



Laparoscopic Surgery for Small Bowel Obstruction: Is It Safe?

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Keywords

- Small bowel obstruction • Adhesions • Adhesiolysis • Laparoscopy • Bowel injury • Bowel resection

Key points

- Laparoscopic surgery for adhesive small bowel obstruction is becoming increasingly common.
- Existing evidence suggests that laparoscopic surgery for small bowel obstruction is associated with improved clinical outcomes.
- Laparoscopy in this patient population is associated with a higher risk of bowel injury than open surgery.
- Appropriate patient selection and techniques to mitigate the risks for bowel injury are necessary to make laparoscopy surgery a safe undertaking in this patient population.



Video content accompanies this article at <http://www.advancesurgery.com/>.

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INTRODUCTION

Small bowel obstruction (SBO) is among the most common reasons for admission to a surgical service in developed countries. Approximately 20% of all emergency admissions for acute abdomen are for SBO [1–3]. For approximately 20% to 30% of these admissions, surgical intervention is required, resulting in an estimated 350,000 operations performed annually in the United States. These operations are associated with 960,000 inpatient days and \$2.3 billion in health care expenditures [4,5].

Over the last 2 decades, the use of minimally invasive techniques in surgery have proliferated. Across a wide range of surgical illnesses, laparoscopy reduces surgical site infections, serious complications, perioperative mortality, and postoperative duration of stay [6–15].

Among patients undergoing surgery for adhesive SBO (aSBO) in the province of Ontario, Canada, the use of laparoscopy increased from 4% to more than 14% between 2005 and 2014 [16]. However, a laparoscopic approach in patients with SBO has unique challenges. These challenges include trocar introduction into an abdomen filled with distended bowel and the manipulation of bowel using laparoscopic bowel graspers in the context of distended, potentially ischemic bowel. Some studies have suggested that a laparoscopic approach in this patient population may be associated with an increased risk of bowel injury [6,16–18].

The objective of this article is to summarize the existing literature regarding the safety of laparoscopic surgery for SBO. This article focuses on surgery for SBO caused by adhesions. Adhesions are responsible for approximately 70% to 75% of all admissions for SBO [19]. Other common etiologies of SBO, including hernias, intraluminal or extraluminal malignancy, volvulus, intussusception, and so on have considerably varying surgical approaches for which laparoscopy may or may not be appropriate.

SIGNIFICANCE

Bowel injuries and resections

Despite the potential advantages with regard to postoperative complications, mortality, and duration of stay, there are several challenges associated with laparoscopic procedures in patients with SBO. Adhesions that may secure loops of bowel to the anterior peritoneal surface as well as the limited intraabdominal space caused by distended bowel makes trocar introduction challenging. Additionally, the handling of heavy, fluid-filled bowel using laparoscopic graspers may result in injuries to the bowel wall. Together, these challenges place patients at risk for bowel injury and, potentially, resection. Bowel resections in patients with SBO are associated with increased risk of postoperative complications [20].

Limitations in the available data have made the study of bowel injuries in this patient population challenging. Many population-level datasets do not capture conversion from laparoscopy to open, and most datasets only record bowel resection, neglecting iatrogenic bowel injury. In the most commonly

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