Experiences with PPH gun stapled ileo or coloanal anastomoses after ultralow rectal resections and proctocolectomies with J pouch reconstructions

Attila Nagy, Tamas Kovacs, Zoltan Lóderer
County Hospital Veszprém, Hungary

A new method of stapled ileo and coloanal anastomosis with PPH gun (Johnson and Johnson USA) is presented. On 47 totalcolectomised FAP and UC patients and 9 low rectal benign or clinically T1 or T2N0 rectal tumor resection there was only 5 radiologically proven anastomotic leakage without serious septic complications. The anal sphincter function after 6 month of the ileoanal anastomosis remained good in 33/39 and acceptable in 6 cases, if the sphincter function was intact preoperatively. There was no worsening of the moderate preoperatively observed insufficiency. After the ultra low rectal resections all patients kept the normal anal sphincter function. The procedure seems to be as good as the double stapler method, but there remained no remnant mucosal ring between the anastomosis and the dentate line. An additional advantage of the method, that only one stapler was consumed per patient compared to the two one at the double stapler technic.

Key words: anastomoses, rectal, resection

INTRODUCTION

The ileo or coloanal anastomosis is one of the most decisive part of the deep rectal resections and proctocolectomies considering the postoperative complications. Despite of the succesfull therapy of the anal anastomosis insufficiency, the anal sphincter function remains very questionable. That is why everybody try to find a simple and sure solution to keep the complications on an acceptable level at these operations. Not only the anastomosis technic influences the results of the colo or ileoanal anastomoses but also the length of the operation. The costs of the interventions must be also taken into consideration.

The authors worked out a method with the PPH(Johnson and Johnson) stapler, orignaly applied for haemorhoid operations with the Longo technic, to make colo and ileoanal anastomoses after ultralow rectal resections and proctocolectomies with J pouch reconstrxtruction. The operative technic and outcome of the operations on 56 patients is presented.

MATERIAL AND METHODS

Technic of the operation:

I. Ileoanal anastomosis

After the tipical sceletisation of the colon, the rectum is transected at the level of the levator ani muscle. The mucosa of the remnant rectal stump is excised transally from about 3-4 mm of the dentate line till the edge of the transabdominaly resected rectum. At the end of the preparation a 3-4 cm long intact anal sphincter muscular tube remains to ensure the sufficient continence.

Transanal a pure string suture is placed in the remnant rectal mucosa taking also the muscular layer. The PPH gun is inserted into the anus in open position. The pure string suture in the lower edge of the J pouch by an other operating goup is pulled and fixed on the head of the gun. The transanal inserted pure string suture in the remnant rectal mucosa is drown over the holes on the body of the PPH stapler as it is done also at the Longo operation. The 3-4 mm long musculo-mucosal ring is pulled into the body of the gun during the closure of the instrument, and cutted out at fireing it exactly at the lewel of the dentate line.

II. Coloanal anastomosis

The anastomosis making procedure is similar to the ileoanal one, but the proximal bowel to be stapled is the colon sigmoideum. The pure string suture is placed into the edge of the distal rectum stump transanally from about a half cm from the edge of the distal rectum is pulled into the body of the stapler.

The lienal colon flexure is mobilised only if it is necessary to the tension free suturing.
Patient population

From the 1st of January in 1998 till the end of the last year 47 patient have been total colectomised and reconstructed with ileoanal (18 familiar polyposis (FAP), 29 ulcerativ colitis (UC)) anastomosis sutured with PPH stapler.

In the lower third of the rectum an other 9 patient have been resected and reconstructed with coloanal (5 bening and 4 malignant tumor in T1 or T2 N0 clinical stage) anastomosis with the same technic.

All ileoanal and 4 coloanal anastomosis have been protected with ileo or rectal tumor cases with colostomy. The protective stomas have been closed in three month after the curative intervention. third generation cephalosporin and metronidazole antibiotic prevention had been applied in all cases.

The rate of anastomotic insufficiency, other septic and non septic postoperative complications, the functional outcome (6 month after the operation) have been evaluated with anal manometry.

RESULTS

At the intraoperative controll of the stapled anastomosis 3 times in ileoanal an once in coloanal anasomosis cases had to put one or two corrective suture into the anastomosis line.

On the 5th postoperative day 4/47 radiologically demonstrated anastomotic insufficiency had been observed in the ileoanal, and 1/9 in the coloanal anastomosis group without any serious clinical effect.

Four incisional infection in ileoanal and 2 in coloanal anastomosis patient group, two to one and 4 to 2 urin infection have been observed comparatively. (Table 1.)

On the 2. table the anal sphincter function is compared in both patienets group considering the preaoperative conditions too. The praeoperative anal sphincter function was normal on 39. First grade insufficiency have been found on all the 9 coloanal anastomosis patient.

No functional change have been observed postoperatively on 33, and moderate insufficiencí have been observed on 6 on the 39 ileoanalostomy patients who had normal function preoperatively. There was no demonstrable anal function deterioration after the operation on the 8 patients suffering in a moderate praeoperative insufficiency.

There was no change in sphincter function on the patients operated on with rectal benign or malignant tumors. (Table 2.)

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**TABLE 1**

<table>
<thead>
<tr>
<th></th>
<th>Anastomosis insuff.</th>
<th>Wound inf.</th>
<th>Urin inf.</th>
<th>Lethality</th>
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<td></td>
<td>rad+</td>
<td>clin. symptoms</td>
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<tr>
<td>Ileoanal anast.</td>
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<tr>
<td>FAP n:18</td>
<td>1</td>
<td>4</td>
<td>1</td>
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</tr>
<tr>
<td>UC n:29</td>
<td>3</td>
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<tr>
<td>Coloanal anast.</td>
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**TABLE 2**

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<thead>
<tr>
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<th>Preoperative</th>
<th>Postoperative</th>
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<td></td>
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<tr>
<td>Ileoanal anasto</td>
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<td>FAP n:18</td>
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<td>6</td>
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<tr>
<td>Coloanal anast.</td>
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<td>Rectal tu n:9</td>
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DISCUSSION

A correct ileoanal or coloanal anastomosis is a crucial question considering the late functional outcome of the ultra low coloanal and ileoanal reconstructions. In case the indication is a low rectal tumor a tumor free margin has a central importance to avoid the local recurrences. Total colectomies on FAP patients should be resected sodeeply, that no remnant rectal mucosa remains between the pouch and the anoderma. Even if a minimal polyp free mucosal rimains in these position, it means a permanent need of control rectoscopies, to avoid any malignant transformation at these territory.

The remnant mucosal ring is a potential danger also in ulcerative colitis in respect of exacerbation of an acute inflammation with or without a live therarening bleeding or depsis, and the late malignant transformation of the permanently irritated mucosa.

At present the so called double stapler technic is the most popular solution to make colo or ileoanal anastomoses. The method is safe and much more simple as the previously used transanal hand sewn one. Its disadvantage, that almost impossible to make the rectal resection deep enough not to live back a one to one and a half cm long mucosal ring between the anastomosis and the dentate line. From economical point of view the double stapler technic is much more expensive, as the hand sewn one.

The PPH stapler technic make easier not to live back any mucosal ring, and only one stapler have to be consumed. On the basis of the results of these study the anastomosis technic seems to be safe enough in avoiding the serious local septic complications, and ensure an acceptable late anal sphincter function.

The functional outcome is better after a coloanal anastomo- mosis as after the ileoanal one, because of the different consistence of the bowel content.

SUMMARY

ISKUSTVO SA ILEO ILI KOLO-ANALNOM ANASTO- MOZOM KREIRANOM PPH STAPLEROM POSLE ULTRA NISKE RESEKCIJA I PROKTOKOLEKTOMIJA SA J-PUOCH REKONSTRUKCIJOM

Ileo ili koloanalna anastomoza je jedna od najbitnijih delova niske resekcije rektuma i proktokolektomije kada se uzimaju u obzir postoperativne komplikacije. Uprkos uspešnim terapijama insuficijencija analne anastomoze, funkcija analnih sfinktera ostaje pod znakom pitanja. Zbog toga kod ovakvih operacija svi pokušavaju da nadju jednostavno i sigurno rešenje da zadrže komplikacije na prihvatljivom nivou.

Ne samo da tehnike u kreiranju anastomoe utiču na rezultat kolo ili ileoanalne anastomoze, nego i na dužinu trajanja operacije. Cena intervencije mora takodje biti uzeta u obzir.

Autori su radili na metodi sa PPH (Johnson and Johnson) staplerima, originalno korišćenim za operacije hemoroida Longo tehnikom, za pravljenje kolo i ileoanalne anastomoze posle ultraniskih resekcija i prktokolektomija sa J-pouch rekonstrukcijama. Prezentovane su operativne tehnike i rezultati operacija 56 pacijenata.

Key words: ileo-analna anastomoza, colo-analna anastomoza, J-pouch, stapler

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