OPEN ACCESS

GAVIN PUBLISHERS

Journal of Surgery

Yu YL, et al. J Surg: JSUR-1145.

Research Article

DOI: 10.29011/2575-9760. 001145

Semi-Mattress Retention Suture: The New Suture Method for Patients Require an Ostomy

Yen-Lin Yu, Wen-ko Tseng, Chung-wei Fan*

Departments of Colorectal Surgery, Chang Gung Memorial Hospital, Keelung Branch, Taiwan

***Corresponding author:** Chung-wei Fan, Departments of Colorectal Surgery, Chang Gung Memorial Hospital, Keelung Branch, No.222, Jijin Road., Keelung City 204, Taiwan. Tel: +886975360682; +886975360887; Fax: +886224332655; Email: cwf2564@cgmh.org.tw

Citation: Yu YL, Tseng WK, Fan CW (2018) Semi-Mattress Retention Suture: The New Suture Method for Patients Require an Ostomy. J Surg: JSUR-1145. DOI: 10.29011/2575-9760. 001145

Received Date: 13 June, 2018; **Accepted Date:** 20 June, 2018; **Published Date:** 28 June, 2018

Abstract

An ostomy is usually created and applied during emergency colorectal surgery. Fascia dehiscence is commonly observed in patients who undergo emergency colorectal surgery. Therefore, we introduce a new technique: the semi-mattress retention suture for the patients who require an ostomy after emergency colorectal surgery.

Introduction

Emergency colorectal surgery can be applied for several conditions, including bowel perforation, bowel obstruction, intralumenal hemorrhage, bowel inflammation diseases, or traumatic disruption of the intestinal tract. For the above conditions, the purpose of the operation is damage control and to save the patient's life. The procedures of the Hartmann operation and temporary ostomy creation are well-accepted methods to avoid continuous fecal contamination and provide the anastomosis protection. Comparing patients who undergo elective colorectal surgery, patients who undergo emergency colorectal surgery have several conditions that can induce fascia dehiscence, including old age, poor nutrition (hypoalbuminemia), anemia, sepsis, ascites, steroid use, chronic pulmonary disease, and wound infection [1,2]. To avoid abdominal fascia rupture and subsequent intraperitoneal organ evisceration in some patients, the retention suture may be necessary [3]. However, the stitch's position may interfere in the seal of a stoma bag, which induces frequent bag changing and economic wasting. Considering ostomy care, we would like to introduce a new technique: the semi-mattress retention suture for patients who undergo ostomy creation after emergency colorectal surgery.

Methods

The mattress suture is a common procedure used in wound closure, and can provide deep subcutaneous layer closure and skin approximation. However, the semi-mattress suture can provide the same advantages, but avoids a visible stitch scar (Figure 1a). The retention suture is a procedure for bundling a whole layer of an incision wound, including the skin, subcutaneous soft tissue, rectus muscle, rectus sheaths, transversalis fascia, and peritoneum. In addition, the retention suture is covered in a nelaton tube to prevent an uncomfortable sensation (Figure 1b). Because of some disadvantages, like pain, discomfort, and skin erosion, the retention suture is not the routine procedure for laparotomy [4]. Because of the stitch bumps and the nelaton tube, the traditional retention suture application for laparotomy wound closure, causes difficulty in ostomy placement and care.

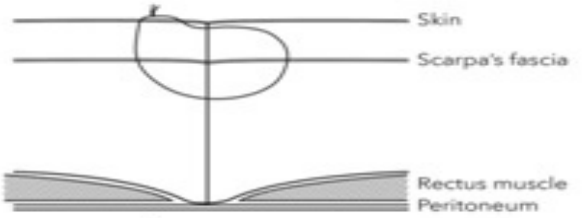

Figure. 1a

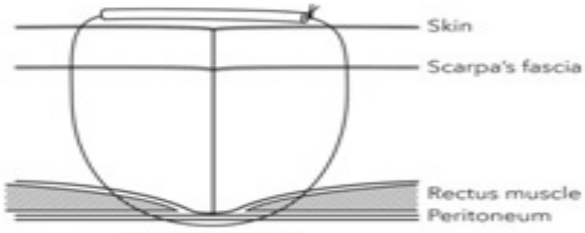

Figure. 1b

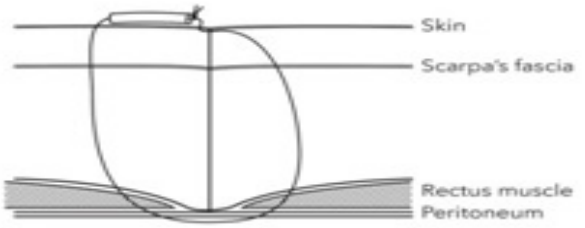

Figure. 1c

Figures 1(a-c): Vertical section: **1a:** Semi-mattress suture; **1b:** Retention suture; **1c:** Semi-mattress retention suture.

Considering the disadvantages of the traditional retention suture in ostomy care, the semi-mattress retention suture was used for patients who needed ostomies. The semi-mattress retention suture bundles the whole layer of the incision wound and prevents fascia dehiscence (Figure 1c). The stitch can also be hidden from the ostomy side, which maintains skin approximation and flatness for stoma bag sealing (Figure 2).

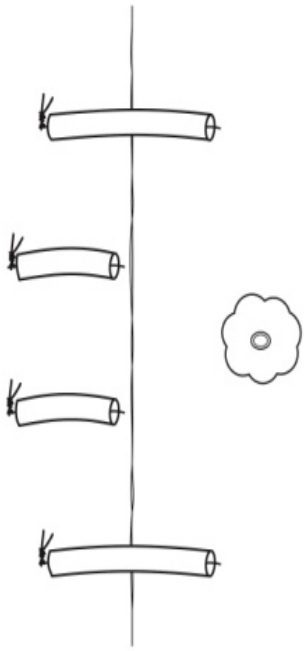

Figure 2: Illustration of Semi-mattress retention suture.

Results

The semi-mattress retention suture was used for three selected patients in our hospital. The first patient was an 83-year-old man who was diagnosed with a sigmoid colon diverticulitis rupture. After the Hartmann operation was performed, a descending end colostomy was created on the left side abdomen. Considering his poor nutrition, stage V chronic renal failure, old age, and potential wound infection, the retention suture was used to prevent fascia dehiscence (Figure 3a). The second patient was a 68-year-old man who was diagnosed with advanced D-colon cancer with proximal jejunum invasion. Because of the local advancement of the disease, left hemicolectomy with protection transverse loop colostomy and duo deo-jejunal bypass with feeding jejunostomy were performed on the right upper quadrant and left low quadrant. Considering cachexia, chronic renal failure, and potential wound infection, the

retention suture was also applied to prevent fascia dehiscence (Figure 3b).

The third patient was a 57-year-old man who underwent right hemicolectomy. The anastomosis leakage was noted on postoperative day 10. Emergent laparotomy with ileo-colon anastomosis reconstruction and protection loop ileostomy was performed. Considering poor hypoalbumenia, chronic hepatitis history, and wound infection, the retention suture was used (Figure 3c). During hospitalization, fascia dehiscence did not occur in any of the patients. The artificial bag also can be tightly attached to the ostomy because of the design of the semi-mattress retention suture.

Figure. 3a Figure. 3b Figure. 3c

Figures 3(a-c): Illustration of Semi-mattress retention suture on patients' abdomen.

Discussion

For major abdominal surgeries, abdominal fascia dehiscence is a critical postoperative complication. The incidence of abdominal fascia dehiscence is about 1-3%, and the related mortality rate is about 15-20% [5]. Abdominal fascia dehiscence can cause the pain, stress, organ evisceration, and infection. When the above clinical conditions occur, patients require an additional surgery and wound closure needs to be reperformed, which increases the patient's hospital stay and medical expenses.

In the past, the purpose of emergency colorectal surgery was to control damage and save the patient's life. The Hartmann operation and temporary ostomy creation were extensively used in emergency colorectal surgery. The retention suture was also extensively applied in emergency colorectal surgery because of the high risk of abdominal fascia dehiscence in this group of patients. We introduce this new technique of wound closure, the semi-mattress retention suture, for better wound tightening, to prevent fascia dehiscence, and for better postoperative ostomy care.

References

1. Riou JP, Cohen JR, Johnson H Jr (1992) Factors influencing wound dehiscence. Am J Surg 163: 324-330.
2. Makela JT, Kiviniemi H, Juvonen T, Laitinen S (1995) Factors influencing wound dehiscence after midline laparotomy. Am J Surg 170: 387-390.
3. Khorgami Z, Shoar S, Laghaie B, Aminian A, Hosseini Araghi N, et al. (2013) Prophylactic retention sutures in midline laparotomy in high-risk patients for wound dehiscence: a randomized controlled trial. J Surg Res 180: 238-243.
4. Rink AD, Goldschmidt D, Dietrich J, Nagelschmidt M, Vestweber KH (2000) Negative side-effects of retention sutures for abdominal wound closure. A prospective randomised study. Eur J Surg 166: 932-937.
5. Poole GV Jr (1985) Mechanical factors in abdominal wound closure: the prevention of fascial dehiscence. Surgery 97: 631-640.