

## Research Article

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# Colonic diverticulosis at colonoscopy in Yaounde (Cameroon)

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### Abstract

Studies about diverticular disease (DD) at colonoscopy are rare in sub-saharan Africa. The aim was to describe the prevalence of the DD at colonoscopy in Yaoundé (Cameroon) regarding the other African studies. We have conducted a retrospective cross sectional study. Recording colonoscopy results from the 1st January 2018 to the 31st December 2021 (4 years). A total of 268 colonoscopies have been performed during the period on 46 patients with diverticulosis (17.2%). The prevalence seems to be slightly higher than in other African countries. The sex ratio was 2.5 (33 men/13 women). The mean age was  $63.7 \pm 9.6$  years (minimum 39 and maximum 80 years-old). Unlikely to what have been described in other African studies, we have observed the same number of right and left colonic localisation with 65.2%. The transverse colon was affected in 52.2%, and a pan diverticulosis in 23.9%. Other significant lesions observed during the colonoscopy were: dolichocolon in 41.3%, polyp in 37%, hemorrhoid in 34.8%, erosions or ulcerations of the mucosa in 17.4%, coprolithes in 6.5%, and a malignant tumor in 4.4% of cases. The prevalence of the DD at colonoscopies in Yaoundé (Cameroon) is 17.2%. This prevalence seems to be slightly more evaluate than in other African studies. The male sex is more represented. The affection is generally asymptomatic at the diagnosis. All parts of the colon could be affected.

**Keywords:** Prevalence; Diverticulosis; Colonoscopy; Cameroon.

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## Introduction

A diverticulae of the colon is a protusion of its mucosa and submucosa through the muscle layer, which tend to occur at anatomically weak points where blood vessels penetrate the muscular layer [1]. Risks factors evocated are sex, age, constipation, lifestyle (diet, and physical activity), and drugs. The pathophysiology is not completely validated, but various theories are existing: faecal stasis, chronic inflammation, alterations in the intestinal microbiota, neuromuscular alterations, and genetic [2-6]. Diverticulosis is usually detected incidentally on patients undergoing endoscopy or radiological examinations [6]. At the diagnosis, 80% are asymptomatic [7]. But some affected people will develop symptomatic diverticulosis with complications such as acute diverticulitis or diverticular haemorrhage [6]. Publications have showed that diverticulosis are more frequent in the Western [7,8]. But studies available in Africa are rare or old: Archampong et al in Ghana 1978, Segal and walker in South Africa 1982, Madiba and Mokoena in South Africa 1994, Kiguli-Malwade and Kasozi in Uganda 2002 [9-12]. Few one recently available have shown the increasing of the prevalence of this affection [1,7]. To know the profile of patients, clinical manifestations and endoscopic features of diverticules of the colon could help to prevent the onset of complications. This is an original study of the diverticular disease (DD) in a Subsaharan Africa country, presenting clinical features of the affection.

## Objective

The main objective of our study was to describe the endoscopic profile of diverticules on the colonoscopy in Yaoundé (Cameroon) regarding the results of other African countries.

## Methodology

We have conducted a retrospective study from the 1st January 2018 to the 31st December 2021 (4 years) at the Yaoundé General Hospital (Cameroon). The gastroenterologic unit of this hospital has 4 medical doctors specialized in digestive diseases. Each one was performed once a week upper and lower digestive endoscopies. They were using a videoendoscopy device Fujinon® or Storz® model. We have analysed all lower endoscopic reports of patients aged more than 18 years old. We have retained all colonoscopies for which at least one diverticulae has been observed. Repeated exams were excluded. For these colonoscopies, we have described the age and the sex of the patient, the indication of the exam, the complete or incomplete character of the colonoscopy, the quality of the colonic preparation respecting the Boston classification (good, middle and poor), the number and the site of diverticules on the colon, the presence of a complication (bleeding) of the diverticule. And we also looked for other lesion associated to diverticules. The study has been approved by the administration of the Yaoundé General Hospital and the ethical committee of the Faculty of Medicine and Biomedical Sciences of the University of Yaounde 1. Data were analysed with SPSS version 20.0.

## Results

A total of 268 colonoscopies have been performed during the period. At least one diverticulae has been observed in 46 colonoscopies (17.2%). For these patients, men were 33 and women 13, the sex ratio was 2.5 (Table 1). And the mean age was  $63.7 \pm 9.6$  years (minimum 39 and maximum 80 years-

old). The age group most represented was people aged from 60 to 79 years (Table 1). Indications of the colonoscopy were: lower digestive bleeding in 21/46 patients (45.7%), abdominal pain in 15/46 patients (32.6%), constipation in 7/46 patients (15.2%), colorectal cancer screening in 7/46 patients (15.2%), diarrhea in 4/46 patients (8.7%) and loss of weight in 3/46 patients (6.5%) (Table 2). The colonoscopy was complete for 45 patients (97.8%) and incomplete for one patient (2.2%). The quality of the preparation of the colonoscopy was describe as good among 33 patients (71.7%), middle among 10 patients (21.7%), and poor among 3 patients (6.5%). Diverticular orifices observed were alone in 8/46 patients (17.4%), they were 2 to 5 in 15/46 patients (32.6%) and at least 6 diverticular orifices 23/46 patients (50%). They were presents at the right part of the colon in 30/46 coloscopies (65.2%), transverse part of the colon in 24/46 colonoscopies (52.2%) and left part of the colon in 30/46 colonoscopies (65.2%) (Table 2). There were a pan diverticulosis in 11/46 patients (23.9%) (Figure 1). Concerning complications, diverticules were bleeding in 3/46 patients (6.5%) (Figure 2). These were two men of 43 and 80 years-old with a pan diverticulosis, and a woman of 57 yers-old with only one diverticular orifice of the left part of the colon. These diverticules were associated with a dolichocolon in 19/46 patients (41.3%),

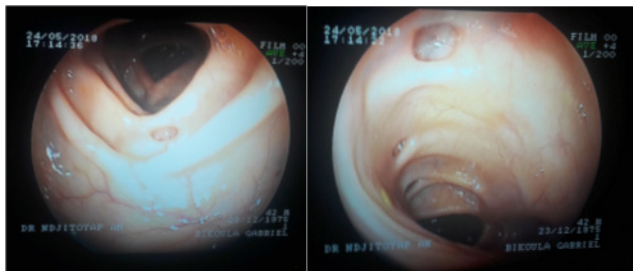
**Table 1:** Demographic characteristics of patients.

	Number (n= 46)	Percentage
Sex		
-male	33	71.7 %
-female	13	28.3 %
Age		
-less than 40 years	1	2.2 %
-40 to 59 years	14	30.4 %
-60 to 79 years	29	63 %
-80 and more	2	4.3 %

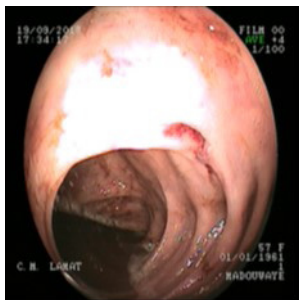
**Table 2:** Endoscopic patterns of diverticulosis.

	Number (n= 46)	Percentage
Indication of the colonoscopy		
-Digestive bleeding	21	45.7 %
-Abdominal pain	15	32.6 %
-Colorectal cancer screening	7	15.2 %
-Constipation	7	15.2 %
-Diarrhea	4	8.7 %
-loss of weight	3	6.5 %
Site of the colon		
-right	30	65.2 %
-transverse	24	52.2 %
-left	30	65.2 %
-pancolonic	11	23.9 %
Number of diverticules		
-one	8	17.4 %
-2 to 5	15	32.6 %
-6 and more	23	50 %
Associated lesions		
-hemorrhoid	16	34.8 %
-dolichocolon	19	41.3 %
-polyp	17	37 %
-erosion/ulceration	8	17.4 %
-malignant tumor	2	4.3 %

a polyp in 17/46 patients (37%), hemorrhoids in 16/46 patients (34.8%), erosions or ulcerations of the mucosa in 8/46 patients (17.4%), coprolithes in 3/46 patients (6.5%), and a malignant tumor in two patients (4.4%) (Table 2).



**Figure 1:** A man of 43 years-old presenting a non complicated pan diverticulosis.



**Figure 2:** A woman of 57 years-old presenting a bleeding diverticulum of the left colon.

## Discussion

Diverticulosis was observed at 17.2% of colonoscopies. This prevalence is higher than those observed in Nigeria 10.6% in 2016, in South Africa 13.5% in 2017, and in Sudan 7.5% in 2020 [1,7,8]. But the prevalence remains low compared to the West [6]. Our study has revealed a sex ratio of 2.5. Western studies as well as Nigeria and Sudan studies have also described this important predominance of the male sex [1,8]. But the South African research publication has described 27 females against 20 males [7]. They did not explain this female predominance.

The range of 60 to 79 years-old was very represented. As in Western and other African studies, the prevalence of the DD increases with age. Before 40 years, the prevalence is low. An USA study has described a prevalence of 32.6% among individuals aged between 50 – 59 years and 71.4% among those of 80 years-old [6]. But the number of colonoscopy decreases among oldest people because of their limited general condition. The first indication of colonoscopies was a lower digestive bleeding. It is one of the main complications of DD. But in only 3 cases, the diverticulosis was responsible of the bleeding. Regardless the study, the DD in colonoscopy are asymptomatic [13]. In our study, we have observed an equal repartition of diverticulae between the right and the left sites (65.2%) and a pan diverticulosis in 23.9%. Our results are different from those observed in South Africa, Sudan and Nigeria which have described a left colonic predominance of the DD [1,7,8]. This difference shows the importance to realise a complete exploration of the colon in DD.

We have observed some polyps in 17 patients and a malignant tumour in two patients. Concerning polyps which are benign lesions, they are associated with the diagnosis of asymptomatic diverticulosis [13]. It is not the polyp which has created the diverticulosis, but it has indicated the colonoscopy which led to the diagnosis of DD. The DD does not increase risk of

colorectal cancer [14]. But in case of diverticulosis, it is important to exclude another aetiology of the bleeding which can be a malignant tumour [6].

## Limitations

Our study has some limitations. Firstly, it is a monocentric study. A multicentric study is more representative of the population. Secondly, it is a retrospective study with risks of missing data.

## Conclusion

With a prevalence of 17.2%, the DD seems to be more frequent on colonoscopy realised in Yaoundé (Cameroon) than in other African countries. The male sex is more represented. The affection is generally asymptomatic at the diagnosis. All parts of the colon could be affected.

## What is already known on this topic

- Few studies about diverticulosis at colonoscopy exist in sub-Saharan Africa.
- The prevalence seems to be higher in western than in sub-Saharan area.
- All parts of the colon could be involved with a prevalence of diverticulosis at the left part.

## What this study adds

- We have observed a significant prevalence for a sub-Saharan country.
- We have also observed a higher prevalence in old people and in men.
- We have an equal repartition of diverticular disease between left and right parts of the colon in contrary with western studies.

## Declarations

**Competing interests:** The authors declare no competing interests.

## Authors' contributions:

NDJITOYAP NDAM Antonin Wilson, wrote the paper

BEKOLO NGA Winnie, performed the analysis

AWANA Armel, performed the analysis

KENNE YIMAGOU Edgar, collected data

NSENGA NJAPA Guy Roger, performed the analysis

KOWO Mathurin Pierre, other contribution

TALLA Paul, collected data

ANKOUANE ANDOULO Firmin, conceived and designed the analysis

NDJITOYAP NDAM Elie Claude, conceived and designed the analysis.

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