ORIGINAL ARTICLE

IS COLONIC DIVERTICULOSIS RARE IN NIGERIANS?

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Abstract

Introduction: Diverticula are bulging pouch-like herniations that can occur anywhere in the gastrointestinal tract including the colon. Colonic diverticula are said to be rare in black Africans. We therefore undertook to determine the occurrence of colonic diverticula in Nigerians.

Aims and Objectives: To determine the occurrence of colonic diverticula in Nigerians using Colonoscopy.

Methodology: This was a hospital-based cross-sectional study carried out at the Endoscopy suite of Crescent hospital, Ilorin from January 2010 to April, 2013. The endoscopy register was reviewed, and the biodata, indications and colonoscopic findings were recorded on a proforma.

Results: A total of 174 patients had colonoscopy carried out on them. One hundred and seven (61.5%) were males while 67(38.5%) were females. The age ranged from 4 to 90 years with a mean of 52.8+/-17.6 years. The indications for colonoscopy were rectal bleeding 78(44.8%); suspected colon cancer 52(29.9%); chronic constipation, and chronic diarrhoea 11 each (6.3%); suspected ano-rectal cancer 6(3.4%); abdominal pain 4(2.3%); anal pain, bloody stool, faecal incontinence and entero-cutaneous fistula 2 each (1.1%); anaemia, post-colostomy for Hirschprung disease, and colon cancer, and polyposis syndrome 1 each (0.6%). Endoscopic findings were Normal findings 43(24.7%); haemorrhoids 35(20.1%); diverticulosis 27(15.5%); rectal cancer 23(13.2%); colitis, and colonic polyps 13 each(7.5%); angiodysplasia 12 (6.9%); colon cancer 10(5.7%); anal cancer, and rectal polyps 6 each (3.4%); anal warts 4 (2.3%); proctitis 3(1.7%); caecal cancer 2(1.1%), rectal ulcer, and rectal prolapse 1 each (0.6%). Diagnostic yield was 75.3%. Colonic diverticulosis is positively correlated with age, and male gender ($p<0.05$), while rectal bleeding is the commonest presentation.

Conclusions: Colonic diverticulosis is common in Nigerians, and is positively correlated with increasing age, and male gender. Rectal bleeding is the commonest presentation.

Keywords: Diverticulosis, Colon, Rare, Nigerians.

INTRODUCTION

Diverticular disease of the colon is a herniation of the mucosa and submucosa through weak points in the muscular walls of the colon to form narrow-necked pouches.(1) It is well recognised in western countries.(2) The true incidence of diverticulosis of the colon is not known. But comparison of the earliest and most recent

autopsies and barium enema studies have indicated that the world prevalence is increasing over time.[3] It has been reported that diverticular disease is on the increase in Africa.[4,5] They are most common in the sigmoid colon which are the areas of highest intra-luminal pressures, as it has the smallest diameter and less compliant than the other parts of the colon.[6] It is commoner in individuals over 60years of age.[7] Both genders are affected equally.[7] The most significant risk factors for colonic diverticula include highly refined low fibre diet, ageing, high intra-luminal pressure, increase in type III collagen and deposition of elastin.[8]

Most people with uncomplicated diverticula are asymptomatic and it has been estimated that only 20% of individuals harbouring diverticula will present with symptoms and signs of the disease.[9] However those who are symptomatic may experience abdominal discomfort and pain, bloating, change in bowel habit, bleeding and fever. Complications include diverticulitis, lower gastrointestinal (GI) haemorrhage, hypertrophy and obstruction, pericolic abscess, perforation and vesico-colic fistula formation, and peritonitis.[5,7] There is no evidence that diverticular disease predisposes to malignancy.[5] Endoscopic examination (colonoscopy) may be necessary to diagnose and treat this condition especially when complicated by bleeding. Other diagnostic modalities include barium enema, and computerized tomography scan.[8] Management of uncomplicated symptomatic individuals include bowel rest, antibiotics and pain control and dietary advice. Surgery is reserved for complicated diverticular disease.[10]

There is a paucity of data on the occurrence of colonic diverticulosis using colonoscopy in Nigerians. Alatise et al[11] working in Ile-ife, south west Nigeria found 40 cases of colonic diverticulosis over a period of 5 years using colonoscopy, barium enema and or computerized tomographic scan. Similarly, Olokoba et al[12] in Ilorin, north central Nigeria made use of colonoscopy in diagnosing colonic diverticulosis. However, other Nigerian workers such as Ogunbiyi,[13] and Ihekwaba[14] in Ibadan, south west Nigeria used radiological methods such as Barium enema to determine the occurrence of colonic diverticulosis. Furthermore, Omojola and Mangete[15] in Port-Harcourt, south south Nigeria used Barium enema to diagnose colonic diverticulosis.

We therefore undertook to determine the occurrence of colonic diverticula in Nigerians using colonoscopy.

MATERIAL AND METHODS

The setting of the study was Crescent Hospital, Ilorin. It is a private hospital that runs a specialist gastroenterology clinic and GI endoscopic services. It receives referrals for gastroenterology consultations and lower GI endoscopy mainly from the University of Ilorin Teaching Hospital(UITH), Ilorin, other government-owned primary and secondary health facilities, and other private hospitals in Ilorin and its environs. This is because this procedure is not available elsewhere in Ilorin. This was a hospital based cross-sectional study carried out at the Endoscopy suite of Crescent hospital, Ilorin from Jan 2010 to April, 2013. The endoscopy register was reviewed, and the biodata, and the indications and colonoscopic findings were noted, and recorded on a proforma. A written informed consent was obtained from all participants.

All consenting patients who required colonoscopy as part of their management were recruited. All colonoscopies were performed with a Pentax video colonoscope with a light source EPM 3300. The patients usually had a 3-day bowel preparation through the use of laxatives comprising Bisacodyl (Dulcolax), Magnesium sulphate (Epsum) salt, and lactulose syrup. They were also placed on liquid diet during the period. The patients had intravenous lines, and analgesia and sedation was carried with 10 mg of diazepam and 100mg of tramadol. A digital rectal examination was done, and thereafter the Colonoscopy was carried out according to standard protocol. The study protocol was approved by the Ethics and Research committee of UITH, Ilorin.

RESULTS

A total of 174 patients had colonoscopy carried out on them. One hundred and seven (61.5%) were males while 67(38.5%) were females giving a male to female ratio of 1.6:1. Their ages ranged from 4 to 90 years, with a mean age of 52.8 +/-17.6years. There was a steady increase in the age of the patients till the sixth decade ie 51-60 years, thereafter there was a decline.(Fig. 1).

The indications for colonoscopy were rectal bleeding 78(44.8%); suspected colon cancer 52(29.9%); chronic constipation, and chronic diarrhoea 11 each (6.3%); suspected ano-rectal cancer 6(3.4%); abdominal pain 4(2.3%); anal pain, bloody stool, faecal incontinence and entero-cutaneous fistula 2 each (1.1%); anaemia, post-colostomy for Hirschprung disease, and colon cancer, and polyposis syndrome 1 each (0.6%).(Fig. 2)

Endoscopic findings were Normal findings 43(24.7%); haemorrhoids 35(20.1%); diverticulosis 27(15.5%); rectal cancer 23(13.2%); colitis, and colonic polyps 13 each(7.5%); angiodysplasia 12 (6.9%); colon cancer 10(5.7%); anal cancer, and rectal polyps 6 each (3.4%); anal warts 4 (2.3%); proctitis 3(1.7%); caecal cancer 2(1.1%), rectal ulcer, and rectal prolapse 1 each (0.6%).(Fig. 3)

Diagnostic yield was 131 out of 174(75.3%).(Fig. 4).

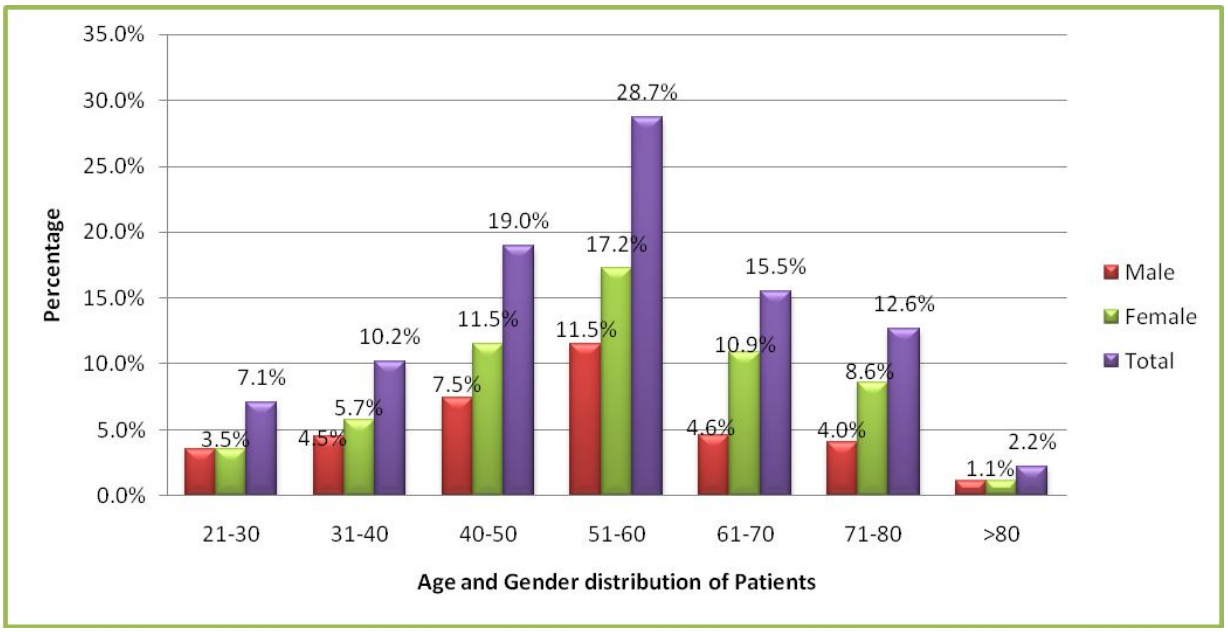

Fig 1. Age and Gender distribution of Patients.

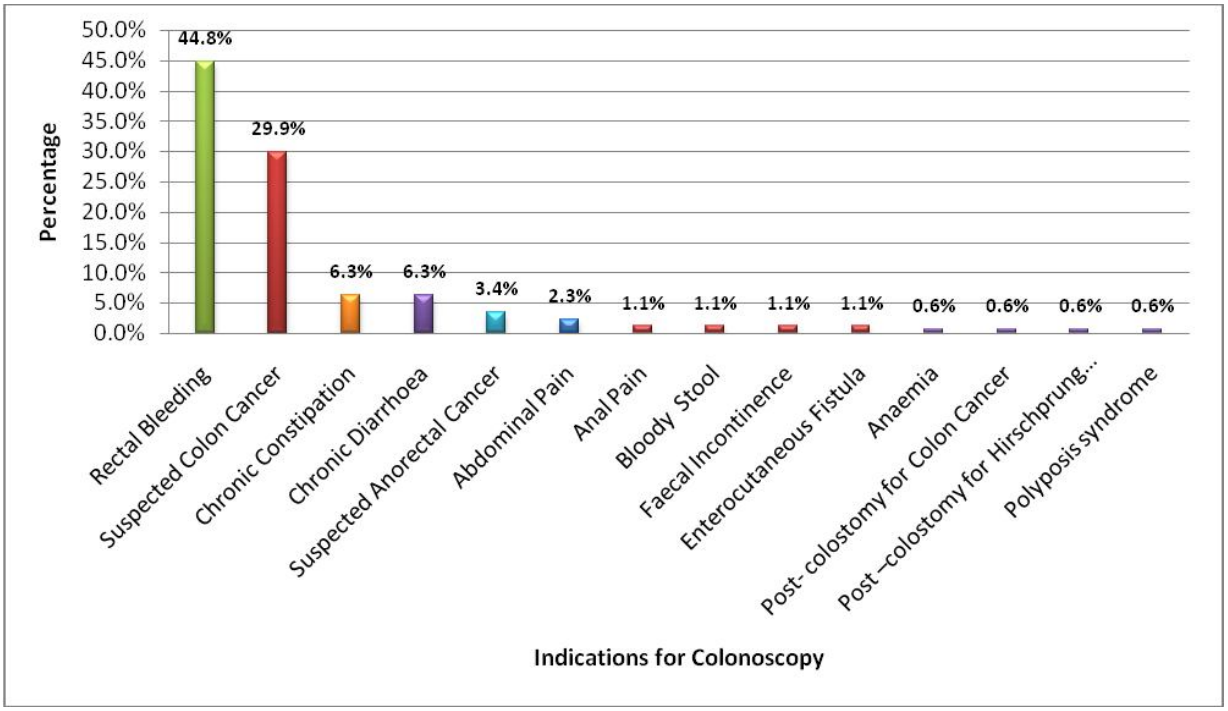

Fig 2. Indications for Colonoscopy.

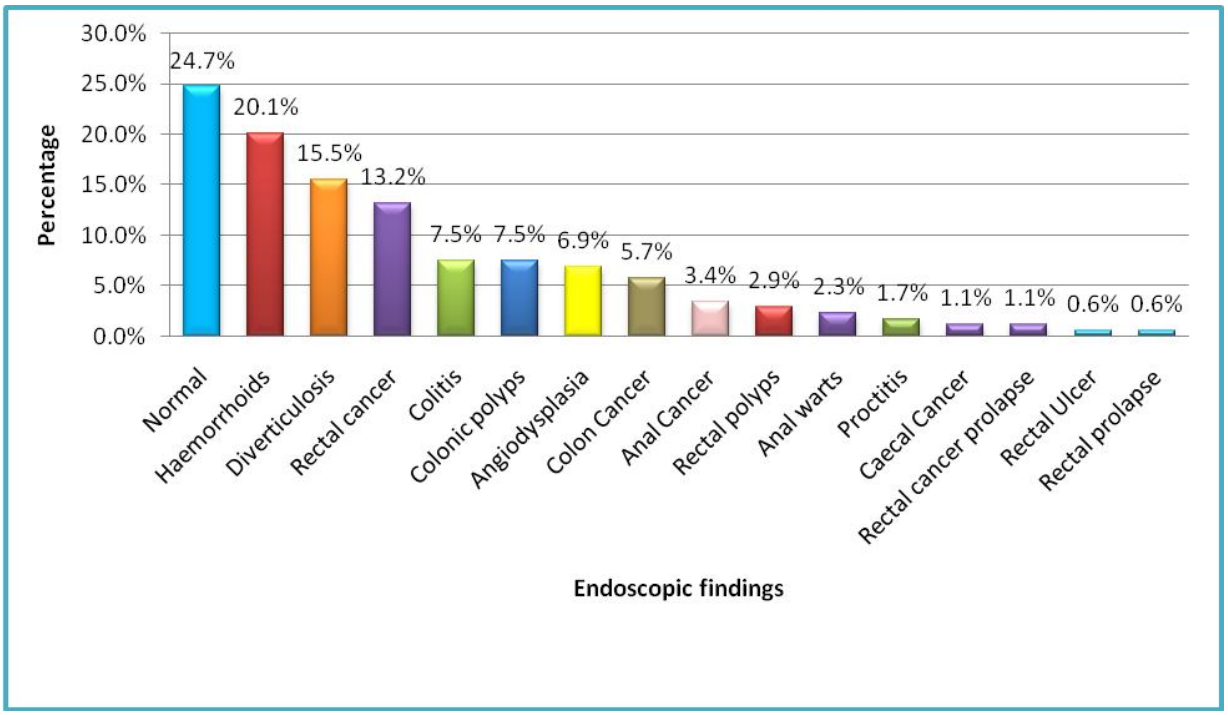

Fig 3. Endoscopic findings.

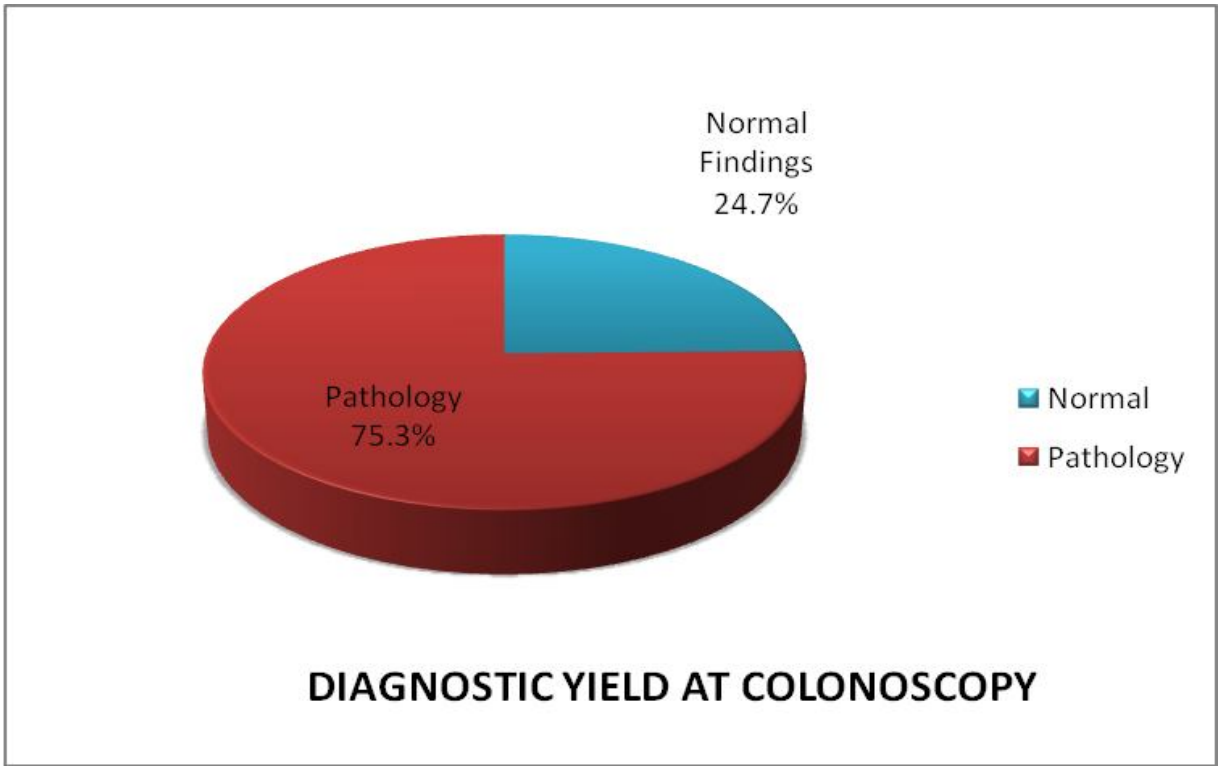

Fig 4. Diagnostic yield.

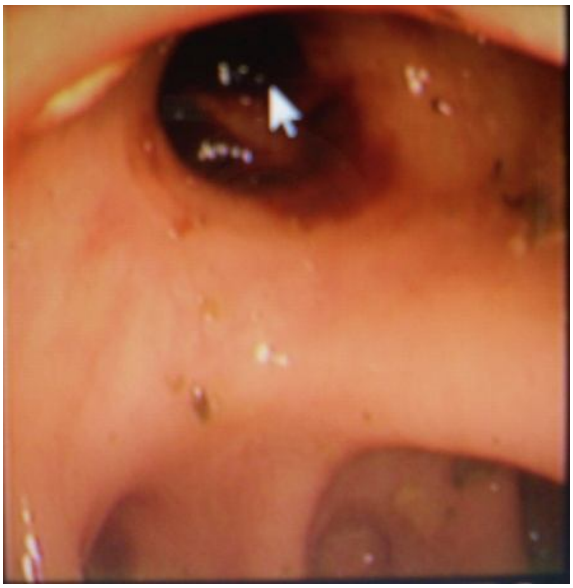

Fig 5. Showing the site of a bleeding diverticulum at the descending colon(arrowed).

Out of the 27 patients with colonic diverticulosis, 10(37.0%) patients were in the 71-80 age group. 23(85.2%) patients were males while 4(14.8%) were females. (Table 1). Colonic diverticulosis is positively correlated with increasing age (p=0.0002), and male gender (p=0.0059).

Table 1. Age and gender distribution of patients with colonic diverticulosis.

Age groups (Years)	Male(n)	Female(n)	Total(n)(%)
<20	0	0	0
21-30	0	0	0
31-40	0	0	0
41-50	1	0	1 (3.7)
51-60	5	3	8 (29.6)
61-70	7	0	7 (25.9)
71-80	9	1	10 (37.0)
81-90	1	0	1 (25.0)
Total	23(85.2)	4(14.8)	27 (100.0)

Out of the 27 patients with colonic diverticulosis, 20(74.1%) patients presented with rectal bleeding; 3(11.1%) patients each presented with constipation, and abdominal mass; while 1(3.7%) patient presented with abdominal pain. (Table 2).

Table 2. Clinical presentation of patients with colonic diverticulosis.

Presentation	Frequency (n) (%)
Rectal bleeding	20 (74.1)
Constipation	3 (11.1)
Abdominal mass	3 (11.1)
Abdominal pain	1 (3.7)
Total	27 (100.0)

DISCUSSION

The main aim of our study was to determine the occurrence of diverticulosis at colonoscopy in Nigerians. Our study has shown an overall diagnostic yield of 75.3% at colonoscopy. This figure is similar to the 79.0% diagnostic yield found by Ismaila and Misauno in Jos, Nigeria.[16] Studies in the West African sub-region carried out by Mbengue et al[17] and Dakubo et al[18] in Senegal, and Ghana respectively revealed a similarly high diagnostic yield. However, the high diagnostic yield in our study contrasts with the 48.0% obtained by Sahu et al[19] amongst their Indian patients, and the 27.2% found by Siddique et al.[20] Furthermore, it is much higher than the 21.0% diagnostic yield obtained by Al-shamali et al[21] amongst the Saudis. The differences in the diagnostic yield may be due to varying sample sizes in the studies, the differences in the spectrum of colonic diseases seen in the different regions of the world, and the different selection criteria and indications for colonoscopy.

The availability, and the cost of colonoscopy may also be a factor. The more expensive the cost of the procedure, the more stringent the selection criteria.

From our study, a total of 27 cases of colonic diverticulosis were seen out of 174 patients who underwent colonoscopy over a period of about 3 years, giving an incidence rate of 15.5% or 9 cases per year. This is similar to the 40 cases (or 8 cases per year) seen over a 5-year period by Alatise et al[11] in Ile-ife, Nigeria. Our figure is however higher than the 31 cases (6 cases per year), and the 26 cases (5 cases per year) seen over a period of 5 years by Kiguli-Malwaddi and Kasozi,[5] and Madiba and Mokoena[4] among Ugandans and South

Africans respectively. Conversely, our figure is lower than the 42 cases (13 cases per year) seen over a 3-year period, and the 20 cases seen in a year by Segal and Walker,[22] and Calder et al[23] among urban black South Africans, and Kenyans respectively. Studies have shown that colonic diverticulosis is common among the Caucasian populations of Europe, USA, and Australia.[2,24,25]

Earlier studies by Ogunibiyi,[13] and Ihekwaba[14] in Ibadan, Nigeria suggested that colonic diverticulosis may be rare in Nigerians. Similarly, earlier African studies also suggested that even though the disease is rare in Africans, it may be on the increase.[4,5]

More recent studies in black Africans have demonstrated a rise in the incidence of colonic diverticulosis.[11,22,23] Different researchers on colonic diverticulosis in black Africans used various diagnostic methods such as Barium enema, colonoscopy, computerized tomographic scans etc which may have influenced the diagnostic yield of colonic diverticulosis and hence the prevalence of the disease seen in their studies, however what is incontrovertible from their findings is the rise in the incidence of the disease. Various reasons have been adduced for the increasing incidence of colonic diverticulosis in black Africans. Eastwood[26] postulated that the traditional African diet that is high in fibre makes the colon of Africans stronger, wider, and thinner than that of Caucasians, and that this is protective from diverticulosis. Other authors however, suggest that increasing age, and Westernization of the traditional African diet may account for the rise.[11,22,23] Segal and Leibowitz[27] however postulated that because of the varying anatomic locations of colonic diverticulosis in Caucasians, Orientals and blacks, diet (fibre-deficient) may not be the only factor at play. They suggested that diverticular diseases may comprise several entities with different causes. Furthermore, Omojola and Mangete[15] raised the possibility of a hereditary factor unrelated to diet in the occurrence of diverticulosis. Alatise et al[11] suggested that environmental factors, and some yet unidentified factors may play a role in the recently observed rise in the incidence of colonic diverticulosis.

From our study, the commonest presentation of colonic diverticulosis was rectal bleeding. This is similar to the findings of other workers. Alatise et al,[11] Kiguli-malwadde and Kasozi,[5] Madiba and Mokoena,[4] and Longsteth[28] found rectal bleeding to be the commonest presentation in their Nigerian, Ugandan, South African, and American patients respectively.

From our study, colonic diverticulosis was associated with increasing age, and male gender. This is similar to the findings of Eastwood [26] who found an association between colonic diverticulosis and ageing. Other workers have also demonstrated an association between colonic diverticulosis and ageing.[11,29,30] Similar to our findings, Alatise et al,[11] and Les[29] found a male preponderance among their Nigerian and Singapore patients respectively whereas Madiba and Mokoena[4] found that females were more affected by diverticulosis. However, Kiguli-malwadde and kasozi,[5] and Ooi and Wong[7] found no gender predilection. These differences may be due to the varying sample sizes, and selection bias. So far, no definite gender predilection has been attributed to colonic diverticulosis.

A major limitation in this study, is the low rate of colonoscopy which is mainly due to the high cost of the procedure, and the fact that patients have to pay out-of-pocket for colonoscopy. Larger and more multi-centred studies are advocated to study colonic diverticulosis in Nigerians.

In conclusion, Colonic diverticulosis is common in Nigerians, and is positively correlated with increasing age, and male gender. Rectal bleeding is the commonest presentation.

Conflict of interest: None

Source of funding: None

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