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Review article

Current trends regarding protective ileostomy after restorative proctocolectomy

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ABSTRACT

The decision to perform a protective ileostomy after ileoanal-pouch anastomosis is controversial, and most of the discussion is based on its advantages and disadvantages. Although a temporary intestinal diversion has been routinely indicated in most patients, this choice is also associated with complications. The present work aims to review the outcomes after restorative proctocolectomy with or without a protective ileostomy in the treatment of ulcerative colitis and polyposis syndromes. Most papers emphasize that diversion protects against anastomosis leaks; consequently, it may prevent pelvic sepsis and pouch failure. Otherwise, a defunctioning ileostomy may cause morbidity such as dehydration, electrolyte imbalance, psychological problems, skin irritation, anastomosis strictures and intestinal obstruction, among others. There are those who believe that the omission of an ileostomy after the confection of ileal pouches should be reserved for selected patients, with quite acceptable results. The selection criteria should include surgeon, patient and procedure features to ensure a good outcome.

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Tendências atuais sobre ileostomia protetora após proctocolectomia restauradora

RESUMO

A decisão de realizar ileostomia de proteção após anastomose da bolsa ileal ao canal anal é controversa, sendo a discussão baseada em suas vantagens e desvantagens. Embora a derivação intestinal temporária tenha sido indicada rotineiramente na maioria dos pacientes, essa escolha também está associada a complicações. O presente trabalho teve como objetivo rever os resultados após proctocolectomia restauradora com ou sem ileostomia de proteção no tratamento da colite ulcerativa e síndromes polipoides. Muitos trabalhos enfatizam que a derivação protege contra fístulas anastomóticas; consequentemente, ela pode prevenir sepse pélvica e perda da bolsa. Por outro lado, a derivação por ileostomia pode ser causa de morbidade como desidratação, distúrbios eletrolíticos, problemas psicológicos, lesões dérmicas, estenose de anastomose e obstrução intestinal, entre outras. Há aqueles que acreditam que a omissão de ileostomia após a confecção de bolsa ileal deve ser reser-

Palavras-chave:

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vada a pacientes selecionados, obtendo-se resultados aceitáveis. Os critérios de seleção devem incluir características do cirurgião, do paciente e do procedimento na tentativa de se obter bons resultados.

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Introduction

Ileal pouch-anal anastomosis (IPAA) is nowadays the standard surgical alternative for the majority of ulcerative colitis (UC) and familial adenomatous polyposis (FAP) patients. During the last decade, surgical technique has evolved significantly, mainly with the crescent incorporation of laparoscopic approach. And besides its technical complexity, IPAA is considered safe (mortality range 0.5%-1%) and carries an acceptable risk of non-life-threatening complications (10%-25%), achieving good long-term functional outcome with excellent patient satisfaction (over 95%).^{1,2}

A temporary ileostomy proximal to the ileal pouch has been classically performed, as the prevalence of pouch-related septic complications varies between 6% and 37%.³ This choice is based on the idea that a protective ileostomy could mitigate the effects of anastomosis leakage and prevent pelvic sepsis, fistula formation and thus compromise pouch function. Consequently, it should also prevent the need for re-laparotomy and, most importantly, pouch failure. Furthermore, most patients exhibit a very good acceptance of this temporary stoma, although it may be a source of several complications either after its construction or closure such as dehydration and metabolic disorders, peristomal irritation, anastomotic fistula, intestinal obstruction and others.⁴

Although a protective ileostomy is still performed in the vast majority of series, its omission is associated with similar rate of septic complications and it may also provide economic advantages for selected patients. By avoiding an ileostomy, the surgeon should prevent potential associated problems such as high output and complications of the stoma and its closure.⁵ Selection criteria for this choice should exclude clinical (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 air leaks are absent.⁶

By raising the discussion about the avoidance of ileostomy after a restorative proctocolectomy (RPC), the purpose of the present article is to review the most important results published about this important issue.

Results from literature series

A German group from the University of Heidelberg studied 706 consecutive patients (494 UC, 212 FAP) in an attempt to identify subgroups that were at high risk for pouch-related sepsis.³ 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 for the development of infection. Moreover, patients with FAP presented higher risk only if anastomotic tension had occurred (RR 3.60, $p = 0.0086$) and who were older than 50 years ($p = 0.004$).

In a study from the Mayo Clinic, Galandiuk et al.⁷ compared 37 patients without ileostomy with a matched group with ileostomy operated during the same period (1981 to 1990). They reported that eight patients (22%) without ileostomy and four patients (11%) with ileostomy experienced one or more post-operative pouch-related complications. Complications requiring reoperation in UC and FAP patients without ileostomy occurred more frequently in patients either taking steroids or having previous pelvic radiation therapy. They concluded that J-pouch construction with IPAA could be safely performed without diverting ileostomy, provided that some selection factors (absolute lack of tension on the anastomosis, good blood supply to the terminal ileum, good general health, and absence of recent intake of steroids at the time of surgery) are taken into account.

Results from a randomized study showed that the rates of pelvic sepsis were similar between patients with (22) or without (23) ileostomy.⁸ The authors observed only two ileoanal anastomotic leaks, one in each group. Furthermore, loop ileostomy was associated with a high incidence of complications (52%). These data indicate that avoiding a protective ileostomy does not increase the low risk of pelvic sepsis.

In a retrospective series with UC and FAP patients,⁹ 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%); $p > 0.0$] even in patients submitted to mucosectomy, which could add morbidity to the procedure. RPC without ileostomy results in significantly fewer episodes of intestinal obstruction, fewer instances of re-exploration, and fewer total days in the hospital.

Surgeons from the Saint Antoine Hospital in Paris¹⁰ 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 are equivalent to those obtained with a defunctioning ileostomy. Based on that, they stated that for a selected group of patients undergoing an IAA, a defunctioning ileostomy might be avoided. More recently, a study from the Cleveland Clinic showed that the omission of ileostomy could even provide cost savings regarding the whole treatment.¹¹

In an attempt to better identify patients who may be selected as candidates for ileostomy omission during RPC,

the group from St. Marks Hospital in London reviewed 4013 cases operated on from 1977 to 2005.¹² Proximal diversion was performed in 3196 of 3733 patients (85.6%). With the help of logistic regression analysis, they identified independent factors favoring omission of ileostomy as the following: 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 sex (OR, 1.6), and age at surgery younger than 26 years (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,¹³ 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.¹³ In other series with UC patients, one-stage restorative proctocolectomy without a defunctioning ileostomy was associated with increased risk to life, the reason why its routine use should not be recommended.¹⁴

In another recent paper from Saint Antoine Hospital,¹⁵ 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 stoma had an intra-abdominal 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 to other laparoscopic RPC series.

Thus, the literature data presented here give support to the idea that an ileostomy may be safely omitted in selected patients, especially FAP. First of all, IPAA complications are generally less common in FAP than in UC.¹⁶ At diagnosis, FAP patients usually present with few symptoms and good general conditions, a different picture from those suffering from UC. And when comparing septic complications with and without ileostomy, most cases were attributed to steroid use.¹³

The French group from Saint Antoine reported a 4% rate of septic complications in FAP against 6% in UC in two series of unselected consecutive patients undergoing IPAA with ileostomy. Other comparative studies have also shown higher rates without ileostomy, but the risk of secondary ileostomy has remained below 6%. But it is important to raise the fact that revision surgery may be necessary only in cases of disseminated peritoneal infection, and less severe cases may be controlled with antibiotics.

In the work of Cohen et al.¹⁷ developed in Canada, 18% of the 71 patients without ileostomy developed an anastomotic fistula but a temporary ileostomy was only required in

one (1.4%). They observed that omission of the defunctioning ileostomy is associated with a higher IPAA leak rate, but spontaneous healing occurs in almost all patients without impairment of functional results. In patients in whom the ileostomy is omitted, the IPAA leak rate is greatest in male patients who have undergone a true one-stage RPC procedure, are on steroids, and are older than age 40.

Neither the risk of developing postoperative fertility problems after RPC complications should be used to contraindicate procedures without ileostomy. Now it is well recognized that the risk of fertility 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.¹⁸

The omission of ileostomy may have a great impact on young patients, who are usually studying and valorize their body aspect. Once 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.¹⁹ reported good results in eight out of 10 patients who underwent IPAA without protection. Ky et al.²⁰ registered eleven postoperative complications and three reoperations in 32 one-stage RPC. In our own series, one patient submitted to a one-stage procedure developed a postoperative fistula successfully treated with intestinal deviation.²¹ So far, we have preferred to perform laparoscopic RPC with ileostomy, and this choice is also based on the potential risk of desmoid tumors in FAP, which has been associated with surgical trauma among other predictive factors.

Thus, the review of the pertinent literature leads to the recognition that selective omission of a protective ileostomy may be safe and associated with similar septic complications and failures rates when compared with stoma patients. However, this finding forces us to critically evaluate patient selection criteria, in which an experienced surgical team, a patient with a good clinical status and a procedure without adverse intraoperative outcomes should necessarily be included.

Conflict of interest

The authors declare no conflict of interest.

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