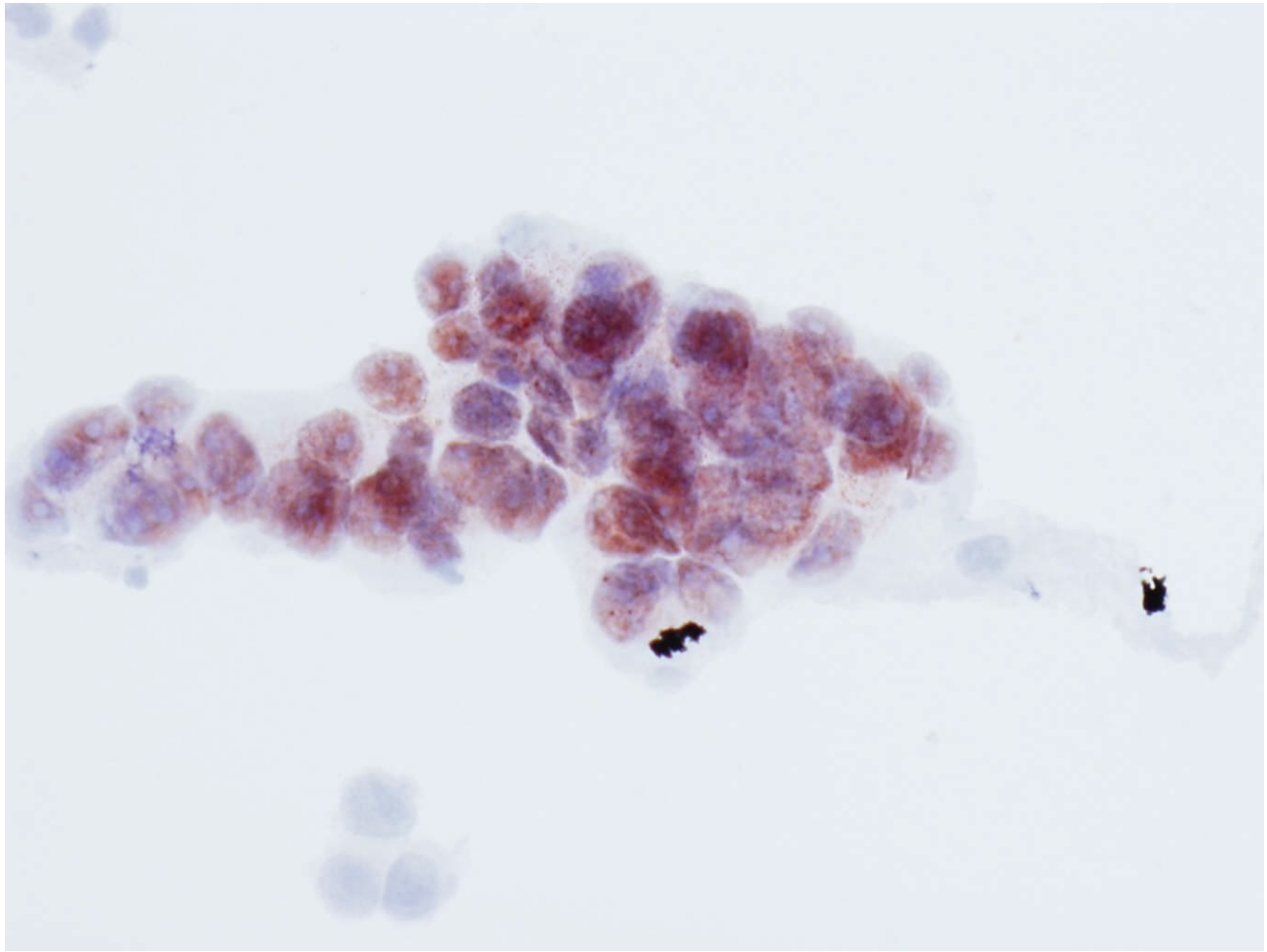








Napsin A Immunostain



Cytopathologic Interpretation:
Liquid based Pap test (Thin Prep):

Epithelial cell abnormality. Malignant tumor cells present derived from adenocarcinoma consistent with origin from colon. Immunostain for CDX-2 is positive.

CDX-2

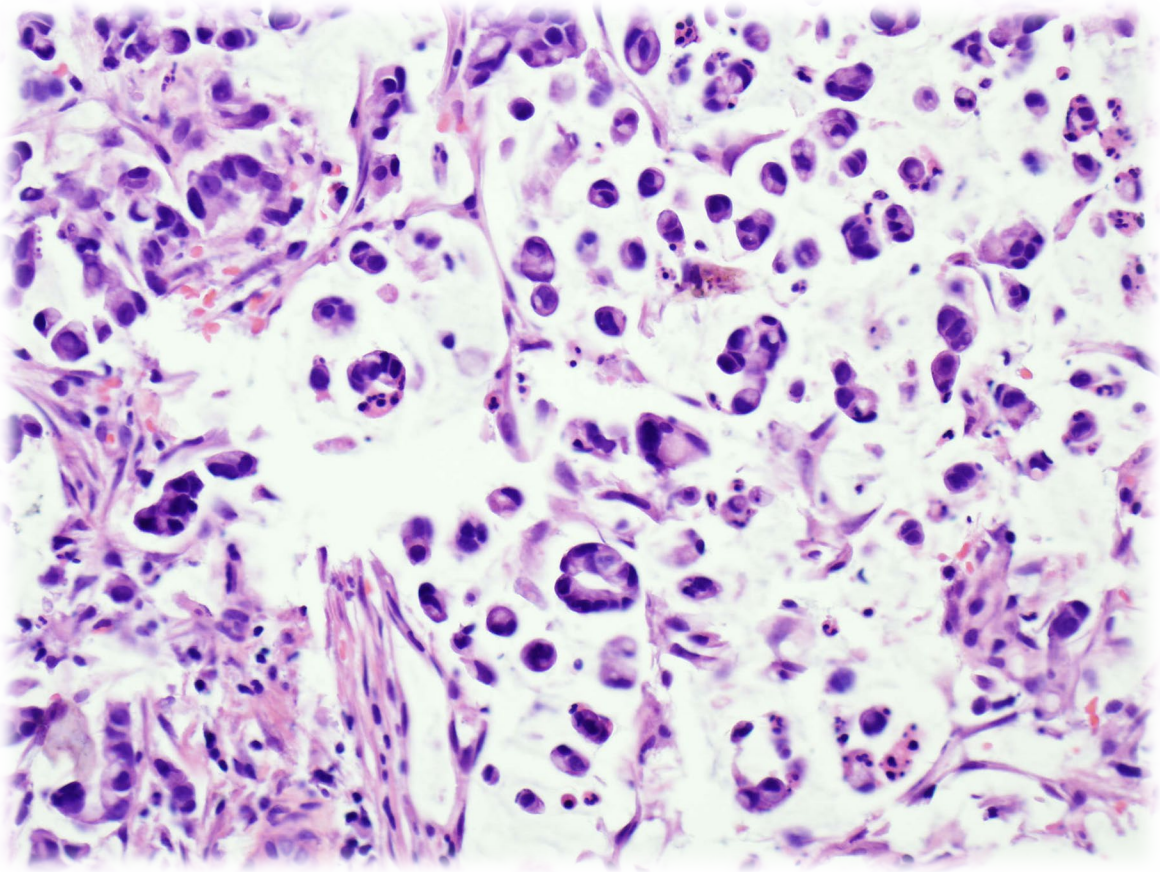
Diffusely and strongly stains almost all colorectal adenocarcinoma cell nuclei (98-100%)

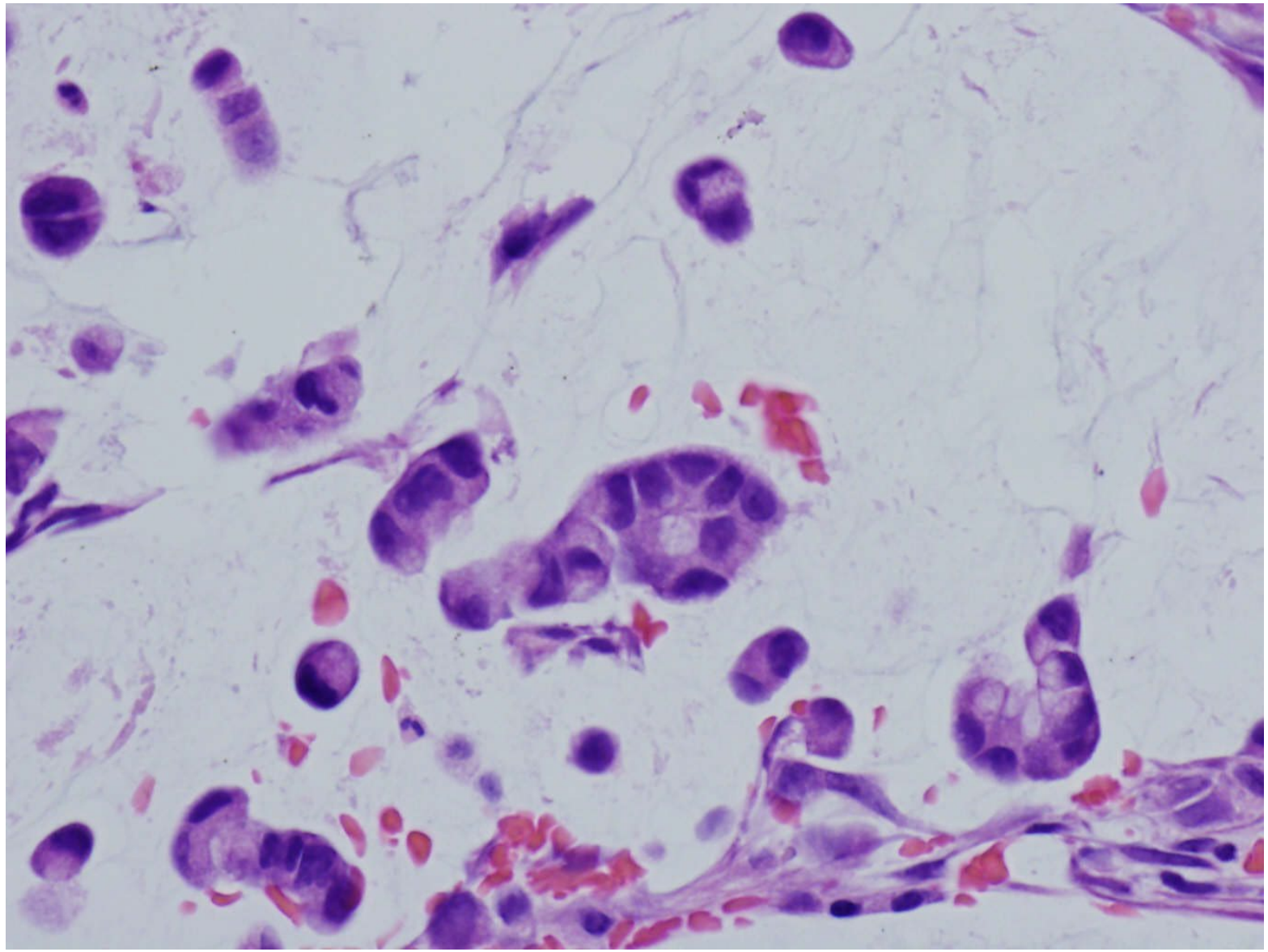
It is not specific; can be seen in pancreatic, gastric, small bowel, ovarian and EM mucinous adenocarcinoma

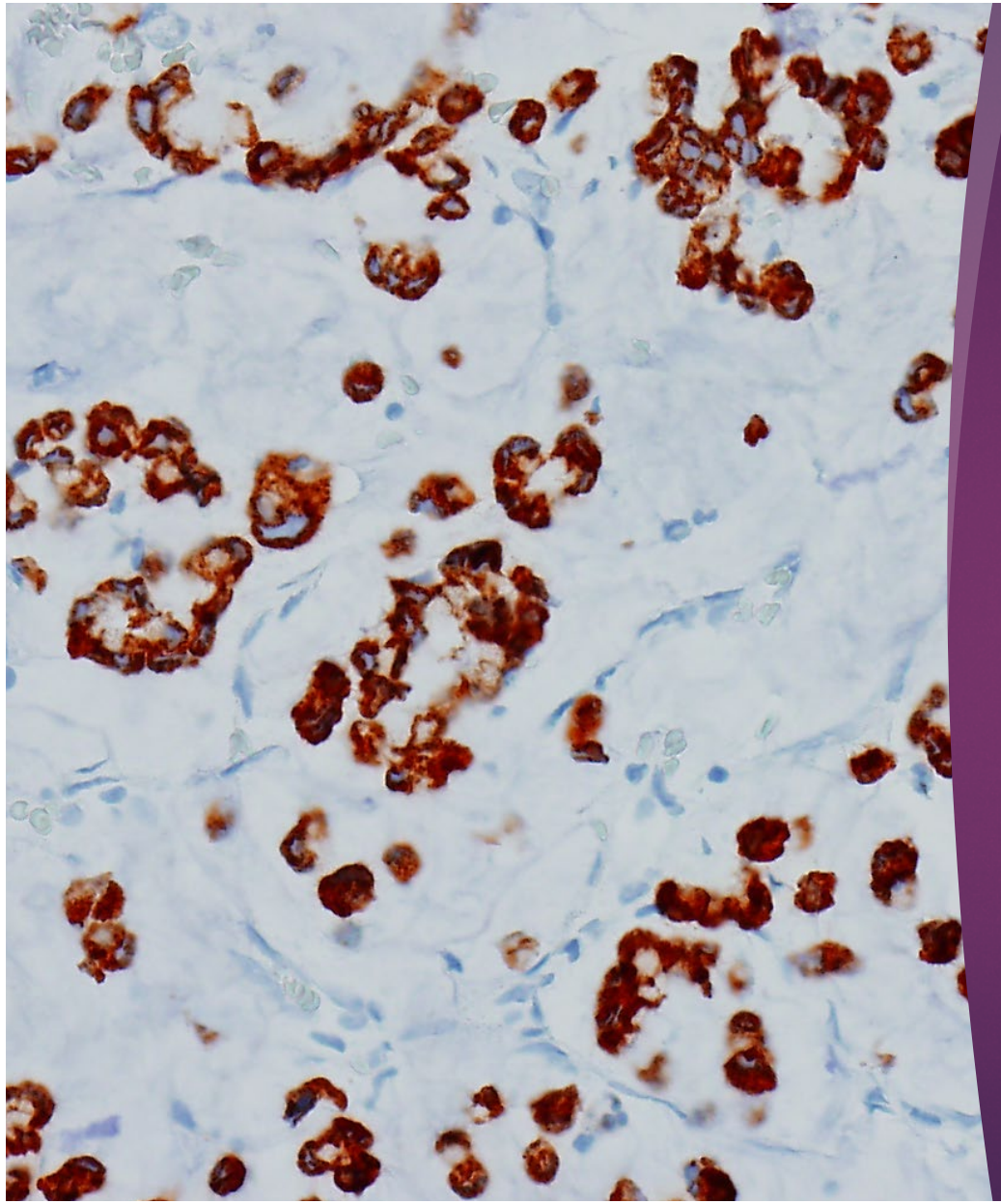
Surgical Pathology; Cervical Biopsy:

Adenocarcinoma with mucinous and signet ring cell features consistent with a colonic primary

Immunohistochemical stains are positive for CDX2, CK20 and are negative for CK7 supporting the diagnosis







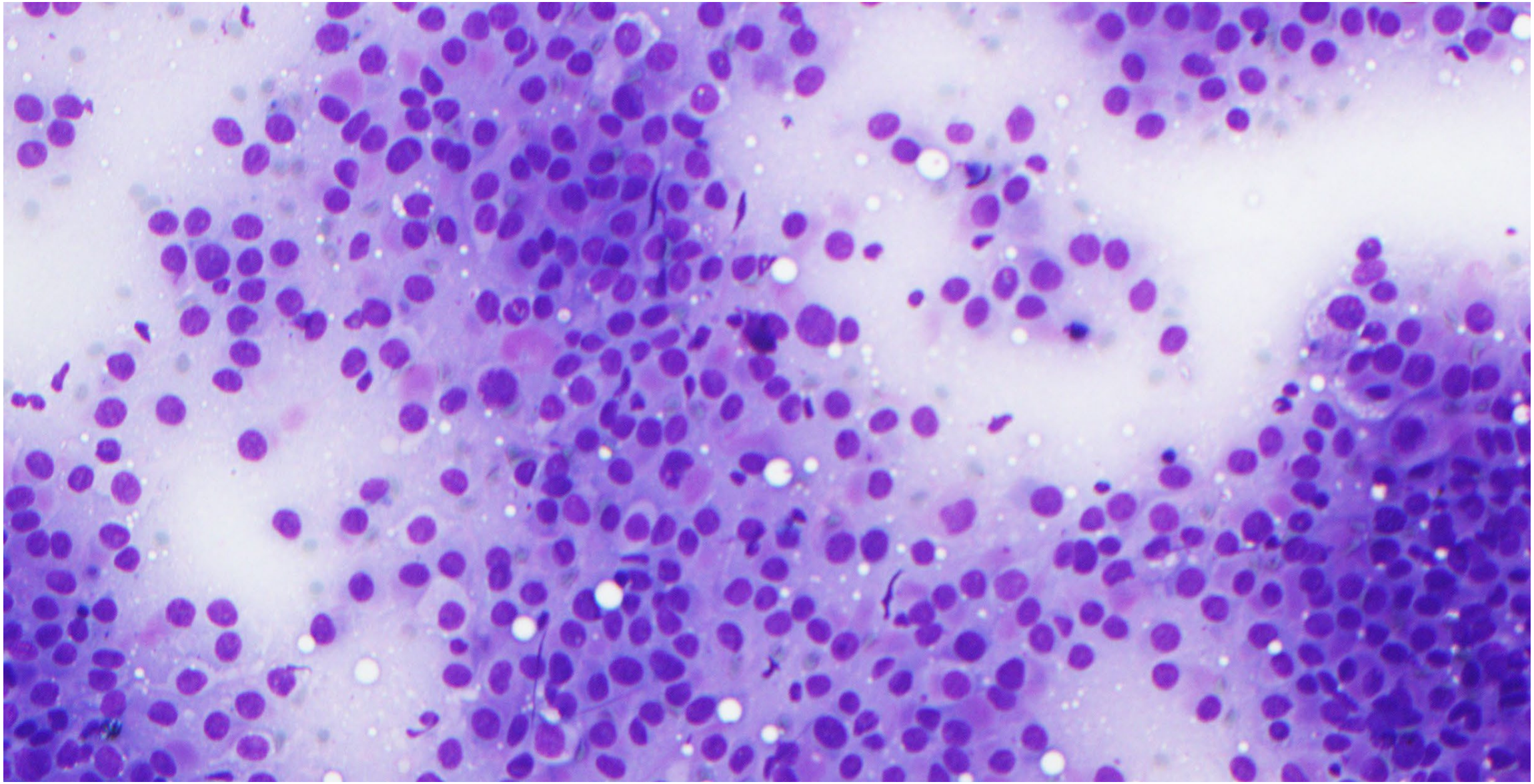
CK 20 IHC Stain

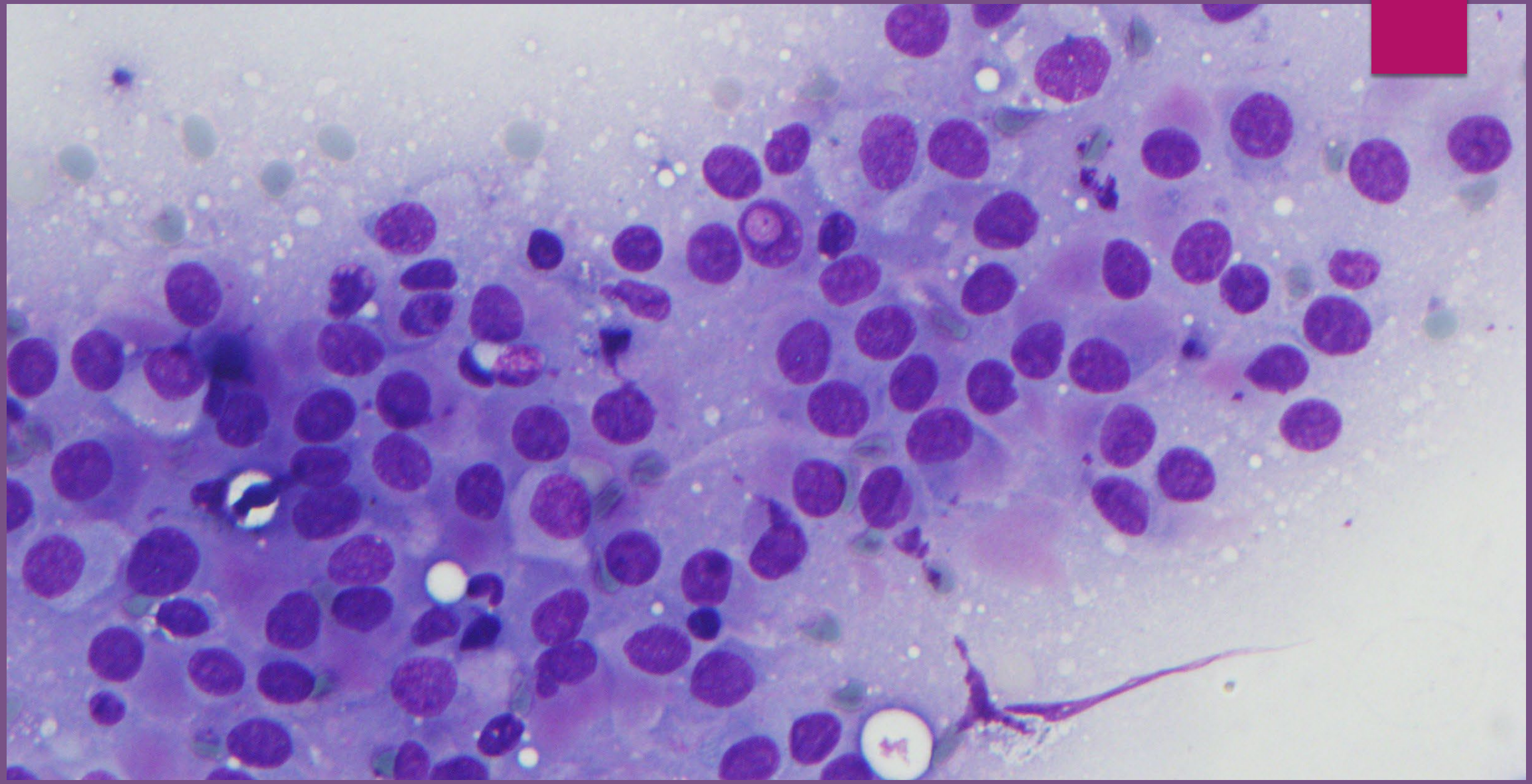
Metastatic Colonic Adenocarcinoma to Cervix

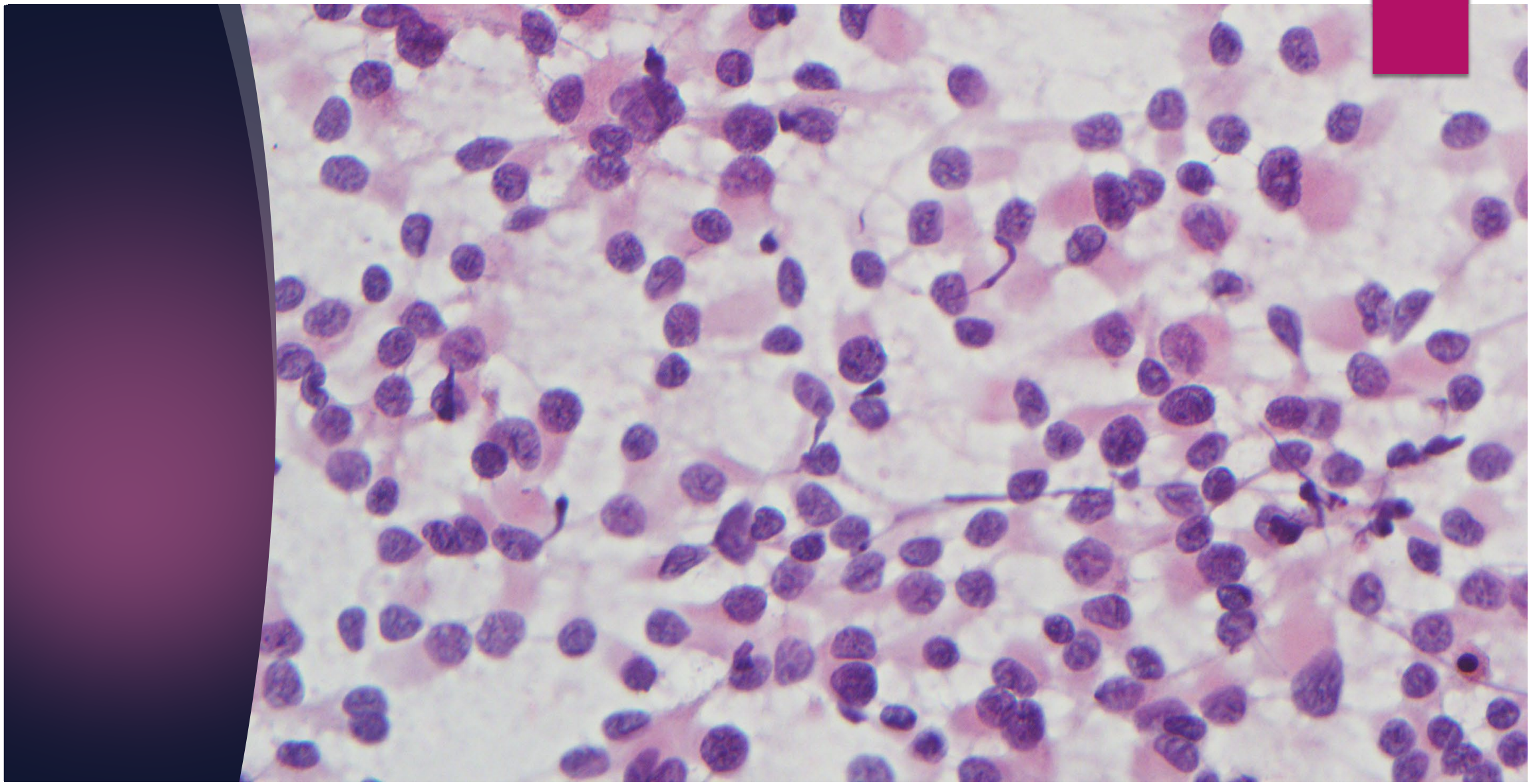
- Family History
- (Patient had relevant history maternal side)
- Mother – Renal cell CA
- Both maternal grandparents – Colon CA
- Further imaging studies revealed extensive spread within peritoneal cavity including involvement of cervix, uterus, bladder and other sites
- Patient received palliative care and expired approximately one year from initial GYN visit

CASE 3

- 47 year-old female
- Smoking history
- Neck, left, ultrasound-guided fine needle aspiration





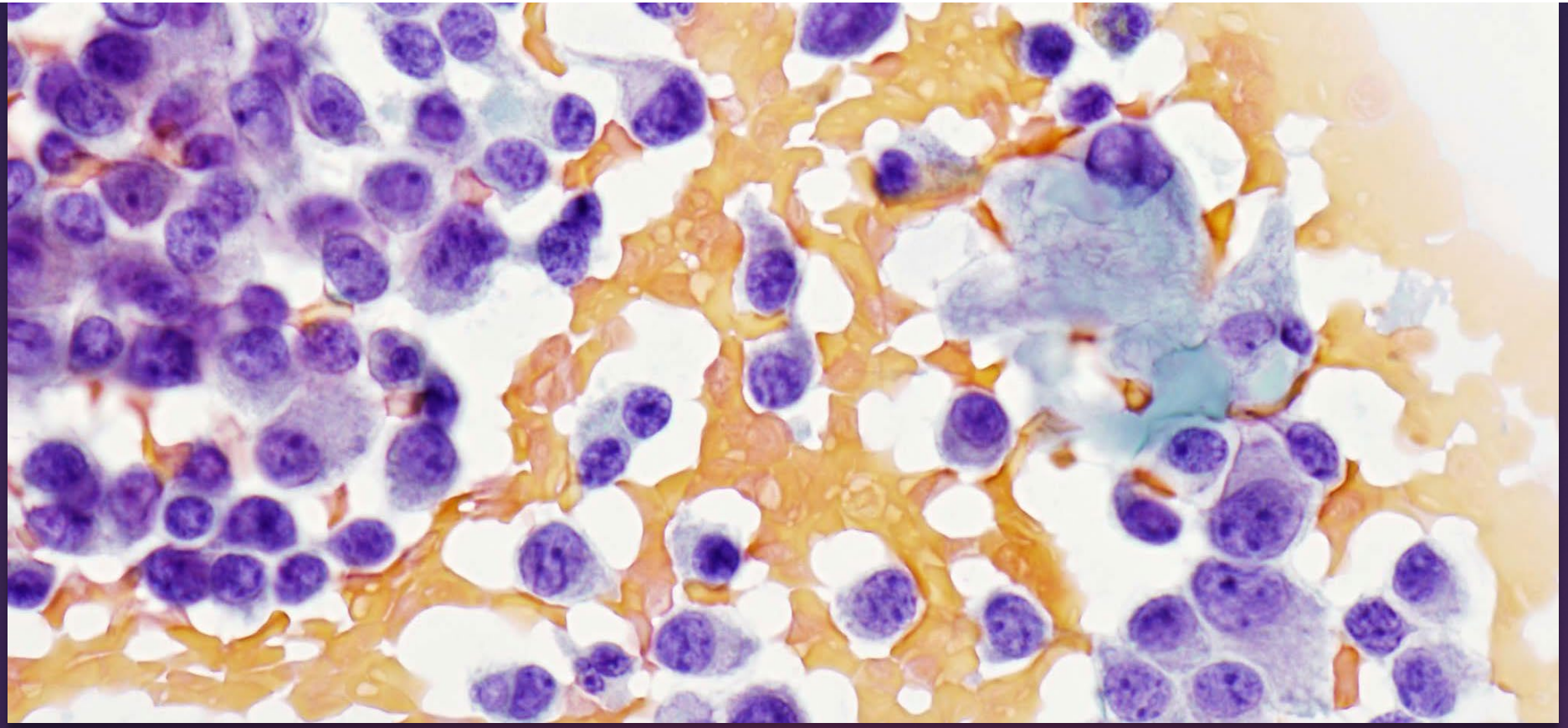


Case 3: What is your interpretation?

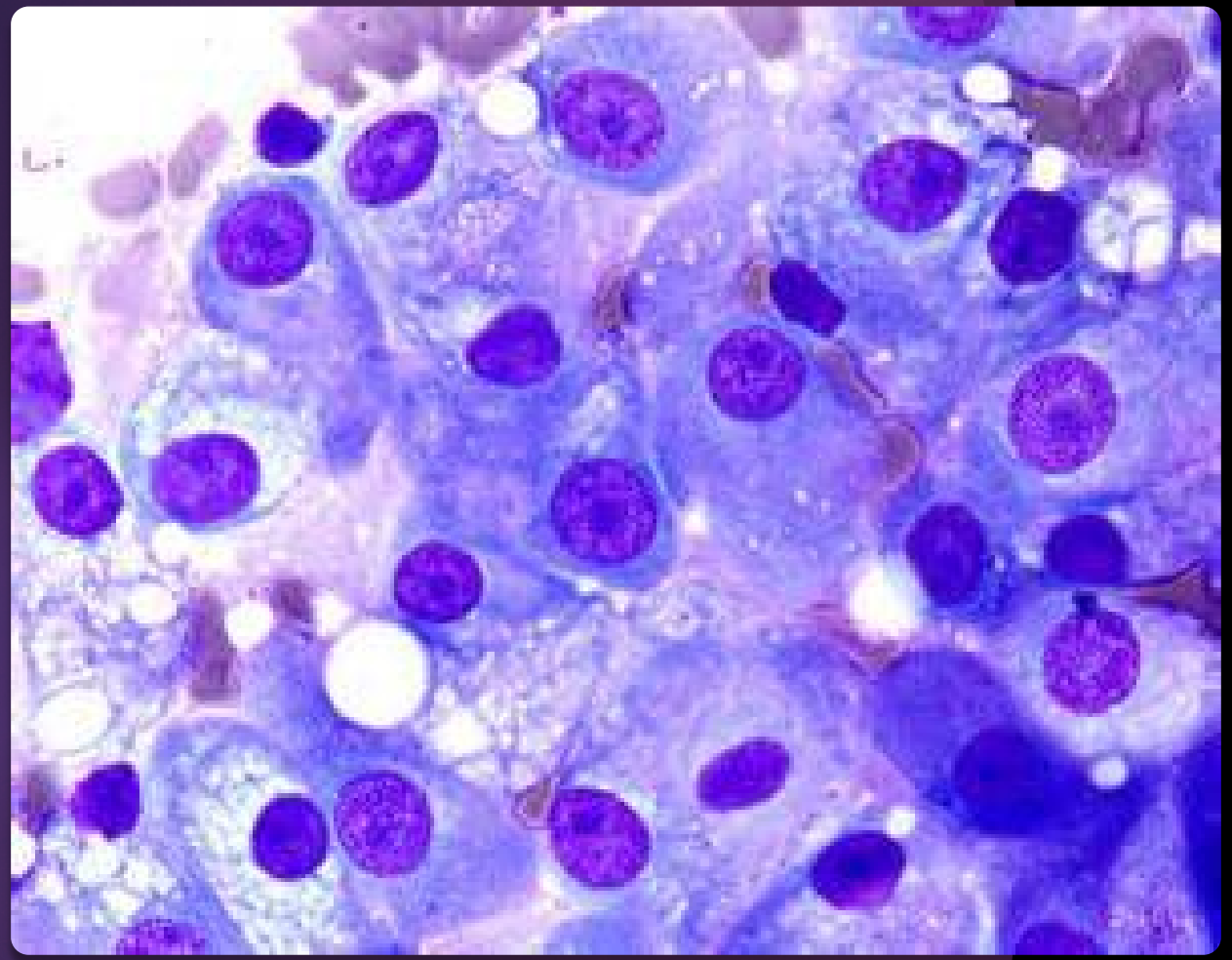
- Metastatic medullary carcinoma
- Metastatic papillary thyroid carcinoma
- Metastatic melanoma
- Metastatic acinic cell carcinoma

Differential Diagnosis

- Metastatic medullary carcinoma
- Metastatic acinic cell carcinoma
- Metastatic melanoma
- Metastatic papillary thyroid carcinoma

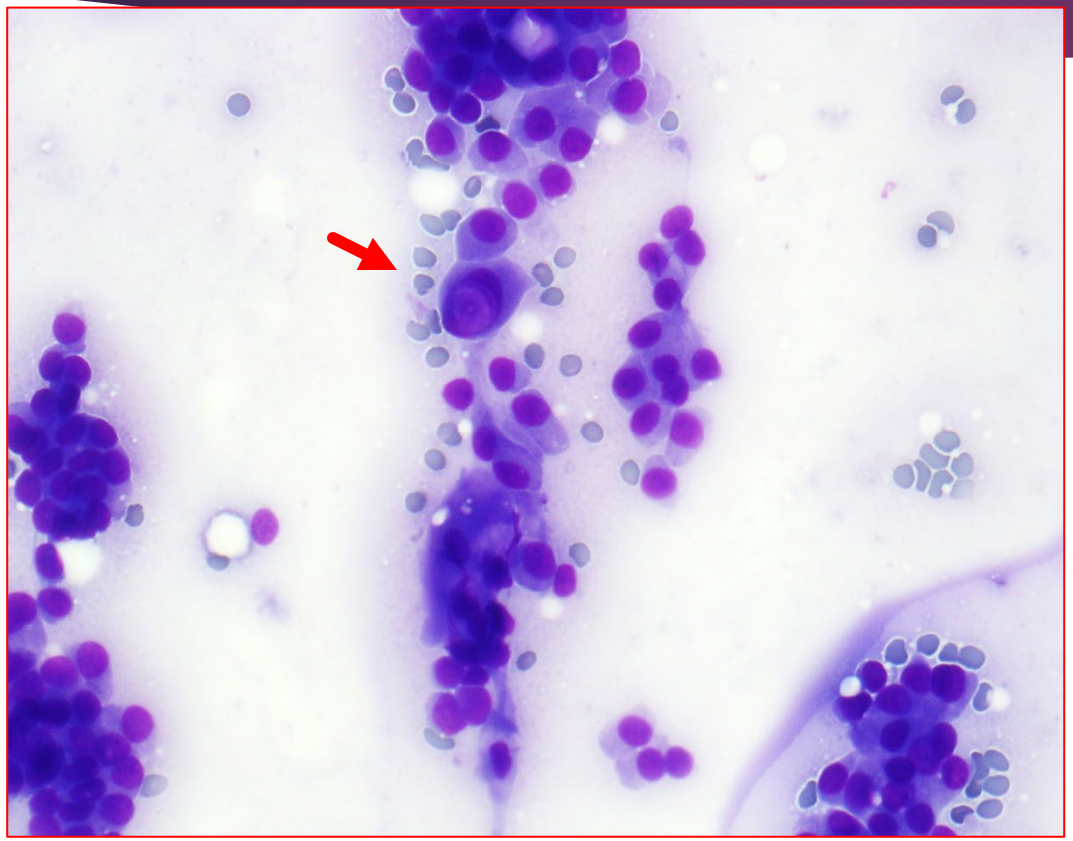


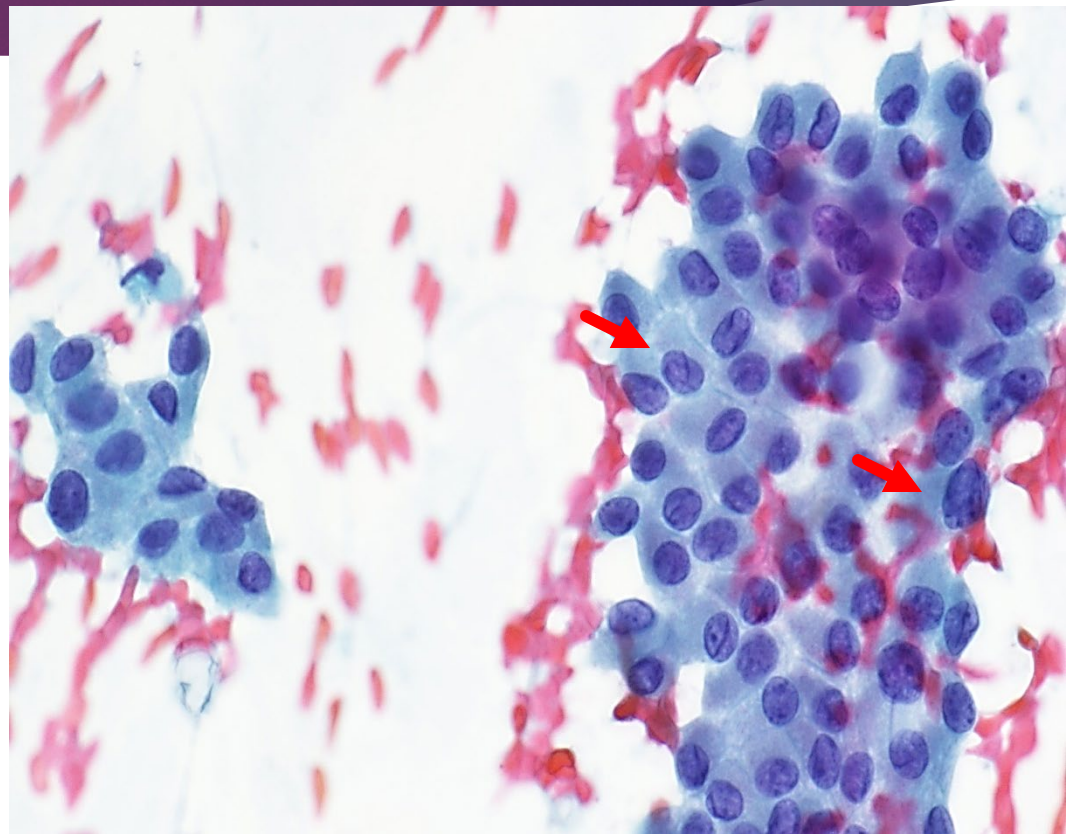
Medullary Carcinoma

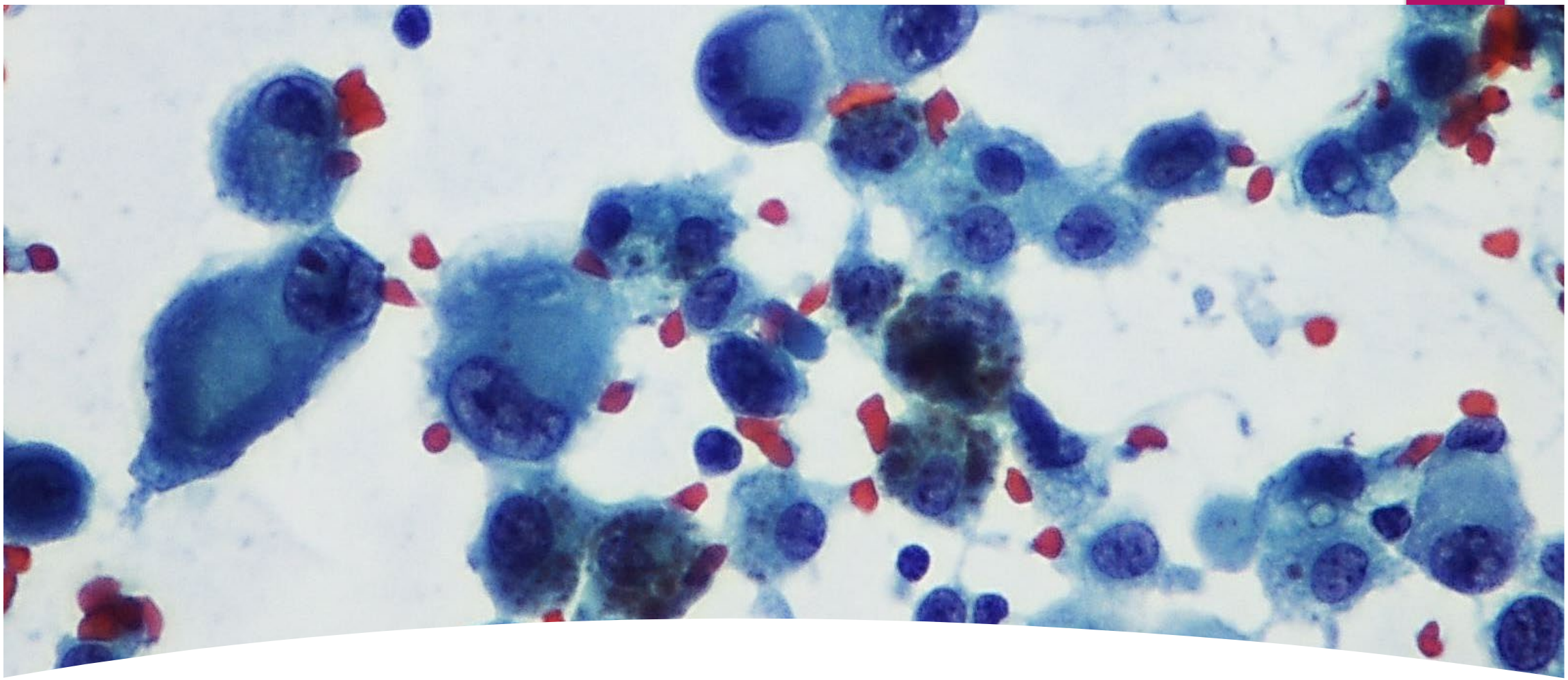


Acinic cell carcinoma

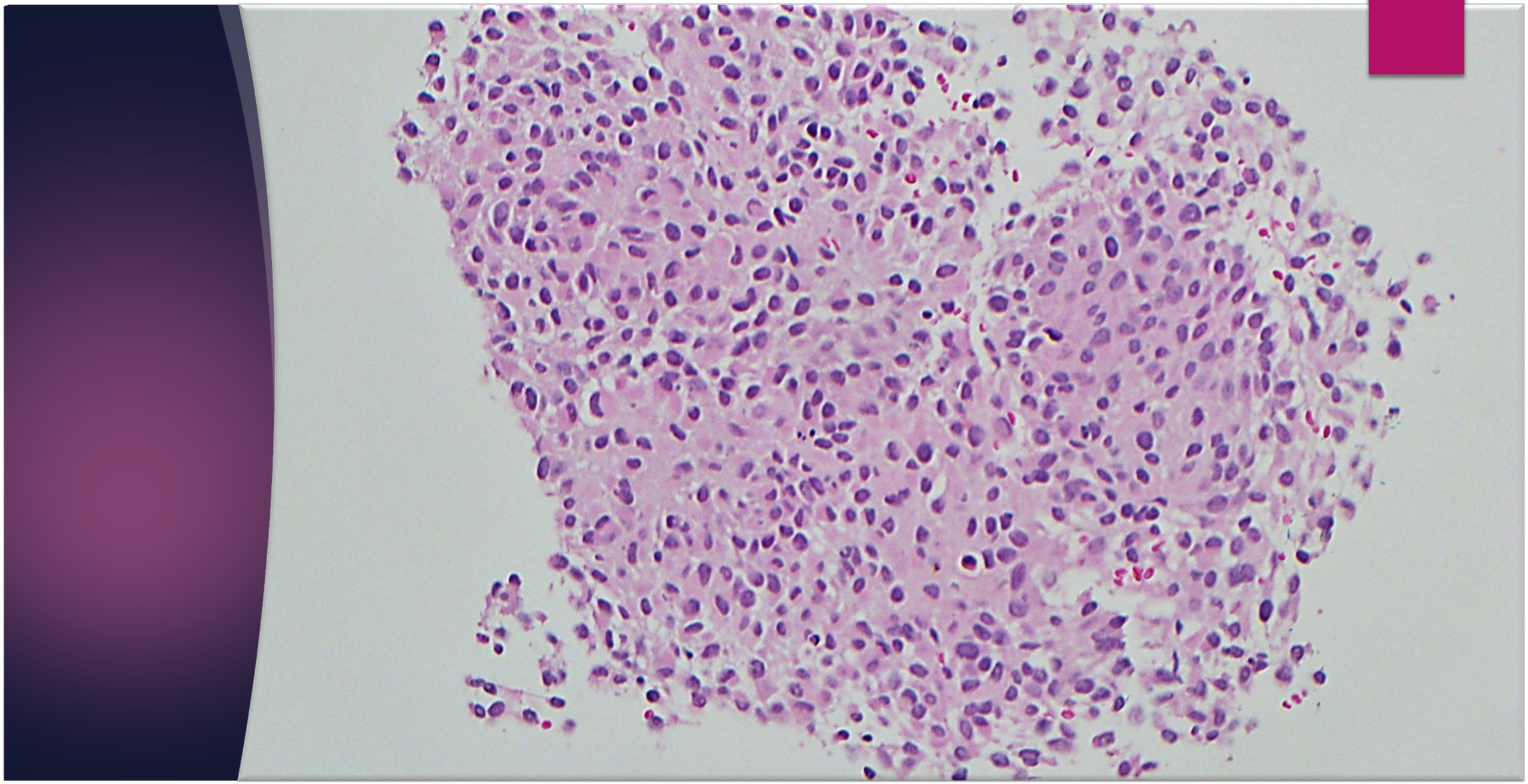
Papillary Thyroid Carcinoma

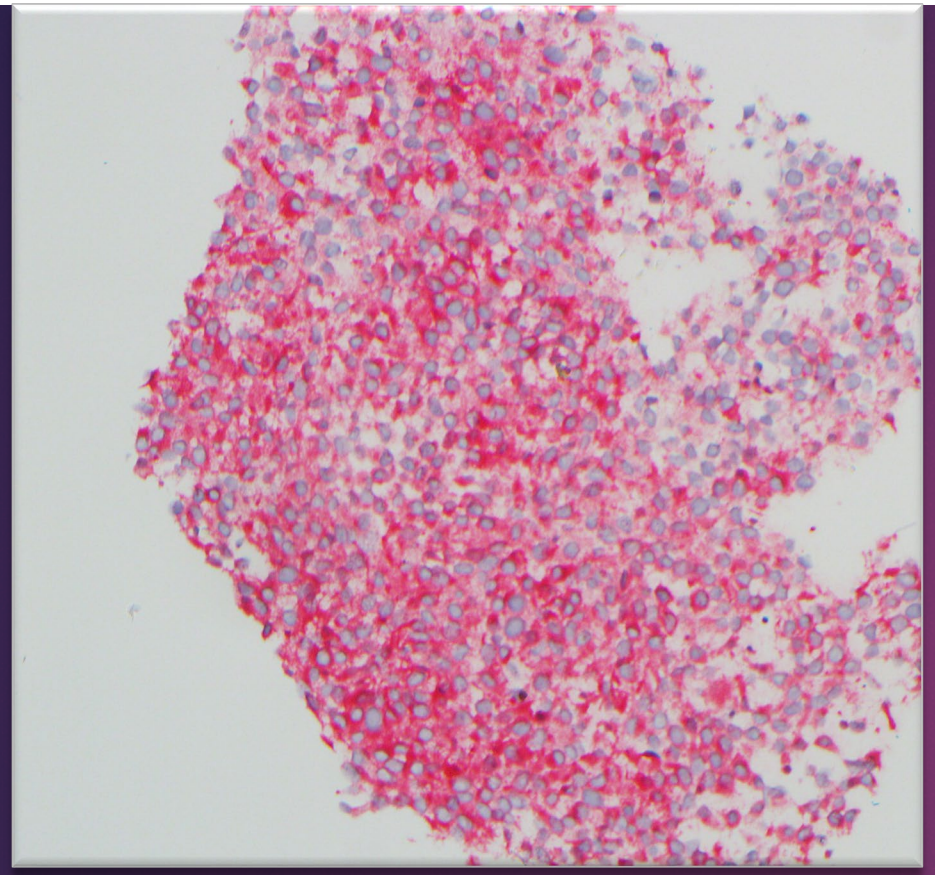


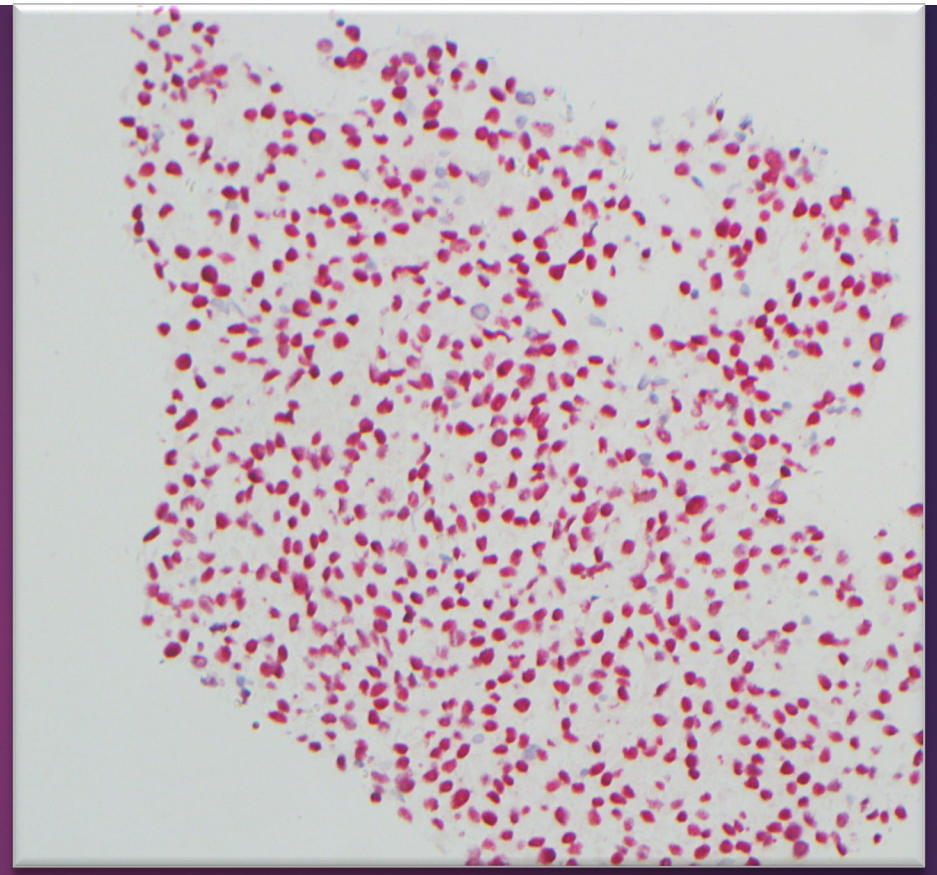




Metastatic Melanoma



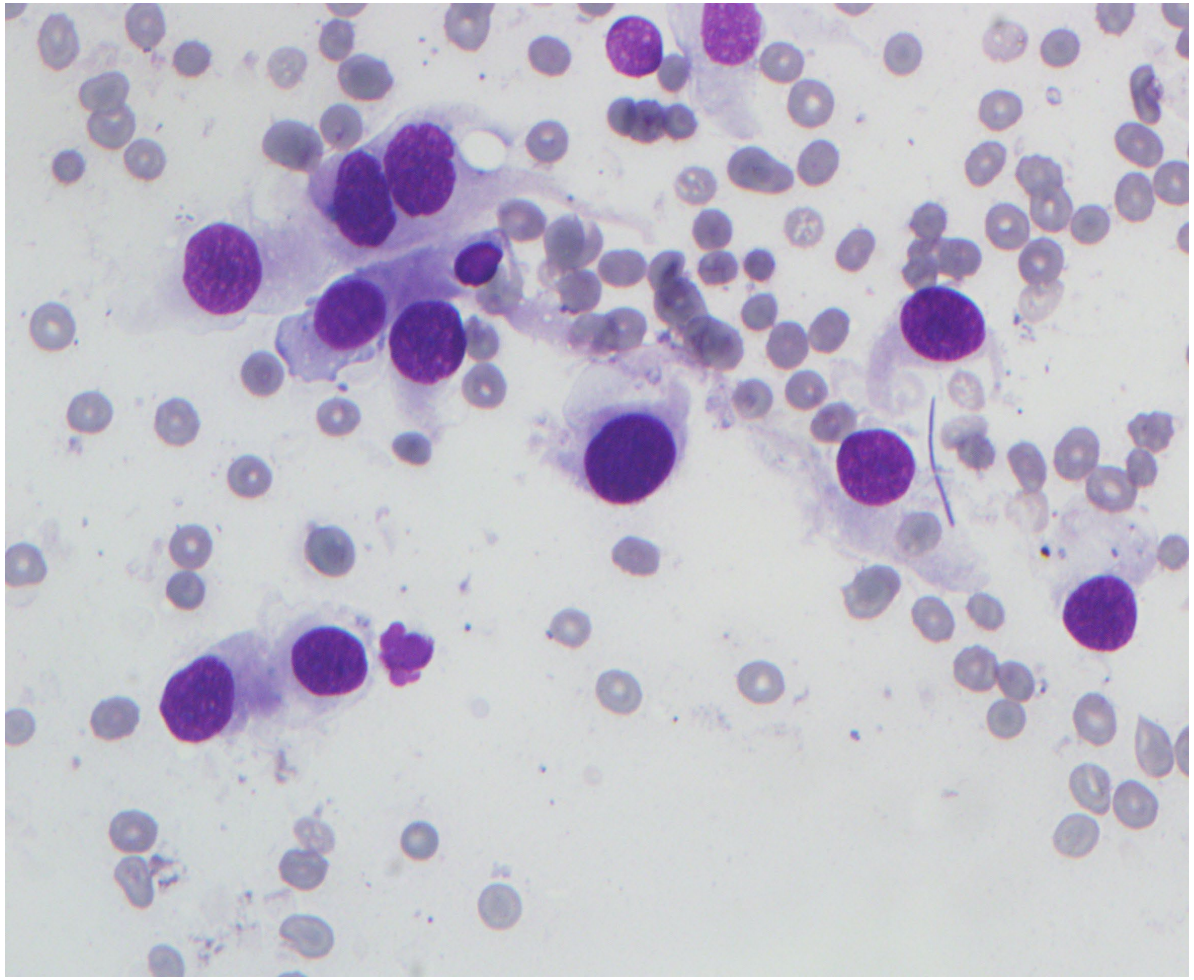




Immunohistochemical Stains

MELAN A

SOX 10



Neck, left, fine needle aspiration:

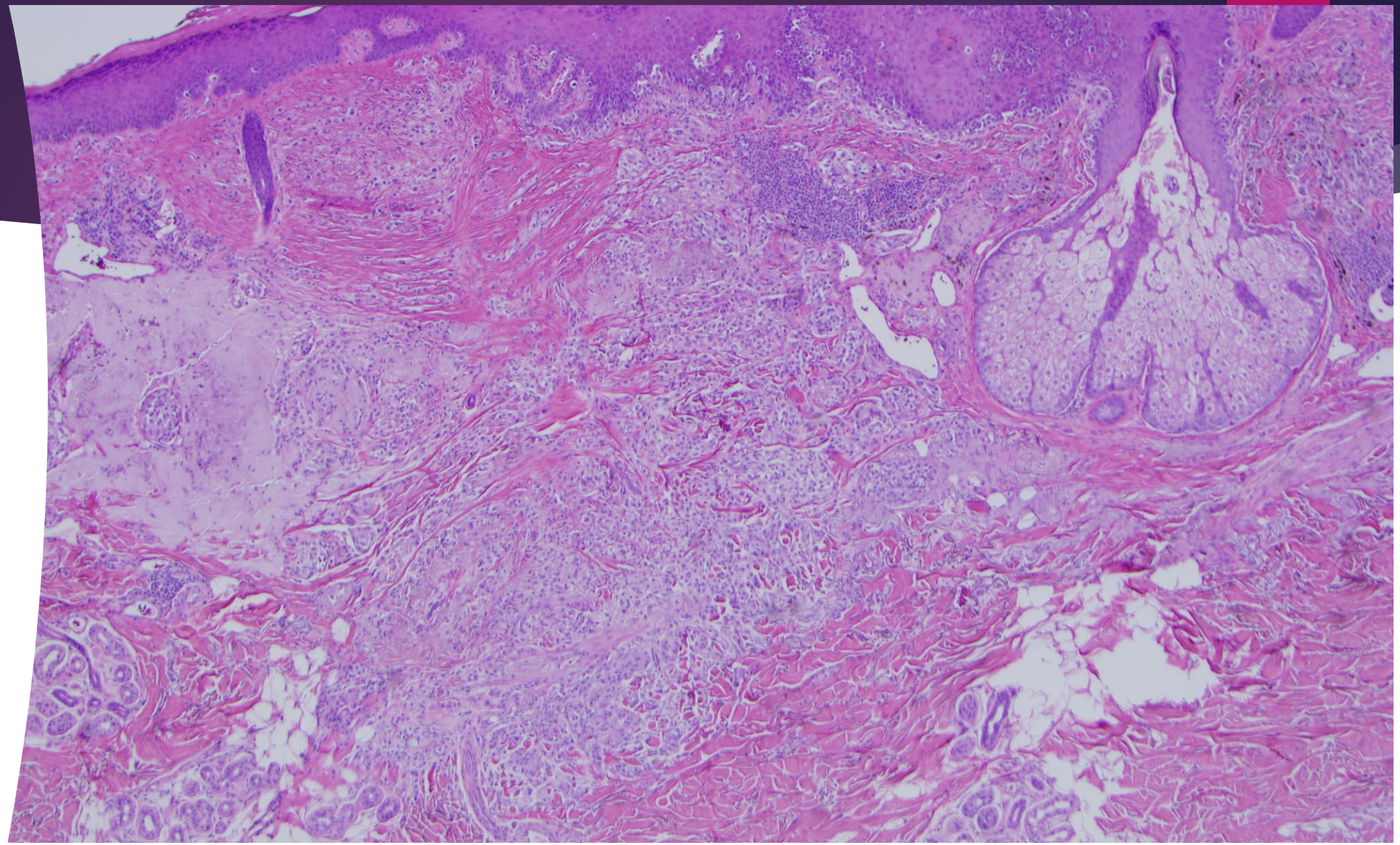
MALIGNANT TUMOR CELLS DERIVED FROM MELANOMA

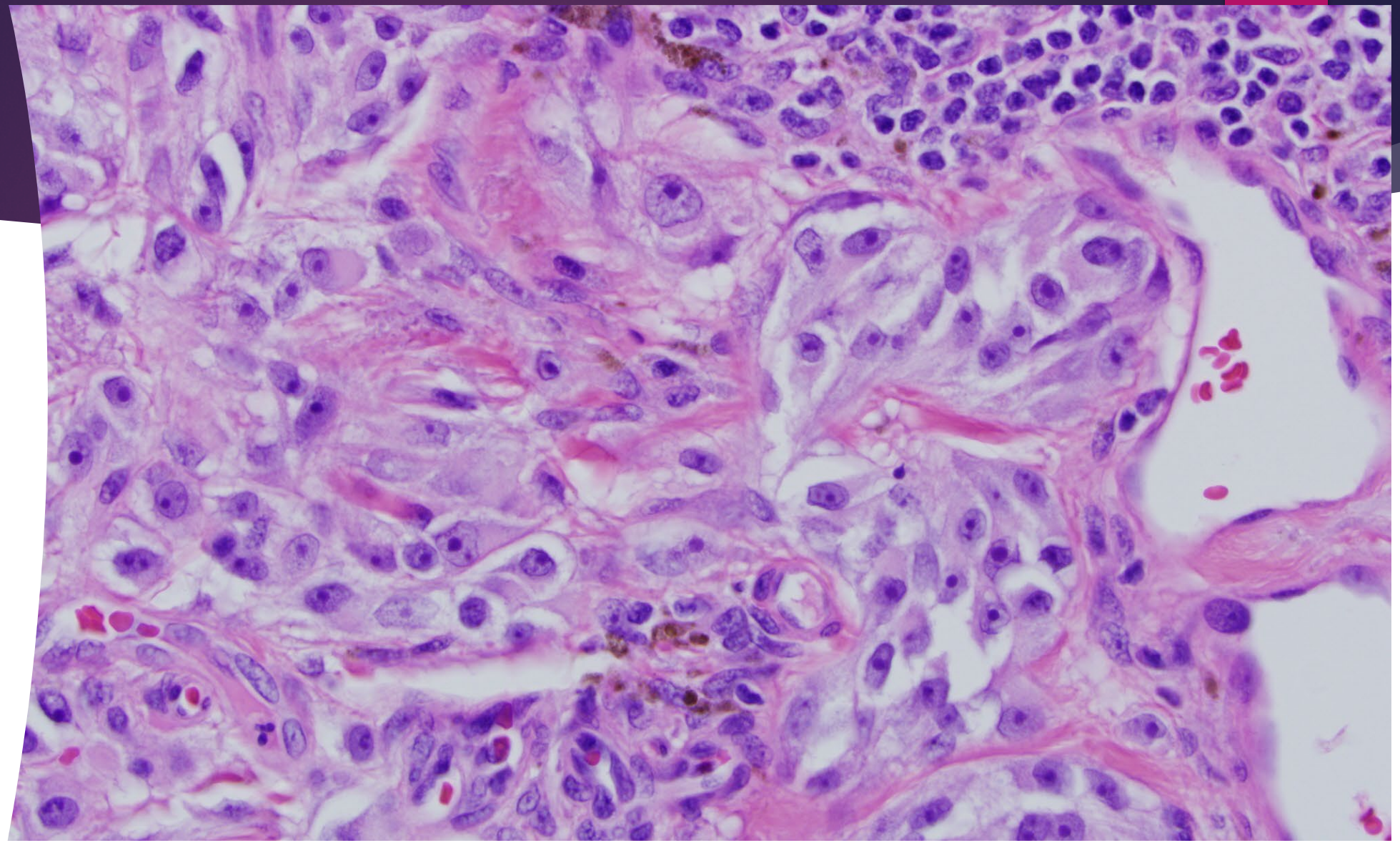
COMMENT: IHC STAINS SHOW THAT THE CELLS OF INTEREST MARK STRONGLY WITH MELAN A, SOX 10 AND HMB-45. THEY DO NOT MARK WITH PANCYTOKERATIN AND LCA. THESE STAINING RESULTS SUPPORT MELANOCYTIC DIFFERENTIATION

Skin, left neck, excision:

Malignant melanoma

Comment: The depth of invasion is 2 mm. There is one area suspicious, but not diagnostic, for angiolymphatic invasion. This is a Clark's level IV melanoma; mitotic rate is less than 1 mitotic figure/sq mm area. Ulceration and erosion can not be evaluated because this is a previous excisional site. Pathologic state pT1bNXMX





Melanoma

Malignant neoplasm arising from melanocytes.

Demographics

- Primary cutaneous malignancy, but also occurs in the eye, GI tract, and paranasal sinuses
- Aggressive with a propensity to metastasize widely to region LN, bone, brain, liver, lung, and skin

Prognosis

- Determined pathologically by depth of invasion (Clark's level, mm depth), mitotic rate, ulceration/erosion

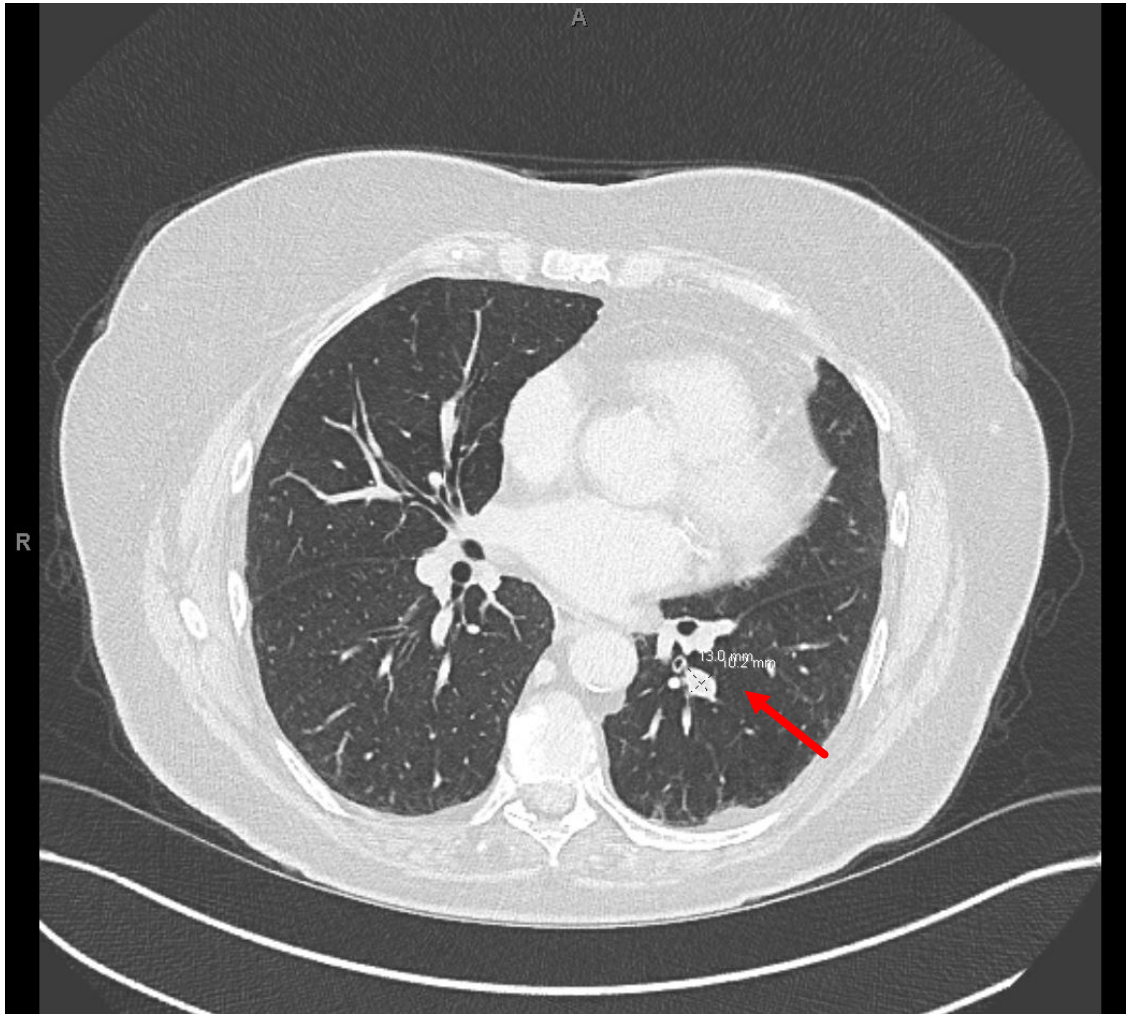
IHC

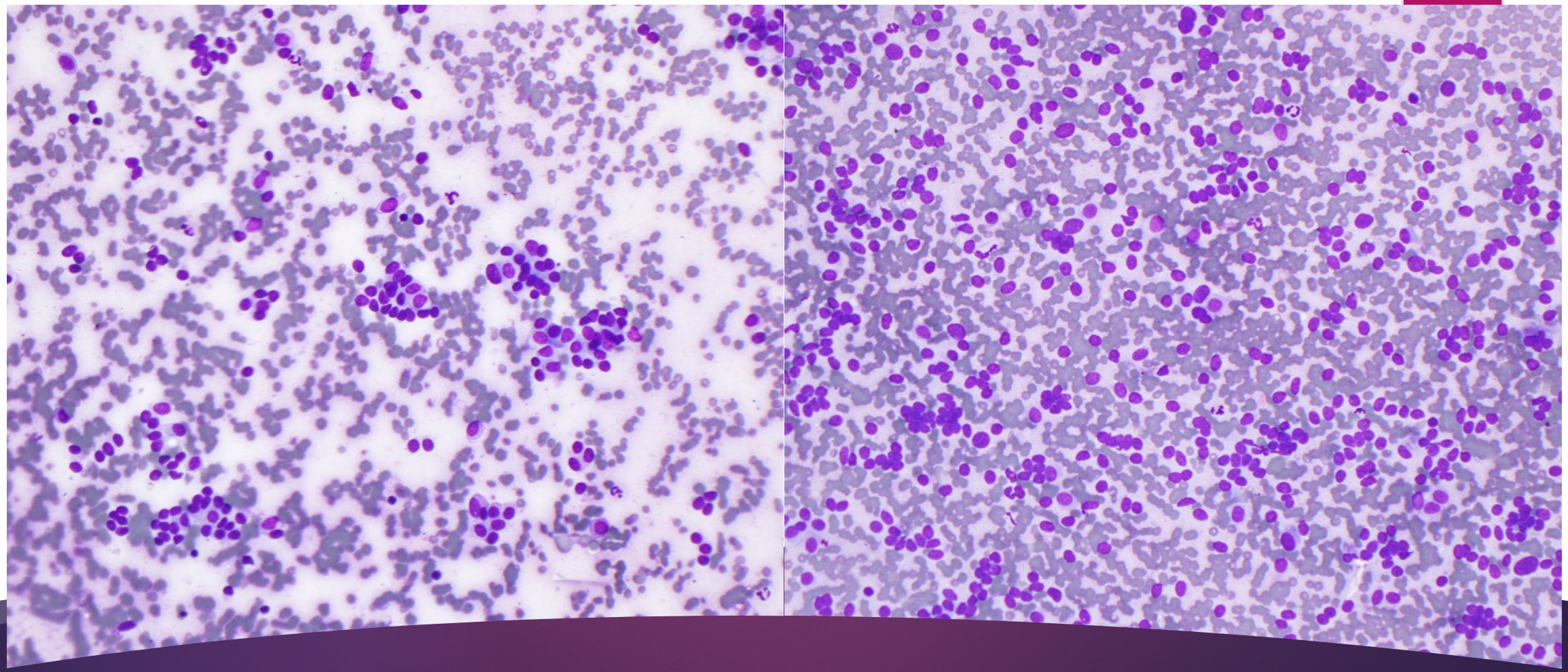
- Melan-A, HMB-45, SOX 10, S-100 positive

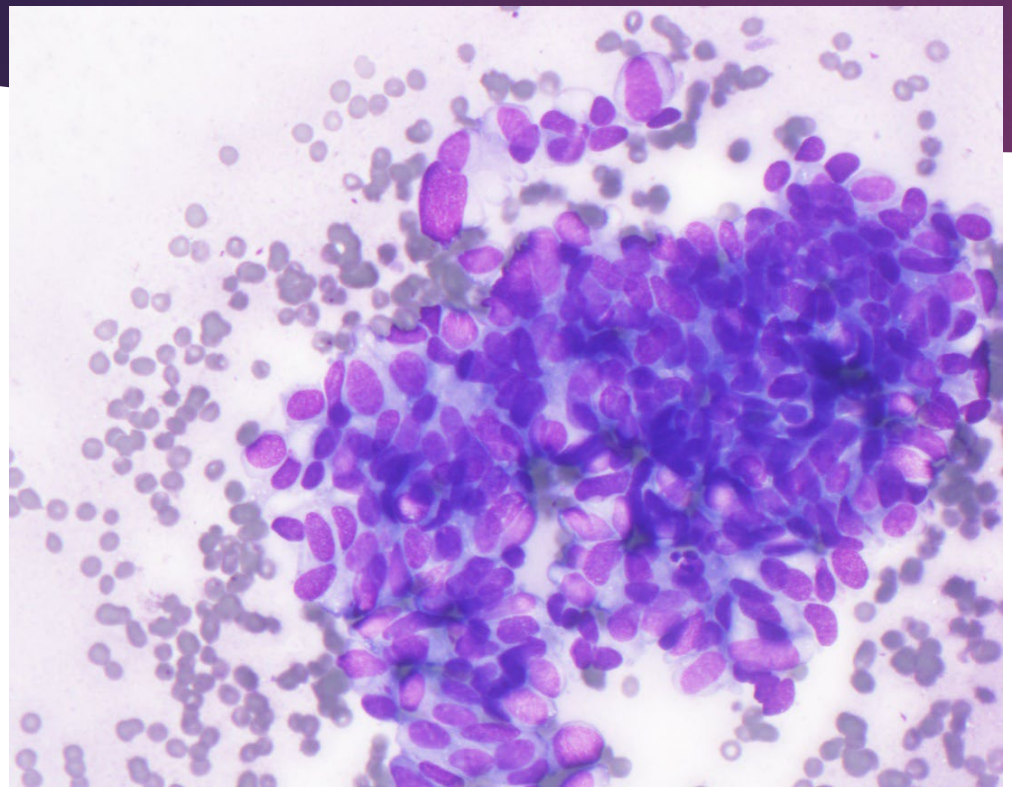
CASE 4

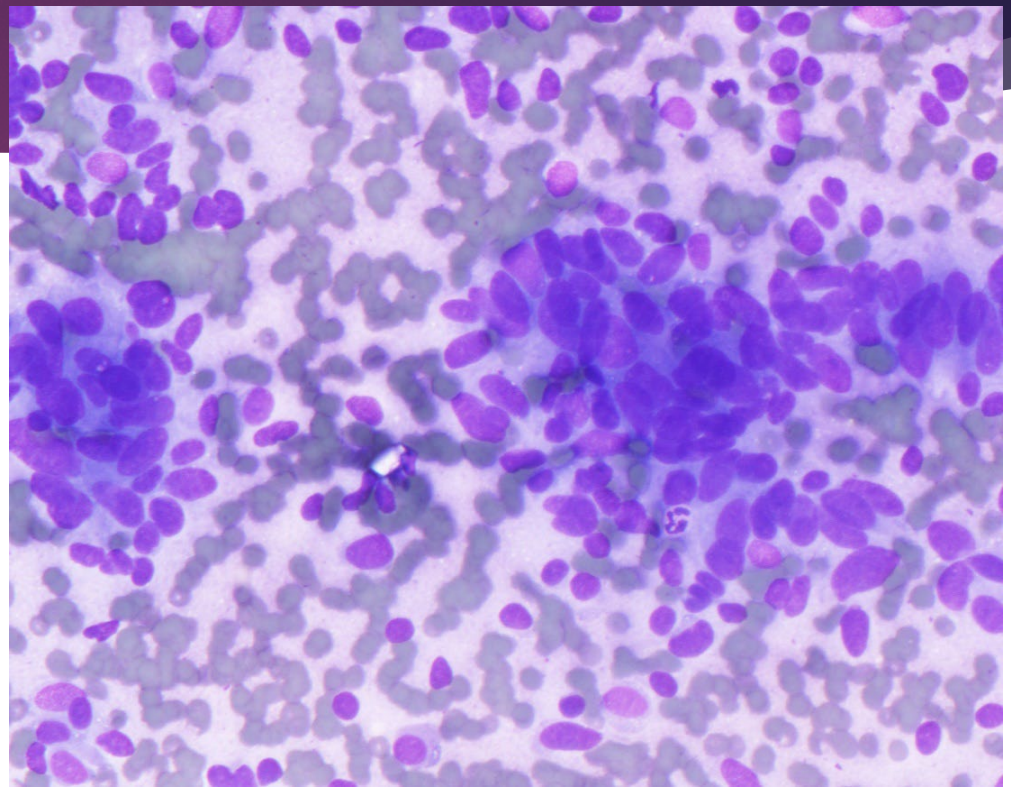
- 79 year-old female
- History of pancreatic ductal adenocarcinoma, well differentiated
- History of renal cell carcinoma
- Lung, LLL mass and lymphadenopathy
- Lung, left lower lobe, EBUS FNA

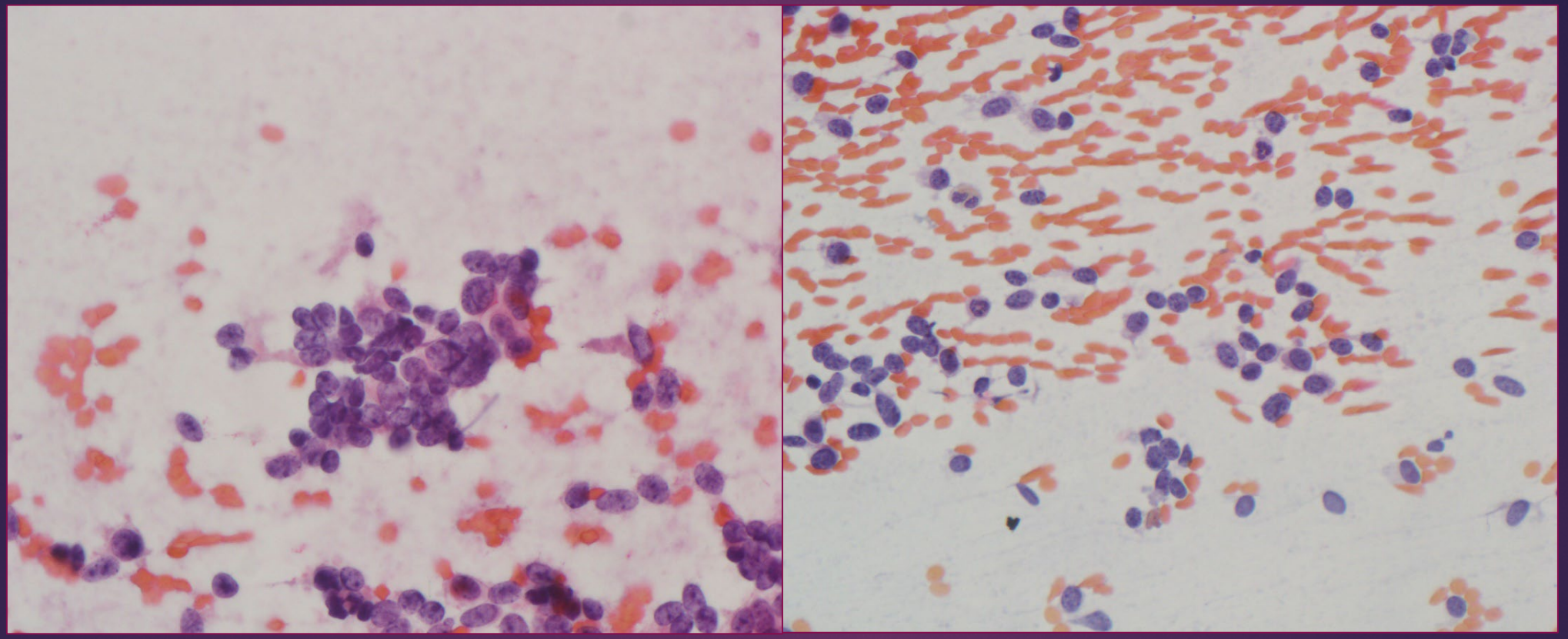
Chest CT with contrast LLL lesion











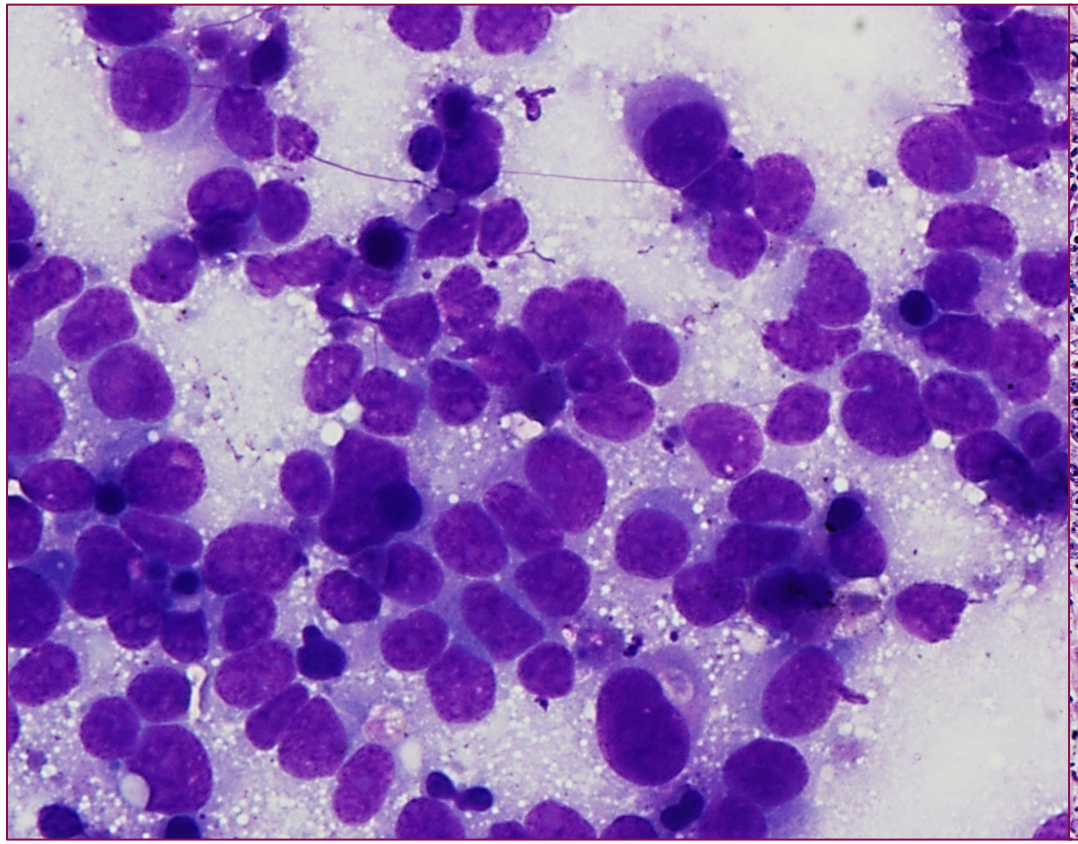
Case 4: What is your interpretation?

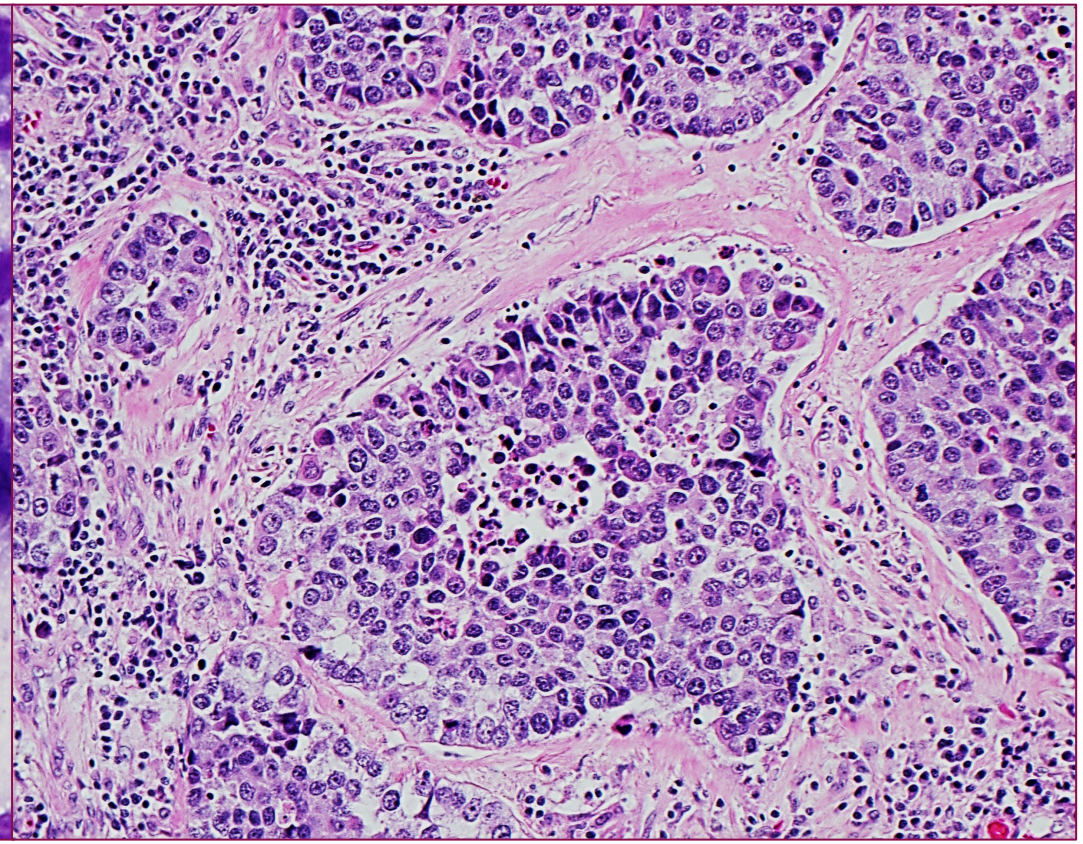
- Large cell neuroendocrine carcinoma
- Small cell neuroendocrine carcinoma
- Merkel cell carcinoma
- Lymphoma

Differential Diagnosis

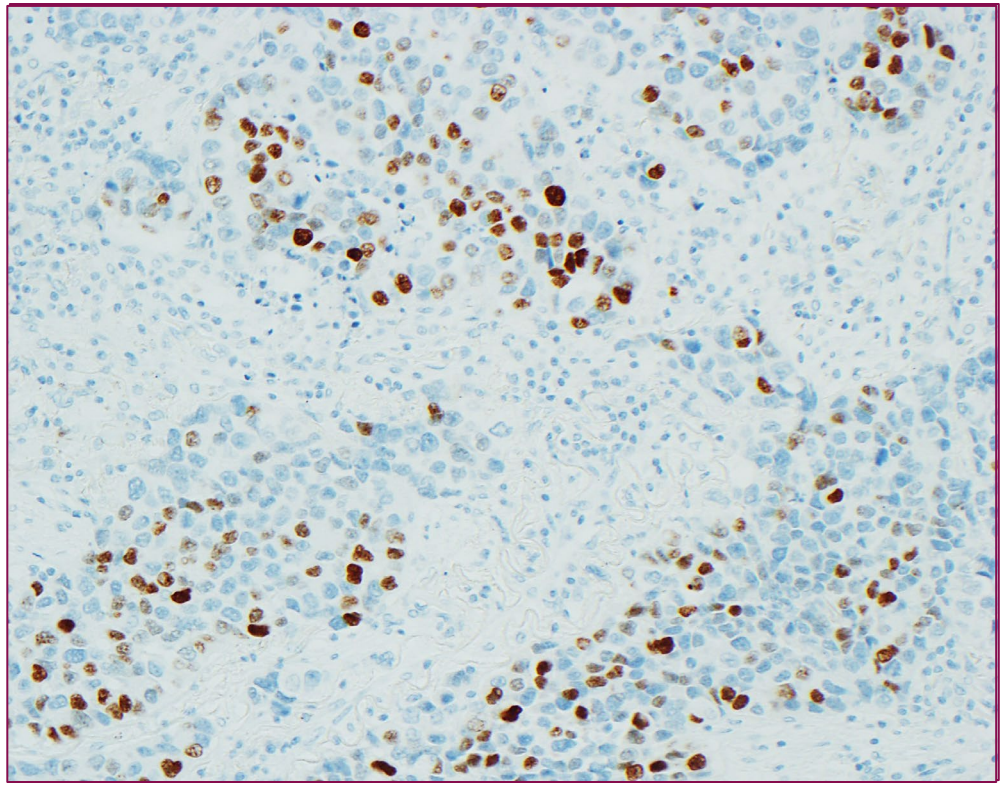
- Large cell neuroendocrine carcinoma
- Small cell neuroendocrine carcinoma
- Merkel cell carcinoma
- Lymphoma

Large cell neuroendocrine tumor

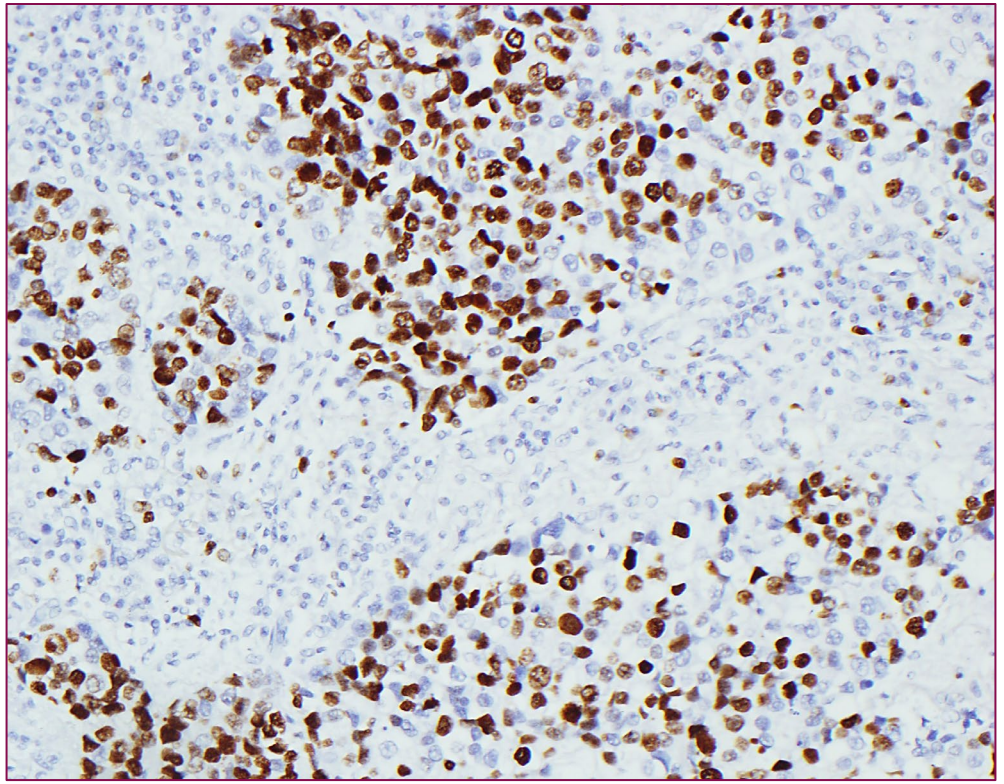




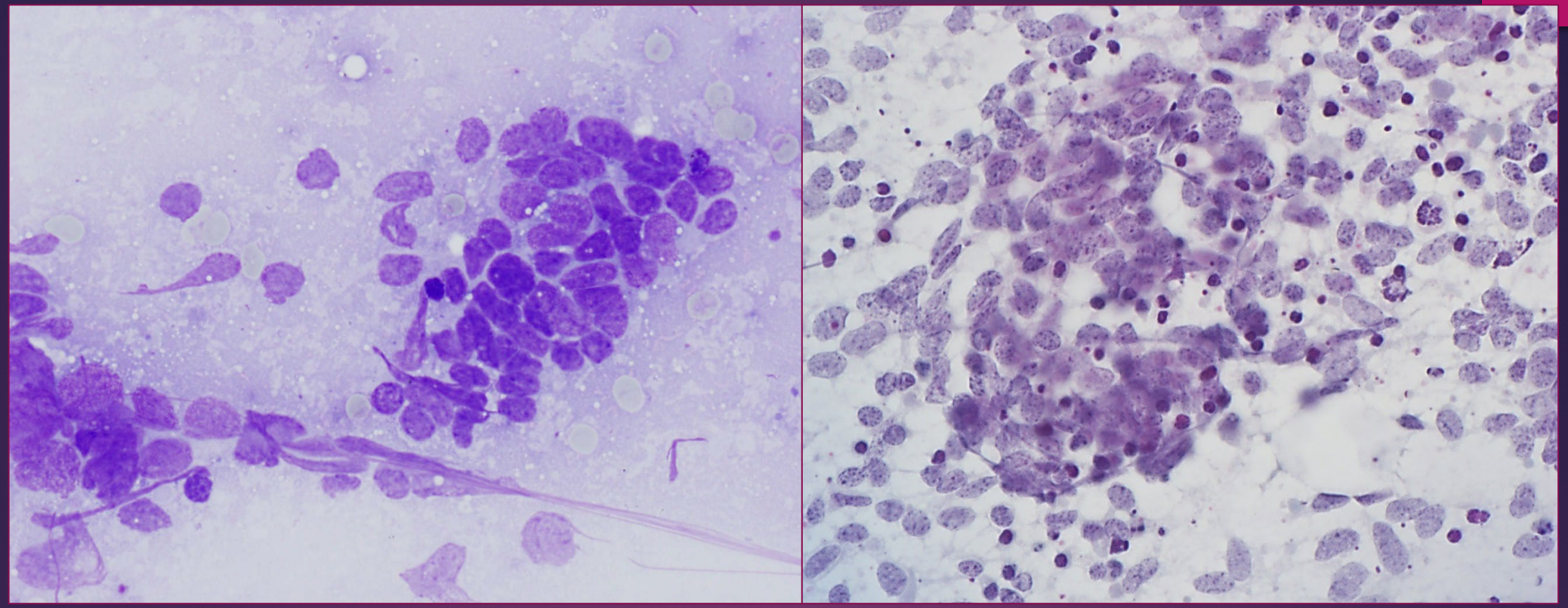
Large cell neuroendocrine tumor



ISMN 1 IHC; focal positivity

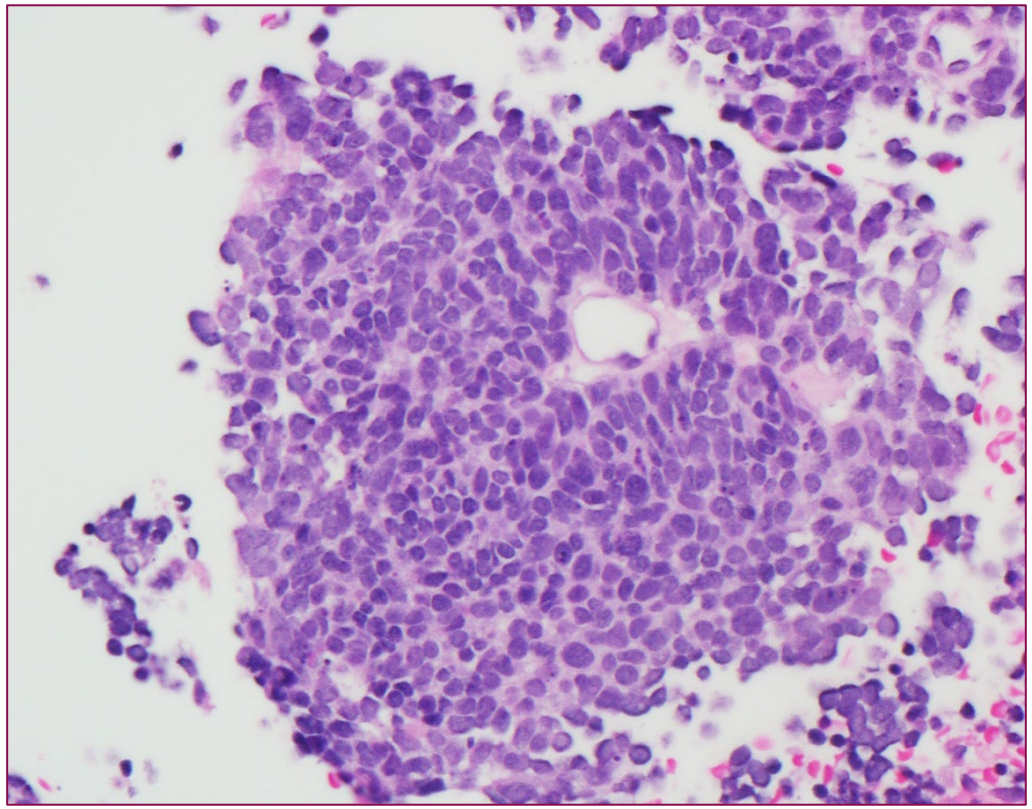


Ki-67 IHC; 80% proliferation index

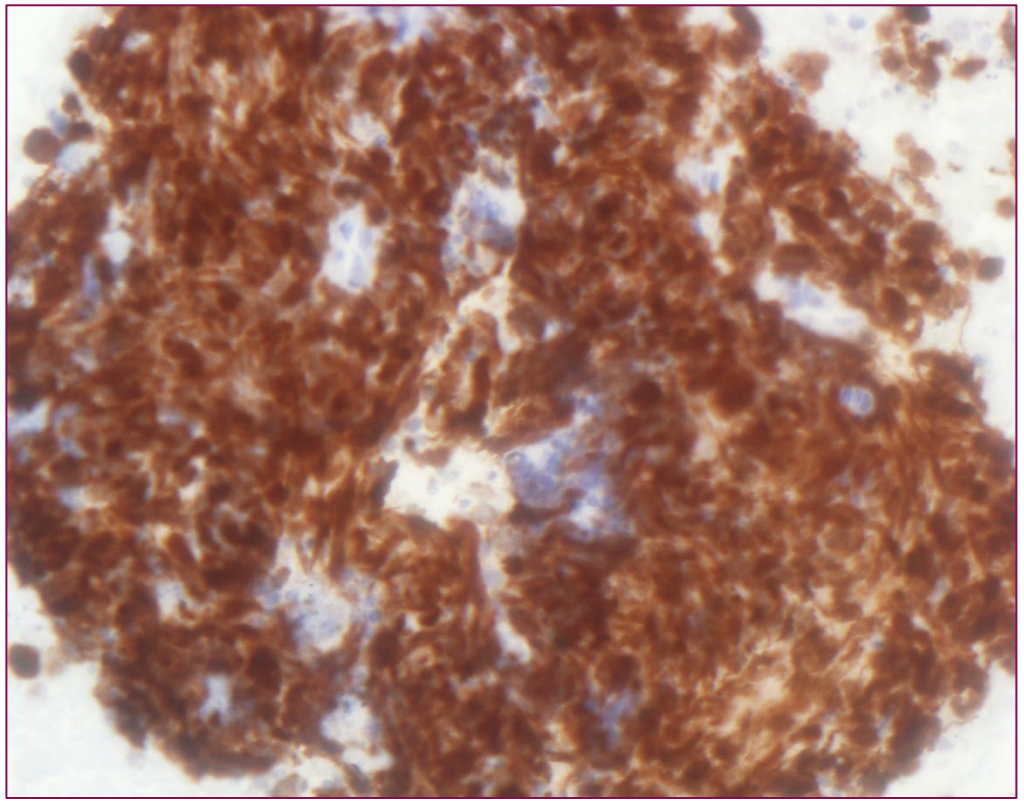


NEUROENDOCRINE TUMOR, SMALL CELL CARCINOMA

Neuroendocrine tumor, small cell carcinoma

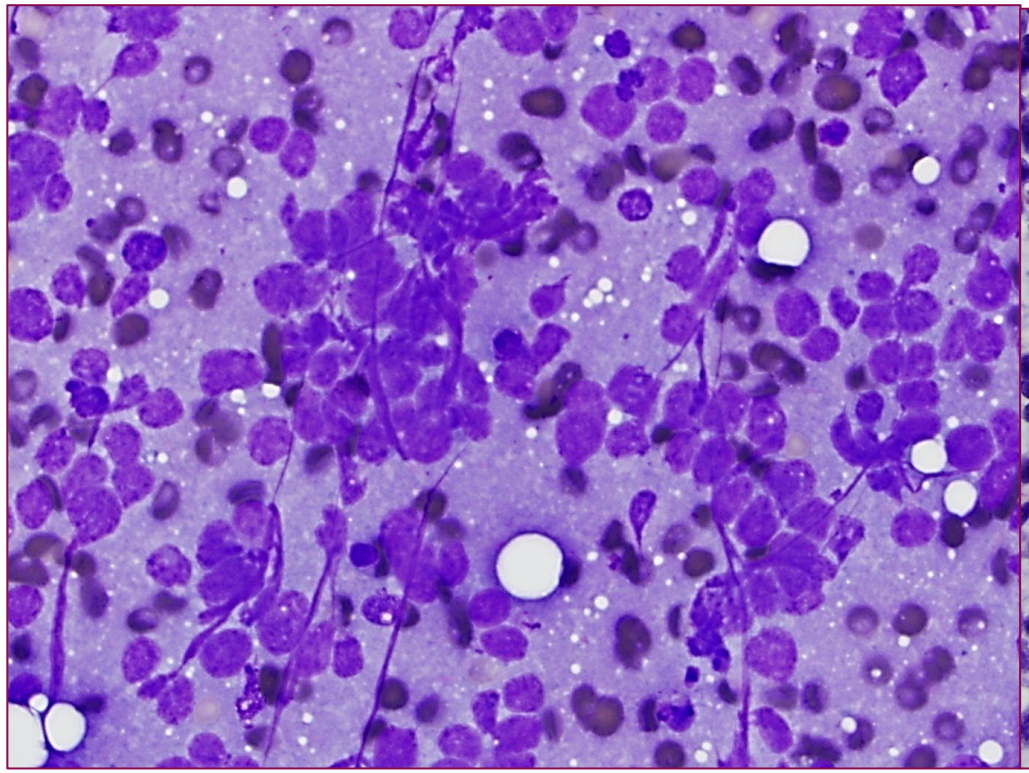


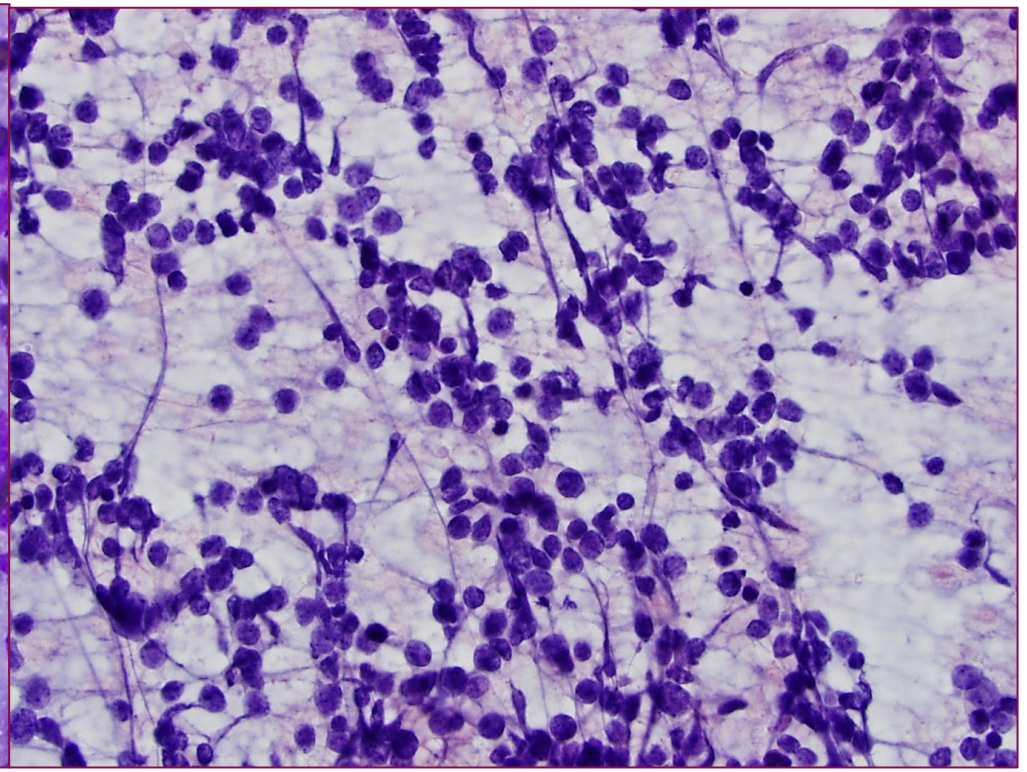
Cell Block

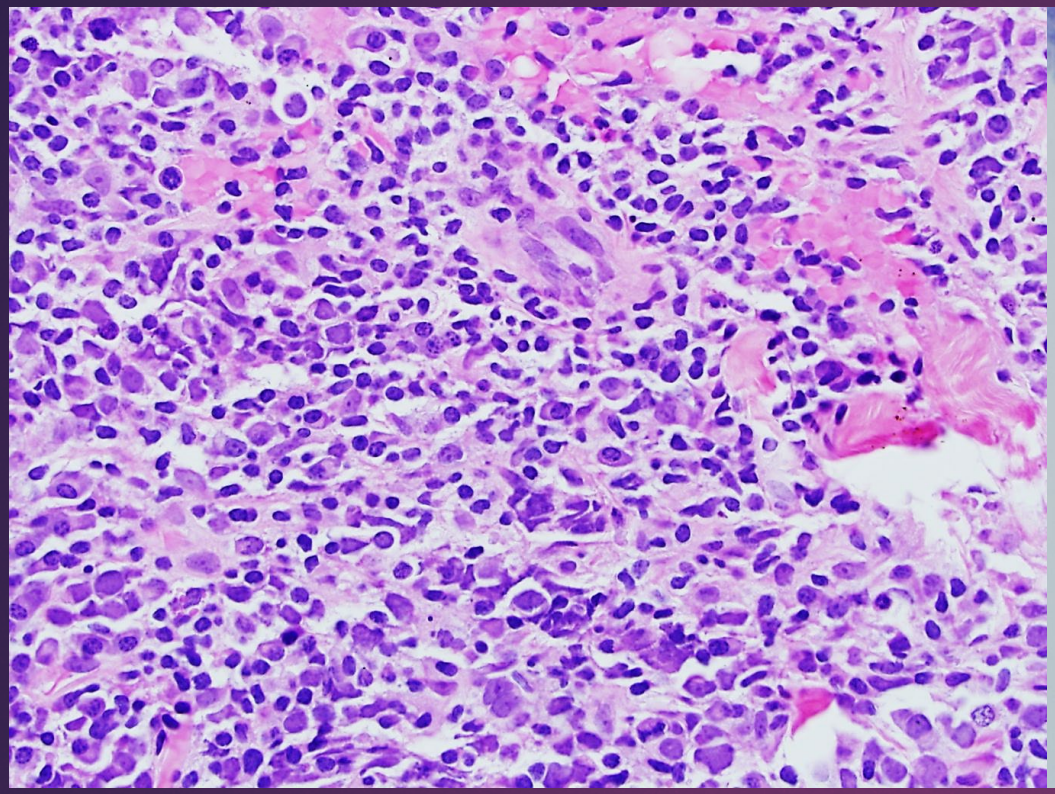


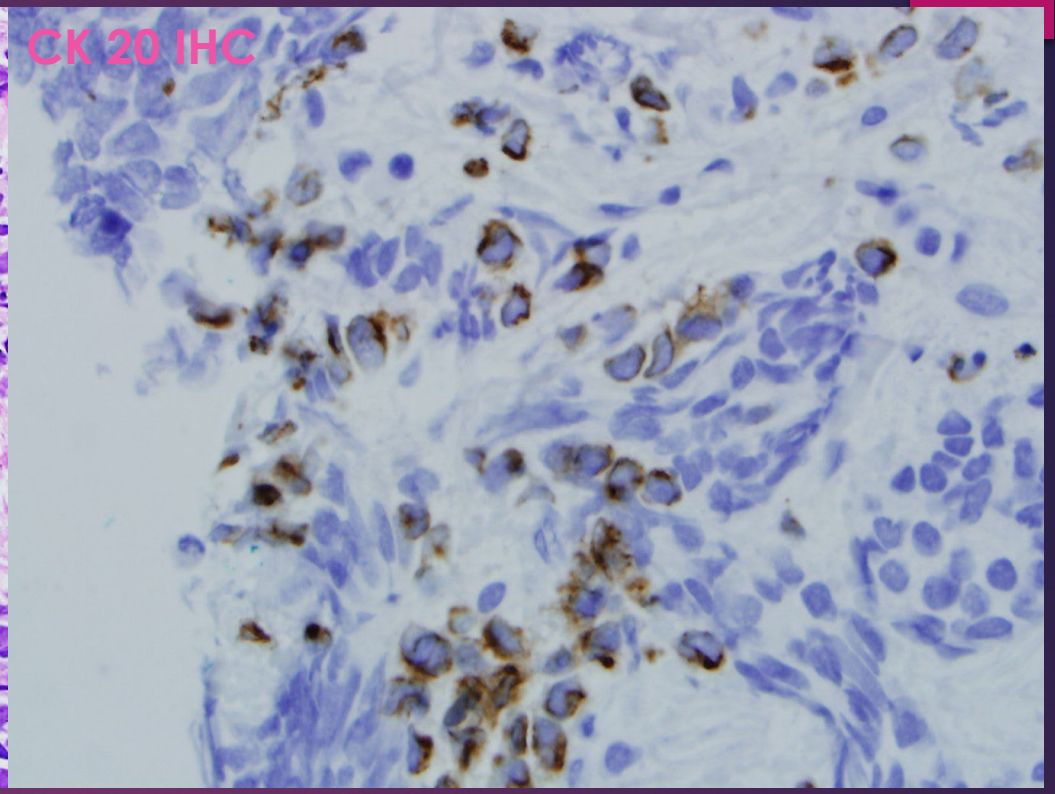
Ki-67 IHC; 95% proliferation index

Merkel Cell Carcinoma



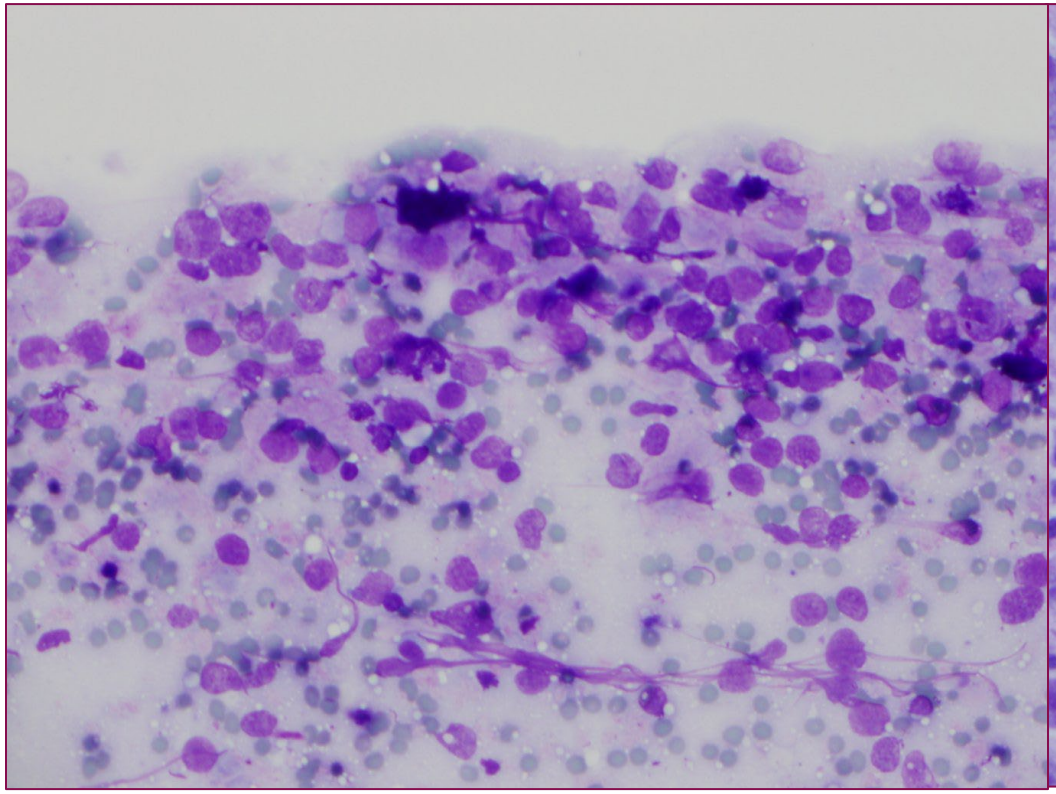


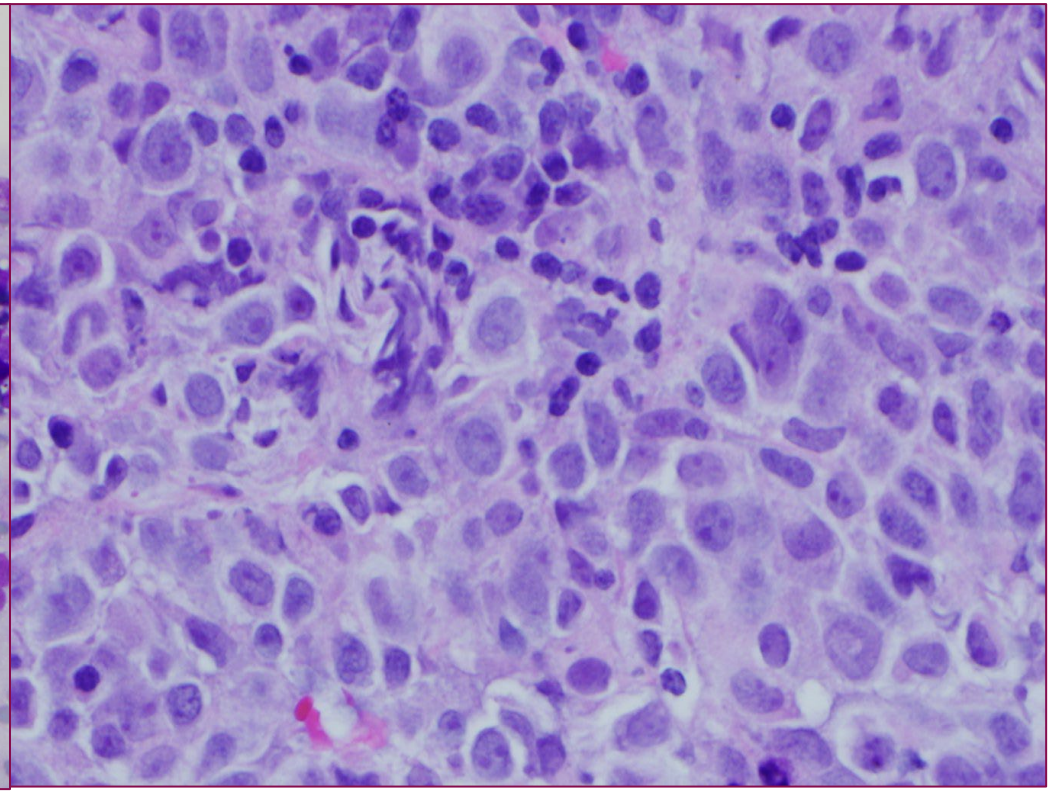




MERKEL CELL CARCINOMA

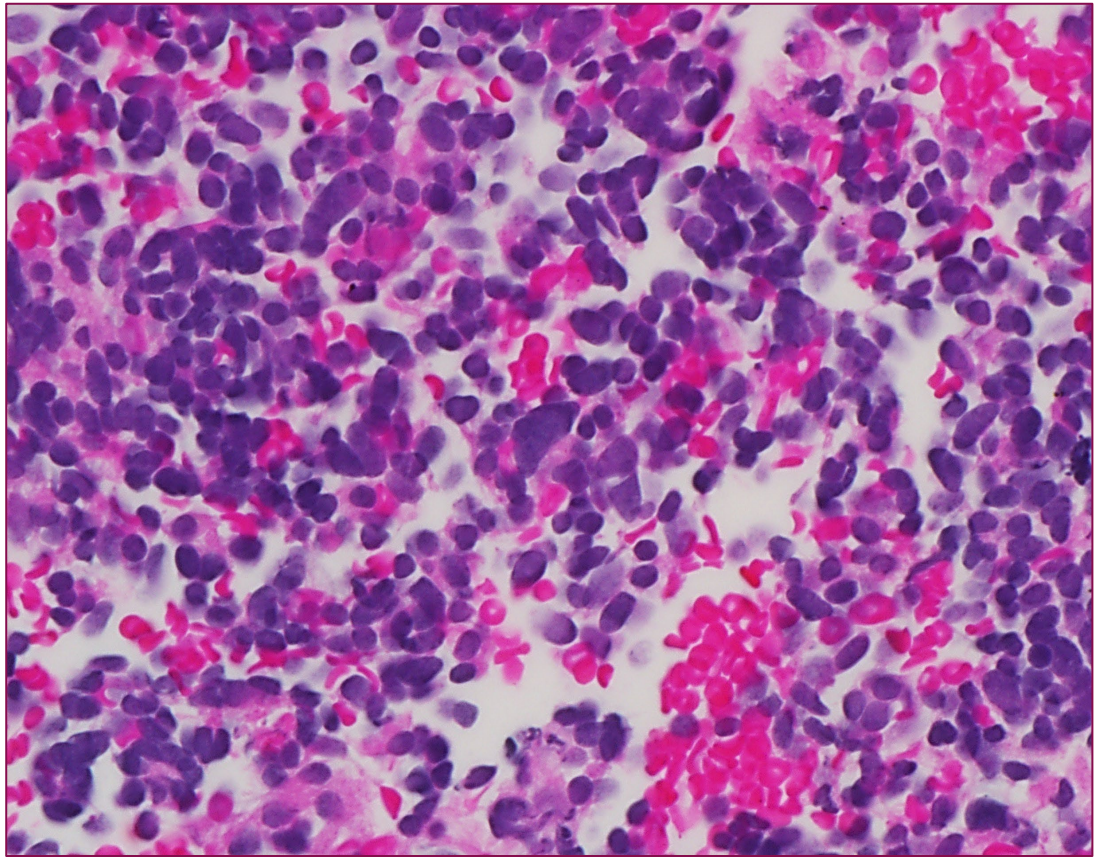
Lymphoma, large B cell

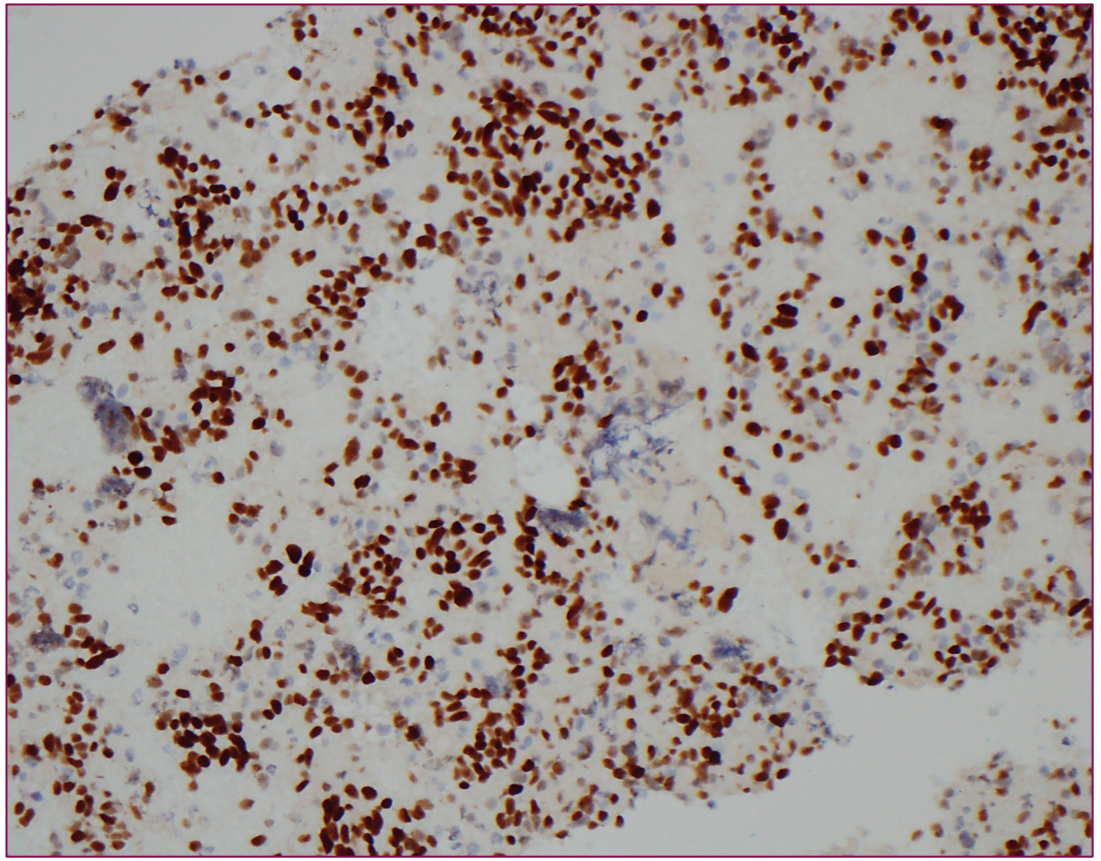




Cell block and IHC

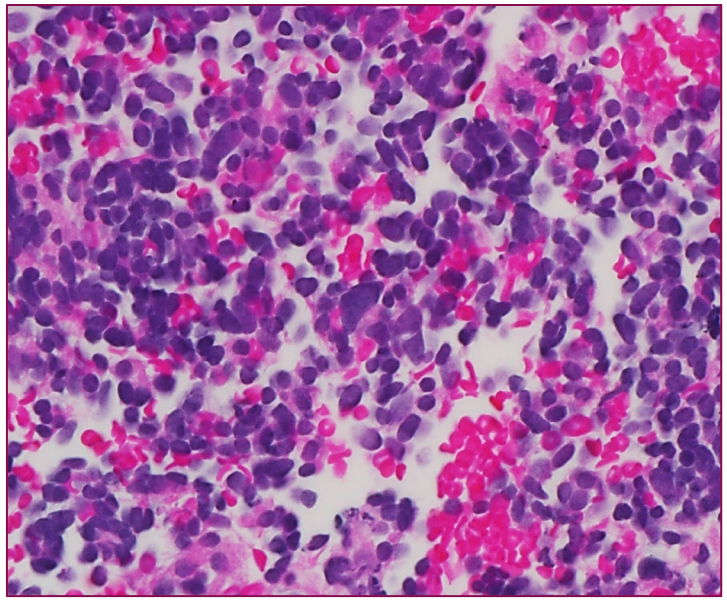
ISMN 1 IHC



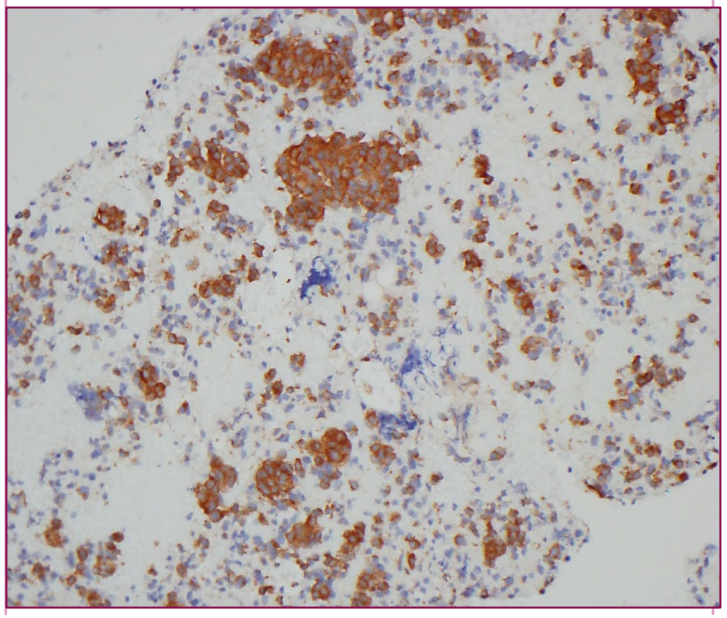


Cell Block and IHC

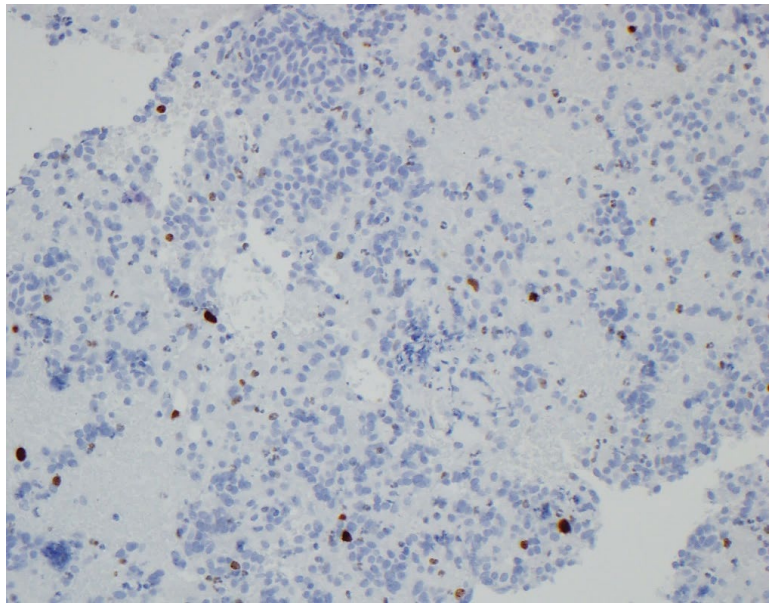
Cell block



Synaptophysin



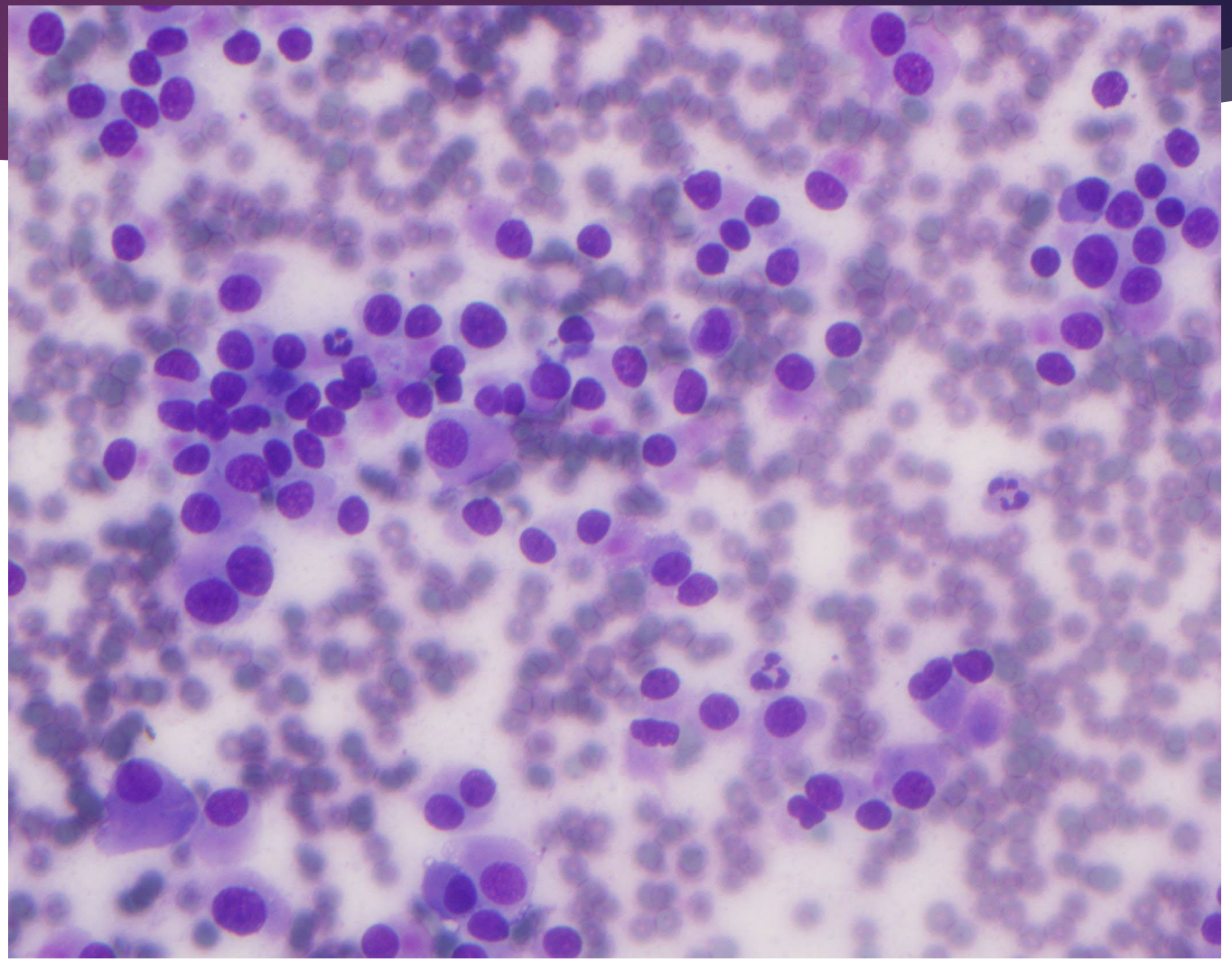
Ki-67

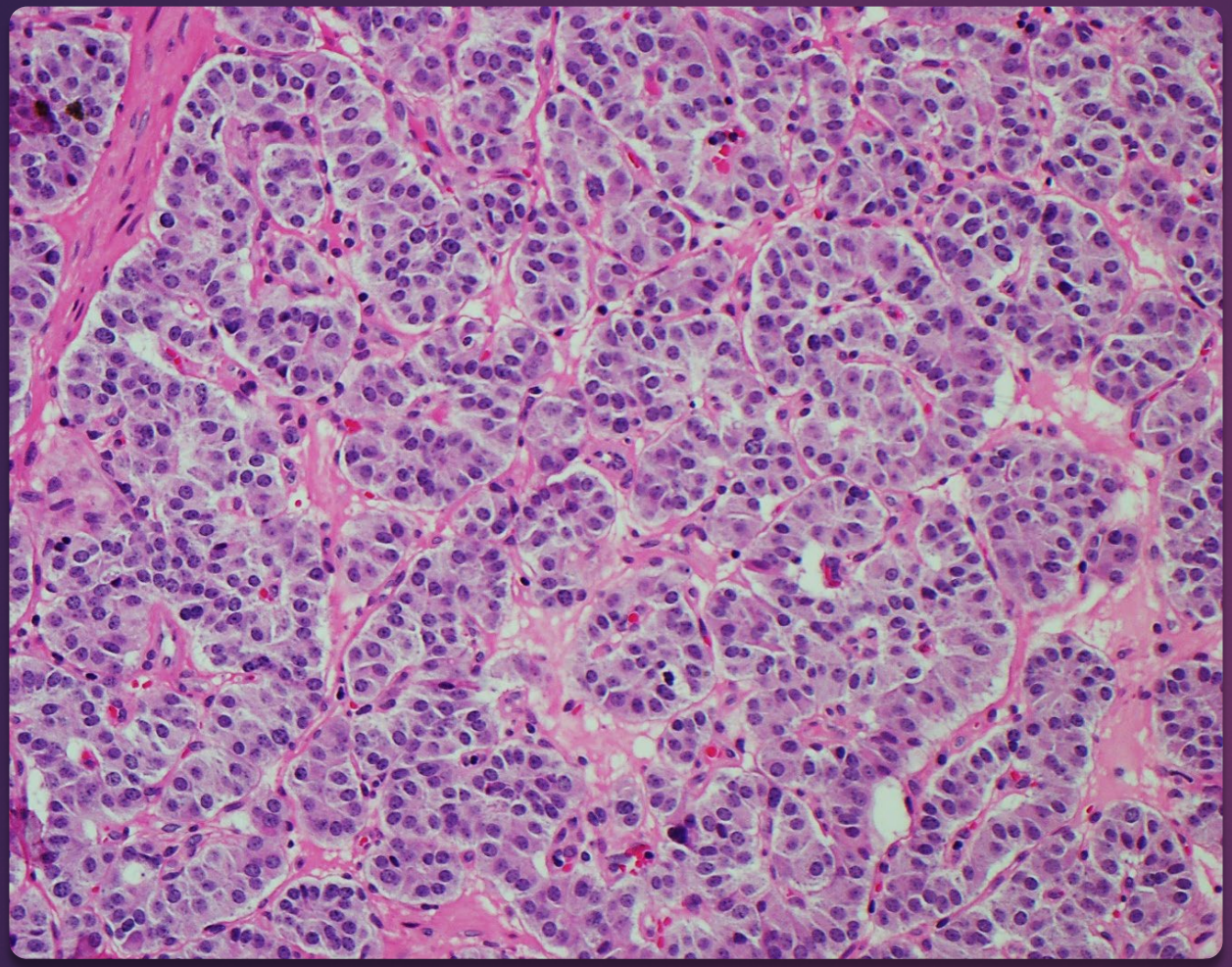


Cytopathologic Interpretation

Neuroendocrine tumor

- IHC stains show the tumor cells mark strongly with synaptophysin, chromogranin, ISMN1 and TTF-1. They do not mark with Napsin A or PAX 8. Proliferation marker Ki-67 is 1%. The staining results support a low-grade neuroendocrine tumor (carcinoid tumor).





Surgical Pathology

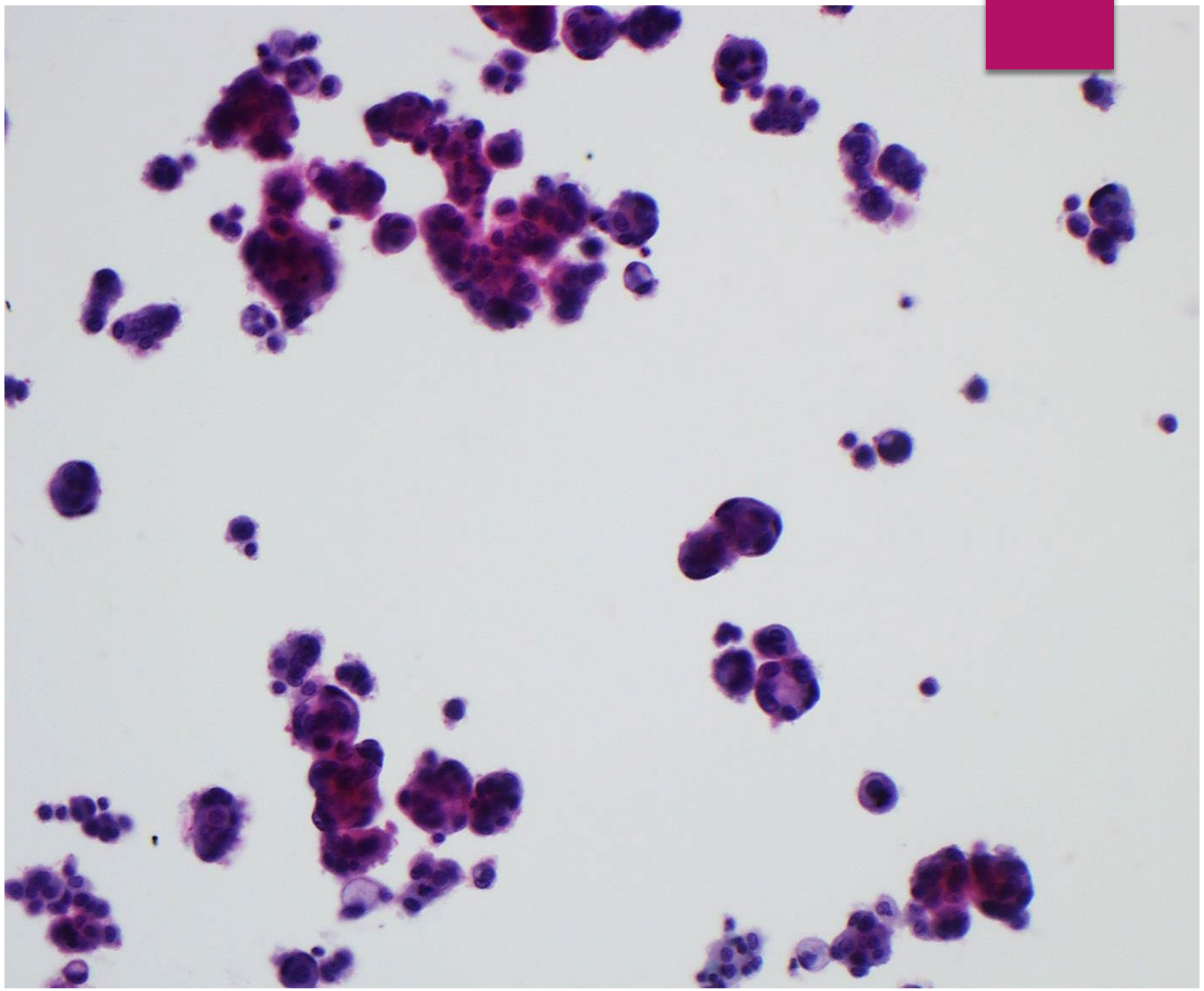
LUNG, LEFT LOWER LOBE, TRANSBRONCHIAL BIOPSY: TYPICAL CARCINOID

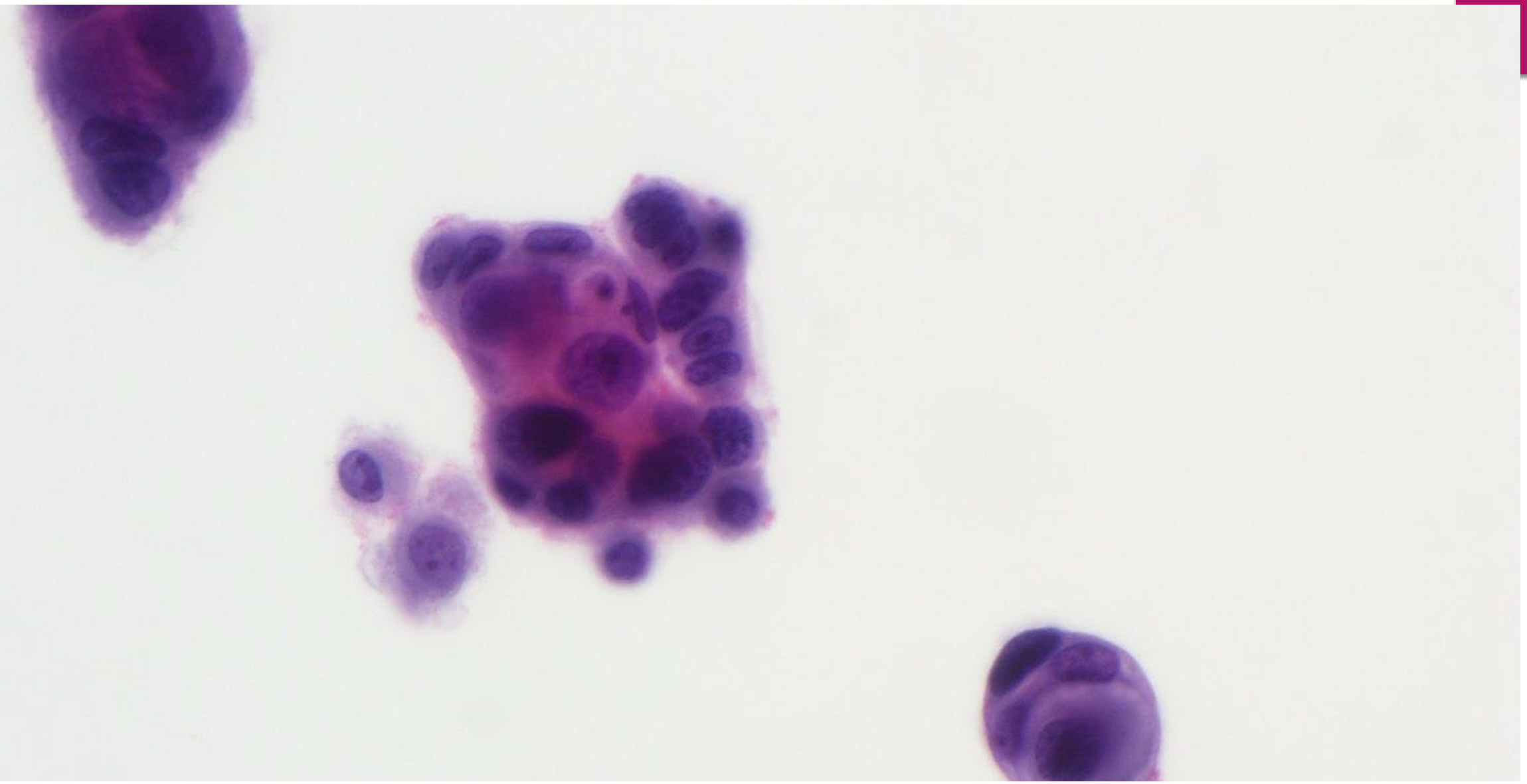
Neuroendocrine Carcinoma; Carcinoid tumor

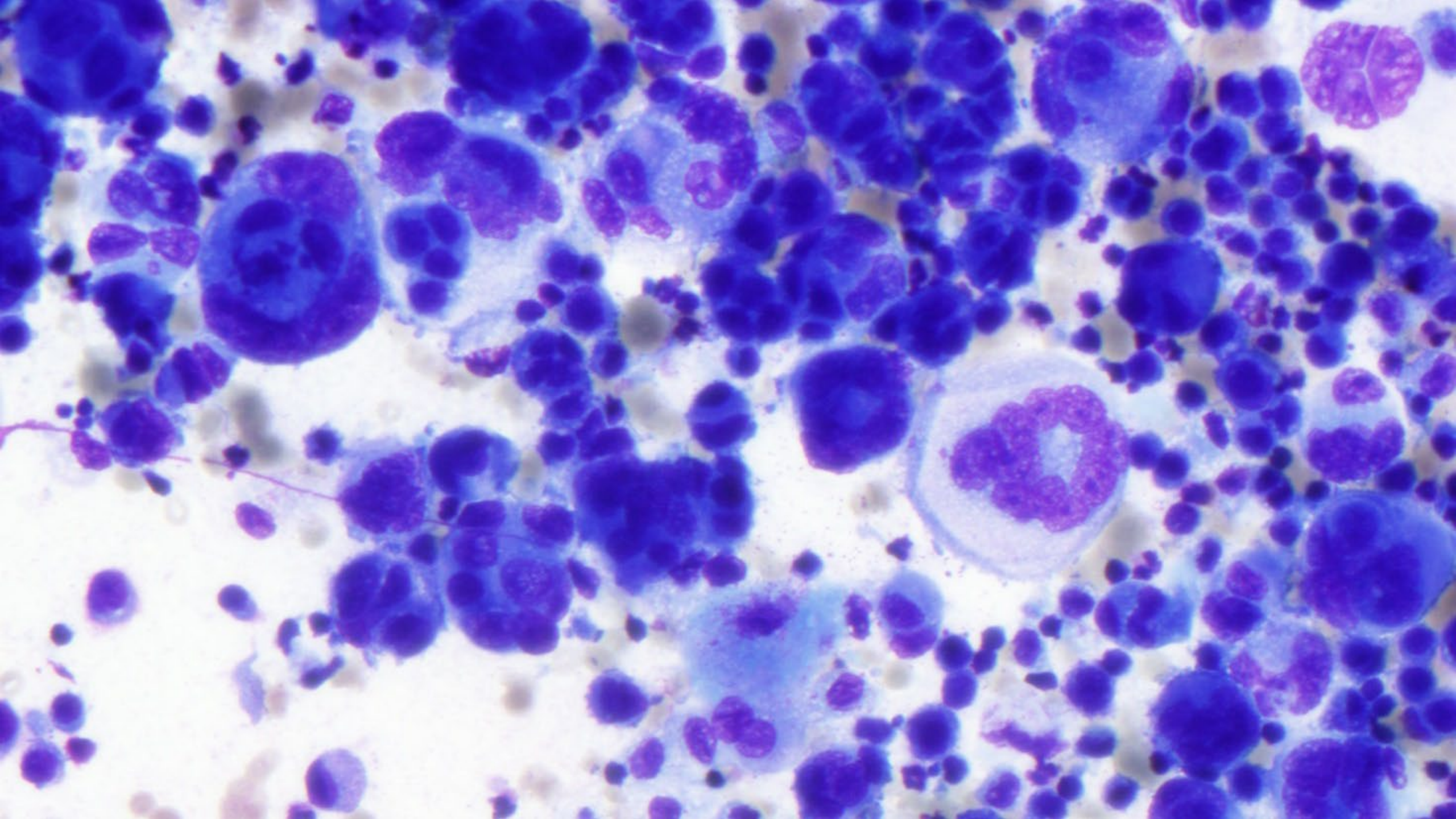
- Slow growing cancer
- Lung or digestive system
- Symptoms: chest pain, wheezing, SOB, skin flushing, diarrhea
- Risk Factors: older age, women more likely to develop, history of Multiple Endocrine Neoplasia (MEN1)
- Treatment: Surgery and/or medication
  - Favorable prognosis

CASE 5

- 48 year-old woman
- 800 ml of amber fluid
- History of CIN and squamous cell carcinoma of anus
- Pleural fluid; right





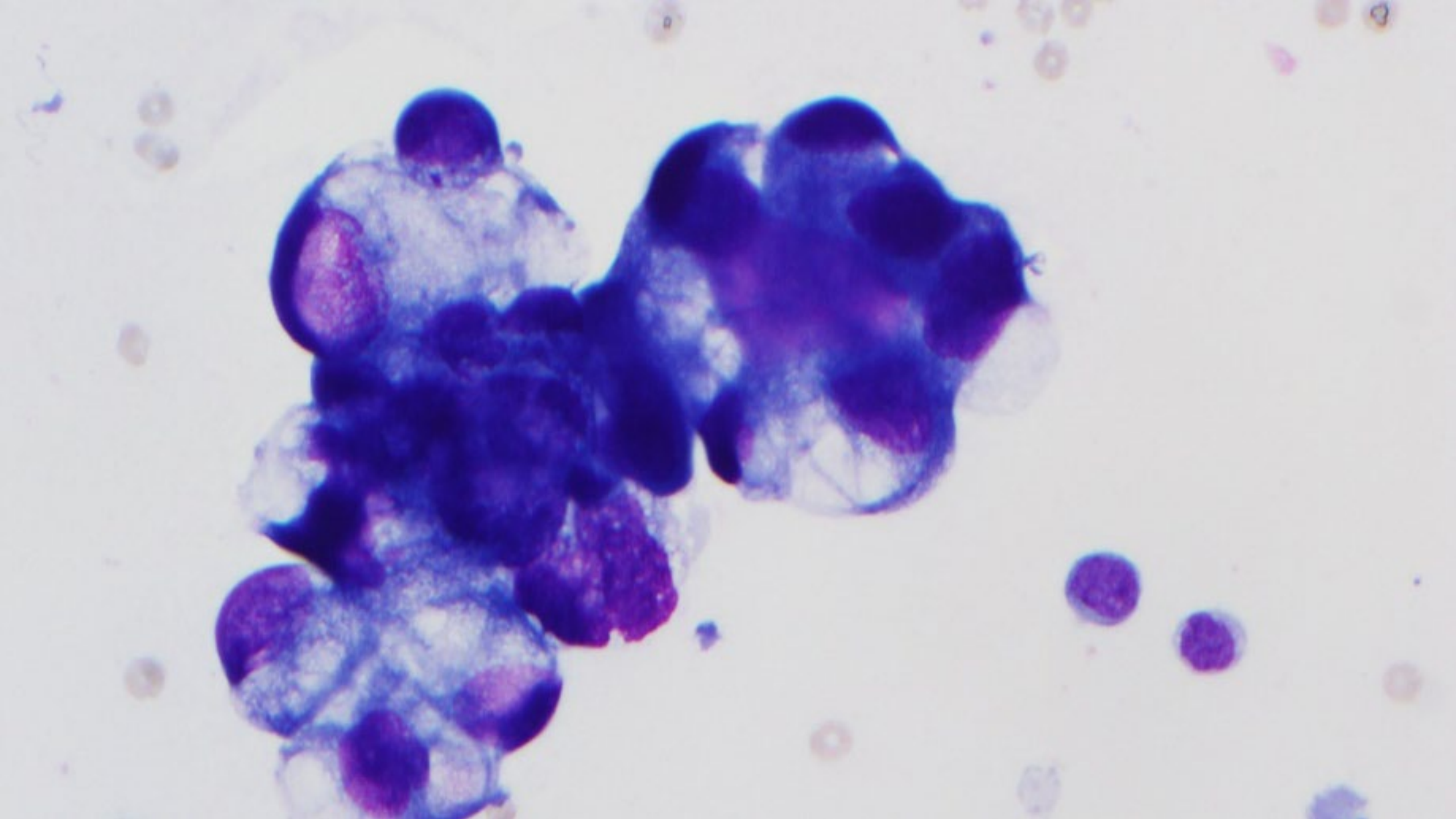


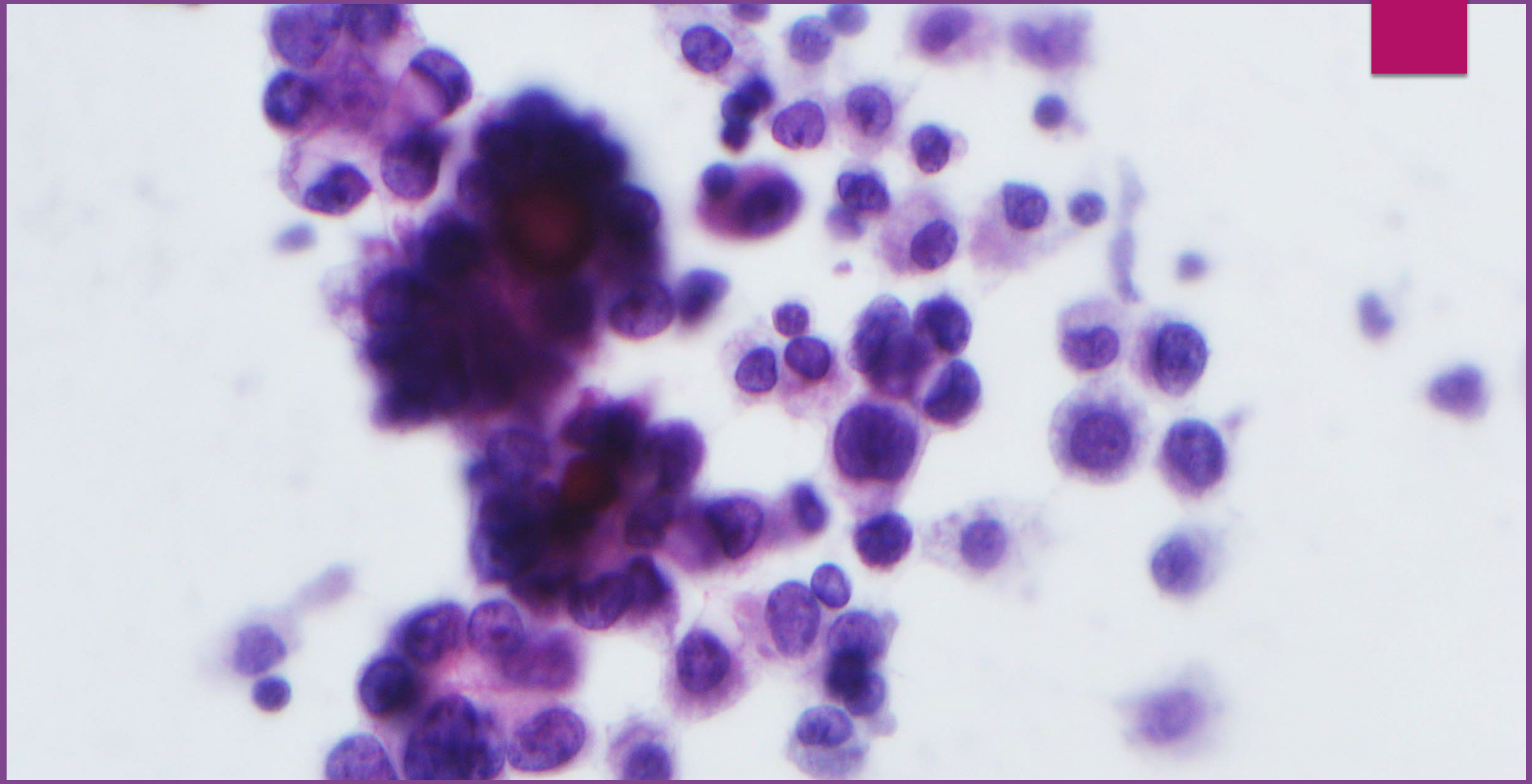
Case 5: What is your interpretation?

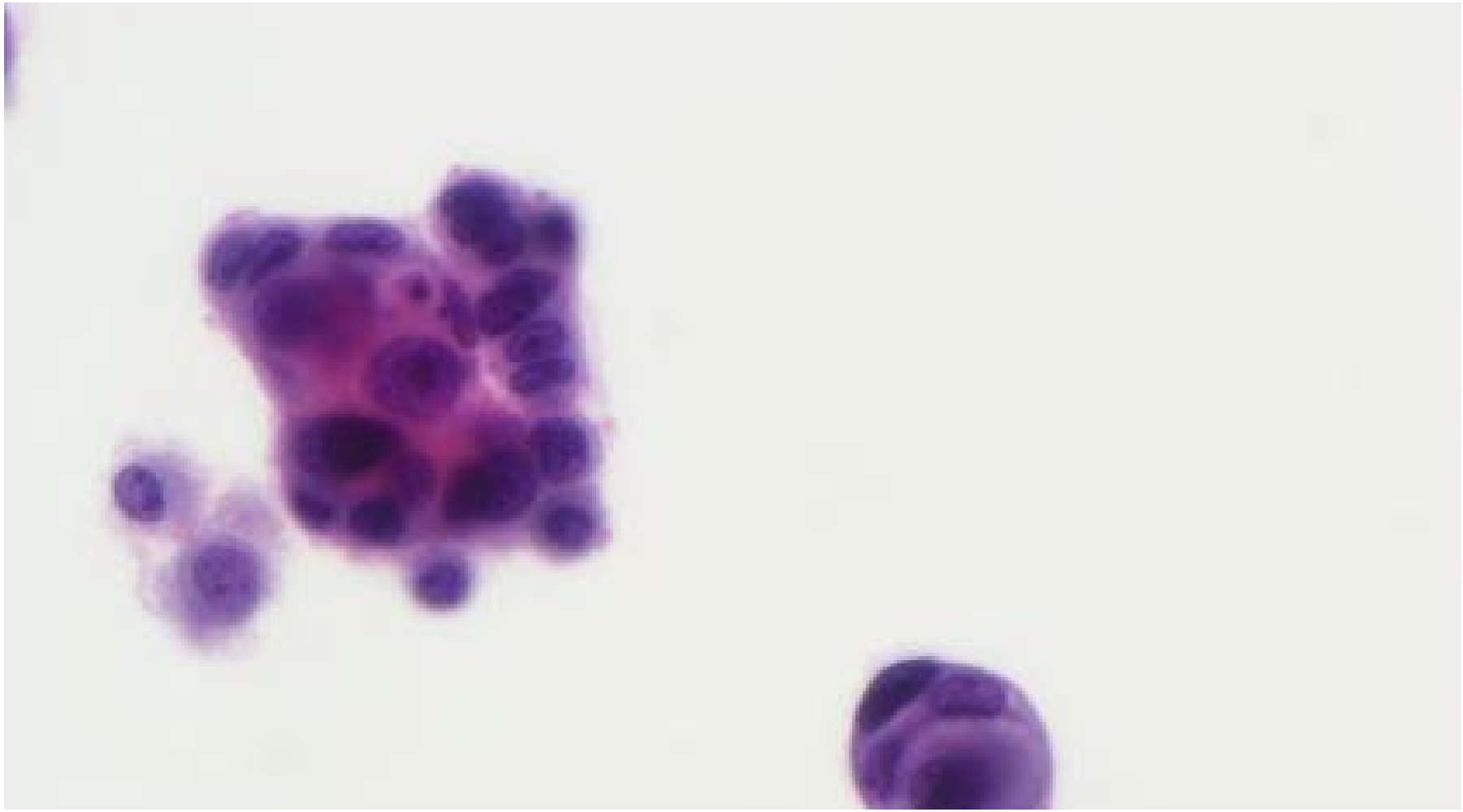
- Metastatic adenocarcinoma; breast
- Metastatic adenocarcinoma; ovary
- Metastatic squamous cell carcinoma
- Metastatic adenocarcinoma; lung

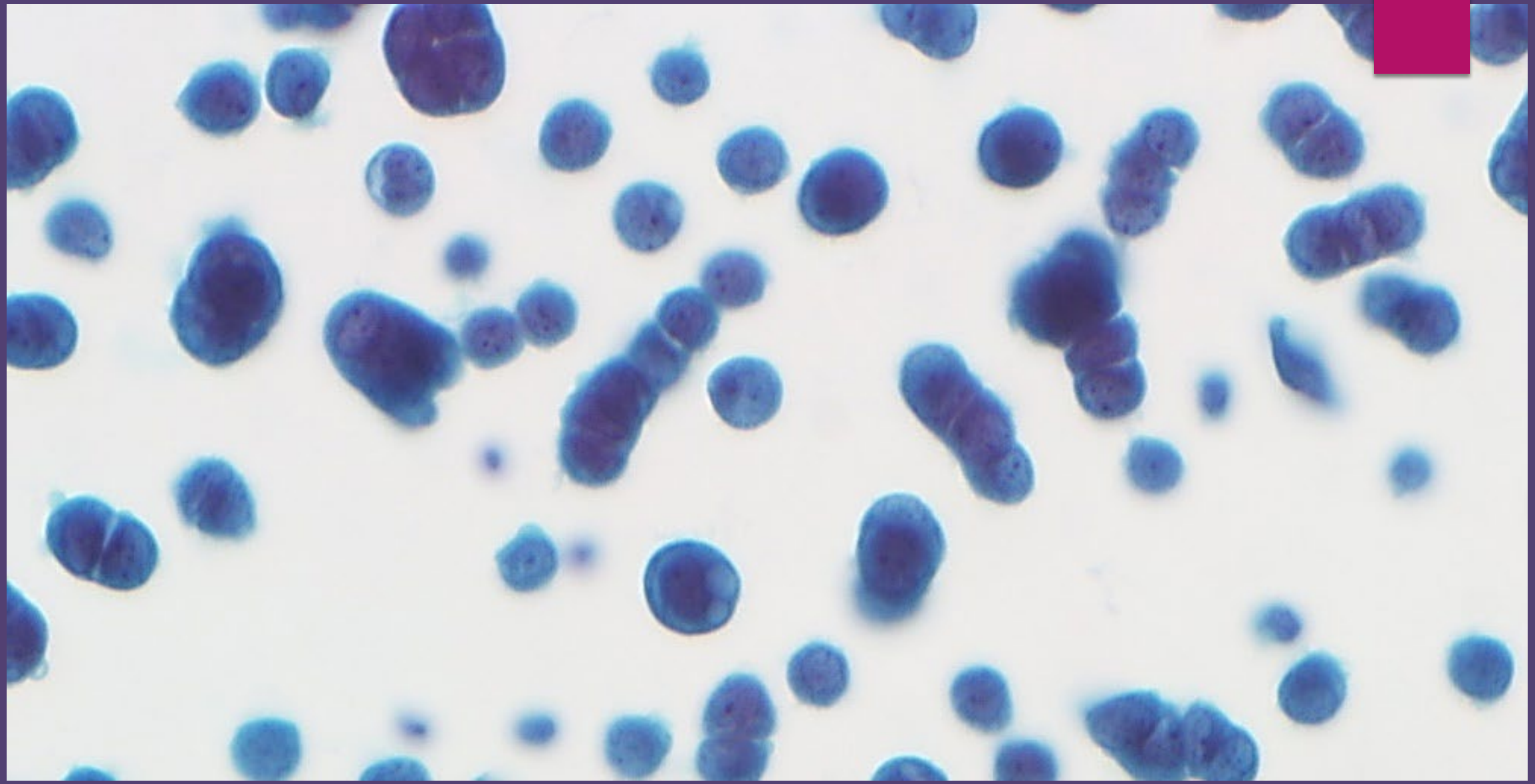
Differential Diagnosis

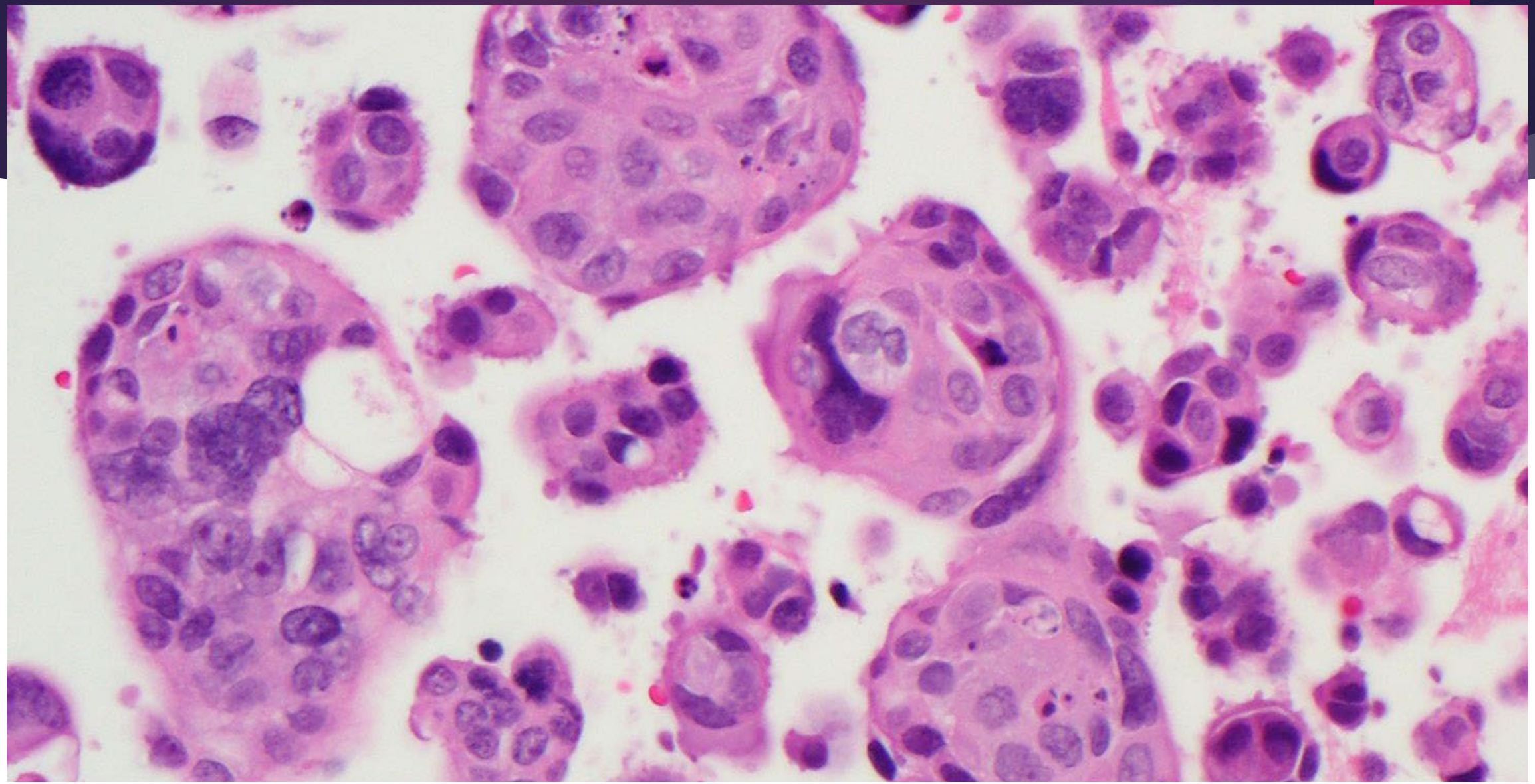
- Metastatic lung adenocarcinoma
- Metastatic ovarian adenocarcinoma
- Metastatic squamous cell carcinoma
- Metastatic breast adenocarcinoma











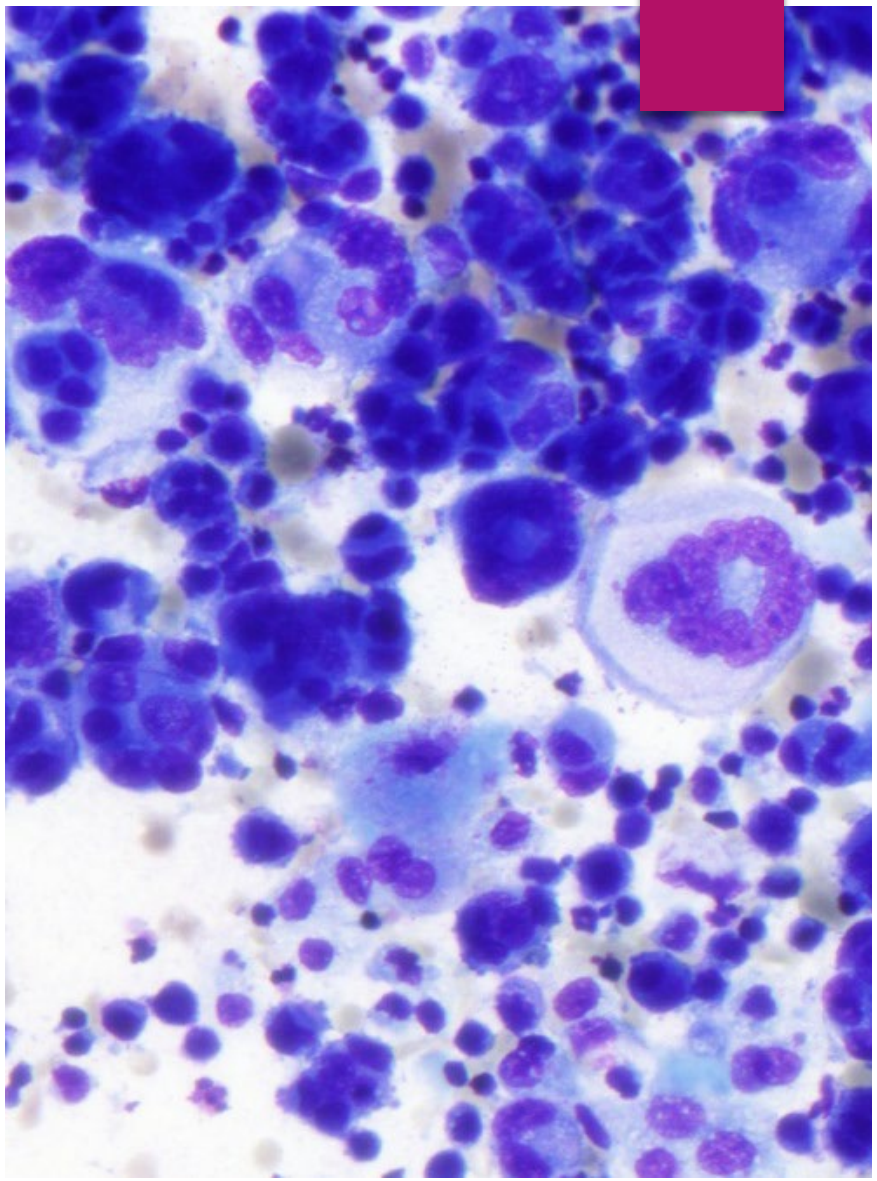
Cytopathologic Interpretation:

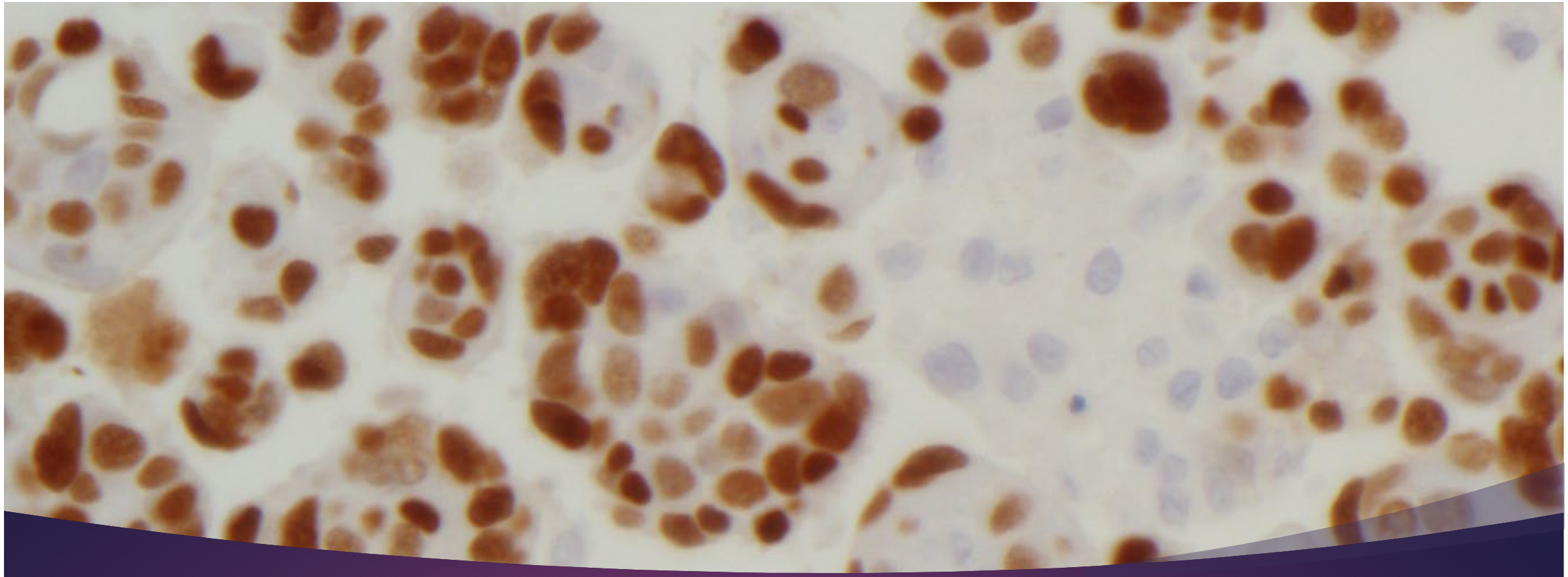
Pleural fluid; right:

Positive for malignancy consistent with metastatic squamous cell carcinoma

Cell block and cytologic preparations examined

- Immunohistochemical stains performed on the cell block with appropriate controls show the cells of interest mark with p40. They do not mark with TTF1, Napsin A or CK20. These staining results support squamous differentiation.





Immunohistochemistry

P40

Squamous cell carcinoma of Anus

Malignant neoplasm with squamous differentiation

IHC Profile: CK5/6+, p63+, p40

Risk Factors for Anal Cancer (Squamous Cell Carcinoma of the Anus)

Smoking	HPV	HIV	Lower Immunity	Increased sexual activity	Fistulas

Anal Cancer Treatment : depends on stage and level of extended involvement (resection, radiotherapy or chemotherapy

Thank You!