

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.JournalofSurgicalResearch.com

Isoperistaltic versus antiperistaltic stapled side-to-side anastomosis for colon cancer surgery: a randomized controlled trial



Akihisa Matsuda, MD,^{a,*} Masao Miyashita, MD,^a
Satoshi Matsumoto, MD,^a Nobuyuki Sakurazawa, MD,^a
Goro Takahashi, MD,^a Marina Yamada, PhD,^a and Eiji Uchida, MD^b

^a Department of Surgery, Nippon Medical School Chiba Hokusoh Hospital, Inzai, Japan

^b Department of Surgery, Nippon Medical School, Tokyo, Japan

ARTICLE INFO

Article history:

Received 23 November 2014

Received in revised form

22 February 2015

Accepted 25 February 2015

Available online 4 March 2015

Keywords:

Colon cancer

Anastomosis

Stapled side-to-side anastomosis

Surgery

Leakage

ABSTRACT

Background: Isoperistaltic stapled side-to-side anastomosis (SSSA), which is a modified technique from conventional antiperistaltic SSSA, has the benefits of antiperistaltic SSSA but requires less intestinal mobility. The aim of this randomized controlled trial was to evaluate short-term outcomes of isoperistaltic SSSA comparing them with antiperistaltic SSSA during colon cancer surgery.

Materials and methods: We conducted a randomized controlled trial of patients with colon cancer who underwent elective curative resection and had enough intestinal mobility at anastomosis. The primary outcome was the presence of anastomotic failure, including leakage, hemorrhage, and stenosis.

Results: Between July 2012 and January 2014, forty patients were enrolled (20 patients in each group). The study was suspended on detecting excess morbidity in the isoperistaltic SSSA group. No significant differences were observed in all preoperative backgrounds between the two groups. Anastomotic leakage was seen in two patients in the isoperistaltic SSSA group, compared with none in the antiperistaltic SSSA group, although the difference was not statistically significant ($P = 0.487$). One patient in the antiperistaltic SSSA group had anastomotic stenosis, which improved conservatively, compared with none in the isoperistaltic SSSA group ($P = 1.000$). No anastomotic hemorrhage was seen in either group. There was no significant difference in the median postoperative hospital stay ($P = 0.313$).

Conclusions: This study did not show any short-term advantage or disadvantage of isoperistaltic SSSA compared with that of antiperistaltic SSSA. However, considering that anastomotic leakage occurred only in the isoperistaltic SSSA group, additional modifications are recommended to perform safe isoperistaltic SSSA for colon surgery.

© 2015 Elsevier Inc. All rights reserved.

* Corresponding author. Department of Surgery, Nippon Medical School Chiba Hokusoh Hospital, 1715 Kamagari, Inzai, Chiba 270 1694, Japan. Tel.: +81 476 99 1111; fax: +81 476 99 1991.

E-mail address: a-matsu@nms.ac.jp (A. Matsuda).

0022-4804/\$ – see front matter © 2015 Elsevier Inc. All rights reserved.

<http://dx.doi.org/10.1016/j.jss.2015.02.059>

1. Introduction

Anatomic antiperistaltic stapled side-to-side anastomosis (SSSA), called as functional end-to-end anastomosis, using a linear stapling device after intestinal resection was introduced in 1968 [1]. The convenience, shorter requiring time, and less dependence on surgical skill compared with hand-sewn anastomosis have resulted in the former becoming widespread. Although evidence for the short- and long-term superiority of stapling over hand-sewn anastomosis is sparse, a recent meta-analysis demonstrated that stapled functional end-to-end ileocolic anastomosis is associated with fewer leakages than hand-sewn anastomosis is [2]. However, the disadvantage of antiperistaltic SSSA is that it requires greater mobilization of the intestine to overlap and anastomose than hand-sewn end-to-end anastomosis does.

Laparoscopic surgery for colon cancer has become a common practice worldwide because it is less invasive and has greater cosmetic benefit than conventional open surgery [3,4]. However, the approach occasionally requires more mobilization of the intestine, which should be elevated extracorporeally, to perform safe anastomosis than open surgery, in case intestinal ends and specimen extraction site were distant.

Isoperistaltic SSSA, which anastomoses oral- and anal-sided intestine side-to-sideways in the opposite direction using a linear stapling device (Fig. 1) [5,6], has the benefits of antiperistaltic SSSA but requires less intestinal mobility (schematic representation is shown in Fig. 2). In cases with insufficient intestinal mobility at anastomosis, isoperistaltic SSSA might be a good alternative to antiperistaltic SSSA. Therefore, the aim of this randomized controlled trial was to evaluate whether isoperistaltic SSSA is comparable with antiperistaltic SSSA for colon cancer surgery in terms of short-term outcomes.

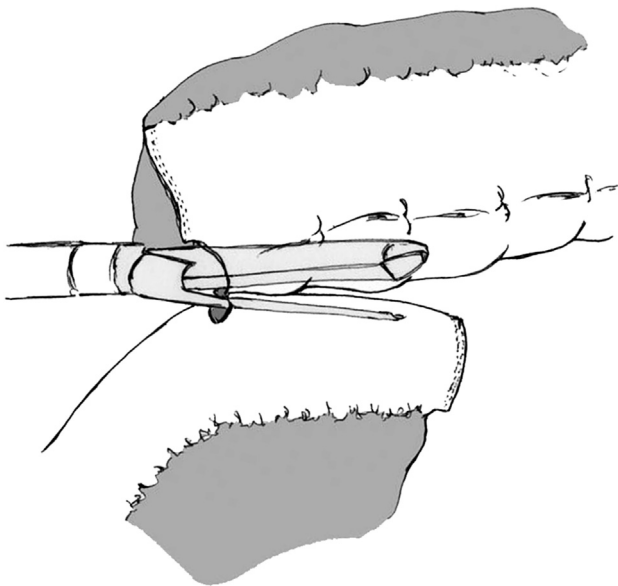


Fig. 1 – Diagrammatic representation of isoperistaltic SSSA. The entry hole for the linear stapler, created at the oral-site of anastomosis, was closed with 1-layer running suture.

2. Materials and methods

2.1. Study population

Patients with histologically proven colon cancer who were candidates for elective curative resection at the Department of Surgery, Nippon Medical School Chiba Hokusoh Hospital were eligible for inclusion. Patients were excluded if they were aged <20 or >85 y, had gastrointestinal obstruction, preoperative chemotherapy, or radiation, ongoing infection, and required defunctioning stoma, multiple anastomosis, or anastomosis by double stapling technique using a circular stapling device. We explained the details of the protocol to candidates and obtained written informed consent from the patients. During surgery, if the patient had enough intestinal mobility to perform whichever antiperistaltic SSSA or isoperistaltic SSSA without overtension, the actual enrollment was decided. Included patients were enrolled in this study and randomly divided into antiperistaltic SSSA and isoperistaltic SSSA groups, by use of numbered, sealed envelopes, which were stratified by the surgeon. This study was conducted in accordance with the Declaration of Helsinki. The ethical committee of our institution approved the study protocol. This study was registered with the clinical trials registry of the University Hospital Medical Information Network (UMIN-CTR, UMIN 000008485) in Japan. Given the nature of the intervention, it was not possible to blind the intervention group of each patient to the surgical team. Patients were not informed of the type of anastomosis performed during the observational period.

Demographic baseline and surgical variables of the patients were collected prospectively. All surgeries were performed by two colorectal surgeons with equivalent experiences in the surgical treatment of colorectal cancer. Surgical approach, open or laparoscopically, was determined by patient factors and surgeon's decision.

2.2. Surgical procedure

Mechanical bowel preparation with 2 L polyethylene glycol was performed at 12–16 h preoperatively. The patients received intravenous antibiotic prophylaxis of 1 g flomoxef sodium before incision, and an additional dose was administered if the operation time exceeded 3 h. Administration was twice daily and continued for 2 d postoperatively.

A 60-mm linear stapling device (Echelon Endopath; Ethicon, Somerville, NJ) with a blue cartridge was applied for all resection and anastomosis procedures. After resecting colonic specimens using a linear stapling device, both ends of the intestines were overlapped for 5 cm in the same direction in the antiperistaltic SSSA group and in the opposite direction in the isoperistaltic SSSA group. In the antiperistaltic SSSA group, 10-mm transverse enterotomies were created at the antimesenteric edges of the stapling line of both intestines. Each jaw of the linear stapling device was inserted into each hole and fired to create a side-to-side anastomosis. The entry hole for the linear stapler was closed with one application of the stapler perpendicular to the first suture line. In the isoperistaltic SSSA group, 10-mm enterotomies were created at

Download English Version:

<https://daneshyari.com/en/article/4299968>

Download Persian Version:

<https://daneshyari.com/article/4299968>

[Daneshyari.com](https://daneshyari.com)