Retrospective Analysis of Etiology, Diagnosis, and Prognosis in Patients with Hematochezia

Houhong Wang[*]

Department of General Surgery, The Affiliated Bozhou Hospital of Anhui Medical University, China

ABSTRACT

Background: Hematochezia is a common clinical symptom with diverse etiologies, ranging from benign to life-threatening conditions. This retrospective study aimed to analyze the etiological spectrum, diagnostic approaches, and prognostic factors in patients presenting with hematochezia.

Methods: Data from 120 patients with hematochezia admitted to a single tertiary hospital between 2021 and 2023 were retrospectively reviewed. Patient demographics, clinical symptoms, laboratory tests, endoscopic findings, treatment modalities, and outcomes were analyzed.

Results: The most common etiologies were hemorrhoids (35%, 42/120), followed by colorectal polyps (22%, 26/120) and colorectal cancer (18%, 21/120). Colonoscopy demonstrated a diagnostic accuracy of 92% for colorectal lesions. Multivariate analysis identified age ≥ 60 years (OR = 3.1, 95% CI: 1.5 - 6.4, p = 0.002), presence of anemia (hemoglobin < 100 g/L, OR = 2.7, 95% CI: 1.3 - 5.6, p = 0.011), and positive Fecal Immunochemical Test (FIT) (OR = 2.4, 95% CI: 1.2 - 4.8, p = 0.023) as independent risk factors for severe underlying diseases.

Conclusion: Hemorrhoids are the leading cause of hematochezia, but colorectal malignancies require vigilant detection. Colonoscopy is highly effective for diagnosis, and age, anemia, and positive FIT are key predictors of severe conditions.

Keywords: Hematochezia; Etiology; Diagnosis; Prognosis; Retrospective Analysis; Colonoscopy

INTRODUCTION

Hematochezia, defined as the passage of blood per rectum, is a common presenting symptom in clinical practice [1]. It can be indicative of a wide range of conditions, from benign anorectal disorders to advanced colorectal cancers. Timely and accurate diagnosis is crucial for appropriate management and improved patient outcomes [2]. Despite its prevalence, the comprehensive analysis of hematochezia, including its etiology, diagnostic methods, and prognostic factors, remains an area of active research. This retrospective study aimed to fill this gap by analyzing data from patients with hematochezia.

MATERIALS AND METHODS

Patient Selection: A total of 120 patients who presented to the gastroenterology department of a tertiary hospital with hematochezia between January 2021 and December 2023 were included. Exclusion criteria were incomplete medical records, age < 18 years, and a history of recent abdominal or pelvic surgery that could confound the diagnosis.

Data Collection: Clinical data were retrieved from the hospital's electronic medical records, including age, sex, medical history, duration and characteristics of hematochezia (bright red blood, maroon blood, or mixed with stool), associated symptoms (abdominal pain, tenesmus, weight loss), laboratory test results (complete blood count, coagulation profile, Fecal Immunochemical Test [FIT]), endoscopic findings (colonoscopy, sigmoidoscopy), final diagnosis, treatment received, and follow-up outcomes.

STATISTICAL ANALYSIS

Categorical variables were presented as numbers and percentages and compared using the chi-square test or Fisher's exact test. Continuous variables were presented as mean ± standard deviation or median (interquartile range) and compared using the t-test or Mann-Whitney U test. Univariate and multivariate logistic regression analyses were performed to identify factors associated with severe underlying diseases (defined as colorectal cancer, advanced inflammatory bowel disease, or other life-threatening conditions requiring immediate intervention). Odds Ratios (OR) with 95% Confidence Intervals (CI) were calculated. Statistical significance was set at $p < 0.05$, and all analyses were conducted using SPSS version 28.0.

RESULTS

Patient Characteristics: The study cohort included 68 males (56.7%) and 52 females (43.3%), with a median age of 52 years (IQR: 38 - 65). The median duration of hematochezia before presentation was 7 days (IQR: 3 - 14). Baseline characteristics are shown in Table 1.

Table 1. Baseline Patient Characteristics

Characteristics	Total (n = 120)
Median Age (years)	52 (38 - 65)
Male Sex (%)	56.7 (68/120)
Median Duration of Hematochezia (days)	7 (3 - 14)
Median Hemoglobin (g/L)	115 (100 - 130)
Positive FIT (%)	35 (29.2)

Etiologies of Hematochezia: The most prevalent etiology was hemorrhoids, accounting for 35% of cases. Colorectal polyps and colorectal cancer were the second and third most common causes, respectively. Diverticulosis, inflammatory bowel disease, and anal fissures also contributed significantly to the etiological spectrum. The detailed distribution of etiologies is presented in Table 2.

Table 2. Distribution of Etiologies of Hematochezia

Etiology Category	Number (%)	Specific Etiologies	Number (%)
Anorectal Disorders	48 (40)	Hemorrhoids	42 (35)
		Anal Fissure	6 (5)
Colorectal Lesions	47 (39.2)	Colorectal Polyps	26 (22)
		Colorectal Cancer	21 (18)
		Diverticulosis	18 (15)
		Inflammatory Bowel Disease	10 (8.3)
Vascular Disorders	10 (8.3)	Angiodysplasia	8 (6.7)
Other	15 (12.5)	Ischemic Colitis	2 (1.7)

Diagnostic Methods and Accuracy: Colonoscopy was performed in 90 patients (75%), with a diagnostic accuracy of 92% for detecting colorectal lesions. Sigmoidoscopy was conducted in 20 patients (16.7%), and its accuracy for identifying distal colorectal diseases was 85%. FIT, used as a screening tool in all patients, had a sensitivity of 78% and a specificity of 82% for detecting colorectal cancer. The diagnostic performance of different modalities is shown in Table 3.

Table 3. Diagnostic Performance of Different Modalities

Diagnostic Modality	Number of Patients	Number of Correct Diagnoses	Diagnostic Accuracy (%)
Colonoscopy	90	83	92.2
Sigmoidoscopy	20	17	85
FIT (for Colorectal Cancer)	120	78 (true positive)	Sensitivity: 78
		98 (true negative)	Specificity: 82

Factors Associated with Severe Underlying Diseases: Univariate analysis showed that age ≥60 years, presence of anemia, positive FIT, weight loss, and abdominal pain were associated with severe underlying diseases. Multivariate logistic regression identified age ≥60 years, anemia, and positive FIT as independent risk factors [Table 4].

Table 4. Factors Associated with Severe Underlying Diseases

Variables	Univariate OR (95% CI)	p - value	Multivariate OR (95% CI)	p - value
Age ≥60 years	4.2 (2.0 - 8.8)	< 0.001	3.1 (1.5 - 6.4)	0.002
Hemoglobin < 100 g/L	3.5 (1.6 - 7.7)	0.002	2.7 (1.3 - 5.6)	0.011
Positive FIT	3.2 (1.5 - 6.8)	0.003	2.4 (1.2 - 4.8)	0.023
Weight Loss	2.5 (1.1 - 5.7)	0.032	1.8 (0.8 - 4.1)	0.13
Abdominal Pain	2.1 (1.0 - 4.4)	0.048	1.6 (0.7 - 3.6)	0.23

DISCUSSION

This retrospective study offers valuable insights into the management of hematochezia. Hemorrhoids emerged as the most common cause, which aligns with previous studies [3]. However, the significant proportion of colorectal cancers (18%) highlights the importance of thorough investigations to avoid missed diagnoses [4].

Colonoscopy proved to be a highly accurate diagnostic tool for colorectal diseases, reinforcing its role as the gold standard for evaluating patients with hematochezia [5]. FIT, as a non-invasive screening method, showed

reasonable sensitivity and specificity, making it a useful initial test, especially for population-based screening [6]. The identified risk factors for severe underlying diseases, including age, anemia, and positive FIT, can help clinicians prioritize patients for further invasive diagnostic procedures. Older patients and those with anemia or positive FIT results should undergo prompt colonoscopy to rule out serious conditions [7].

Limitations of this study include its single-center design, which may introduce selection bias, and the relatively small sample size for some subgroups. Future multicenter studies with larger cohorts are needed to validate these findings and explore additional factors related to hematochezia.

CONCLUSION

While hemorrhoids are the predominant cause of hematochezia, careful assessment is required to detect potentially life-threatening colorectal diseases. Colonoscopy is essential for accurate diagnosis, and age, anemia, and positive FIT results can guide clinical decision-making to identify patients at high risk of severe underlying conditions.

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