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**
large volume pneumoperitoneum

full-thickness colonic mass involving the descending colon

colic perforation
complex air and fluid collection suggesting abscess
Radiology Images

also, feces
Differential Diagnosis based on imaging:

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

mass

distal colon at point of transection

resected mass

resected colon
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:


- Moiel D, Thompson J. Early detection of colon cancer-the kaiser permanente northwest 30-year history: how do we measure success. Is it the test, the number of tests, the stage, or the percentage of screen-detected patients? Perm J. 2011 Fall;15(4):30-8. doi: 10.7812/tpp/11-128. PMID: 22319413; PMCID: PMC3267557.