

Adenocarcinoma of the Right Hepatic Flexure: A Rare Case Presentation

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Abstract Colonoscopy is the gold standard for adenoma and adenocarcinoma detection. [1] Here we present a rare case of a patient who presented with large bowel cancer despite a negative colonoscopy, no signs or symptoms, and a negative CT scan. This patient ordered a CEA marker only because his sister was diagnosed with colon cancer; the CEA marker came back elevated. He also had a CT scan which came back negative, with the suggestion of doing a PET scan. The PET scan finally found the suspicious mass. The patient had a bowel resection with metastatic spread to the peritoneum but all surrounding lymph nodes were negative. However, an inguinal lymph node was inflamed and later biopsied which showed metastatic carcinoma suggesting an adnexal skin carcinoma or primary urothelial carcinoma. The patient denied any skin carcinoma and also followed up with a cystoscopy which came back with normal results.

Keywords: colon cancer, colon adenocarcinoma, right hepatic adenocarcinoma, hepatic flexure CRC, case report

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1. Introduction

In the Western world colorectal cancer is the second most common cancer in women after breast and the third most common in men after lung and prostate cancer [2]. Adenocarcinomas make up about 95 percent of all colon and rectal cancers [3]. Histologically, they form moderately to well-differentiated glands that secrete varying amounts of mucin [4]. Most patients are diagnosed with colorectal cancer in the sixth and seventh decade of life [2]. Approximately 30% of colorectal cancers occur in the sigmoid, 25% occur in the rectum and 25% occur in the cecum and ascending colon [4]. Common clinical presentations include iron-deficiency anemia, rectal bleeding, abdominal pain, change in bowel habits, and intestinal obstruction or perforation. Right-sided lesions are associated with younger age, and common presenting signs include bleeding and/or diarrhea. Left-sided tumors are associated with older age, and patients commonly present with bowel obstruction [5].

We present a case of adenocarcinoma of the colon in a patient with a negative colonoscopy 6 months prior with normal hemoglobin and iron studies, no change in bowel habits, or blood in stools. When analyzed on a per-patient basis, the sensitivity for lesions 10 mm or larger in size (n=63) during colonoscopy was 98% (91–100, p<0.0001

for colonoscopy vs CTC). This patient had a family history of colon cancer in his sister. He ordered a CEA marker after his negative colonoscopy which came back elevated. He proceeded to get a CT scan which came back negative but with the suggestion of getting a PET scan. The PET scan came back positive. This patient had a bowel resection that showed metastasis to the peritoneum. All lymph nodes came back negative. One inguinal lymph node was inflamed and later biopsied which came back positive for metastatic carcinoma with stain for GATA-3 and CK7. The patient then had a cystoscopy which came back normal.

2. Case Report

A 64-year-old male with a family history of colon adenocarcinoma in a first-degree relative performed a routine blood test including CEA which resulted in 3.5ng/ml which was out of range for the patient who is a lifetime non-smoker. The patient retested CEA two weeks later which resulted in 4.2 ng/ml. All other CBC results were unremarkable and within normal values. After discussing with the primary physician, the patient underwent several diagnostic imaging tests (x-ray, CT abdomen with and without contrast). The x-ray resulted in normal findings, the CT resulted in left lower lobe subcentimeter nodules, areas of sclerosis within the T12

and L1 vertebral bodies and left hemiscrotum, fatty infiltration of the liver and pancreas with subcentimeter areas of decreased attenuation within the liver. It was recommended for the patient to do a combination PET/CT scan to evaluate further for the elevated CEA levels. The PET scan found a highly suspicious focal area of mass-like tracer uptake in the hepatic flexure of the colon which corresponded with an apple core-type lesion. Non-specific enlarged tracer uptake was seen in the right inguinal node as well which raised suspicion for metastasis. Descending and sigmoid colon diverticulosis was also noted. Bilateral fat-containing inguinal hernias with no inflammation noted.

Per the results, the patient was recommended to get a repeat colonoscopy. The colonoscopy showed nodular mucosa at the hepatic flexure. Mucosa at the hepatic flexure was noted as granular heaped edges with ulcerations often referred to as “apple core” or “napkin-ring” lesions.



Image 1. The Olympus PCF-H190L pediatric colonoscope was introduced through the anus and advanced to the hepatic flexure. An area of moderately nodular mucosa was found at the hepatic flexure. Biopsies were taken with cold forceps for histology

Pathology specimens of the colon biopsy from the hepatic flexure showed hemorrhagic, irregularly shaped, soft tissue fragments that were positive for adenocarcinoma. Immunohistochemical staining for DNA mismatch repair proteins yielded normal results.

After the above finding, the patient underwent laparoscopic resection of the right colon. The resected segment of the terminal ileum measured 7cm in length and 5.7 cm in circumference. The segment of the cecum and ascending colon measured 23 cm in length and 11.5 cm in circumference. The appendix segment was 7.5 cm in length and 0.6 cm in diameter. Pathology noted a 4 x 3.5 x 1.5 cm ulcerated tan-white mass with pink granular elevated borders which involved the full thickness of the colon extending into the peri-colonic fat. Another 0.3 x 0.2 cm polyp in the appendiceal ostium. The peri-intestinal fat showed multiple nodules and a section through the 2cm indurated nodule showed an irregular tan mass.

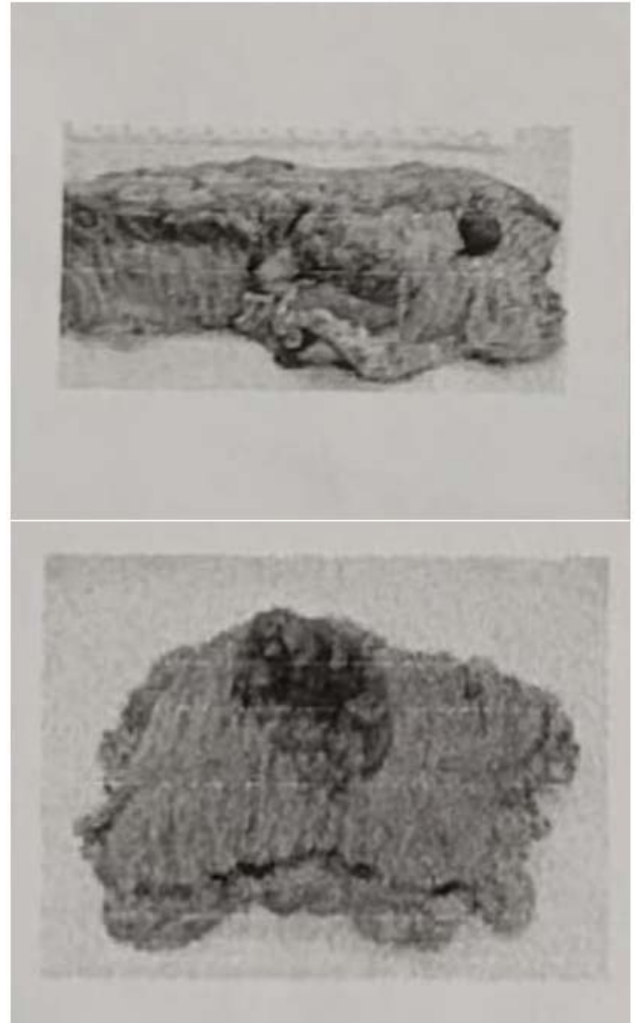


Image 2. Gross image of the colorectal tumor. Described as an “apple core” or “napkin ring” lesion, which is granular in appearance, raised (exophytic), or heaped edges with ulceration

In conclusion, this resected segment revealed an ulcerated, poorly differentiated adenocarcinoma invading through the intestinal wall into the visceral peritoneum with vascular infiltration. The tumor was staged T4, N1, M0. The patient’s CBC taken after showed no abnormalities except for high platelet counts at 452. The patient’s CEA levels also normalized to 2.0ng/ml. The patient had fine needle aspiration of the right inguinal lymph node which showed malignant cells present consistent with carcinoma. The immunohistochemical (IHC) staining was positive for CK7. Due to the concern of metastasis, the right inguinal lymph node was removed and sent to pathology for further evaluation. The lymph node showed metastatic carcinoma with IHC staining positive for GATA-3 and CK7 which suggested primary urothelial carcinoma or an adnexal skin carcinoma. The patient denied any skin cancer or unusual skin abnormalities noted. He underwent a bladder wash for urine cytology which showed normal cystoscopy. The patient did not undergo any further testing and was initiated on chemotherapy treatment for colonic adenocarcinoma.

3. Discussion

Colorectal cancer (CRC) also known as colon cancer ranks second among the most common types of cancer in terms of mortality worldwide [6]. In 2020 colorectal cancer accounted for 10% of all global cancer incidences and 9.4% of cancer deaths. Based on aging projection, population growth and human development, the global number of new colorectal cancer cases is predicted to reach 3.2 million in 2040 [7]. CRC has been classified histologically (adenocarcinoma, mucinous adenocarcinoma, signet ring cell carcinoma); location (proximal colon including the splenic flexure; distal colon includes descending and sigmoid colon and the rectum) [7]. Our patient was found to have adenocarcinoma of the proximal colon in the hepatic flexure. In the right-sided tumors, mutations in the DNA mismatch repair pathway are commonly observed [8] and typically present at a more advanced stage with symptoms of weight loss and anaemia [9]. Interestingly, our patient tested negative for these DNA mutations and did not have weight loss or anaemia.

In patients with hepatic flexure CRC, metastasis most commonly occurs along the epicolic lymph nodes along the right and middle colic arteries [10]. Inguinal lymph node metastasis from colorectal adenocarcinoma has only been reported in previous cases involving primary tumor invasion of the abdominal wall or CRC metastasis to the external iliac lymph nodes [11]. Furthermore, GATA3 markers have been reported to be a useful immunohistochemical marker for the detection of urothelial carcinoma and ovarian Brenner tumors [12]. In this patient the inflamed inguinal lymph node testing positive for GATA-3 seems to present separately from the adenocarcinoma of the colon but still without a clear source of the spread.

Fewer than 10% of patients have a true genetic predisposition and are associated with a high risk of developing CRC [13]. They are divided into two main categories; CRC with polyps and without polyps. CRC's associated with polyps consists of MUTYH associated polyposis (MAP); Familial Adenomatous Polyposis (FAP) and Hamartomatous polyposis syndromes (Peutz-Jeghers, Juvenile polyposis, phosphatase and tensin homolog (PTEN) hamartoma tumor (Cowden) syndrome). CRC without polyposis are known as hereditary nonpolyposis CRC (HNPCC), formerly known as Lynch Syndrome. Due to the early manifestations and devastating effects of these, early genetic testing is often done. Our patient tested negative for these markers despite him and his sister having colon cancer. There is no history of colon cancer in his family.

An article in the NCBI conducted a retrospective observational study assessing possible etiologies of missed colorectal polyps despite advances in colonoscopy techniques and equipment. Of the 659 patients assessed; 17.24% was the miss rate of colorectal polyps with male patients having a higher miss rate. 38.69% of patients had at least 1 missed polyp. The study further demonstrated that 98.4% of missed polyps are smaller than 10 mm in diameter with 98% being sessile or flat in appearance. The ascending colon was found to be the most common site of missed polyps which included the cecum 29.8% followed

by the sigmoid colon 27.8% [14]. Our patient falls into this category, potentially explaining the negative colonoscopy.

4. Conclusion

Although this patient had undergone a negative colonoscopy, he ordered a subsequent CEA marker test on his own initiative, and the results were significantly elevated. Despite the follow-up CT scan is negative, a suggested but not mandatory PET scan conducted confirmed primary colon neoplasm with concomitant right inguinal lymph node metastasis. It should be standard protocol to do extensive testing and screening if a patient has a first-degree relative with colonic adenocarcinoma despite negative gene markers and advanced age. Colonic adenocarcinoma is one of the most easily treatable cancers and needs to be aggressively diagnosed. It should also be noted, the standard protocol prevents underprivileged individuals from arguing against further testing due to cost, which would cause more prevalence of colonic adenocarcinoma.

Abbreviations

CEA: Carcinoembryonic Antigen, CT: Computed Tomography, PET: Positron Emission Tomography, CTC: Circulating Tumor Cells, GATA-3: GATA 3 Gene Transcription Factor, CK7: Cytokeratin 7, MUTYH: mutY DNA Glycosylase, MAP: MUTYH associated polyposis, IHC: immunohistochemical, HNPCC: Hereditary Non-Polyposis Colorectal Cancer, PTEN: Phosphatase and Tensin Homolog.

Consent

Written informed consent was obtained from the patient for the publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

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