

Delayed colo-anal anastomosis is an alternative to prophylactic diverting stoma after total mesorectal excision for middle and low rectal carcinomas

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Abstract

Background: After total mesorectal excision (TME), a low colorectal or colo-anal anastomosis is usually performed. A prophylactic covering stoma is often used, especially for patients receiving neoadjuvant chemo-radiotherapy. However, morbidity is high, mainly due to anastomotic leakage.

Methods: From May 2000 to October 2008, patients with middle or low rectal cancer who underwent a trans-anal pull-through procedure after TME were prospectively recorded. No covering stoma was performed in these patients. However, they all underwent a delayed colo-anal anastomosis (DCA), which was performed 6 days following the TME, on average. Both the surgical technique and follow-up were standardised. Patients with T3, T4 and/or N+ cancers were given preoperative radiotherapy. A retrospective analysis was done to assess post-operative mortality, morbidity, and oncologic and functional results.

Results: One hundred consecutive patients with rectal tumours at a median distance of 5 cm from the anal verge underwent DCA after TME. The 5-year overall and disease-free survival rates were 81% and 66%, respectively. The post-operative mortality rate was 3% and the overall post-operative morbidity rate was 36%, with only 3 anastomotic leakages. After two years, 73% of the patients had good functional outcomes.

Conclusion: The trans-anal pull-through procedure after TME, followed by DCA seems to be a safe and efficient sphincter-preserving procedure to treat patients with middle or low rectal cancer while avoiding a prophylactic, diverting stoma.

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Introduction

The surgical treatment of lower rectal cancers has evolved from abdominoperineal resection to proctectomy with TME and colo-anal anastomosis. The main drawback of colo-anal anastomosis is the risk of leakage, which is reported to occur in 2.9%–20% of cases.^{1,2} In half of these cases, the anastomotic leakage requires an additional operation,³ and a third of these require the creation of a definitive colostomy.⁴ Furthermore, anastomotic leakage represents the third main cause of post-operative fatalities in rectal surgery after myocardial infarction and bronchopneumonia.⁵ It also results in a higher prevalence of local, tumoral, recurrence.⁶ In order

to reduce the burden of the anastomotic leakage, a prophylactic covering stoma is frequently created. However, this stoma can result in minor to severe complications in 10% of cases.^{7,8} Additionally, the construction of a stoma is generally regarded as an unfavourable outcome, since the quality of life experienced by stoma patients is considered inferior to that of non-stoma patients.⁹ Finally, it imposes significant medical costs for the society. In 1932, Babcock described a new technique of trans-anal colonic pull-through.¹⁰ More recently, Baulieux¹¹ proposed an operative technique halfway between Babcock's pull-through and Park's direct colo-anal anastomosis¹² that is now performed routinely in our hospitals. In comparison to direct colo-anal anastomosis, this new surgical concept has a main theoretical advantage: a prophylactic stoma does not need to be performed due to the very low risk of anastomotic leakage. In this retrospective study we

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present the results of 100 consecutive delayed colo-anal anastomosis (DCA).

Methods

Patient selection

The trans-anal pull-through procedure followed by a DCA was the standardised operation for patients with middle and low rectal cancer in two French university medical centres (Grenoble Hospital and the Regional Cancer Centre Bergonié in Bordeaux). A patient database was compiled prospectively within the two institutions. The preoperative assessment included a digital rectal examination, a colonoscopy with biopsy, a CT scan of the thorax, abdomen and pelvis and a pelvic MRI. The precise level of the lower edge of the tumour from the anal verge was assessed by the surgeon. Patients were classified according to the UICC classification. Patients with T3, T4 and/or N+ disease received preoperative radiotherapy or chemo-radiotherapy. Surgery was performed 6 weeks on an average after radiotherapy. We performed a preoperative evaluation of anal sphincter function for all patients by digital anal exploration. No patient suffered from faecal incontinence or had a hypotonic sphincter – both of which would have necessitated an abdominoperineal resection. The preoperative anaesthetic evaluation was done using the American Society of Anesthesiology guidelines. The criteria for laparoscopic approach was the presence of a tumour limited to the rectum and the mesorectum, without any extension to adjacent organs, and regardless of the distance of the lesion from the anal verge.

Operative procedure

The surgical procedure of laparoscopic TME followed by colonic pull-through and DCA involved two stages. In the first stage, the patient was placed in a Lloyd-Davies position and an abdominoperineal approach was used. This stage was performed laparoscopically, unless there were criteria for open surgery. The surgical procedure began with the division of the inferior mesenteric vessels. The splenic flexure was then systematically detached and the left colon completely mobilised. A laparoscopic TME was performed until the pelvic floor was reached.

We then began a perineal phase. An anal retractor was used to facilitate the exposure of the anal canal. After infiltrating the sub-mucosal plane of the upper anal canal with a saline and adrenaline solution, a circumferential incision of the mucosa was performed at the level of the dentate line. This was followed by a short mucosectomy. The rectum was then dissected along the perineal plane until the level of the abdominal dissection was reached. The rectum and sigmoid colon were then pulled through the anal canal and cut at the level of the ligation of the inferior mesenteric artery. A colonic segment of about 10 cm was left outside



Figure 1. Operative view of the descending colon at the end of the first stage.

the anal canal and tied by two stitches to the right buttock (Figs. 1 and 2). After this perineal phase, we returned to the laparoscopic phase to insert a pelvic suction drain. Between the two stages, the vascularisation of the colonic segment was checked daily in order to detect any colonic necrosis.

The second surgical stage of operation was performed around the sixth post-operative day, under general anaesthesia with curarisation to relax the pelvic floor. The patient was placed in the lithotomy position. No retractors were needed, and the adhesions between the anal canal and colon had to be conserved. After tying off the mesocolon at the level of the anal verge, the colonic pull-through segment was cut and a hand-sewn, colo-anal anastomosis was performed using interrupted sutures at the dentate line level. In all 100 consecutive procedures performed, no covering stoma was necessary.

Follow-up

A standardized follow-up was completed, one month post-operatively, then every four months during the first



Figure 2. View of the exteriorised colon at 6 post-operative day before its resection and confection of the colo-anal anastomosis (second stage of the procedure).

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