



Reappraisal of pull-through delayed colo-anal anastomosis for surgical treatment of low rectal cancer: do we have to look back to go forward?

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Comment on: Sage PY, Trilling B, Waroquet PA, *et al.* Laparoscopic delayed coloanal anastomosis without diverting ileostomy for low rectal cancer surgery: 85 consecutive patients from a single institution. *Tech Coloproctol* 2018;22:511-8.

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Surgical treatment of low rectal cancer through total mesorectal excision (TME) and colo-anal anastomoses (CAA) still represents a challenge for surgeons and, on patients' side, it might result into a reduction of their self-perception and quality of life. Standard one stage CAA (both mechanical and manual) with concomitant prophylactic ileostomy is currently considered the standard of care for reconstruction after low anterior resection with TME for ultra-low rectal cancer. Laparoscopic TME proved its efficacy as surgical approach to rectal cancer with similar oncologic and operative outcomes of the open approach (1,2) and seems to be associated to a reduction of epidural analgesia utilization, a quicker bowel function recover and a shorter hospitalization (3) compared to standard open TME. However, the incidence of anastomotic leakage and the morbidity associated to ileostomy are not trifling, especially in patients subjected to neoadjuvant radio-chemo-therapy for locally advanced very low rectal cancer requiring a CAA to achieve a circumferential and distal R0 margin. Anastomotic leakage rate indeed is still reported to be around 11–15% even in patients with diverting ileostomy (4). General and local sequelae of anastomotic fistulas and pelvic complications can affect both the oncological outcomes by delaying the access to chemotherapy in patient requiring an adjuvant treatment, and the functional outcomes (leading to an inflammatory and fibrotic response that can compromise the sphincter muscles). The onset of surgical morbidity is also related to a higher risk of local recurrence and a worse

5 years cancer related overall survival (5,6). Diverting stoma can, indeed, reduce the impact of anastomotic leak on clinical course but it can't reduce its incidence. Moreover, the utilization of diverting stoma requires a second operation to be reversed with a mortality rate approximately of 0.4% and a 17% rate of surgical morbidity (7). Furthermore, prophylactic ileostomy is not only associated to a reduction of patients' quality of life and self-perception but also to electrolytes disorder especially in elderly (8). Transanal colonic pull-through for rectal resection followed by a delayed CAA for a variety of indications was originally reported in 1961 by Cutait and Turnbull from Sao Paulo and Cleveland respectively (9,10). This procedure was proposed with the aim of reducing anastomotic leakage, pelvic complications and the need for stoma formation. First reports by Turnbull and Cutait, comparing outcomes of immediate and delayed CAA, showed favorable outcomes with the pull-through procedure. Nevertheless, after initial interest this technique had a limited diffusion for the treatment of rectal cancer patients. This was mainly ascribable to the unclear postoperative functional outcomes, the development of safe techniques for low colo-rectal and CAA creation (including the advent of circular staplers) as well as to the skepticism from the surgical community for the exteriorized colonic stump which is left in place for few days after the initial rectal resection. Currently, standard indications for the rectal pull-through procedure with delayed CAA are limited to the surgical treatment of Hirschsprung disease or in case of hostile pelvis or as rescue

operations after anastomotic leakage in adult rectal cancer patients. In the last two decades only sporadic reports analyzed the outcomes of pull-through procedures with delayed CAA as elective treatment of low rectal cancer. Indeed, Turnbull-Cutait procedure has recently regained popularity and it is under evaluation by the surgical community as suggested by some recent published case series and comparative studies (11-14). The systematic review by Hallet *et al.* (15) analyzed 7 observational studies comparing immediate and delayed CAA including a total of 1,124 patients: Turnbull-Cutait technique proved to achieve a low rate of anastomotic leak and pelvic morbidity and a consistent reduction in the need for diverting stoma with a satisfying fecal continence in all the studies. Encouraging results were reported in retrospective cohort studies specifically focused on the outcomes of delayed CAA. In a recent study by Jarry *et al.* (16) the authors report a 6% rate of pelvic abscess and a 2% rate of anastomotic leak, whereas Olagne *et al.* (17) observed only one case of pelvic abscess, a case of temporary stoma creation (3% rate), and no occurrence of anastomotic leak. In recent publications we also presented our personal modified technique for delayed "high" CAA, aiming to improve functional results of the procedure (18,19). Sage *et al.* published on *Techniques in Coloproctology* July 2018 an interesting report detailing their experience with 85 consecutive patients submitted to laparoscopic low anterior rectal resection for cancer and reconstructed with a delayed CAA without diverting ileostomy formation (20). This is one of the bigger reported series focused on the pull-through delayed CAA technique performed for low rectal cancer and the authors need to be congratulated for their important experience. The study demonstrated the feasibility and the safety of the laparoscopic approach for delayed CAA without diverting ileostomy in a selected cohort of patients with very low rectal cancer with a vast majority of them submitted to neoadjuvant chemo-radiotherapy. In their series transanal specimen extraction was feasible in all cases resulting in a virtually scarless surgery. In our personal experience transanal extraction was not considered feasible for patients with bulky tumors and/or thick mesorectal fat [especially male patients with high body mass index (BMI)] that don't allow to pull through the colon without excessive manipulation of the descending colon mesentery with risk of shearing and possible ischemic trauma that could partially explain the not negligible incidence of ischemic complications reported by Sage *et al.* In fact, colonic ischemia or necrosis was observed in 9 cases (10.6%) and

was treated by a redo anastomosis in 2 cases while a Hartmann's procedure with definitive end colostomy creation was necessary in 7 cases. Considering that transanal extraction of bulky tumors could also potentially result in excessive stretching of the sphincter muscles thus partially affecting the functional outcomes a Pfannenstiel incision could be considered as method for specimen extraction in such cases. As regards pelvic complication and sepsis (primary endpoint of the study) the definition used by Sage *et al.* included symptomatic collections, pelvic abscess, peritonitis as well as anastomotic leak (including those not requiring interventional radiology or surgical procedure) and was assessed for more than 30 days which was the standard cut-off used in several historical studies used as benchmarks. This wide definition of pelvic sepsis and anastomotic leak as well as the longer follow-up time could be responsible for the slightly higher incidence of those complications in the series by Sage *et al.* when compared to those of the recent aforementioned reports on delayed CAA. In fact, the authors experienced a development of pelvic sepsis either within or after postoperative day 30 in 21 patients (25%), 17 of whom had received neoadjuvant chemo-radiotherapy. In details 9 patients (10.6%) developed a proven anastomotic leak, including six leaks that occurred after day 30. All patients were re-operated and at the end of follow-up 6 patients had a definitive stoma, because of an anastomotic leak. This translates in an 8.7% incidence of definitive stoma formation due to anastomotic complications. At the end of follow-up, 23 patients (27%) had a definitive stoma, 7 due to cancer recurrence and 16 due to surgical complications (including anastomotic leak, colonic necrosis etc.). Functional outcomes were also analyzed by the use of the Wexner score with 71% of patients having good or very good functional results (Wexner score between 0 and 10) and 29% of patients experiencing poor functional outcomes. The absence of a J shaped colonic reservoir could play an impact on the functional outcomes and it is probably one of the criticism that should be taken into account when considering the option of a delayed CAA. Nevertheless, the functional outcomes of direct CAA are far to be optimal even in presence of a colonic reservoir. Interestingly Sage *et al.* reported a 25.8% incidence of developed colo-anal stenosis with all patients deserving at least once an anal dilatation under general anesthesia. In our initial experience strict evaluation of anastomotic patency during the first postoperative year and prophylactic use of anal dilator can greatly reduce the impact of symptomatic stenosis and the need for interventions under general

anesthesia. In conclusion, all the efforts to reduce anastomotic leakage and pelvic septic complications in patient operated for low rectal resection are of crucial importance especially in patients affected by rectal cancer who are already proved by cancer history and have often undergone neoadjuvant pre-operative chemo and radiation therapy. In addition, some of them deserve additional adjuvant treatment and all post-surgical complications can post-pone optimal timing administration or even preclude the access to deserved therapies. Diverting stoma formation has an important role in decreasing the impact of anastomotic leakage but carries several side issues such as decreased self-perception and quality of life, risk of developing electrolyte disorders especially in the elderly, the need for a second operation (with related surgical morbidity and mortality) and risk of non-stoma reversal. Therefore, a minimal surgical impact pursued by the use of minimally invasive technique and the reduction in stoma creation rate without compromising the oncological and surgical outcomes (incidence of pelvic complications and anastomotic leakage) should be the aim of modern rectal cancer surgery. The delayed CAA as said seems to have the potential to reduce the incidence of pelvic complications and the need for temporary diverting ileostomy. The study by Sage *et al.* adds to the current evidences new important data on the outcomes of delayed CAA as elective surgical treatment of low rectal cancer. Pelvic morbidity and functional outcomes seem to be comparable to those of recent series of immediate anastomosis with diverting ileostomy focused on a similar subset of patients. Therefore, prospective comparative evaluations of direct versus delayed CAA have to be encouraged and appear to be essential in order to obtain high quality evidences which could be useful in clarify the optimal reconstruction technique. An international multicenter prospective randomized controlled trial involving our institution is currently ongoing [Prospective Multicenter Randomized Controlled Trial On Two-Stage Turnbull-Cutait Coloanal Anastomosis For Rectal Cancer (TURNBULL-BCN) - ClinicalTrials.gov Identifier: NCT01766661 (21)].

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