

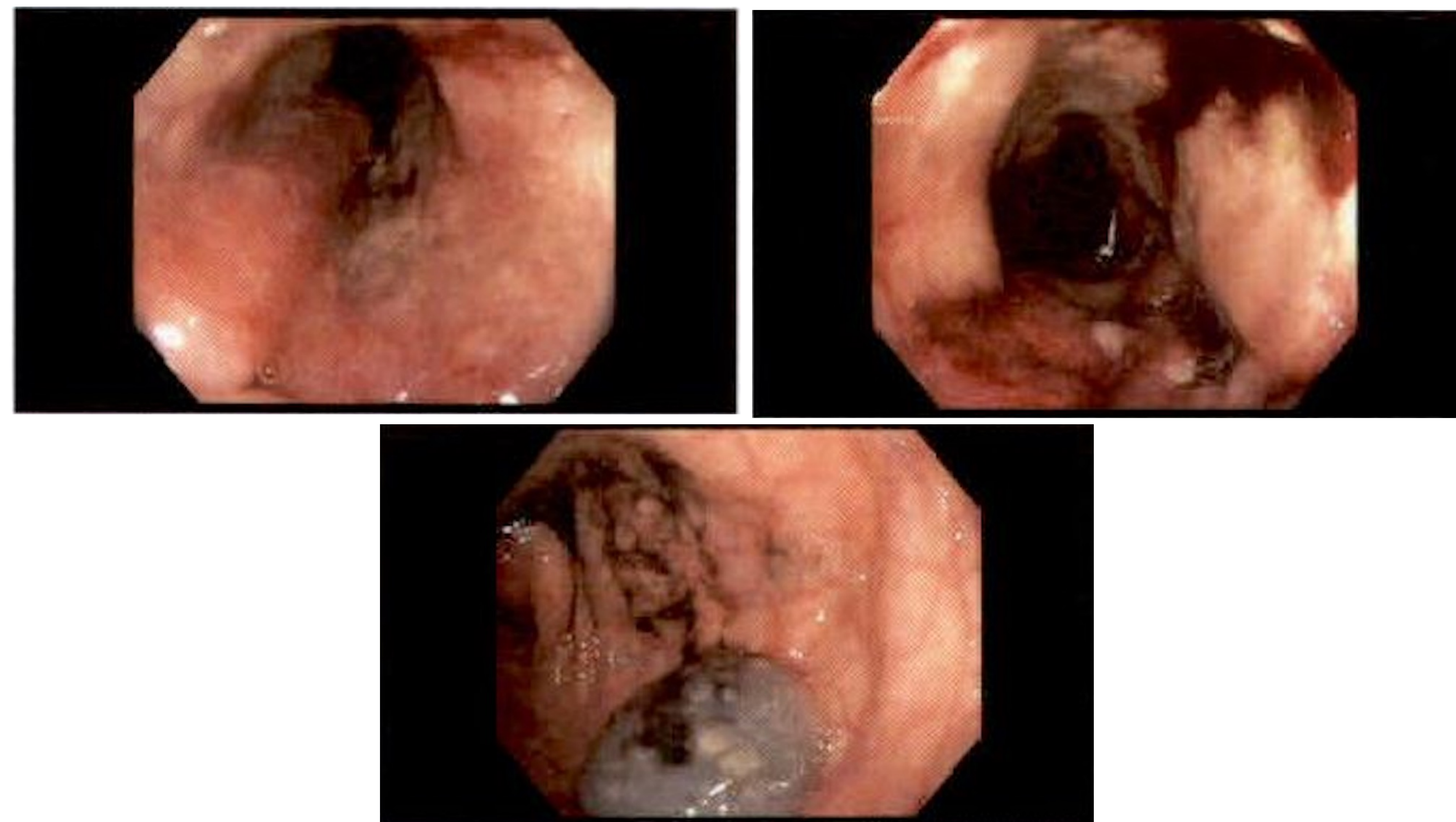
## INTRODUCTION

- Partner and localizer of BRCA2 (PALB2) works with BRCA2 in the DNA repair process.
- PALB2 encodes a protein that functions as a tumor suppressor by binding and colocalizing with BRCA2 in nuclear foci.
- Mutations in this gene have been shown to increase the risk of several cancers, such as breast, ovarian and pancreatic cancers.
- Studies show that PALB2 mutations may also increase the risk of Colorectal Cancer (CRC) and may be an important prognostic indicator.

## CASE PRESENTATION

- 32-year-old female with no significant past medical history presented with one episode of painless, large-volume hematochezia. She endorsed a two-month history of intermittent rectal bleeding noted on toilet paper after wiping.
- Family history includes colon cancer in paternal grandfather.
- Complete blood count revealed a microcytic anemia with hemoglobin of 8.4 g/dL. Iron panel was consistent with anemia of chronic disease.
- Physical examination revealed a small non-thrombosed hemorrhoid.
- Colonoscopy revealed a large, infiltrating and partially obstructing mass in the recto-sigmoid colon.
- Biopsy confirmed invasive adenocarcinoma of the recto-sigmoid colon.

## COLONOSCOPY



**Figure 1:** An infiltrative partially obstructing large mass was found in the recto-sigmoid colon, between 19-25 cm from the anal verge. The mass was circumferential and measured 6 cm in length.

## PATIENT COURSE

- Computed tomography (CT) of the chest, abdomen and pelvis showed mural thickening of the mid sigmoid colon with adjacent stranding. There were multiple hypodense hepatic lesions concerning for metastatic disease.
- The patient underwent sigmoidectomy and was started on chemotherapy.
- The patient failed multiple chemotherapy regimens, which prompted further genetic studies.
- Genetic testing revealed the presence of a PALB2 mutation.
- The patient was considered for therapeutic drug trials, however, she had a precipitous decline in health due to the aggressive nature of her cancer.
- The patient and family elected for hospice care.

## DISCUSSION

- Colorectal cancer (CRC) is the most prevalent cancer in the gastrointestinal (GI) system and third leading cause of cancer-related deaths in the US.
- Although most CRC cases occur sporadically, around 30% of CRC cases are affected by genetic factors.
- PALB2 was recently evidenced as a CRC risk gene and could serve as a prognostic biomarker.
- One study showed that PALB2 deletion and low mRNA expression correlated with poor survival outcome in CRC.
- Our patient had an aggressive cancer with decreased survival time in the setting of a PALB2 gene deletion.
- Currently genetic testing is recommended for individuals with any blood relative with a known pathogenic/likely pathogenic variant in a cancer susceptibility gene, including PALB2 gene mutation.
- Increased surveillance may be warranted for monitoring of individuals with PALB2 mutations to prevent early mortality.

## REFERENCES

1. Pan W, Lu K, Wang W, Yao J, Hou Y. PALB2 as a potential prognostic biomarker for colorectal cancer. *Comput Biol Chem.* 2020 May 20;87:107289. doi: 10.1016/j.compbiolchem.2020.107289. PMID: 32497983