

Signet Ring Cell Carcinoma, of the Ileum on Crohn's Disease Revealed by Acute Peritonitis

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1. Abstract

The small bowel is an unusual site for malignancies. In patients with Crohn's Disease there is an enlarged relative risk of small bowel adenocarcinoma likened to the general population. Signet ring cell carcinoma is a rare type of adenocarcinoma that predominantly affects the stomach. Signet ring cell carcinoma initiated from the ileum is particularly rare and the prognosis is poor. Due to the nonspecific nature of the signs of the disease, the diagnosis is often late because there is a tendency to treat relapses earlier than to undertake a broader study of these symptoms. In patients with Crohn disease, the symptoms are often chronic diarrhea and abdominal pain with a family history of inflammatory bowel disease. We present a case of small bowel perforation of tumor of ileum with general peritonitis in patients who was not known and treated for Crohn's disease.

2. Keywords: Small bowel adenocarcinoma; Crohn's disease; Signet ring cell carcinoma; perforated ileal tumor; general peritonitis

3. Introduction

Small intestinal malignancies are exceptionally rare accounting for 0.1–0.3% of all malignant tumors [1]. Signet ring cell carcinoma (SRCC) is a rare type of adenocarcinoma that most often rises in the stomach but may touch further organs, as well as the pancreas, breast, urinary bladder, ovarian, lung, esophagus, and colon [2, 3]. While much of the length of the bowel is made up of small intestine, it is classically spared from the majority of gastrointestinal malignancies. Fewer than 5% of all gastrointestinal tumors are found in the small bowel, 36.9% of which are adenocarcinoma [4,5]. It is an epithelial malignancy with cells like signet rings, as they contain huge amounts of mucin, which thrusts the nucleus to the cell periphery [1]. It represents one fourth of gastric cancers but in other sites has a very low incidence (<1%) [2]. Adenocarcinoma of the small bowel is a rare entity. The other small bowel tumors

contain carcinoid (37.4%), lymphomas (17.3%) and gastrointestinal stromal tumors (8.4%) [5]. The survival rate is poor (20–30% at 5 years) only a very small number of cases of SRCC of the ileum in Crohn disease (CD) have been reported in the literature [1, 3–6]. Occasionally the patients who develop an adenocarcinoma are those with small bowel CD but most frequently there is an association of those with both small and large bowel CD. It is consensual that the possibility of developing small bowel adenocarcinoma is greater in patients with CD than in the general population; nevertheless, the exact greatness and the etiologic mechanism of the enlarged risk are difficult to determine [5–8]. Staging of small bowel adenocarcinoma is comparable to that of colon cancer, using the TNM system. This differs from the staging of other small bowel neoplasms, which have unique staging systems.

4. Case Presentation

The 68-year-old male patient, with no pathological history, admitted to surgical emergencies in a state of septic shock (pallor, cold sweat, drop in blood pressure, accelerated pulse, hypothermia 36°C). The patient complained of diffuse abdominal pain, associated with vomiting signs of bowel obstruction. On physical examination there is generalized abdominal contracture, associated with fever. The abdominal & chest x-ray showing an image of bilateral Air under diaphragm (**Figure 1**). Pre-operative blood investigation showing: hyper leukocytosis with 13000, hyponatremia 129 meq / l, hypokalemia at 3.00 meq / l. The patient underwent surgery in emergency for acute peritonitis by perforation of intra-abdominal hollow organ. The exploration found stercoral peritonitis with presence of a perforated tumor of the ileum about 40 cm from the ileocaecal junction (**Figure 2**) with mesenteric lymphadenopathy. We proceeded to the resection of the ileum by removing the tumor according to the oncological rules, and the opening of the intestine to the wall in double ileostomy. The postoperative period was marked by ionic disorders difficult to correct. Restoration of the digestive continuity is performed on the 20th postoperative day. The histological result was a mucosal colloid adenocarcinoma with isolated Signet ring cell carcinoma with infiltration of the mesentery, developed on Crohn's disease (**Figure 3**). Computed Tomography of thorax, abdomen & pelvis was performed as part of the extension assessment and it was without abnormalities. The patient is assigned to oncologists for adjuvant treatment. Follow up of the patient at three months and nine months was normal.

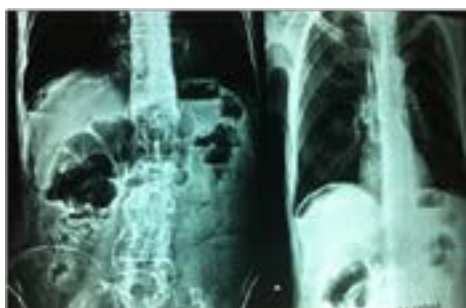


Figure 1 : showing in the abdominal plane & chest x-ray bilateral air under diaphragm.

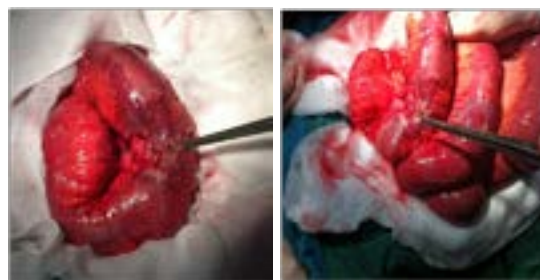


Figure 2: intraoperative view of perforated small bowel's tumor.

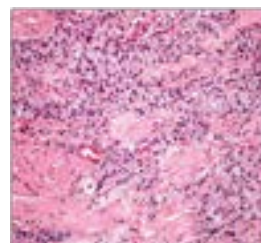


Figure 3: histological result: Signet Ring Cell Carcinoma of ileum was established, including contiguous intestinal loops, with overlying Crohn's Disease topographies.

5. Discussion

Adenocarcinoma of the small bowel is a complication of Crohn's Disease (CD). As there are only a insignificant number of cases of Signet Ring Cell Carcinoma (SRCC) of the ileum in CD, this association has not been evidently well-known. The pathophysiology of adenocarcinoma of the small bowel seems to be similar to that of colon cancer, with evolution through the adenoma-carcinoma system as a consequence of mutations in tumor regulatory genes like APC, p53, and k-Ras [7]. It is supposed to be started by chronic inflammation, healing and scarring permitting this mutagenesis to arise. In patients with simultaneous small bowel adenocarcinoma and Crohn's disease the diagnosis of Crohn's habitually precedes malignancy by 20 years or more [8]. Patients with long-lasting small bowel CD are supposed to have an augmented risk of small bowel carcinoma. Many assumed risk factors appeared as a result of observed tendencies through case reports such as prior strictureplasty and excepted/bypassed bowel segments [8, 9]. The risk of developing small bowel carcinoma was similarly found to be much developed in patients whose disease was limited to the small bowel than in the patients with ileocolic CD. The mean age of diagnosis of small bowel carcinoma is between 60- 69 years, with a prior reported mean age of diagnosis, 45-55 years, realized in patients with Crohn's disease. [10]. The cumulative risk of developing cancer increases with

duration of Crohn's disease, in one study being described as 0.2% risk after 10 years and 2.2% risk after 25 years [11]. Protective factors against the development of small bowel carcinoma in CD have been less frequently studied, but it has been proposed that small bowel resection and prolonged use of salicylates may be protective [12]. The clinical presentation of small bowel carcinoma differs and may be delicate, frequently foremost to late diagnosis. Patients may present with ambiguous abdominal pain, nausea, vomiting or severe pain [11]. More infrequently, obstruction or perforation can be the presenting symptoms. The patient can also have added symptoms reliable with cancer such as weight loss, fatigue, softness, anemia, or anorexia. In Crohn's patients, symptoms regularly present also to those of a flare with abdominal pain, change in bowel habits, anemia, or with symptoms telling new fistulae or strictures [7]. Because of the non-specific nature of symptoms, the diagnosis of small bowel adenocarcinoma is habitually late. Precisely, in Crohn's patients symptoms that are unclear or comparable to previous flare symptoms often are managed with immuno suppressive treatment for a substantial period of time before examination is started to expose a cancer. Then, it is not rare for the diagnosis to be completed intraoperatively and frequently at an advanced stage. [13]. Less often, it presents with hemorrhage, fistula, or perforation [8, 9]. Unfortunately, these symptoms are difficult to differentiate from signs due to exacerbation of CD, which partly explains the majority of diagnoses being made at the time of intra or post-operative period [1, 6, 8]. In our patient the diagnosis was made post-operatively after occurrence of serious complication (perforation) was having resulted in stercoral peritonitis. At this time here are no recommendations for cancer surveillance in Crohn's patients, possible in part due to the difficulty in endoscopic surveillance of the small bowel and the general low prevalence of Crohn's disease in all patients with small bowel adenocarcinoma described as 1.6%, suggesting a low total risk for Crohn's patients [8]. New non-invasive imaging technologies such as CT or MRI enterography can be applied and extended to small intestine exploration although this does not detract from the need for histopathological diagnosis in patients with Crohn's disease despite positive imaging findings. Further research is needed to determine the activity and benefits of a small bowel cancer surveillance protocol for

patients with Crohn's disease, as well as to determine the favorable timing after Crohn's diagnosis for Crohn's disease begin research and repetition that it is essential. The role of adjunctive therapy in adenocarcinoma of the small intestine is another space that requires further investigation, but current colon cancer treatment protocols are also used to treat adenocarcinoma of the small intestine because of the similarities in pathophysiology, nevertheless more studies are needed to improve the efficacy of these regimens [13]. The treatment of choice is wide resection of the small bowel segment entailing the carcinoma as well as resection of the corresponding mesentery and lymph nodes [14]. Right colectomy for carcinoma of the distal ileum would be mandatory [15]. Confirmation regarding the importance of adjuvant chemotherapy for small bowel carcinoma is sparse and involves frequently of small retrospective studies. Furthermost available data is from knowledge in dealing ampullary adenocarcinoma [8]. Fishman et al described response rates upwards of 30% in the palliative setting: 33% with Gemcitabine, 50% with 5-FU or Capecitabine, and 42% with Platinum- or Irinotecan-based therapy. [16]. In about 50% of the cases of small bowel carcinomas, the tumor is unwell differentiated and produces mucin, which is allied with poorest prognosis. In spite of the medical developments, completed the decades, there has been a deficiency of important progress in prognosis. In this situation, there is a necessity to clarify screening process to simplify earlier diagnosis and treatment of small bowel neoplasm in patients with CD of the ileum. Nevertheless, no screening process has been found to be principally beneficial [6].

6. Conclusion

Although the association of carcinoma in Crohn's disease with the requirement to detect Crohn's disease of the colon is well established, the carcinoma associated with Crohn's disease of the small intestine remains difficult to detect and does not is often diagnosed only after the appearance of a complication or during an operation often due to an exacerbation of the symptomatology or a lack of response to medical treatment. Unfortunately, the diagnosis is often delayed after careful examination by the pathologist. In recent decades, there has been no significant progress in prognosis. It is therefore necessary to clarify the means of screening in order to assist rapid diagnosis and effective treatment.

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