

AMSER Rad Path Case of the Month:

Mucinous Adenocarcinoma

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Patient Presentation

- **Clinical History:** 68yo male brought by his wife to the ED with chief complaint of **abdominal pain** for 4d, worse with bumps in the road on the way to the hospital. Ibuprofen gives no relief. One episode of N/V and diarrhea. Last BM was 3d ago. Also complains of malaise, fatigue, anorexia, weight loss. Denies CP, SOB, fever/chills, urinary symptoms. No chronic medical conditions.
- **Pertinent Social History:** 1 alcoholic drink / day, occasionally vapes
- **Vitals:** BP 146/94 | **HR 116** | RR 20 | T 36.4 | BMI 20.0 | SpO₂ 96%
- **Physical Exam:**

Gen: awake and alert; sitting up in bed; **appears uncomfortable**; NAD

Cardio: tachycardic, regular rhythm, no murmurs

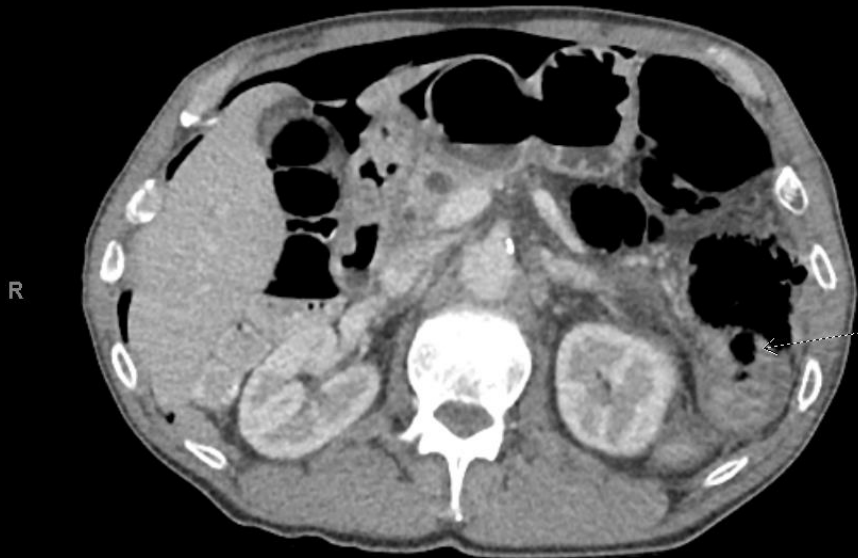
Abd: flat, soft, **diffusely tender to palpation worst in epigastrium and RUQ**; nondistended; normoactive bowel sounds

Pertinent Labs

- WBC: 18.33 H, 90.9% Neutrophils
- H / H: 11.1 / 33.3 L

- AST: 50 H
- ALT: 42 N
- Lipase: 24 N
- Total Bili: 0.5 N

Radiology Images

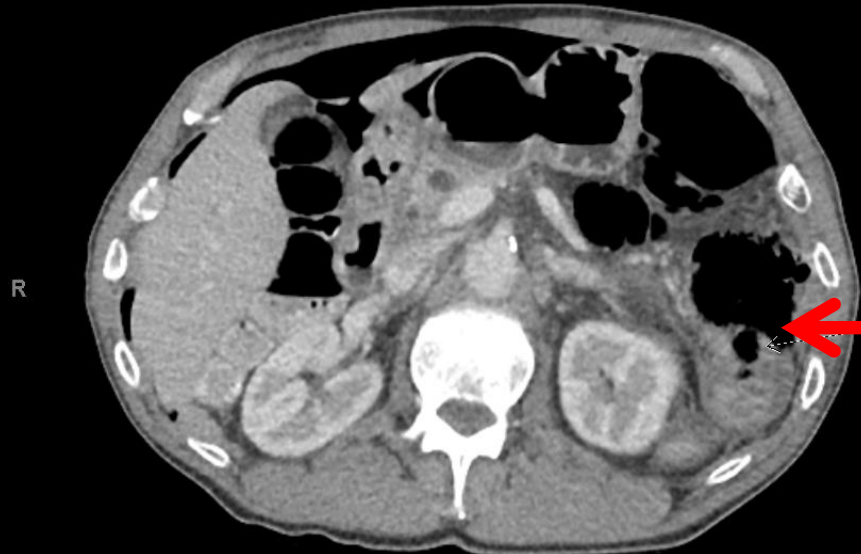


Radiology Images

large volume pneumoperitoneum



full-thickness colonic mass involving the descending colon



colonic perforation

Radiology Images



Radiology Images

complex air and fluid collection
suggesting abscess



Radiology Images



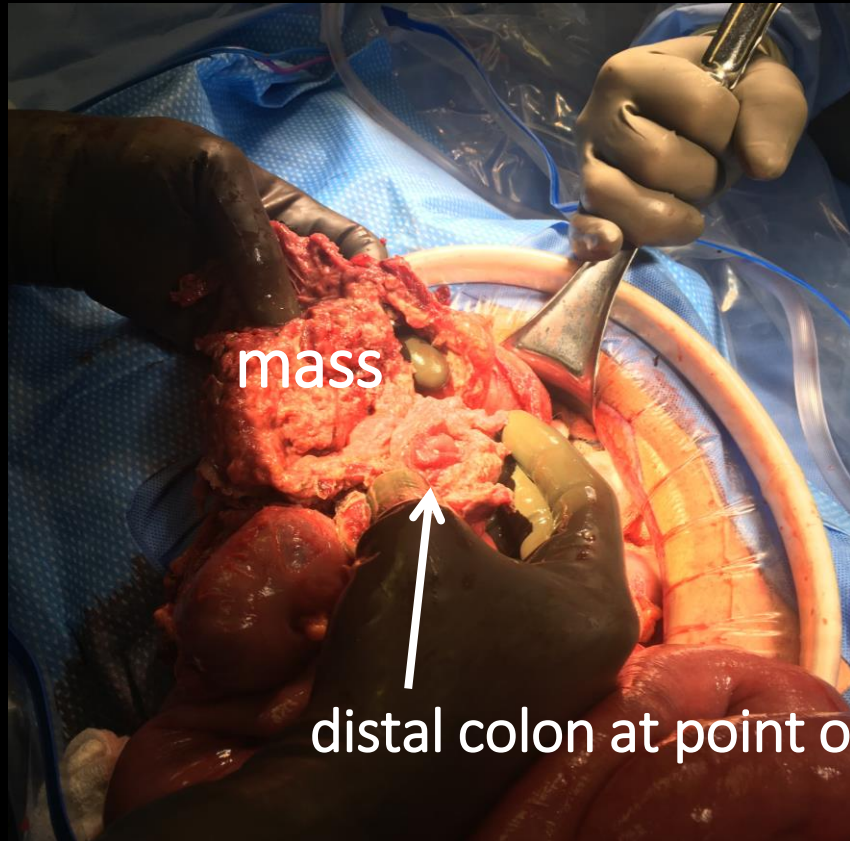
Radiology Images



Differential Diagnosis based on imaging:

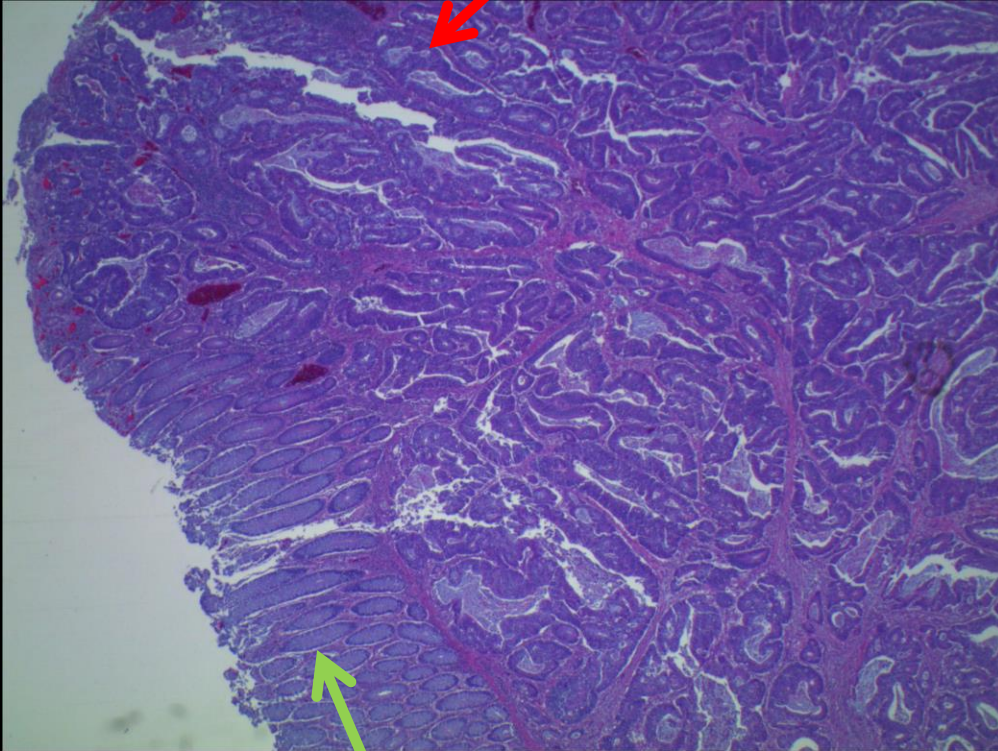
mass: adenocarcinoma, neuroendocrine
carcinoid tumor or medullary carcinoma
of pancreatic or colorectal or unknown origin,
obstruction, perforation

Gross Path



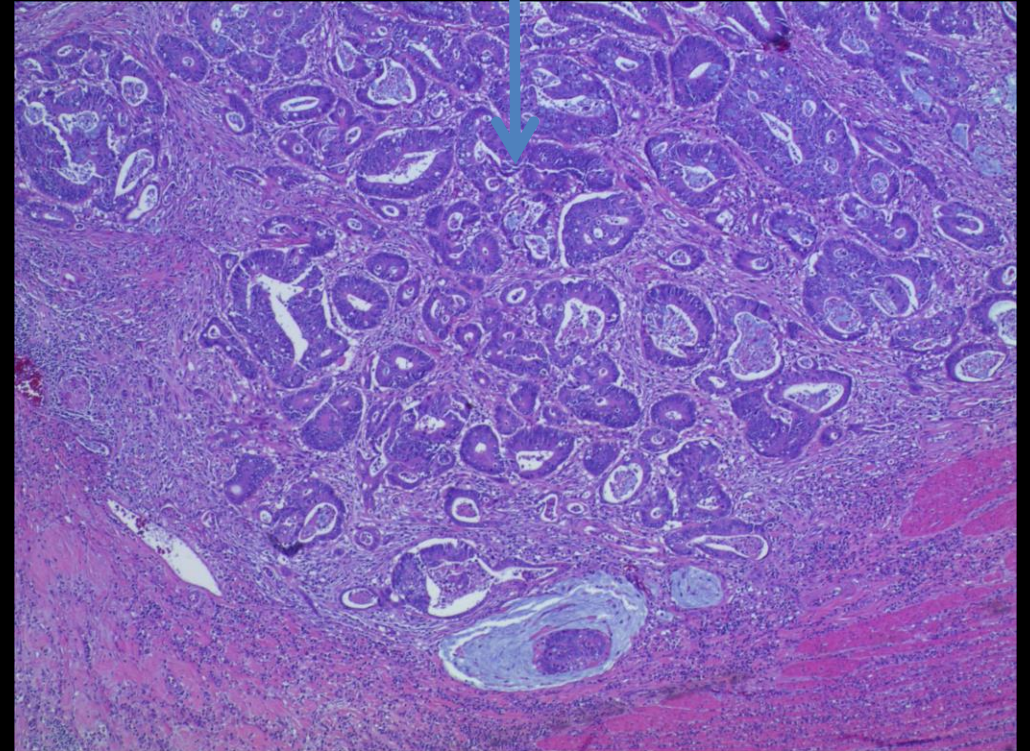
Micro Path

invasive carcinoma,
spreading outward into the lumen



normal mucosal surface

invasive mucinous adenocarcinoma
with excess, globular mucin production



Final Dx:

Mucinous colorectal adenocarcinoma

Case Discussion: Surgical

- Localized perforation of the splenic flexure with near circumferential perforation of the colon at that level
- Solid stool outside the colon and purulent fluid in the peritoneal cavity in the region of the splenic flexure
- Dense inflammatory reaction surrounding the perforation that included the LUQ abdominal wall, the tail of the pancreas, and a small area of the diaphragm
- Spleen also required resection secondary to dense adherence to the inflammatory reaction

Case Discussion: Pathology

- Grade 1: well-differentiated (>95% gland formation)
- 7.5 cm at greatest dimension
- Invaded through muscularis propria into pericolonic tissue
- pTNM classification (AJCC 8th edition) : pT3N0
- 18 lymph nodes: negative for malignancy (0/18)
- All margins negative for invasive carcinoma and high-grade dysplasia
- Immunohistochemistry (IHC) results for mismatch repair (MMR) proteins: intact nuclear expression
- Microsatellite Instability: stable

Mucinous adenocarcinoma

- **Characterized by** an abundance of **extracellular mucin**, accounting for at least **50%** of tumor volume. Comprise **11%-17%** of all colorectal cancers. Most often localized to proximal colon. Diagnosis typically occurs at advanced stages.
- **female** > male; **younger** > mature patients
- **Etiology:** Associated with **overexpression of mucin 2 (MUC2)** and **mucin 5AC (MUC5AC)** proteins and **lower** expression of MUC1. Demonstrate **higher mutation rates in RAS/MAPK and PI3K/Akt/mTOR** genetic pathways, and **higher rates of microsatellite instability (MSI)** compared to non-mucinous adenocarcinoma.

Mucinous adenocarcinoma (continued)

Clinical Presentation:

- 10-30% asymptomatic, discovered by routine screening
- 70-90% symptomatic, with most severe warranting emergency admission with intestinal obstruction, perforation, or acute GI bleed

Management:

- Primary treatment: surgical resection
- Most powerful tool for assessing prognosis: pathologic analysis
- Mucins are being explored as targets for molecular and immune therapy
- Fluoropyrimidines (5-fluorouracil (5-FU), capecitabine, tegafur): antimetabolite drugs widely used in the treatment of solid tumors

References:

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