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Ulcerative Colitis in Sub-Saharan Africa: Analysis of 24 Cases in Dakar (Senegal)

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Abstract

Introduction: The aim of our study was to determine the socio-demographic, diagnostic and therapeutic aspects of ulcerative colitis (UC) in one of the largest gastroenterology departments in Senegal. **Patients and Method:** This was a retrospective and descriptive study based on the analysis of the records of patients hospitalized in the Hepato-Gastroenterology Department of the Grand Yoff General Hospital (Dakar, Senegal) between January 2013 and December 2019. All cases of UC were collected. Clinical, biological, endoscopic and histological data were collected, as well as treatment options. **Results:** We observed 24 cases, representing a prevalence of 0.87% of inpatients. The mean age of patients was 36 (ranged 18 to 73) and sex ratio 0.9 (13 females). The mean diagnostic delay was 1.6 years (ranged 4 months to 5 years). The clinical symptomatology was dominated by diarrhea with blood and mucus (18 cases). The Litchiger score on admission averaged 8 and 5 patients (20.8%) had severe acute colitis. Colonoscopy showed pancolonic involvement (Montreal E3) in 11 cases (45.8%) and severe endoscopic lesions (stage 3 of the Mayo endoscopic subscore) in 10 cases (41.6%). Therapeutically, 17 patients (70.8%) were initially treated with corticosteroids. Background therapy was 5-ASA in 17 patients (70.8%) and azathioprine in 7 patients (29.2%). Two cases of death (8.3%) were observed following colectasia with colonic perforations before emergency surgery could be performed. **Conclusion:** UC in our study was primarily among young adults with a slight female predominance. Diagnosis is often late. The lack of biotherapy requires close collaboration with surgeons for the management of severe forms.

Keywords

Ulcerative Colitis, Sub-Saharan Africa, Toxic Megacolon, 5 ASA, Azathioprine

1. Introduction

Ulcerative colitis (UC) is a chronic, idiopathic inflammatory disease that affects the colon, most commonly afflicting adults aged 30 - 40 years and resulting in disability [1] [2].

It is characterised by relapsing and remitting mucosal inflammation, starting in the rectum and extending to proximal segments of the colon.

There is no single unifying cause of ulcerative colitis, but the pathogenesis likely relates to changes in the colonic environment of a genetically susceptible person, resulting in bowel inflammation [3]. Structural damage to the intestinal epithelial barrier allows luminal gut microbiota to elicit an inflammatory response, characterized by the activation of immune cells and cytokine production [4], contributing to the pathogenesis of UC [5]. If untreated, patients are at risk of requiring a colectomy or developing colorectal cancer (CRC) [6] [7].

The highest incidences of ulcerative colitis have been reported in northern Europe, Canada, and Australia [8] [9] [10].

In sub-Saharan Africa, ulcerative colitis has long been considered non-existent, probably masked by a "background noise" of infectious diseases. The rare publications on ulcerative colitis originating from this geographical area OME from South Africa, where patient cohorts are primarily white, Asian or of mixed-race descent [11].

In recent decades, with the modification of people's lifestyle habits and the popularization of lower digestive endoscopy and anatomopathological examinations, there has been an increase in reported cases of UC.

The aim of our study was to determine the sociodemographic, diagnostic and therapeutic aspects of UC in a Hepato-gastroenterology Department in Dakar (Senegal).

2. Patients and Method

This was a retrospective and descriptive study based on the analysis of the records of patients hospitalized in the Hepato-gastroenterology Department of the Grand Yoff General Hospital (Dakar, Senegal) between January 2013 and December 2019. All cases of UC were collected. Diagnosis was based on suggestive clinical and endoscopic findings and compatible histology: clinical signs: dysenteric syndrome; rectal bleeding; extra-digestive manifestations.

Endoscopic signs: continuous lesions without intervals of healthy mucosa, starting in the rectum with a clear upper limit, not extending beyond the cecum. Patients with lesions of the terminal ileum in pancolitis were included; these ileal lesions were considered reflux ileitis.

Compatible histological findings (at least one of the following signs): cryptic distortion basal lymphoplasmacytic infiltration; decreased mucosecretion.

Clinical, biological, endoscopic and pathological data as well as prescribed treatments were collected from medical records and recorded using version 5 of the Sphinx software.

- Clinical data (temperature; pulse rate; presence or absence of rectal rectories; number of stools; presence or absence of abdominal pain; skin signs; joint signs; ophthalmological signs; Lichtiger score);
- Biological (Blood count; CRP; Albuminemia; Liver count; Parasitological examination of stools; stool culture; Retroviral serology);
- Endoscopic (erythema; erosions; ulcerations; vascular pattern; extent of lesions using the Montreal classification; endoscopic mayo subscoring);
- Pathological findings (lymphoplasmocyte infiltrates; decreased mucosecretion; cryptic abscess).

3. Results

We collected 24 records, which represented a prevalence of 0.87% of hospitalized patients. The mean age of the patients was 36 years (extremes: 18 and 73 years). There was a predominance of females with a sex ratio of 0.9 (13 females). Active smoking was objective in 4 patients (16.6%).

The mean time from symptom onset to diagnosis was 1.6 years (range: 4 months to 5 years).

The clinical symptomatology was characterized essentially by episodes of bloody diarrhoea in 18 cases (75%), rectal syndrome in 15 cases (62.5%) and abdominal pain in 11 cases (45.8%).

Lichtiger's score at admission averaged 8 (extremes: 5 and 15). Five patients (20.8%) had severe acute colitis with a Lichtiger score greater than 10 on admission.

C Reactive protein (CRP) increased in 20 cases (83.3%) with a mean value of 92 (extremes: 46 - 302). The sedimentation rate was accelerated in 22 patients (91.6%). The fecal calprotectin assay was not performed in any patient due to its unavailability in our laboratories. A fecal parasitology examination was performed in all patients. It revealed amoebas in 3 patients. Coproculture was negative in all cases. HIV (human immunodeficiency virus) serology, performed in 20 patients, was negative in all cases.

Colonoscopy showed pancolonic involvement (Montreal E3) in 11 cases (45.8%) and severe endoscopic lesions (stage 3 of the Mayo endoscopic subscore) in 10 cases (41.6%). Table 1 shows the topography and severity of the lesions on colonoscopy.

Pathological examination of colonic biopsies showed glandular distortion in all patients and decreased mucosecretion in 20 patients (83.3%). Due to their unavailability in our context, the search for cytomegalovirus (CMV) infection by immunohistochemistry or PCR (Polymerase Chain reaction) on colonic biopsies

was not performed. The results of the anatomopathological examination are shown in Table 2.

Other disorders were associated with gastrointestinal manifestations in 9 patients (42.8%). They were mainly articular (Figure 1).

Therapeutically, 17 patients (70.8%) were initially treated with corticosteroids. In 10 cases (41.6%), corticosteroid therapy was initially based on methyl prednisolone at a dose of 0.8 mg/kg, followed by oral relay therapy with prednisone at a dose of 1 mg/kg, in decreasing doses.

Background therapy was 5-ASA in 17 patients (70.8%) and azathioprine in 7 patients (29.2%). No patients were placed on biotherapy due to the unavailability of these treatments in our regions.

Table 1. Topography and severity of the lesions on colonoscopy.

Endoscopic features	Number of patient	Percentage
Lesion topography		
Ulcerative proctitis (E1)	4	16.7
Left side UC (E2)	9	37.5
Extensed UC (E3)	11	45.8
Endoscopic Subscore, Mayo Score		
1) inactive	0	0
2) mild	3	12.5
3) moderate	11	45.8
4) severe	10	41.6

Table 2. Histological signs of colonic biopsies.

Histological signs	Number of patient	Percentage
Architectural distorsion	24	100
Basal lymphoplasmocytosis	21	87.5
Mucin depletion	20	83.3
Crypt abcess	16	66.6

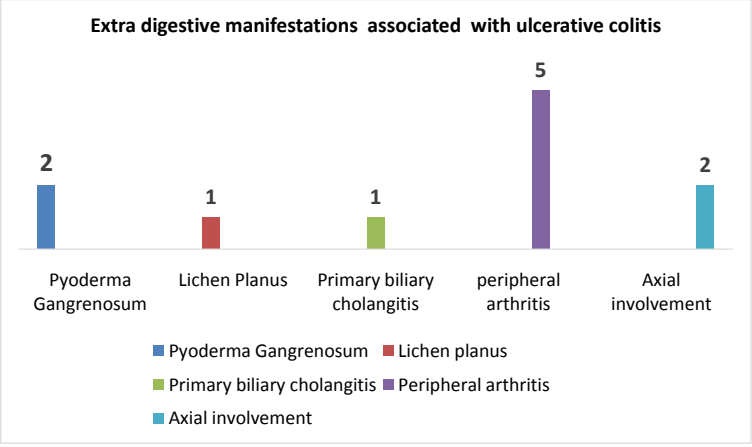

Figure 1. Extra digestive manifestations associatedwithulcerativecolitis.

The evolution was marked by clinical remission in 21 cases (87.5%) and endoscopic remission at 9 months (endoscopic mayo score 0 or 1) in 13 cases (54.2%). Two cases of death (8.3%) were observed following colectasia with colonic perforations before emergency surgery could be performed. A particular case of extensive arteriovenous thrombosis of the lower limbs complicated by ischaemia and necrosis was also noted, despite well-conducted preventive anticoagulation.

4. Discussion

Inflammatory bowel disease (IBD) is increasingly recognized as a global disease in the 21st century; however, little is known about its epidemiology in Africa.

The prevalence of ulcerative colitis in our series was 0.87%.

In Senegal, the first two cases of UC were described by Carayon *et al.* in 1968 [12]. In 1984, Aubry *et al.* reported the first series of 14 patients with UC in Senegal [13]. A second series of 32 patients collected over a 7-year period was reported by Diouf *et al.* in 2010 [14].

Other series of ulcerative colitis have been published in recent years in sub-Saharan Africa, notably in Burkina Faso, where Bougouma *et al.* reported a series of 20 cases of ulcerative colitis collected over 11 years in 2010 [15].

Larger epidemiological studies relating to UC in Africa are lacking. In a recent systematic review of population-based studies of IBD, only one study from the continent met the requirements for inclusion, and this was from Algeria, where 100 UC were registered at the University Hospital in Constantine between January 2003 and December 2007, giving an average annual incidence of 3.29/100,000 for UC. In addition, this study reported that the incidence of UC had risen during the 5 y period of the study from 2.76/100,000 in 2003 to 5.12/100,000 [16].

The emergence of UC in sub-Saharan Africa, like that noted in North Africa in recent decades, appears to be related to environmental factors, particularly dietary factors, modifying the intestinal microflora and the interrelationship with the host immune system. On the other hand, the popularisation of digestive endoscopy has made it possible to better explore these digestive disorders, which were previously systematically considered to be of infectious origin.

The average age of our patients was 36 with extremes of 18 and 73.

Diouf *et al.* reported an average age of 33.8 years in a previous study in Senegal [14].

Superimposable results were reported in other African and western countries with mean ages of 37 years and 32.6 years and 39 years respectively, in Côte d'Ivoire [17], Tunisia [18], and Belgium [19].

The average diagnostic time in our series was 1.6 years with extremes of 4 months and 5 years. An average diagnostic delay three times longer (4.8 years) was reported by Diouf *et al.* in Senegal 10 years earlier [14]. This clear decrease in the time to diagnosis of ulcerative colitis in Senegal can be explained by a better knowledge of the pathology with the increase in the number of specialists in

gastroenterology over the last few decades and the popularisation of digestive endoscopy.

Two recent case series in Nigeria indicated that diagnosis took between 2 and 7 years [20] [21]. This time to diagnosis is longer than the period reported by the Swiss cohort of the IBD study, which reported a median time from symptom onset to diagnosis of 4 months [22].

The mean time to diagnosis in tropical settings is relatively long compared to that observed in the North (a few months). This difference could be explained by the high frequency of parasite colonisation in the tropics, which can lead to misdiagnosis, and also by the difficulty of access to care in the majority of countries in this geographical area.

The clinical symptomatology was characterized essentially by episodes of bloody diarrhoea in 18 cases (75%), rectal syndrome in 15 cases (62.5%) and abdominal pain in 11 cases (45.8%).

These classic symptoms were described in the patient populations of all reports identified by the literature search, which included data on the presentation characteristics of UC [14]-[23].

Diarrhoea and rectragies are often misleading in Africa, leading to diagnoses of parasitic diarrhoea and even haemorrhoids, both in medical and traditional health care settings. In the course of monitoring UC in the tropics, attention must also be paid to possible bacterial or parasitic transplants before any outbreak of the disease.

Colonoscopy showed pancolic (Montreal E3) involvement in 11 cases (45.8%).

The literature search did not identify data on the extent of UC in other series in Africa. In the Middle East and Asia, extensive colitis (E3) accounted for a significantly higher proportion of UC cases, in some series up to 63%. In contrast in the western series, ulcerative proctitis (E1) and left colitis (E2) are much more frequent than extended colitis (E3) [24] [25].

Variations in colon site involvement may be due to global differences in the pathogenesis of the disease. The anatomical extent of mucosal inflammation is one of the most important factors determining disease progression: patients with more severe disease tend to have inflammation affecting a larger portion of the colon than those with less severe disease [2].

Endoscopic lesions were severe (stage 3 endoscopic subscore, Mayo Score) in 10 cases (41.6%). Similarly, the literature search did not identify any data on the severity of UC in others patients in Africa.

Studies in the Middle East and West show that the majority of patients had mild to moderate colitis [26].

The delay in diagnosis in our regions may partly explain the severity of endoscopic lesions at the time of diagnosis of ulcerative colitis.

Other disorders were associated with gastrointestinal manifestations in 9 patients (42.8%). They were mainly articular.

Joint manifestations are the most frequent extra-digestive manifestations of IBD. There are essentially two types of joint manifestations: peripheral arthro-

pathies and axial rheumatism. In the literature, the prevalence of these two types of rheumatism is estimated at 16% to 33% of IBD patients [27].

Pyoderma gangrenosum was objectified in 2 patients (8.3%). Diouf *et al.* reported a 6.2% prevalence of pyoderma gangrenosum [14].

The prevalence of pyoderma gangrenosum in the literature is estimated at 2% - 5% of IBDs. It is three times more common in UC than in Crohn's disease.

In addition to ulcerative colitis, one patient had flat lichen and primary biliary cholangitis.

The association between UC and lichen planus is quite frequent, unlike that between UC and primary biliary cholangitis, sclerosing cholangitis being more specific to UC.

According to Xiao *et al.* [6], until 2003 only 18 observations of associated primary biliary cholangitis with UC were published in the literature [28].

Therapeutically, corticosteroid therapy combined with background 5-ASA or azathioprine therapy achieved clinical remission in 21 patients (87.5%).

However, endoscopic remission was observed in only 13 cases (54.2%). 2 cases of death were noted, following colectasia with colonic perforation, as emergency surgery could not be performed at that time.

In developing countries, biotherapies, led by anti-TNFs, have revolutionized the management of patients with chronic inflammatory bowel disease who have been resistant to standard medical treatment (corticosteroids, immunosuppressants).

Anti-TNFs reduce the number of hospitalizations, allow corticosteroid removal and endoscopic mucosal healing and reduce the need for surgery.

In our context where cyclosporine and anti-TNFs are not available, surgery remains an important part of the management of UC. It should be considered after the failure or ineffectiveness of intensive first-line medical treatment (intravenous corticosteroid therapy) or in patients with a "toxic" syndrome with major alterations in general condition.

5. Conclusion

Through this small sample, we observe that ulcerative colitis in our context mainly affects young adults with a slight predominance of women. Diagnosis is often late and extra-digestive manifestations are frequently observed. The lack of biotherapy requires close collaboration with surgeons for the management of severe forms. The retrospective nature of our study as well as the small number of patients are limitations. In the future, other prospective, multicentre studies, including a larger number, may provide a better understanding of the characteristics of ulcerative colitis in Senegal and beyond in Sub-Saharan Africa.

Conflicts of Interest

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

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