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Research Article

A Clinical Study of 80 Sudanese Patients with Microscopic Colitis

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Abstract

Background: Microscopic colitis, a chronic inflammation of the colon characterized by specific histologic changes, normal radiological studies and normal looking colonic mucosa on endoscopy. It is a common cause of chronic non-bloody diarrhea that occurs primarily in older individuals.

Aim of the Study: To evaluate the clinical features, risk factors, endoscopic and histopathology of microscopic colitis in a Sudanese population.

Methods: A retrospective study conducted in Fedail hospital, Khartoum, Sudan. Adult patients diagnosed with microscopic colitis on histopathology between the year 2013 to 2020 were included. Data collected from patient's medical records attending gastroenterology clinics, endoscopy/histopathology reports and patients were interviewed through phone. The data was analyzed using statistical package for social science SPSS, V. 21.0. IBM; Chicago). P value < 0.05 was considered significant.

Results: Eighty patients with microscopic colitis were enrolled. F\M ratio was 1.3 :1, 58.75% had collagenous variant and 41.25% had lymphocytic variant. Mean age was 43 +/- 14 SD for Lymphocytic Colitis variant and 56 +/- 17 SD for collagenous colitis variant. Common symptoms were chronic watery diarrhea 92.5%, nocturnal diarrhea 67.5%, abdominal pain 50%, fecal incontinence 42.55%, urgency 40%, abdominal distention 15.5%, tenesmus 7.5%, fatigue and arthralgia 15%, weight loss 12.5%. Weight loss was noted in 8 patients (10%) with concomitant celiac disease. Endoscopy normal in 96.25%. Risk factors for MC: use of PPI, 29.25%, NSIADs 18.75%, ACE inhibitors 16.25% and statins 10%. Dairy products were linked to MC in 21.25%, thyroid diseases 10% (those were 8 females with hypothyroidism), celiac disease in 10% and smoking 7.5%. No significant correlations between age, gender and MC variant.

Conclusion: The most common type of MC was the Collagenous variant predominantly among middle aged females. Chronic watery diarrhea was a common symptom of MC. PPI and NSAIDs use were encountered as common risk factors for MC.

Keywords: *Microscopic Colitis; Collagenous Variant; Lymphocytic Variant*

Abbreviations

MC: Microscopic Colitis; CV: Collagenous Variant; LV: Lymphocytic Variant; PPI: Proton Pump Inhibitors; NSAIDS: Non Steroidal Inflammatory Drugs; SPSS: Statistical Package for the Social Sciences

Core Tip

This a retrospective study conducted on an east African population of patients with MC to evaluate the clinical features, risk factors, endoscopic and histopathology pattern of microscopic colitis in the commonest type was the collagenous variant (59%). Younger females (aged less than 61 years) predominate. Chronic watery diarrhea is a common symptom of MC reported in (92.5%). Medication use was a common risk factor for MC in (75%) mainly PPI and NSAIDs. Presence of an autoimmune disease is a common association with MC (39%). Microscopic colitis should be considered as a possibility in the workup of chronic diarrhea in middle aged Sudanese women.

Introduction

Microscopic colitis (MC) is a form of bowel inflammation, characterized by chronic or intermittent watery, non-bloody diarrhea, macroscopically normal mucosa on colonoscopy and characteristic histopathology findings [1]. The disease entity was first described in 1976 [2]. Data regarding MC is mainly from Europe and North America, data is lacking in Sub- Saharan Africa with only few case reports [3,4] thus it was crucial to understand more about MC in an African setting. The cause of MC is unknown with suggestions of immunologic, familial and environmental triggers. It is often associated with use of certain medications as well as immune mediated conditions. It may be complicated by fecal incontinence which impacts the quality of life. The diagnosis is by colonoscopy and biopsy with a pathologist experienced in gastrointestinal histopathology. Treatment is symptomatic with antidiarrheal agents, 5 aminosalicylic acids, corticosteroids mainly budesonide, bile acid binding resins and bisthmus subsalicylate. Probiotics, immune modulators, and biologics were also used with variable outcomes [5]. The prognosis is usually good with no evidence of progression to classic inflammatory bowel disease or neoplasia over time [5] MC has two variants, collagenous colitis (CC) and lymphocytic colitis (LC). In recent years the reported incidence of MC has risen sharply over time for unknown reasons, possible explanations are population aging, increasing awareness of the disease and increasing frequency of colonic biopsies taken for the evaluation of patients with chronic watery diarrhea. It is associated with older age and collagenous colitis is common in females [6].

Objectives of the Study

To study the clinical features, endoscopic findings, histopathology variants and possible risk factors of microscopic colitis in an African population.

Patients and Methods

This is a retrospective study conducted at Fedail hospital, Khartoum, Sudan, June 2021. Data was collected from patients' medical records, endoscopic reports, and histopathology reports. Patients aged more than 16 years diagnosed with microscopic colitis according to clinical, endoscopy and histopathology between July 2013 and June 2020 were included in the study. Patients with bloody diarrhea, inflammatory bowel disease, infectious diarrhea or other causes of chronic diarrhea other than microscopic colitis were excluded after performing ESR, blood counts, stool analysis for parasites and protozoa along with endoscopy.

Endoscopy data: Colonoscopies were performed by experienced gastroenterologists in Fedail hospital, using conscious sedation in most cases. In patients with suspected MC random biopsies were taken and no endoscopy related complications were reported.

Histopathology data: Histopathology was performed by a single histopathologist, who is an expert in gastrointestinal histopathology (BMY). Histological diagnosis of lymphocytic colitis was confirmed with the presence of ≥ 20 IELs per 100 surface epithelial cells, the normal being < 5. In addition, a mixed inflammatory infiltrate in the lamina propria that consisted of lymphocytes and plasma cells with surface epithelial damage and no crypt distortion. Diagnosis of collagenous colitis was established with a sub-epithelial collagen layer more than 10 µm in diameter [5]. Accordingly, any patient diagnosed with MC was included for further analysis.

To correlate histopathology and clinical data, a well-structured questionnaire was filled by the study investigators, including demographic data, presenting symptoms, endoscopy findings and risk factors for MC listed (smoking, medications: PPI, NSAIDs, ACE inhibitors, statins, consumption of dairy products, associated diabetes mellitus, celiac disease, thyroid disease, other autoimmune diseases). The patients were contacted through their registered phone numbers to complete the questionnaire.

The data was analyzed using statistical package for social science SPSS, V. 21.0. IBM; Chicago. The level of significant was considered if P values < 0.05.

Ethical consideration: Ethical approval was obtained from Sudan Medical Specialization Board ethical committee and from Fedail hospital's ethical committee and verbal consent was obtained from patients, to share their medical information and they were aware of their rights throughout the study.

Results

Eighty patients fulfilled the inclusion criteria and were enrolled in the study, 56.25% patients were females, with a female to male ratio (1.3:1). The main histopathology variant was the collagenous colitis variant 58.75% whereas the lymphocytic variant was 41.25% (Figure 1 and 2). The mean age was 43 +/- 14 SD for LC variant and 56 +/- 17 SD for CC variant. Age distribution is shown in figure 3. No significant statistical correlation between age, gender, and MC variants in the study population.

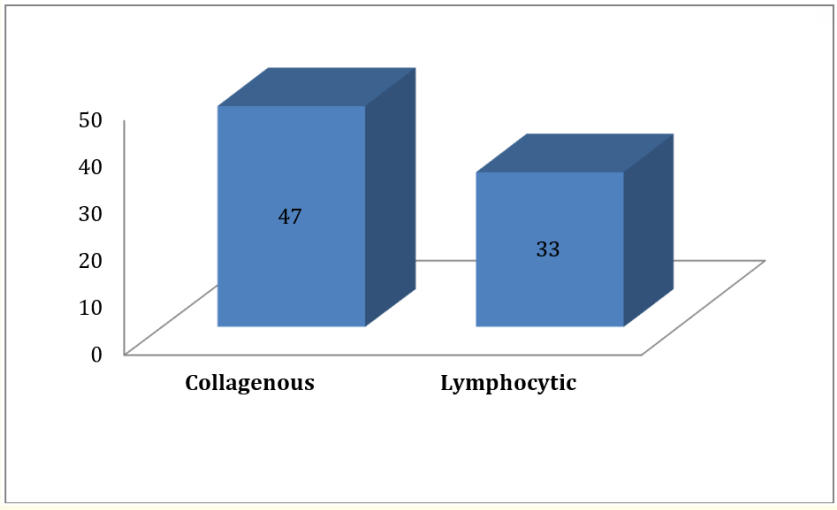

Figure 1: *The microscopic colitis histopathology variants among the study group = 80 patients.*

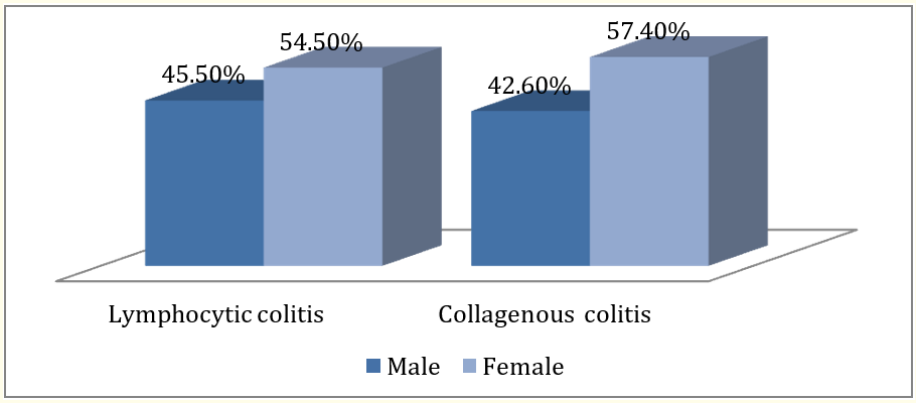

Figure 2: *The gender distribution of microscopic colitis variants among the study group = 80 patients.*

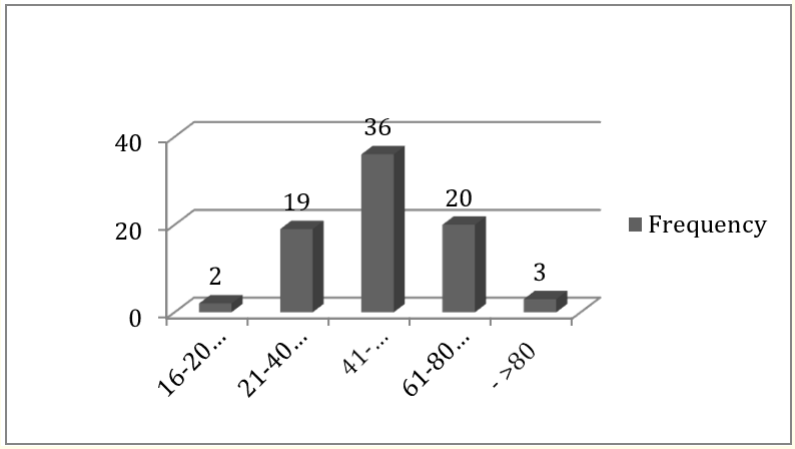

Figure 2: *The gender distribution of microscopic colitis variants among the study group = 80 patients.*

The clinical presentation of MC is shown in table 1 with most patients presenting with watery diarrhea. The colonoscopy findings were normal in 96.25%. The abnormalities described were mild hyperemia with superficial inflamed colonic mucosa. Risk factors and associated diseases evaluated in this study are shown in table 1 and 2.

Discussion

This study was conducted to describe the clinical features, endoscopy findings and risk factors for MC in a group of 80 Sudanese patients with the condition.

Symptoms	Females	Males	Total	Percentage%
Watery diarrhea	41	33	74	92.5
Nocturnal diarrhea	30	24	54	67
Abdominal pain	24	16	40	50
Fecal urgency	20	12	32	40
Fecal incontinent	21	16	37	46
Loss of weight	8	2	10	12.5
Abdominal distension	6	8	14	17
Tenesmus	5	1	6	7.5
General symptoms	4	8	12	15
Alternate bowel habits	3	2	5	6.25

Table 1: *Clinical features of microscopic colitis (n = 80).*

Risk factor	Females		Males		Total	Percentage %
	CC	LC	CC	LC		
PPI	11	7	5	1	26	32.5
NSAIDs	7	3	3	3	15	18.75
Celiac disease	4	1	2	1	8	10
Diabetes Mellitus	6	4	3	2	15	18.75
ACE inhibitor	6	3	2	2	13	16.25
Thyroid disease	7	1	0	0	8	10
Statins	4	2	2	0	8	10
Dairy products	4	7	3	3	17	21.25
Smoking	0	0	4	2	6	7.5

Table 2: *Risk factors of microscopic colitis (n = 80).*

This study revealed that the collagenous type of microscopic colitis was found in 58.25% more common than the lymphocytic variant in this population The commonest histological variant of MC reported in international data was the lymphocytic variant. A population based cohort study in the united states showed that the lymphocytic variant was more common than the collagenous and some studies from Europe suggest the collagenous type more common [6,8]. This difference may need future population based studies that may emphasize on genetic and other environmental factors that may explain the fact that Sudanese patients tend more to acquire the collagenous variant of MC.

This study showed slight female preponderance in both types of microscopic colitis. Female to male ratio was (1.35:1 and 1.2:1) in collagenous and lymphocytic variants respectively (Figure 2). This wasn't different from results obtained by Olesen and colleagues they found higher women: men ratio in lymphocytic colitis in Sweden [7]. Similarly, Pardi and colleagues showed that MC was associated with female sex (4.8% women versus 1.1%men in CC and 6.1% women vs. 5% men in LC in the US [6]. The reasons for the higher rate among women were unknown possibly related to the higher likelihood of autoimmune diseases and/or hormonal alterations.

MC is increasingly recognized as a major diagnostic entity in older individuals presenting with chronic watery diarrhea. MC is disease of elderly patients a previous meta-analysis showed the median patients' age at the time of diagnosis was over 60 years old (CC: 64.9, CI: 57.03 - 72.78; LC: 62.2, CI: 54.0 - 70.4 years) [8]. However in this study it was clear that 71% of patients with MC were those less than 61 years (57 patients). The mean age was 43 +/- 14 SD) for LC variant and 56 +/- 17SD for CC variant (Figure 3). The above mentioned meta-analysis were from Europe and north America [8]. This study was quite different, MC occurred at younger age in this Sub- Saharan African population an observation that could be attributed to possibly different dietary habits, environmental factors and toxins predisposing younger African populations to MC.

The main presenting symptom in this study was chronic, watery, non-bloody diarrhea noted in (92.5%) of patients in keeping with literature. The remaining 7.5% presented with altered bowel habits and other overlapping symptoms showed in table 1. In most cases, the onset of diarrhea was insidious. However, an acute onset was reported in 12% of the patients, suggesting a possible infectious trigger for MC [7]. Alternating bowel habits with diarrhea predominance, abdominal pain were noted. It is worth mentioning that those symptoms, could be similarly, a presentation of IBS. In two meta-analyses the identification of underlying MC diagnosis was reported in 9% among patients exhibiting diarrhea-predominant functional disorders and around one-third to one-half of patients who present with MC meet symptom criteria for IBS [9,10]. The hidden burden of MC among patients incorrectly diagnosed with and treated for IBS is potentially very large. Many patients of MC can be mistakenly diagnosed as IBS this needs more attention from physicians to carefully deal with patients labeled as IBS.

Other frequent presenting symptoms of MC among this study group were nocturnal diarrhea, fecal incontinence and fecal urgency (67.50%, 46.25% and 40%) respectively, as previously reported [8]. Therefore, it is important to note these symptoms as they could differentiate MC from IBS. Furthermore these symptoms affect the quality of life in such patients. Abdominal pain was noted in 50% of patients in keeping with the reported literature as concomitant abdominal pain was present in patients with MC (41% - 52%) overall, and (74% - 82%) in patients with active disease [11].

Weight loss is a common presenting symptom of MC [8,11]. In this study 12.5% (10 patients) reported loss of weight. Eight out of ten patients experienced significant unintended weight loss of > 3 kg per month. Further analysis of patients with marked weight loss revealed that all of them had the diagnosis of celiac disease. The association between celiac disease and microscopic colitis is well reported. Fine et al found a high prevalence of coeliac disease. associated HLA-DQ genes in MC which may explain the coexistence of both coeliac disease and MC in the same individual [12].

Colonoscopy findings were normal in (96.25%) of the study population. However, the abnormalities shown in three patients were mild nonspecific mucosal changes. Recent publications list non-specific changes such as abnormal vascular markings, erythema, or mucosal oedema [6], their significance in the context of the disease remain unclear.

Drug use has been suggested as an environmental risk factor for MC. Many drugs were mentioned some with high, intermediate and low likelihood [8]. This study confirmed that drugs are an important cause of MC as it was reported in (77.5%) of patients. The medications used were PPIs 32.5%, NSIADs 18.75%, ACE inhibitors 16.25% and statins 10%. Adhering to appropriate prescription guidelines with regards to the use of PPI and NSAIDs is crucial to avoid such unwanted side effects of such commonly used medications.

Autoimmune diseases are commonly associated with MC. There is strong evidence of an autoimmune basis for MC both variants (CC and LC). MC is associated with diseases such as celiac disease, thyroid disease, and diabetes mellitus. However, no specific autoantibody has been identified [13]. In this study we found that concomitant autoimmune diseases were common among patients with MC (39% of the study group) namely DM, hypo/hyperthyroidism and celiac disease (19%, 10% and 10% respectively). Further prospective studies are needed to evaluate the treatment and outcomes of MC in our setting.

Conclusion

In this Sub-Saharan African population of patients with MC, the commonest type was the Collagenous variant (59%). Younger Females (aged less than 61 years) predominate. Chronic watery diarrhea is a common symptom of MC reported in (92.5%). Medication use was a common risk factor for MC in (75%) mainly PPI and NSAIDs. Presence of autoimmune disease is a common association with MC (39%). Microscopic colitis should be considered as a possibility in the workup of chronic diarrhea in middle aged Sudanese women.

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Author Contributions

Elsadig AA Drweesh designed and conducted the study and contributed to writing the manuscript; Sara EA Mohammed Ali supervised the study and contributed to writing the manuscript; Badreldin M Yousif provided histopathology reporting; Suleiman S Fedail provided clinical advice and revised the manuscript.

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Institutional Review Board Statement

This study was reviewed and approved by the Ethics Committee of Fedail Hospital.

Informed Consent Statement

Clinical data that were obtained after each patient agreed by written consent.

Conflict-of-Interest Statement

We have no financial relationships to disclose.

Data Sharing Statement

No additional data are available.

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