SAGES2024

2024/4/17-20 Cleveland OH

Robotic purse-string suture technique to conduct intracorporeal anastomosis for DST in totally robotic resection of rectal and sigmoid cancer

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INTRODUCTION

Intracorporeal anastomosis (ICA) in colorectal cancer surgery has the advantages of cosmetic and minimal invasiveness, such as minimizing the range of movement and incision length, early recovery of intestinal peristalsis, and reduced pain（1,2). Since robotic surgery was indicated for colon cancer in Japan, many institutions have introduced ICA for right-sided colon surgery. However, there are few reports regarding left-sided ICA (3). We herein report a simple and novel procedure of robotic purse-string suture (RPSS) to conduct ICA for DST in left-sided colorectal surgery.

AIM

The purpose of this study is to report on the surgical techniques and ingenuity of our hospital, as well as to examine short-term outcomes.

PATIENTS AND METHODS

From January 2023 to September 2023, RPSS technique were performed in 10 patients who diagnosed with rectal or sigmoid cancer.

The exclusion criteria were as follows: perforated cancer, or cancer exceeding 60 mm on preoperative assessments, dementia, PS 3 or 4, severe obesity (defined as a body mass index [BMI] of 35 kg/m^2), previous abdominal polysurgery, and indications for emergency surgery.

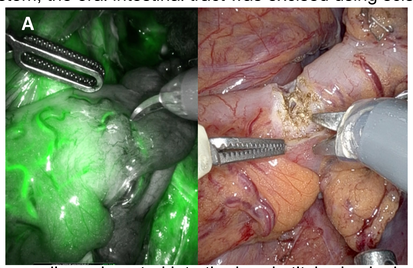
All patients received a combination of mechanical and chemical bowel preparations (Kanamycin and Metronidazole) preoperatively.

Informed consent was obtained from all patients for the publication of any attached images.

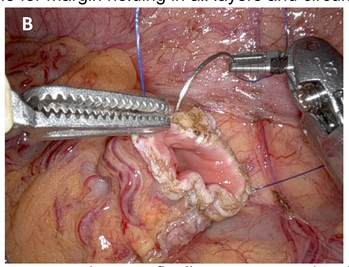
SURGICAL TECHNIQUE

Robotic purse-string suture technique

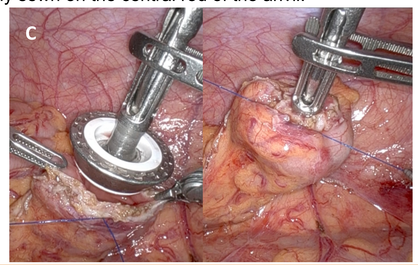
A: After confirming intestinal blood flow using the indocyanine green (ICG) system, the oral intestinal tract was excised using scissors.



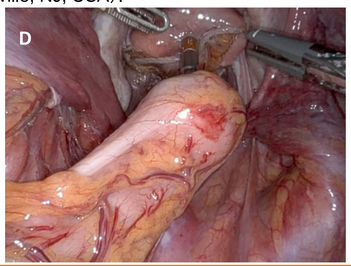
B: The oral colonic stump was robotically hand-stitched with No. 3-0 Prolene for margin holding in all layers and circumferentially.



C: After the anvil was inserted into the hand-stitched colonic stump using a tip-up fenestrated grasper, the intestinal wall of the colon was completely sewn on the central rod of the anvil.



D:The reconstruction was finally anastomosed to the DST with ECHELON CIRCULAR® Powered Stapler（Ethicon, Somerville, NJ, USA）.



RESULTS

Table1. Patients and tumor characteristics

Variables	n=10
Gender	
Male/Female	5/5
Age (years)*	71 (36-82)
BMI (kg/m^2)*	22 (15-34)
PS	
0/1/2	5/2/3
Tumor location	
S/RS/Ra/Rb	4/3/2/1
Tumor size (mm)*	30 (10-55)

BMI body mass index, PS performance Status
*Values are median (Range)

Table2. Operative and perioperative outcomes of patients underwent RPSS

Variables	n=10
Surgical operation	
Sigmoidectomy/AR/LAR	4/3/3
Total operation time (min)*	287 (182-488)
Time from oral intestinal incision to fixation (min)*	13.5 (9-20)
Blood loss (mL)*	3 (1-3)
Time to start eating (day)*	3 (2-9)
Postoperative hospital stay (day)*	7 (7-16)
Complications	
Chyle (Clavien–Dindo grade I)	1

AR anterior resection, LAR low anterior resection
*Values are median (Range)

CONCLUSIONS

RPSS technique for DST at our hospital has been performed safely without any anastomosis-related complications and prolonging the total operative time.

That may be a useful modality in future total robotic colorectal surgery.

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ACKNOWLEDGEMENTS

We wish to thank the timely help given by residents, operating room or ward nurses (Dept. of Surgery, Kansai Rosai Hospital, Hyogo, Japan)

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