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Surgery for Obesity and Related Diseases ■ (2014) 00–00

SURGERY FOR OBESITY  
AND RELATED DISEASES

Review article

## Does the closure of mesenteric defects during laparoscopic gastric bypass surgery cause complications?

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Received June 10, 2014; accepted October 10, 2014

### Abstract

**Background:** A well-known complication of laparoscopic Roux-en-Y gastric bypass surgery (LRYGB) is bowel obstruction due to internal herniation (IH). Evidence suggests that mesenteric defects should be closed during LRYGB to reduce the risk of IH. Therefore, surgeons are now closing mesenteric defects during LRYGB using sutures, clips, or fibrin glue. However, it has been reported that complications may arise due to the closure of mesenteric defects. The aim of this review was to summarize the reported possible complications associated with the closure of mesenteric defects during LRYGB.

**Methods:** A literature search of PubMed and EMBASE was performed to identify studies related to the closure of mesenteric defects during LRYGB. The studies were screened for the listing of possible complications associated with the closure of mesenteric defects. This systematic review was performed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis recommendations.

**Results:** Thirty studies complied with the inclusion criteria for our analysis, which included 21,789 patients. Reported complications related to closure of the mesenteric defects were: small bowel obstruction because of IH, kinking, and adhesions. IH occurred because of incomplete closure of the mesenteric defects in 1.4% of all patients, 1.2% by the antecolic approach, and 1.9% by the retrocolic approach, respectively. Kinking of the small bowel occurred in .2% of 1630 patients after closure of the mesenteric defects with clips and adhesion formation was found among 4.6% of 152 patients after closure of the mesenteric defects with nonabsorbable sutures.

**Conclusions:** The reported risk of complications caused by closure of the mesenteric defects during LRYGB seems low. (Surg Obes Relat Dis 2014;■:00–00.) © 2014 American Society for Metabolic and Bariatric Surgery. All rights reserved.

### Keywords:

Laparoscopic Roux-en-Y gastric bypass; Internal herniation; Complications; Kinking of the small bowel; Small bowel obstruction; Hematoma; Mesenteric defects; Closure of the mesenteric defects; Sutures; Clips; Fibrin glue

The increasing prevalence of obesity is a worldwide problem [1,2]. Laparoscopic Roux-en-Y gastric bypass surgery (LRYGB) is one of the most commonly used

procedures in the treatment of severe obesity [2]. Gastric bypass surgery for morbid obesity has been shown to have long-term benefits [3,4] in terms of weight loss and the reduction of obesity-related co-morbidities [1,4,5].

A well-known complication of LRYGB is bowel obstruction due to internal herniation (IH). The incidence of IH after LRYGB has been reported to be between .5 and 11%

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[6,7]. It has been suggested that mesenteric defects should be closed during LRYGB to reduce the risk of IH [6,7], and many surgeons are now closing the mesenteric defects during LRYGB using sutures, clips, or fibrin glue [6,8–10]. However, it has been reported that complications may arise because of the closure of mesenteric defects. The aim of this review was to report complications associated with the closure of mesenteric defects during LRYGB via a systematic review of the literature.

## Methods

This systematic review was conducted according to the PRISMA guidelines and MOOSE guidelines [11,12]. A literature search of PubMed (2003–2013, restrictions: English language, humans) and EMBASE (2003–2013, restrictions: English language, humans, and full text) was performed in October 2013 to identify studies related to the closure of mesenteric defects during LRYGB. The studies were screened for the listing of possible complications associated with the closure of mesenteric defects.

Studies related to laparoscopic antecolic and laparoscopic retrocolic gastric bypass were included. For inclusion, the studies had to include >100 patients. The number of patients treated via the antecolic and retrocolic approach, respectively, had to be clearly described. Studies in which mesenteric defects were not closed and studies involving

the treatment of pregnant women with internal hernia were excluded.

Studies were identified in PubMed using the following search terms:

1. “Gastric Bypass”[Majr] AND “Hernia”[Majr] AND “Laparoscopy”[Mesh]
2. “Gastric Bypass”[Majr] AND “Internal Hernia” AND “Laparoscopy”[Mesh]
3. “Intestinal Obstruction”[Mesh] AND “Gastric Bypass” [Majr] AND “Laparoscopy”[Mesh]

EMBASE was also searched using the following terms:

1. “Gastric bypass”, “hernia/or internal hernia”, and “laparoscopic surgery” as explode words.
2. “Gastric bypass”, “intestine obstruction”, and “laparoscopic surgery” as explode words.

Additional studies were identified from the reference lists of the studies retrieved by these searches and from the related articles provided by PubMed. The eligibility of each study was assessed based on its abstract in an unblinded standardized manner. When abstracts were found to be eligible for inclusion, the related full paper was obtained and evaluated in detail.

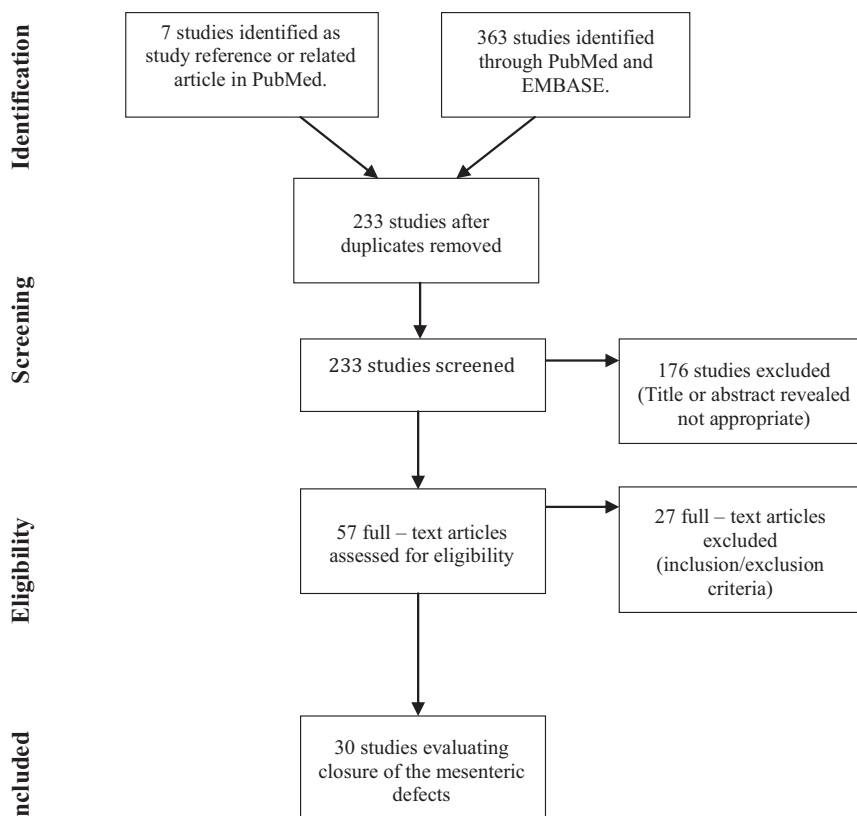


Fig. 1. Study selection process.

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