HYBRID PROCEDURES OF RESTORATIVE PROCTOCOEKTOMY WITH ILEAL POUCH ANAL ANASTOMOSIS FOR LARGE BOWEL DISORDERS

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The aim of the study was to describe the authors’ experience in performing laparoscopic restorative proctocolectomy with the formation of an intestinal reservoir of the J-pouch type, anal anastomosis and protective ileostomy.

Material and methods. Between 2004 and 2011, a total of 23 patients underwent laparoscopic restorative proctocolectomy with the formation of an intestinal reservoir of the J-pouch type, anal anastomosis and protective ileostomy for ulcerative colitis (n = 17) or familial adenomatous polyposis (n = 6). A statistical analysis of the treatment outcomes was performed.

Results. No intraoperative complications were observed and none of the patients required conversion or blood transfusions. The mean duration of the procedure was 4.08 hours (2.5-6.0 hours). The mean duration of hospitalization was 15.4 days (8–24 days). We observed three major postoperative complications requiring intervention: two cases of small bowel obstruction (one due to postoperative adhesions and the other due to volvulus) and one case of infection of the surgical and ostomy wound healed following ileostomy closure.

Conclusions. For such extensive procedures as restorative proctocolectomy, laparoscopic techniques prove safe and are characterised by a better patient acceptance thanks to the low invasiveness and good cosmetic effects. The technological progress and the increasing experience in performing laparoscopy provide more and more arguments to support the selection of this method as the preferred method of treatment.

Key words: laparoscopic proctocolectomy, ulcerative colitis, hybrid colonic procedures

Since 1978, when Parks first described restorative proctocolectomy as a method of treatment in patients with ulcerative colitis, it has become the gold standard (1). In the era of rapidly increasing popularity of laparoscopic procedures in large bowel surgery, there is also an ample number of publications confirming the efficacy of this approach for restorative proctocolectomies. The first descriptions of laparoscopic proctocolectomies were published in early 1990s. In 1992, Peters described the first two cases of patients who underwent laparoscopic proctocolectomy, and one month later a prospective study was published that compared open with hybrid laparoscopic proctocolectomy. Given the little experience and the long learning curve for these procedures, the investigators, in initial reports, emphasised a considerable prolongation of the duration of surgery and a statistically non-significant prolongation of hospitalisation (2, 3). In 1995, Thibault et Paulin described the first (three cases) totally laparoscopic proctocolectomies with the mean duration of procedure of 7 hours and 18 minutes (4). The year 2001 saw the first descriptions of large bowel surgery using a robot (5) and in 2011 Pedraza described the first five hybrid laparoscopic proctocolectomies assisted by a robot (6). The greatest popularity in the light of the current literature has been gained by hybrid procedures combining the advantages of minimally invasive
surgery with the benefits from “open” approach.

In this paper, we present our own experience related to combining the laparoscopic method with “open surgery” in performing restorative proctocolectomy with the creation of a reservoir of the J-pouch type.

MATERIAL AND METHODS

We analysed the database of patients undergoing elective surgery for ulcerative colitis or the diagnosis of familial adenomatous polyposis between 2004 and 2011. We summarised data on the surgical procedures, the postoperative course with particular attention to early complications of the treatment. We performed a statistical analysis of the data.

Of the 56 patients undergoing surgery for the above indications, 23 patients were considered eligible for hybrid proctocolectomy ended with a J-pouch-anal anastomosis and protective ileostomy. The procedure was performed for ulcerative colitis in 17 patients and for familial adenomatous polyposis in 6 patients. The study group consisted of 13 females and 10 males, whose mean age was 33.5 years (range: 15-64 years).

The procedure started from the laparoscopic part, following insufflation using four trocars. The video channel was introduced through the first trocar below the umbilicus. The remaining trocars were inserted under direct eye vision in the left lower quadrant, suprapubic area and the right lower quadrant. The hepatic and splenic flexures were liberated and the colon was dissected from its mesentery. Then, with the Pfannenstiel incision, the rectum was resected in accordance with the TME procedure and the entire block was removed. An intestinal reservoir of the J-pouch type was then created from the distal fragment of the ileum of about 15-17 cm in length and 170-200 ml in volume, a transanal anastomosis was created with a stapler or manually with single PDS 4-0 sutures and a protective temporary ileostomy was created (fig. 1). The ileostomy was closed after an average of about 6 weeks.

RESULTS

No intraoperative complications were observed and none of the patients required conversion or blood transfusions. The mean duration of the procedure was 4.08 hours (range: 2.5-6 hours). The mean duration of hospitalisation was 15.4 days (range: 8-24 days). We observed three major postoperative complications requiring surgical intervention: two cases of small bowel obstruction due to postoperative adhesions and volvulus and one case of infection of the surgical and ostomy wound healed following previous ileostomy closure (tab. 1 and 2).

DISCUSSION

Ever since the first report of laparoscopic proctocolectomy (2), there have been discussions and analyses comparing the open method with the laparoscopic approach (7, 8).

A metaanalysis by Tilney, following an initial selection, analysed ten randomised studies comparing various aspects of treatment in 329 patients undergoing laparoscopic (51.1%, n = 168) and open (48.9%) restorative proctocolectomy. In the selected studies, laparoscopic proctocolectomy was performed using the hybrid method (the intestinal reservoirs were created with the open method). A reduced intraoperative blood loss by an average of 84 ml and a longer duration of the procedure were observed (although there was a considerable variation in this aspect between the studies). No statistically significant differences in postoperative wound infection rate, anastomosis leaks, the necessity to perform a repeat laparotomy, postoperative ileus and perioperative mortality were observed (7).

In connection with the reduced extent of the trauma associated with minimally invasive procedures, one of the advantages of hybrid
# Hybrid procedures of restorative proctocolectomy with ileal pouch anal anastomosis for large bowel disorders

## Table 1. Outcomes

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of conversions</td>
<td>0</td>
</tr>
<tr>
<td>Patients requiring blood transfusions</td>
<td>0</td>
</tr>
<tr>
<td>Mean duration of the procedure</td>
<td>4.08 h</td>
</tr>
<tr>
<td>Maximum duration of the procedure</td>
<td>6 h</td>
</tr>
<tr>
<td>Minimum duration of the procedure</td>
<td>2.5 h</td>
</tr>
<tr>
<td>Mean duration of hospitalization</td>
<td>15.4 days</td>
</tr>
<tr>
<td>Maximum duration of hospitalization</td>
<td>24</td>
</tr>
<tr>
<td>Minimum duration of hospitalization</td>
<td>8</td>
</tr>
</tbody>
</table>

laparoscopic proctocolectomy emphasised in the literature is the decrease in postoperative pain and the resulting decrease in the use of analgesic drugs. A more rapid return of gastrointestinal function and a shortening of hospitalisation were observed in the group of patients undergoing laparoscopic surgery. Laparoscopic procedures are, however, associated with a longer learning curve and a higher cost of the very procedure (9-13).

An obvious advantage of minimally invasive surgery is the better cosmetic effect. A study by S.W. Polle et al. showed a better perception of the body by the patients and satisfaction with the cosmetic effect in patients who had undergone hybrid surgery. No improvement in the quality of life in long-term follow-up (median follow-up: 2.7 years) was, however, demonstrated (14). The cosmetic effect is particularly important for young patients, who are a relatively large group among ulcerative colitis or familial adenomatous polyposis patients. In an analysis comparing hybrid laparoscopic proctocolectomy with open proctocolectomy, Alessandro Ficher et al. observed a more rapid return of peristalsis in the postoperative period in the laparoscopic group and an earlier return to total oral nutrition after the surgery. In the postoperative period, 8.8% of the patients who had undergone the traditional procedure had hernias in the postoperative wound, while no such hernias were observed in patients who had undergone the laparoscopic procedure (mean follow-up: 24.8 months) (15).

We did not compare the duration of the procedure or any other parameters related to the surgical procedure with the group of patients undergoing “open” procedures. Such a study would have a retrospective nature and would concern a heterogenic group of patients (including patients who had previously undergone other surgical procedures) and would render the groups incomparable in terms of the duration of the procedure or intraoperative blood loss, for instance. Despite the ongoing acquisition of experience by the team, our results (duration of the procedure, duration of the hospitalisation, number of early complications, mortality) are consistent with the data reported in large European and American studies (7, 9-14). Hybrid proctocolectomies are, in our opinion, a perfect combination of the advantages of laparoscopic surgery and the certainty and simplicity related to the creation of the intestinal reservoirs during the “open” stage. The small Pfannenstiel incision performed in patients treated at our facility resulted in patient satisfaction with the cosmetic effect and the outcomes of treatment. In the era in which minimally invasive procedures are becoming more and more popular, hybrid laparoscopic procedures employed to create restorative proctocolectomies seem recommendable in for the surgical management of patients with ulcerative colitis or familial adenomatous polyposis.

## Table 2. Selected postoperative complications

(postoperative small bowel obstruction, postoperative wound infections and the number of anastomosis leaks)

<table>
<thead>
<tr>
<th>Complication</th>
<th>% patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postoperative complications</td>
<td>13.04% (n=3)</td>
</tr>
<tr>
<td>Small bowel obstruction due to</td>
<td>8.69% (n=2)</td>
</tr>
<tr>
<td>a) volvulus</td>
<td>4.34% (n=1)</td>
</tr>
<tr>
<td>b) postoperative adhesions</td>
<td>4.34% (n=1)</td>
</tr>
<tr>
<td>Postoperative wound infections</td>
<td>4.34% (n=1)</td>
</tr>
<tr>
<td>Number of anastomosis leaks</td>
<td>0% (n=0)</td>
</tr>
</tbody>
</table>

## REFERENCES