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ORIGINAL ARTICLE

Outcomes of Non-Operative Management Versus Early Surgery in Patients with Adhesive Small Bowel Obstruction: A Comparative Study

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ABSTRACT

Background: Small bowel obstruction (SBO) is a common general surgical emergency, thought to be responsible for up to 20 per cent of all acute surgical admissions.

Objective: To compare the outcomes of non-operative management versus early surgery in patients with ASBO in terms of resolution rates, hospital stay, complications, recurrence, and mortality.

Methods: This comparative observational study was conducted at Department of Surgery, Sahiwal Teaching Hospital, Sahiwal from March 2023 to October 2023. A total of 355 patients diagnosed with ASBO were included, with 215 managed non-operatively and 140 undergoing early surgery. Data on demographics, clinical presentation, imaging findings, treatment outcomes, and follow-up were collected.

Results: Non-operative management achieved symptom resolution in 86% of patients, while 13.9% required conversion to surgery. The mean hospital stay was significantly shorter in the non-operative group (4.2 ± 1.5 days) compared to the early surgery group (7.6 ± 2.8 days; $p < 0.001$). Complication rates were lower in the non-operative group (5.6%) than in the early surgery group (20.0%; $p = 0.002$). In-hospital mortality did not differ significantly between groups (0.5% vs. 1.4%; $p = 0.40$). Recurrence within six months was significantly higher in the non-operative group (19.5%) compared to the early surgery group (5.7%; $p < 0.001$).

Conclusion: Both non-operative management and early surgical intervention hold distinct advantages in the treatment of adhesive small bowel obstruction.

Keywords: Adhesive small bowel obstruction, non-operative management, early surgery, treatment outcomes, recurrence

INTRODUCTION

Small bowel obstruction (SBO) is a frequent acute surgical condition, believed to account for approximately 20 percent of all acute surgical admissions. Intra-abdominal adhesions are by far the most common cause, with adhesional SBO (aSBO) accounting for roughly 60 percent of all cases[1]. Although these may also occur in patients with so-called 'virgin abdomens', the most common group is patients who have undergone prior surgeries, as adhesions are present in over 30 percent of patients who undergo surgery; having open surgery poses a greater risk than laparoscopy[2]. Strictures and adhesive small bowel obstruction (ASBO) are still one of the most predominant causes of emergency admission for "acute abdomen" globally, notably in surgical units. It accounts for approximately 60–70% of all cases of small bowel obstruction, primarily resulting from postoperative adhesions formed following intra-abdominal procedures such as appendectomies, colorectal surgeries, and gynecological operations. These adhesions develop as a natural response to peritoneal injury, yet they can compromise intestinal transit by creating mechanical blockages[3]. The clinical spectrum of ASBO ranges from mild, self-resolving episodes to severe, life-threatening cases associated with strangulation, ischemia, or perforation, necessitating timely and appropriate management decisions. Non-operative management (NOM) has long been established as the first-line approach in patients with uncomplicated ASBO, defined by the absence of peritoneal signs, ischemia, or complete obstruction. NOM typically involves nasogastric decompression, intravenous fluid resuscitation, correction of electrolyte imbalances, and close clinical monitoring[4]. Several studies suggest that up to 70–80% of uncomplicated ASBO cases may resolve successfully without surgical intervention, thus avoiding the risks inherent to operative procedures such as postoperative infections, new adhesion formation, and incisional hernias[5]. However, there are limitations to NOM, particularly concerning delayed resolution and recurrence. A proportion of patients may eventually require surgical intervention either due to failure of conservative treatment or progression to complicated obstruction[6]. Delaying necessary surgery in such cases can lead to increased morbidity and mortality, including bowel necrosis and sepsis. Furthermore, recurrent episodes of ASBO following successful NOM are common, raising questions about the long-term efficacy of conservative strategies as opposed to definitive surgical management[7]. Early surgery, often performed through laparotomy or increasingly via minimally invasive laparoscopic techniques, offers the advantage of directly addressing the underlying cause of obstruction[8]. It enables the release of adhesions, resection of necrotic bowel if necessary, and the prevention of further complications. However, early surgical intervention is not without significant perioperative risks, especially in elderly patients or those with comorbid conditions[9]. Moreover, each subsequent surgical intervention for ASBO may contribute to additional adhesion formation, creating a vicious cycle. Given these considerations, the optimal timing and selection criteria for surgery versus conservative management remain debated within surgical practice. Current guidelines such as those from the World Society of Emergency Surgery (WSES) provide general recommendations but emphasize individualized patient assessment due to the heterogeneity in clinical presentations and institutional resources[10,11].

Objective: The present study aims to comprehensively evaluate the outcomes of non-operative management compared with early surgical intervention in patients diagnosed with ASBO.

METHODOLOGY

This was a comparative observational study conducted to evaluate and compare the outcomes of non-operative management versus early surgery in patients diagnosed with adhesive small bowel obstruction (ASBO). The study was carried out at the Department of Surgery, Sahiwal Teaching Hospital, Sahiwal, from March 2023 to October 2023. A total of 355 patients presenting with clinical and radiological evidence of ASBO were enrolled. Patients were divided into two groups: Group I (Non-Operative Management) and Group II (Early Surgery), based on the initial management strategy

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decided by the treating surgical team according to clinical presentation and institutional protocols. All adult patients aged 18 years and above, presenting with ASBO confirmed through clinical assessment, abdominal X-rays, or computed tomography (CT) scan were included in the study. Patients showing no signs of peritonitis, strangulation, or complete bowel obstruction were primarily allocated to the non-operative group, while those with evidence of complicated obstruction or failure of conservative treatment were allocated to the early surgery group. Exclusion criteria included patients with non-adhesive causes of small bowel obstruction (such as hernias, tumors, or inflammatory bowel disease), pregnant women, patients under 18 years of age, and those with severe comorbidities precluding surgical intervention. Non-operative management involved nasogastric decompression, intravenous fluids, electrolyte correction, and close clinical monitoring for up to 72 hours. Water-soluble contrast studies were utilized where indicated. Patients showing clinical deterioration or lack of improvement within the observation window were shifted to surgical management. Early surgery was defined as operative intervention performed within 24 hours of hospital admission. Data collection included demographic details (age, gender), presenting symptoms, duration of symptoms before admission, previous surgical history, radiological findings, and treatment modality. Outcome measures assessed were time to symptom resolution, length of hospital stay, complication rates, recurrence of obstruction within six months, and in-hospital mortality. All data were recorded using a structured proforma and analyzed using SPSS version 29.0. Categorical variables were presented as frequencies and percentages, while continuous variables were expressed as mean ± standard deviation. A p-value of <0.05 considered statistically significant.

RESULTS

The baseline characteristics showed both groups had a comparable mean age: 51.2 ± 14.6 years in the non-operative group versus 53.8 ± 13.9 years in the early surgery group (p = 0.08). Male gender distribution was similar as well, with 58.1% males in the non-operative group and 57.1% in the early surgery group (p = 0.87). Previous abdominal surgery was reported in 84.2% of non-operative cases and 89.2% of early surgery cases (p = 0.19). A significant difference was noted in complete obstruction on imaging, present in 38.1% of non-operative cases compared to 72.8% in early surgery cases (p < 0.001).

Table 1: Baseline Characteristics of Patients with Adhesive Small Bowel Obstruction (n = 355)

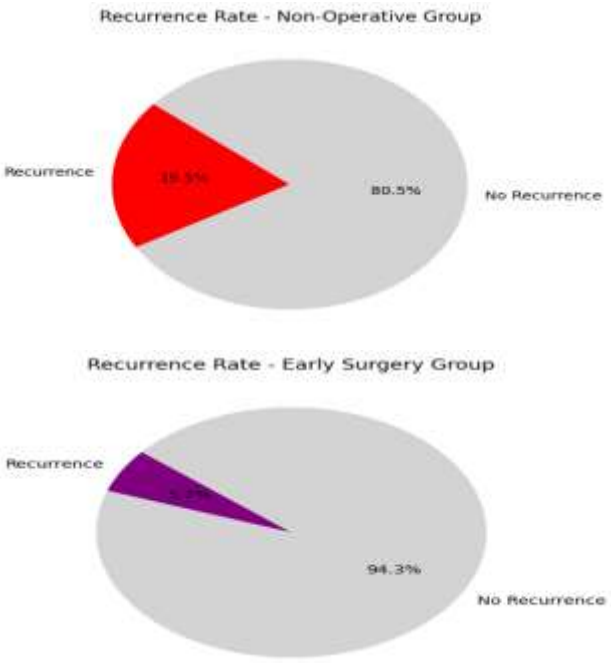
Characteristic	Group I: Non-Operative (n = 215)	Group II: Early Surgery (n = 140)	p-value
Age (years), Mean ± SD	51.2 ± 14.6	53.8 ± 13.9	0.08
Male Gender, n (%)	125 (58.1%)	80 (57.1%)	0.87
Previous Abdominal Surgery, n (%)	181 (84.2%)	125 (89.2%)	0.19
Complete Obstruction on Imaging, n (%)	82 (38.1%)	102 (72.8%)	<0.001

Table 2: Treatment Outcomes in Non-Operative vs. Early Surgery Groups

Outcome	Group I: Non-Operative (n = 215)	Group II: Early Surgery (n = 140)	p-value
Resolution Without Surgery, n (%)	185 (86.0%)	–	–
Conversion to Surgery, n (%)	30 (13.9%)	–	–
Length of Hospital Stay (days), Mean ± SD	4.2 ± 1.5	7.6 ± 2.8	<0.001
Complications, n (%)	12 (5.6%)	28 (20.0%)	0.002
In-Hospital Mortality, n (%)	1 (0.5%)	2 (1.4%)	0.40

Table 3: Recurrence of Adhesive Small Bowel Obstruction at 6-Month Follow-Up

Recurrence Status	Group I: Non-Operative (n = 215)	Group II: Early Surgery (n = 140)	p-value
Recurrence, n (%)	42 (19.5%)	8 (5.7%)	<0.001
No Recurrence, n (%)	173 (80.5%)	132 (94.3%)	–



Resolution without surgery was achieved in 86.0% of non-operative patients, while 13.9% required conversion to surgery. The mean hospital stay was significantly shorter in the non-operative group, measuring 4.2 ± 1.5 days, compared to 7.6 ± 2.8 days in the early surgery group (p < 0.001). Complication rates were notably lower in the non-operative group (5.6%) than in the early surgery group (20.0%), with a statistically significant difference (p = 0.002). In-hospital mortality remained low across both groups, reported as 0.5% in non-operative and 1.4% in early surgery cases (p = 0.40).

At six-month follow-up, recurrence of adhesive small bowel obstruction was significantly higher in the non-operative group at 19.5%, compared to only 5.7% in the early surgery group (p < 0.001). Conversely, the non-recurrence rate was 80.5% in the non-operative group versus 94.3% in the early surgery group, favoring early surgery for long-term outcomes.

DISCUSSION

The present study compared the outcomes of non-operative management versus early surgical intervention in patients with adhesive small bowel obstruction (ASBO) across a sample size of 355 individuals. The findings demonstrate that non-operative management was successful in the majority of patients, with 86% achieving resolution without surgery. Nevertheless, non-operative management had a markedly higher recurrence rate (19.5%) within six months compared to early surgery at 5.7%. These findings are in line with other studies that have documented success rates for ASBOs managed conservatively, often within the 70–85% range

for uncomplicated cases[12]. It is well accepted that no operative treatment comprising nasogastric decompression, intravenous fluids, along with vigilant clinical observation, can symptomatically help a large number of patients avoid the operative risk. However, this study reinforces the notion that non-operative management, while effective in the short term, is fraught with an increased risk of recurrence, something that needs to be factored in during the clinical decision process[13]. The study also noted a substantial difference between the two groups in average length of stay, with the non-operative group 4.2 days and the surgical group 7.6 days. This difference substantiates findings from earlier studies that emphasized shorter lengths of hospitalization for non-operative cases. Still, the increased complication rate in the surgical group (20.0% vs 5.6%) is striking[14]. Postoperative complications like wound infections, intra-abdominal abscesses, and anastomotic leaks are serious factors in the decision to perform surgery sooner rather than later. Curiously, in-hospital mortality rates remain low and clinically non-significant in both groups (0.5% in non-operative versus 1.4% in early surgery), indicating both strategies may be safe for properly chosen patients[15]. Earlier studies show that with proper selection and surveillance, both non-operative and surgical strategies can be safely implemented as long as there is prompt recognition of failure in conservative management[16]. One striking insight from this study was the much greater rate of complete obstruction on imaging in the early surgery group (72.8% vs. 38.1%). This supports the guideline-based surgical management for patients who are completely obstructed, strangulated, or have significant deterioration despite conservative management[17]. Thus, imaging continues to play an essential role in determining the ASBO's initial management options. While the findings from this study back up the primary focus on non-operative management for uncomplicated ASBOs, they illustrate the significance of tailored approaches to patient care. Complete obstruction, unrelenting symptoms, or a clinically worsening condition are substantial red flags that require a reassessment of some degree of surgical intervention. Long-term outcomes, including quality of life, cost, and considering less invasive surgical options like laparoscopic adhesiolysis, may be pursued in future investigations. Furthermore, additional investigations are needed regarding the application of water-soluble contrast studies both as a diagnostic and therapeutic method.

CONCLUSION

Both non-operative management and early surgical intervention hold distinct advantages in the treatment of adhesive small bowel obstruction. Non-operative management proves highly effective in uncomplicated cases, minimizing hospital stay duration and procedural risks. However, this approach is accompanied by a notably higher risk of recurrence. In contrast, early surgical intervention, while associated with longer hospital stays and a higher complication rate, offers more definitive resolution in complex cases and significantly lowers recurrence rates.

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