



Retrospective Analysis of Vomiting Characteristics and Prognosis in Elderly Patients with Intestinal Obstruction

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Abstract

Background: Intestinal obstruction in elderly patients is often accompanied by vomiting, presenting unique clinical challenges. The characteristics of vomiting in this population and their associations with disease severity and prognosis remain unclear. This retrospective study aimed to analyze the vomiting features in elderly patients with intestinal obstruction and explore their relationships with etiology, disease progression, and treatment outcomes.

Methods: Data from 90 elderly patients (aged ≥ 60 years) diagnosed with intestinal obstruction and admitted to a single tertiary hospital between 2021 and 2024 were retrospectively reviewed. Information regarding vomiting frequency, content, onset time, associated symptoms, comorbidities, treatment methods, and outcomes was collected. Statistical analyses were conducted to identify correlations between vomiting characteristics and other clinical variables.

Results: Vomiting occurred in 82.2% (74/90) of elderly patients. Patients with strangulated obstruction had significantly higher vomiting frequencies (mean 5.8 ± 1.6 times/day) compared to those with simple obstruction (2.3 ± 1.1 times/day, $p < 0.001$). Feculent vomiting was more prevalent in patients with colorectal cancer - related obstruction (21.4%, 6/28) than in other etiological groups. Multivariate analysis revealed that feculent vomiting (OR = 4.1, 95% CI: 1.3 - 12.8, $p = 0.017$), high vomiting frequency (≥ 5 times/day, OR = 3.3, 95% CI: 1.4 - 7.8, $p = 0.006$), and the presence of ≥ 3 comorbidities (OR = 2.9, 95% CI: 1.2 - 7.1, $p = 0.023$) were independent risk factors for poor prognosis.

Conclusion: Vomiting characteristics in elderly patients with intestinal obstruction are closely related to disease severity and prognosis. Recognizing these features can assist in early risk assessment and guide personalized treatment strategies for this vulnerable population.

Keywords: Elderly patients; Intestinal obstruction; Vomiting; Comorbidities; Prognosis; Retrospective analysis

Introduction

Intestinal obstruction is a serious medical condition, and elderly patients are particularly vulnerable due to age - related physiological changes and frequent comorbidities [1]. Vomiting, a common symptom in intestinal obstruction, can lead to dehydration, electrolyte disorders, and respiratory complications in the elderly, exacerbating the severity of the disease [2]. However, the specific characteristics of vomiting in elderly patients with intestinal obstruction and their impact on prognosis have not been fully explored. This retrospective study aimed to fill this gap by analyzing the relationship between vomiting features and various clinical aspects in elderly patients with intestinal obstruction.

Materials and Methods

Patient Selection

Ninety elderly patients (aged ≥ 60 years) diagnosed with intestinal obstruction and admitted to a single tertiary hospital from January 2021 to December 2024 were included. The diagnosis of intestinal obstruction was confirmed by clinical symptoms, physical examination, laboratory tests, and imaging studies (abdominal X - ray, CT scan). Exclusion criteria were incomplete medical records and a history of previous intestinal resection that could confound the assessment.

Data collection

Clinical data were retrieved from the hospital's electronic medical records. Information on

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vomiting included frequency (times/day), content (non - bilious, bilious, feculent), time from symptom onset to first vomiting, and associated symptoms (abdominal pain, nausea). Patient demographics, comorbidities (such as hypertension, diabetes, cardiovascular diseases), etiology of intestinal obstruction, treatment methods (surgical or conservative), and outcomes (recovery, recurrence, severe complications, death) were also collected.

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 poor prognosis (defined as death, the need for multiple surgeries, or development of life - threatening complications). 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 software (version 28.0).

Results

Baseline characteristics

The study cohort consisted of 52 males (57.8%) and 38 females (42.2%), with a mean age of 71.5 ± 6.8 years. The main etiologies of intestinal obstruction were adhesive obstruction (37.8%, 34/90), colorectal cancer (31.1%, 28/90), and hernia - related obstruction (16.7%, 15/90). Most patients had at least one comorbidity, with 44.4% (40/90) having ≥ 3 comorbidities. The baseline characteristics are shown in Table 1.

Vomiting characteristics

Vomiting was observed in 82.2% (74/90) of patients. The mean time from symptom onset to first vomiting was 7.2 ± 3.6 hours. Non - bilious vomiting was reported in 43.2% (32/74) of vomiting patients, bilious vomiting in 48.6% (36/74), and feculent vomiting in 8.1% (6/74). The mean vomiting frequency was 3.7 ± 1.8 times/day. The distribution of vomiting characteristics is shown in Table 2.

Relationship between vomiting characteristics and disease severity

Patients with strangulated obstruction had a significantly higher mean vomiting frequency (5.8 ± 1.6 times/day) compared to those with simple obstruction (2.3 ± 1.1 times/day, $p < 0.001$). Feculent vomiting was more common in patients with colorectal cancer - related obstruction (21.4%, 6/28) than in those with adhesive (2.9%, 1/34) or hernia - related obstruction (0%, 0/15, $p = 0.024$). The comparison of vomiting characteristics among different groups is shown in Table 3.

Factors associated with poor prognosis

Univariate analysis indicated that feculent vomiting, high vomiting frequency (≥ 5 times/day), ≥ 3 comorbidities, advanced age (≥ 75 years), and colorectal cancer - related obstruction were associated with poor prognosis. Multivariate logistic regression identified feculent vomiting (OR = 4.1, 95% CI: 1.3 - 12.8, $p = 0.017$), high vomiting frequency (≥ 5 times/day, OR = 3.3, 95% CI: 1.4 - 7.8, $p = 0.006$), and the presence of ≥ 3 comorbidities (OR = 2.9, 95% CI: 1.2 - 7.1, $p = 0.023$) as independent risk factors for poor prognosis (Table 4).

Table 1: Baseline Characteristics of Elderly Patients.

Characteristics	Total (n = 90)
Mean Age (years)	71.5 ± 6.8
Male Sex (%)	57.8 (52/90)
Adhesive Obstruction (%)	37.8 (34/90)
Colorectal Cancer - related Obstruction (%)	31.1 (28/90)
Hernia - related Obstruction (%)	16.7 (15/90)
≥ 3 Comorbidities (%)	44.4 (40/90)
Mean Time from Symptom Onset to Admission (hours)	18.2 ± 8.5

Table 2: Distribution of Vomiting Characteristics in Elderly Patients.

Vomiting Characteristics	Number (%)
Vomiting Present	74 (82.2)
Mean Time to First Vomiting (hours)	7.2 ± 3.6
Non - Bilious Vomiting	32/74 (43.2)
Bilious Vomiting	36/74 (48.6)
Feculent Vomiting	6/74 (8.1)
Mean Vomiting Frequency (times/day)	3.7 ± 1.8

Table 3: Comparison of Vomiting Characteristics among Different Groups.

Variables	Strangulated Obstruction (n = 25)	Simple Obstruction (n = 65)	p - value
Mean Vomiting Frequency (times/day)	5.8 ± 1.6	2.3 ± 1.1	< 0.001
	Colorectal Cancer - related Obstruction (n = 28)	Other Etiologies (n = 62)	p - value
Feculent Vomiting (%)	21.4 (6/28)	3.2 (2/62)	0.024

Table 4: Factors Associated with Poor Prognosis in Elderly Patients.

Variables	Univariate OR (95% CI)	p - value	Multivariate OR (95% CI)	p - value
Feculent Vomiting	5.3 (1.6 - 17.5)	0.006	4.1 (1.3 - 12.8)	0.017
High Vomiting Frequency (≥ 5 times/day)	4.7 (1.9 - 11.6)	0.001	3.3 (1.4 - 7.8)	0.006
≥ 3 Comorbidities	3.8 (1.5 - 9.6)	0.004	2.9 (1.2 - 7.1)	0.023
Age ≥ 75 years	2.7 (1.1 - 6.6)	0.032	1.8 (0.7 - 4.6)	0.21
Colorectal Cancer - related Obstruction	3.1 (1.3 - 7.4)	0.011	2.1 (0.8 - 5.4)	0.12

Discussion

This retrospective study focused on vomiting characteristics in elderly patients with intestinal obstruction. The high prevalence of vomiting in our cohort highlights its significance as a clinical symptom in this population [3]. The differences in vomiting frequency and content among different types and severities of obstruction suggest that vomiting features can provide valuable information for evaluating the condition of elderly patients.

Feculent vomiting, often indicating advanced obstruction or bowel ischemia, was strongly associated with poor prognosis. In elderly patients, feculent vomiting may be more likely to cause aspiration and subsequent respiratory complications, contributing to worse outcomes [4]. High - frequency vomiting can rapidly lead to dehydration and electrolyte imbalances, which are particularly dangerous for the elderly due to their reduced physiological reserve [5]. Comorbidities, common in the elderly, can further complicate the management of intestinal obstruction and increase the risk of

adverse events [6].

However, this study has limitations. The single - center design may limit the generalizability of the results, and the retrospective nature of the study may introduce recall bias. Additionally, the relatively small sample size may affect the statistical power for some subgroup analyses.

Conclusion

Vomiting characteristics are important indicators for assessing the severity and prognosis of intestinal obstruction in elderly patients. Clinicians should pay close attention to the frequency and content of vomiting, especially feculent vomiting, in elderly patients. Considering the high prevalence of comorbidities, a comprehensive and personalized treatment approach is necessary to improve the outcomes of this vulnerable population. Future multicenter, prospective studies are needed to validate these findings and develop more effective management strategies.

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