

Clinical cases

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Total Necrotizing Colitis Proximal to Obstructive Left Colon Cancer: Case Report and Literature Review

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Rezumat

Colita necrozantă asociată cancerului colonului stâng obstructiv: prezentare de caz și analiza literaturii

Introducere: Colita necrozantă este o complicație rară a cancerului de colon stâng obstructiv și apare ca urmare a ischemiei parietale induse de creșterea presiunii endoluminale.

Prezentarea cazului: Un pacient în vârstă de 70 ani, cu diferite comorbidități (ASA 4) a fost spitalizat în urgență cu ocluzie intestinală. S-a intervenit chirurgical în urgență, constatându-se necroza totală a colonului, secundară unui cancer obstructiv sigmoidian. S-a practicat colectomie totală și ileostomie terminală. Evoluția postoperatorie a fost favorabilă, iar 7 luni mai târziu s-a practicat desființarea ileostomiei și restabilirea continuității digestive prin anastomoză ileo-rectală. Trecerea în revistă a cazurilor publicate în literatură a permis discuția epidemiologiei, etiopatogeniei, diagnosticului și abordului terapeutic al acestui tip de colită.

Concluzii: Colita necrozantă implică dificultăți de diagnostic, tratament și tactică chirurgicală. Pentru a evita complicațiile postoperatorii sunt indicate rezecțiile colice largi, dincolo de limita macroscopică a necrozei, iar intervențiile chirurgicale seriate sunt de preferat la pacienții cu risc operator crescut.

Cuvinte cheie: colită necrozantă, cancer colorectal, colectomie totală, anastomoză ileo-rectală

Abstract

Background: Necrotizing colitis (NC) is a rare complication of the obstructive cancer of the left colon and it is the result of intramural ischemia due to impairment of blood supply secondary to increased endoluminal pressure.

Case presentation: A 70 years old patient with significant comorbidities (ASA 4) was admitted for intestinal obstruction. The extensive necrosis of the entire proximal colon secondary to an obstructive sigmoid colon cancer has been diagnosed intraoperatively. Total colectomy and terminal ileostomy have been performed. The postoperative course was uneventful and the ileostomy closure with ileo-rectal anastomosis was performed 7 months later. A review of the literature discussing the epidemiology, pathogenesis, diagnosis and therapeutic approach of this type of colitis, was performed.

Conclusions: NC implies diagnosis and therapeutic difficulties, especially from point of view of surgical strategy. We advocate of large colic resections, beyond the macroscopic limits of the necrosis in order to avoid the postoperative complications. We also consider seriate surgical procedures as a good choice for the high risk patients.

Key words: colitis, necrotizing, colorectal cancer, total colectomy, ileo-rectal anastomosis

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Introduction

Necrotizing colitis (NC) is an ulcero-inflammatory lesion of the colon which complicates the obstructive or partial obstructive colorectal cancer (1). Other colic obstructive lesions can also lead to this type of lesion: strangulated hernia (1), Hirschprung disease (2), diverticulitis (1,3), volvulus (4), fecal impaction (5) and the colostomy malfunction (6). Even some cases were published during the last decades, the disease remains uncommon (4) and “troublesome” (7).

Case report

A 70 years old man was admitted as an emergency in our surgical unit. The patient presented a 36 hours history of diffuse abdominal pain. The physical exam revealed a distended tympanic abdomen and rebound tenderness in the right abdominal quadrant. His past medical history included hypertension, diabetes, ischemic stroke and ischemic coronary disease with 3rd class NYHA heart failure.

Biological exams revealed leucocytosis (15,000/mm³), elevated serum creatinine (1.42 mg/dL) and hyperglycemia (146 mg/dL).

The ultrasound exam and abdominal X ray revealed intraperitoneal fluid and air-fluid levels on the topography of the small bowel. CT scan was not performed due to technical failure.

The patient has been considered as ASA 4 and was operated in emergency for the diagnosis of acute intestinal obstruction.

Intraoperatively we found a complete necrosis of the entire colon, starting about 10 cm proximal to an obstructive sigmoid cancer (Fig. 1). A total colectomy with terminal ileostomy has been performed. The postoperative course was



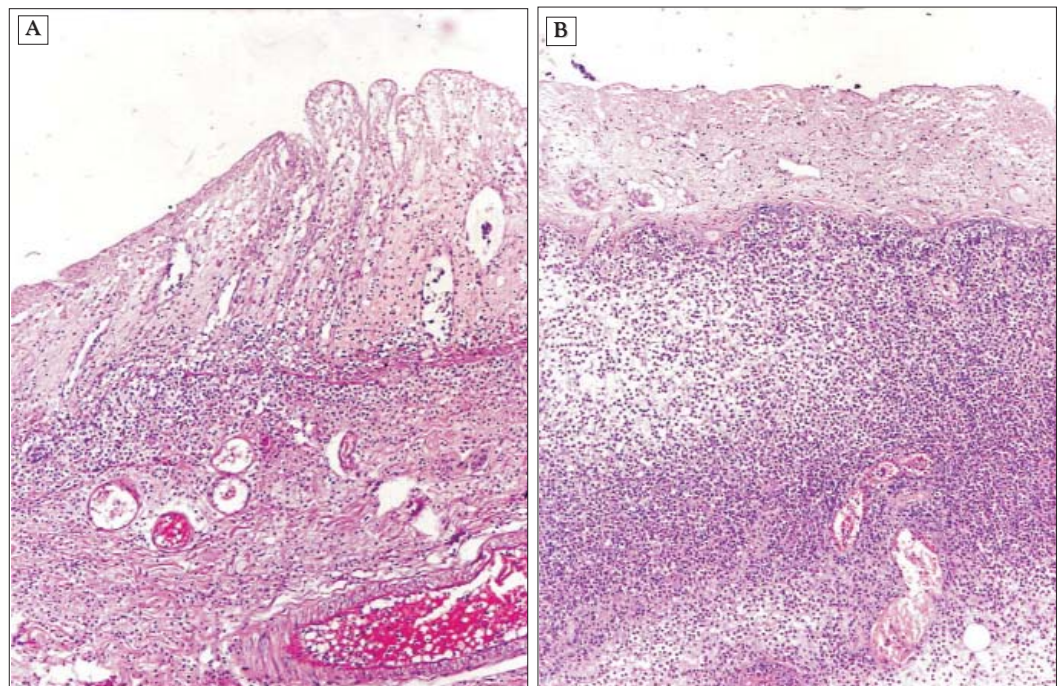
Figure 1. Resected specimen; sigmoid cancer with total necrosis of the proximal colon

uneventful and the patient was discharged in the 10th post-operative day.

The pathological exam confirms the necrosis (Fig. 2) and sigmoid adenocarcinoma pT3N0M0, G2 (Fig. 3); additional findings included an adenomatous tubulo-villous polyp with severe dysplasia and a small sub-serous lipoma located in the caecum.

The patient was clinically, biologically and imagery surveyed and was operated 7 months later for the ileostomy closure. The reconstruction was concluded using a side to side hand-sewn ileo-rectal anastomosis (Fig. 4). The post-operative course was impaired by a delayed reappraisal of the intestinal transit, and the patient was discharged in the 12th postoperative day. The functional result was satisfactory, with three stools / day.

Figure 2: Microscopic findings: necrosis of the colic wall (haematoxylin and eosin, 4x)



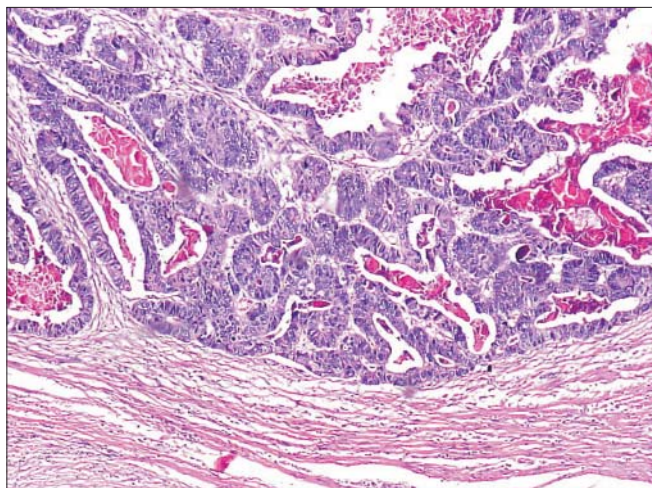


Figure 3. Microscopic findings: colic adenocarcinoma pT3, G2 (haematoxylin and eosin, 4x)

Discussions

Necrotizing colitis is known in the literature under different names: ulceroinflammatory colitis (1), ischemic colitis (8,9), ulcerative (1,10) or pseudo-ulcerative colitis (11), gangrenous colitis (12), obstructive colitis (3,13), idiopathic colitis (14). The term of necrotizing colitis was apparently introduced in 1960 (15) and better indicates the extent and the severity of the lesions (5).

Most of the authors (1,5,12,16-20) considered Kremer (21) as the first who reported a case of necrotizing colitis. However, in 1916, MacCallum (22) described the lesion and its pathogenesis: "Above the stricture the mucosa of the distended intestine often presents extensive ulcerations, which are thought to be due partly to its disturbed nutrition, partly to the stagnation of masses of infected faecal material in contact with it (stercoraceous ulcerations)."

From then, scattered cases (1,2,4-6,8,9,11,12,15-17,20,23,24) or different series (3,7,10,14,19,25) have been reported. The largest series include 30 (26), 50 (18) and 56 (27) cases, respectively. However, in all these studies the degree and extent of the necrosis is difficult to appreciate. The most common cause of NC is colorectal cancer (1,4,5,7-9,11,14,15,28) and its incidence in colorectal cancer varies between 0.3-7% (8,11,26,27).

The pathogenic trigger is the secondary ischemia due to the decreasing blood flow into the colonic wall, secondary to high endoluminal pressure proximal to the intestinal obstruction according to the Laplace law (4,7,29). The threshold endoluminal pressure for the impaired intramural perfusion is 35 cm H₂O and a sustained endoluminal pressure of over 40 cm H₂O determines irreversible ischemic lesions of the mucosa (30-32). The severity of ischemic lesions is more important to the mucosa and submucosa; the other colic layers can macroscopically appear as normal (7,8,12,17). From this reason, most of the cases reported in the literature were with ischemic colitis, while total gangrene of the colic wall, as in our case, is rarely seen (5,7,12).

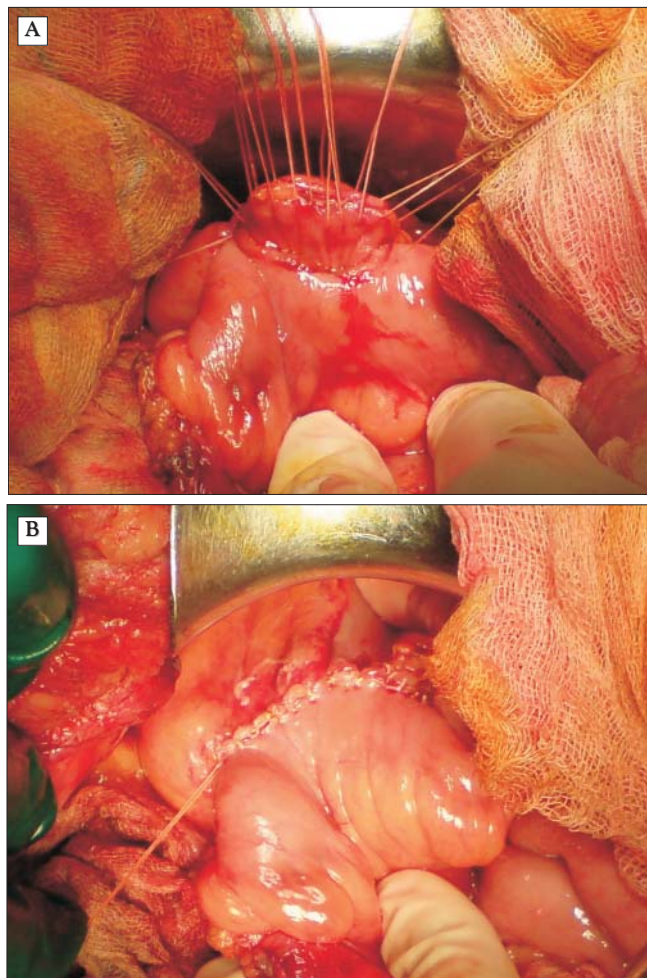


Figure 4. Ileo-rectal anastomosis; end-to-side hand sewn anastomosis

Different comorbidities (e.g. diabetes, atherosclerosis, ischemic heart disease) act as predisposing factors for ischemic colitis (3) as in our reported case.

The preoperative diagnosis is difficult due to the non specificity of the symptoms: abdominal pain, nausea or vomiting, hematochezia, constipation or diarrhea and even hematemesis (1,4,8,9,19). The most common presentation is the obstructive syndrome associated with peritonitis due to germs translocation across the colic wall ischemia (1,4,8,9,12,19,27).

The colonoscopy, CT scan and barium or hydrosoluble enema can visualize the primary tumor but usually fail to establish the NC diagnosis and the extent of the necrosis (12,20,24). However, Ko GY et al. consider that CT scan can distinguish the ischemic segments (25). In some cases the positive diagnosis of NC is determined intraoperatively (23) as in our case.

The surgical exploration reveals both the NC diagnosis and the tumor site. The extent of resection depends both, on the oncological objectives (R0 resection) and the ischemic lesions. The resections margins have to be considered after careful macroscopic and even microscopic (frozen sections) evaluation of ischemia and neoplastic disease (7,9,11,12). It is noted in the literature the high rate of anastomotic leaks (10% (27) to

25% (9)) due to unrecognized area of NC beyond the resection limits (4). There is high recognized risk of synchronous polyps in the proximal colon (3,4), as in our case. For all these reasons, extensive resections are recommended (4,12,15). To avoid the anastomotic complications, seriate operations (initial resection and ileo/colostomy followed by ileo/colostomy closure in a second procedure) can also be performed (30,33,34). However, especially for the aged patients, the use of ileostomy is controversial due to high rate of morbidity and mortality (35). In this way, a long term postoperative hydro electrolytic and metabolic therapy is mandatory and allows a rapid recovery and good results (35).

For the ileostomy closure after the total colectomy, an ileo-rectal anastomosis with "J" pouch could be considered (36). In the presented case we preferred a simple side-to-end ileo-rectal anastomosis because the partial preservation of the rectal ampula and was associated with good functional results

Conclusions

The colorectal cancer is rarely associated with NC and, from this reason this colitis can cause diagnosis and therapeutic difficulties, especially from point of view of surgical strategy. We are the advocates of large colic resections, beyond the macroscopic limits of the necrosis in order to avoid the post-operative complications. We also consider seriate surgical procedures as a good choice, especially for high risk patients.

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