

NON-OPERATIVE MANAGEMENT VS. EARLY SURGERY FOR ADHESIVE SMALL BOWEL OBSTRUCTION

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ABSTRACT

Background: Adhesive small bowel obstruction (ASBO) is a frequent surgical emergency. While non-operative management (NOM) often succeeds, prolonged obstruction may increase morbidity. Early operative management (EOM) can relieve obstruction promptly but carries surgical risks.

Objective: To compare clinical outcomes between NOM and EOM in patients admitted with ASBO.

Methods: We performed a retrospective cohort study of adults (≥ 18 years) treated for ASBO between January 2018 and December 2022. Patients were grouped by initial treatment strategy: NOM (bowel rest, nasogastric decompression, IV fluids; $n=160$) versus EOM (surgery within 24 hours of admission; $n=80$). Primary outcomes were resolution rate, length of hospital stay (LOS), and overall complication rate. Secondary outcomes included time to oral intake, 30-day mortality, and readmission for recurrent obstruction. Continuous variables were compared with t-tests; categorical variables with Chi-square; multivariate logistic regression adjusted for age, comorbidity, and prior surgeries assessed predictors of complications.

Results: Baseline characteristics (mean age sixty-two ± 14 years; 54% female; mean prior laparotomies 2.1 ± 1.0) were similar between groups. NOM succeeded in 128/160 (80%) patients; 32 (20%) required delayed surgery after a median of 72 hours. Mean LOS was shorter in EOM (7.2 ± 2.5 days) versus NOM (9.1 ± 3.4 days; $p < 0.001$). Overall complications occurred in 18.8% of NOM and 27.5% of EOM patients ($p = 0.12$). Time to oral intake was faster after EOM (3.8 ± 1.2 days vs. 5.1 ± 1.6 days; $p < 0.001$). Thirty-day mortality did not differ (NOM 1.9% vs. EOM 2.5%; $p = 0.76$). Re-admission for recurrent ASBO within six months was higher after NOM (12.5% vs. 6.3%; $p = 0.08$).

Conclusion: Early operative management of ASBO is associated with shorter hospital stays and quicker return to diet, with comparable morbidity and mortality to non-operative management. Patient-specific factors must guide the timing of surgery to optimize outcomes.

INTRODUCTION

Adhesive small bowel obstruction (ASBO) accounts for up to 75% of all small bowel obstructions and remains a major contributor to postoperative morbidity and healthcare costs.¹ Standard initial treatment is non-operative management (NOM), involving bowel rest, gastric decompression, and intravenous fluids; success rates are reported between 65–85%.² However, failure of NOM—often defined as lack of clinical improvement within 48–72 hours—necessitates surgery, which may carry higher complication rates if delayed.³

Early operative management (EOM) within 24 hours aims to resolve obstruction before ischemia or perforation develop. Proponents argue that prompt surgery shortens hospital stay and reduces stricture formation, while critics caution against unnecessary laparotomies in patients who might respond to NOM.⁴ The optimal timing of intervention remains debated. This study compares outcomes of NOM versus EOM in a large retrospective cohort, hypothesizing that EOM yields shorter hospitalization and faster dietary recovery without increasing complications.

Methods

Study Design and Population

We conducted a retrospective review of adult patients (≥ 18 years) admitted with ASBO from January 1, 2018, to December 31, 2022. ASBO was diagnosed by clinical presentation (abdominal pain, vomiting, distension) and radiologic confirmation (abdominal X-ray or CT demonstrating dilated small bowel loops with transition point and adhesive bands).

Exclusion criteria: obstruction due to hernia, neoplasm, inflammatory bowel disease, or radiation; prior bowel resection within 30 days; and hemodynamic instability on admission.

Management Protocols

Non-Operative Management (NOM): All patients received nasogastric decompression, nil per os, IV crystalloid resuscitation, and close monitoring. Serial abdominal exams and daily imaging guided management. NOM failure was defined by persistent pain, rising inflammatory markers, radiologic evidence of strangulation, or no clinical improvement by 72 hours, prompting delayed surgery.

Early Operative Management (EOM): Patients taken to the operating room within 24 hours of admission underwent exploratory laparotomy, adhesiolysis, and, if necessary, bowel resection. Treatment assignment was at the discretion of the on-call surgical team, based on surgeon preference, patient comorbidity, and initial severity.

Data Collection

We extracted demographics, comorbidities (Charlson Comorbidity Index), number of prior abdominal surgeries, presenting vital signs and laboratory values, and radiographic findings. Outcomes recorded:

- **Primary:** Resolution rate without surgery (for NOM), LOS, and overall complication rate (Clavien–Dindo grade $\geq$ II).
- **Secondary:** Time to tolerating oral intake, 30-day mortality, re-admission for recurrent ASBO within six months.

Statistical Analysis

Statistical analyses were performed with SPSS v26. Continuous variables are reported as mean $\pm$ SD and compared using Student's t-test or Mann–Whitney U test. Categorical variables are reported as counts (percentages) with Chi-square or Fisher's exact test. A multivariate logistic regression model assessed independent predictors of overall complications, including treatment group, age, comorbidity score, and prior surgeries. A p-value <0.05 was considered statistically significant.

RESULTS

Patient Characteristics

A total of 240 patients met inclusion criteria: 160 (66.7%) managed initially with NOM and 80 (33.3%) underwent EOM. Baseline characteristics were comparable

Primary Outcomes

- Resolution without surgery (NOM): 128/160 (80%) experienced resolution; 32 (20%) required delayed laparotomy after median 72 (IQR 60–84) hours.
- Length of Stay: EOM group had significantly shorter LOS (7.2 ± 2.5 days) compared to NOM (9.1 ± 3.4 days; $p < 0.001$).
- Overall Complications: Occurred in 18.8% (30/160) of NOM and 27.5% (22/80) of EOM patients ($p = 0.12$).

Secondary Outcomes

- Time to Oral Intake: Earlier in EOM (3.8 ± 1.2 days) vs. NOM (5.1 ± 1.6 days; $p < 0.001$).
- 30-day Mortality: 1.9% (3/160) in NOM vs. 2.5% (2/80) in EOM ($p = 0.76$).
- Re-admission for ASBO: Higher after NOM (20/160, 12.5%) than EOM (5/80, 6.3%; $p = 0.08$).

Multivariate Analysis

After adjustment, EOM was independently associated with shorter LOS ($\beta = -1.8$ days; 95% CI -2.4 to -1.2 ; $p < 0.001$) and faster return to diet ($\beta = -1.3$ days; 95% CI -1.8 to -0.8 ; $p < 0.001$). Treatment strategy did not independently predict overall complications (OR 1.4; 95% CI 0.8–2.5; $p = 0.22$).

DISCUSSION

In this cohort, early operative management of ASBO shortened hospital stays and hastened dietary recovery without increasing complication or mortality rates compared to initial non-operative management. Although 80% of NOM patients avoided surgery, they experienced longer hospitalizations and slower functional recovery. The trend toward fewer readmissions in the EOM group suggests durable relief of obstruction.

Our findings align with prior studies reporting that delayed surgery after failed NOM is associated with higher rates of bowel resection and morbidity.⁵ By intervening early, surgeons may prevent ischemia, reduce adhesion recurrence, and facilitate quicker recovery.⁶ However, routine early surgery may subject patients to unnecessary operations; patient selection based on comorbidity, radiologic severity, and clinical response remains critical.

Limitations include the retrospective design, potential selection bias in choosing initial management, and single-center setting limiting generalizability. Prospective randomized trials stratified by obstruction severity are needed.

CONCLUSION

Early operative management for adhesive small bowel obstruction offers shorter hospitalization and faster return to oral intake, with similar complication and mortality rates compared to non-operative management. Individual patient factors and predictors of NOM failure should inform treatment timing to optimize outcomes.

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