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Laparoscopic Restorative Proctocolectomy in Adenomatus Patients

Fabio Guilherme Campos[1*]

[1] Gastroenterology Department, Colorectal Unit, Hospital das Clinicas, Medical School, University of Sao Paulo, Sao Paulo, Brazil

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Dear Editor,

I read with great interest the series presented by Bananzadeh *et al.* (1). This series includes a group of 19 patients who underwent laparoscopic restorative proctocolectomy (RPC) without ileostomy, performed by the same surgeon, to treat Familial Adenomatous Polyposis (FAP) between October 2008 and May 2011. Ileal pouch-anal anastomosis (IPAA) is currently the standard surgical alternative for the majority of ulcerative colitis (UC) and FAP patients. Despite the complexity of the operation, IPAA is safe (mortality: 0.5–1%) and carries an acceptable risk of non-life-threatening complications (10–25%), achieving good long-term functional outcomes with excellent patient satisfaction (over 95%). During the last decade, the surgical technique has evolved significantly, mainly due to the growing incorporation of laparoscopic approaches. Because it is a complex technical procedure, a temporary ileostomy proximal to the ileal pouch has typically been performed (2). Thus, the most controversial aspect of the study discussed here being the omission of ileostomy in a series of laparoscopic surgeries. A protective ileostomy may reduce anastomosis leakage, prevent pelvic sepsis and fistulization, thus preserving pouch function. Consequently, it should also prevent the need for re-laparotomy and most importantly, pouch failure. The rationale for this decision is based on the fact that a protective ileostomy may limit the severity of septic complications, as the prevalence of pouch-related septic complications varies between 6% and 37% (2). Furthermore, most patients are able to accept this temporary stoma well, although it may be a source of complications after its construction or closure. These complications may include dehydration and metabolic disorders, peristomal irritation, anastomotic fistula, intestinal obstruction, and others (3).

Although a protective ileostomy is still performed in the vast majority of series, its omission is associated with a similar rate of septic complications and may also provide economic advantages for select patients. By avoiding an ileostomy, the surgeon should prevent potential associated problems such as high output and complications of the stoma and its closure. Selection criteria for this choice should exclude clinical factors (high doses of steroids, malnutrition, toxicity or anemia) and technical factors (difficult procedures with intraoperative complications). Furthermore, surgeons must be sure that the ileoanal anastomosis is tension-free, that it is supplied with adequate blood flow, that the tissue rings are intact and that there are no air leaks (3, 4). Within this context, a German group studied 706 consecutive patients (494 UC, 212 FAP) in an attempt to identify subgroups of patients who were at high risk for pouch-relat-

* *Corresponding author:* Fabio Guilherme Campos, Gastroenterology Department, Colorectal Unit, Hospital das Clinicas, Medical School, University of Sao Paulo, Sao Paulo, Brazil. *E-mail:* fgmcampos@terra.com.br

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ed sepsis (2). As in previous reports, they found that the risk of pouch sepsis was markedly greater in patients with UC than in patients with FAP, indicating the predominant role of the underlying disease in the development of infection. Moreover, patients with FAP presented higher risk only if anastomotic tension had occurred (RR 3.60, $P = 0.0086$) and if they were older than 50 years of age ($P = 0.004$) (2). The first series of IAA without diverting ileostomy was reported in 1990, in a small series of UC patients. Since then, other publications have reported their results after IAA without ileostomy for UC and FAP patients, showing rates of pelvic sepsis that varied from 4% to 22%.

In a Mayo Clinic study, Galandiuk *et al.* (5) compared 37 patients without ileostomy to a matched group with ileostomy operated on during the same period (1981 to 1990). They reported that 8 patients (22%) without ileostomy and four patients (11%) with ileostomy experienced one or more postoperative pouch-related complications. Complications requiring reoperation in UC and FAP patients without ileostomy occurred more frequently in patients either taking steroids or having had previous pelvic radiation therapy. They concluded that J-pouch construction with IPAA can be safely performed without diverting ileostomy provided some selection factors (absolute lack of tension on the anastomosis, good blood supply to the terminal ileum, good general health and no recent intake of steroids at the time of surgery) are taken into account. In a randomized study, rates of pelvic sepsis were similar between patients with (22 cases) or without (23 cases) ileostomy (6). There were only two ileoanal anastomotic leaks, one in each group. Furthermore, loop ileostomy was associated with a high incidence of complications (52%). These results indicate that the low risk of pelvic sepsis is not increased by omitting a protective ileostomy. In the Mount Sinai series with UC and FAP patients (7), the authors observed that the rate of IPAA suture line dehiscence was not significantly different between the two groups (ileostomy, 4/69 (6%), *vs.* no ileostomy, 6/74 (8%); $P > 0.05$), even in patients submitted to mucosectomy, which may increase the procedure's rate of morbidity. RPC without ileostomy results in significantly fewer episodes of intestinal obstruction, fewer instances of re-exploration and fewer total days in the hospital. The group from the Saint Antoine Hospital in Paris (8) reported their experience with 84 FAP and UC patients who underwent IPAA without ileostomy between 1993 and 1998. Early and late complications were seen in 25 (30%) and 23 patients (27%) respectively, requiring reoperation in 13, including three temporary ileostomies and one pouch excision for Crohn's disease. Five patients (5.9%) developed an early septic complication of the pelvis. Morbidity and functional results were equivalent to those obtained with a defunctioning ileostomy. Based on those results, they stated that for a selected group of patients undergoing an IAA, a defunctioning ileostomy could be avoided. More recently, a study from the Cleveland Clinic showed that the omission of ileostomy may even provide cost savings in terms of the whole treatment (9).

In an attempt to better identify patients who may be candidates for ileostomy omission during RPC, the group from St Marks Hospital in London reviewed 4013 operations performed between 1977 and 2005 (10). Proximal diversion was performed in 3196 of 3733 patients (85.6%). With the help of logistic regression analysis, the independent factors favoring omission of ileostomy were: stapled anastomosis (odds ratio [OR], 6.4), no preoperative corticosteroid use (OR, 3.2), familial adenomatous polyposis diagnosis (OR, 2.6), cancer diagnosis (OR, 3.4), female gender (OR, 1.6) and age at surgery younger than 26 (OR, 2.1) ($P < 0.01$ for all). Omission of proximal diversion demonstrated no significant effect on postoperative adverse events, although it was associated with a 2-day increase in the median length of hospital stay ($P < 0.01$). However, its safety is controversial. While there are articles showing that the omission of temporary ileal diversion has a relatively low complication rate and provides excellent fecal control, others state that RPC without diversion is not as safe as RPC with diversion, especially in patients taking more than 20 mg of prednisone/day (11). In other UC patient series, one-stage restorative proctocolectomy without a defunctioning ileostomy was associated with an increased risk of death, which is the reason its routine use should not be recommended (12).

In another recent paper from Saint Antoine Hospital (13), the authors reported their experience with 71 patients (38 females) who underwent laparoscopic RPC between November 2004 and February 2010. Indications were FAP (34), UC (35), indeterminate colitis (1) and Lynch syndrome (1). Laparoscopic RPC was performed as a one-stage procedure in 49 patients, and after a sub-total colectomy in 22. Seven patients in each group underwent the formation of a diverting stoma. Sixteen patients experienced at least one postoperative complication. The postoperative morbidity was 29% (n = 4/14) and 21% (n = 12/21) in patients with and without a stoma ($P = 0.8$), and the rate of fistula was 21% and 5%, respectively ($P = 0.08$). Seven percent of patients with a stoma and 16% without a stoma had intra-abdominal fluid collection ($P = 0.7$). Nine patients required reoperation, which was not influenced by the presence or absence of a diverting stoma. The results of this study are similar those of other laparoscopic RPC series.

Thus, the data from the literature presented here support the idea that an ileostomy may be safely omitted in select patients, especially FAP. First, IPAA complications are generally less common in FAP than in UC (14). At diagnosis, FAP patients usually present with few symptoms and good general condition, a different picture from those suffering from UC. And when comparing septic complications with and without ileostomy, most cases were attributed to steroid use (11). The French group from Saint Antoine reported a 4% rate of septic complications in FAP compared with 6% in UC in two series of unselected consecutive patients undergoing IPAA with ileostomy (16). Other comparative studies have also shown higher rates of septic complications without ileostomy, but the risk of secondary ileostomy has

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remained below 6%. However, it is important to note that revision surgery may be necessary only in cases of disseminated peritoneal infection, and less severe cases may be controlled with antibiotics. In the series reported by Cohen *et al.* (15), 18% of the 71 patients without ileostomy developed an anastomotic fistula, but a temporary ileostomy was only required in one (1.4%).

The risk of developing postoperative fertility problems after complications from RPC should not be used to contraindicate procedures without ileostomy. Currently it is well recognized that the risk of fertility problems is not associated with the type of surgery, indication for surgery, complications or other comorbid conditions. Postoperative fertility problems are more common among women who had their first surgical procedure at a younger age (16). The omission of ileostomy may have a great impact on young patients, who usually place a high value on bodily appearance. While large-bowel techniques are evolving rapidly, the selection criteria for omitting an ileostomy after laparoscopic RPC, especially in FAP, still remain to be clarified. Lopez-Rosales *et al.* (17) reported good results in eight out of 10 patients who underwent IPAA without protection. Ky *et al.* (18) registered 11 postoperative complications and three reoperations among 32 one-stage RPC. In our own series, one patient subjected to a one-stage procedure developed a postoperative fistula that was successfully treated with intestinal deviation (19). So far, we have preferred to perform laparoscopic RPC with ileostomy, due to the potential risk of desmoid tumors in FAP, which has been associated with surgical trauma, among other predictive factors.

In this article, Bananzadeh *et al.* (1) described the treatment of 19 patients with a mean age of 34 years (range 22–40 years) who experienced no anastomotic leakage after two weeks post-operation. As hospitalization length after surgery varied from 4 to 7 days, the authors were only able to report complications such as copious diarrhea in 6 patients (31%), and transitory fecal incontinence in 2 patients (10%). However, complications from RPC are usually late and a longer follow-up is necessary in this group. By initiating a discussion about the avoidance of ileostomy after RPC, their article achieved their main purpose regarding this important issue. A review of the pertinent literature leads to the conclusion that selective omission of a protective ileostomy may be safe and is associated with similar septic complications and failure rates when compared with stoma patients. However, this finding leads us to critically evaluate FAP patient selection criteria, in which an experienced surgical team, a patient with a good clinical status and a procedure without adverse intraoperative outcomes should be considered.

Authors' Contribution

F.G.C contributed 100 % to prepare this article.

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