The American Journal of Surgery (2016) 212, 138-150

The American Journal of Surgery®

Review

A systematic review comparing laparoscopic vs open adhesiolysis in patients with adhesional small bowel obstruction

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KEYWORDS:
Adhesions;
Adhesiolysis;
Laparotomy;
Laparoscopy;
Enterotomy

Abstract

BACKGROUND AND OBJECTIVE: To evaluate whether surgical outcomes differ between laparoscopic vs open approach for adhesiolysis in patients presenting with adhesional small bowel obstruction (ASBO).

DATA SOURCE: A systematic review of literature on published studies reporting the surgical outcomes after laparoscopic vs open adhesiolysis for ASBO was undertaken using the principles of meta-analysis.

RESULTS: Fourteen comparative studies on 38,057 patients, evaluating the surgical outcomes in patients undergoing laparoscopic vs open adhesiolysis for ASBO were analyzed. Laparoscopic adhesiolysis resulted in the reduced risk of morbidity ($P < .00001$), mortality ($P < .0001$), and surgical infections ($P = .003$). In addition, the risk of respiratory complications, cardiac complications, bowel resection, and venous thromboembolism was lower with shorter hospitalization in laparoscopic adhesiolysis group. However, statistical equivalence was seen in variables of duration of operation and iatrogenic enterotomies.

CONCLUSIONS: Laparoscopic adhesiolysis for ASBO seems to have clinically proven advantage over open approach.

Adhesional small bowel obstruction (ASBO) is one of the most commonly presenting surgical condition in an emergency settings. Approximately, one-fifths of hospital admissions for acute abdominal pain are due to the bowl obstruction, with small bowel being the site of obstruction in more than 75% of those patients,[1,2] and 65% to 80% of these small bowel obstruction cases are caused by the intra-abdominal adhesions[3,4] in Western world, resulting from previous laparotomy or laparoscopy in three-fourths of patients.[5] The other reported causes of small bowel obstruction are abdominal wall hernias, volvulus, stricture, and benign or malignant tumors. Numerous studies indicate

The authors declare no conflicts of interest.

There were no relevant financial relationships or any sources of support in the form of grants, equipment, or drugs.

The provisional abstract of this study has been presented at the second Digestive Disorders Federation (DDF) meeting from 22nd to 25th, June 2015, in London, UK.

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Manuscript received October 29, 2015; revised manuscript January 4, 2016

0002-9610/$ - see front matter © 2016 Elsevier Inc. All rights reserved.
http://dx.doi.org/10.1016/j.amjsurg.2016.01.030

that the patients presenting with ASBO have had previous abdominal and/or pelvic operations such as appendectomy, cholecystectomy, colorectal resections, and gynecological procedures.[6,7] In fact, the incidence of ASBO was found in the range of 14% to 18% of patients who had general surgical operations done within 2 years.[8]

The management of ASBO consumes significant health care resources worldwide, and thus, modality of its operative treatment directly influences the cost. Conservative management is adopted as an initial treatment modality, but the need for operative intervention is necessary in variable percentage of patients with ASBO. Up to 50% to 60% of all patients presenting with ASBO may need surgical adhesiolysis.[9] Although open adhesiolysis is an accepted and widely practiced approach to treat ASBO, however, since the first reported successful laparoscopic adhesiolysis by Bastug in 1991,[10] this approach has been extensively investigated and reported. Previously, ASBO after previous surgery was considered as a contraindication to laparoscopy. But, studies in the last 2 decades have recorded the safety and expediency of keyhole surgery with benefits like reduced postoperative pain score, shorter length of hospital stay, reduced postoperative analgesia requirements, faster recovery time, quicker return of intestinal motility, reduced morbidity, and lower risk of recurrent adhesions curtailing ASBO recurrence rate.[11–17] With advanced laparoscopic surgical training and several laparoscopic equipment innovations, laparoscopic adhesiolysis has shown its potential to be a viable alternative to open technique in the management of ASBO. The aim of this study to evaluate the postoperative outcomes in patients undergoing laparoscopic adhesiolysis compared with exploratory laparotomy and open adhesiolysis for patients admitted in hospital with ASBO and failed to improve on conservative measures.

Methods

To find relevant articles for this review, a search of standard electronic databases such as PubMed, Medline, EMBASE, and the Cochrane Library was conducted using standard medical subject headings (MeSH) without limits for language, sex, sample size, and place of study. The references of published articles were hand searched to find additional studies that may have been missed by the literature search. The data of all types of comparative trials (randomized, nonrandomized) were collected and analyzed systematically to achieve a combined outcome for the purpose of generation of conclusive evidence. The statistical analysis of the extracted data was conducted according

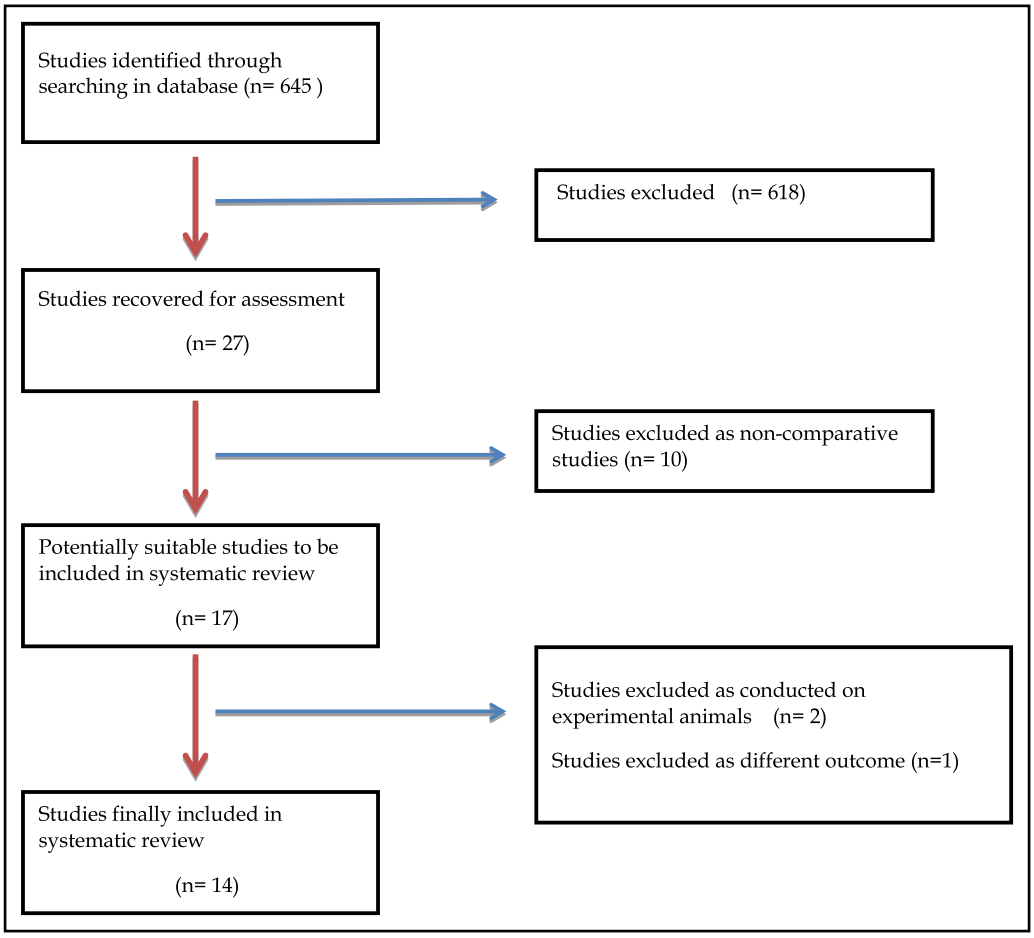

Figure 1 PRISMA flow chart.