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Inguinal abscess as presentation of a right colon cancer. A systematic review

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ABSTRACT

Perforation in colorectal cancer is an uncommon condition, and neoplastic invasion of the abdominal wall with local infection is even rarer. Our objective is to present the case of an 84-year-old male with right colon cancer that manifested as an inguinal abscess, and also to perform a systematic review of the literature in PubMed, EMBASE, and Web of Science. A total of 59 cases in retrospective studies were found. Median age was 64 years, thirty cases were men and twenty-nine were women (51% and 49%, respectively). The most common location was the right colon with 27 cases (46%), followed by the left colon with 18 cases (31%), 12 cases in the transverse colon (20%), and 2 cases with colonic synchronous neoplasm (3%). Surgery was performed in two or more occasions for 33 cases (60%), and on one occasion for 21 cases (38%); medical treatment alone was administered in one case (2%). The most common histological type was adenocarcinoma (64%), followed by its mucinous variant (22%). There was recurrence in 33% of cases. Mortality at follow-up was 47%. As a limitation of our

study, follow-up was heterogeneous, making it impossible to interpret long-term results regarding the influence of treatment on patient survival, also diffculted by the urgent nature of the condition and its exceptional incidence. Further studies are needed with prospective data collection on the management of colorectal cancer in the emergency setting, standardizing follow-up in order to facilitate an adequate analysis of the prognosis of the disease.

Keywords: Colonic neoplasms. Abscess. Abdominal wall.

INTRODUCTION

Colorectal cancer (CRC) is one of the most frequent neoplasms worldwide (1). Perforation is uncommon, presenting different scenarios at the time of diagnosis: a) tumor perforation to the abdominal cavity causing peritonitis; b) formation of an intra-abdominal parietal abscess; or c) formation of fistulous tracts, most often a colo-vesical, colo-enteric or colo-vaginal communication (2-6). The left colon is the most frequent site of perforation of colorectal cancer followed by the right colon. From a pathophysiological standpoint two perforation mechanisms exist – primary tumor perforation and perforation secondary to retrograde hypertension (5-7). Neoplastic invasion of the abdominal wall accompanied by local infection is a very rare condition (4-8). As of the date of this study there are no systematic reviews published about this condition. Our objective is to present a case of CRC manifesting as an inguinal abscess, and to perform a systematic review of the literature, to determine the reported frequency and treatment of this condition.

METHODS

We performed a search in PubMed, EMBASE and Web of Science, updated on June 24, 2019, with the following search strategy: ((Colonic Neoplasm) or (Colon Cancer)) and ((Cutaneous Abscess) or (Abdominal Wall Abscess) or Colocutaneous Fistula)). The systematic review was carried out according to the PRISMA standards (9).

Inclusion criteria would be met by studies of any level of evidence containing cases of any age, with abscess/infection of the abdominal wall secondary to a primary colon neoplasm. The entire abdominal circumference including the lumbosacral region was considered the abdominal wall.

Each abstract was reviewed and, if not available, the entire article was assessed. The total number of articles included were organized according to type and level of evidence. The variables collected are listed in table 1. The surgical treatment performed was defined as “one-time” with en bloc excision of the neoplasm plus drainage of the parietal abscess at the time of diagnosis, or as “two-time” with drainage/resolution of the infection (antibiotic therapy, percutaneous drainage) plus delayed tumor resection once the infection was solved. Intraoperative identification of peritoneal carcinomatosis, distant metastases, infiltration to neighboring organs, etc., was reported as “other findings”.

The descriptive analysis of the collected variables was reported in terms of frequency, and measures of central tendency (median) and dispersion (interquartile range, IQR), as appropriate, using the SPSS v.20 software. Once the variables were collected, the risk of bias, whether individual or among the studies included, was virtually null since the analysis performed on all studies was a descriptive one. The patient gave his consent for the publication of this case and its related image.

RESULTS

Case report

An 84-year-old male visited the emergency department because of progressive volume increase in the right inguinal region for the past 4 months. Concomitant redness, purulent discharge, and fever (39 °C) had developed a week before the assessment. Physical examination revealed a 20 x 20-cm mass in the right lower abdominal quadrant and inguinal region with local flushing and heat, accompanied by purulent drainage in the groin (Fig. 1). Laboratory testing found leukocytes, 12,600/ μ L; neutrophils, 84%; and CRP, 133.5 mg/dL. A CT scan of the abdomen and pelvis showed an image suggestive of right colon neoplasm with a contained perforation and an abscessed collection measuring 5 x 5 x 3 cm towards the right psoas muscle,

accompanied by a cutaneous-muscular abscess measuring 7 x 5 x 3 cm in the right inguinal region (Fig. 2). Because of these findings, an urgent laparotomy was performed during which a right colon neoplasm was confirmed, with a perforation contained by the abdominal wall plus a parietal abscess. A right hemicolectomy was performed including manual ileo-colic anastomosis, inguinal abscess drainage, and Friedrich's procedure of the affected parietal region, whereby a Penrose-like drainage was exteriorized and removed on the 9th postoperative day. The pathology analysis revealed a pT4b, pNO adenocarcinoma. The patient had a good clinical evolution and was discharged after 12 days of hospitalization. Oncologic treatment was rejected due to advanced age. At 5 months, the patient was readmitted in our center because of a retroperitoneal abscess with signs of local recurrence, associating a nosocomial pneumonia during his stay. A percutaneous drainage and empirical antibiotic therapy were performed. After 24 days he was discharged and followed up by the Palliative Care Unit, and ultimately died at month 11 after surgery.

Systematic review

We found a total of 531 articles with a final inclusion of 44 studies, as summarized in figure 3. Fifty-nine cases were reported in the literature. All the studies were retrospective. The common objective of all studies was the descriptive presentation of a series of cases (8%, five studies represented in table 1) (8,10-13) or only one case (rest of studies). Median age was 64 years (IQR, 53-72). Thirty cases were male and twenty-nine women (51% and 49%, respectively). The median duration of symptoms was 4 weeks (IQR, 0.9-8). For diagnosis, the most common study was a CT scan, with 42 cases (82%), followed by colonoscopy with 16 cases (31%), abdominal ultrasound with 13 cases (28%), and barium enema with 12 cases (26%). In eight patients complementary studies were not specified. The most frequent location was the right colon with 27 cases (46%), followed by the left colon with 18 cases (31%), the transverse colon with 12 cases (20%), and two cases (3%) of synchronous neoplasm (one in the right colon and left colon, one in the transverse colon and right colon). Surgery was performed in two or more times for 33 cases (60%), in one time for 21 cases (38%), and medical treatment was used for one case (2%). The type of treatment

performed was not specified in four patients. Other findings were observed in 22 cases (37%, synchronous neoplasms in other organs, dissemination by contiguity, liver metastases, etc.). The most frequent histological type was adenocarcinoma (ADC) in 38 cases (64%), followed by its mucinous variant in 13 cases (22%) and by a histological type other than ADC in 3 cases (5%). In 5 cases histological type was not reported. There was persistent disease in 12 cases (33%), and in 19 cases the follow-up was not described. Mortality was 47%, with a median follow-up of 2 months (IQR 0.2-11).

DISCUSSION

In spite of the screening methods in use, the clinical manifestations of CRC may be variable (14,15), requiring urgent surgery 33% of cases, and with colonic perforation as the second most common cause, with an incidence around 2.6%-12% (2-6,15-18). Mortality secondary to peritonitis may rise to 30-50% (14,15). The condition may present as free perforation to the abdominal cavity or as perforation contained by adjacent structures, with the consequent formation of an abscess (15,18,19). The left colon is the most common site of perforation in CRC, followed by the right colon (5). In our review we observed that the most common location of CRC associated with parietal abscess is the right colon.

Intra-abdominal abscesses secondary to a perforated neoplasm may occur in 0.5-0.7% of cases as described in published series (4,17,20), and they may exceptionally present as an abdominal wall infection secondary to colon cancer. White et al. retrospectively reviewed about 16,000 patients treated for colon cancer at the Massachusetts General Hospital between 1938 and 1970, finding only nine cases with abdominal wall infection/abscess, not specifying whether it was the initial presentation leading to a diagnosis of CRC (8). Tsai et al. reported only two cases of initial CRC presentation as a parietal abscess, with an incidence of 2.26% (4).

The existence of contained perforation in a CRC with invasion of the abdominal wall may be related to histological type. Merrill et al. reported an incidence of 36.7% for the mucinous ADC type of colon cancer with an abscess on the anterior abdominal wall (21). Some authors relate this condition to the slow growing, direct extension and dissemination of this histological type (22). Our results (20% of mucinous ADC type)

were similar to those published in the literature.

As an infrequent condition, there is no consensus about its management (18,23). In our research, we found variability in the selection of a surgical management modality, with predominance of surgery in two or more procedures.

As a limitation of this review, the descriptive analysis of the literature did not provide treatment patterns. Follow-up in each study was heterogeneous, making it difficult to interpret long-term results regarding the influence of treatment on survival, to which the urgent and rare nature of the condition add. On the other hand, since the time range of the studies included is wide (1956-2018), patient prognosis may also be influenced by other factors, like advances in diagnostic methods (from barium enema to CT scan) and improvements in medical treatment (antimicrobial therapy, chemotherapeutics). However, data are not enough for this type of analysis. Additionally, in a percentage of the cases long-term follow-up (greater than 30%), disease recurrence, and cause of death (more than 35%) were not recorded.

To conclude, the presentation of a parietal abscess as initial manifestation of CRC is a rare condition that must be considered when evaluating a patient in the ER. Prospective studies on the management of CRC in the emergency setting, with follow-up and surgical management standardization, are needed to facilitate an adequate analysis of the prognosis of patients with this disease.

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Table 1. Series of cases published in the literature: parietal abscess as initial manifestation in the diagnosis of colon cancer

Case	Ref.	Year	Age	Gender	Time (Weeks)	Location (Colon)	Image technique	Other findings	Tx	Recurrence	HT	FU (Months)	M	COD	
1	Jackson PP et al. (10)	1956	78	M	1.0	Right	BE	No	Two-time	Yes	MC	6	Yes	MT	
				78	F	ND	Synchronous left and right	BE	Yes	Two-time	Yes	Others	11	Yes	ND
				40	M	6.0	Left	BE	No	Two-time	Yes	ADC	18	Yes	PC
2	Bogoko wsky et al. (11)	1970	61	M	4.0	Right	BE	Yes	One-time	ND	ADC	ND	ND	ND	
				52	M	4.0	Left	BE	No	Two-time	ND	ADC	ND	ND	ND

3	White AF et al. (8)	1973	59	M	0.4	Transverse	ND	No	Two-time	Yes	ADC	22	Yes	CP
			47	F	ND	Transverse	ND	No	One-time	No	Others	0	Yes	IPP
			64	F	ND	Right	BE	No	Two-time	No	MC	48	No	-
			74	F	ND	Transverse	BE	No	Two-time	No	ADC	0.3	Yes	IPP
			53	F	ND	Transverse	ND	No	ND	ND	ADC	ND	ND	ND
			61	F	ND	Right	ND	No	ND	Si	ADC	12	No	-
			95	F	ND	Right	ND	No	ND	ND	MC	0.3	Yes	MI
			62	F	ND	Right	ND	No	ABT	ND	ADC	0.1	Yes	ND
			67	F	ND	Right	ND	No	ND	Yes	ADC	ND	ND	ND

4	Souei et	2005	45	F	4.0	Left	TC US BE	Yes	Two-time	ND	ADC	0.2	Yes	ND
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	al. (12)													
			50	M	ND	Right	US BE	Yes	One-time	Yes	MC	4	No	-
			28	M	8.0	Left	TC US	No	One-time	Yes	ADC	11	Yes	ND
			33	M	10.0	Left	TC US BE	Yes	One-time	Yes	MC	ND	ND	ND

5	Tsai et al. (13)	2007	71	F	ND	Right	ND	No	One-time	Yes	ADC	12	Yes	MT
		2007	46	M	ND	Transverse	COL	No	One-time	No	MC	12	No	-

Ref: reference; Time: duration of symptoms in weeks; BE: barium enema; CT: computed tomography; US: abdominal ultrasound; COL: colonoscopy; Tx: type of treatment; ABT: antibiotic therapy; ND: no data; HT: histological type; ADC: adenocarcinoma; MC: mucinous; FU: follow-up in months; M: mortality; COD: cause of death; MT: metastasis; PC: peritoneal carcinoma; IPP: immediate postoperative period; MI: myocardial infarction.



Fig. 1. Right inguinal-parietal abscess.

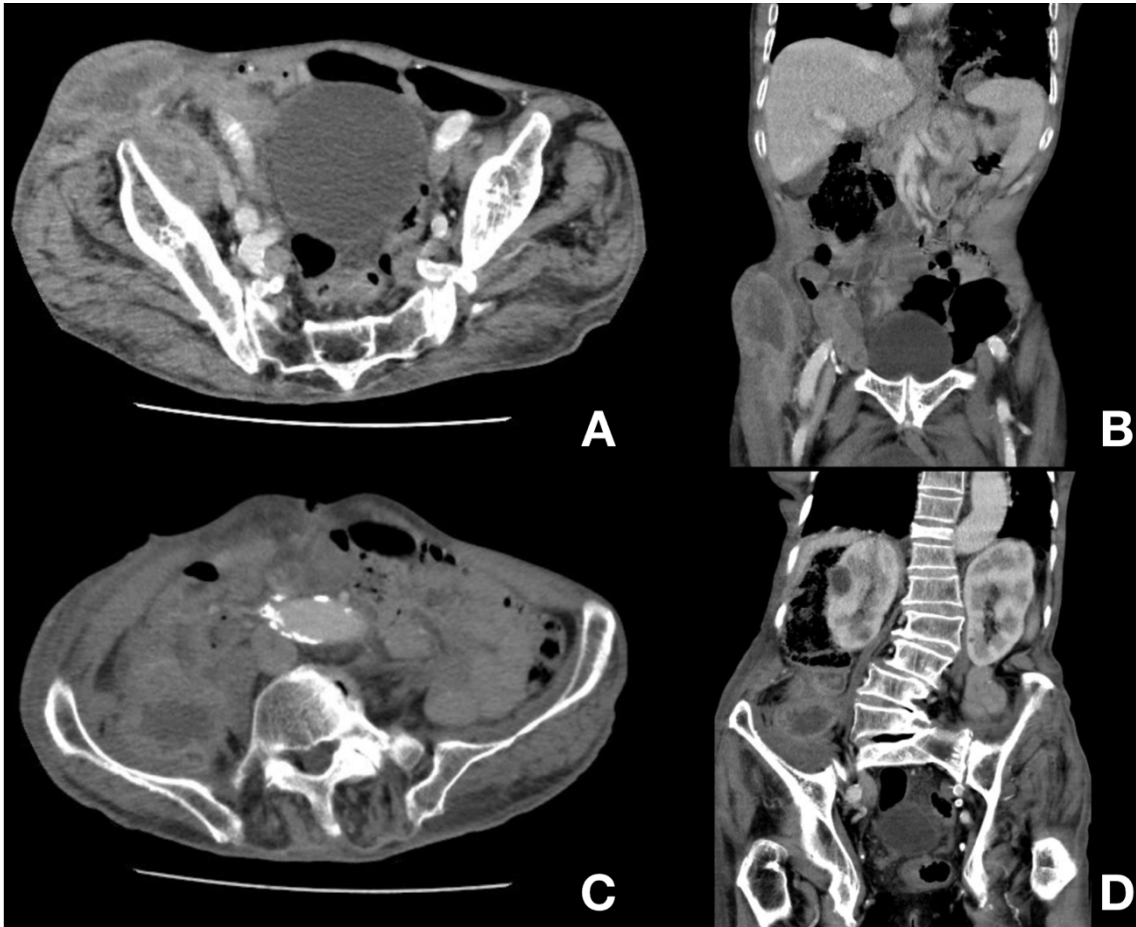


Fig. 2. CT scan image of the abdomen and pelvis, with contrast enhancement. Right colon cancer with right-side skin abscess in the inguinal region, 7 x 3 x 5 cm in size (A: axial; B: coronal). Abscessed collection towards the right psoas muscle, 5 x 5 x 3 cm in size (C: axial; D: coronal).

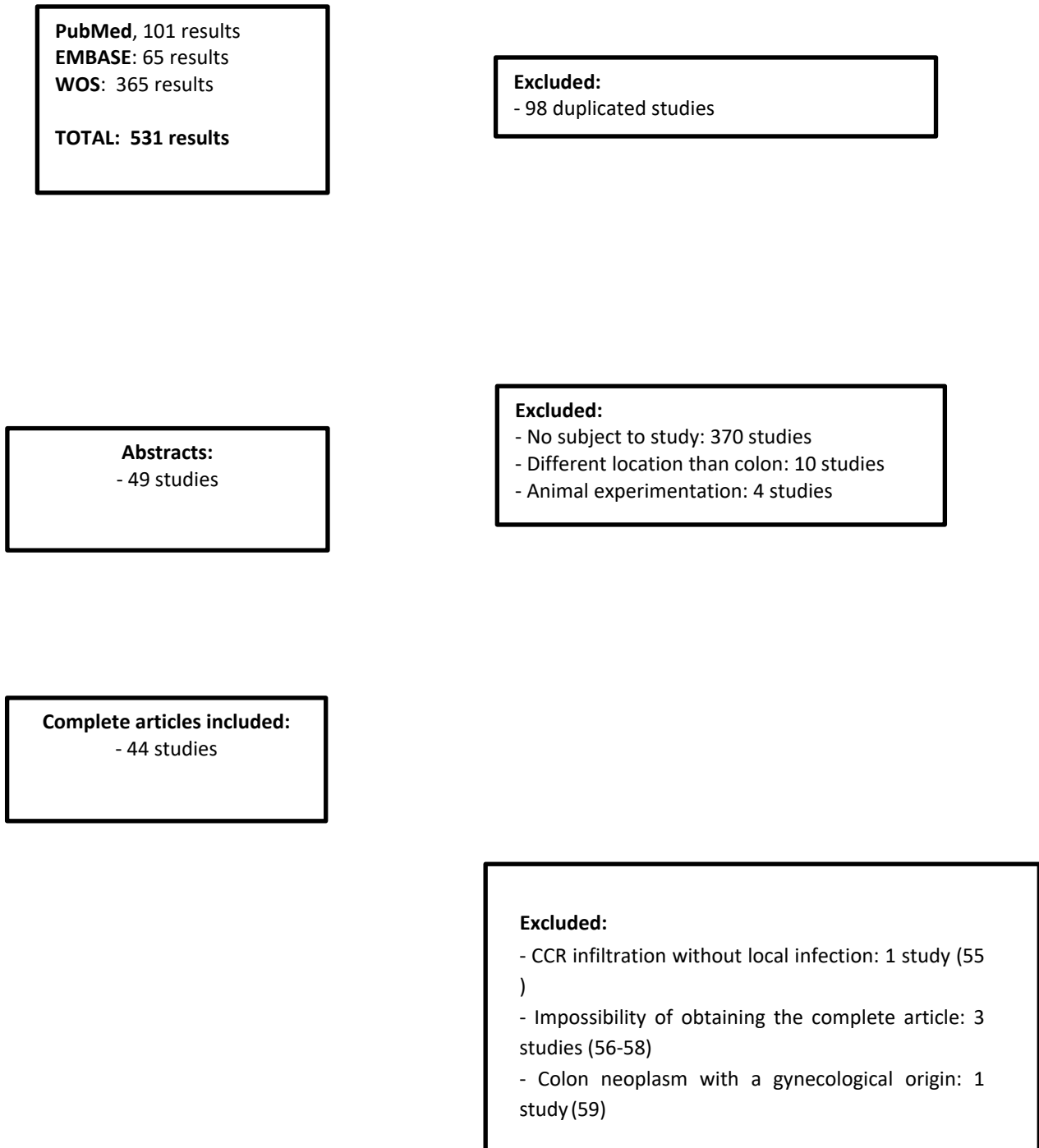


Fig. 3. Flowchart describing the different phases of the systematic review (CRC: colorectal cancer; WOS: Web of Science).