Scientific Research Publishing

Open Journal of Gastroenterology, 2026, 16(7), 249-263
https://www.scirp.org/journal/ojgas
ISSN Online: 2163-9469
ISSN Print: 2163-9450

Chronic Inflammatory Bowel Diseases at the General Idrissa Pouye Hospital in Dakar, Senegal: About 64 Cases

Mama Ndieme Diouf[1*], Mamadou Ngoné Gueye[1,2], Bibata Touré[1], Mami Daro Fall[1], Gnagna Diouf[1], Daouda Dia[1,2], Mouhamadou Mbengue[1,2]

[1]Gastroenterology Service, Department of Internal Medicine, General Idrissa Pouye Hospital, Dakar, Senegal
[2]Cheikh Anta Diop University, Dakar, Senegal
Email: *ndiemeyamadiouf@gmail.com

How to cite this paper: Diouf, M.N., Gueye, M.N., Touré, B., Fall, M.D., Diouf, G., Dia, D. and Mbengue, M. (2026) Chronic Inflammatory Bowel Diseases at the General Idrissa Pouye Hospital in Dakar, Senegal: About 64 Cases. *Open Journal of Gastroenterology*, **16**, 249-263.
https://doi.org/10.4236/ojgas.2026.167026

Received: November 28, 2025
Accepted: July 19, 2026
Published: July 22, 2026

Abstract

Introduction: Ulcerative colitis (UC) and Crohn's disease (CD) are chronic conditions marked by persistent inflammation of the gastrointestinal tract, characterized by periods of flare-ups and remission. For a long time, these diseases were considered almost nonexistent in sub-Saharan Africa; however, the number of diagnosed cases has increased in recent years. The aim of this study is to report, through a series of 64 patients, the epidemiological, diagnostic, and therapeutic aspects of chronic inflammatory bowel diseases (IBD) in our local context. **Methods:** This was a retrospective, descriptive, and analytical study spanning from January 1, 2017, to June 30, 2024. All consultation and hospitalization records of patients treated for IBD were collected. Sociodemographic, clinical, endoscopic, histological, radiological, therapeutic, and outcome data were gathered. Data entry and analysis were performed using Sphinx version 5.1.0.2 and SPSS version 18. **Results:** A total of 71 IBD records were identified among 25,646 files, corresponding to a prevalence of 0.27%. Seven records were unusable, leaving 64 records for analysis (55 UC cases and 9 CD cases). The mean age was 37 years, ranging from 13 to 74 years, with the 17 - 40 age group being the most represented. There was a slight male predominance (sex ratio 1.28). No family history of IBD was reported. Active smoking was identified in 14% of cases. The average diagnostic delay was 36 months for CD and 41 months for UC. Digestive symptoms were dominated by diarrhea and abdominal pain. Twenty-three patients had extraintestinal manifestations. Ano-perineal lesions were observed in 5 CD patients (55%). Endoscopy revealed pancolitis (Montreal E3) in 38% of UC cases and a Mayo endoscopic score of 3 in 26%. Ileocolic involvement (Montreal L2) predominated in CD cases. Severe acute colitis was recorded in

19 cases (30%). From a therapeutic standpoint, corticosteroids were initially used in 41 patients (64%). Maintenance therapy for UC was based on mesalazine in 15 patients (27%), azathioprine in 10 (18%), and sulfasalazine in 29 (55%). For CD, 5-ASA was used in 5 cases (55%) and azathioprine in 4 (44%). Four CD patients underwent surgery. Fourteen patients were lost to follow-up. Four patients died, three due to complications of severe acute colitis (16%). **Conclusion:** Chronic inflammatory bowel diseases are increasingly diagnosed in our setting. They mainly affect young adults with a slight male predominance. The long diagnostic delay likely contributes to the frequency of severe forms. Therapeutic options remain limited, and mortality in severe acute colitis is significant, underscoring the need for close collaboration between gastroenterologists and surgeons to optimize patient care.

Keywords

Chronic Inflammatory Bowel Diseases, Dakar

1. Introduction

Chronic inflammatory bowel diseases (IBD) are characterized by persistent inflammation of the gastrointestinal tract, evolving through periods of exacerbation and remission [1] [2]. Ulcerative colitis (UC) refers to an inflammatory condition, primarily affecting the mucosa, which begins in the rectum and can extend in a continuous manner to varying lengths of the proximal colon [3]. Crohn's disease (CD) is a granulomatous inflammation that may affect all layers of the intestinal wall, often discontinuously involving the colon and/or small intestine or any other segment of the digestive tract [4].

These two colonic diseases can sometimes be difficult to distinguish, in which case the term "indeterminate colitis" is used.

Although their pathogenesis is not fully understood, it is currently considered that IBD results from an inappropriate intestinal immune response to bacterial antigens of the gut microbiota in genetically predisposed individuals, influenced by environmental factors [5] [6].

While widely studied in Western countries, these disorders remain under-documented in sub-Saharan Africa, notably in Senegal [7]-[10]. This knowledge gap limits our understanding of the true impact of IBD in this region and hinders the development of appropriate management strategies.

Today, it is important to better understand IBD in our local context, especially given that rapid changes in lifestyle and diet in sub-Saharan Africa could influence both the incidence and clinical presentation of IBD [11].

It is in this context that we undertook the present study at Idrissa Pouye General Hospital (HOGIP) with the objective of better characterizing the epidemiological, diagnostic, therapeutic, and outcome aspects of IBD in our setting.

2. Methodology

2.1. Study Design and Setting

This was a retrospective, descriptive, and analytical study based on records of patients hospitalized or seen in consultation for ulcerative colitis or Crohn's disease at the Hepatogastroenterology Department of Idrissa Pouye General Hospital in Dakar, Senegal, spanning from January 1, 2017, to June 30, 2024.

2.2. Definitions

The diagnosis of IBD was based on suggestive clinical and endoscopic findings, supported by compatible histology.

- Clinical signs included dysenteric syndrome; diarrhea; rectal bleeding; vomiting; ano-perineal lesions; and extra-digestive manifestations.
- Endoscopic criteria:
  - For UC: continuous lesions without intervals of healthy mucosa, beginning in the rectum with a clear upper limit, and not extending beyond the cecum.
  - For CD: discontinuous, asymmetrical, and heterogeneous lesions separated by areas of healthy mucosa; the rectum is involved in approximately half of cases. Involvement of the ileocecal valve or terminal ileum is highly characteristic.
- Histological features compatible with diagnosis included at least one of the following: crypt distortion; basal lymphoplasmacytic infiltration; reduced mucosecretion. Certain features are more indicative of UC (infiltration of the lamina propria by polymorphonuclear and mononuclear cells, crypt abscesses, disorganized crypt architecture, reduced mucosecretion), while others suggest CD (infiltration by macrophages and lymphocytes in the lamina propria, tuberculoid granulomas, ulcerations above lymphoid aggregates, fissural ulcerations).

2.3. Data Collection and Analysis

Clinical, biological, endoscopic, histopathological, and therapeutic data, as well as patient outcomes, were extracted from medical records, then entered and processed using Sphinx software (version 5.1.0.2).

Collected data included:

- Sociodemographic: age, sex, geographic origin.
- Clinical: personal and family history, vital signs (body temperature, pulse rate), diagnostic delay, presence or absence of rectal bleeding, stool frequency, abdominal pain, ano-perineal lesions, extra-digestive manifestations (cutaneous, articular, ocular), and disease activity scores (Lichtiger score for UC and Harvey-Bradshaw Index [HBI] for CD).
- Biological: complete blood count (CBC), C-reactive protein (CRP), albumin, liver function tests, blood electrolytes, stool parasitology and culture, and HIV serology.

- Endoscopic: presence of erythema, erosions or ulcerations, vascular pattern, and lesion extent according to the Montreal classification.
- Therapeutic and outcome data: medical and surgical treatments, and patient evolution.

2.4. Statistical Analysis

Data were entered using Sphinx software and analyzed with SPSS (Statistical Package for Social Sciences), version 18.

Frequencies were compared using Pearson's Chi-square test or Fisher's exact test (two-tailed), depending on applicability. Means were compared using analysis of variance (ANOVA). Multivariate analysis was conducted using binary logistic regression, with significance set at $p < 0.05$.

3. Results

3.1. General Characteristics

We collected 71 cases of inflammatory bowel diseases (IBD) from a total of 25,646 patient records, corresponding to a prevalence of 0.27%. Seven records were unusable; therefore, our analyses focused on 64 cases (55 cases of ulcerative colitis [UC] and 9 cases of Crohn's disease [CD]).

The mean age of patients was 37 years, ranging from 13 to 74 years. The age group of 17 to 40 years accounted for 73.4% of the population. Patients with UC were statistically younger than those with CD ($p = 0.002$), with respective mean ages of 35 ± 13 years and 43 ± 16 years (see Figure 1). A male predominance was observed, with a sex ratio of 1.28. Forty-four patients (68.75%) resided in urban areas.

No family history of inflammatory bowel disease (IBD) was reported. Active smoking was noted in 14% of cases. Three patients had undergone an appendectomy during childhood, of whom two were followed for Crohn's disease (CD).

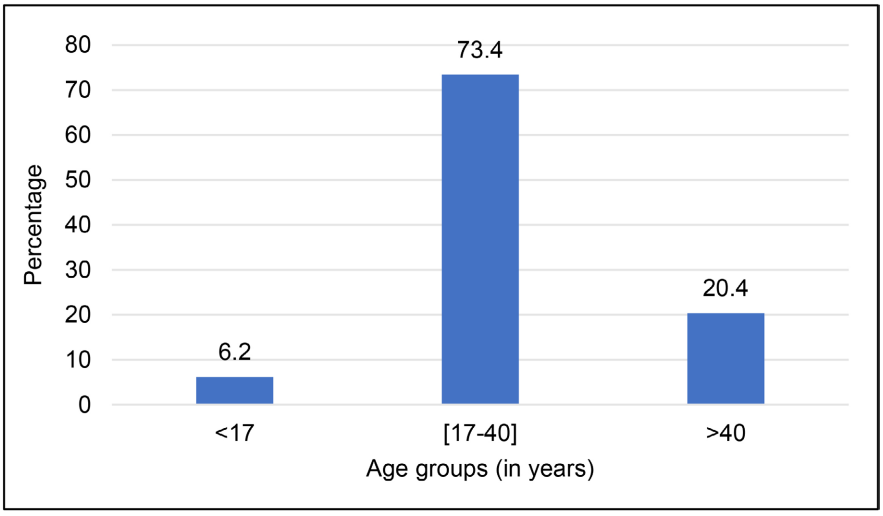

Figure 1. Distribution of patients by age groups.

3.2. Clinical Findings

The average time between symptom onset and diagnosis was 41 months for ulcerative colitis (UC) and 36 months for CD.

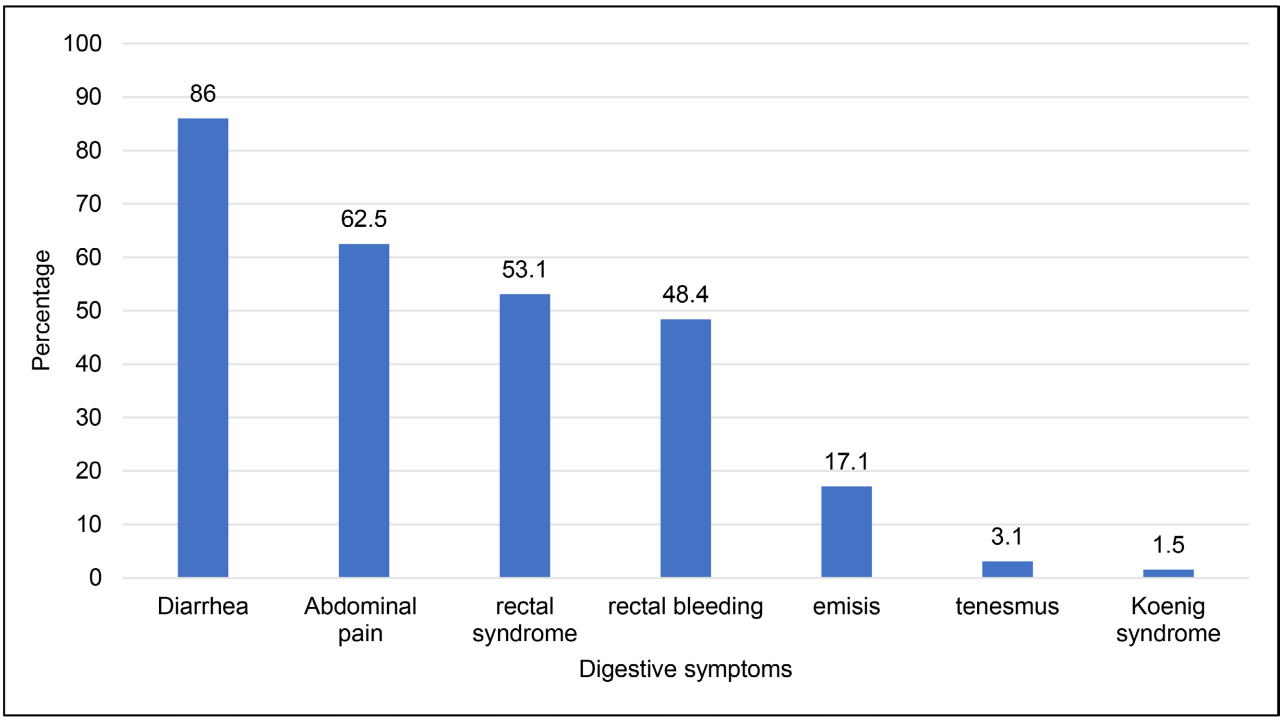

Figure 2. Distribution of digestive symptoms.

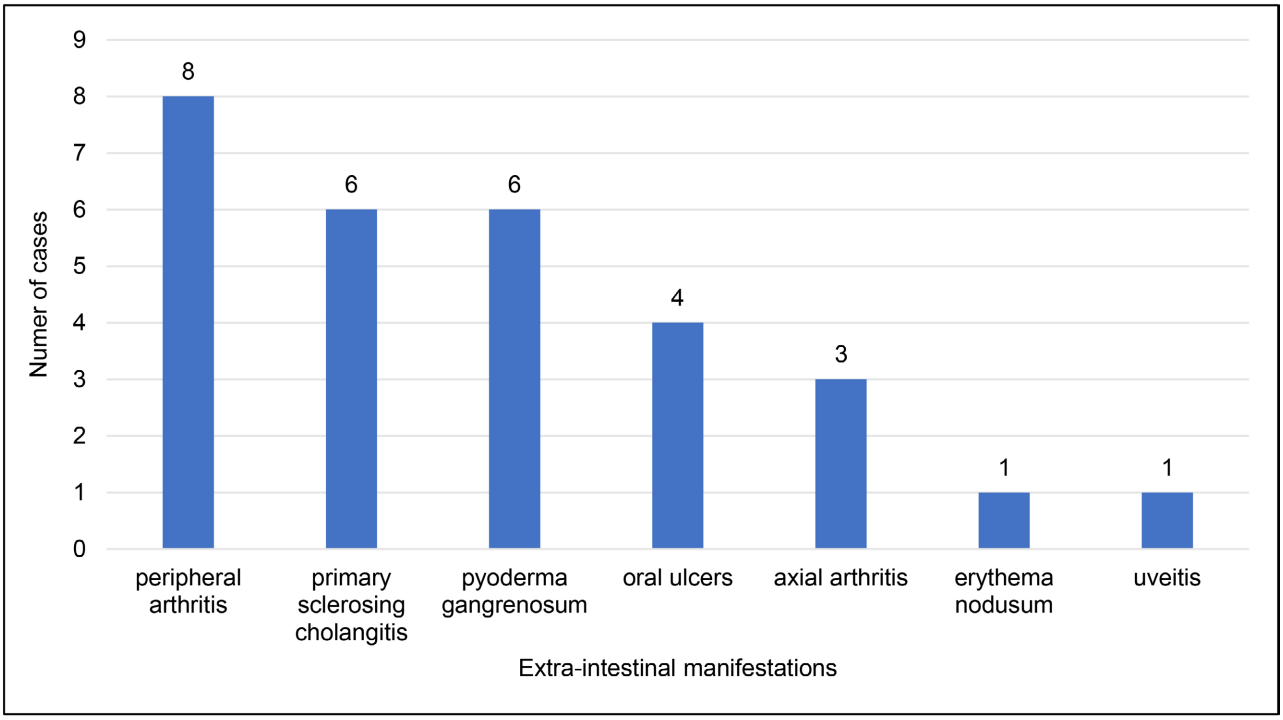

Figure 3. Extra-intestinal manifestations.

Diarrhea was the most common digestive symptom, present in 55 patients (86%), with an average of 7 stools per day. Among these, 34 patients (61.8%) had mucous-bloody stools (see Figure 2).

In Crohn's disease (CD), ano-perineal lesions (APL) were present in 5 patients, including anal fistulas in 4 patients, an anal fissure, and an anal abscess in 2 patients. Extra-intestinal manifestations were found in 23 patients, representing 36% of cases, with peripheral arthritis observed in 8 patients (see Figure 3).

3.3. Biological Findings

C-reactive protein (CRP) was elevated in 34 cases (53.1%), with a mean value of 52.06 mg/L in ulcerative colitis (UC) and 83 mg/L in Crohn's disease (CD). Positivity for antineutrophil cytoplasmic antibodies (ANCA) and negativity for anti-Saccharomyces cerevisiae antibodies (ASCA) were observed in 4 patients. Stool parasitological examination and coproculture were performed in 86% of cases, enabling isolation of pathogens in 11% of cases, including amoebae in 4 patients. Clostridium difficile was detected in one patient. Fecal calprotectin measurement was not performed in any patient due to its unavailability in our laboratories.

3.4. Radiological Findings

Abdominal computed tomography (CT) was performed in 13 patients (20.3%) and revealed bowel wall thickening in 10 patients (15.6%). Pelvic magnetic resonance imaging (MRI) was carried out in 5 patients (7.8%), allowing delineation of fistulous tracts in 3 patients with ano-perineal fistulas and diagnosis of primary sclerosing cholangitis (PSC) in 2 patients by demonstrating alternating bile duct dilations and strictures.

Table 1. Lesion topography according to the montreal classification.

Variables	Number of Cases	Percentage (%)
Crohn's Disease		
L1: Pure ileal	-	-
L2: Pure colonic	3	33.3
L3: Ileocolic	4	44.4
L4: Upper gastrointestinal	2	22.2
Ulcerative Colitis		
E1: Proctitis (rectitis)	8	14.5
E2: Left-sided colitis	26	47.3
E3: Pancolitis	21	38.2

All patients underwent an ileo-colonoscopy. Endoscopy revealed pancolitis (Montreal classification E3) in 38% of UC cases. Fourteen patients (26%) presented with severe lesions classified as type 3 according to the Mayo endoscopic subscore. In univariate analysis, patients with pancolitis had the most severe lesions ($p = 0.004$).

Ileocolic involvement (Montreal L2) predominated among CD cases. Esophagogastroduodenoscopy (EGD) was performed in 6 patients (66%) with CD, revealing a duodenal bulb ulcer in one patient and extensive hemorrhagic, ulcerated, proliferative, and stenosing gastric lesions in another (see Table 1).

3.5. Histological Findings

The lymphoplasmacytic inflammatory infiltrate was the most frequently observed histological feature, present in 67.1% of ulcerative colitis (UC) cases. An epithelioid giant cell granuloma without caseous necrosis was found in 2 patients (22%) with Crohn's disease (CD).

3.6. Prognosis

Severe acute colitis was noted in 19 cases (16 UC and 3 CD). The mean Harvey-Bradshaw Index (HBI) was 9.2 in CD cases, while the mean Lichtiger score for UC was 8.5.

3.7. Treatment

Corticosteroids were the primary treatment used during disease flares, prescribed in 41 patients (64%). A favorable response to corticosteroids was observed in 30 patients (48.2%). However, there were 5 cases (7.8%) of corticosteroid dependence and 5 cases (7.8%) of corticosteroid resistance.

Maintenance therapy for UC consisted of mesalazine in 15 patients (27%), azathioprine in 10 patients (18%), and sulfasalazine in 29 patients (55%). For CD, maintenance treatment was based on 5-aminosalicylic acid (5-ASA) in 5 patients (55%) and azathioprine in 4 patients (44%).

Despite indications, no patients received biologic therapy due to the unavailability of these treatments in our region. Surgery was performed in four patients, consisting of a small bowel resection with right hemicolectomy, drainage of a fistula via seton placement, and two complex fistulas subjected to fistulotomy.

3.8. Outcomes

Clinical remission at 3 months was achieved in 49 patients (76.5%). Endoscopic control at 12 months showed lesion extension in 5 patients (7.8%). Fourteen patients were lost to follow-up. There were 4 deaths reported (6.2%). Causes of death included pulmonary embolism, septic shock following surgery, cardiovascular collapse due to hemorrhagic shock, and one death unrelated to IBD occurring in the context of a myocardial infarction. As IBD increases the risk of colorectal cancer, surveillance colonoscopy was performed in 13 patients (20.3%). No cases of neoplasia were observed (See Table 2).

Table 2. Results of surveillance colonoscopy in patients.

Histological Lesions	Number of Cases	Percentage (%)
Low-grade dysplasia	2	15.3
High-grade dysplasia	3	23.0
Chronic inflammation	8	61.5
Total	13	100.0

4. Discussion

In our series, the prevalence of inflammatory bowel diseases (IBD) was 0.27%. This figure, although low compared to Western data, confirms the increasing diagnosis of IBD in sub-Saharan Africa, particularly in Senegal. Historically, the first Senegalese cases were reported by Carayon *et al.* in 1968 [12], followed by a series of 14 ulcerative colitis (UC) cases published by Aubry *et al.* in 1984 [13], and then another series of 32 cases by Diouf *et al.* in 2010 [9].

More recently, a hospital prevalence of 0.87% for UC was reported in 2020 in the same department [7], while the prevalence of Crohn's disease (CD) was 0.027% at the Principal Hospital of Dakar over a 16-year period in 2017 [8]. These data confirm the apparent rarity of these pathologies, but also their increasing recognition in the African context.

Other studies in sub-Saharan Africa support this trend. In Burkina Faso, Bougouma described 20 cases of UC over 11 years [14]. In Ghana, Archampong reported 45 cases of IBD in Accra from 1997 to 2011, with an overall hospital prevalence of 0.06% [15].

Conversely, in the Maghreb region, prevalences are markedly higher, as shown by Elazzaoui's study, which reported a global prevalence of 5.3% over 7 years, with 2.8% for CD and 2% for UC [16].

In Europe, IBD reaches markedly higher levels. Data from the EPIMAD registry analyzed by Gower-Rousseau indicates a CD prevalence ranging from 8.3 to 214 per 100,000 inhabitants, and UC between 21.4 and 294 per 100,000 inhabitants [2]. In North America, the prevalence of UC is 286 per 100,000 in the United States and CD is 319 per 100,000 in Canada [17].

These disparities reflect a well-established north-south epidemiological gradient. Nevertheless, the current trend in sub-Saharan Africa appears to be increasing. Our cohort of 64 cases represents, to our knowledge, the largest series reported in West Africa to date, reflecting not only improved diagnostic capacity but also an increased need to structure care and raise clinician awareness of these emerging pathologies. This development may also be explained by lifestyle changes. Urbanization seems to play a key role [5] [6]. In our cohort, 44 patients (68.75%) lived in urban areas, suggesting a possible influence of environmental and dietary changes on the emergence of IBD. These changes may alter the gut

microbiota and promote chronic intestinal inflammation.

The mean age of our patients was 37 years, ranging from 13 to 74 years, consistent with literature data. In Senegal, Gueye *et al.* reported a similar mean age of 36 years [7]. Comparable results were found in other countries: 34 years in Algeria [18], 38 years in Israel [19], and 41 years in Spain [5]. These figures confirm that IBD are diseases of young adults, with a peak frequency between the second and fourth decades.

No family history of IBD was reported in our cohort, contrasting with international data where 6 to 21% of patients have a family history [19]-[21]. This absence might be due to lack of knowledge or failure to collect genealogical information in our context rather than a true absence of a genetic factor. Future prospective studies should incorporate structured genealogical questionnaires to improve the collection of family history and provide a more accurate assessment of the familial contribution to inflammatory bowel disease in our setting. Nevertheless, the involvement of genetic factors in IBD is well established. The relative risk of developing CD is multiplied by 8 among first-degree relatives, and by 4 for UC. This risk progressively decreases with second- and third-degree relatives [22] [23].

Active smoking was found in 9 patients (14%). This finding aligns with literature data [6] [24]. The role of tobacco in IBD is paradoxical and well documented since the work of Harries in 1982. Indeed, smoking is a recognized risk factor for CD, whereas it appears to have a protective effect against UC [25]. Among patients with CD, smoking is associated with a more aggressive disease course, an increased relapse risk, more frequent use of corticosteroids and immunosuppressants, and a higher rate of surgery. Although the exact mechanism remains to be elucidated, one hypothesis is the alteration of the gut microbiota induced by tobacco components [24] [26].

In our series, the mean diagnostic delay was 36 months [12 - 60] for Crohn's disease and 41 months [3 - 84] for ulcerative colitis. These figures are in line with observations from other sub-Saharan African countries, where the mean delay varies between 24 and 36 months [14] [27] [28]. In contrast, these delays are considerably longer than those reported in Western countries. A systematic review conducted in England reported a median diagnostic delay of 12 months for CD and 8 months for UC in adults [29]. More broadly, Nishani, in a meta-analysis including 101 studies, reported a mean diagnostic delay of 3 months in high-income countries versus 16 months in developing countries [30].

Several factors may explain this diagnostic delay in Africa. Late healthcare seeking is partly due to a lack of financial resources and the absence of universal health coverage. Moreover, the high frequency of parasitic colitis often leads to diagnostic wandering. Finally, the scarcity of gastroenterologists, pathologists, and adequate technical platforms complicates rapid and reliable diagnosis.

This diagnostic delay in our region also has important clinical consequences, partly explaining the severity of endoscopic lesions observed at diagnosis. In our series, 19 patients (30%) presented with severe acute colitis, often revealing the

disease, and three patients (16%) died.

Extra-intestinal manifestations were found in 23 patients (18 with UC and 5 with CD), with peripheral arthritis in 8 patients.

These extra-digestive manifestations, which are diverse and sometimes even indicative of the disease, can pose diagnostic challenges when they precede intestinal involvement or therapeutic issues when they evolve independently. Their clinical spectrum ranges from minor manifestations to severe, sometimes fatal, forms. They are more frequent as digestive involvement extends [31] [32].

Ano-perineal lesions (APL) were present in 5 patients (55%). They are common in CD, with an incidence varying from 4 to 52% according to studies [33]. APL may be clinically initial in 8 to 30% of cases (22% in our series), and are often challenging to diagnose. These lesions can precede diagnosis by several years. Spontaneous evolution is rarely favorable. They represent a severity factor for CD, often requiring surgery in our region, especially with the absence of biologics [34].

All patients underwent ileocolonoscopy, revealing at least one lesion in each case. The lesion distribution varied according to the type of IBD, consistent with the literature; left-sided colitis predominated in UC patients, while ileocolic disease was most frequent in those with CD [20] [35] [36]. Lesion distribution along the digestive tract closely depends on the nature of the disease. Although no individual endoscopic lesion is pathognomonic for IBD, their topographical arrangement combined with macroscopic appearance strongly guides diagnosis. It is within this scope that the Montreal classification, a revision of the Vienna classification, has been widely adopted in gastroenterological practice [37].

An important point concerns gastroduodenal involvement in Crohn's disease. In our series, gastroduodenal involvement was observed in 22% of patients, corresponding to only two of the nine patients with Crohn's disease included in our study. Although the sample size was small, this finding suggests that upper gastrointestinal involvement may occur in our setting. However, this result should be interpreted with caution because of the limited sample size. Larger studies are needed to confirm the true prevalence of gastroduodenal involvement in our population. Therefore, systematic esophagogastroduodenoscopy (EGD) with gastric and duodenal biopsies is recommended for every new CD patient, even when the mucosa appears macroscopically normal [38].

From a therapeutic perspective, the combination of corticosteroids with maintenance treatment by mesalazine, sulfasalazine, and immunosuppressants enabled clinical remission in 49 patients (76.5%). No patient received biologic therapy. In our series, three patients with APL required surgical management. Two patients died following surgery indicated for toxic megacolon complicated by colonic perforation; emergency surgery could not be performed in time.

In developing countries, the introduction of biologics, particularly anti-TNF agents, has significantly transformed the management of patients with IBD refractory to conventional treatments such as corticosteroids and immunosuppressants. These maintenance therapies afford better disease control by reducing hospitali-

zation rates, facilitating corticosteroid withdrawal, promoting mucosal healing, and decreasing the need for surgery. However, in our context, where biologics—including anti-TNFs (infliximab, adalimumab) and cyclosporine—are not routinely available, therapeutic options remain limited.

Surgery thus remains an essential therapeutic alternative in managing severe or complicated forms of IBD. It should be considered in cases of failure of intensive medical treatment (intravenous corticosteroids), in patients with APL refractory to medical therapy, or in patients presenting with severe acute colitis and deterioration of general condition [39]-[41].

In our series, 13 surveillance colonoscopies were performed in long-term monitored patients. The absence of neoplasia but the presence of high-grade dysplasia in 3 patients highlights the preventive value of screening colonoscopy in this high-risk population for colorectal cancer, even in the absence of evocative symptoms.

Indeed, endoscopic surveillance is recommended in patients with extensive UC or colonic CD evolving for more than 8 years, even in the absence of symptoms.

Chromo-colonoscopy (or virtual chromoendoscopy when unavailable) should be performed every 1 to 3 years, depending on disease duration, inflammatory activity, and the presence of associated risk factors (family history of colorectal cancer, primary sclerosing cholangitis, prior dysplasia) [42] [43].

5. Conclusions

Chronic inflammatory bowel diseases, long considered rare in sub-Saharan Africa, are now increasingly diagnosed, notably due to improved accessibility to endoscopic examinations. To the best of our knowledge, based on the currently available published literature from West Africa, this represents the largest reported series to date. This confirms that IBD predominantly affects young adults, with a male predominance. The frequent diagnostic delay in our context leads to a substantial proportion of severe forms, such as severe acute colitis.

Management remains constrained, particularly by the unavailability of biologic therapies, making surgery sometimes unavoidable. Our work also emphasizes the importance of screening, especially through surveillance colonoscopy, to identify dysplastic lesions and prevent the development of colorectal cancers, which are serious complications of advanced disease forms.

6. What Is Known on the Topic

- Chronic inflammatory bowel diseases (IBD), including ulcerative colitis and Crohn's disease, have long been considered rare in sub-Saharan Africa, with only sporadic cases historically reported.
- In recent years, there has been increasing recognition and diagnosis of IBD in Africa, although the reported prevalence remains markedly lower than in Western countries.
- Access to endoscopic and modern diagnostic resources has been limited in many African settings, contributing to diagnostic delays and underreporting

of cases.

- Patterns of disease in Africa are believed to be influenced by environmental, dietary, and genetic factors, but regional data remain sparse.

7. What This Study Adds

- Provides the largest documented series of IBD cases in West Africa to date (64 cases), thereby expanding the epidemiological understanding of IBD in this region.
- This demonstrates that IBD primarily affects young adults with a slight male predominance and highlights a significant diagnostic delay (average 36 - 41 months).
- Reveals a high rate of severe presentations, such as acute severe colitis, and emphasizes that extra-intestinal manifestations and ano-perineal lesions are frequent in this population.
- Shows therapeutic challenges due to limited access to biologic agents, leading to greater reliance on corticosteroids and surgery.
- This underlines the necessity for increased awareness, structured care pathways, and regular surveillance (colonoscopy), given the risk of dysplasia and colorectal cancer even in this emerging IBD population.

Conflicts of Interest

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

References

[1] Yepes Barreto I., Carmona, R., Díaz, F. and Marín-Jiménez, I. (2010) Prevalence and Demographic Characteristics of Inflammatory Bowel Disease in Cartagena. Colombia. *Revista Colombiana de Gastroenterología*, **25**, 107-111.

[2] Gower Rousseau, C. (2012) Epidémiologie des maladies inflammatoires chroniques de l'intestin en France: Apport du registre EPIMAD. Thèse de Doctorat, École Doctorale Biologie Santé.

[3] Buisson, A., Bommelaer, G. and Peyrin-Biroulet, L. (2012) Rectocolite Hémorragique: Épidémiologie, physiopathologie, diagnostic, histoire naturelle et stratégie thérapeutique. *EMC-Gastro-Entérologie*, **29**, 1-19. https://doi.org/10.1016/s1155-1968(12)43559-3

[4] de Saussure, P. and Bouhnik, Y. (2007) Maladie De Crohn De L'adulte. *EMC-Gastro-entérologie*, **24**, 1-18. https://doi.org/10.1016/s1155-1968(07)40352-2

[5] Serrano-Fernandez, V., Laredo-Aguilera, J., Navarrete-Tejero, C., Molina-Gallego, B., Lopez-Fernandez-Roldan, A. and Carmona-Torres, J. (2024) The Role of Environmental and Nutritional Factors in the Development of Inflammatory Bowel Diseases: A Case-Control Study. *Nutrients*, **16**, Article 2463. https://doi.org/10.3390/nu16152463

[6] Han, D.Y., Fraser, A.G., Dryland, P. and Ferguson, L.R. (2010) Environmental Factors in the Development of Chronic Inflammation: A Case-Control Study on Risk Factors for Crohn's Disease within New Zealand. *Mutation Research-Fundamental and Molecular Mechanisms of Mutagenesis*, **690**, 116-122. https://doi.org/10.1016/j.mrfmmm.2009.09.002

[7] Gueye, M.N., Diop, S.N., Diallo, S., Diouf, G., Cissé, C.A.B., Fall, M.P., *et al.* (2020) Ulcerative Colitis in Sub-Saharan Africa: Analysis of 24 Cases in Dakar (Senegal). *Open Journal of Gastroenterology*, **10**, 128-136. https://doi.org/10.4236/ojgas.2020.106013

[8] Assani, A.G.I. (2017) Maladie de crohn: Aspect épidémiologiques, diagnostiques et évolutifs à l'hôpital Principal de DAKAR. Mémoire Diplôme D'études Spécialisées D'Hepatogasto-Entérologie, Faculté de Médecine, de Pharmacie et D'odontologie.

[9] Diouf, M.L., Dia, D., Thioubou, A., Bassène, M.L. and Mbengue, M. (2010) Prévalence de la rectocolite hémorragique dans le centre d'endoscopie digestive de l'hôpital aristide-le-dantec de Dakar. *Journal Africain d'Hépato-Gastroentérologie*, **4**, 97-102. https://doi.org/10.1007/s12157-010-0158-x

[10] Dia, D., Gueye, M.N., Thioubou, M.A., Fall, A.A.A., Hadjare, M., Diouf, G. and Mbengue, M. (2022) Focus on Ulcerative Colitis in Senegal: Epidemiological, Clinical, Endoscopic, and Therapeutic Aspects. *La Lettre de l'Hépato-Gastroentérologue*, **25**.

[11] Calviño-Suárez, C., Ferreiro-Iglesias, R., Bastón-Rey, I. and Barreiro-de Acosta, M. (2021) Role of Quality of Life as Endpoint for Inflammatory Bowel Disease Treatment. *International Journal of Environmental Research and Public Health*, **18**, Article 7159. https://doi.org/10.3390/ijerph18137159

[12] Carayon, A., Reville, J.J. and Colomar, R. (1968) Rectocolite hémorragique chez deux Africains. *Bulletin de la Société Médicale d'Afrique Noire*, **13**, 484-489.

[13] Aubry, P., Klotz, F., Oddes, B. and Seurat, P.L. (1984) La RCH ou colite ulcéreuse chez le Sénégalais de race noire. *Médecine Tropicale*, **44**, 269-278.

[14] Bougouma, A. (2002) Analyse des résultats de 1221 coloscopies en milieu hospitalier au Burkina Faso. *Bulletin de la Société de Pathologie Exotique*, **95**, 50-52.

[15] Archampong, T.N. and Nkrumah, K.N. (2013) Maladie inflammatoire de l'intestin à Accra: Quelles nouvelles tendances. *West African Journal of Medicine*, **32**, 40-44.

[16] Zakia, E. (2012) Les aspects épidémiologiques des MICI dans une population marocaine, expérience d'un service d'hépatogastro-entérologie du CHU IBN-SINA de Rabat, à propos de 300 cas, Thèse de Doctorat D'université, Université Sidi Mohammed Ben Abdellah.

[17] Ng, S.C., Shi, H.Y., Hamidi, N., Underwood, F.E., Tang, W., Benchimol, E.I., *et al.* (2017) Worldwide Incidence and Prevalence of Inflammatory Bowel Disease in the 21st Century: A Systematic Review of Population-Based Studies. *The Lancet*, **390**, 2769-2778. https://doi.org/10.1016/s0140-6736(17)32448-0

[18] Hicham, B. (2023) Prise en charge des maladies inflammatoires chroniques de l'intestin à l'ère de la biothérapie, suivies au niveau de la wilaya de Constantine. Mémoire Diplôme D'études Spécialisées d'Hepatogasto-Entérologie, Faculté de Médecine de Constantine.

[19] Zvidi, I., Fraser, G.M., Niv, Y. and Birkenfeld, S. (2013) The Prevalence of Inflammatory Bowel Disease in an Israeli Arab Population. *Journal of Crohn's and Colitis*, **7**, e159-e163. https://doi.org/10.1016/j.crohns.2012.07.026

[20] Engoang, W. (2017) Le profil épidémiologique des maladies inflammatoires chroniques de l'intestin: À propos de 982 cas colligés au sein du service de gastro-entérologie de Médecine du CHU Ibn-Sina. Thèse de Doctorat d'état en Médecine, Université Mohammed V.

[21] Parenta, J.M. and Rodrigues, C. (2015) Inflammatory Bowel Disease in an Underdeveloped Region of Northeastern Brazil. *World Journal of Gastroenterology*, **21**, 1197-1206. https://doi.org/10.3748/wjg.v21.i4.1197

[22] Orholm, M., Munkholm, P., Langholz, E., Nielsen, O.H., Sørensen, T.I.A. and Binder, V. (1991) Familial Occurrence of Inflammatory Bowel Disease. *New England Journal of Medicine*, **324**, 84-88. https://doi.org/10.1056/nejm199101103240203

[23] Walters, T.D. and Silverberg, M.S. (2006) Genetics of Inflammatory Bowel Disease: Current Status and Future Directions. *Canadian Journal of Gastroenterology*, **20**, 633-639. https://doi.org/10.1155/2006/326025

[24] Lee, J.W. and Eun, C.S. (2022) Inflammatory Bowel Disease in Korea: Epidemiology and Pathophysiology. *The Korean Journal of Internal Medicine*, **37**, 885-894. https://doi.org/10.3904/kjim.2022.138

[25] Kuenzig, M.E., Lee, S.M., Eksteen, B., Seow, C.H., Barnabe, C., Panaccione, R., *et al.* (2016) Smoking Influences the Need for Surgery in Patients with the Inflammatory Bowel Diseases: A Systematic Review and Meta-Analysis Incorporating Disease Duration. *BMC Gastroenterology*, **16**, Article No. 143. https://doi.org/10.1186/s12876-016-0555-8

[26] To, N., Gracie, D.J. and Ford, A.C. (2016) Systematic Review with Meta-Analysis: The Adverse Effects of Tobacco Smoking on the Natural History of Crohn's Disease. *Alimentary Pharmacology & Therapeutics*, **43**, 549-561. https://doi.org/10.1111/apt.13511

[27] Mimiesse, J.F., Deby-Gassaye, Atipo-Ibara, B.I., Bossali, F., Ngalessami, M., Ahoui-Apendi, C., *et al.* (2015) La Maladie de crohn: Première description au chu de brazzaville. *Journal Africain d'Hépato-Gastroentérologie*, **9**, 73-75. https://doi.org/10.1007/s12157-015-0591-y

[28] Zouita, B. (2007) Maladie de crohn: Profils épidémiologique, clinique et évolutif. Thèse de Doctorat, Faculté de Médecine et de Pharmacie.

[29] Huisman, D., Sweeney, L., Bannister, K. and Moss-Morris, R. (2022) Syndrome du côlon irritable dans la maladie inflammatoire de l'intestin: Distinct, entrelacé ou inutile? Points de vue et expériences des patients. *Psychologue Convaincant*, **30**, 13-15.

[30] Jayasooriya, N., Baillie, S., Blackwell, J., Bottle, A., Petersen, I., Creese, H., *et al.* (2023) Systematic Review with Meta-Analysis: Time to Diagnosis and the Impact of Delayed Diagnosis on Clinical Outcomes in Inflammatory Bowel Disease. *Alimentary Pharmacology & Therapeutics*, **57**, 635-652. https://doi.org/10.1111/apt.17370

[31] Elloumi, H., Hmida, M.B., Hmida, S.B., Belkhamsa, A., Bouaziz, S. and Cheikh, I. (2016) Les manifestations extra-digestives au cours des maladies inflammatoires chroniques de l'intestin: Étude de 76 patients. *La Revue de Médecine Interne*, **37**, A148-A149. https://doi.org/10.1016/j.revmed.2016.04.121

[32] Bouhnik, Y. (2006) Manifestations extradigestives des maladies inflammatoires chroniques intestinales. *La Revue de Médecine Interne*, **27**, S51-S53. https://doi.org/10.1016/j.revmed.2006.03.017

[33] Arazzakou, S., Badre, W., Tahiri, M., Haddad, F., Hliwa, W., Nadir, S., *et al.* (2013) Les manifestations anopérinéales au cours de la maladie de crohn à propos de 84 cas. *Annales de Dermatologie et de Vénéréologie*, **140**, S28. https://doi.org/10.1016/j.annder.2013.01.394

[34] Eglinton, T.W., Barclay, M.L., Gearry, R.B. and Frizelle, F.A. (2012) The Spectrum of Perianal Crohn's Disease in a Population-Based Cohort. *Diseases of the Colon & Rectum*, **55**, 773-777. https://doi.org/10.1097/dcr.0b013e31825228b0

[35] Esmat, S., El Nady, M. and Naga, M. (2014) Epidemiological and Clinical Characteristics of Inflammatory Bowel Diseases in Cairo, Egypt. *World Journal of Gastroenterology*, **20**, 814-821. https://doi.org/10.3748/wjg.v20.i3.814

[36] Bengtson, M.-B., Solberg, C., Aamodt, G., Sauar, J., Jahnsen, J., Moum, B., *et al.* (2009) Familial Aggregation in Crohn's Disease and Ulcerative Colitis in a Norwegian Population-Based Cohort Followed for Ten Years. *Journal of Crohn's and Colitis*, **3**, 92-99. https://doi.org/10.1016/j.crohns.2008.11.002

[37] Satsangi, J., Silverberg, M.S., Vermeire, S. and Colombel, J. (2006) The Montreal Classification of Inflammatory Bowel Disease: Controversies, Consensus, and Implications. *Gut*, **55**, 749-753. https://doi.org/10.1136/gut.2005.082909

[38] Burisch, J., Jess, T., Martinato, M. and Lakatos, P.L. (2013) The Burden of Inflammatory Bowel Disease in Europe. *Journal of Crohn's and Colitis*, **7**, 322-337. https://doi.org/10.1016/j.crohns.2013.01.010

[39] Peyrin-Biroulet, L., Bouhnik, Y., Roblin, X., Bonnaud, G., Hagège, H. and Hébuterne, X. (2017) French National Consensus Clinical Guidelines for the Management of Crohn's Disease. *Digestive and Liver Disease*, **49**, 368-377. https://doi.org/10.1016/j.dld.2016.12.008

[40] Amiot, A., Bouguen, G., Bonnaud, G., Bouhnik, Y., Hagege, H., Peyrin-Biroulet, L., *et al.* (2021) Clinical Guidelines for the Management of Inflammatory Bowel Disease: Update of a French National Consensus. *Digestive and Liver Disease*, **53**, 35-43. https://doi.org/10.1016/j.dld.2020.10.018

[41] Amiot, A., Viennot, S., Uzzan, M., Riviere, P., Le Cosquer, G., *et al.* (2022) Recommandations de pratique pour le diagnostic et la prise en charge de la rectocolite hémorragique. *Hépato-Gastro et Oncologie Digestive*, **29**, 297-351.

[42] Laine, L., Kaltenbach, T., Barkun, A., *et al.* (2020) Guidelines for Colonoscopy Surveillance after Cancer Resection and in Inflammatory Bowel Disease. *Gastroenterology*, **158**, 761-769.

[43] Annese, V., Beaugerie, L., Egan, L., Biancone, L., Bolling, C., Brandts, C., *et al.* (2015) European Evidence-Based Consensus: Inflammatory Bowel Disease and Malignancies. *Journal of Crohn's and Colitis*, **9**, 945-965. https://doi.org/10.1093/ecco-jcc/jjv141