

LOWER GASTROINTESTINAL ENDOSCOPY IN ENUGU, NIGERIA: AN EXPERIENCE WITH 151 CASES

Neri Gustavo Picardo ¹, Nnennaya Anthony Ajayi ² and Immanuel Anthony Ajayi ²

¹Department of Internal Medicine, Federal Teaching Hospital, Abakaliki, Nigeria and Niger Foundation Hospital, Enugu, Nigeria

²Department of Internal Medicine, Federal Teaching Hospital, Abakaliki, Nigeria

Correspondence author: Nnennaya Anthony Ajayi, Department of Internal Medicine, Federal Teaching Hospital, Abakaliki, Nigeria. **E-mail:** nnennaajayi@gmail.com,

ABSTRACT

Background: Lower Gastrointestinal endoscopy is useful in the evaluation and treatment of many lower gastrointestinal diseases. There has been no report on indications and outcomes of diagnostic lower gastrointestinal endoscopy in the South Eastern part of Nigeria

Aim: To determine the indications and findings in patients who had lower gastrointestinal endoscopy done in a private hospital in Enugu, south-eastern, Nigeria.

Patients and Methods: A retrospective cohort study of patients who had lower gastrointestinal endoscopy between January 2012 and October 2015 at the study hospital was carried out. The medical records were reviewed to evaluate the indications and outcomes of the procedure.

Results: A total of 151 patient records were reviewed. Males constituted 74.8% and females constituted 25.2% of the subjects giving a male: female ratio of 3:1. The ages ranged from 6-92 years with a median of 60 years. The commonest indication for the procedure was bleeding per rectum 81 (53.6%) followed by constipation 15 (10%) and unexplained anaemia 8 (5.3%). There was no request for routine screening colonoscopy. The most frequent findings were haemorrhoids 56 (37.1%), colorectal polyps 22 (14.6%), diverticulosis 15 (10%) and colorectal cancer 9 (6%). Ulcerative colitis was seen in 1 patient (0.7%). However, 38 (25.2%) of the patients had normal findings.

Conclusion: The commonest indication for lower gastrointestinal endoscopy in the studied hospital was bleeding per rectum while the commonest finding was haemorrhoids. Routine screening colonoscopy was nonexistent in this population.

Keywords: Lower gastrointestinal endoscopy, Indications, Findings

INTRODUCTION

Endoscopy is useful in the management of many gastrointestinal tract (GIT) diseases. Lower gastrointestinal (GI) endoscopy enables the visual

inspection of the mucosa of the lower GI tract from the anal canal to the caecum and also the terminal ileum. It encompasses anoscopy, proctoscopy, sigmoidoscopy, and colonoscopy. It may be used to

confirm diagnosis, obtain specimens by biopsy and also perform minimally invasive surgeries.

Indications for lower GI endoscopy may be diagnostic or therapeutic. Diagnostic indications include: abnormalities on barium enema, evaluation of unexplained GI bleeding, surveillance after removal of adenomas and colorectal cancer, in patients with ulcerative pancolitis or Crohn's colitis of 8 or more years' duration or left-sided colitis of 15 or more years' duration, colorectal cancers screening, clinically significant diarrhea of unexplained origin, and intra-operative identification of a lesion not apparent at surgery.¹ Therapeutic indications include treatment of bleeding from lesions, foreign body removal, excision of colonic polyps, decompression of acute nontoxic mega colon or sigmoid volvulus, balloon dilation of stenotic lesions, and marking neoplasms for localization.¹

The frequency of these different indications and corresponding findings differ from region to region across the globe. Studies from Asia show that the common indications for lower GI endoscopy include lower GI bleeding, altered bowel habits and suspected Inflammatory Bowel Disease²⁻⁸. Their common findings include haemorrhoids, Ulcerative colitis, polyps and worm infestations. In Europe, haematochezia and a positive Faecal Occult blood (FOB) test were the common reasons for doing colonoscopies in patients and their most frequent findings were ulcerative colitis, non specific colitis and colorectal polyps⁹⁻¹¹. From the Americas reported common indications for colonoscopy were surveillance after polypectomies, routine colorectal cancer screening and GI bleeding¹²⁻¹⁴. Gastrointestinal bleeding, altered bowel habits and lower abdominal pain were common indications for colonoscopy in many African countries while haemorrhoids, proctocolitis and tumours were frequent findings¹⁵⁻¹⁷.

The first reported colonoscopic study in Nigeria was from Ife¹⁸. The most common presenting complaint amongst the patients was rectal bleeding followed by mucus discharge and persistent diarrhea while amoebic colitis was the commonest pathology found. Other common findings were haemorrhoids/fissures, nonspecific colitis, colorectal cancer and polyps. Subsequent studies from other parts of Nigeria also found bleeding per rectum and altered bowel habits to be common indications for the procedure as well as lower abdominal pain and suspected colorectal

cancer¹⁹⁻²². Unlike earlier studies, a recent report from Calabar had ulcerative colitis as one of their commonest endoscopic findings²³.

There has been no report on lower GI endoscopy in the South Eastern part of Nigeria. The local pattern of the indications and findings are essential for health education, health planning, and evaluation of future changes. The objective of this study was therefore to determine the common indications for lower GI endoscopy and pattern of pathologies found in patients in Enugu, South Eastern Nigeria.

METHODOLOGY

This was a retrospective cohort study of patients seen between January 2012 and October 2015 (a period 46 months) at the Niger Foundation Hospital, Enugu, a tertiary private hospital that provides general medical services and specialist care in Internal Medicine and Gastroenterology. The hospital runs an Open Access endoscopy service and receives referrals from both within and outside the hospital

The endoscopies were done using an Olympus CF Type Q150L/I GFI series video colonoscope (Olympus America Inc.). Bowel preparation for sigmoidoscopies was done using suppositories followed by rectal washout. Two Bisacodyl suppositories (10mg) were inserted high into the rectum in each subject about 30minutes before the procedure. Passage of faeces was then followed by rectal washout with plain water. For colonoscopy, each subject had bowel preparation consisting of intake of a low residue diet over a period of 3days prior to the procedure. This was completed with polyethylene glycol (PEG) bowel purgative a day before the procedure. Two liters of standard PEG preparation was ingested by each subject given as 200mls every 10-15mins so as to consume 1litre over the first hour, and 200ml every 10-15mins until the stool became water-like (colourless or yellowish) without any solid matter signaling that lavage was completed. A few subjects who were very anxious were also given inj midazolam 2.5- 5mg im start. They were each observed for about an hour after the procedure before being discharged home (for the outpatients) or taken to the wards. Those who received sedatives and were discharged home the same day went under the guidance of a responsible adult.

Data extracted from the records included the gender, age, indication for the procedure, and the endoscopic diagnosis

Statistical Analysis: All the data were entered into a computer and statistical analysis done using the Statistical Package for Social Sciences (SPSS) software package version 16.0 to calculate the frequencies of age, sex, clinical indications, and findings.

Ethical Approval: The research and ethical advisory board of the Department of Medicine, Federal Teaching Hospital, Abakaliki, Ebony State, reviewed the protocol and waived ethical approval as this was a medical audit with deidentified /anonymised data.

RESULTS

A total of 151 patient records were retrieved and reviewed. There were 124 colonoscopies (82.1%), and 27 sigmoidoscopies (17.9%). Out of the colonoscopies, there were 84 (67.7%) caecal and 1 (0.8%) terminal ileum intubations.

Table 1: Age distribution of the subjects

		Frequency	Percent
Valid	0-10	1	0.7
	11-20	0	0
	21-30	4	2.8
	31-40	17	11.2
	41-50	14	9.3
	51-60	40	27.2
	61-70	36	19.8
	71-80	29	19.2
	81-90	8	5.5
	91-100	2	1.3
Total		151	100.0

There were 113 males (74.8%) and 38 females (25.2%) out of the 151 subjects giving a Male: Female ratio of 3: 1. Their ages ranged from 6 to 92 years with a median of 60 years and mean of 59.76 +/- 15.97 years. Most of the subjects were in the 51 to 80 years age range (Table 1).

The commonest indication for LGI endoscopy in this study was Bleeding per Rectum (BPR) which had a frequency of 81 (53.6%) and was followed by Constipation 15 (10%) and unexplained

Table 2: Indications for lower GI endoscopy

	Frequency	Percent
Bleeding per rectum	78	51.7
Constipation	15	10
Anaemia	8	5.3
Post surgery surveillance	7	4.6
Diarrhoea	5	3.3
Abnormal radiological findings	5	3.3
Abdominal pain	5	3.3
Anal Pain	5	3.3
Intestinal obstruction	4	2.6
Melaena	3	2.0
Rectal tenesmus	3	2.0
Anal mass on DRE	2	1.3
Abdominal distension	2	1.3
Tiredness	2	1.3
FOB positive	2	1.3
Metastatic disease	1	0.7
Abnormal sensation in the anus	1	0.7
Family history of CRC	1	0.7
Faecal incontinence	1	0.7
Abnormal sensation in anus	1	0.5
Haematemesis	1	0.5

Table 3: Finding on lower GI endoscopy

Findings	Frequency	Percentage
Haemorrhoids	56	37.1
Colorectal polyps	22	14.6
Diverticulosis	15	10
Colorectal cancer	9	6
Nonspecific colitis	5	3.3
Anal cancer	3	2
Papillitis	2	1.3
Rectal prolapse	2	1.3
Polyposis coli	1	0.7
Ulcerative colitis	1	0.7
Ischaemic colitis	1	0.7
Proctitis	1	0.7
Pseudomembranous colitis	1	0.7
Anal ulcer	1	0.7
Sinus in anal canal	1	0.7
Normal findings	38	25.2

anaemia 8 (5.3%). Other indications and their associated values are detailed in Table 2. Some patients had more than one indication for the procedure.

Table 4: Findings in patients with bleeding per rectum

Findings on endoscopy	Frequency	Percentage of person with BPR (%)
Haemorrhoids	37	47.4
Colorectal Polyps	10	12.8
Diverticulosis	9	11.6
Colorectal cancer	7	9
Non-specific colitis	3	3.8
Anal cancer	3	3.8
Ulcerative colitis	1	1.3
Psuedomembranous colitis	1	1.3
Amoebic coliti	1	1.3
Normal findings	8	10.3

The commonest over all finding was haemorrhoids 56(37.1%) followed by colorectal polyps 22 (14.6 %), diverticulosis 15 (10%) and colorectal cancer 9 (6%). Thirty eight subjects (25.2%) had normal findings. These are presented in Table 3.

Among 78 subjects with an indication of bleeding per rectum (BPR) the findings were: haemorrhoids 37 (47.4 %), colorectal polyps 10 (12.8%), diverticulosis 9(11.6%), colorectal carcinoma 7 (9%) and ulcerative colitis 1(1.3%). There were normal findings in 8 patients (10.3%). These findings are detailed in Table 4.

Table 5: Site of pathologic findings

Site	Frequency of pathologic finding	Percentage
Anal canal	71	47
Rectum	34	22.5
Sigmoid colon	25	16.6
Descending colon	16	10.6
Transverse colon	11	7.3
Ascending colon	8	5.3
Caecum	1	0.07

Some patients had pathologies in more than one site

The distribution of the lesions observed were as follows: anal canal 126 (65.3%), rectum 52 (26.9%), sigmoid colon 31 (16.1%), descending colon 15 (7.8%), transverse colon 12 (6.2%), ascending colon 10 (5.2%) and 1(0.5%) in caecum. This is shown in Table 5. Some patients had lesions in more than one site.

DISCUSSION

There were more males than females in this study with a male to female ratio of almost 3:1. Male predominance among colonoscopy patients were also found by Onyekwere et al in Lagos, Olokoba *et al* in Ilorin, and Ngim et al in Calabar all in Nigeria, as well as Salamat et al²⁴ in Rawalpindi, Pakistan and Dinish et al in Mysore, India^{20- 21, 23-25}. This suggests that diseases of the lower GI tract requiring endoscopy are commoner in males than females.

The mean age for this study, was about 59.76 years which is consistent with the mean age of participants in a similar study done by Plummer et al in Jamaica and Arigbabu et al in Ife which had mean ages of 60.6years and 56.40years, respectively but differs from the findings in Jos by Ismaila et al and in Calabar by Ngim et al where the patients were much younger and had mean ages of 43.5years and 46.3years respectively^{14,18,19,23}. This may suggest that lower GI diseases occur at a much earlier age in Jos and Calabar than Enugu. It may also be that younger patients in Enugu do not seek orthodox medical care for their health needs.

The commonest indication for lower GI endoscopy in this study was bleeding per rectum followed by constipation and unexplained anaemia. Bleeding per rectum was also the commonest presenting complaint in many other similar studies^{14, 18, 20, 23, 25}. This is unlike the finding by Wang *et al* in the United States of America (USA), where the commonest presentation was for screening for colorectal cancer¹². Screening in asymptomatic subjects enables the early identification of diseases at stages where cure may be possible and should be encouraged in our environment.

The high frequency of constipation in this study is surprising because the high fiber diet commonly consumed by Nigerians is believed to stimulate regular bowel opening and protect against constipation and straining at stool. This high prevalence of constipation in these subjects may explain the

relatively high frequency of Diverticulosis amongst them.

The commonest pathology in all the patients as well as those who presented with GI bleeding was haemorrhoids which was also the commonest finding in many other studies in Nigeria^{18, 19, 20, 22}. Similar observations were also made in Bangladesh, USA, Ghana, and Pakistan^{2, 12, 16, 26}. Some of the patients with haemorrhoids also had other coexisting diseases like colorectal carcinoma and diverticulosis. This suggests that the finding of haemorrhoids (or any other anorectal/ distal colon pathology) may not preclude the occurrence of more serious pathologies more proximally. Hence, full colonoscopy is usually desirable²⁷. This is especially important when evaluating alarm symptoms like GI bleeding or when doing routine screening.

The distribution of the pathologies showed that most of the findings were in the anus/rectum and the sigmoid colon. Similar observations were noted by other workers elsewhere^{2, 20, 25}.

Ulcerative colitis was found in only 1 out of the 151 patients (0.7%). This apparent rarity of Inflammatory Bowel Disease is comparable to findings in other parts of Nigeria and Africa^{16, 18, 19, 21, 29}. The identification of this case of ulcerative colitis in this patient population however shows that it does occur in this locality and should be considered in the differential diagnosis of patients with suggestive symptoms.

CONCLUSION

Lower gastrointestinal bleeding followed by constipation and unexplained anaemia were the commonest indications for lower gastrointestinal endoscopy in the study setting. The commonest findings were haemorrhoids, followed by colorectal polyps, diverticulosis and colorectal cancer. Screening colonoscopy was infrequently performed and public enlightenment about its benefits is urgently needed.

Conflict of Interest: None

Financial support: There was no financial support for this study.

ACKNOWLEDGEMENTS

The authors are grateful to Dr Kingsley N Ukwaja of the Department of Internal Medicine, Federal Teaching Hospital, Abakaliki for his editorial input.

REFERENCES

1. A Habre-Gama, PR Aruda Alves, DK Rex. Indications and contraindications. In: Colonoscopy Principles and Practice, Chapter 10, 1st edition. DW Jerome, KR Douglas, BW Christopher (eds). Blackwell, Massachusetts, Oxford, Victoria. 2003,102-106.
2. MA Sayeed, R Islam, D Siraji, MG Hoque, AQM Moshen. Colonoscopy: A study of findings in 332 patients JCMCTA 2007; 18: 28-31.
3. G Ray. Yield of colonoscopy with special reference to lower gastrointestinal bleeding in a tertiary referral center in Eastern India. J Dig Endos 2015; 6: 110-114.
4. S Sahu, M Hussain, P Sachan. Clinical Spectrum and Diagnostic Yield of Lower Gastrointestinal Endoscopy at A Tertiary Centre. The Internet Journal of Surgery, 2008. Volume 18 Number 1.
5. S Chaudhary, P Chaudhary, N Jaiswal, RK Chaurasia. Colonoscopy: A Two Year Experience from Western Nepal. Journal of Universal College of Medical Sciences 2013; 1:28-32.
6. WS Lee, H Zainuddin, CCM Boey, PF Chei. Appropriateness, endoscopic findings and contributive yield of paediatric gastrointestinal endoscopy. WJG 2013; 19:9077-9083.
7. A Al Quirain, MB Satti, YMA Al Gindan, A Al Hamdan. The pattern of Lower Gastrointestinal Disease in the eastern region of Saudi Arabia: A Retrospective analysis of 1590 consecutive patients.
8. MA Al-Shamali, M Kalaoui, F Hassan, A Khaja, A Siddique, B Al-Nakeeb. Colonoscopy: Evaluating Indications and diagnostic yield. Ann Saudi Med 2001; 21:304-307.
9. N Gimiga, M Burla, S Diaconescu,, S Oleru. An assessment of the causes of lower

- Gastrintestinal Bleeding in a Children's Hospital in Northern Romania. *Arch. Biol Sci, Belgrade* 2015; 67: 715-720.
10. L Julian-Gomez, J Barrio, R Izqueredo, P Gilsimon, S Gomez de la Cuesta, C de la Serra et al. A retrospective study of paediatric endoscopy as performed in an adult endoscopy unit. *Rev Exp Enferm Dig* 2010;102: 100-107.
 11. S Yanik, AN Akkoca, ZT Ozdemir, D Szutek, ED Yilmaz, S Sayar. Evaluation of results of Lower Gastrointestinal endoscopic biopsy. *Int J Exp Med* 2014; 7:5820-5825.
 12. H Wang, Q Cai, HT Zhu, NH Lv, X Zhu. A comparative analysis of colonoscopy findings in a Chinese and American tertiary hospital. *Turk J Gastroenterol* 2015; 26: 263-269.
 13. JF Edwards, TE Noris. Colonoscopy in Rural communities: Can Family Physicians Perform the Procedure with Safe and Efficacious Results? *JABFP* 2004;17:353-358.
 14. JM Plummer, DI Mitchell, D Ferron-Boothe, N Meeks-Aken, M Reed. Colonoscopy in central Jamaica: Results and complications. *West Indian Med J* 2012; 6: 610-614.
 15. HMY Mudawi, SMT Nanakaly, MA El Tahir, SH Suliman, SZ Ibrahim. Indications and findings of colonoscopy in patients presenting to the endoscopy unit at Soba University Hospital in Khartoum, Sudan. *Arab Journal of Gastroenterology* 2010;11:101-104.
 16. JCB Dokubo, R Kumoji, SB Naaeder, JN Legg-Lampsey. Endoscopic evaluation of the Colorectum in patients presenting with Haematochesia at the Korle-Bu Teaching Hospital, Accra. *Ghana Medical Journal* 2008; 42: 34-37.
 17. BO Ogutu, FA Okoth, GN Lule. Colonoscopic Findings in Kenyan African Patients. *East African Medical Journal* 1998; 75:540-543.
 18. AO Arigbabu, WO Odesanmi. Colonoscopy First Experience in Nigeria. *Dis Colon Rectum* 1985;28: 728-731.
 19. BO Ismaila, MA Misauno. Colonoscopy in a Tertiary Hospital in Nigeria. *Journal of Medicine and Surgery in the Tropics* 2011; 13: 72-74.
 20. CA Onykwere, JN Odiaga, OO Ogunleye, C Chibututu, OA Lesi. Colonoscopy Practice in Lagos, Nigeria: A Report of an Audit. *Diagnostic and Therapeutic Endoscopy*, 2013.
 21. AB Olokoba, OA Obatereu, MO Bojuwoye, SA Olaleke, OA Bolarinwa, LB Olokoba. Indications and Findings at Colonoscopy in Ilorin, Nigeria. *Nig Med J* 2013; 54:111-114.
 22. AO Ajayi, EB Ajayi, OA Solomon, E Udo. Lower gastrointestinal bleeding: Spectrum of Colonoscopic findings in Ado Ekiti, Nigeria. *Int J. Med Sci* 2014; 6: 128-133.
 23. EO Ngim, UK Okonkwo, M Kooffreh Ada. Pioneering Video Colonoscopy In South-South, Nigeria: A six Month Prospective Study. *IOSR-JDMS* 2014; 13:24-27.
 24. A Salamat, A Ayub, S Zaheer, A Ehsan. Colonoscopy: Analysis of Indications and Diagnosis at a Specialist Unit. *Ann. Pak Med Sci.* 2010; 6: 15-19.
 25. HN Dinish, HB Shashidhar, V Prasad. An Analysis of Colonoscopy Findings in a Tertiary Care Hospita. *Int J Sci Stud* 2015; 3: 213-216.
 26. KU Rehman, MO Qureshi, N Khokhar, F Shafkat, M Salih. Quality of Colonoscopy and Spectrum of Lower Gastrointestinal Disease as Determined by Colonoscopy. *Journal of the College of Physicians and Surgeons of Parkistan* 2015; 25: 478-481.
 27. DO Irabor. Surgical Gastrointestinal endoscopy in Ibadan, Nigeria. *Nigerian Journal of Surgical Research* 2006; 8: 161-162.
 28. A McPherson, JE Payne. Importance of total Colonoscopy in the diagnosis of colonic disorders. *Med J Aust* 1983; 19: 170-172.
 29. I Segal, LO Tim, DG Hamilton, AR Walkr. The rarity of Ulcerative Colitis in South African Blacks. *Am J Gastroenterol* 1980; 74:170-172.