Scientific Research Publishing

Open Journal of Gastroenterology, 2025, 15(12), 752-759
https://www.scirp.org/journal/ojgas
ISSN Online: 2163-9469
ISSN Print: 2163-9450

Study of Colorectal Pathology Using Colonoscopy

Hourouma Sow[1*], Kadiatou Doumbia[1], Deborah Sanogo[2], Sara Ditio Diarra[1], Moussa Younoussa Dicko[1], Makansiré Tounkara[1], Anselme Konaté[1], Moussa Tiemoko Diarra[1], Moussa Youssoufa Maiga[1]

[1]Hepatogastroenterology Department, Gabriel Touré University Hospital, Bamako, Mali
[2]Hepatogastroenterology Department, Point G University Hospital, Bamako, Mali
Email: *sowhourouma@yahoo.fr

How to cite this paper: Sow, H., Doumbia, K., Sanogo, D., Diarra, S.D., Dicko, M.Y., Tounkara, M., Konaté, A., Diarra, M.T. and Maiga, M.Y. (2025) Study of Colorectal Pathology Using Colonoscopy. *Open Journal of Gastroenterology*, **15**, 752-759.
https://doi.org/10.4236/ojgas.2025.1512070

Received: November 7, 2025
Accepted: December 13, 2025
Published: December 16, 2025

Abstract

Colonic pathology has undergone a true revolution in its diagnostic and therapeutic management thanks to colonoscopy, improving lesion detection and allowing for appropriate treatment. This was a retrospective, descriptive study from August 2018 to June 2021 in the clinics. The study included all patients who underwent colonoscopy in the study centers, excluding all incomplete colonoscopies where no lesion was visualized beforehand. Data were collected from colonoscopy and pathology report registers. During the study period, 450 colonoscopies met our inclusion criteria, and 297 of them showed a lesion, representing 66% of pathological colonoscopies. Men predominated with an average age of 42.4 ± 12.8 years. Rectal bleeding and diarrhea were the most common indications for colonoscopy, occurring in 35.8% and 27.5% of cases, respectively. Macroscopically, polyps (25.3%), colitis (22.2%), and malignant tumors (19.5%) were the most frequent findings. Most lesions were located in the rectum (29.3%) and the sigmoid colon (18.2%). Histologically, benign tubular polyps, inflammatory colitis, and Lieberkühn adenocarcinoma were predominant. Colorectal pathology is not rare in our context, with a frequency of 66%. Colonoscopy is an effective and relatively accessible diagnostic tool in our setting. Proper patient preparation is necessary to explore the entire colon.

Keywords

Colorectal Pathology, Colonoscopy, Gastroenterology

1. Introduction

Colonoscopy has been a true revolution in the diagnosis and treatment of colorectal disease [1]. Indeed, it has improved the detection rate of lesions and most

often allows for their appropriate treatment [1]-[4]. Among these conditions, colorectal cancer (CRC) remains formidable due to its generally poor prognosis, as the disease is often diagnosed at an advanced stage. However, early screening through colonoscopy has led to a 60% to 70% reduction in mortality [4]. This is further improved by the prevention of CRC through the detection of adenomas and dysplasia in chronic inflammatory bowel diseases (IBD) [2] [3] [5] [6].

This diverse colorectal pathology also includes diverticular and angiodysplastic lesions, which sometimes cause significant symptoms requiring the use of colonoscopy [7].

In Africa, the introduction of this technology has made it possible to report certain pathologies that were previously unknown [8]-[10]. Indeed, Ndjitoyap Ndam *et al.* reported the frequency of polyps, colon cancers, and colitis in Cameroon [8]. Dia *et al.* and Mbengue *et al.* in Senegal also confirmed this diversity of colonic pathology by reporting, among other things, cases of IBD, colon cancers, polyps, and diverticula [9] [10]. In Mali, an older study allowed, on a limited sample, the study of colorectal pathology through colonoscopy [11]. Diarra *et al.* reported that colorectal tumors, rectitis, UC, and diverticula were responsible for 15.1%, 8.6%, 6.5%, and 1.1% of rectal bleeding, respectively [12]. This activity was temporarily interrupted due to the unavailability of a colonoscope. Colonic pathologies have been reported by fragmented studies [11]-[13]. Colonoscopy is currently performed in Bamako. We proposed to update the reality of colorectal pathology through colonoscopy, and our objective was to study colorectal pathology during colonoscopy in Bamako.

2. Patients and Methods

- Type and duration of the study

This was a retrospective, descriptive study conducted from August 2018 to June 2021.

- Locations

Our study took place in Bamako at:

- the "Farako" clinic;
- the "Les Angevins" clinic;
- the "Les Etoiles" clinic;
- the "Solidarité" clinic.

- Patients

The study involved all patients who underwent a colonoscopy at the study centers.

- Inclusion criteria were:
  - complete colonoscopy;
  - incomplete colonoscopy due to organic stenosis;
  - incomplete colonoscopy with a previously identified lesion.
- Exclusion criteria were: all incomplete colonoscopies without any previously visualized lesion (colonoscopy not reaching the cecum and no lesions seen in the examined portion).

- Methods

  Data were collected from colonoscopy and pathology report registers.

  The following parameters were collected:

- sociodemographic data: age, gender, occupation;
- examination indications;
- observed lesions: type, location, number, size;
- biopsy histology.

➢ Support Data were recorded on a survey form and analyzed using Epi Info software version 7.2.

3. Results

During the study period, 450 colonoscopies met our inclusion criteria, and a lesion was found in 297 of them, representing a frequency of 66% for pathological colonoscopies. The average age was 42.4 ± 12.8, ranging from 4 to over 91 years, with a sex ratio of 0.86. Civil servants and homemakers were the most represented. The most frequent indications for colonoscopy were rectal bleeding and diarrhea, accounting for 35.8% and 27.5% of cases, respectively (Table 1). Macroscopic lesions were dominated by polyps (25.3%), followed by colitis (22.2%) and malignant tumors (19.5%) (Table 2). Most of the lesions were located in the rectum and sigmoid colon (Table 3). Regardless of the type of lesion, the rectal location was significantly observed, while inflammatory lesions were most often pancolonic (Table 4). Benign tubular polyps were the most common, representing 61.3% of polyp cases, Lieberkuhnian adenocarcinoma was the most common malignant tumor, accounting for 84.5% of cases, and inflammatory pathology was dominated by no specific colitis, with 28.8% of cases (Table 5).

Table 1. Distribution of patients according to indications for colonoscopy.

Indications for colonoscopy	Effective	Percentage
Rectory	106	35.8
Diarrhea	81	27.5
Abdominal pain	45	15.3
Constipation	40	13.5
Anemia	5	1.7
Thickening of the right colon wall on abdominal ultrasound	4	1.3
Abdominal mass	4	1.3
Rectal tumor	2	0.6
Dyspepsia	2	0.6
Transit problems	2	0.6
Melena	2	0.6
ATCD Polyp	1	0.3
Screening	1	0.3
Cecum tumor suspicion	1	0.3
Cecum tumor monitoring	1	0.3
Total	297	100

Table 2. Distribution of patients according to observed endoscopic lesions.

Observed lesions	Effective	Percentage
Polyp	75	25.3
Colitis	66	22.2
Malignant-looking tumors	58	19.5
Diverticulum	32	10.8
Rectitis	29	9.8
Sigmoiditis	25	8.4
Rectal colitis	8	2.7
Typhlite	3	1
Rectal varicose veins	1	0.3
Total	297	100

Table 3. Distribution of patients according to the location of the lesion.

Site of the injury	Effective	Percentage
Rectum	87	29.3
Sigmoid	54	18.2
Rectosigmoid	39	13.1
Ascending colon	38	12.8
Transverse colon	28	9.4
Descendant colonist	18	6.1
Caecum	14	4.7
The entire colon	17	5.7
Ileocecum	2	0.7
Total	297	100

Table 4. Distribution of patients according to the type of lesion and its location.

Injuries	*Polyp*	*Tumor malignant*	*Pathology inflammatory*	*Diverticulosis*	*p*
Location	n (%)	n (%)	n (%)	n (%)	
Caecum	5 (6.7%)	4 (6.9%)	5 (3.8%)	0	*0.378*
Ascending colon	4 (5.3%)	2 (3.4%)	30 (22.7%)	2 (6.2%)	*0.00009*
Transverse colon	6 (8%)	2 (3.4%)	28 (21.2%)	2 (6.2%)	*0.001*
Descendant colonist	5 (6.7%)	3 (5.2%)	14 (10.6%)	3 (9.4%)	*0.583*
Sigmoid	23 (30.7%)	13 (22.4%)	12 (9.1%)	6 (18.8%)	*0.001*
Rectum	28 (37.3%)	27 (46.6%)	16 (121%)	16 (50%)	*0.0000007*
Rectosigmoid	4 (5.3%)	7 (12.1%)	10 (7.6%)	3 (9.4%)	*0.547*
The entire colon	0	0	17 (12.9%)	0	*0.00005*
Total	75	58	132	32	

Table 5. Répartition des patients selon le type histologique des lésions observées.

	Hystology	Number	Percentage
Polyp (n = 75)	**Benign tubular**	**46**	61.3
	Adenomatous	18	24
	juvenile	8	10.7
	Benign tubulovillous	03	4
Malignant tumor (n = 58)	**Lieberkühn adenocarcinoma**	**49**	**84.5**
	Colloidal adenocarcinoma	9	15.5
Inflammatory pathology (n = 132)	**No specific colitis**	**38**	28.8
	No specific proctitis	20	15.2
	Ulcerative colitis	19	14.4
	Probable parasitic colitis	16	12.1
	Recto-sigmoïditis	14	10.6
	No specific sigmoiditis	6	4.5
	Eosinophilic colitis	5	3.8
	Probable parasitic proctitis	5	3.8
	Drug-induced colitis	4	3
	Crohn's disease	4	3
	Ischemic colitis	1	0.8

4. Comments and Discussion

This was a retrospective, descriptive, and analytical study carried out in Bamako in several digestive endoscopy centers. In our study, the sample size was limited, certainly due to the financial cost of the examination and also to poor patient preparation, which often led to the cancellation of the endoscopy. However, 450 examinations could be interpreted, and all observed macroscopic lesions were biopsied for histological study. A lesion was found in 297 colonoscopies, representing a rate of 66% of pathological colonoscopies. Traoré *et al.* [11] and Mbengue *et al.* [10] reported frequencies of 66.27% and 61.97%, which were comparable to our result. The average age of our patients was 42.4 ± 12.8 years. This average age was comparable to that found in studies conducted in Mali [11] [12], Senegal [9]. This relatively young age of our patients should lead to further studies on risk factors, particularly genetic and environmental ones, and to the implementation of a colorectal cancer screening policy in order to improve its management in our context. Our result is lower than that of Mbengue *et al.* [10] in Senegal, who found an average age of 52.3 years in a study on ulcerative colitis. Women were more represented than men in our study, with a sex ratio of 0.86. This result is comparable to that reported by Diouf *et al.* [14] in Dakar, who found a sex ratio of 0.68 in favor of women. The strong representation of women could be explained by the fact that they often consult for functional intestinal disorders. Civil servants and housewives were more represented, with respective frequencies of 33.7% and 28.9%. Again, this result could be explained by their easier financial accessibility

Cameroon [8], and Togo [15], which were respectively 43 years, 42 years, 41 years, 38 years, and 47 years. Once again, this result could be explained by the easier financial accessibility of civil servants to the examination and the greater demand for the examination among housewives, who most often complain of functional intestinal disorders. Financial inaccessibility, as well as the attribution of certain digestive symptoms such as abdominal pain to functional intestinal disorders, can lead to a delayed diagnosis of colorectal cancer in our context. Rectal bleeding and diarrhea were the most frequent indications in our study, occurring in 35.8% and 27.5% of cases, respectively. The frequency of rectal bleeding is significantly higher than that reported by Coulibaly *et al.* [13], Diarra *et al.* [12], Traoré *et al.* [11], Bernardini *et al.* [7], and Bougouma *et al.* [16], which were respectively 30%, 24.6%, 18.7%, 13.5%, and 4.3%. It is lower than that reported by Dia *et al.* [9] in Dakar, Mbengue *et al.* [10] in Senegal, Ndjitoyap *et al.* [8] in Cameroon, and Djibril *et al.* [15] in Togo, who were respectively 56.3%, 38.0%, 38.8%, and 38.7%. This is due to the fact that this rectal bleeding is distressing for patients and constitutes a warning sign for doctors. The unavailability and inaccessibility of colonoscopy in our context mean that practitioners rely solely on anoscopy to investigate this rectal bleeding, which can delay the diagnosis of colorectal cancer, which must be ruled out in any case of rectal bleeding. The polyp was the most commonly observed macroscopic lesion in our study, accounting for 25.3% of cases, and was benign tubular in 61.3% of cases. Our result was higher than those reported by Ndjitoyap *et al.* [8] in Cameroon, Mbengue *et al.* [10] in Senegal, Traoré *et al.* [11] in Bamako, and Djibril *et al.* [15] in Togo, which were respectively 15.6%, 7.1%, 18.8%, and 1.18%. Inflammatory lesions were dominated by nonspecific colitis (22.2%), followed by IBD (17.4%). The change in lifestyle by adopting a Western lifestyle could explain these results. Screening campaigns would be necessary to detect and treat these polyps early in order to prevent colorectal cancer. In a country with a high prevalence of bacterial and parasitic infections like ours, a bacteriological and/or parasitological diagnosis combined with histology could reduce the rate of unspecified colitis found in our study. Colon cancer accounted for 19.5% of the lesions, and Lieberkühn adenocarcinoma was the predominant type, representing 84.5% of cases. Our result was higher than those reported by Coulibaly *et al.* [13] in Bamako, Konaté *et al.* [17], Djibril *et al.* [15] in Lomé, and Traoré *et al.* [11] in Bamako, which were 77.7%, 81.7%, 5.88%, and 3.75%, respectively. This high rate of colorectal cancers could be explained by genetic and environmental factors, highlighting the need to conduct further studies to describe these factors. The rectum was the most frequent location of lesions, accounting for 29.3%. This result is lower than those reported by El Housse *et al.* [18] in Morocco, Traoré *et al.* [11] in Bamako, and Diallo *et al.* [19] in Libreville, which were 57%, 37.7%, and 43%, respectively.

5. Conclusion

Colorectal pathology is not rare in Mali. Colonoscopy is an effective diagnostic

tool. Its high cost and limited geographic accessibility in our context restrict the use of this examination. The reported colorectal lesions are varied, some having a serious prognosis. The higher frequency of rectal bleeding and diarrhea among the indications for colonoscopy encourages the use of this examination in the presence of these symptoms. This approach will allow the detection of lesions at a stage more beneficial for the patient. Proper preparation of the patient is necessary to explore the entire colon, even though the majority of lesions are located in the rectum and sigmoid colon.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Peyrin-Biroulet, I. and Bigard, M. (2006) Colonoscopy. Techniques and Indications. *EMC-Gastroenterology*, **23**, 1-14. https://doi.org/10.1016/S1155-1968(06)27466-2

[2] Denis, B. (2018) Adenoma Detection Rate: A Key Quality Indicator for Preventive and Screening Colonoscopies. *Hépato-Gastro*, **25**, 306-324.

[3] Jacques, J., Albouys, J., Dahan, M., Rivory, J., Legros, R., Lepetit, H., *et al.* (2019) Everything You Need to Know about Endoscopic Resection Techniques. *Hépato-Gastro*, **26**, 481-508.

[4] Claudé, G. and Koch, S. (2018) Immersion Colonoscopy: Gas or Water at All Levels. *Hépato-Gastro*, **25**, 607-612.

[5] Vuiton, L., Gonzaler, F. and Koch, S. (2013) Endoscopic Surveillance of Dysplasia in Chronic Inflammatory Bowel Diseases. *Acta Endoscopica*, **6**, 2-7.

[6] Anca, A., Frei, A., Ali-Wafa, A., Kessler-Brondolo, V. and Dorta, G. (2008) Colorectal Cancer Screening; Follow-Up after Resection of Colonic Polyps or Colorectal Cancer. *Revue Médicale Suisse*, **4**, 224-229. https://doi.org/10.53738/REVMED.2008.4.141.0224

[7] Bernardini, D., Robaszkiewicz, Canard, J.M., Chaussade, S., Barthet, M., Lecompte, T., *et al.* (2016) Colonoscopy in 2015: From Preparation to Diagnosis. Results of the Annual Survey of the French Society of Digestive Endoscopy. *Acta Endoscopica*, **46**, 257-265. https://doi.org/10.1007/s10190-016-0558-x

[8] Ndjitiyap Ndam, E.C., Njoya, O., Mballa, E., Nsangou, M.F., Njapom, C., Moukouri Nyolo, E., *et al.* (1991) Contribution of Endoscopy in Lower Digestive Tract Pathology in the Cameroonian Setting. Analytical Study of 720 Examinations. *Médecine d'Afrique Noire*, **38**, 835-841.

[9] Dia, D., Diouf, M.L., BassèNe, M.L., Mbengue, M., Fall, S., Halim, A., *et al.* (2010) Indications and Results of Lower Digestive Endoscopy at the CHU Aristide le Dantec in Dakar. *Dakar Médical*, **55**, 187-193.

[10] Mbengue, M., Dia, D., Bassène, M.L. and Halim, A. (2010) Practice of Colonoscopy in Africa. Analysis of 376 Examinations in Dakar, Senegal. *Médecine d'Afrique Noire*, **57**, 508-512.

[11] Traoré, H.A., Doumbo, O., Maïga, M., Traoré, I.G., Dembélé, M., Pichard, E., *et al.* (1992) Endoscopic Contribution to the Study of Recto-Colic Pathology in A Tropical Setting: About 80 Colonoscopies Performed at the National Hospital of Point "G". *Cahiers Santé*, **2**, 171-175.

[12] Diarra, M., Konaté, A., Souckho Kaya, A., Kassambara, Y., Sow Coulibaly, H., Doumbia Samaké, K., *et al.* (2014) Etiological Aspects of Rectal Bleeding in a Tropical Environment. *Journal of African Hepatology and Gastroenterology*, **8**, 174-175. https://doi.org/10.1007/s12157-014-0556-6

[13] Coulibaly, B., Traoré, D., Togola, B., Demdélé, M., Traoré, I., Ongoïba, N., *et al.* (2012) Rectal Cancer: Epidemiological-Clinical Aspects, Surgical Treatment, and Prognosis. *Mali Medical*, **27**, 7-10.

[14] Diouf, M.L., Dia, D., Thioubou, A., Bassène, M.L. and Mbengue, M. (2010) Prevalence of Ulcerative Colitis in the Digestive Endoscopy Center of Aristide-le-Dantec Hospital in Dakar. *Journal of African Hepatology and Gastroenterology*, **4**, 97-102. https://doi.org/10.1007/s12157-010-0158-x

[15] Djibril, A.M., M'Ba, K.B., Bagny, A., Kaaga, L. and Redah, D. (2009) Etiological Aspects of Rectal Bleeding in Adults in an African Setting: About 85 Cases Collected Over 12 Years at CHU-CAMPUS in Lomé. *Mali Médical*, **24**, 40-42.

[16] Bougouma, A., Drabo, Y.J., Serme, A.K., Zoungrana, S.L., Sombie, A.R., Ilboudo, P.D., *et al.* (2002) Analysis of the Results of 1,221 Colonoscopies in A Hospital Setting in Burkina Faso, 1994-1997. *Bulletin de la Société Pathologique Exotique*, **95**, 50-52.

[17] Konaté, I., Sridi, A., Ba, P.A., Cisse, M., Gaye, M., Ka, I., *et al.* (2012) Descriptive Study of Colorectal Cancers at the Surgical Clinic of CHU Aristide le Dantec in Dakar. *Journal of African Cancer*, **4**, 233-237. https://doi.org/10.1007/s12558-012-0232-y

[18] El Housse, H., Ajbara, H., Amsaguine, S., El Amrani, N., Drissi, H., Ahallat, M., *et al.* (2014) Profils épidémiologiques et clinicopathologiques d'une population marocaine avec un cancer colorectal. *Journal of African Cancer*, **7**, 95-99.

[19] Diallo Owono, F.K., Nguema, M.R., Ibaba, J., Mihindou, C. and Ondo N'dong, F. (2011) Epidemiological and Diagnostic Aspects of Colorectal Cancers in Libreville (Gabon). *Médecine Tropicale*, **71**, 605-607.