

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

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ABSTRACT

Background: Diagnosing and managing patients with chronic diarrhea remains a clinical challenge due to its broad differential diagnoses. Colonoscopy with biopsy is often indicated to establish chronic diarrhea etiologies. However, to date, no data have been published describing the colonoscopic and histological findings in patients with chronic diarrhea at Dr. Hasan Sadikin General Hospital in Bandung. This study aimed to determine the features of colonoscopy and histology in patients with chronic diarrhea.

Methods: This study employed a cross-sectional-descriptive design, utilizing secondary data from colonoscopy examinations conducted at Dr. Hasan Sadikin Hospital General Hospital from 2016 to 2019. Participants included adults aged 18 and above who had been diagnosed with chronic diarrhea and had completed both colonoscopy and biopsy procedures.

Results: A total of 182 subjects with chronic diarrhea were included in the study. The majority were women (52%), with mean age of 46 years. Upon admission, the predominant clinical presentation was chronic diarrhea without hematochezia, observed in 75% of cases. Meanwhile, 52% of colonoscopy lesions were multiple, with the anal-rectum segment (15%) being the most involved. The most frequent colonoscopic features were hyperemic or edematous lesions, seen in 58% of subjects. The histopathological result from this study revealed that 59% were non-specific chronic colitis (NSCC). Specific histopathological features were primarily found in malignancies and inflammatory bowel disease (IBD) that is 14% & 12%, respectively.

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

Keywords: Chronic diarrhea, colonoscopy, evaluation, 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 menggambarkan 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 dan inflammatory bowel disease (IBD) masing-masing 14 dan 12%.*

Kesimpulan: *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, kolonoskopi, evaluasi, histopatologi*

INTRODUCTION

World Health Organization (WHO) 2017 defines diarrhea as an increase in bowel movements to more than three times per day, typically characterized by liquid stool consistency.¹ Diarrhea is classified as acute if it occurred less than two weeks, persistent it lasts between two to four weeks, and when it persists for 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 However, data on the prevalence of chronic diarrhea in Indonesia remain unavailable.

In developed countries, the etiology of chronic diarrhea is predominantly non-infectious, with inflammatory bowel disease (IBD) being the most common cause. In contrast, chronic diarrhea in developing countries is primarily attributed to infections and parasitic infestations.⁵ IBD, including Crohn's disease (CD) and ulcerative colitis (UC), are the main etiologies of chronic diarrhea in Europe and North America. In contrast, while the prevalence of IBD remains relatively low in Asia, South America, and Africa, it has been

steadily increasing in these regions.⁶ A previous study of chronic diarrhea conducted at Dr. Cipto Mangunkusumo Hospital showed that the incidence of Crohn's disease and colitis ulcerative in Indonesia was low compared to the Western countries yet increased in trend.⁷ The extensive of differential diagnosis, posed a challenge diagnosis process and treating patients with chronic diarrhea. Comprehensive examination may lead to a more specific diagnosis, which results in proper treatment. For patients with chronic diarrhea, colonoscopy and biopsy are mandatory procedures to establish a working diagnosis.⁸ These treatments are essential to determine the etiology of chronic diarrhea.⁹

A previous study conducted at Dr. Cipto Mangunkusumo Hospital in Jakarta, showed that digestive disorders and malignancies were the most prevalent etiologies for chronic diarrhea.⁷ However, no studies to date have described colonoscopic and histological findings in patients with chronic diarrhea in Dr. Hasan Sadikin General Hospital in Bandung, the main referral hospital in West Java Province, Indonesia. This study aimed to describe colonoscopic and histological findings from chronic diarrhea patients in Dr. Hasan Sadikin General Hospital Bandung. The results

will provide valuable data on colonic mucosal characteristics observed during colonoscopy, as well as histopathological patterns associated with chronic diarrhea. Furthermore, the findings are expected to contribute to improved diagnostic accuracy and management strategies for chronic diarrhea in Indonesia.

METHODS

This was a cross-sectional descriptive study utilizing secondary data from patient records at Hasan Sadikin General Hospital in Bandung, collected from 2016 to 2019. The target population consisted of patients who underwent colonoscopy and biopsy at the Endoscopy Center, Department of Internal Medicine, Dr. Hasan Sadikin General Hospital. Inclusion criteria were patients aged 18 years and older, diagnosed with chronic diarrhea lasting more than eight weeks, who had undergone colonoscopy and biopsy with complete results available. Biopsy specimens were evaluated by the 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 collected data included age, sex, chief complaint, anatomical location on colonoscopy, and histopathological features. All data were processed using Microsoft® Excel 2019 software.

RESULTS

Between 2016 and 2019, a total of 411 medical records of patients who underwent colonoscopy examinations were reviewed. After excluding records with incomplete data and applying the inclusion criteria, 182 medical records were selected for analysis. Subject characteristics, including age, sex, chief complaints, anatomical location of the lesion, and lesion types, are presented in Table 1. Among patients with chronic diarrhea, the majority were women (94 out of 182, or 52%). The average age was 46.84 years, with a standard deviation of 15.93 years. Most patients (75%) presented with chronic diarrhea without hematochezia. Colonoscopy findings revealed that 52% of lesions were located in multiple segments of the colon or terminal ileum, with the anal-rectal region being the most commonly affected single site (15%) (Table 1).

Specific findings of colonoscopy are presented in Table 2. Each of the 182 subjects who underwent colonoscopy had more than one characteristic of the findings. The observed findings included hyperemic lesion or edema (58%), ulceration (29%), bleeding (28%), polyps (22%), mass (20%), nodules (20%), deformity (11%), pseudopolyps (6%), and diverticula (6%), as shown in Table 2.

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) |

Biopsy examination was performed to identify the histopathological features of the mucosal lining (Figure 1). Among the biopsy specimens, non-specific chronic colitis (NSCC) was the most frequent finding, observed in 44% of cases. Malignancies accounted for 14%, while non-specific chronic ileitis and Crohn's disease were found in 8% of cases. Non-specific chronic ileocolitis was seen in 7% of patients. Other findings included inflammatory polyps and adenomatous polyps (4%), granulomatous colitis (tuberculosis) (3%), ulcerative colitis and IBD not specified (2%), and lymphocytic colitis as well as eosinophil-predominant colitis (1%).

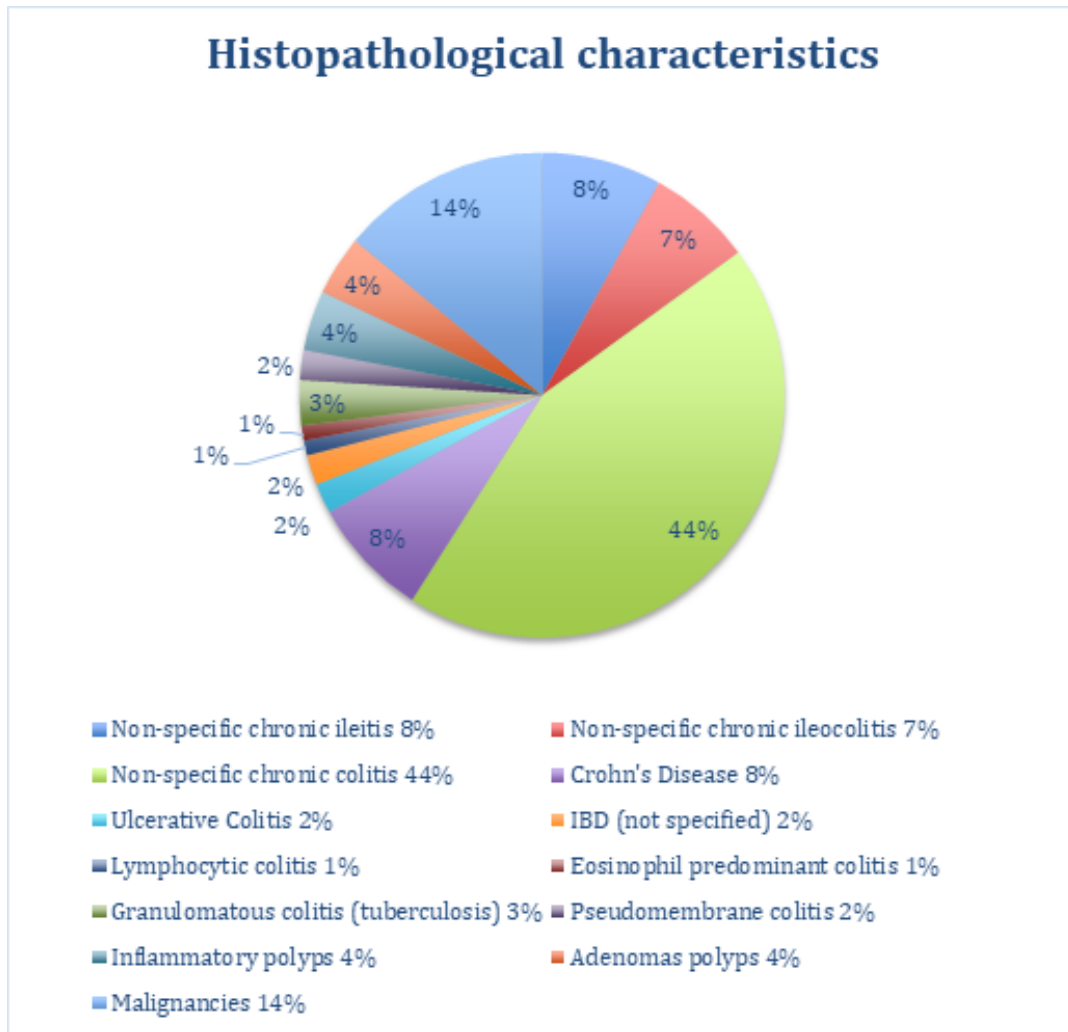


Figure 1. Histopathological Characteristics in Patients with Chronic Diarrhea

DISCUSSION

The primary colonoscopy findings in this study were primarily hyperemic edema and ulceration. Similar patterns were also described by Moussa et al., whose study described mucosal inflammation with loss of the normal vascular pattern in 75.3% of cases and ulceration in 17.7%.¹⁴ Hyperemic edema is one sign of mucosal inflammation. In contrast, studies by Bhagyalakshmi et al. and Javier et al. found that ulceration was the predominant colonoscopic finding.^{10,13} Moussa et al. stated that the difference might manifest in different patient characteristics and clinical manifestations, which affected colonoscopy findings.¹⁴

Biopsy results in this study predominantly revealed 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 were primarily 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} Additionally, our investigation 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 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. Changes in dietary habits have been identified as one of the contributing factors to the increasing incidence of colorectal cancer.¹⁸

A study by Moussa et al. concluded that there was a statistically significant relationship between clinical features and pathological diagnosis.¹⁴ In the present study, the primary clinical complaint among patients with histopathological findings of malignancy was chronic diarrhea without hematochezia, observed in 18 out 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 finding was 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 of IBD in Indonesia and across Asia remains lower than in Western countries, it has shown a rising trend.^{7,19} In this study, most IBD patients presented with chronic diarrhea without hematochezia. This contrasts with findings from Moussa et al., where the predominant clinical presentation of IBD was chronic diarrhea accompanied by hematochezia.¹⁴ However, Pratama et al. also noted that chronic diarrhea without hematochezia is a common symptom of IBD.¹⁹ The rectum and terminal ileum were anatomical regions with the highest lesion findings in this study. The rectosigmoid was the highest anatomical region of lesion findings from colonoscopy.¹⁶ Another study 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 arose due to the secondary data being taken only from the endoscopy unit. Future studies would benefit from utilizing data from the complete medical record system to provide a more comprehensive clinical picture. 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 its focus solely on abnormal colonoscopy and histopathological findings. Therefore, we encourage future research to also investigate histopathological outcomes in patients with normal colonoscopy results, which may offer valuable insights into the broader spectrum of chronic diarrhea etiologies.

CONCLUSION

Chronic diarrhea without hematochezia was the most frequent clinical indication for referring patients to colonoscopy. The most commonly observed colonoscopic finding was hyperemic edema. Furthermore, the histopathological evaluation results were mostly NSCC, followed by malignancies and IBD.

Conflict of Interest

The authors declare that there are no conflicts of interest related to this study.

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Author Contribution

All authors were involved in the conception, drafting, and approval of the final version of the manuscript.

Data Availability

All data supporting the findings of this study are included within the article.

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