

# AMSER RAD PATH Case of the Month:

79 y/o female presents with blood in stool

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# Patient Presentation

- **CC/HPI:** 79 y/o obese female presents with dyspnea on exertion for about 4-5 months, but with worsening symptoms over the past week. She was found to have microcytic anemia with iron deficiency and a colonoscopy was ordered. She has had intermittent blood in her stool. She reports daily, usually formed, bowel movements. Occasionally she has experienced urgency with loose stools that has led to incontinence. She denies chest pain, abdominal pain, palpitations, syncope, nausea, vomiting, diarrhea, fever/chills, weight loss.
- **PMHx:** GERD, HTN, HLD. Previous colonoscopy >10 yrs ago was unremarkable.
- **PSHx:** Hysterectomy, Umbilical hernia repair w/o mesh
- **FHx:** Father had heart disease, Sister had abdominal cancer. Denies colon cancer.
- **Physical Exam:** Vitals within normal range. Unremarkable exam.
- **Labs:** CEA 1.4

# Colonoscopy Results

(Preliminary histology withheld for the time being)

- Mass in cecum
- Mass at hepatic flexure
- Mass in transverse colon
- Polyps (x2) of the rectosigmoid colon
- Polyps (x10) in the rectum

Based on the colonoscopy results, what is the appropriate imaging to order?

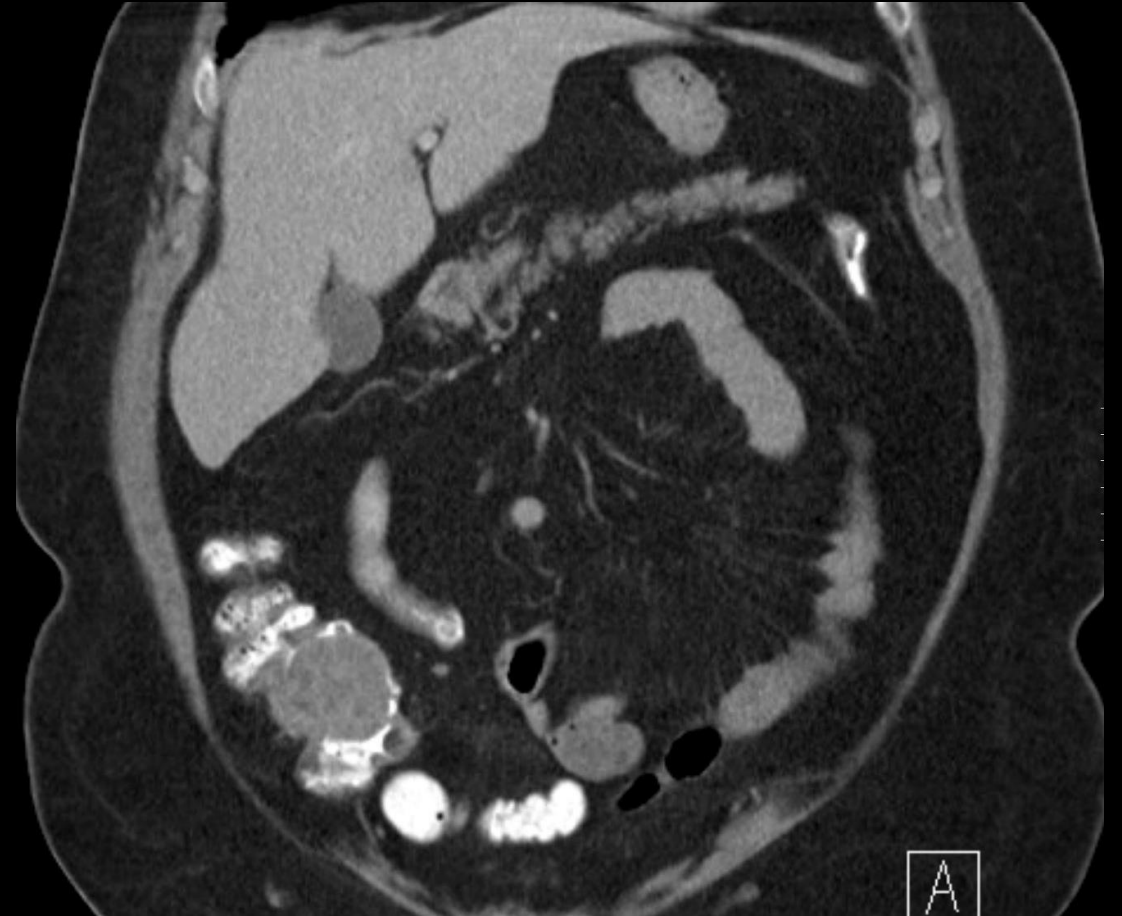
# Select the applicable ACR Appropriateness Criteria

## Variant 2:                      Colorectal cancer. Staging for distant metastases.

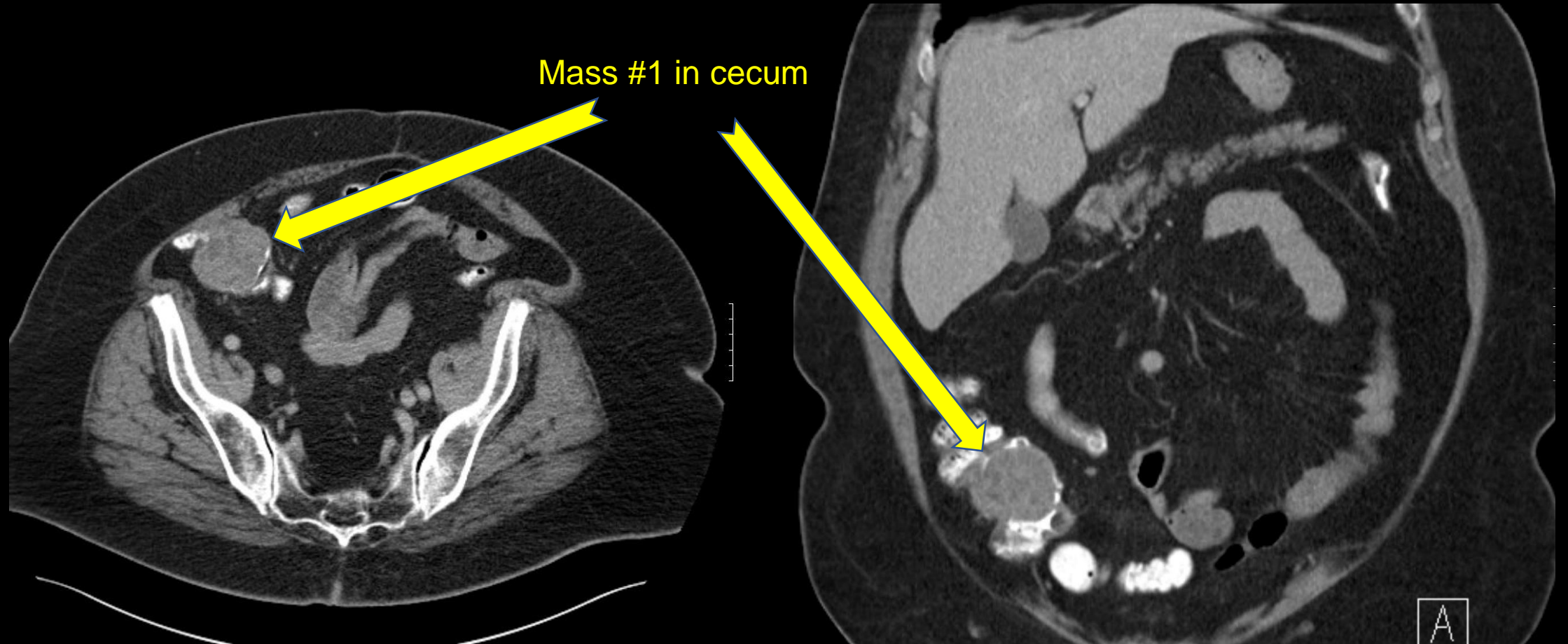
Radiologic Procedure	Rating	Comments	RRL*
CT chest abdomen pelvis with IV contrast	9		⊕⊕⊕⊕
MRI abdomen and pelvis without and with IV contrast	8	MRI or CT can be used. Usually performed along with a chest CT.	○
FDG-PET/CT whole body	6		⊕⊕⊕⊕
MRI abdomen and pelvis without IV contrast	5	Rarely used, but may be appropriate in situations when other exams cannot be performed due to contraindications. Usually performed along with chest CT.	○
CT chest abdomen pelvis without IV contrast	4	Only useful in a few very specific situations.	⊕⊕⊕⊕
CT chest abdomen pelvis without and with IV contrast	3	Limited added value of non-contrast series at the expense of increased dose.	⊕⊕⊕⊕
<u>Rating Scale:</u> 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate			*Relative Radiation Level

This imaging modality was ordered by the Surgeon

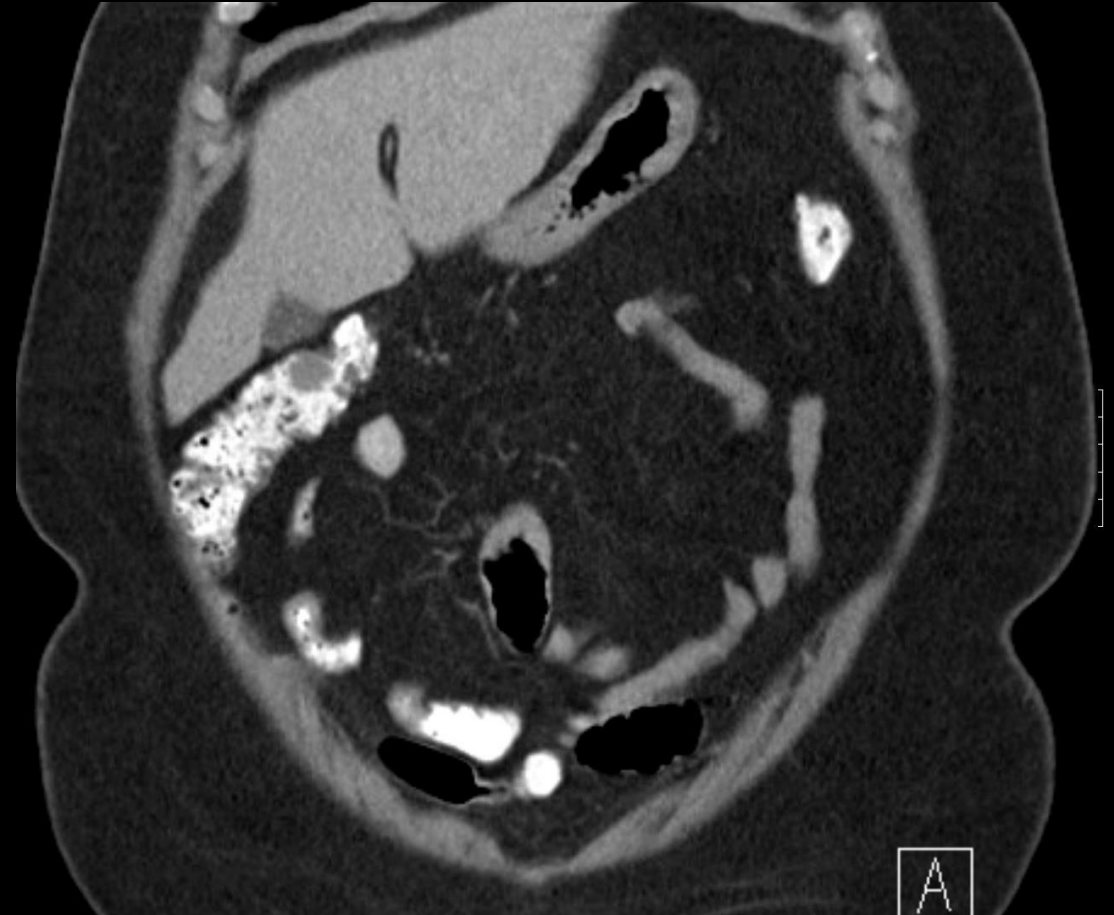
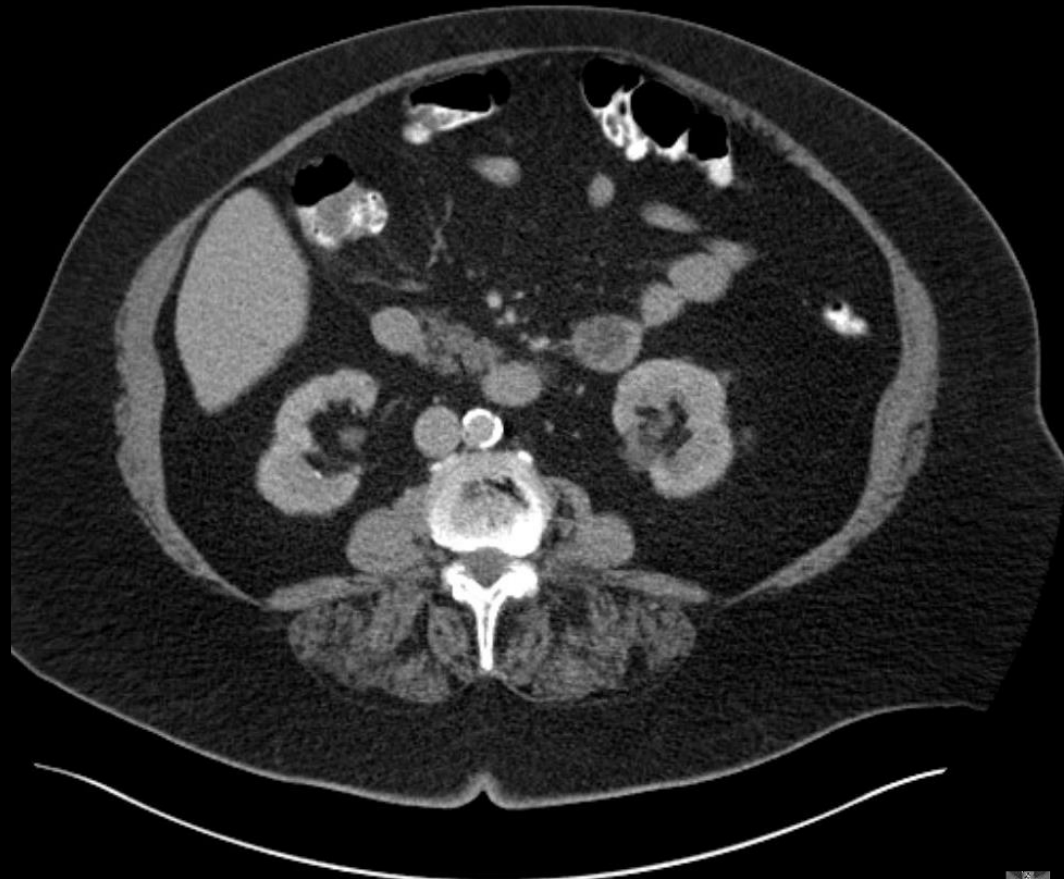
# Radiology Findings: (unlabeled)



# Findings: (labeled)

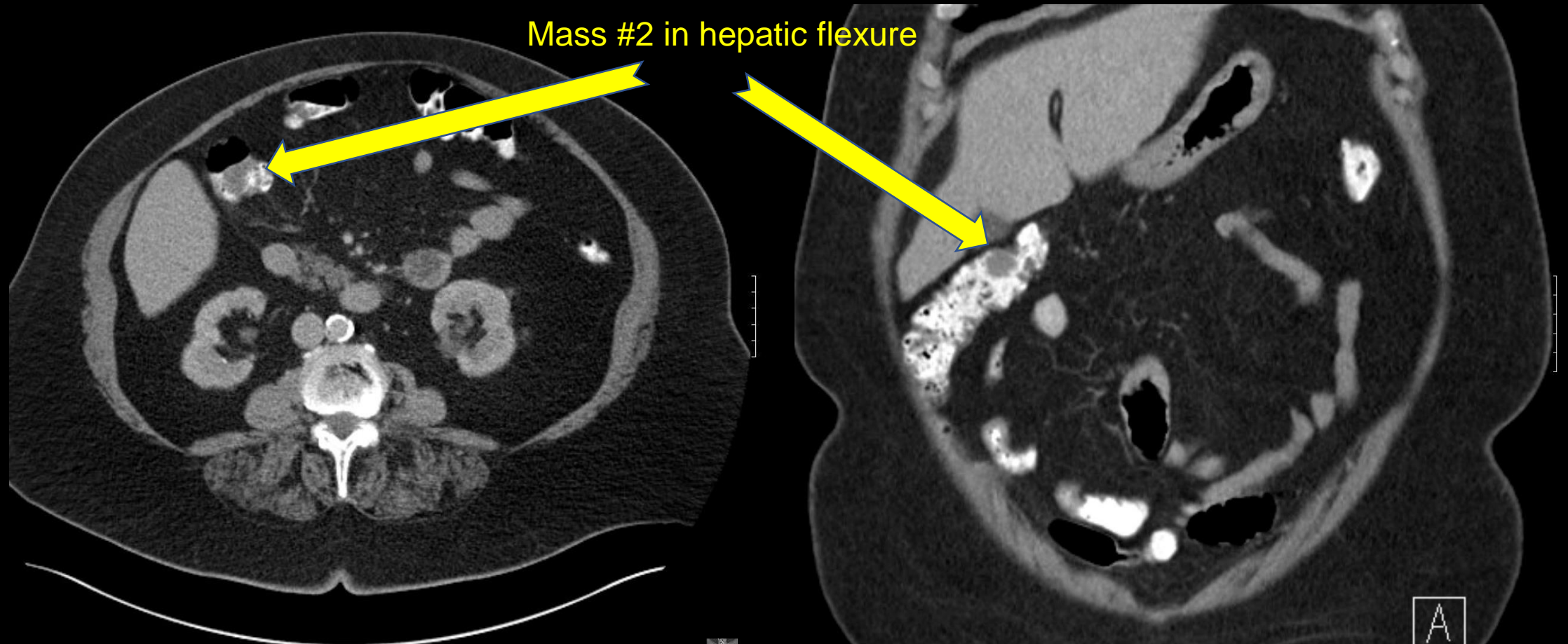


# Radiology Findings: (unlabeled)

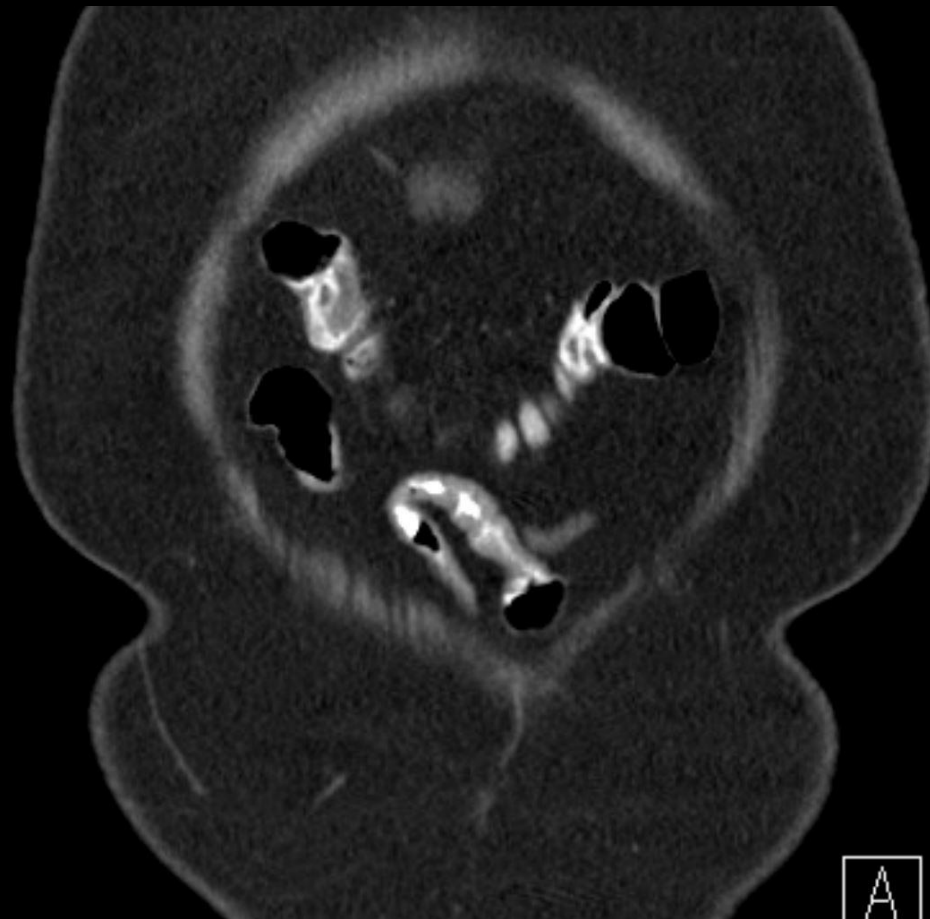
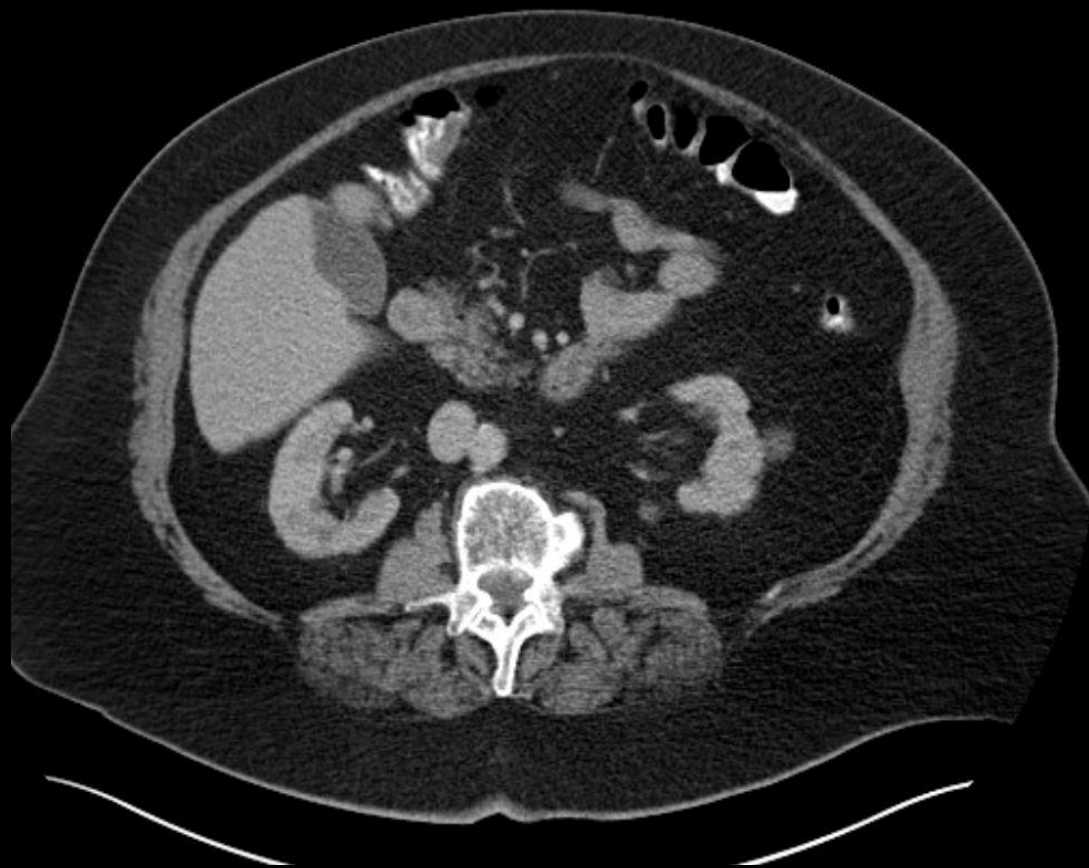




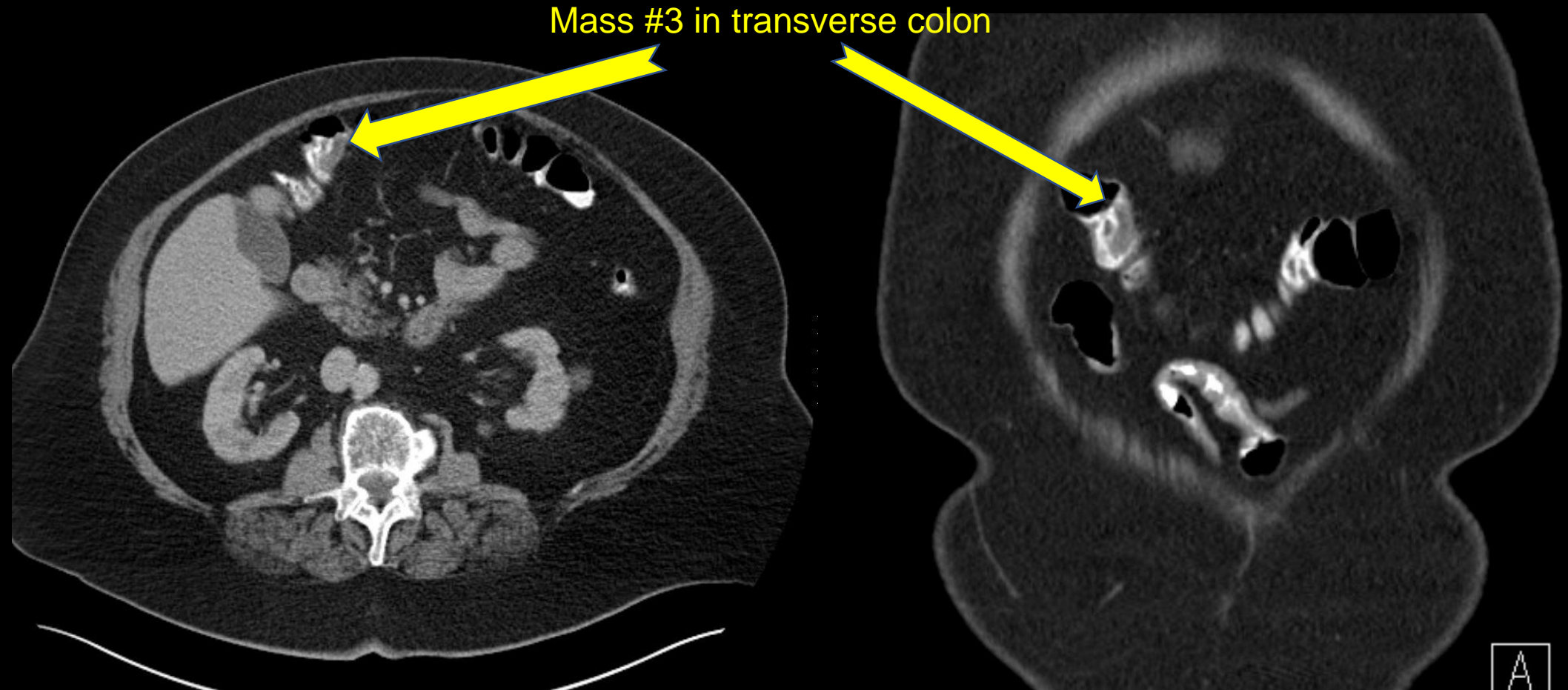
# Radiology Findings: (labeled)



# Radiology Findings: (unlabeled)



# Radiology Findings: (labeled)



No suspicious adenopathy or metastases

# Differential Diagnosis

- Colon Carcinoma
- Colonic adenomas
- Lynch Syndrome
- Lymphoma (primary non-Hodgkin's lymphoma)
- Metastatic cancer
- Carcinoid tumor
- Kaposi sarcoma

# Colonoscopy Results

## (Including preliminary histology)

- Mass in cecum → well-differentiated colonic adenocarcinoma with ulceration
- Mass at hepatic flexure → well-differentiated colonic adenocarcinoma
- Mass in transverse colon → well to moderately-differentiated adenocarcinoma
- Polyps (x2) of the rectosigmoid colon → hyperplastic polyps
- Polyps (x10) in the rectum → hyperplastic polyps

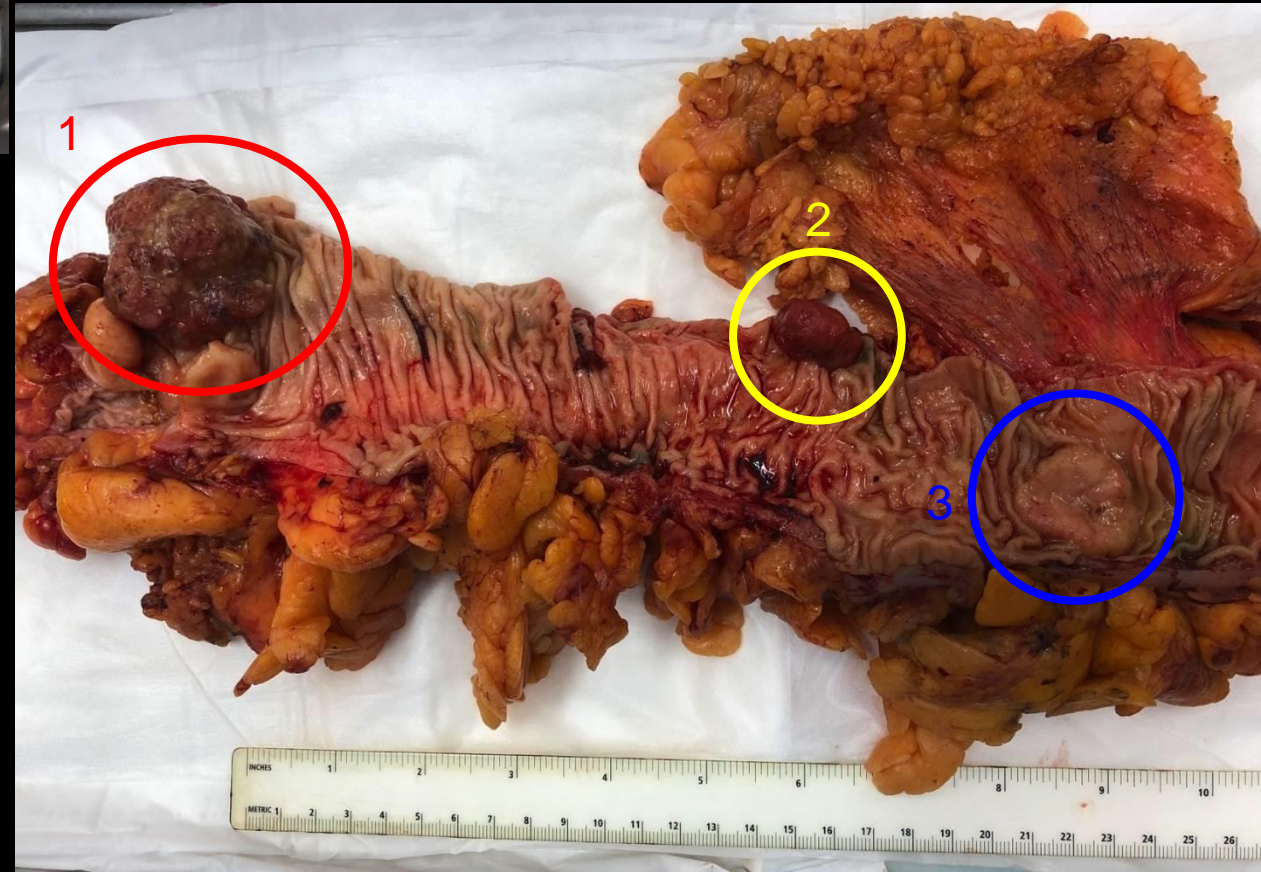
# Gross Pathology (Labeled)



2. Tumor is located in the transverse colon and is tan-pink, exophytic, and measures 2.2 x 2.1 cm. The tumor is located 27.9 cm from the proximal margin, 28.3 cm from the distal margin, 5.4 cm from the mesenteric margin, and greater than 10 cm from the vascular pedicle. Additionally this tumor is located 5.1 cm from tumor three. The tumor is serially sectioned to reveal that the tumor displays an overall depth of 1.1 cm.

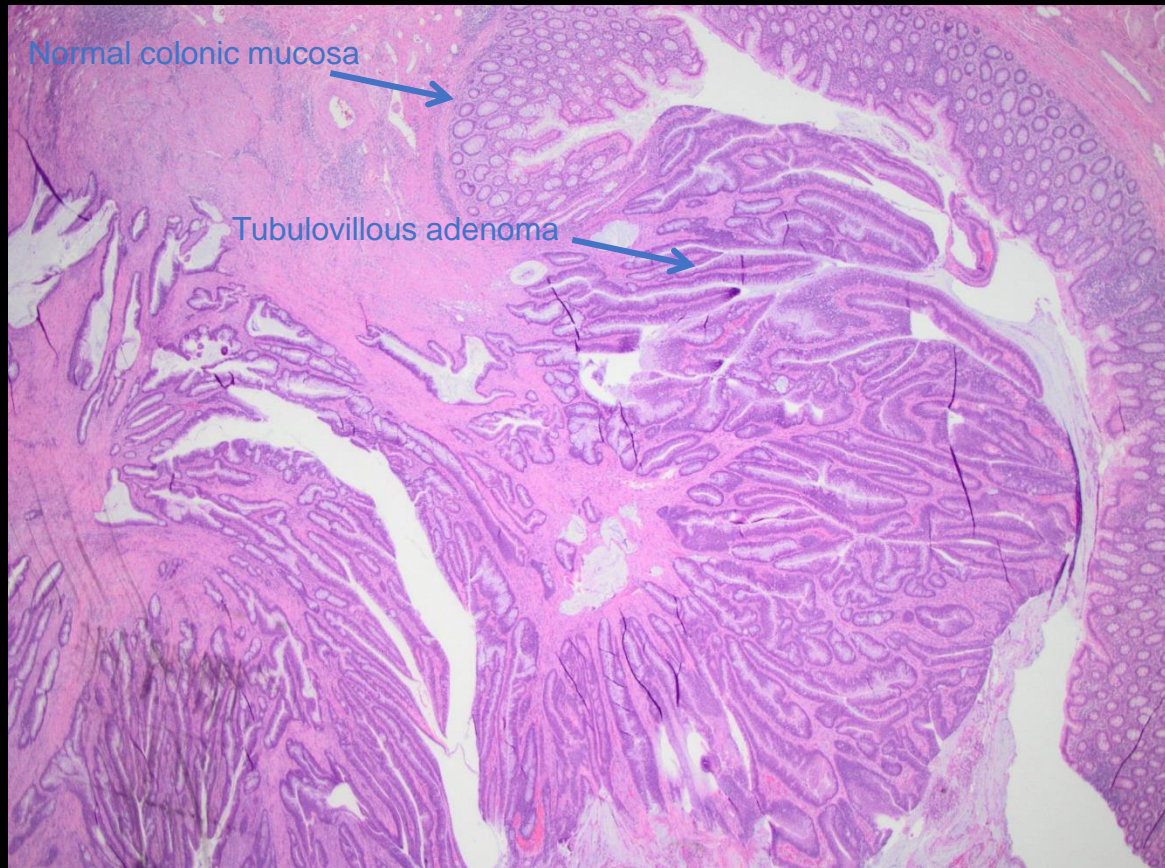
3. Tumor three is tan-pink sessile, and located in the transverse colon. The tumor measures 2.9 X 2.4 cm. The tumor is located 33.4 cm from the proximal margin, 23.7 cm from the distal margin, 5.9 cm from the mesenteric margin, and greater than 10 cm from the vascular pedicle. The tumor is serially sectioned to reveal in overall depth of 0.9 cm.

1. The 1st tumor is located in the cecum and is tan-pink, exophytic, and measures 5.2 X 4.2. The tumor is located 1.6 cm from the ileocecal valve, 16.2 cm from the proximal resection margin, 44.7 cm from the distal resection margin, 13.1 cm from tumor two, 18.9 cm from tumor three, and greater than 10 cm from the mesenteric margin and vascular pedicle. The tumor is sectioned to reveal an overall depth of 2.4 cm.

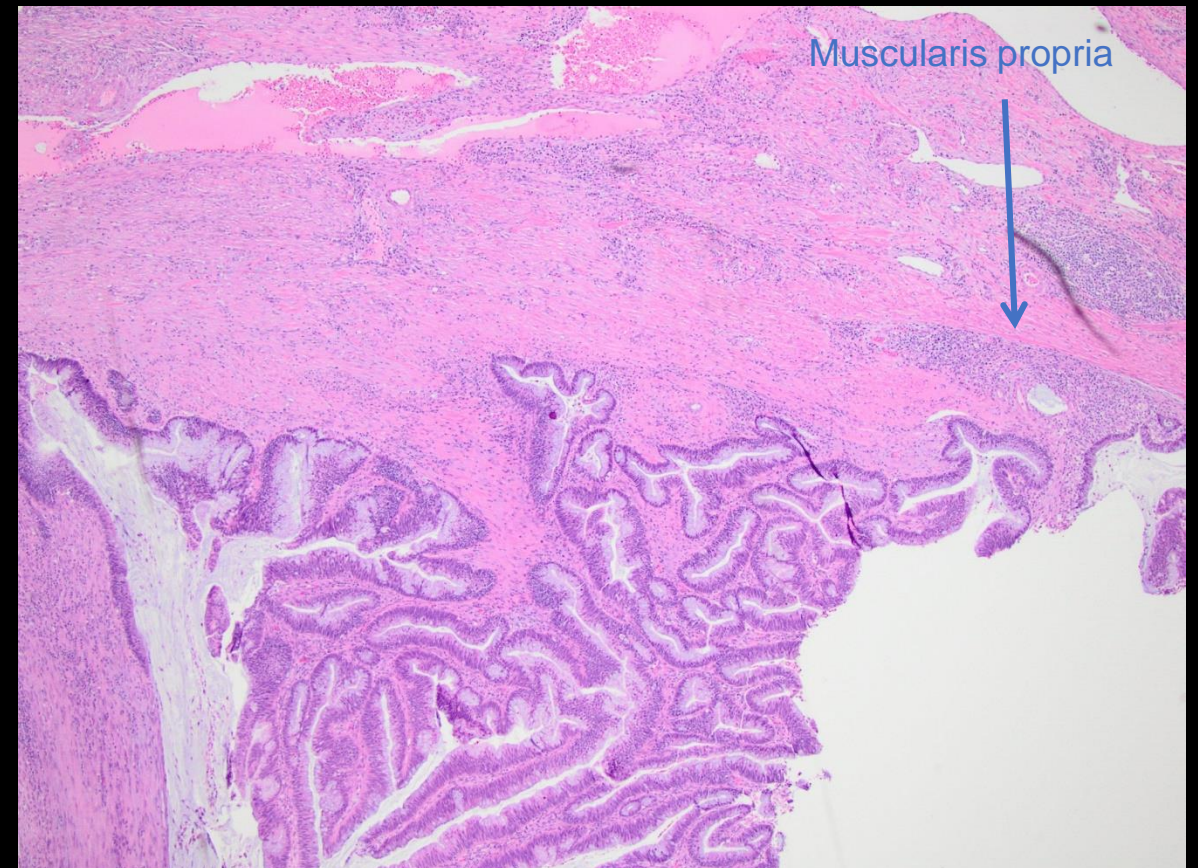


# Histopathology (Labeled)

Tumor 1 arising from an adenomatous polyp

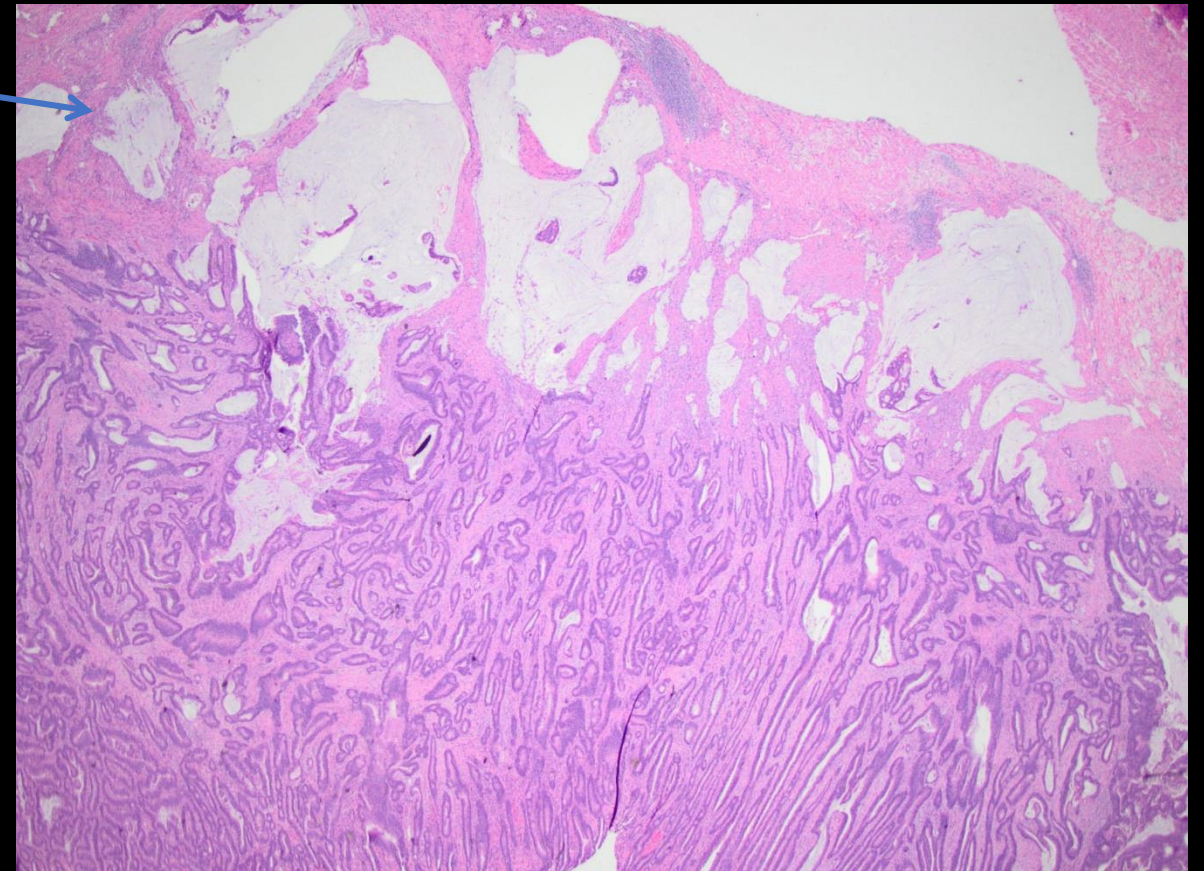
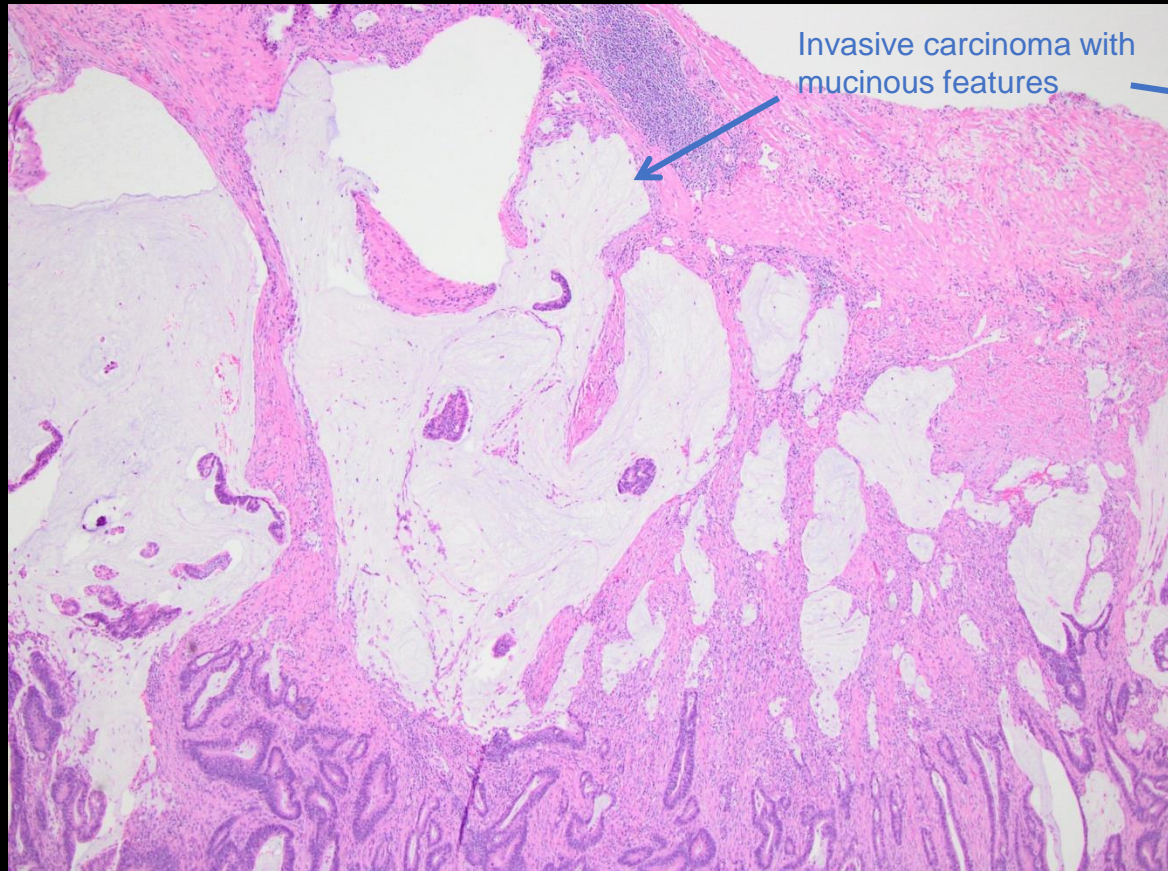


Tumor 1 focally invading muscularis propria only



# Histopathology (Labeled)

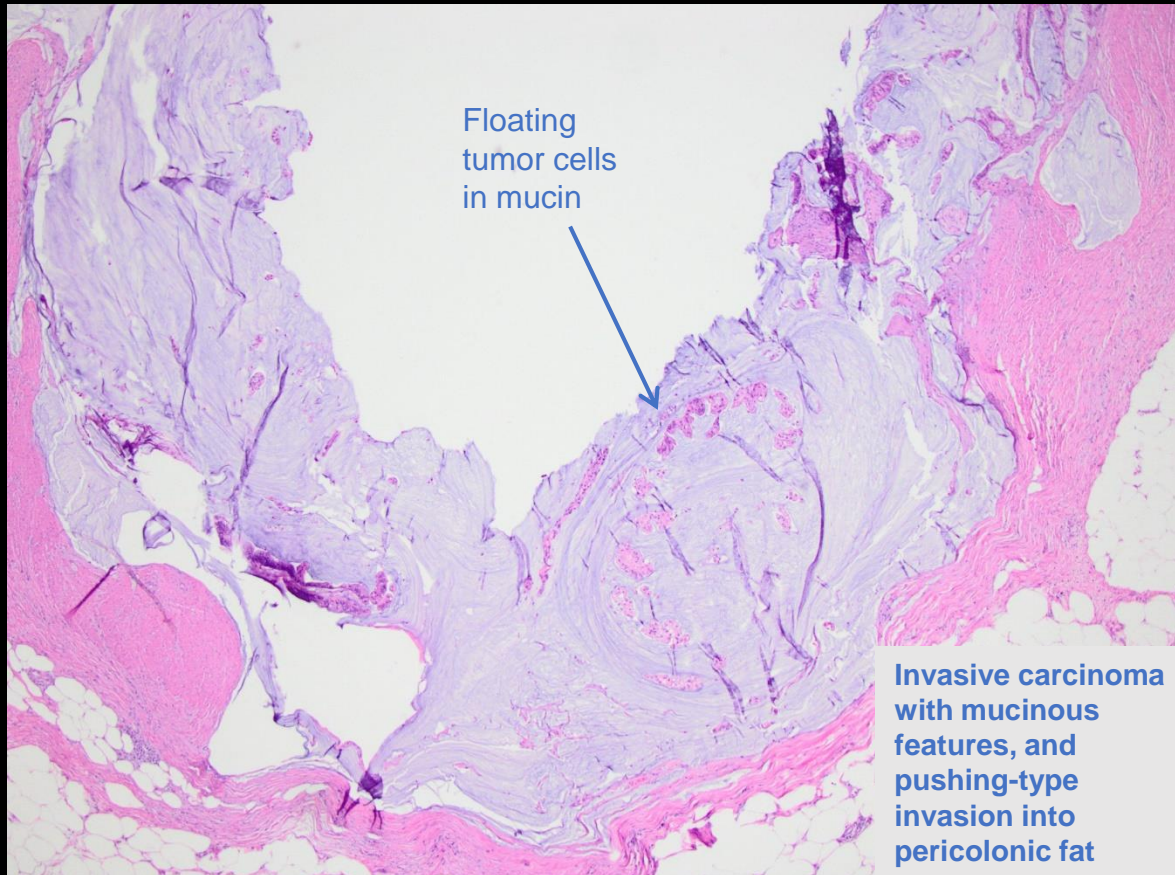
Tumor 2 invading submucosa only



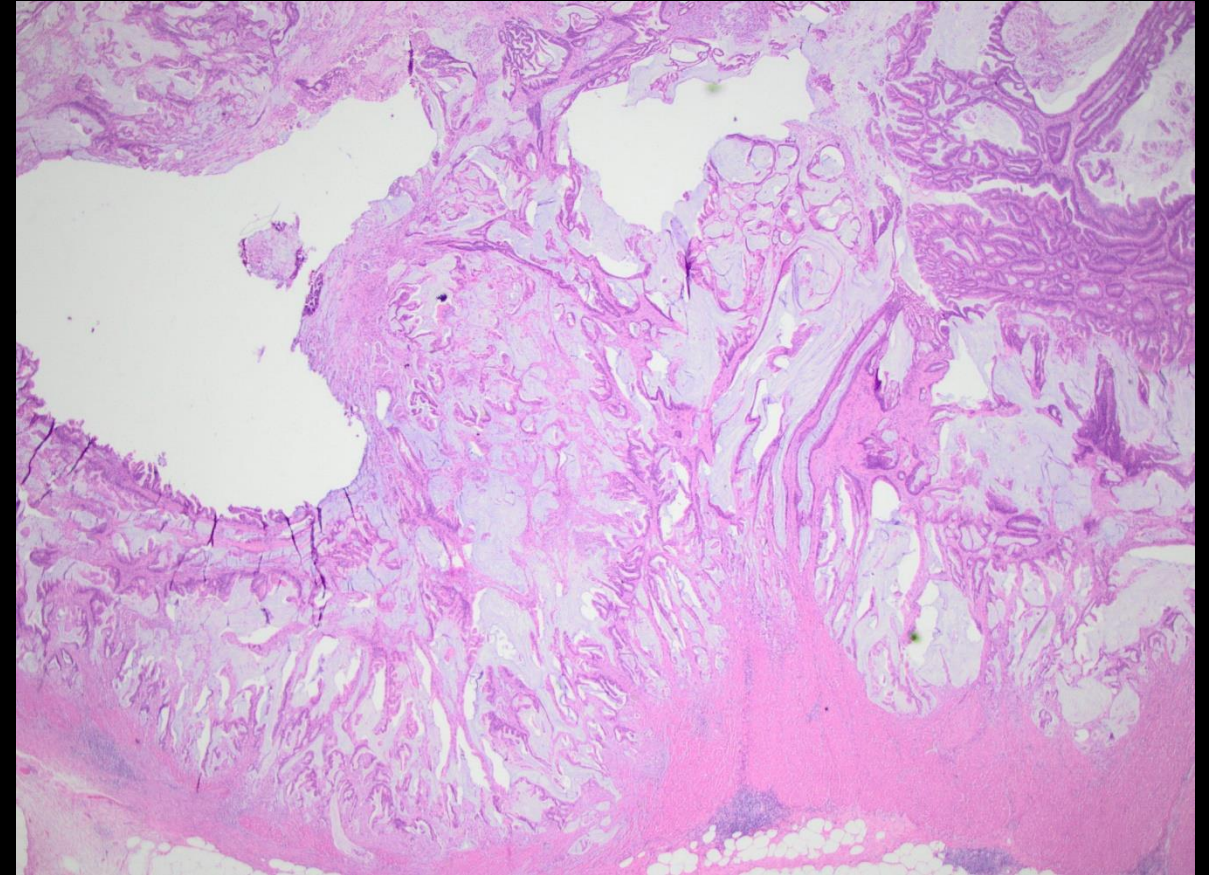


# Histopathology (Labeled)

Tumor 3 focally invading pericolic fat



Tumor 3 invading muscularis propria



\* No Lymphovascular invasion identified: T3 N0 M0

# Immunohistochemical and genetic study of tumor cells:

- Immunohistochemical study of tumor cells:

- MLH1: loss of expression
- MSH2: retained expression
- MSH6: retained expression
- PMS2: loss of expression

- Genetic study of tumor cells:

- Positive BRAF mutation
  - BRAF mutation is associated with MLH-1 deficient, MSI unstable sporadic colorectal carcinoma, and excludes the possibility of lynch syndrome

Final Dx:

Synchronous Colon Adenocarcinoma

# Case Discussion: Synchronous Colon Cancer

- Synchronous colon cancer refers to more than one primary colon cancers (separated by normal bowel, not due to direct extension or metastasis) diagnosed at the same time or within 6 months of the primary case.
  - After 6 months, a new primary colon cancer diagnosis is called metachronous.
- It occurs in 3-5% of sporadic colon cancer cases.
  - When patients with Lynch syndrome are excluded, the incidence of synchronous colon cancer is slightly lower among colon cancer cases (about 2.5%)
  - Synchronous colon cancer should raise suspicion for genetic predisposition, such as Lynch syndrome or MUTYH-associated polyposis.

# Case Discussion: Synchronous Colon Cancer

- Colonoscopy is the most accurate test for identifying synchronous colon cancer, as it can allow for diagnosis via biopsy and can be therapeutic via polyp removal.
  - Follow-up imaging studies (such as Chest, Abdomen, and Pelvis CT with IV contrast) are appropriate for cancer staging.
- Treatment of synchronous colon cancer can be done by two separate resections or one extended resection to include all the primary lesions.
  - The choice and extent of resection is determined on a case by case basis and is influenced by distance between cancers as well as underlying colonic disease.
    - A patient with chronic ulcerative colitis may be treated with proctocolectomy.
    - A patient with Lynch syndrome may be treated with total abdominal colectomy with hysterectomy and bilateral salpingo-oophorectomy in females.
    - A patient with Familial Adenomatous Polyposis and MUTYH-associated polyposis may be treated with total abdominal colectomy or proctocolectomy.

# References:

- ACR Appropriateness Criteria. Pretreatment Staging of Colorectal Cancer, variant 2.

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