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Clinical characteristics and histopathological findings in colorectal polyps among colonoscopy patients at a sub-Saharan hospital

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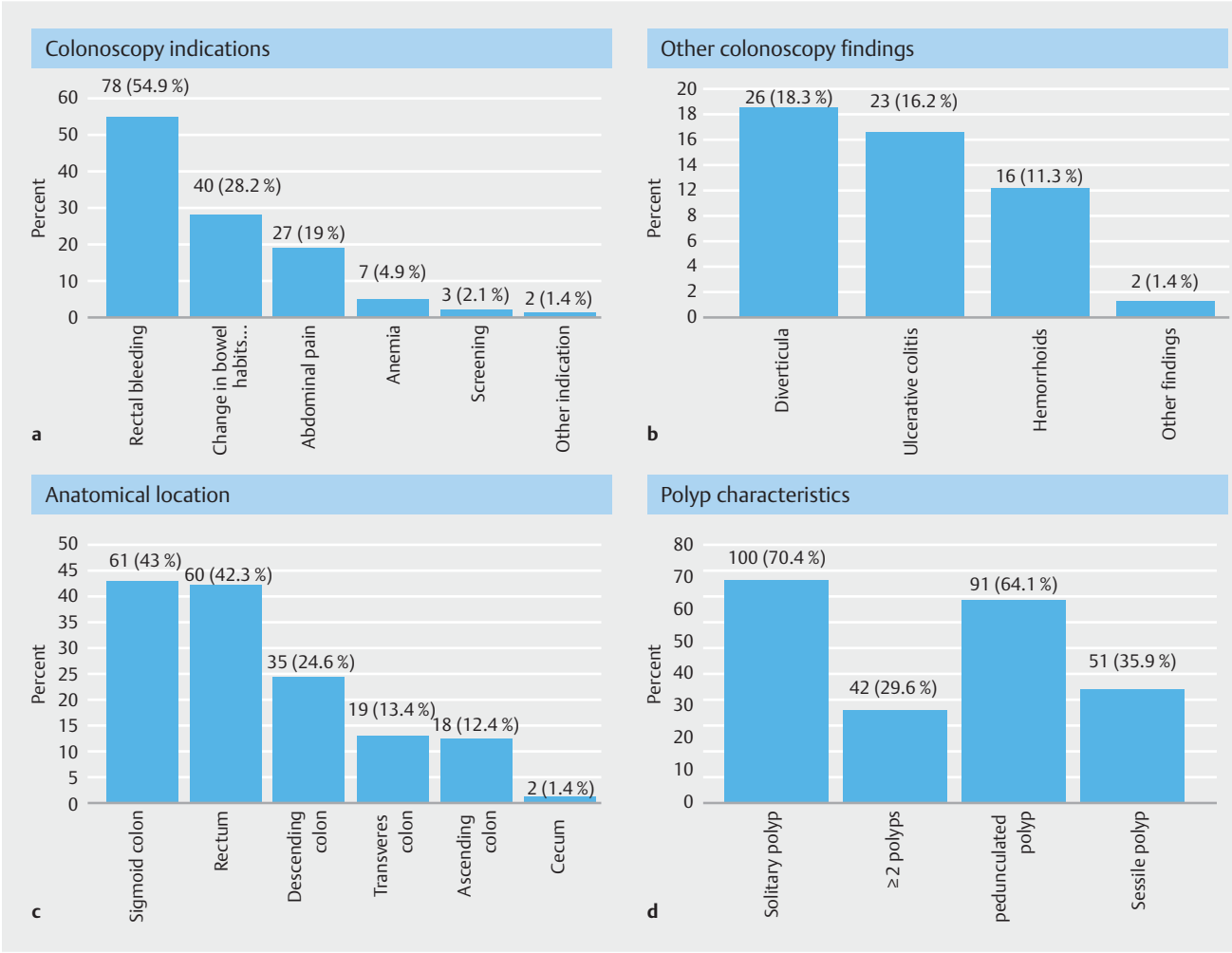
Introduction

Colonic polyps, especially adenomatous polyps, are clinically significant because they are precursors to colorectal cancer (CRC) [1]. The incidence of colorectal polyps is rapidly increasing worldwide [2]. A report from sub-Saharan African countries showed that colonic polyps are rare in the African colon [3] Recent evidence, however, from most sub-Saharan African countries has shown a sharp rise in the incidence of CRC [4].

We conducted a study aimed at identifying the clinical, endoscopic characteristics and histopathological features of colorectal polyps among patients who underwent colonoscopy at Nsambya Hospital from 2015 to 2021. A hospital-based cross-sectional study that used endoscopy records and the pathology laboratory database system of St. Francis Hospital Nsambya was conducted. Age, sex, colonoscopy report and histopathology report were analyzed. A total of 1630 patients had colonoscopies performed at the endoscopy unit of St. Francis hospital Nsambya during the study period and 142 patients with polyps who had polypectomy were included in the study.

Results

The median age of patients with colorectal polyps was 60 years (interquartile range: 47–70; ratio of males to females 1.6:1). Rectal bleeding was the most common indication. The most common sites were the sigmoid in 61 (43 %) and the rectum in 60 patients (42.3 %). The



▶ **Fig. 1 a–d** Colonoscopy Indications and findings.

▶ **Table 1** Polyp histological findings.

	Frequency	Percent
Histopathological findings		
▪ Benign non-neoplastic colorectal polyp	82	57.8
▪ Neoplastic colorectal polyp	60	42.3
Benign non-neoplastic colorectal polyp (n = 82)		
▪ Hyperplastic	44	53.7
▪ Inflammatory	38	46.3
Neoplastic colorectal polyp (n = 60)		
▪ Non-dysplastic adenomatous polyp	27	45
▪ Dysplastic	29	48.3
▪ Carcinoma in situ	3	5
▪ Adenocarcinoma	3	5
Type of adenomatous polyp (n = 27)		
▪ Tubular	25	92.6
▪ Villous	2	7.4
Type of dysplastic adenoma (n = 29)		
▪ High grade	20	69
▪ Low grade	9	31

▶ **Table 2** Bivariate analysis for factors associated with histopathological findings.

	Total	Neoplastic	Benign	PR (95 % CI)	*P* value
Age in completed years					
▪ 0–30 years	17	3 (17.6)	14 (82.4)	1	
▪ 31–60 years	56	25 (44.6)	31 (55.4)	2.53 (0.87–7.38)	0.09
▪ 61 years and above	69	32 (46.4)	37 (53.6)	2.63 (0.91–7.60)	0.074
Sex					
▪ Male	88	35 (39.8)	53 (60.2)	1	
▪ Female	54	25 (46.3)	29 (53.7)	1.16 (0.79–1.71)	0.442
Geographical location					
▪ Central Uganda	92	40 (43.5)	52 (56.5)	1	
▪ Other	50	20 (40)	30 (60)	0.92 (0.61–1.39)	0.692
Rectal bleeding	78	29 (37.2)	49 (62.8)	0.77 (0.52–1.13)	0.178
Abdominal pain	27	12 (44.4)	15 (55.6)	1.06 (0.66–1.71)	0.796
Change in bowel habits (constipation/diarrhea)	40	17 (42.5)	23 (57.5)	1.01 (0.66–1.55)	0.97
Anemia	7	5 (71.4)	2 (28.6)	1.75 (1.05–2.93)	0.032
Screening	3	3 (100)	0 (0)	2.44 (2.00–2.98)	<0.001
Other indication	2	1 (50)	1 (50)	1.19 (0.29–4.83)	0.811
Rectum	60	22 (36.7)	38 (63.3)	0.79 (0.53–1.19)	0.26
Sigmoid colon	61	27 (44.3)	34 (55.7)	1.09 (0.74–1.60)	0.674
Descending colon	35	16 (45.7)	19 (54.3)	1.11 (0.72–1.71)	0.628
Transverse colon	19	8 (42.1)	11 (57.9)	1 (0.56–1.76)	0.989
Ascending colon	18	9 (50)	9 (50)	1.22 (0.73–2.02)	0.452
Cecum	2	2 (100)	0 (0)	2.41 (1.98–2.94)	<0.001
Side of anatomical site					
▪ Right	31	15 (48.4)	16 (51.6)	1	
▪ Left	111	45 (40.5)	66 (59.5)	0.84 (0.55–1.29)	0.527
Number of polyps					
▪ solitary polyp	100	44 (44)	56 (56)	1	
▪ ≥ 2 polyps	42	16 (38.1)	26 (61.9)	0.87 (0.55–1.35)	0.419
Type of polyp					
▪ pedunculated	91	46 (50.5)	45 (49.5)	1	
▪ sessile	51	14 (27.5)	37 (72.5)	0.54 (0.33–0.89)	0.015
Hemorrhoids	16	4 (25)	12 (75)	0.56 (0.23–1.35)	0.197
Ulcerative colitis	23	5 (21.7)	18 (78.3)	0.47 (0.21–1.05)	0.065
Diverticula	26	10 (38.5)	16 (61.5)	0.89 (0.52–1.52)	0.674

majority of colorectal polyps (91; 64.1 %) were pedunculated whereas the remainder (52; 35.9 %) were sessile. Of the patients, 60 (42.3 %) had neoplastic colorectal polyps and 82 (57.8 %) had benign colorectal polyps (▶ **Fig. 1**, ▶ **Supplementary Fig. 1**).

Dysplasia in adenomatous colorectal polyp was detected at a rate in 29 of 60 polyp (48.3 %), of which nine polyps (31 %) had low-grade dysplasia and 20 (69 %) had high-grade dysplasia (▶ **Table 1**, ▶ **Table 2**).

Our study showed that 4.2 % of the patients studied had already presented with malignant change in a colorectal polyp (▶ **Table 3**).

▶ **Table 3** shows the Sociodemographic characteristics of the patients in

▶ **Table 3** Social demographic characteristics and colonoscopy indications.

Social demographic characteristics	Frequency	Percent
Age in completed years		
Median (IQR)	60 (47–70)	
▪ 0–20 years	8	5.6
▪ 21–40 years	21	14.8
▪ 41–60 years	44	31
▪ 61–80 years	55	38.7
▪ 81 years and above	14	9.9
Sex		
▪ Male	88	62
▪ Female	54	38
Geographical Location		
▪ Central Uganda	92	64.8
▪ Western Uganda	30	21.1
▪ Eastern Uganda	11	7.7
▪ Northern Uganda	6	4.2
▪ Southern Uganda	2	1.4
▪ Other	1	0.7

the study. The median age was 60 years (IQR: 47–70) with the majority being aged between 61–80 years, 55 (38.7%), while 8(5.6%) were aged 20 years and below, 21(14.8%) were 20 to 40 years, 44(31%) were 40 to 60 years.

There were more males, 88 (62%) than females 54 (38%) in the study with a ratio of 1.6:1.

The majority of the patients were from Central Uganda, 92 (64.8%) followed by Western Uganda 30 (21.1%) and 11 (7.7%) from eastern Uganda, 6 (4.2%) from northern Uganda, 2 (1.4%) from southern Uganda and only 1 (0.7%) from DRC (▶ **Table 4**).

▶ **Table 4** Multivariate analysis for factors associated with histopathological findings.

	PR (95% CI)	*P* value	Adjusted PR (95% CI)	*P* value
Age in completed years				
▪ 0–30 years	1		1	
▪ 31–60 years	2.53 (0.87–7.38)	0.09	2.82 (0.99 – 8.04)	0.053
▪ 61 years and above	2.63 (0.91–7.60)	0.074	2.89 (1.03 – 8.14)	0.045
Sex				
▪ Male	1		1	
▪ Female	1.16 (0.79–1.71)	0.442	1.24 (0.86 – 1.79)	0.242
Rectal bleeding				
▪ No	1			
▪ Yes	0.77 (0.52–1.13)	0.178		
Anemia				
▪ No	1			
▪ Yes	1.75 (1.05–2.93)	0.032		
Screening				
▪ No	1			
▪ Yes	2.44 (2.00–2.98)	< 0.001		
Cecum				
▪ No	1			
▪ Yes	2.41 (1.98–2.94)	< 0.001		
Abdominal side				
▪ Right	1		1	
▪ Left	0.84 (0.55 – 1.29)	0.334	1.21 (0.82 – 1.77)	0.334
Type of polyp				
▪ Pedunculated	1		1	
▪ Sessile	1.84 (1.13– 3.01)	0.015	1.93 (1.19–3.13)	0.008
Hemorrhoids				
▪ No	1			
▪ Yes	0.56 (0.23–1.35)	0.197		
Ulcerative colitis				
▪ No	1			
▪ Yes	0.47 (0.21–1.05)	0.065		

PR, prevalence ratio; CI, confidence interval.

Conclusion

In this study in sub-Saharan Africa, the anatomical distribution of colorectal polyps in patients was mainly in the descending colon, sigmoid colon, and rectum. Of the colorectal polyps studied, 4.2% had malignant change at the time of presentation.

Recommendation

This study represents a starting point for assessing the clinical and pathological spectrum of colorectal polyps in our setting. Given the high presence of distal polyp neoplasia, sigmoidoscopy could be used to detect the majority of polyps in our setting.

Competing interests

The authors declare that they have no conflict of interest.

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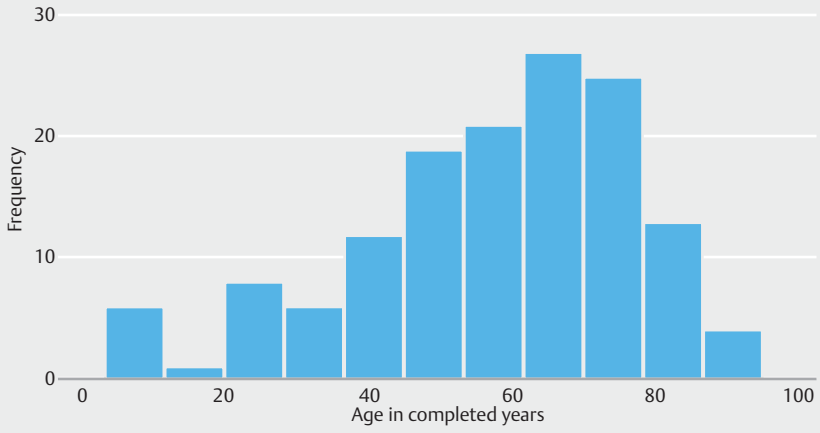

▶ **Supplementary Fig. 1** Age distribution.