

Hiding in Plain Sight: The Challenge of Diagnosing Medullary Carcinoma of the Colon

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BACKGROUND

- Medullary carcinoma of the colon (MCC) represents <3% of colon cancers and is characterized by microsatellite instability (MSI) leading to poor cellular differentiation.
- MCC remains a challenging, frequently-missed diagnosis.

CASE PRESENTATION

- A 56-year-old post-menopausal female with asymptomatic iron-deficiency anemia was referred to gastroenterology for bidirectional endoscopy.
- Colonoscopy identified multiple colonic polyps (**Figures 1-2**) and a mass nearly obstructing the ascending colon (**Figures 3-4**).
- Abdominopelvic CT showed an 8.1 cm mass with associated mesenteric lymph nodes but no extra-colonic involvement (**Figures 5-6**). CEA levels were normal.
- Initial biopsy demonstrated poor tumor differentiation. Immunohistochemical staining was positive for CD45, but negative for CK20, CDX-2, and synaptophysin, interpreted as undifferentiated carcinoma.
- The patient was referred to colorectal surgery and underwent laparoscopic right hemicolectomy without complication.
- Resected tumor biopsy redemonstrated the initial biopsy results without lymph node involvement.
- Additional stains showed high MSI and negativity for extracolonic tumor markers.
- These findings confirmed the tumor as a non-adenocarcinoma primary colonic lesion, suggestive of MCC.

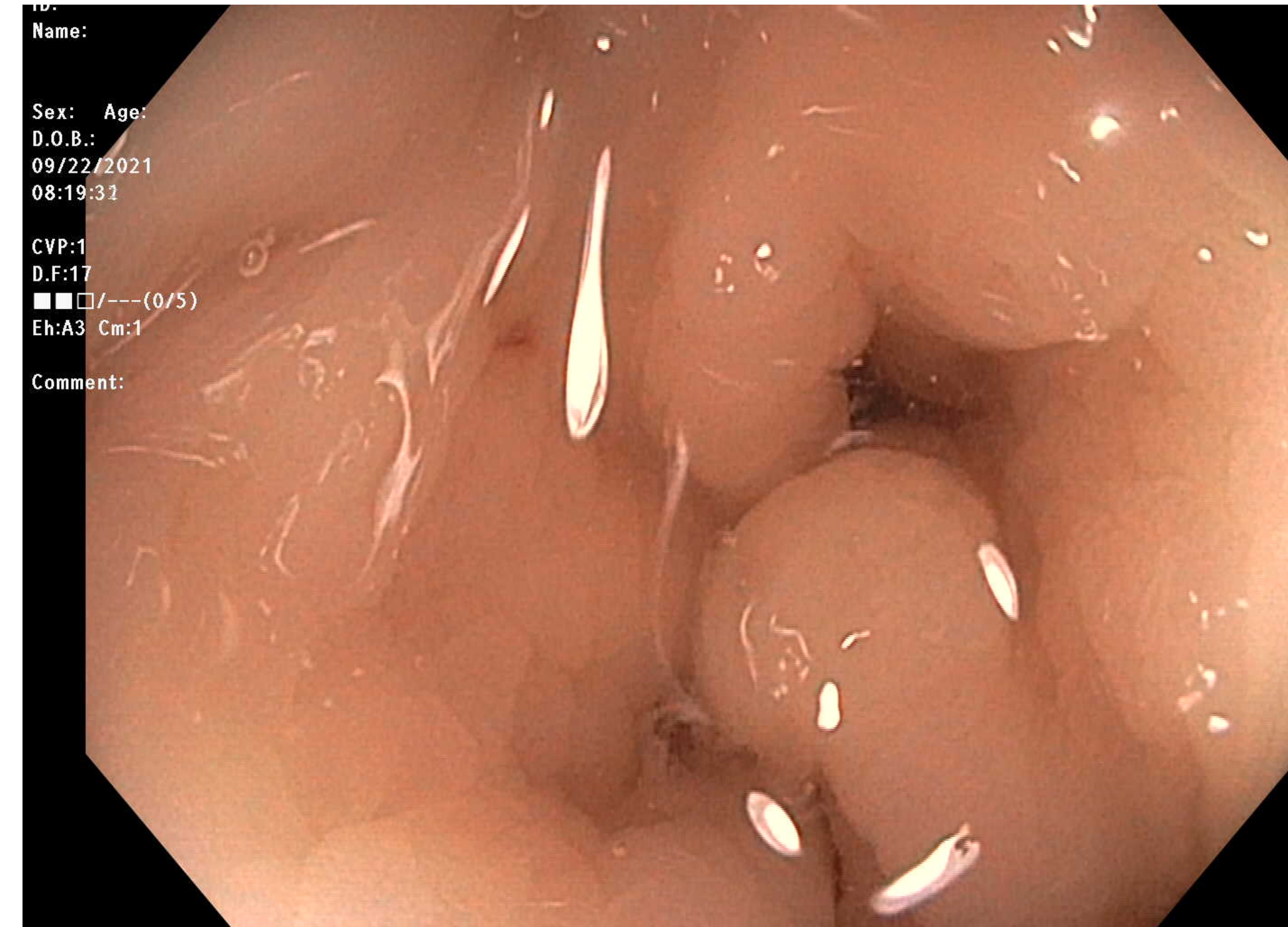


Figure 1: Representative polyp in the sigmoid colon

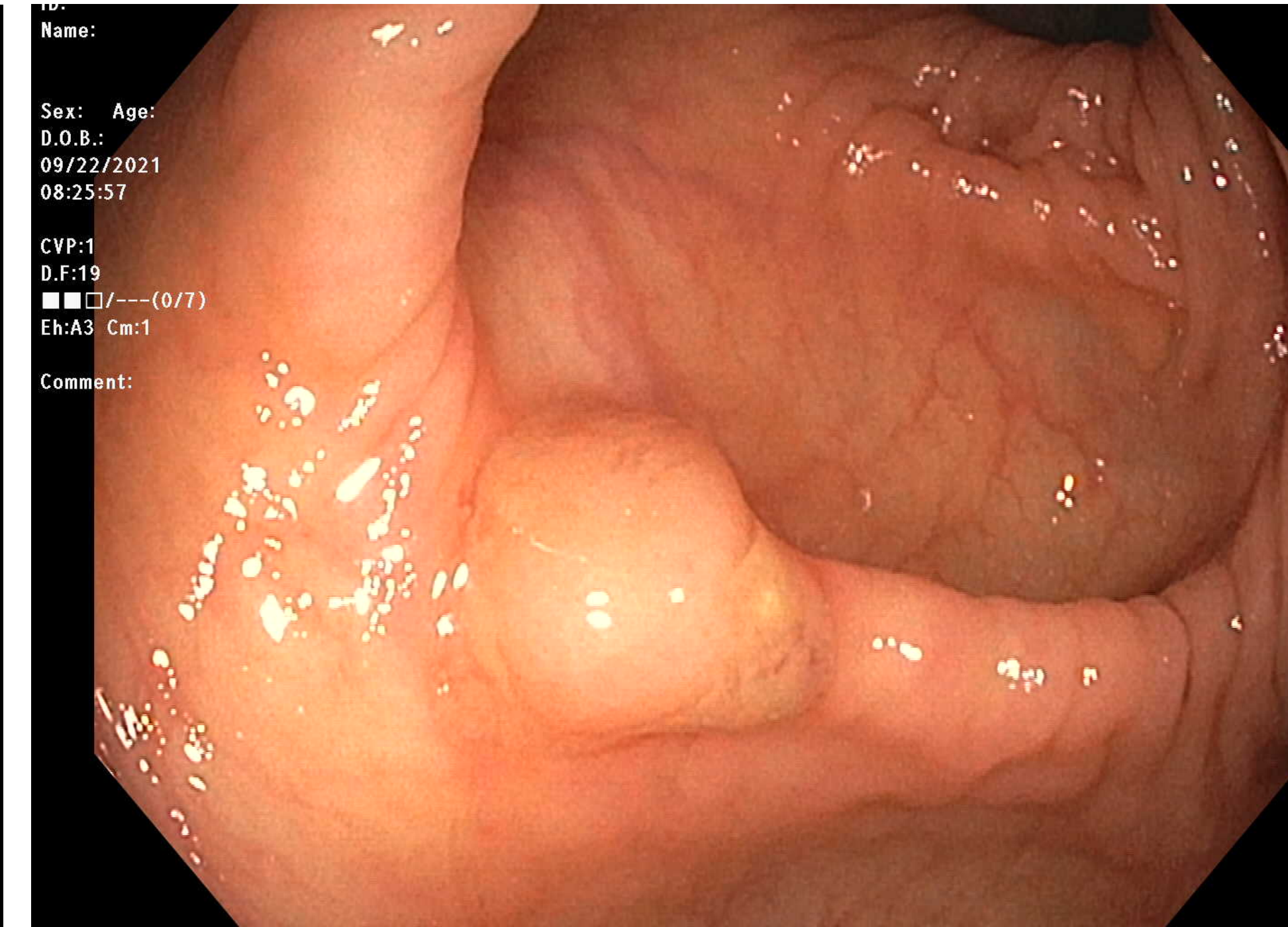


Figure 2: Representative polyp in the transverse colon

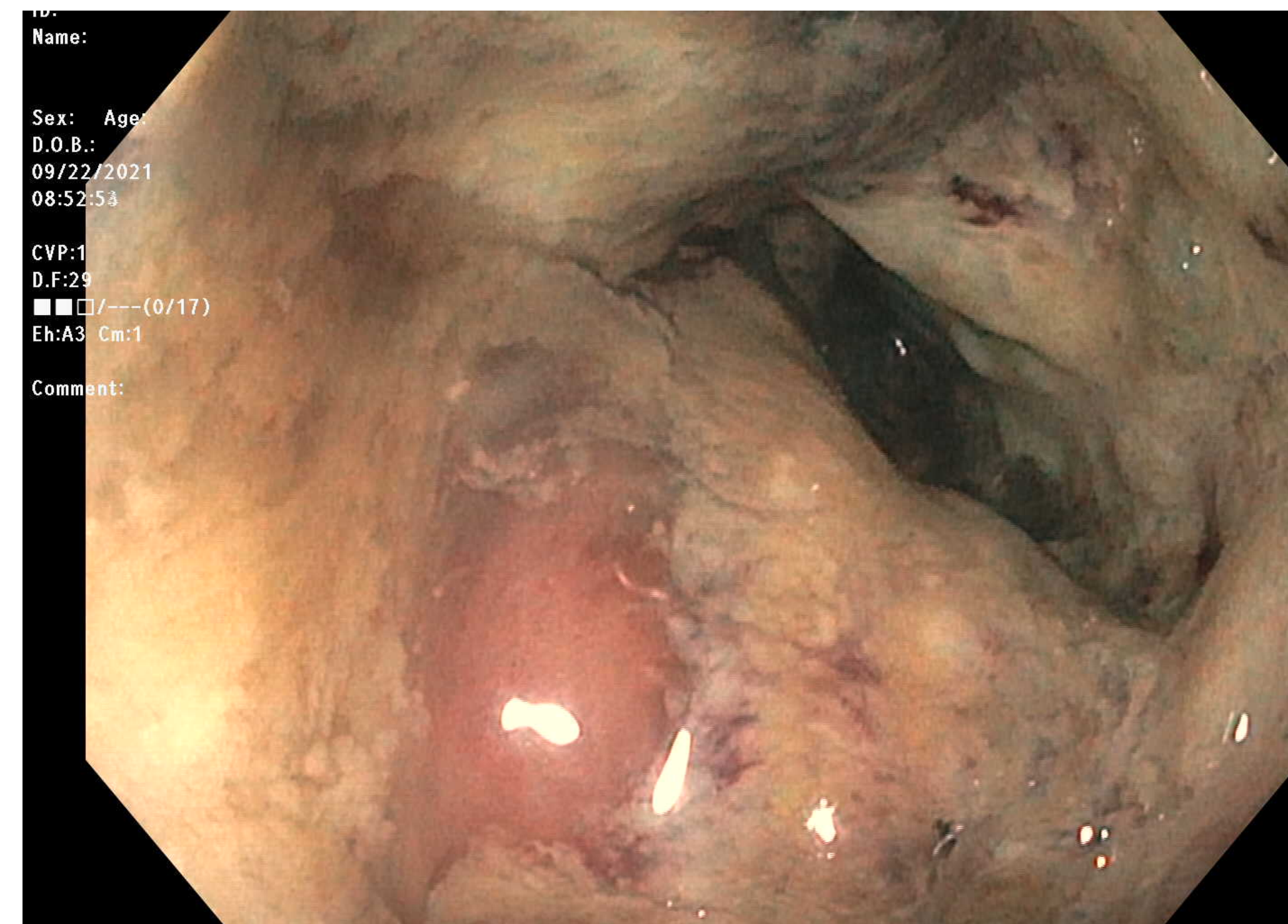


Figure 3: Impassable lesion in the ascending colon

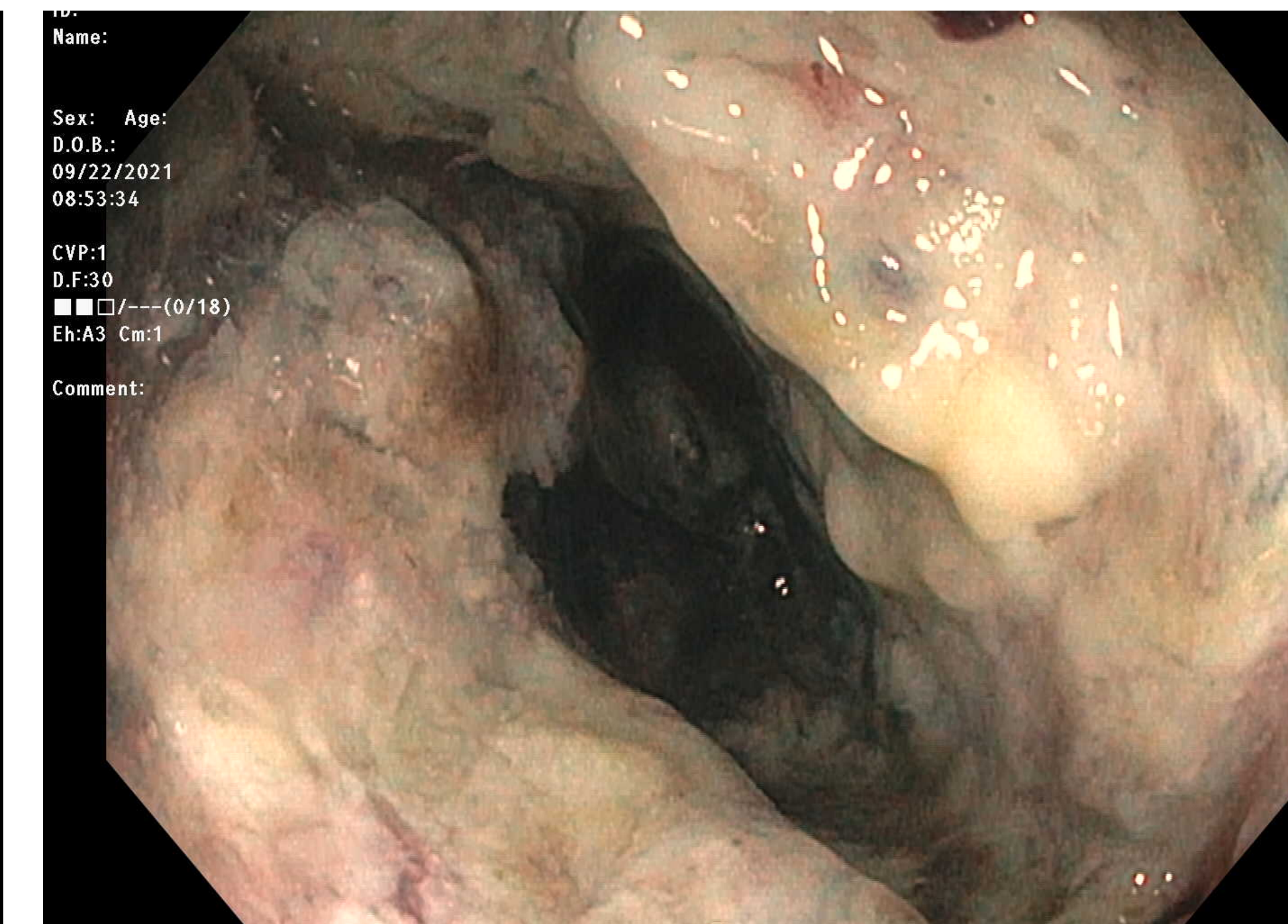
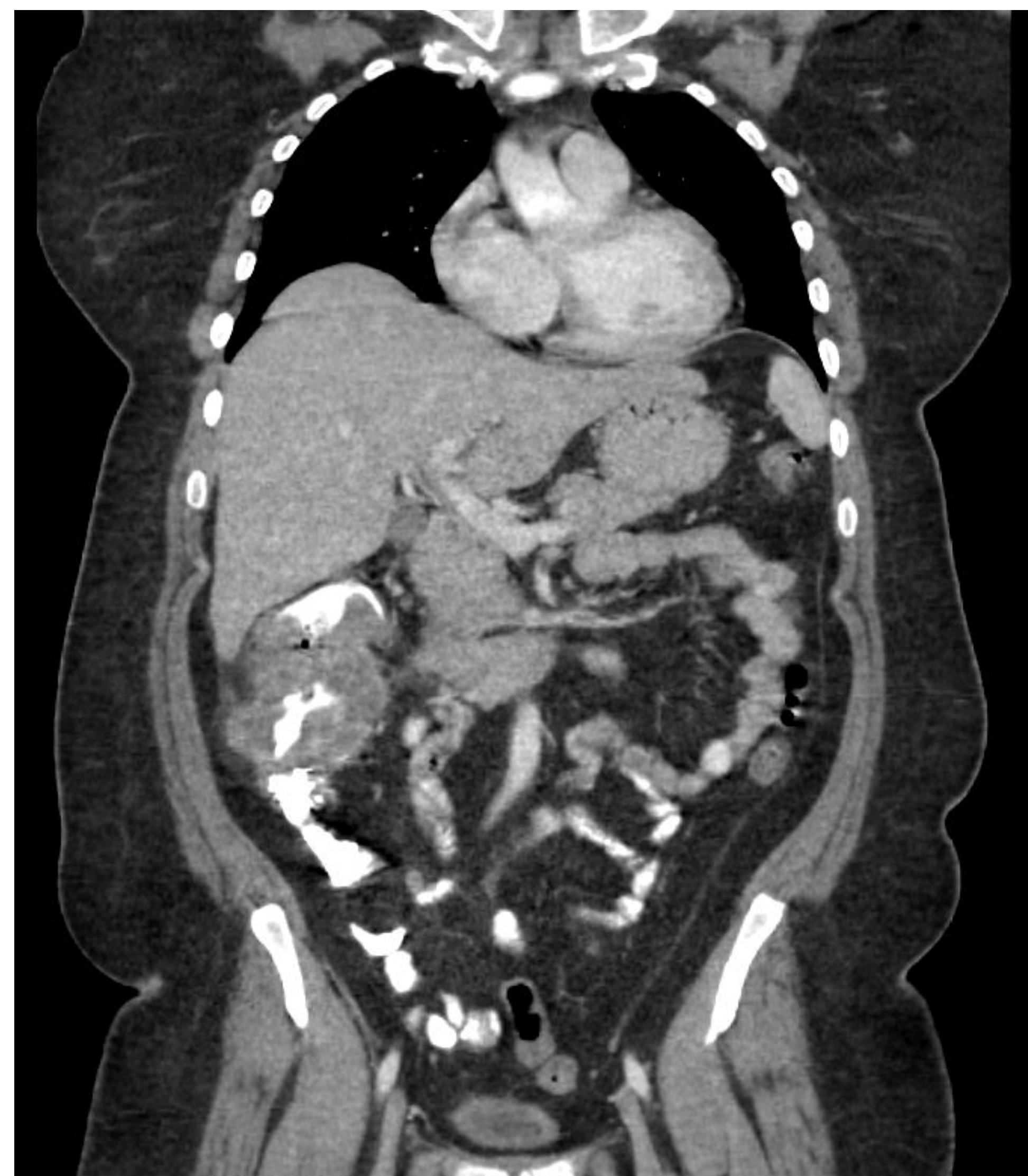


Figure 4: Impassable lesion in the ascending colon



▲ **Figure 5:** CT scan demonstrating axial view of impassable lesion in the ascending colon

◀ **Figure 6:** CT scan demonstrating coronal view of impassable lesion in the ascending colon

DISCUSSION

- The differential diagnosis for poorly-differentiated colonic tumors includes poorly-differentiated adenocarcinoma (PDA), neuroendocrine tumor (NET), MCC, and metastasis.
- This ambiguity has led to tumor misidentification in up to 66% of MCC cases; however, several key features can distinguish among these carcinomas. MCC displays negative chromogranin and synaptophysin staining, unlike NET.
- MCC almost invariably has high MSI and is infrequently CK20 and CDX-2 positive, unlike PDA.
- Clinically, MCC is more likely to present in the eighth decade, in females, and in the right colon than NET or PDA.
- MCC frequently follows an indolent course with good prognosis, while PDA often grows and spreads aggressively.
- While this case had a uniquely young age of presentation, it otherwise exhibits known clinical and histological features of MCC.

CONCLUSION

- As familiarity with these features rises and the use of MSI testing expands, accurate diagnosis of MCC will likely improve.
- With the expansion of colon cancer screening eligibility, the incidence of MCC is likely to rise, highlighting the importance of timely, accurate diagnosis when facing poorly-differentiated colonic tumors.

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