Colonoscopy and Histopathologic Features in Chronic Diarrhea Patients at Dr. Hasan Sadikin General Hospital Bandung

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ABSTRACT

Background: *Diagnosis and treating patients with chronic diarrhea are challenging due to broad differential diagnoses. An adequate examination leads to a specific diagnosis and appropriate management. Colonoscopy with biopsy is indicated to establish chronic diarrhea etiologies. No previous data demonstrated the colonoscopy and histology findings in patients with chronic diarrhea at Dr. Hasan Sadikin Bandung General Hospital, the main referral hospital in West Java. This study aims to determine the features of colonoscopy and histology in patients with chronic diarrhea.*

Method: *This was a cross-sectional, descriptive study from secondary data of colonoscopy examinations at Dr. Hasan Sadikin Hospital General Hospital from 2016 to 2019. The inclusion criteria were patients with chronic diarrhea diagnosis, aged 18 years and over, and completed colonoscopy and biopsy results.*

Results: A total of 182 subjects with chronic diarrhea were included. Most subjects were women (52%) with an average age of 46 years. The clinical finding at admission was chronic diarrhea without hematochezia (75%). Meanwhile, 52% of colonoscopy lesions were multiple, with the anal-rectum segment (15%) being the most involved. Colonoscopy features mostly hyperemic or edematous lesions (58%). The histopathological result from this study revealed that 59% were non-specific chronic colitis (NSCC). Specific histopathological features were primarily found in malignancies (14%), and inflammatory bowel disease (12%).

Conclusion: *Chronic diarrhea without hematochezia was the most common objective for referring patients to colonoscopy. The hyperemic mucous lesion was mostly found. Moreover, the NSCC was frequent in histopathological evaluation, followed by malignancies and IBD.*

Keywords: *colonoscopy, chronic diarrhea, histopathology*

ABSTRAK

Latar belakang: *Diagnosis dan tatalaksana pada pasien dengan diare kronik sangat sulit karena memiliki diagnosis banding yang luas. Pemeriksaan yang efektif dapat mengarahkan diagnosis spesifik dan terapi yang akurat. Kolonoskopi dengan biopsi diindikasikan untuk menegakkan diagnosis penyebab diare kronik. Saat ini belum terdapat data yang menggmbarkan hasil kolonoskopi dan histopatologi pasien diare kronik di RSUP Dr. Hasan Sadikin Bandung, yang merupakan rumah sakit rujukan utama di Jawa Barat. Tujuan penelitian ini adalah meneliti gambaran kolonoskopi dan histologi pada pasien dengan diare kronik.*

Metode: *Penelitian ini merupakan penelitian deskriptif potong lintang dengan meneliti rekam medis pasien kolonoskopi di RSUP Dr. Hasan Sadikin Bandung, periode 2016 hingga 2019. Kriteria inklusi adalah pasien dengan diagnosis diare kronik, usia diatas 18 tahun, dan telah dilakukan kolonoskopi dengan biopsi.*

Hasil: *Total 182 subjek yang diteliti, mayoritas subjek penelitian adalah wanita (52%), dengan usia rata-rata 46 tahun. Keluhan utama yang ditemukan adalah diare kronik tanpa disertai hematochezia (75%). Lesi multipel (52%) ditemukan dari kolonoskopi, dengan regio anal-rektum (15%) paling banyak terlibat. Gambaran kolonoskopi sebagian besar menunjukkan lesi hiperemis atau edema (58%). Hasil evaluasi histopatologi didapatkan 59% berupa non-specific chronic colitis (NSCC), diikuti keganasan (14%), dan inflammatory bowel disease (12%).*

Simpulan: *Diare kronik tanpa disertai hematochezia menjadi keluhan tersering merujuk pasien untuk kolonoskopi. Gambaran lesi mukosa hiperemis ditemukan paling banyak saat kolonoskopi. Hasil histopatologi terbanyak menunjukkan NSCC, diikuti keganasan, dan IBD.*

Kata kunci: *diare kronik, histolopatologi, kolonoskopi*

INTRODUCTION

World Health Organization 2017 defines diarrhea as an increase in bowel movements more than three times a day, characterized by the consistency of liquid stools.[1] Diarrhea is defined as acute if it occurred less than two weeks, persistent diarrhea (2 to 4 weeks), and chronic diarrhea (more than four weeks).[2] Chronic diarrhea by description is often accompanied by abdominal discomfort, with liquid stool weight > 200 grams daily and a frequency of 3 or more times a day.[3] A Canadian study showed that the prevalence of chronic diarrhea was 29%, with a mean age of 48.6 years.[4] There are no data on the majority of chronic diarrhea in Indonesia.

Etiology of chronic diarrhea in developed countries is mainly of non-infectious origin, and the most common is inflammatory bowel disease (IBD). In contrast, the etiologies for chronic diarrhea in developing countries are mainly infection and parasite infestations.[5] The IBD, including Crohn's disease (CD) and ulcerative colitis (UC), are the main etiologies of chronic diarrhea in Europe and North America. Meanwhile, in Asia, South America, and Africa, IBD's prevalence is low but kept increasing.[6] A previous study of chronic diarrhea in Dr. Cipto Mangunkusumo Hospital showed that the incidence of Crohn's disease and colitis ulcerative in Indonesia was low compared with western countries yet increased in trend.[7] The broad differential diagnosis challenged diagnosing and treating patients with chronic diarrhea. An adequate examination can lead to a more specific diagnosis, which results in proper treatment. Chronic diarrhea patients are mandatory to undergo colonoscopy and biopsy to establish a working diagnosis.[8] Colonoscopy and biopsy are essential to determine the etiology of chronic diarrhea.[9]

A previous study in Dr. Cipto Mangunkusumo Hospital, Jakarta, showed that digestive disorders and malignancy were the most prevalent etiologies for chronic diarrhea.[7] However, no studies describe colonoscopy and histology in patients with chronic diarrhea in Dr. Hasan Sadikin General Hospital Bandung, the main referral hospital in West Java province, Indonesia. This study aims to describe colonoscopy and histologic findings from chronic diarrhea patients in Dr. Hasan Sadikin General Hospital Bandung. The results from this study provide essential data on colonic mucosal characteristics from colonoscopy and histopathological results in chronic diarrhea patients in Dr. Hasan Sadikin General Hospital Bandung. Moreover, this study will enlighten in better diagnosis and management of chronic diarrhea patients in Indonesia.

METHOD

This was a cross-sectional, descriptive study from

the patient's registry in Hasan Sadikin General Hospital Bandung from 2016 to 2019. The target population was patients who underwent colonoscopy and biopsy in the endoscopic center at Department of Internal Medicine, Dr. Hasan Sadikin General Hospital, Bandung. The inclusion criteria were the patients with chronic diarrhea indicated for colonoscopy, aged 18 years old and over, and performed colonoscopy and biopsy with complete results. The biopsies were evaluated in Department of Anatomical Pathology.

Data collection was carried out after obtaining research permission from the Research Ethics Commission of the Universitas Padjadjaran with ethics number 714/UN6.KEP/EC/2021 and the Education and Research Section of Dr. Hasan Sadikin General Hospital Bandung. The data obtained were age, gender, chief complaint, anatomical location on colonoscopy, and histopathological features. The data was processed using Microsoft® Excel 2019 software.

RESULTS

From 2016 to 2019, there were 411 medical records of patients who underwent colonoscopy examinations. After eliminating missing data in medical records and meeting the inclusion criteria, 182 medical records were collected. Characteristics of subjects, including age, sex, chief complaints, anatomical location of the lesion, and lesion types, are presented in Table 1. The table showed that most patients with chronic diarrhea were women, 94 of 182 (52%). The average age of patients with chronic diarrhea was 46.84 years, with a standard deviation was 15.93. The majority of the admission symptoms of the patients were chronic diarrhea without hematochezia (75%). Due to chronic diarrhea resulting in several differential diagnoses, a colonoscopy was performed to confirm the etiologies of chronic diarrhea. The colonoscopy showed that 52% of the lesions were observed in multiple segment colon or terminal ileum, with the majority of the lesions being found in the anal rectum 15% (Table 1).

Specific findings of colonoscopy were presented in Table 2. Each of the 182 subjects undergoing colonoscopy had more than one characteristic of the findings. Colonoscopy findings consisted of hyperemic lesion or edema (58%), ulceration (29%), bleeding (28%), polyps (22%), mass (20%), nodules (20%), deformity (11%), pseudopolyps (6%), and diverticula (6%) as showed in Table 2.

Although colonoscopy might yield pathological findings, it was insufficient to establish the diagnosis. A biopsy was mandatory to identify histopathologic features of the mucosal linings (Table 3). Of 182 patients who underwent histological evaluation from the biopsy, 59% were non-specific chronic colitis (NSCC), and 41% showed specific findings. The specific results revealed malignancies (14%), inflammatory bowel disease (12%), other forms of colitis (lymphocytic colitis, eosinophil predominant colitis, granulomatous or tuberculous colitis, pseudomembrane colitis) (7%), inflammatory polyps (4%), and the adenomas polyps (4%).

DISCUSSION

This research showed that most subjects were female, with an average age of 46.84 $\pm$ 15.93 years. These results were consistent with studies in Peru and

Table 1. Characteristics of research subjects (N = 182)

Characteristics	n (%)
Age (means)	46.84 ± 15.93
Gender	
Female	94 (52)
Male	88 (48)
Clinical (chief complaint)	
Chronic diarrhea without hematochezia	137 (75)
Chronic diarrhea with hematochezia	45 (25)
Anatomical location	
Terminal ileum	25 (14)
Colon cecum	15 (8)
Ascending colon	4 (2)
Transverse colon	1 (1)
Descending colon	5 (3)
Sigmoid colon	10 (5)
Anal rectum	27 (15)
Type of lesion	
Solitary lesion	87 (48)
Multiple lesions	95 (52)

Table 2. Characteristic features of colonoscopy in patients with chronic diarrhea (N=182)

Characteristic features of colonoscopy	n (%)
Hyperemic or edema	106 (58)
Ulceration	53 (29)
Bleeding	
Present	51 (28)
Without bleeding	131 (72)
Polyp	
Sessile polyp	6 (3)
Pedunculated polyp	2 (1)
Polyp (not specified)	32 (18)
Mass	36 (20)
Nodules	36 (20)
Deformity or strictures	20 (11)
Pseudopolyp	11 (6)
Diverticula	11 (6)

Table 3. Histopathological characteristics in patients with chronic diarrhea (N=182)

Histopathological characteristics	Total (%)	Without hematochezia (%)	With hematochezia (%)
Non-specific histopathological features	108 (59)	83 (46)	25 (13)
Non-specific chronic ileitis	15 (8)	13 (7)	2 (1)
Non-specific chronic ileocolitis	13 (7)	11 (6)	2 (1)
Non-specific chronic colitis	80 (44)	59 (32)	21 (12)
Inflammatory bowel disease (IBD)	22 (12)	15 (8)	7 (4)
Crohn's disease	15 (8)	11(6)	4 (2)
Ulcerative colitis	4 (2)	2 (1)	2 (1)
IBD (not specified)	3 (2)	2 (1)	1 (1)
Other colitis	13 (7)	11 (6)	2 (1)
Lymphocytic colitis	2 (1)	2 (1)	0 (0)
Eosinophil predominant colitis	2 (1)	1 (1)	1 (1)
Granulomatous colitis (tuberculosis)	6 (3)	5 (3)	1 (1)
Pseudomembrane colitis	3 (2)	3 (2)	0 (0)
Inflammatory polyps	7 (4)	6 (3)	1 (1)
Adenomas polyps	7 (4)	4 (2)	3 (2)
Malignancies	25 (14)	18 (10)	7 (4)

Brazil, which showed that the frequency of chronic diarrhea in females was higher than in males.[10,11] The average age of subjects in this study was almost similar to the study by Imam et al which showed the average age of patients was 47.67 $\pm$ 16.83 years. However, the study from Imam et al disclosed a non-correlation between age and colonic abnormalities from colonoscopy.[12]

Results of this current study showed colonoscopy findings were primarily hyperemic edema (58%) and ulceration (29%). The same patterns were also described by Moussa et al. The colonoscopy results from Moussa et al study were mucosal inflammation with loss of normal vascular pattern (75.3%) and ulceration (17.7%).[14] Hyperemic edema is one sign of mucosal inflammation. Different results were reported by Bhagyalakshmi et al and Javier et al, the majority of colonoscopy findings were ulcerations.[10,13] Moussa et al stated that the difference might manifest in different patient characteristics and clinical manifestations, which affected colonoscopy findings.[14]

This study discovered that colonoscopy features mostly found hyperemic edema, followed by ulceration. The biopsies showed that 59% of findings yielded non-specific chronic colitis (NSCC). The histopathology findings in this study were divided into two large groups, NSCC and specific results. Studies by Moussa et al and Bhagyalakshmi et al showed non-specific histological findings were more prominent in number than specific histological findings.[13,14] Bhagyalakshmi et al and Emara et al demonstrated that non-specific histological findings were affected by several factors. The expertise of the operator of both endoscopist and pathologist, the instruments, size of the samples, the timing for biopsy, and reference of the clinical data submitted to the pathologist, were the affecting factors.[13,15] In this study, patients with histopathological results of NSCC mostly came with chronic diarrhea without hematochezia. In contrast with a study from Moussa et al, the majority of NSCC histopathology findings admitted due to chronic diarrhea accompanied by hematochezia.[14]

Specific results from histopathologic findings in this study mainly were malignancy and inflammatory bowel disease (IBD). Consistent with studies by Denis et al, Moussa et al, and Bhagyalakshmi et al, the malignancies were predominantly found in specific histopathology.[13,14,16] Our investigation also discovered that adenomatous polyp was found in 4% of the subjects. Based on colorectal cancer pathogenesis, the adenomatous polyp may develop into colorectal cancer.[17] Colorectal cancer could possibly to rise in Indonesia. The Globocan survey in 2012 stated that the incidence of colorectal cancer was 12.8 per 100,000 population and ranked third in the world as the most frequent cancer. Dietary change was either factor causing the increasing incidence of colorectal cancer.[18]

A study by Moussa et al concluded a statistically significant relationship between clinical features and pathological diagnosis.[14] The results from this study showed that the main complaint of the histopathological result of malignancies was chronic diarrhea without hematochezia (18 of 182 subjects). These results were supported by the study by Moussa FR et al, and the malignancy was correlated with clinical signs of chronic diarrhea without hematochezia. Other clinical features found in malignancy included weight loss and rectal bleeding.[14]

The second most common histopathological

findings were inflammatory bowel disease (IBD). This result was paralleled with studies by Nata et al and Marcellus et al which showed IBD prevalence in Dr. Cipto Mangunkusumo General National Hospital was similar to those in Asia. Although the prevalence in Indonesia or Asia was lower compared to the western country's counterparts, yet increasing in trend.[7,19] The clinical admission sign of IBD patients in the study were mainly chronic diarrhea without hematochezia. In contrast with a study by Moussa et al, the chief complaint of IBD was predominantly chronic diarrhea with hematochezia.[14] Nevertheless, Pratama et al explained that chronic diarrhea without hematochezia was also a common symptom of IBD.[19]

The rectum and terminal ileum were anatomical regions with the highest lesion findings in this study. Similar results were presented by Denis K et al. The rectosigmoid was the highest anatomical region of lesion findings from colonoscopy.[16] Another study by Franciane et al revealed that the terminal ileum and ascending colon were the anatomical regions that found the most abnormalities in the biopsies.[11]

The limitation of our study was the lack of clinical data, as follows the weight loss or complete physical examination. This limitation was due to the secondary data being taken only from the endoscopy unit. Further study might be more beneficial by taking this data from the complete medical record system. The NSCC was found to be the most frequent histopathology findings in our research. Based on this study, we suggest further investigation to determine other diagnostic tools or scoring systems for supporting clinicians in establishing a specific diagnosis. Another limitation of this study was we only investigated the abnormal colonoscopy and histopathologic findings. Consequently, we encourage further study to describe histopathology results from normal colonoscopy findings.

CONCLUSION

Chronic diarrhea without hematochezia was the most frequent clinical sign for referring patients to colonoscopy. The colonoscopy findings mostly found hyperemic edema. Furthermore, the histopathological evaluation results were mostly NSCC, followed by malignancy and IBD.

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