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How to save both transverse colon and continence after extensive left colon surgery: A case report of a new procedure

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ABSTRACT

INTRODUCTION: Nowadays, after wide left colectomy, it is necessary to choose one of the following procedures: a definitive transverse colostomy, an ileo-rectal anastomosis or a right colo-rectal anastomosis (Deloyers procedure).

PRESENTATION OF CASE: We performed our new procedure on a 63 years-old man. After an extensive left proctocolectomy, the intestinal continuity between the transverse colon and rectum was obtained by transposition and rotation of the right colon into the pelvis.

After recanalization the patient never lost the functions of the large intestine and progressively restored continence.

DISCUSSION: Saving the transverse colon and the right colon mean achieving not only continence but also a better degree of reabsorption of liquids and vitamin K and group B production in order to keep intestinal functions as similar as possible to the normal physiology.

CONCLUSION: The one-year follow-up surgical and clinical outcomes are encouraging to support the feasibility of this procedure in terms of improving the quality of life: avoiding diarrhea, incontinence and post-operative urgency.

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1. Introduction

Due to the increase in the average life expectancy of the population and the improvement of diagnostic techniques, nowadays a parallel increase in the incidence of diseases affecting the colorectum is observed [1]. In particular, colon cancer is the second and third most frequent cancer in women and men, respectively. Globally, it represents the third most frequent neoplastic disease by incidence in both sexes [2]. Surgical treatment in non-metastatic neoplastic patients is the gold standard and involves dissection according to embryological and anatomical planes in order to achieve radical removal of the tumor and its main lymphatic drainage [3,4]. In cases of advanced or synchronous cancer, to obtain surgical radicality, it is necessary to perform neo-adjuvant chemo/radio treatments or carry out extensive resections [4]. Currently, after extensive surgery of the left colon for cancer but also for chronic inflammatory bowel disease or abdominal trauma, since it is not always possible to create a well-vascularized and tension free anastomosis between the transverse colon and the rectum, it is

necessary to choose among three surgical procedures: a definitive transverse colostomy, in order to save large intestinal functions; an ileo-rectal anastomosis, when it is preferred to preserve continence; the Deloyers procedure which involves the removal of the transverse colon and the transposition of the right colon into the pelvis to create an anastomosis with the rectum, in order to preserve both the large intestinal functions and continence [5–7]. In recent decades, thanks to technological innovations and technical improvements more surgeons have been directed towards conservative surgical procedures that preserve as much physiology of the gastrointestinal tract as possible whilst providing the best patient's quality of life. The purpose of this case report is to illustrate the procedure we developed that allows, in cases of extensive resection of the left tract of the large intestine, the restoration of intestinal continuity with the conservation of the transverse colon and the preservation of continence, with benefits both in terms of preserved gastrointestinal functions and good quality of life.

The presented work has been reported in line with the SCARE criteria [8].

2. Presentation of case

A 63 years-old male patient, in June 2015, underwent video-laparoscopic surgery for an adenocarcinoma of the rectum after neo-adjuvant chemotherapy. According to the colonoscopy the

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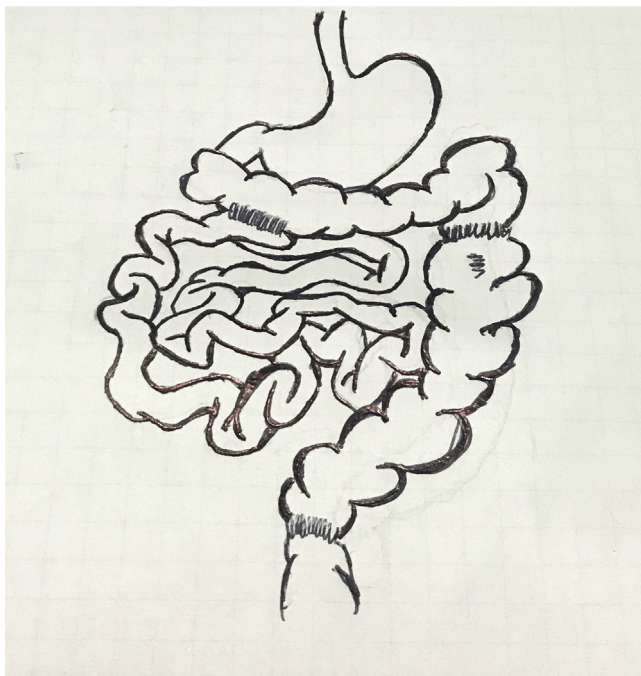


Fig. 1. ileo-transverse anastomosis, transverse-caecum anastomosis and right colon-rectum anastomosis.

residual lesion was 1.5 cm in diameter and 7 cm distant from the anal verge. During the surgery, due to the occurrence of ischemia in the splenic flexure of the left colon, we decided to perform an extended left proctocolectomy with a transverse colostomy on the left side. The histological examination classified the cancer as stage I (T1, N0, M0) so the patient did not need further treatment. In the post-operative period the patient did not present with any complications and was discharged in the ninth day.

In July 2016, the patient returned to our elective general surgery division to undergo recanalization surgery. This second operation, performed with open technique, involved the use of our new procedure to restore the intestinal continuity between the transverse colon and the rectal stump by transposition of the right colon.

The surgical steps of the reconstruction were: closure of the transverse colostomy; median xypho-pubic laparotomy; appendectomy, because it would have been technically more difficult to perform after this procedure; section of the last ileal loop and the hepatic flexure with complete mobilization of the right tract, rotation on the ileocolic vascular axis and transposition in the pelvis; preparation of the splenic flexure and creation of three anastomosis (Fig. 1). The first was a stapled side-to-side ileo-transverse anastomosis with linear cutting stapler and the bowel ends were closed using a hand-sewn technique closure, the second was a dual-layer hand-sewn end-to-end transverse-cecum anastomosis with interrupted suture of polypropylene 2/0 and last one was a single-layer hand sewn end-to-end right colo-rectal anastomosis with interrupted suture of polypropylene 2/0. The integrity of the anastomosis was checked by filling the pelvis with saline and instilling air through the anus to look for any air bubbles. Finally, a temporary ileostomy was performed.

Three drainages were placed to protect the ileal-transverse anastomosis, the transverse-cecal anastomosis and the last one were into the pelvic excavation. The abdominal wall was sutured according to layers and the skin was closed with metal staples. In the post-operative period there were no adverse events, the drainages were removed by the tenth day and the patient was discharged on the thirteenth day.

After 6 months, the ileostomy was closed and the patient obtained a definitive recanalization. In the post-operative period there were no early or late complications and the patient was discharged on the eighth day with the prescription of pelvic rehabilitation.

After recanalization, in the immediate post-operative period, the patient showed normal bowel movements (2–3 per day) and soiling. During two weeks after hospital discharge, he progressively restored continence despite his not attendance the pelvic rehabilitation.

At follow up, one year later, no late complications were reported due to the surgical procedure. The patient reported a satisfactory improvement of quality of life.

3. Discussion

To date, in case of extensive left colonic surgery for cancer, chronic inflammatory bowel disease or abdominal trauma, there are several possibilities of reconstruction. In order to preserve the right and the transverse colon and therefore maintain the reabsorption function of the colon, the production of vitamin K and group B by the symbionts that colonize the large intestine, it is possible to create a definitive transverse colostomy. When it is preferred to preserve continence of the rectum to the detriment of the function of the colon, which is then removed, an ileo-rectal anastomosis is performed; these patients will therefore present with diarrhea and they need permanent integration of both liquids and vitamins. The Deloyers procedure, developed at the beginning of the sixties by the Belgian surgeon, was created to overcome the disadvantages related to the loss of large intestine or continence and several studies have already demonstrated the usefulness of this procedure [6,7]. Our procedure intends to expand the advantages of the Deloyers procedure. Saving the transverse colon and the right colon means achieving not only continence but also a better degree of reabsorption of liquids and vitamin K and group B production in order to keep intestinal functions as similar as possible to the normal physiology,

4. Conclusion

The one-year follow-up surgical and clinical outcomes are encouraging to support the feasibility of this procedure not only in neoplastic patients but also in those with chronic inflammatory bowel disease or abdominal trauma. The disadvantage, represented by the need to create three anastomosis, is offset however by the benefits in terms of improving the quality of life: avoiding diarrhea, incontinence and post-operative urgency.

Conflicts of interest

All authors disclose any financial and personal relationships with other people or organisations that could inappropriately influence our work.

Sources of funding

Authors disclose any sponsors involvement.

Ethical approval

Authors declare that the study is exempt from ethical approval in our institution.

Consent

Written informed consent was obtained from the patient for publication of this case report. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Dr Marica Grasso, Dr Alessandro Cimmino, Dr Nicola Sangiuliano and Dr Antonello Niglio contributed significantly to study design, data collection, interpretation and writing paper.

Registration of research studies

Our study is not a trial and does not require registration.

Guarantor

Dr Marica Grasso.

Dr Nicola Sangiuliano.

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