

# Short- and long-term outcomes of surgical techniques in gastrointestinal bezoar management

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## ABSTRACT

**BACKGROUND:** Bezoars are masses formed by the accumulation of indigestible food or foreign materials within the gastrointestinal (GI) tract. This study aimed to compare the outcomes of fragmentation and milking (FM) versus enterotomy in patients with bezoar-induced GI obstruction and to evaluate these findings in the context of the literature.

**METHODS:** This retrospective study analyzed data from 44 patients who underwent surgery for mechanical intestinal obstruction between 2009 and 2021 at our institution, in whom bezoars were identified as the etiological factor during the perioperative period. Demographic characteristics, comorbidities, history of previous abdominal surgery, localization of the bezoar, postoperative complications, and follow-up outcomes were evaluated. Patients with bezoars were divided into two groups: those who underwent FM and those who underwent enterotomy. Categorical variables were analyzed using the chi-square tests and are presented as frequencies and percentages. A p value <0.05 was considered statistically significant.

**RESULTS:** Of the patients, 25 (54.3%) were male, and the median age was 65 years (range: 56–73). Thirty patients (65.2%) underwent FM, and 16 patients (34.8%) underwent enterotomy. Severe complications (Clavien–Dindo grade IIIb–V) were observed in the enterotomy group, whereas no such complications occurred in the FM group (p=0.034). Additionally, postoperative bridled intestinal obstruction developed in six patients (37.5%) in the enterotomy group after discharge (p=0.025).

**CONCLUSION:** Fragmentation and milking appears to be the preferred first-line surgical approach in patients undergoing emergency surgery for bezoar-induced gastrointestinal obstruction, as it is less invasive and associated with reduced postoperative morbidity. Furthermore, FM may decrease the risk of postoperative obstruction compared with the enterotomy technique.

**Keywords:** Bezoar; intestinal obstruction; surgery.

## INTRODUCTION

Bezoars are masses formed by the accumulation of indigestible food or foreign bodies within the gastrointestinal (GI) tract. In 1854, Richard Quain, an Irish anatomist and surgeon at the University of London, described a mass found in the stomach during an autopsy and termed it a "bezoar."<sup>[1]</sup>

Bezoars may develop in any segment of the GI tract. They are identified in fewer than 0.5% of individuals undergoing esophagogastroduodenoscopy and account for 0.4–4.8% of cases presenting with mechanical intestinal obstruction.<sup>[2]</sup> The stomach is the most commonly affected organ. Diagnosis is typically established using endoscopic or radiological methods, and treatment approaches vary depending on clinical presentation.<sup>[2,3]</sup>

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Depending on their location within the GI tract, bezoars may present with uncommon clinical manifestations such as ulceration, bleeding, or gastric outlet obstruction; however, they most frequently cause obstruction, presenting as an acute abdominal syndrome. In patients with clinical signs of mechanical intestinal obstruction, prompt surgical planning is required following advanced imaging studies.<sup>[4,5]</sup>

Although bezoar-induced obstruction can rarely be managed conservatively with proteolytic enzymes, most patients require emergency surgical intervention.<sup>[2]</sup> Management depends on the location and mobility of the bezoar, with either endoscopic or surgical approaches employed. When feasible, endoscopic methods are preferred as first-line treatment. In surgical management, fragmentation and milking (FM) should initially be attempted. If the bezoar is impacted, immobile, or cannot be fragmented, it should be removed via enterotomy or gastrotomy. Partial bowel resection is indicated in cases where bowel circulation or integrity is compromised.<sup>[6,7]</sup>

In this study, we aimed to compare the outcomes of FM and enterotomy techniques in patients with bezoar-induced GI obstruction and to evaluate these results in the context of the literature.

## MATERIALS AND METHODS

### Patient Selection

Data from 44 patients who underwent surgery for mechanical gastrointestinal obstruction at our clinic between June 2009 and January 2021, and in whom a bezoar was identified as the perioperative cause, were retrospectively analyzed. Demographic characteristics (age, sex), comorbidities (diabetes mellitus [DM], hypertension [HT], coronary artery disease [CAD], chronic obstructive pulmonary disease [COPD]), history of previous abdominal surgery, bezoar location within the GI tract, postoperative complications (classified according to the Clavien–Dindo system), and follow-up duration were evaluated.<sup>[8]</sup> Patients with bezoars were divided into two groups based on the surgical technique used: FM and enterotomy. The mean follow-up period was  $70.96 \pm 7.79$  months. Episodes of mechanical bowel obstruction during postoperative follow-up were also reviewed.

### Patient Management

In patients with bezoars identified on preoperative computed tomography of the GI tract, oral intake was discontinued and intravenous hydration was initiated. Decompression of proximal segments was achieved using a nasogastric tube. Endoscopic intervention with fragmentation was attempted in patients without signs of acute abdomen when the bezoar was located proximal to the second part of the duodenum or within colonic segments. Laparotomy was performed in cases of failed endoscopic treatment, development of complications, or when the bezoar was located in the ileum or jejunum.

During surgical exploration, bowel segments showing signs of necrosis were resected along with bezoar removal. In the absence of necrosis, bezoars were managed using either FM or enterotomy. Patients were categorized as follows: (1) bezoars suitable for fragmentation were fragmented and milked distally; (2) bezoars that could not be fragmented or were impacted underwent enterotomy.

### Statistical Analysis

Normality of the data was assessed using the Shapiro–Wilk test. Nonparametric tests, specifically the Mann–Whitney U test, were applied where appropriate. Descriptive statistics were reported as medians and interquartile ranges (IQR). Categorical variables were analyzed using the chi-square test and are presented as frequencies and percentages. Statistical significance was set at  $p < 0.05$ .

Multivariate logistic regression analysis was performed to identify independent predictors of enterotomy and postoperative complications, including postoperative mechanical bowel obstruction (MBO) and Clavien–Dindo (CD) grade. Odds ratios (OR) and 95% confidence intervals (CI) were calculated for each predictor. A  $p$  value  $< 0.05$  was considered statistically significant.

A post hoc power analysis was conducted for the primary outcome (postoperative MBO). Based on observed MBO rates (10% in the fragmentation group vs. 31% in the enterotomy group), sample sizes ( $n=30$  and  $n=16$ ), and a two-sided alpha of 0.05, the statistical power was estimated at approximately 65–70%, indicating moderate power to detect significant difference. Larger sample sizes would be required for more robust statistical power.

This study was approved by the Inonu University Health Sciences Non-Interventional Clinical Research Ethics Committee (Date: 26-07-2022, Decision no: 2022/3417) and was conducted in accordance with the principles of the Declaration of Helsinki.

## RESULTS

Of the patients included in the study, 25 (54.3%) were male, and the median age was 65 (56–73) years. Twenty-five patients (56.8%) were in the geriatric age group ( $>65$  years). The most common comorbidities were HT (25%) and CAD (15.9%), followed by DM (9.1%) and COPD (9.1%). The prevalence of DM in the geriatric subgroup was 12% (Table 1). A history of previous abdominal surgery was present in 30

**Table 1.** Prevalence of diabetes mellitus by age group

	Age <65 years	Age >65 years
	n (%)	n (%)
DM	1 (5.3%)	3 (12%)

DM: Diabetes mellitus.

**Table 1.** Demographic characteristics of patients

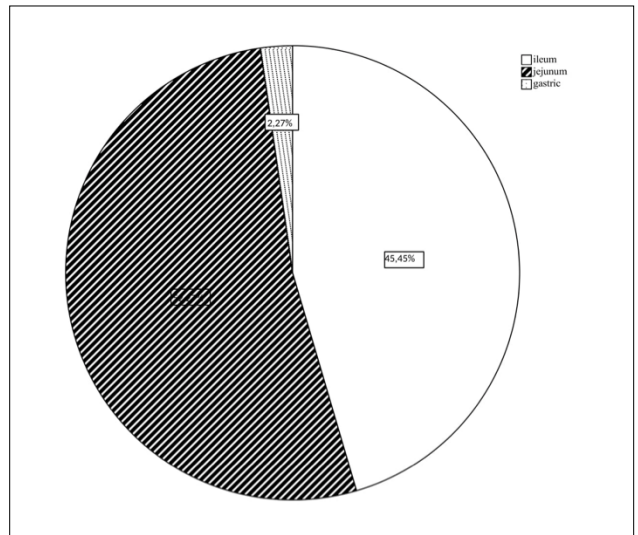
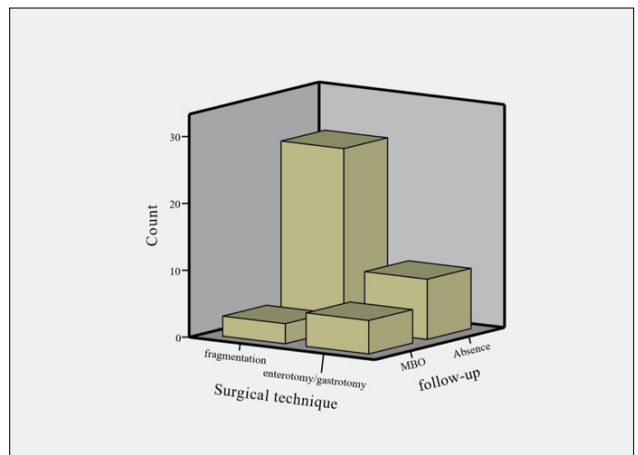
Variables	Median (Q1–Q3)	n (%)
Age, years	65 (56-73)	
Age >65 years		25 (56.8%)
Sex		
Male		25 (56.8%)
Female		19 (43.2%)
DM		4 (9.1%)
CAD		7 (15.9%)
HT		11 (25%)
COPD		4 (9.1%)
Previous gastric ulcer surgery		20 (45.5%)
Previous abdominal surgery		30 (68.2%)
Bezoar location		
Ileum		20 (45.5%)
Jejunum		23 (52.3%)
Stomach		1 (2.3%)
Surgical technique		
Fragmentation and milking		30 (68.2%)
Enterotomy/gastrotomy		14 (31.8%)
CD classification		
Grade I		40 (90.9%)
Grade II		2 (4.5%)
Grade IIIb		1 (2.3%)
Grade V		1 (2.3%)
Length of stay, days	7 (5-10)	
Follow-up, months	56 (33-105.5)	
Bridal MBO		8 (18.2%)

CD: Clavien–Dindo classification; MBO: Mechanical bowel obstruction; DM: Diabetes mellitus; HT: Hypertension; COPD: chronic obstructive pulmonary disease.

patients (68.2%), most commonly for duodenal ulcer. Bezoars were most frequently located in the jejunum (52.3%) and ileum (45.5%), while one patient (2.3%) had a gastric bezoar (Table 2, Fig. 1).

Patients were divided into two groups according to surgical technique: FM (68.2%) and enterotomy (31.8%). During postoperative follow-up, one patient died, and one patient required reoperation (CD grade 3b). The median length of hospital stay was 7 (5-10) days. During post-discharge follow-up, adhesive small bowel obstruction developed in eight patients (18.2%) (Table 2).

Reviewing the medical histories of our patients, we found that 30 (68.2%) had previously undergone abdominal surgery, of whom 20 (45.5%) had a history of duodenal ulcer surgery

**Figure 1.** Distribution of bezoar in patients with mechanical intestinal obstruction.**Figure 2.** Comparison of late postoperative complications between fragmentation and enterotomy groups.

(Billroth I or II).

Comparative analysis between groups showed no significant differences in age, sex, comorbidities, bezoar location, history of previous abdominal surgery, or length of hospital stay. However, severe (CD grade 3b–5) morbidity and mortality occurred only in the enterotomy group and not in the FM group ( $p=0.034$ ). Additionally, post-discharge adhesive small bowel obstruction was more frequent in patients who underwent enterotomy (five patients, 35.7%;  $p=0.039$ ) (Table 3, Fig. 2).

In multivariate logistic regression analysis, postoperative mechanical bowel obstruction (1=no, 2=yes) was identified as an independent predictor associated with enterotomy. Patients undergoing enterotomy had a significantly increased likelihood

**Table 3.** Univariate analysis of surgical techniques

Variables	FM		Enterotomy/Gastrotoomy		p-value
	Median (Q1–Q3)	n (%)	Median (Q1–Q3)	n (%)	
Age, years	64 (56–73)		68 (57–76)		0.273
Age >65 years		15 (50%)		10 (71.4%)	0.181
Sex					
Male		17 (56.7%)		8 (57.1%)	0.976
Female		13 (43.3%)		6 (42.9%)	
DM		3 (10%)		1 (7.1%)	0.759
CAD		6 (20%)		1 (7.1%)	0.277
HT		7 (23.3%)		4 (28.6%)	0.709
COPD		2 (6.7%)		2 (14.3%)	0.413
Previous gastric ulcer surgery		16 (53.3%)		4 (28.6%)	0.124
Previous abdominal surgery		22 (73.3%)		8 (57.1%)	0.283
Bezoar location					
Ileum		13 (43.3%)		7 (50%)	0.275
Jejunum		17 (56.7%)		6 (42.9%)	
Stomach		0 (0%)		1 (7.1%)	
CD classification					
Mild		30 (100%)		12 (85.7%)	0.034*
Severe		0 (0%)		2 (14.3%)	
Length of stay, days	7 (4–10)		7 (6–10)		0.455
Bridal MBO		3 (10%)		5 (35.7%)	0.039*

CD: Clavien–Dindo classification; MBO: Mechanical bowel obstruction; DM: Diabetes mellitus; HT: Hypertension; COPD: chronic obstructive pulmonary disease.

**Table 4.** Logistic regression analysis comparing enterotomy and fragmentation

Estimate ( $\beta$ )	SE	Z	p	95% CI ( $\beta$ )	Odds ratio	95% CI (OR)
0.511	0.730	0.700	0.484	–0.921–1.942	1.667	0.398–6.992
<b>Postoperative MBO (1=No, 2=Yes)</b>						
–1.861	0.845	–2.203	0.028	–3.516–0.206	0.156	0.029–0.814
<b>Clavien–Dindo grade (1=Mild, 2=Severe)</b>						
17.916	1696.734	0.011	0.992	–3307.622–3343.454	$6.04 \times 10^7$	0.00–very large

MBO: Mechanical bowel obstruction; SE: Standard error; CI: Confidence interval. Odds ratio (OR) >1 indicates increased odds of undergoing enterotomy.

of developing MBO, with approximately 6.4-fold higher odds ( $\beta = -1.861$ ,  $SE = 0.845$ ,  $Z = -2.203$ ,  $p = 0.028$ ;  $OR = 0.156$ , 95% CI: 0.029–0.814). In contrast, Clavien–Dindo grade (1=mild, 2=severe) was not significantly associated with enterotomy ( $\beta = 17.916$ ,  $SE = 1696.734$ ,  $Z = 0.011$ ,  $p = 0.992$ ), and the wide confidence intervals indicate statistical instability. These findings demonstrate that enterotomy is an independent risk factor for postoperative MBO in this cohort (Table 4).

## DISCUSSION

Bezoars are reported to account for 4% of cases presenting to the emergency department with GI obstruction.<sup>[9]</sup> In patients requiring emergency abdominal surgery, the least invasive and least aggressive approach should be preferred whenever feasible. This is particularly important because bezoar-related bowel obstruction frequently occurs in frail geriatric populations. In the study by Davis et al.,<sup>[10]</sup> morbid-

ity (28% vs. 10%) and mortality (15.2% vs. 2.5%) were significantly higher in elderly patients compared with younger individuals following emergency surgery. Similarly, our study population predominantly consisted of elderly patients with multiple comorbidities, with 56.8% classified as geriatric. Accordingly, FM was primarily preferred as the initial surgical approach.

The risk of adhesive bowel obstruction increases following abdominal surgery.<sup>[9,10]</sup> In our study, long-term postoperative follow-up revealed a significantly higher rate of obstruction episodes in the enterotomy group compared with the FM group ( $p=0.039$ ). This finding may be explained by impaired bowel motility at the enterotomy and suture site, as well as an increased tendency for adhesion formation in these areas. When the bezoar is firmly impacted or causing deformation of the bowel wall, FM should be considered as the first-line surgical option. However, although FM avoids anastomosis-related complications, it carries a potential risk of intraluminal hemorrhage due to the milking maneuver.<sup>[9]</sup>

Postoperative complications such as leakage at the repair or anastomosis site may occur in patients undergoing enterotomy or bowel resection. These complications can lead to abscess formation, peritonitis, or sepsis, as well as surgical site infections and prolong hospitalization. Furthermore, relaparotomy due to anastomotic leakage is associated with increased mortality.<sup>[11]</sup> In our study, severe complications were significantly more frequent in the enterotomy group ( $p=0.034$ ). These findings further support the preferential use of FM in appropriately selected patients to minimize postoperative morbidity.

In adults without psychiatric disorders, bezoar formation is most commonly associated with prior gastric surgery, which disrupts normal pyloric function and impairs mechanical digestion. In our cohort, 30 patients (65%) had a history of abdominal surgery, including 20 patients (43%) who had undergone duodenal ulcer surgery (Billroth I or II procedures). Consistent with the literature<sup>[5]</sup> previous abdominal surgery, particularly peptic ulcer surgery, appears to be a major risk factor for bezoar-related obstruction. Therefore, in patients presenting with mechanical small bowel obstruction and a history of such procedures, bezoars should be considered in the differential diagnosis, and management should be planned accordingly.

In addition to prior surgery, other important factors in the etiology of bezoar formation include excessive consumption of high-fiber foods, inadequate mastication, and impaired gastric motility, particularly diabetic gastroparesis.<sup>[12,13]</sup> Diabetes, especially when associated with poor glycemic control, is a well-known cause of gastroparesis. The prevalence of gastroparesis has been reported as 5% in patients with type 1 diabetes and 1% in those with type 2 diabetics.<sup>[14]</sup> In our study, DM was present in 8.7% of patients. Since gastric motility disorders increase with age,<sup>[15]</sup> elderly individuals are at greater risk

of bezoar formation. Thus, advancing age and the increasing prevalence of diabetes may contribute to a higher incidence of bezoars through the mechanism of gastroparesis. According to Laiteerapong et al.,<sup>[16]</sup> the prevalence of diabetes in individuals over 65 years of age is approximately 21%, whereas in our study it was 12%. Despite the lower prevalence in our cohort, gastroparesis-related bezoars should still be considered in the differential diagnosis of geriatric patients presenting with mechanical GI obstruction.

The lifetime risk of developing mechanical small bowel obstruction following abdominal surgery has been reported to be as high as 25%.<sup>[17]</sup> Particularly after open surgical procedures, the increased risk of adhesion formation means that patients may develop mechanical intestinal obstruction later in life. Our findings indicate that enterotomy is an independent risk factor for the development of postoperative mechanical bowel obstruction. Clinicians should therefore be aware that patients who undergo enterotomy for bezoar-related obstruction may be at increased risk of recurrent obstruction and may present again with similar symptoms in the future.

A review of the literature reveals a limited number of studies comparing surgical techniques in bezoar-induced gastrointestinal obstruction. Altintoprak et al.<sup>[5]</sup> evaluated 121 patients by stratifying them into age groups ( $\geq 65$  vs.  $< 65$  years), whereas Wang et al.<sup>[9]</sup> surgical and non-surgical management in 40 patients with bezoar-related small bowel obstruction. In contrast, in our study, patients who underwent surgery were grouped according to the surgical technique used, and outcomes were analyzed accordingly. We believe that our findings contribute to addressing this gap in the literature.

The retrospective design and the relatively small sample size of our study represent limitations, which may introduce bias and limit the generalizability of the findings. In our patient grouping, the use of enterotomy for impacted bezoars may have introduced bias in the assessment of postoperative complications and long-term readmission due to mechanical obstruction. Additionally, the relatively small sample size limits the strength of our findings. More reliable results could be obtained through prospective, multicentric studies with larger, randomized cohorts. Another limitation is the inability to classify bezoar types—particularly in cases managed with fragmentation and milking. Therefore, we were only able to identify which bezoar-related intestinal obstruction cases were suitable for the fragmentation technique.

## CONCLUSION

In patients undergoing emergency surgery for GI obstruction caused by bezoars, fragmentation and distal milking appear to be less invasive approaches associated with reduced postoperative morbidity and should be considered as the first-line surgical option when feasible. Furthermore, our findings suggest that the fragmentation and milking technique may reduce the incidence of postoperative intestinal obstruction

compared with enterotomy.

In patients presenting with mechanical gastrointestinal obstruction, especially those with a history of conditions or prior surgeries that impair gastrointestinal motility, bezoars should be considered in the differential diagnosis.

**Ethics Committee Approval:** This study was approved by the Inonu University Health Sciences Non-Interventional Clinical Research Ethics Committee (Date: 26.07.2022, Decision No: 2022/3417).

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## REFERENCES

1. Kement M, Ozlem N, Colak E, Kesmer S, Gezen C, Vural S. Synergistic effect of multiple predisposing risk factors on the development of bezoars. *World J Gastroenterol* 2012;18(9):960-4. [CrossRef]
2. Iwamura M, Okada H, Matsueda K, Inaba T, Kusumoto C, Imagawa A, et al. Review of the diagnosis and management of gastrointestinal bezoars. *World J Gastrointest Endosc* 2015;7(4):336-45. [CrossRef]
3. Paschos KA, Chatzigeorgiadis A. Pathophysiological and clinical aspects of the diagnosis and treatment of bezoars. *Ann Gastroenterol* 2019;32(3):224-32. [CrossRef]
4. Deniz Necdet Tihan, Evren Dilektaşlı, Gözde Doğan. Evaluation of acute intestinal obstruction cases due to gastrointestinal bezoars: 5-year-experience. *Kafkas J Med Sci* 2016;6(3):213-8. [CrossRef]
5. Altıntoprak F, Gemici E, Yildiz YA, Yener Uzunoglu M, Kivilcim T. Intestinal obstruction due to bezoar in elderly patients: risk factors and treatment results. *Emerg Med Int* 2019;2019:3647356. [CrossRef]
6. Erzurumlu K, Malazgirt Z, Bektaş A, Dervisoglu A, Polat C, Senyurek G, et al. Gastrointestinal bezoars: a retrospective analysis of 34 cases. *World J Gastroenterol* 2005;11(12):1813-7. [CrossRef]
7. Gorgas E, Dowling S. Bezoar-induced small bowel obstruction: a rare cause of a common problem. *J Surg Case Rep* 2023;2023(10):rjad553. [CrossRef]
8. Dindo D, Demartines N, Clavien PA. Classification of surgical complications: a new proposal with evaluation in a cohort of 6336 patients and results of a survey. *Ann Surg* 2004;240:205-13. [CrossRef]
9. Wang S, Yang X, Zheng Y, Wu Y. Clinical characteristics and indications for surgery for bezoar-induced small bowel obstruction. *J Int Med Res* 2021;49(1):300060520979377. [CrossRef]
10. Davis P, Hayden J, Springer J, Bailey J, Molinari M, Johnson P. Prognostic factors for morbidity and mortality in elderly patients undergoing acute gastrointestinal surgery: a systematic review. *Can J Surg* 2014;57(2):E44-52. [CrossRef]
11. Schick MA, Kashyap S, Collier SA, Meseha M. Small bowel obstruction. In: *StatPearls*. Treasure Island [FL]: StatPearls Publishing; 2025 Jan-. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK448079/>
12. Quercioli A, Dallegrì F, Ottonello L, Montecucco F, Borgonovo G. Intestinal radiation-induced stricture favours small bowel obstruction by phytobezoars: report of a case. *Gastroenterol Res Pract* 2009;2009:482039. [CrossRef]
13. LaFountain J. Could your patient's bowel obstruction be a bezoar? *Today's Surg Nurse* 1999;21(2):34-7.
14. Çalapkörür S, Şahin H. Nutritional therapy in diabetic gastroparesis. *Bes Diy Derg* 2016;44(3):257-264.
15. Gidwaney NG, Bajpai M, Chokhavatia SS. Gastrointestinal dysmotility in the elderly. *J Clin Gastroenterol* 2016;50(10):819-27. [CrossRef]
16. Laiteerapong N, Huang ES. Diabetes in older adults. In: Cowie CC, Casagrande SS, Menke A, et al., editors. *Diabetes in America*. 3rd ed. Bethesda (MD): National Institute of Diabetes and Digestive and Kidney Diseases (US); 2018 Aug.
17. Griffiths S, Glancy DG. Intestinal obstruction. *Surgery (Oxford)* 2023;41(1):47-54. [CrossRef]

## ORJİNAL ÇALIŞMA - ÖZ

### Gastrointestinal sistem bezorlarında cerrahi tekniklerin kısa ve uzun dönem sonuçları

**AMAÇ:** Bezolar, gastrointestinal (GI) sistemde sindirilemeyen gıda veya yabancı cisimlerin birikmesiyle oluşan yapılarıdır. Çalışmamızda, GI sistemde tıkanmaya neden olan bezoarları olan hastalara uygulanan fragmentasyon+sağma(FS) ve enterotomi cerrahi tekniklerinin sonuçlarını karşılaştırmayı ve sonuçları literatür eşliğinde değerlendirmeyi amaçladık.

**GEREÇ VE YÖNTEM:** Kliniğimizde 2009-2021 yılları arasında gastrointestinal sistem mekanik tıkanıklığı nedeniyle ameliyat edilen ve perioperatif etiyolojide bezoar tespit edilen 44 hastanın verilerini retrospektif olarak inceledik. Demografik veriler, ek hastalıklar (komorbiditeler), geçirilmiş karın ameliyatı öyküsü, gastrointestinal sistem yerleşim yeri, ameliyat sonrası komplikasyonlar ve takip süreleri analiz edildi. Bezoarlı hastalar, FS yapılanlar ve enterotomi yapılanlar olarak iki gruba ayrıldı. Kategorik değişkenler ki-kare testleri ile analiz edildi ve sonuçlar frekans ve yüzde olarak sunuldu. İstatistiksel anlamlılık  $p < 0.05$  olarak tanımlandı.

**BULGULAR:** Çalışmaya dahil edilen hastaların 25'i (%54,3) erkekti ve medyan yaş 65 (56-73) idi. Popülasyon, 30 (%65,2) hastadan oluşan FS uygulanan grup ile 16 (%34,8) hastadan oluşan enterotomi uygulanan grup olarak ikiye ayrıldı. Enterotomi yapılan hastalarda şiddetli (CD 3b-5) morbidite gözlenirken, FS grubunda hiç görülmedi ( $p=0.034$ ). Taburculuk sonrası enterotomi yapılan hastaların 6'sında (%37,5) tekrarlayan mekanik bağırsak tıkanıklığı gözlemlendi ( $p=0.025$ ).

**SONUÇ:** Bezoarlarda FS yönteminin, daha az invaziv olması ve ameliyat sonrası morbiditeleri azaltması nedeniyle, acil ameliyat edilen gastrointestinal sistem tıkanıklığı olan hastalarda ilk seçenek yöntem olduğuna inanıyoruz. Ayrıca, FS yönteminin, enterotomi tekniğine kıyasla ameliyat sonrası tıkanıklık ataklarını azalttığını literatüre sunmaktayız.

**Anahtar sözcükler:** Bezoar; cerrahi; mekanik bağırsak tıkanıklığı.

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