Obstructing colonic mucinous adenocarcinoma in a 22-year-old man: a case report and review of the literature.

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Abstract

Background: Colorectal cancer is one of the most common malignancies among adults above 50 years old, but rare in young adults. The diagnosis of colorectal is rarely entertained in young adults presenting with constipation or features of mechanical acute intestinal obstruction. This results in delayed diagnosis and poor outcomes. Case summary: A 22-year-old male presented to the emergency department of our hospital with a 5-day history of colicky abdominal pain, progressive abdominal distension, bilious vomiting and absolute constipation. He had a 5-month history of recurrent colicky abdominal pain, haematochezia and progressive weight loss. There was no known family history of inflammatory bowel disease or malignancy. As part of his routine investigations, plain abdominal X-rays were done and findings were in keeping with features of mechanical small bowel obstruction (Fig 1 & 2). The chest x-ray was normal. Abdominopelvic computed tomography (CT) revealed features of an obstructing proximal transverse colonic mass. He had an emergency laparotomy and a right hemicolectomy. The histology of the specimen revealed mucinous adenocarcinoma in the transverse colon. To the authors' knowledge, this is a rare disease that presented to our facility. Conclusion: Colonic cancer is thought to be rare in young adults as compared to older patients. However, the incidence rates have increased in young adults over the past 20 years, often in sharp contrast to rapid declines in older adults. This underscores its importance in this young age group.

Keywords: Transverse colon, intestinal obstruction, mucinous adenocarcinoma, young adults

Introduction

Colorectal cancer is the most common malignancy of the gastrointestinal tract and the third leading cause of cancer-related death in the world.[1] Colorectal cancer (CRC) is thought to be a disease of older persons, with more than 90% of patients being diagnosed after the age of 55 years.[2] CRC was previously thought to be rare in young populations. However, these have been described in patients younger than age 30. Approximately 150,000 new cases of colorectal cancer (CRC) were diagnosed in the United States in 2008 and approximately 6% of these cases occurred in the first four decades of life, while 3% were between the ages of 20 and 40 years. CRC has been reported to be the third most commonly diagnosed cancer all over the world, with an estimated 1.8 million new cases in 2018.[3] The incidence of CRC in young adults has been increasing over the last 25 years, with the increase much more pronounced for rectal cancer than colonic cancer. The incidence appears to have remained relatively stable for older adults. Since routine CRC screening omits young adults, it cannot be prevented in this group by removing premalignant polyps found during screening, and this may potentially explain an increase in incidence[4]. Equal proportions of males and females are affected[5,6]. Recent studies suggested that as many as 7% of patients who developed CRC were under 40 years of age, and this incidence keeps increasing.[1] CRC in young people under the age of 40 seems to show more aggressive disease behaviour when compared to older patients. Here, we present a case of mechanical acute bowel obstruction caused by mucinous adenocarcinoma of the transverse colon in a young male. To the best of our knowledge, we are not aware of a case of mechanical bowel obstruction due to

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mucinous adenocarcinoma of the transverse colon in such a young patient with no known family history of colonic cancer in our hospital.

Case

A 22-year-old male presented to the emergency department of our hospital with a 5-day history of colicky abdominal pain, progressive abdominal distension, bilious vomiting and absolute constipation. He had a 5-month history of colicky abdominal pain, haematochezia and progressive weight loss. There was no groin swelling and no fever. No previous abdominal surgery. His premorbid history was uneventful. He had no known family history of inflammatory bowel disease or malignancy. Upon physical examination, the abdomen was uniformly distended, with mild tenderness. No abdominal masses or organomegaly were appreciated. Bowel sound was hyperactive. Rectal examination revealed no significant finding. His BMI was 20.2kg/m^2. As part of his routine investigations, he had plain abdominal X-raysdone and the findings were in keeping with features of mechanical small bowel obstruction (Fig 1 & 2). The chest x-ray was normal. Abdominopelvic computed tomography (CT) revealed features of acute intestinal obstruction with an obstructing irregular colonic mass measuring 4 by 5cm in the proximal transverse colon and multiple enlarged mesenteric lymph nodes (stage 3). There was mildascites but liver and kidneys appeared normal. His full blood count and urinalysis were within normal range. Appropriate resuscitative treatment was commenced and subsequently, an emergency laparotomy was done after informed consent was obtained. At operation, the small intestines, caecum, ascending and proximal transverse colon were markedly distended up to its proximal third, with collapsed distal segment. There was an obstructing transverse colonic tumour at the junction between the proximal third and distal two-thirds of the transverse colon and multiple enlarged mesenteric and para-aortic lymph nodes (Fig 3).

The liver was grossly normal and there was about 300mls of ascitic fluid. A right hemicolectomy with primary ileo-transverse anastomosis was performed through a midline incision. The patient was discharged on the seventh (7) post-operative day in a satisfactory clinical state. Histology of the specimen revealed mucinous adenocarcinoma of the proximal transverse colon (Fig 4). He has been placed on cytotoxic chemotherapy (FOLFOX-4) and is currently in good condition of health in his last clinic visit.

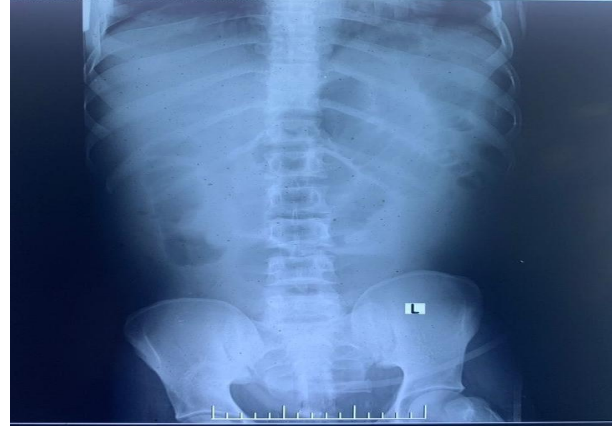

Figure I: Plain abdominal x-rays of the patient (Fig 1- supine view) showed dilated bowel loops and erect view

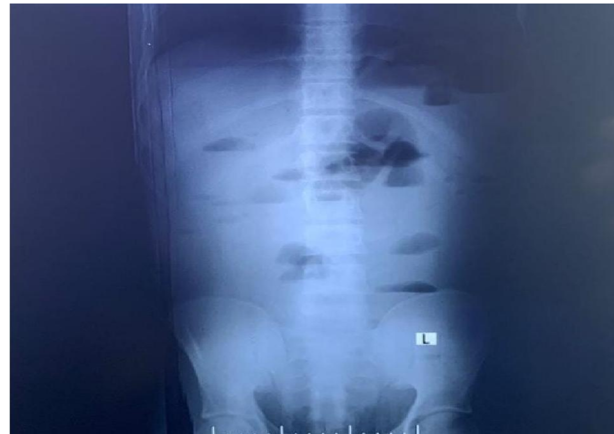

Figure II showed multiple air-fluid levels

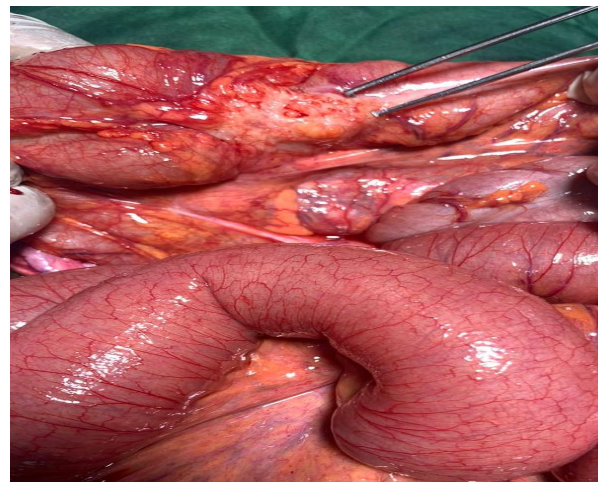

Figure III: Completely obstructing transverse colonic tumour (indicated by the non-toothed dissecting forceps) with dilated proximal bowel.

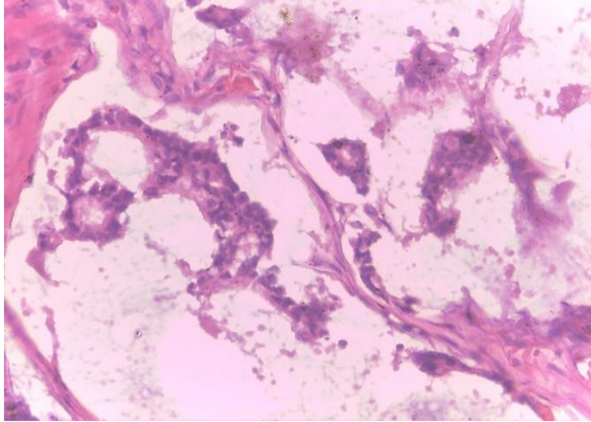

Figure IV: Histologic findings of the cancer (x40 magnification).

Discussion

Colorectal carcinoma is the most common malignancy of the gastrointestinal tract. Over 150,000 new cases are diagnosed annually in the United States, and more than 50,000 patients die of this disease each year, making colorectal cancer the third most lethal cancer in the United States.[7] Also, it has been reported that early-onset adult colorectal cancer (CRC) is increasing in the USA despite rapid declines in older ages. Similar patterns have been reported in Australia, Canada and Nigeria, but a comprehensive global analysis of contemporary data is lacking. Over the years, there has been an increase in incidence among young adults younger than 50 years, even though the practice of population-based screening has reduced the overall incidence and mortality of CRC. The recent data from large European registry-based studies showed that CRC rates have increased dramatically among patients aged 20 to 49 over the last 25 years. This aligns with the findings reported by Irabor et al[8] where the incidence of CRC in Nigeria has nearly tripled over the last 40 years. Similarly, Sule et al[9] reported 23.6 percent in their review of colorectal carcinomas in patients less than 30 years old in Jos, Nigeria. It is only recently that organized CRC screening has been recognized as a strategic priority in Nigeria.[10]

The incidence is similar in men and women and has remained fairly constant over the past 20 years. Early detection and appropriate management are thought to be responsible for the decreasing mortality of colorectal cancer observed in recent years.[11] From current data, it is estimated that the incidence rates of CRC will increase by 90-124%among adults aged 20 to 34 years and 27- 46%, for those aged 35 to 49 years within the next decade. By 2030, it has been reported that 1 in 10 colon cancers and 1 in 4 rectal cancers will be diagnosed in individuals younger than 50 years if the current trend is sustained.[12]

CRC in young adults is a global disease observed in many nations with a history of population-based screening and incidence reporting. There has also been a report of a significant increase in rectal cancer among Black men and women. The reasons for this racial disparity are complex and may in part be associated with lifestyle factors, socioeconomic status, and access to health care.[13,14]

Different risk factors have been implicated in the aetiology of CRC in the general population. Amongst these are genetic susceptibility, obesity, vitamin D deficiency, diabetes, smoking, and other dietary factors[15]. Scarce and conflicting data have been reported about underlying predisposing factors for developing colorectal cancer in young adults. Some studies have found non modifiable risk factors, such as sex, race, family history of CRC, and inflammatory bowel disease, to be implicated in the pathogenesis of CRC in young adults. However, no significant correlation was found with other risk factors, such as diabetes mellitus, alcohol intake, smoking, folate, fibre intake, or vitamin deficiency in young adults[12,13]. There was however, no risk factor found in the index patient. Contrarily, a European case-control study of 329 patients, who were younger than 45 years old, demonstrated that family predisposition, alcohol consumption, and high levels of processed meat were associated with increased risk of CRC in young adults. Consumption of vegetables, fruits, fish, beta-carotene, and vitamin C has been reported to have a remarkable protective effect[16].

The majority of young adults with CRC present with abdominal pain or haematochezia.[5,17] Other common symptoms include constipation alternating with diarrhoea and weight loss. The signs and symptoms of colorectal carcinoma are related to its primary site within the colon and rectum. Some studies have found

that tumors involving the rectosigmoid region were most common in young adults followed by right-sided lesions. This was, however, not the case in the index patient. Cancers arising in the cecum and ascending colon may present with anaemia due to occult bleeding or develop into large masses before symptomsbecomeobvious.[18] Tumours in the rectum may also present with tenesmus, a sense of incomplete rectal emptying. A third of patients may have anorexia and weight loss.[19] Some patients will present with acute mechanical intestinal obstruction and the diagnosis will not be suspected preoperatively. This was the case in the index patient. Preoperative radiological investigations, such as computerized tomography (CT) scans, may help in detecting tumours in the colon. At times, the diagnosis is madeintra-operatively in unsuspecting patients.[19] Despite advances in radiological imaging modalities, CRC in the young adult may mimick other diagnoses more common in young adults, for example, a cecal tumour perforating the appendix may have very similar clinical and radiographic features to acute appendicitis. Although studies suggest considerable variation, there appears to be a significant delay in the diagnosis of CRC in young adults.[5] The reason for this delay likely involves both patient- and physician-related factors. Young adults are less likely to be concerned that symptoms represent malignancy and the same is likely true of physicians. Studies have shown that, this is due to delayed symptoms and diagnosis, maybe more than 6 months. The main form of treatment is surgery, followed by cytotoxic chemotherapy.[5,18]

Young adults have been reported to present with more aggressive diseases. These tumours are more often than not poorly differentiated, mucinous, or have signet ring histology; these features are often associated with poor prognosis. The finding in this index patient is mucinous adenocarcinoma of the transverse colon. According to Griffit et al[20], mucinous tumours were found to account for an average of 21% of the CRC found in younger patients compared to 10%– 12% in older adults, while the percentage of tumours found to be poorly differentiated was 27% compared with 15% for adults over 40 years of age.

The prognosis of CRC in young adults varies in different literatures. As in older adults, the most powerful predictor of outcome for younger adults is stage. When this is compared with older patients, there is a likelihood of the young patient presenting with a more advanced stage (stage III and IV) at presentation, thus influencing the overall outcome. Outcomes were found to be similar when adjusted for the stage at presentation.[19]

Conclusion

Colonic cancer is rare in young adults, compared to older patients. However, the incidence rates have increased in young adults over the past 20 years, often in sharp contrast to rapid declines in older adults. These patterns potentially signal changes in early-age exposures conducive to large bowel carcinogenesis and reinforce an urgent need for research to explore the potentially unique aetiology of young-onset CRC. We described a rare case of stage 3 mucinous adenocarcinoma of the transverse colon presenting with features of mechanical bowel obstruction in a young male. The surgeons and the radiologists must be mindful of underlying malignancy even in a young adult patient presenting with features of acute intestinal obstruction.

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