

Case Report

Colorectal Carcinoma and Gluteal Abscesses in the Background of a Gait Disturbance Presentation

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Keywords

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Abstract

Introduction: Profuse diarrhea and abdominal discomfort are well-documented symptoms of patients with known colorectal cancer. It is much less common for these patients to present with a chief complaint of gait disturbance and rhabdomyolysis. We present a case of incidentally discovered colorectal carcinoma in a patient who was initially evaluated for progressive weakness and recurrent falls. **Case Presentation:** A 51-year-old man was admitted to our department for management of rhabdomyolysis in the setting of progressive lower extremity weakness and mechanical falls. He developed abdominal discomfort and bowel changes during his admission, and after further investigation, he was found to have a rectal polyp positive for invasive adenocarcinoma, as well as multiple gluteal abscesses. Workup for metastasis, mutations, and oncogenic biomarkers was unremarkable. **Conclusion:** This case is a demonstration of a medically complex patient presentation compounded by multifactorial processes. Future providers may take note that an initial absence of classic gastrointestinal (GI) symptoms does not necessarily rule out underlying GI cancer. Instead, the initial presentation of colorectal adenocarcinoma may manifest with paraneoplastic versus incidental progressive proximal limb weakness prior to GI symptoms such as diarrhea. Additionally, our report demonstrates a case of possible paraneoplastic gluteal abscesses, which may have further contributed to the patient's gait disturbance. However, it is unclear as to whether our patient's various symptoms were directly linked to one another, or if they were incidental co-presentations.

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Introduction

Colorectal carcinoma has a widespread incidence, currently as the fourth most common cancer in the USA [1]. It is important to understand the heterogeneous ways in which such patients with this disease may present. Colorectal cancer commonly develops in 45- to 75-year-old adults, with classic symptoms including lower gastrointestinal (GI) bleeding, changes in bowel habits (e.g., diarrhea), and abdominal discomfort [2]. Favorable prognostic factors include resectable, left-sided tumors, lower grade histology, and low preoperative CEA levels [3]. Emerging research has suggested the potential of certain proteins, such as NOLC1 and the CXCR4 chemokine receptor, as additional prognostic factors for colorectal carcinoma [4, 5].

Our patient presented with a medically complex presentation, including but not limited to worsening gait, rhabdomyolysis, rectal adenocarcinoma, and gluteal abscesses. Some reports have investigated the associations between cancer and some of these diagnoses individually, such as chemotherapy-related rhabdomyolysis [6, 7]. However, there is currently no literature found that describes this entire constellation of pathologies in association with one another.

Case Presentation

A 51-year-old male presented to the emergency department from his assisted living facility for worsening bilateral lower extremity weakness, more pronounced on the left side, status-post a recent fall. His past medical history included intellectual disability, unspecified movement disorder, seizure disorder, obsessive-compulsive disorder, stage III chronic kidney disease, and multiple abdominal surgeries. He also had a history of multiple previous visits for recurrent falls and progressive lower extremity weakness, and each time was subsequently discharged home after inconclusive workup.

For his current visit, the patient was brought in by his caretaker after he fell onto his left shoulder, left knee, and left face earlier that day, subsequently exhibiting worsened lower extremity weakness, moreso on his left side, with an inability to ambulate. The patient was a poor historian at baseline secondary to his mental capacity, providing only limited information directly.

According to his caretaker, the patient's home medications included Benztropine 1 mg, carbamazepine 200 mg, valproate 500 mg, fluvoxamine 100 mg, risperidone 0.5 mg, valsartan 80 mg. He had reportedly been taking these medications regularly as scheduled at home.

Chart review showed that he had a small bowel obstruction for which he underwent open surgery in 2014. The patient also had a history of multiple abdominal surgeries for small bowel obstruction, sigmoid volvulus, bowel adhesions, and hernia repair. He was status-post sigmoidectomy and ileocectomy in remote history. He had a history of unremoved Meckel diverticulum, as well as hypertrophic lymphoid hyperplasia in the distal ileum, diverticulosis, and internal and external hemorrhoids identified in colonoscopy in 2011.

In the ED, the patient was found to have elevated creatinine, ESR, and CPK. He was admitted for management of rhabdomyolysis and AKI. His EKG was normal sinus rhythm. Urine toxicology was negative. His electrolytes, CT head and spine without contrast, MRI head with or without contrast, X-ray left knee, Doppler ultrasound left leg, and vitamin B12 panel were all normal.

An MRI of the patient's cervical and thoracic spine had no evidence of fracture but showed signs possibly suggestive of focal paraspinal myositis. Specifically, there was abnormal enhancement visualized in the left cervical and thoracic paraspinal musculature that may have represented strain, contusion, and/or myositis. MRI of his lumbar spine showed no signs of

myositis or fracture but did demonstrate non-enlarged polycystic kidneys (not consistent with autosomal dominant polycystic kidney disease).

Of note, there did seem to be a functional component to the patient's lower extremity weakness. At times, he would exhibit some level of muscle strength, as demonstrated when he kicked off his sequential compression devices or ambulated short distances with weight support. Yet, during the majority of his admission, his weakness was prominent and he would at times refuse to follow verbal motor commands.

The patient's rhabdomyolysis gradually resolved on IV fluids and supportive care, with his CPK downtrending from 3,033–97 U/L within the first 10 days. This coincided with improvement of the patient's AKI, with his serum Cr returning to baseline levels.

The patient developed a UTI during his admission, his urine culture showing *Enterobacter cloacae* > 100 k and *Proteus* <10 k. He was treated with two doses of ceftriaxone followed by a 7-day course of levofloxacin.

Our patient developed diffuse abdominal pain on day 3 of admission, followed by nausea, one episode of vomiting, and loose stools that persisted throughout the remainder of admission. His fecal occult blood was negative. CT of the abdomen and pelvis showed diffuse dilation of small bowel loops with wall thickening and mucosal enhancement suggestive of active bowel inflammation but without definitive evidence of bowel obstruction. CT abdomen as well as abdominal ultrasound also revealed cholelithiasis concerning for possible cholecystitis; however, HIDA scan was negative. Infectious workup of the stool was negative. Autoimmune workup including ANA, ANCA, and anti-dsDNA was negative. Cancer markers were ordered, with CEA, CA-19, and AFP all within normal limits.

A colonoscopy was performed on day 10, which was significant for anal stricture, a 78 mm polyp in the distal left colon, and a 5 cm rectal polyp. Both polyps were removed and biopsied, demonstrating invasive rectal adenocarcinoma with benign tubular adenoma and focal colitis in the descending colon. The CT scan was negative for any metastasis to the thorax and the MRI pelvis showed local disease with no invasion beyond muscularis propria (Fig. 1). Genetic testing and mismatched proteins were performed for further characterization of his neoplasm but were unremarkable.

Interestingly, the patient's MRI pelvis also showed an incidental finding of multiple fluid collections concerning for gluteal abscesses, with extensive collections in the gluteus extending into the obturator internus (Fig. 2a, b). These abscesses were not previously identified on his CT abdomen and pelvis from earlier in his admission. We hypothesized that these abscesses had been developing for some time. Despite his UTI and cancer, it was unlikely the patient acutely developed these abscesses during the current hospitalization. Unfortunately, there were no prior pelvic MRI or CT scans that could be used for comparison.

The patient remained afebrile status-post antibiotic treatment for his UTI with no signs of sepsis. Additionally, cytology demonstrated no definitive evidence of malignancy in the gluteal abscess material. However, he was recommended to undergo abscess drainage by interventional radiology on hospital day 18 and was started on IV Flagyl and ceftriaxone. At the time of discharge, the drain output was minimal and the patient was transitioned to oral antibiotic therapy.

During admission, our patient's chemistry panel showed mild hypernatremia that intermittently recurred throughout his stay. Review of his medical records revealed that these laboratory values were consistent with his baseline sodium levels based on previous admissions. During the current admission, his hypernatremia improved or resolved while on IV fluid hydration and typically worsened upon cessation of fluids.

The patient also had anemia during his presentation with the most severe hemoglobin drop to 9.2 g/dL during hospitalization. The patient's hemoglobin otherwise remained near his baseline throughout his hospital course; no blood transfusions were required and he was hemodynamically stable at the time of discharge. Given there were no signs of active blood

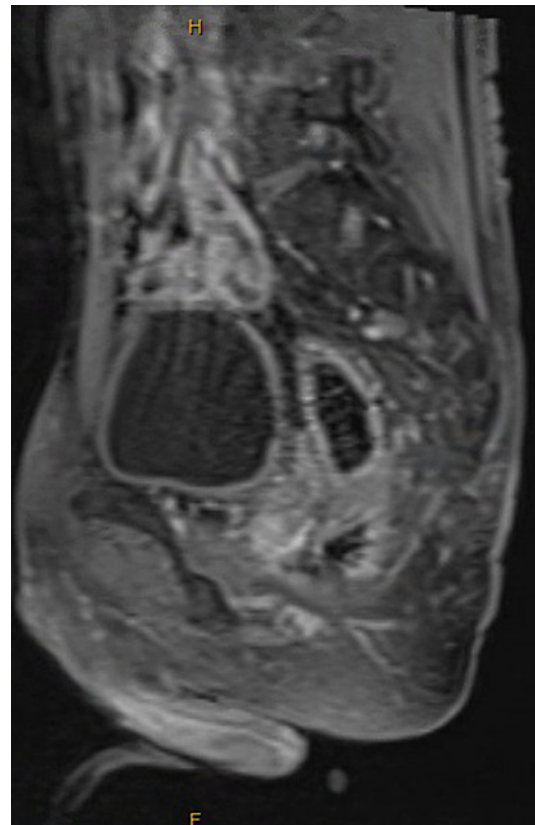


Fig. 1. Sagittal view of tumor. Lowest extent of the tumor has 10.7 cm distance from the anal verge and 6.3 cm distance from the top of the anal sphincter. Remainder of patient's MRI showed no signs of suspicious lymph nodes, extramural vascular or mesorectal fat invasion, or distant metastases.

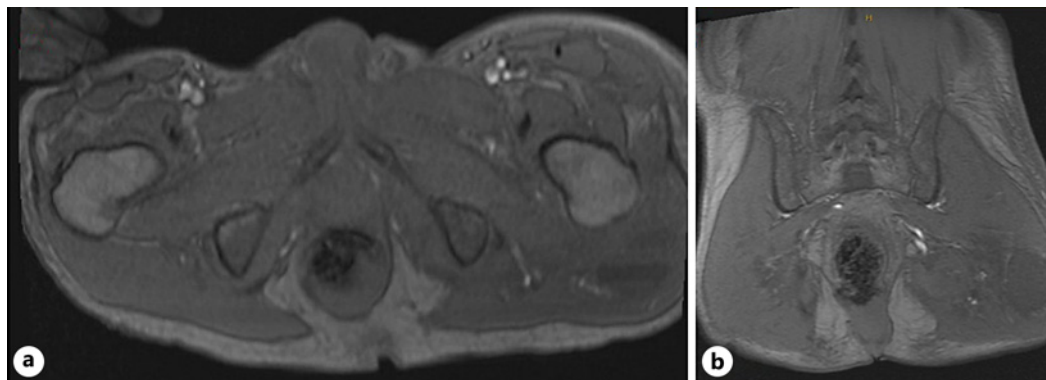


Fig. 2. Transverse (a) and coronal (b) views of ill-defined fluid collections in the left gluteal musculature. There is a 7.1×2.1 cm collection with an enhancing rim involving the gluteus maximus muscle and gluteus medius. There is also a 4.4×1.3 cm collection extending through the sciatic notch and into the left obturator internus with additional locules along the gluteus.

loss, his anemia was thought to be secondary to kidney disease or anemia of chronic disease, and unlikely to be directly related to his chief complaint.

Surgical and medical oncology recommended outpatient follow-up regarding the patient's carcinoma management. Additionally, regarding his limb weakness and falls, physical therapy and occupational therapy recommended subacute rehab, which the patient's legal guardian agreed to. Upon improvement of his condition, the patient was stable for discharge and was followed outpatient. A summary of his hospital course is

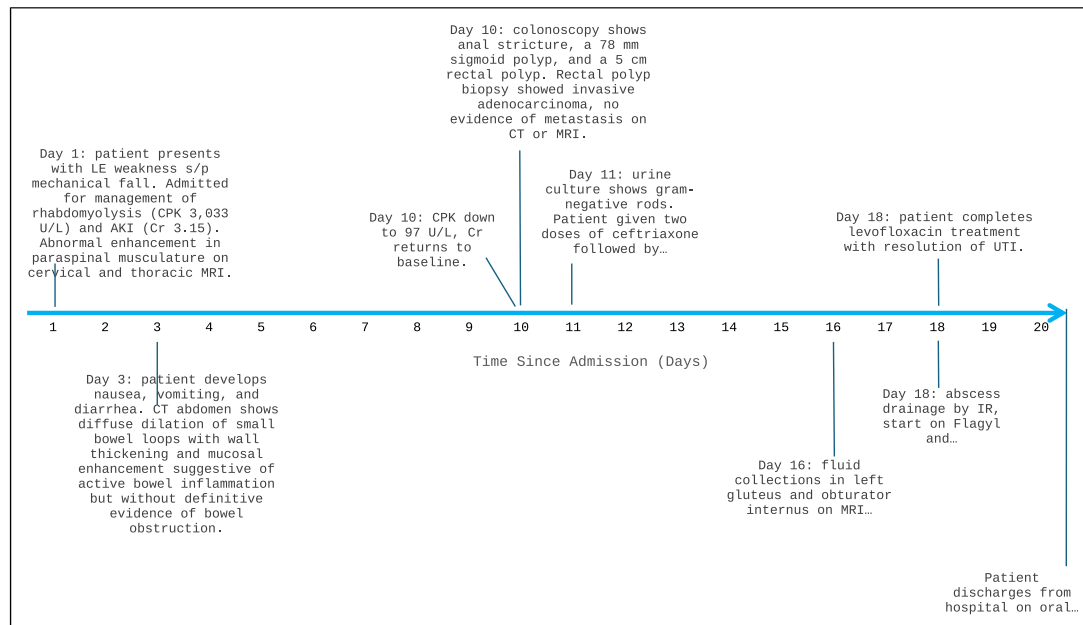


Fig. 3. Timeline of patient's summarized hospital course. LE, lower extremity; AKI, acute kidney injury; CPK, creatine phosphokinase; Cr, creatinine; UTI, urinary tract infection; IR, interventional radiology.

provided in this report (Fig. 3). He initially missed his scheduled follow-up appointments but after rescheduling, he underwent reevaluation and robotic surgery converted to open low anterior resection of his colorectal tumor. Per outpatient surgery, no tumor was found in margins, although margins were noted to be poor. Thus, radiation oncology was scheduled to follow-up with the patient with consideration for possible radiation. Unfortunately, the patient expired from sudden cardiac arrest before follow-up.

Discussion

This report demonstrates a patient with a medically complex history, diagnosis, and management. We present a case in which careful imaging, pathology, and patient history were all necessary for a comprehensive and multifaceted approach for this patient.

Our patient presented with bilateral lower limb weakness and rhabdomyolysis in the setting of underlying colorectal adenocarcinoma and gluteal abscesses. He initially presented without the classic symptoms that are typically associated with colorectal cancer but subsequently developed watery diarrhea during his hospital admission. The patient's symptoms, laboratories, and imaging were suggestive of paraneoplastic colitis and paraneoplastic versus incidental muscle weakness.

The precise mechanism for the patient's muscle weakness remains unclear. Myositis with weakness and neurologic deficits is a known potential paraneoplastic syndrome of certain cancers, including colorectal carcinoma. Our patient did exhibit abnormal paraspinal enhancement on imaging. However, the neurology team was skeptical if this reflected true myositis, and believed these findings were more likely reflective of strain or contusion from physical trauma given the patient's frequent falls. Furthermore, the abnormal enhancements on the patient's MRI were located in the cervical and thoracic regions as opposed to the lumbar region, which would unlikely explain his gait deterioration. Of note, a review of

medical records revealed that the patient had previously presented multiple times to our hospital with worsening lower limb weakness and falls, twice in 2022 and once in 2021, each time with an inconclusive workup. This was concerning for a chronic progressive process, possibly with a psychiatric or functional component.

The degree of association between colorectal carcinoma and movement disorders remains unclear. Some studies have suggested that Parkinson's patients experience a lower incidence of colorectal cancer [8, 9]. However, the literature linking colorectal cancer with other movement disorders is sparse.

Our patient with progressive gait disturbance and colorectal carcinoma was found to have abscesses in the gluteal region extending into the obturator internus. Oral and rectal contrast was not given to assess if the patient's tumor had perforated, which would be a potential mechanism for the local fluid collections. Indeed, abscesses within the pelvic region, including within the obturator internus, have been identified as an uncommon etiology of gait disturbance [10]. The patient's more pronounced weakness on the left side would potentially correlate with the location of the abscesses. Additionally, pelvic, retroperitoneal, and perirectal abscesses have been documented in cases of colorectal cancer [11, 12]. Furthermore, the cancer in some of these cases was identified incidentally, with the initial presentation being pelvic inflammatory disease or tubo-ovarian abscess; classic symptoms of colorectal cancer (e.g., rectal bleeding) were absent, as in our patient [13, 14].

With such limited data, it is difficult to definitively ascertain whether this patient's colorectal cancer was purely an incidental finding or if it was in some way linked to his progressive weakness and gluteal abscesses. It may have proven useful to assess if the patient's neurologic function improved post-removal of his cancer and abscesses. Unfortunately, the patient passed away before this could be determined. The patient's workup may possibly suggest that his weakness and abscesses were paraneoplastic; however, they may have been incidental co-occurrences instead. Regardless, it is important to note that the absence of classic GI symptoms does not necessarily rule out underlying GI cancer. Instead, the initial presentation of colorectal adenocarcinoma may manifest with the co-occurrence of progressive proximal limb weakness, and other symptoms such as diarrhea may develop subsequently. The CARE Checklist has been completed by the authors for this case report, attached as online supplementary material (for all online suppl. material, see <https://doi.org/10.1159/000541693>).

Statement of Ethics

Ethical approval is not required for this study in accordance with local or national guidelines. Written informed consent for publication of this case report and any accompanying images has been obtained from the patient's guardian. All identifying information has been removed to preserve confidentiality.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

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Author Contributions

B.C. contributed to the conception, design, and medical record acquisition and interpretation, and had a major contribution in the writing of the manuscript. S.S.: literature review and journal selection. F.M.-C.: case tracking – review and editing. N.K.C. data collection. R.I.: case tracking. B.A.C.: review and editing. All authors contributed to the drafting and critical review of the content, approved the final version for publication submission, and are accountable for all aspects of the work.

Data Availability Statement

All data generated or analyzed during this study are included in this article and its online supplementary material. Further inquiries can be directed to the corresponding author.

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