



Colonic Diverticulosis Discovered by Lower Gastrointestinal Endoscopy in Patients Attending the Digestive Division of Tishreen University Hospital (Analytical Statistical Study)

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ABSTRACT

Background: Colonic diverticulosis is a common disease of advanced age, and is associated with a significant morbidity and mortality.

Objective: The aim of this study was to determine the prevalence rate of colon diverticulosis and also detecting complications resulting from the disease.

Patients and methods: An Observational Retrospective Analytic study conducted for the period 5 years (January 2017-January 2022) at Tishreen University Hospital in Lattakia-Syria. The study included all colonoscopies performed for various indications, and 156 patients who found to have diverticula were evaluated regarding to demographic characteristics, location of diverticula, and complications.

Results: The prevalence of colonic diverticulosis was 7.7%, and patients were being predominantly males (63.5%). Colonic diverticulosis was observed more frequently in the age groups 60 years-70 years (26.9%), and 70 years-80 years (34%). Gastrointestinal bleeding represented the most frequent indication for colonoscopy (20.5%), followed by abdominal pain (19.9%), and constipation (18.6%). Left-sided of the colon was the most affected part (73 cases: 46.8%) and the most common location was the sigmoid (62.2%), with presence of multiple diverticula in majority of patients (80.8%). Complications developed in 15 cases (9.6%) as follow: Diverticular bleeding (5.1%), diverticulitis (3.2%), and fistula (1.3%), with presence of a significant correlation between the site of diverticula and complications.

Conclusion: The current study demonstrated that colonic diverticulosis incidence in Syria is low, more common in elderly individuals and males with possibility of developing complications that lead to surgical intervention.

Keywords: Diverticulosis; Prevalence; Syria; Complication

INTRODUCTION

Colonic diverticulosis is one of the most common gastrointestinal conditions which are defined by presence of diverticula that represent sac-like protrusions of the colonic wall [1]. It represents a considerable public health burden in spite of largely asymptomatic, perhaps due to the complications resulting from diverticulitis that need surgical intervention [2].

The pathological mechanisms that lead to formation of diverticula remain unclear completely, and believed to occur from focal weakness in the wall of colon, commonly at the site of entry of blood vessel as a result of increased intraluminal pressure in presence of risk factors such as: Advanced age, diet that contain low fiber and high fat, genetic factors, abnormal colonic motility, obesity, physical inactivity and alterations in colonic structure [3,4].

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Diverticulosis shows geographic and ethnicity variability. It is more common in Western countries which range from 5% to 45%, but its incidence increasing worldwide, probably due to alterations in lifestyle. It occurs mainly in the sigmoid colon, approximately in 95% of the patients and diverticula that found in left part of colon are usually false [5]. In Asia, the prevalence ranges from 13% to 25% and the right side of the colon is more commonly affected [6]. In addition to, the prevalence is age-dependent, in which ranges from 5% in adults younger than 40 years to 50 years, 70% in individuals older than 80 years [7].

Diverticulosis is often asymptomatic in 70%-80% of the cases and is diagnosed through tests that performed for other reasons [8]. It might be symptomatic as a result of diverticular bleeding (5%-15%) that often leads to painless bleeding from rectum or diverticulitis (4%) which manifests with pain, fever, or complicate with perforation, formation of abscess, fistula, peritonitis, and sepsis [9]. We conducted this study owing to the high frequency of morbidity and mortality that associated with diverticulosis and absence of local studied that investigate the prevalence of disease. Therefore, the aims of our study were:

- To determine the prevalence of disease
- To assess complications resulting from diverticula
- Study the correlation between the site of diverticula and complications.

PATIENTS AND METHODS

This is an Observational Retrospective Analytic Study of a group of patients attending department of Gastroenterology at Tishreen University Hospital in Lattakia-Syria during five years' period (January 2017-January 2022). The inclusion criteria were: All adult patients of both sexes who underwent colonoscopy for various purposes (screening, surveillance, therapeutic) and found to have diverticulosis. The exclusion criteria were: Patients who didn't undergo complete colonoscopy. The following workup included: History, physical examination, and evaluation of bleeding risk were performed. All patients were given written information for bowel preparation which is considered critical for colonoscopy because it permits visualization of the entire colonic mucosa. For colonoscopy report, we extracted the following data: Quality of colon preparation, presence of diverticula, position and number of the diverticula. Frequency of complications that occurred and correlation with the site of diverticula were reordered.

Ethical Consideration

All patients were provided a complete and clear informed consent after discussion about the study. This study was performed following the Declaration of Helsinki.

Statistical Analysis

Statistical analysis was performed by using IBM SPSS version 20. Basic Descriptive statistics included means, standard deviations (SD), median, Frequency and percentages. To examine the relationships and comparisons between the two groups, Fisher exact test was used. All the tests were considered significant at a 5% type I error rate ($p < 0.05$), β : 20%, and power of the

study: 80%.

RESULTS

A total of 2015 subjects were documented in the study (Figure 1), of whom 156 (7.7%) had diverticulosis disease. The baseline characteristics of the participants were as shown in Table 1. Patients were divided into groups according to age as follow : <30 (3.2%), 30-40 (8.3%), 40-50 (9%), 50-60 (10.3%), 60-70 (26.9%), 70-80 (34%), and >80 (8.3%). 63.5% of the patients were males, and 36.5% were females. Lower gastrointestinal bleeding (20.5%), abdominal pain (19.9%), and constipation (18.6%) were the most common indications for colonoscopy, followed by anemia (8.3%), diarrhea (6.4%), colorectal cancer (CRC) surveillance (6.4%), and weight loss (5.8%).

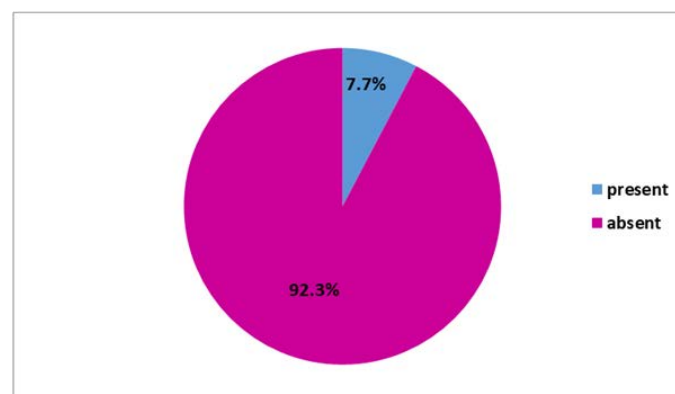


Figure 1: Distribution of the study population according to presence of diverticulosis

Table 1: Demographic characteristics of the study population

Variable	Result
Sex	
Male	99 (63.5%)
Female	57 (36.5%)
Age group (years)	
<30	5 (3.2%)
30-40	13 (8.3%)
40-50	14 (9%)
50-60	16 (10.3%)
60-70	42 (26.9%)
70-80	53 (34%)
>80	13 (8.3%)
Indication of colonoscopy	
Lower gastrointestinal bleeding	32 (20.5%)
Abdominal pain	31 (19.9%)
Constipation	29 (18.6%)
Anemia	13 (8.3%)
Diarrhea	10 (6.4%)
CRC surveillance	10 (6.4%)
Loss of weight	9 (5.8%)

Others* 22 (14.1%)

*Surveillance of colorectal polyps (5 cases), colonic obstruction (4 cases), localized colonic lesions (4 cases), changes in bowel habits (2 cases), alternating constipation and diarrhea (2 cases), inflammatory bowel diseases (2 cases), suspicion of abdominal tuberculosis (2 cases), periappendiceal abscess (1 case).

Left-sided diverticulosis (73 cases: 46.8%) was more frequently found than right-sided diverticulosis (45 cases: 28.8%), and bilateral diverticulosis was found in 38 cases (24.4%). Diverticula number were reported as follow: One diverticulum (7.1%), two (12.2%), and multiple (80.8%). The distribution of diverticula in the current study according to location was as follow: 62.2% of diverticula were located in the sigmoid colon, 39.1% in descending colon, 37.2% in transverse colon, 36.5% in cecum, 31.4% in ascending colon and 1.9% in rectum (Table 2).

Diverticular bleeding was occurred in 8 cases (5.1%), which was predominantly bilateral in 5 cases (62.5%), followed by the right-side of colon in 2 cases (25%) and left-side in 1 case (12.5%). Diverticulitis was developed in 5 cases, and predominantly located on the left side of colon (40%) and Bilateral (40%). Fistula was observed in two cases; one in left-side of

Table 3: Association between complications and the site of diverticula

Site of diverticula	Complications			
	Absent	Diverticular bleeding	Diverticulitis	Fistula
Right	42 (29.8%)	2 (25%)	1 (20%)	0 (0%)
Left	69 (48.9%)	1 (12.5%)	2 (40%)	1 (50%)
Bilateral	30 (21.3%)	5 (62.5%)	2 (40%)	1 (50%)

DISCUSSION

Diverticular disease of colon represents a significant etiology of morbidity and healthcare costs, so identification of the epidemiology and modifiable factors that lead to the occurrence of disease may improve the outcome.

This study showed the main findings. First, the prevalence rate of diverticulosis was low in Syria which might be explained by lifestyle and dietary regimen. Second, approximately two-third of the patients were males and majority of them were elderly, which might be related to endogenous sex hormones in which ovarian steroid hormones may reduce risk of diverticulosis through its favorable effects on collagen and elastin and by weakening of the supporting connective tissue with advancing age. Third, the main indications for colonoscopy were lower gastrointestinal bleeding, abdominal pain, and constipation with presence of other indications. Fourth, Left-sided of the colon especially sigmoid was the most affected part of the colon with presence of multiple diverticula in majority of patients in contrast to previous studies which found the right side of colon is most affected in patients from Asia, which might be explained by difference in humoral or neural system and structural variation of the colon. Finally, Diverticular bleeding represented the most frequent complication of diverticular, and it was associated with location of disease. These findings are comparable with previous studies.

Loffeld, et al. (2001) demonstrated in a study conducted in Netherland during 8.5 years which included 6827 patients that prevalence rate of diverticulosis disease was 27% which

colon and one pan colonic (Table 3).

Table 2: Distribution of the study population according to the characteristics of diverticula

Variable	Result
Site of diverticula	
Left	73 (46.8%)
Right	45 (28.8%)
Bilateral	38 (24.4%)
Number of diverticula	
1	11 (7.1%)
2	19 (12.2%)
Multiple	126 (80.8%)
Location of diverticula	
Sigmoid colon	97 (62.2%)
Descending colon	61 (39.1%)
Transverse colon	58 (37.2%)
Cecum	57 (36.5%)
Ascending colon	49 (31.4%)
Rectum	3 (1.9%)

increases significantly with age without significant difference according to sex. Polyps were more observed in patients with diverticula [10].

Kamalesh, et al. (2012) showed in a study conducted in India during 4 years which included 3022 patients that the prevalence of diverticulosis was 9.9% which increases with age and in males. Diverticula were more frequently found in left-sided of the colon and patients were older than those with diverticula located on right-sided. Complications occurred in 13.7% of the patients and diverticulitis represented the most frequent (8.4%) [11].

Azzam, et al. (2013) demonstrated in a study performed in Saudi Arabia during 4 years which included 3649 patients that frequency of diverticulosis was 7.4% which increases with increasing age and in males. Left-sided was the most affected part of the colon [12].

Nagatal, et al. (2014) found in a study conducted in Japan during 9 years which included 28192 that the prevalence of diverticulosis was 20% which increases with age and in males. Right-sided was the most affected part of the colon, and diverticular bleeding occurred in 1.5% [13].

AL-Nzaer, et al. (2020) demonstrated in a study conducted in Sudan during 2 years which included 1393 that the prevalence of diverticulosis was 7.5% which increases with age and in males. Left-sided was the most affected part of the colon, and the most frequent findings which observed by colonoscopy were fistula and polyps [14].

CONCLUSION

In conclusion, early detection of colonic diverticulosis is considered crucial to avoid the associated morbidity and mortality especially in presence of risk factors.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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