

Management of acute diverticulitis in Covid 19 times. Our experience.

Ana Quiroga-Valcárcel*, Ana Sánchez-Gollarte, Belén Matías-García, Yousef Allaoua-Moussaoui, Fernando Mendoza-Moreno, Lucas Casalduero-García, Diego Córdova-Martín, Manuel Mariano Díez-Alonso, Alberto Guitérrez-Calvo

Department of General and Digestive Surgery, Príncipe de Asturias Teaching Hospital, Alcalá de Henares, Madrid, Spain

***Corresponding Author:** Ana Quiroga-Valcárcel, Department of General and Digestive Surgery, Príncipe de Asturias Teaching Hospital, Alcalá de Henares, Madrid, Spain

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Abstract

Introduction

The main objective is to analyze whether there are any differences between the patients diagnosed with acute diverticulitis during the SARS-COV-2 coronavirus pandemic months compared to the ones diagnosed within the same period the year before.

Material and methods

The analysis consisted of a retrospective and observational study including all patients diagnosed with acute diverticulitis during the SARS-COV-2 coronavirus pandemic and patients diagnosed the previous year in the same period in our center (population catchment area, 243,000 inhabitants). The severity of patients diagnosed with acute diverticulitis was assessed according to the Hinchey classification. The following variables were studied and analyzed: sex; age; Hinchey grade; treatment; comorbidity and average hospital stay.

Results

From March to June 2020, 11 patients were diagnosed with acute diverticulitis compared to the 28 diagnosed in 2019. 92.9 % of patients in 2019 were classified as Hinchey I and 7.1 % Hinchey II. However, during the pandemic, 54.5 % were Hinchey I, 18.2 % Hinchey II, 18.2 % Hinchey III, and 9.1 % Hinchey IV. 7.1 % of the 2019 patients, required surgery, rising to 27.3 % during the SARS-COV-2 pandemic. The average hospital stays in patients undergoing surgery for acute diverticulitis in 2020 was 15.6 ± 6.7 days vs. 12 ± 4.2 days in 2019. Intravenous treatment was required for 18.2 % of them in 2020 against 14.3 % in 2019. However, the average hospital stay was like the ones that required surgery. (6.5 ± 2.8 days in 2020 vs. 6.5 ± 1.2 in 2019).

Conclusion

The current study represents the trend and evolution of acute diverticulitis during the SARS-COV-2 pandemic. Fewer cases of acute diverticulitis were diagnosed even so the severity of them was significantly higher (Hinchey III and IV). Likewise, the patients with milder symptoms spent less time in the hospital and no additional differences were observed in 2020 that could have been caused by COVID 19.

Introduction

Acute diverticulitis is a disease to be taken care of by the emergency department. It is characterized by left lower quadrant pain, fever, nausea or vomiting, and analytical parameters of infection (leukocytosis, increased C-reactive protein). These symptoms occur because of the inflammation/infection of the bowel wall. It has been a significant increase in the frequency of illness worldwide. There is a current incidence in the USA of approximately 180/100,000 people per year [1,2].

Once there are signs of illness, an abdominal CT with contrast, which is the chosen radiological study, is performed to confirm the assessment. It allows us to differentiate the degree of complication. Up to 10 % of patients will require surgical treatment for complicated diverticulitis [3]. Currently, the modified Hinchey Classification is used to break down the degree of complication to know how to proceed (Table 1) [4].

Modified Hinchey Scale		
Grade	Description	Category
0	Clinically mild diverticulitis, or diverticula with thickening of the colon wall on CT scan	Not complicated
Ia	Thickening of the colon wall with inflammatory reaction in the pericolic fat (phlegmon).	Not complicated
Ib	Pericolic or mesenteric abscess closed to the primary inflammatory process.	Complicated
II	Intra-abdominal abscess distance from the primary inflammatory process; pelvic or retroperitoneal abscess.	Complicated
III	Generalized purulent peritonitis.	Complicated
IV	Generalized fecaloid peritonitis.	Complicated

Table 1: The treatment will vary accordingly to the degree of involvement. According to the Hinchey classification, the treatment ranges from antibiotherapy on an outpatient basis to major surgery. Surgical treatment can range from percutaneous drainage, laparoscopic drainage to surgical resection (sigmoidectomy and terminal stoma) (Table 2).

Treatment according to Hinchey classification	
Grade	Type of treatment
0	Liquid diet (2-3 days) Oral antibiotherapy
Ia	Liquid diet (2-3 days) Oral antibiotherapy
Ib	If tolerated orally, liquid diet Oral or i.v. antibiotherapy, according to severity. If abscess < 3 cm, antibiotherapy If the abscess is large, percutaneous drainage. Surgical resection if the abscess is not manageable percutaneously.
II	Absolute diet Hospitalization Intravenous antibiotics Percutaneous drainage of the abscess Elective surgical resection
III	Absolute diet Hospitalization Intravenous antibiotics Urgent surgery
IV	Absolute diet Hospitalization Intravenous antibiotics Urgent surgery

Table 2: On the other hand, this year 2020 we have experienced a SARS-COV-2 coronavirus pandemic (period between March 14th and June 21st, 2020).

The coronavirus is an RNA+ virus and belongs to the Coronaviridae family. Even though the main cause is a primary respiratory illness, the clinical presentation can range from no symptoms to septic shock and death. The first reported outbreak was in Wuhan, China, in December 2019. By March 2020, about 96,000 cases of coronavirus disease 2019 (COVID-19) and 3300 deaths had been reported [5]. The Community of Madrid was one of the most affected areas in Spain during the months of highest incidence, where Alcalá de Henares belongs to. Up to 250,000 cases and 25,000 deaths occurred between March and June 2020 [6].

The virus has a high spread rate, most commonly between people who are in close contact as well as aerosols. An average incubation period of 5-6 days has been estimated, but it could vary in a range of 1-14 days. [7]. A lot of resources are being currently used to broaden the knowledge of the virus and enhance the diagnostic and treatment methods. So far, treatments with potent antiretrovirals such as remdesivir, or lopinavir/ritonavir, chloroquine have been tried... Without concluding in any successful scientific evidence. Currently, vaccines have already been marketed and are beginning to be dispensed in Spain, but there are still some uncertainties to be resolved such as long-term side effects, or duration of immunity, among others.

Material and methods

The analysis consisted of a retrospective observational study including all patients diagnosed with acute diverticulitis during the SARS-COV-2 coronavirus pandemic (period from March 14 to June 21, 2020). The comparison was made between patients diagnosed in our center during the same period for both years (population catchment area, 243,000 inhabitants). The technique used to diagnose all the patients were contrast-enhanced abdominopelvic CT. All the patients underwent blood tests on

admission and were screened for COVID 19 disease with PCR. The degree of diverticulitis was classified according to the Hinchey classification. The following variables were studied and analyzed: sex; age; Hinchey grade; treatment; morbimortality and mean hospital stay. The data was tabulated in a Microsoft® Office Excel 2007 spreadsheet. The SPSS program was used for the statistical study.

Results

From March 14 to June 21, 2020, 11 patients were diagnosed with acute diverticulitis compared to the 28 in the same period in 2019. The average age was 65±5'9 and 64±12'5 years respectively, presented more frequently in women (71 % 2020 and 60 % in 2019). 92'9 % of the patients in 2019 were classified as Hinchey I and 7'1 % Hinchey II. However, during the pandemic, 54'5% were Hinchey I, 18'2% Hinchey II, 18'2 % Hinchey III, and 9'1 % Hinchey IV. 7'1 % required surgical treatment in 2019, rising to 27.3 % during the SARS-COV-2 pandemic. Sigmoidectomy and terminal stoma (Hartmann intervention) was associated with all the surgeries performed in 2020 while more conservative procedures were performed in 2019 such as cavity lavage and drainage were performed, versus a single Hartmann intervention. The average hospital stays in patients surgically intervened for acute diverticulitis in 2020 was 15'6 ±6'7 days versus 12±4'2 days in 2019. 18'2 % were admitted during the pandemic for intravenous treatment versus 14'3% in 2019. However, the average hospital stay was similar (6'5 ±2'8 days in 2020 vs. 6'5±1'2 in 2019). Only 1 patient of the 11 diagnosed with diverticulitis in 2020 presented COVID 19 disease without associated morbidity to the initial process. **(Table 3.)** All patients admitted for acute diverticulitis received enoxaparin at prophylactic doses during their stay. No thrombotic episodes were observed in either COVID-positive patients or in either group.

	COVID patients	NO COVID patients
Number of patients with Acute Diverticulitis	11	28
Hinchey I	54.5 %	92.9 %
Hinchey II	18.2 %	7.1 %
Hinchey III	18.2 %	-
Hinchey IV	9.1 %	-
Patients who underwent emergency surgery	27.3 %	7.1 %
Patients requiring admission and antibiotic therapy	18.2 %	14.3 %
Patients requiring no admission and antibiotic therapy	54.5 %	78.6 %
Average length of stay of operated patients.	15.7 days	12 days
Average length of stay for non-operative patients.	6.4 days	6.5 days

Table 3: Acute diverticulitis is a very frequent pathology in the emergency setting.

It is a disease that can range from mild to potentially severe, depending on which its treatment may vary. For a long time, antibiotic treatment has been the treatment of choice for mild acute diverticulitis; however, some studies have shown that dietary changes alone can resolve it p [8,9]. In our study, we can observe how the number of consultations of mild patients decreased without a very significant increase in the number of consultations of severe cases. We could deduce that a large percentage of patients with mild symptoms resolved without antibiotic treatment.

Another scenario that has occurred during this pandemic is the increase in the number of more severe patients, probably due to the delay in consulting the emergency department for fear of becoming

infected by the coronavirus. As these are more severe forms of presentation, treatment has had to be more aggressive. The type of surgery performed during periods outside the pandemic has been less aggressive, such as abundant lavage of the abdominal cavity and drainage. However, sigmoidectomy type surgery with a terminal stoma (Hartmann Procedure) has gained prominence in this world pandemic. This surgery is performed in Hinchey III and IV patients [10,11]. There is data that links Hinchey III and IV patients up to an 8.7 % mortality rate [10] but, in our center, the mortality rate has been 0 %, which leads us to believe that morbidity has not increased due to causes unrelated to the diverticular disease itself.

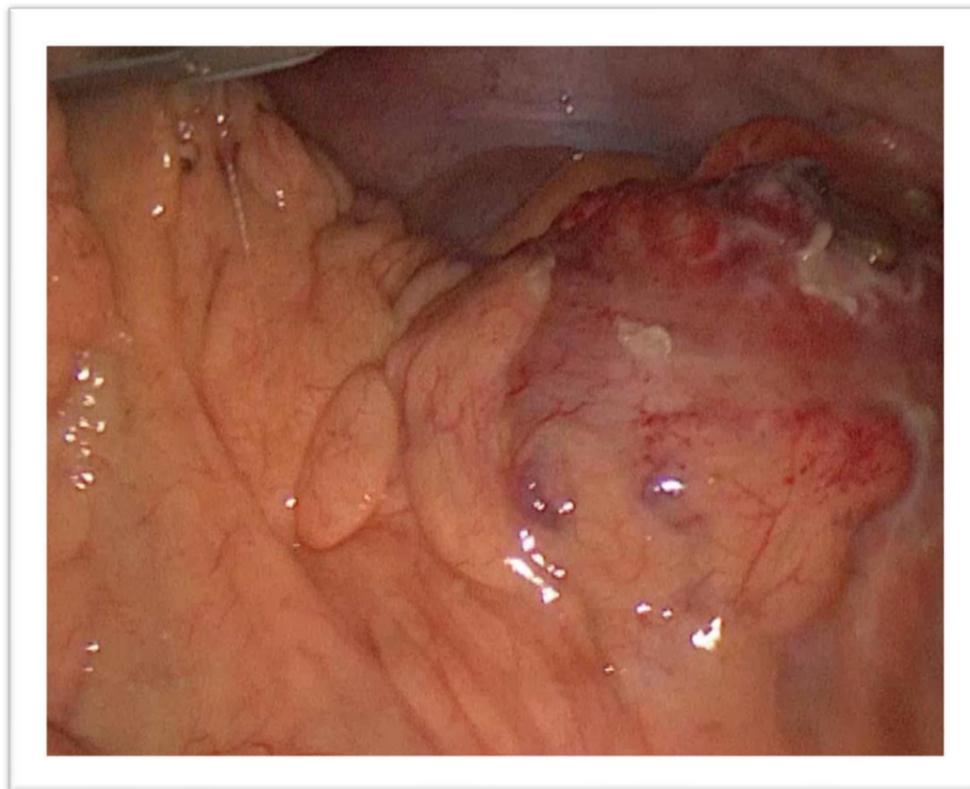


Figure 1. Acute Diverticulitis perforated

The hospital stays of patients requiring intravenous antibiotic treatment in the pandemic period were like that in 2019. As in the previous year, this was also not associated with a higher readmission rate nor did these patients end up requiring surgery. It has been seen in the literature that intravenous antibiotic is not associated with greater benefit compared with oral treatment, and the duration of treatment from 4 days to more than 7 days does not appear to have any advantage related to clinical outcomes [11,12,13]. It is likely that our patients admitted without the need for surgery would have had the same evolution if the treatment had been oral. In our center outside the pandemic period, we treat these patients in a protocolized manner. Thus, patients with uncomplicated diverticular disease (if they are under 75 years of age, not diabetic, or with a lot of associated comorbidity and family support) will be treated on an outpatient basis with antibiotic treatment and dietary restrictions. The rest of the patients who do not require surgical treatment, but are not candidates for outpatient

treatment, are admitted for intravenous antibiotic treatment, in this way they are observed more closely, and in case of complication, early action could be taken.

Conclusion

The present study represents the trend and evolution of acute diverticulitis during the SARS-COV-2 pandemic. The incidence of acute diverticulitis was lower, although patients with higher severity (Hinchey III and IV) were registered. This situation probably caused surgical treatment to displace conservative treatment in these patients during the pandemic period. Conservative treatment (antibiotherapy and drainage) has been displaced by surgical treatment in this period.

Likewise, no additional differences were observed due to COVID 19 disease. No case of mortality was reported in either period.

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