

# Colon cancer with ovarian metastasis presenting as syncope and melena

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## Background

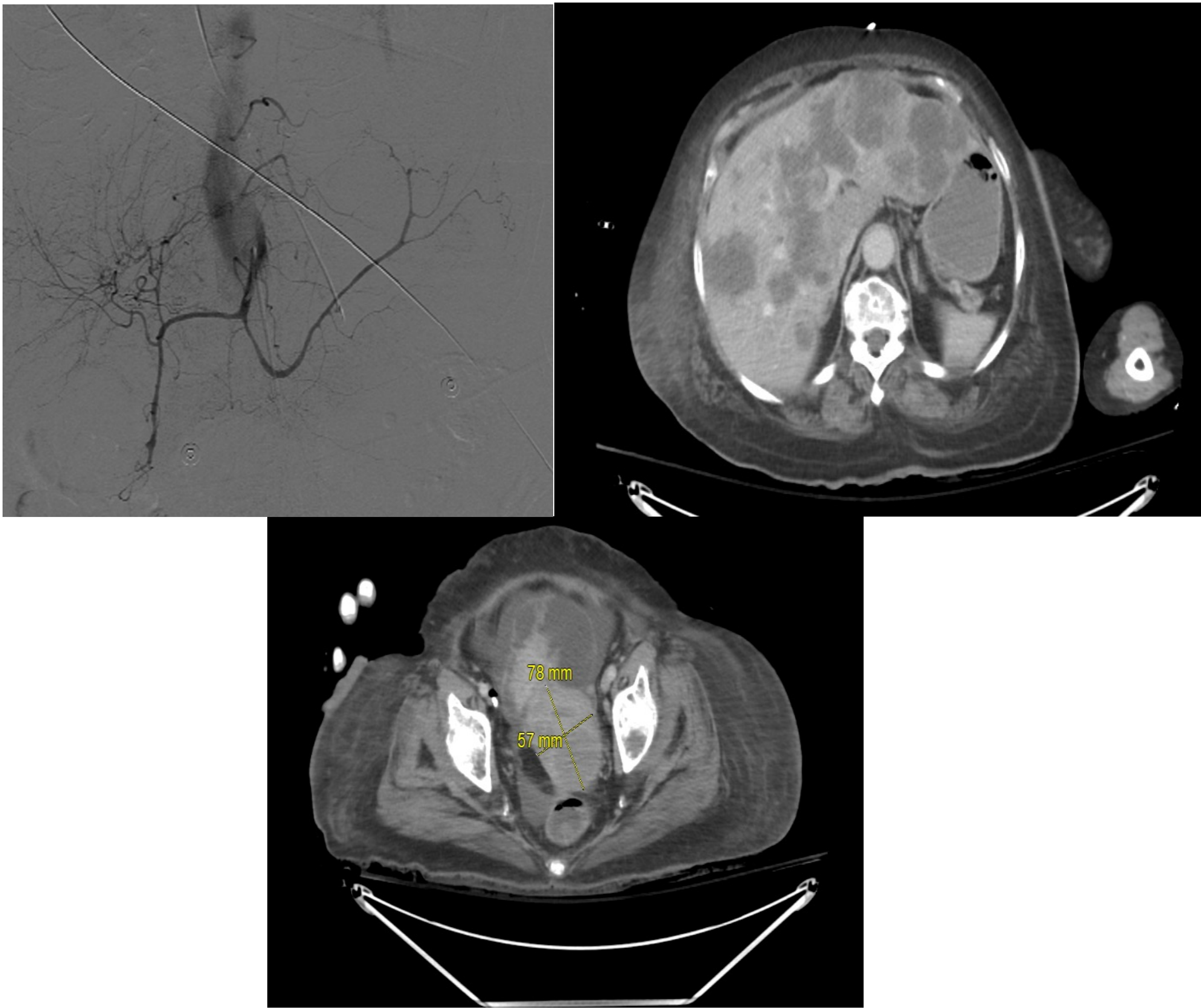
- Colorectal carcinoma is the 3rd most commonly diagnosed cancer amongst men and women. It is the second most common cause of cancer-related deaths worldwide. (11)
- Adenocarcinoma is the most common, causing over 90% of all cases. (12)
- The pathogenesis is multifactorial and is initiated by carcinogenic factors causing DNA damage. CRC is usually started by epithelial hyperplasia-atypical hyperplasia-adenoma formation-carcinoma insitu and invasive carcinoma. (12)
- CRC presentation as melena is atypical due to melena being associated with upper GI bleeding. Upper GI involvement is rare, although there are several mechanisms. This case report highlights a late-stage CRC presentation with liver cirrhosis, worsening of peptic ulcer disease, development of a gastroduodenal artery aneurysm, and CRC metastasis to the ovary.

## HPI/Hospital Course

- 75-year-old female with a history of HTN presented to the ED for the evaluation of syncope and melena. She reported that she had been feeling weak for a couple of months. The patient had a syncopal episode before arrival, prompting her to seek further medical evaluation. During her admission, she developed hematochezia and hemodynamic instability. The patient had no prior colonoscopy and denied a history of malignancy. Her family history was negative. She denied a history of peptic ulcer disease, GERD, and breast cancer.
- When she arrived to the Emergency department, she was in hypovolemic shock, requiring IV resuscitation and blood products.
- The physical exam was significant for a pale-appearing African American female with moderate distress. A pulmonary exam revealed wheezing, and a cardiac exam was significant for tachycardia and split s2. An abdominal exam was significant for a rigid abdomen with diffuse tenderness. Her diaper both bright red and black stool.
- Labs were significant for Hbg of 7.2 and dropped to 6.7. She received 3 units of pRBC. She had episodes of dark emesis and melena. workup with an abdominopelvic CT scan revealed the patient had numerous hypodense lesions in the liver, heterogenous, partially solid, cystic 7.7cm lesion in the anterior pelvis, wall thickening in the distal gastric antrum/proximal duodenum with medial projecting 1.9 cm outpouching.
- A colonoscopy was performed and found to have a malignant, partially obstructing tumor in the sigmoid colon. The biopsy was positive for well-differentiated colonic adenocarcinoma.
- Labs were significant for a serum antigen of CAE of >40000, CA 19-9 >20000, and CA 125 of 76.4.
- While she was stabilized and admitted to the IMU she was stable with improved pain control and cessation of her rectal bleeding. However, after two weeks she had an episode of hypotension prompting transfer to the ICU. She was receiving Protonix for GI bleeding prevention. Despite this medication, she experienced hemodynamic compromise while in the ICU, leading to the initiation of a massive transfusion protocol.
- Urgently, she was taken to the Interventional Radiology (IR) suite. Bleeding scan was significant for a bleed in the right upper quadrant. Abdominal angiogram revealed gastroduodenal artery aneurysm that was successfully coiled.

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## Image



## Discussion

- Colorectal cancer causing upper gastrointestinal bleeding is a rare occurrence, with reported cases suggesting different mechanisms. Some instances involve a portal vein thrombus leading to duodenal erosion (1), while others result from colon cancer invading the transverse colon, forming a duodenocolonic fistula (2). However, a more common but severe way is the worsening of peptic ulcers.
- Research by Yang, Pengcheng et al. (3) highlights that elderly female patients with colorectal cancer face a higher mortality risk from peptic ulcer disease compared to the general population. The risk significantly rises with age, with those aged 80 and above having a Hazard risk of 57.62. Mortality risk from fatal peptic ulcers is greater with upper digestive system metastasis (distant) than in other digestive organs. (3)
- In this specific case, a patient without a history of peptic ulcer disease underwent a CT scan, "Wall thickening of distal gastric antrum/proximal duodenum, with surrounding fat stranding and mild mesenteric Lymphadenopathy and medially projecting 1.9 cm outpouching of fluid along the medial aspect of the antrum, which may represent a diverticulum or ulceration. Adjacent hyperattenuating material may represent calcification, fluid contents, or blood products". Subsequent investigation through an EGD showed gastric and duodenal ulcers, though they were not actively bleeding at the time. Biopsy results ruled out H. pylori and adenocarcinoma.
- Patients with colorectal adenocarcinoma are more prone to liver metastasis, unlike mucinous or singlet ring cell carcinoma. Colorectal adenocarcinoma rarely invades gastric tissue, while mucinous and singlet ring cell colorectal cancer typically involves gastric tissue without liver metastasis. (4). Considering this information, it is more likely that the patient's condition was due to bleeding from a gastroduodenal ulcer rather than metastatic cancer invasion of the antral/duodenal region.
- During an abdominal angiogram for selective embolization, ectasia was identified in the gastroduodenal artery. The interventional radiology team successfully embolized the artery using micro coils. In this case, the likely cause of the ectasia is the formation of a pseudoaneurysm secondary to peptic ulcer disease.

## Discussion Cont.

- Notably, gastroduodenal artery aneurysms account for 1.5% of all visceral artery aneurysms (5). The pathophysiology of the pseudoaneurysm is believed to stem from inflammation leading to the destruction of the vessel wall from proteolytic enzymes(6).
- Among the CT findings mentioned, the patient presented with "numerous hypodense lesions throughout the liver, cirrhosis, ascites, and a partially cystic 7.7 cm lesion in the right adnexa." Despite denying a history of liver problems, the patient was found to have cirrhosis with ascites. Cai, Bin, et al. reported that in non-cirrhotic livers, gastrointestinal malignancies could lead to liver metastases by utilizing the dominant portal venous blood supply, resulting in a high incidence of liver metastases. However, cirrhosis, characterized by liver scarring and increased intrahepatic resistance, may impede metastatic entry.
- The scarring in cirrhosis could prevent metastases by reversing portal venous blood flow and promoting the formation of portosystemic shunts that bypass the liver (7). In the case of this patient, multiple hepatic metastases originated from colorectal carcinoma. While a biopsy of the hepatic masses was not completed, the pattern of multiple lesions in the liver strongly suggests metastasis from a colorectal primary. Studies have explored the association between cirrhosis and colorectal carcinoma, revealing an increased odds ratio, although the results are not statistically significant to date (8).
- Adding a layer of complexity to the patient's condition, the right adnexal lesion was examined via ultrasound, revealing a significant complex irregular cyst measuring 6.6 cm. Notably, tumor markers CAE exceeded 40000, CA 19-9 exceeded 20000, and CA 125 was at 76.4. The CA125/CEA ratio, calculated at .00191, strongly suggests that the mass is likely a colon cancer metastasis to the ovary. Yedema, C.A., et al. reported a 94% accuracy in using the CA125/CEA ratio to distinguish between ovarian and colorectal adenocarcinoma. (9) This ratio assumes particular importance given the rarity of ovarian metastases from colorectal cancer, with a prevalence of only 1.1%. (10)

## Conclusion

- Late stage colon cancer can present with hemodynamic instability and cause rapid decline.
- CRC can increase the mortality of peptic ulcer disease by a hazard risk of 57.62 in patients >80yo.
- Peptic ulcer disease and CRC can increase the rate of GDA ectasia leading to massive GI bleeding.
- Patients with CRC are more prone to liver metastasis vs gastric invasion.
- Differentiating between primary CRC and ovarian carcinoma can be facilitated by laboratory findings.

## References

1 Thorpe, Brett, et al. "Colon cancer presenting as upper-GI bleeding." *Gastrointestinal Endoscopy*, vol. 63, no. 2, 2006, pp. 343-345. <https://doi.org/10.1016/j.gie.2005.10.023>.

2 Schabel, Stephen I., et al. "Duodeno-duodenal fistula — a manifestation of carcinoma of the colon." *Gastrointestinal Radiology*, vol. 3, no. 1, 1978, pp. 15-17. <https://doi.org/10.1007/bf01987029>.

3 Yang, Pengcheng, et al. "Incidence and characteristics of death from peptic ulcer among cancer patients in the United States." *Scientific Reports*, vol. 11, no. 1, 2021. <https://doi.org/10.1038/s41598-021-03602-1>.

4 Iwai, Naoto, et al. "Gastric Metastasis from Colorectal Cancer Mimicking a Submucosal Tumor." *Karger Publishers*, S. Karger AG, 22 July 2020. <https://doi.org/10.1159/000508414>.

5 Habib, Nicholas, et al. "Gastroduodenal artery aneurysm, diagnosis, clinical presentation and management: A concise review." *Annals of Surgical Innovation and Research*, vol. 7, no. 1, 2013. <https://doi.org/10.1186/1750-1164-7-4>.

6 Bergert, Hendrik, et al. "Management and outcome of hemorrhage due to arterial pseudoaneurysms in pancreatitis." *Surgery*, vol. 137, no. 3, 2005, pp. 323-328. <https://doi.org/10.1016/j.surg.2004.10.009>.

7 Cai, Bin, et al. "Patients with Chronically Diseased Livers Have Lower Incidence of Colorectal Liver Metastases: A Meta-Analysis." *PLOS ONE*, Public Library of Science, <https://doi.org/10.1371/journal.pone.0108618>. Accessed 19 Jan. 2024.

8 Bufen, Jordan MD; Alasi, Hadi MD; Chaudhary, Dhruv MD; Srinivasamaharaj, Srividya MD; Liu, Nanlong MD; Furmanek, Stephen MD; English, Connor MD; McClain, Craig MD. Association of Cirrhosis and Pre-Cancerous Colonic Polyps in Initial Colonoscopies: 2735. *American Journal of Gastroenterology* 113(pp. S1522-S1523). October 2018.

9 Yedema, C.A., et al. "Use of serum tumor markers in the differential diagnosis between ovarian and colorectal adenocarcinomas." *Tumor Biology*, vol. 13, no. 1-2, 1992, pp. 18-26. <https://doi.org/10.1159/000217748>.

10 Segelman, J., et al. "Epidemiology and prognosis of ovarian metastases in colorectal cancer." *British Journal of Surgery*, vol. 97, no. 11, 2010, pp. 1704-1709. <https://doi.org/10.1002/bjs.7196>.

11 Sung, Hyuna, et al. "Global cancer statistics 2020: Globocan estimates of incidence and mortality worldwide for 36 cancers in 185 countries." *CA: A Cancer Journal for Clinicians*, vol. 71, no. 3, 4 Feb. 2021, pp. 209-249. <https://doi.org/10.3322/caac.21660>.

12 Fleming, Matthew et al. "Colorectal carcinoma: Pathologic aspects." *Journal of gastrointestinal oncology* vol. 3,3 (2012): 153-73. doi:10.3978/j.issn.2078-6891.2012.030