A METHOD FOR CREATION OF ILEAL POUCH-ANAL ANASTOMOSIS INCORPORATING A MUCOSECTOMIZED AND PLICATED SEGMENT OF RECTAL RESIDUAL

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ABSTRACT

Recently, ileal pouch-anal anastomosis (IPAA) is considered a surgical method of choice in the patients with restorative proctocolectomy for ulcerative colitis and familial adenomatous polyposis. Various methods are currently used for the creation of ileal reservoirs with IPAA presenting with advantages and disadvantages as well. The modified technique of Delorme's procedure for rectal prolapse has shown that the increased basal anal pressure underlies the improved continence in these patients. A modified author's own method for creation of IPAA by means of mucosectomy of a plicated segment of rectal residual is described. The operative technique includes a J-pouch construction, too. Early and distant postoperative results concerning the function of the ileal pouch and patients' quality of life are encouraging.

Key words: ileal J-reservoir, ileal pouch-anal anastomosis, mucosectomy, plicated rectal residual, operative technique

Recently, there is a continuous trend of increasing incidence rate of large bowel diseases in all over the world (7). The issues of the conservative and surgical treatment of the patients with ulcerative colitis (UC) and familial adenomatous polyposis (FAP) focus the attention of a lot of gastroenterologists and coloproctologists in the developed country and in Bulgaria as well. Nowadays ileal pouch-anal anastomosis (IPAA) is considered a surgical method of choice in the patients with restorative proctocolectomy (RPCE) for ulcerative colitis and familial adenomatous polyposis. There exist, however, a series of unsatisfactorily solved problems of the operative treatment directly related to the postoperative results and quality of life of the operated patients.

Our experience gained with the modified technique of Delorme's procedure for rectal prolapse previously applied by different authors (1,2,5,6,9-11) has shown that the increased basal anal pressure underlies the improved continence in these patients. This fact suggested us to use this technique in the creation of the ileoanal anastomosis in the patients with restorative proctocolectomy for ulcerative colitis and familial adenomatous polyposis. Our purpose was to elaborate a method for creation of IPAA after RPCE in the patients with UC and FAP by using a mucosectomized plicated segment of a rectal residual.

Operative technique of plicating the mucosectomized segment of rectal residual

The patient is placed in the lithotomy position and obligatorily catheterized because of the risk of incontinence after operation. Intervention is carried out under endotracheal anaesthesia Preoperative insertion of an epidural catheter for postoperative anaesthesia is recommended. A central venous route is obligatorily cannulated. The apex of coccyx should remain out of the operating table. The coxal joints are flexed to about 110°, abducted to 40° at certain external rotation and knee flexion of 60°. Two surgical teams are involved in the operation.

The procedure starts with a median laparotomy and careful revision of the whole abdominal cavity. In case of abdominal lymph adenopathy a lymph node is forwarded for express histologic examination to exclude Crohn's disease. Colectomy begins with mobilization of right colon, liberation of omentum from transverse mesocolon, liberation and pulling down of lienal colon flexure, sigmoid colon and upper part of rectum. The trunks of lower mesenteric vessels are secured by ligature to avoid the damage of pelvic sympathetic innervation. The ligature of right and left colon arteries is done as close as possible to the colon wall to prevent the appearance of large peritoneum-free regions. During rectum immobilization one should act in the proximity of the rectal wall. In this way, the upper and medial rectal arteries are sutured without removing the mesorectum and by preserving the presacral nerves. The median colon artery is sutured at the level of its separation from the upper mesenteric artery immediately below the pancreatic uncinate process. In the same way, the medial colon artery is su-
tured, too. The course of the ileocolonic artery is identified and the peritoneum above it is excised. The arc between the ileocolonic vessels is searched for as the first ileal branch should obligatorily be preserved. The appendix is mobilized and the appendicular artery is carefully sutured. The latter is often attached to the arc that should remain intact. Then the terminal ileal mesentery is separated and the terminal ileum is clipped about 3-4cm far from the ileocecal valve. After preparation of the rectum below the level of levator muscles and careful trim of the operative field the rectum is clipped and resected up to 9-10cm above the anocutaneous line. The distal part is closed by means of non-traumatic stapler. This part is transanally everted. At this stage of the operation the second surgical team is involved.

J-pouch construction

The construction of J-pouch has been preferred to that of S- and W-pouch because of its easier performance and comparable results one year postoperatively. The exact site of pouch apex is located. This point depends mainly on the location of the vascular arcs. Having in mind the length of the intestinal mesentery in J-pouch this point is approximately 20cm far proximately from the closed terminal ileum. Usually, the point is tagged with a single suture only. The ileal arc of first order and the ileocolonic artery are secured while the arteries of second and third order could be interrupted. In this way, the created window enlarges the mobility of the apical part of the pouch by about 3-4cm. Its elongation. It is performed, however, in case of absolute necessity only to avoid the smallest opportunity for pouch ischemia. These vascular reconstructions are done under the control of ultrasonic Doppler device. The construction of the pouch itself is carried out by means of two loops of the terminal ileum, between 12 and 15cm long. In its creation, one-layer anastomosis with non-traumatic needles and 3/0 catgut should be applied. A 32 Ch Pezzer's catheter is inserted in the pouch apex fixed by a preliminary purse-suture. The final appearance of the J-pouch is demonstrated on Fig. 1.

Transanally, an intestinal dilator is inserted into the closed rectal residual. The apical residual part is singly sutured to the dilator and the residual is everted by rotation-traction movements and with the help of the team working transabdominally. No retractor is used at all. The mucosectomy line starts 1cm proximally from dentate line and continues along 5cm. A 1:300000 solution of adrenaline is infiltrated in the submucosal plane to facilitate mucosal excision and to reduce the amount of bleeding. The mucosa is stripped off the underlying muscle and is then excised (Fig. 2). The residual segment is not left in situ like in previous techniques. By stretching, the rectal segment lengthens by up to 7-8cm. The stretched rectal residual is plicated using a non-traumatic needle and by single

Fig. 1. Final appearance of J-pouch in the modified IPAA

The pouch apex should reach down to 6 cm below the pubic symphysis to avoid pulling in ileoanal anastomosis. The ileocolonic artery should be sutured in case of absolute necessity only in the presence of a very well presented peripheral arc. Sometimes it is necessary to cease the upper mesenteric artery below the separation of the ileocolonic artery, however, only in the presence of powerful peripheral arcs. Fenestration of vessel-free areas of mesentery helps...
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(12-14) stitches (3/0 Vycril) similarly to Delorme's modified operation (4). The sutures begin at the borderline of demucosed and everted rectal residual (1 cm above the dentate line) with capturing the muscularis and serosa layers and terminate after residual's plication in the mucosectomy apex (Fig. 3). All the stitches arranged circularly at equal distance one from another are caught with a holder and thus a figure of 'sun' type is shaped. This manner of residual's plication avoids haematoma and abscess formation in the rectal cuff leading, most commonly, to anastomosis failure. Besides it contributes considerably to a better function of the internal anal sphincter. The ileal pouch is pulled out into the small pelvis using a 32 Ch Pezzer's catheter fixed in its lumen. Each stitch consecutively passes submucosally to the apex of the mucosectomized rectal residual. The ileum is caught as for one-layer suture without mucosa involvement. Sutures are consecutively tied after completing the anastomosing process (Fig. 4). The purse suture fixing Pezzer's catheter is cut.

Pezzer's catheter is fixed with a single suture to the perineum and remains in the lumen of the pouch for repeat washings with physiological saline for 12-14 days. Two drainage probes are placed in front of the sacral bone behind the pouch for 6-7 days. The whole pouch remains out of peritoneum. Two drainage probes are inserted into the lateral abdominal canals but one probe is placed in the pelvis. Then the abdominal cavity is closed layer by layer.

During the period from 1996 till 2003 this method was applied in a total of 26 patients. Of them, there were 23 UC patients and 3 FAP ones at a mean age of 34.7 years. It testified to the socio-medical significance of these severe diseases. The surgical intervention was done at one stage in 24 but at two stages in 2 patients.

Fig. 3. Plicating stitches of the mucosectomized everted rectal residual

Our early and distant postoperative results after IPAA are encouraging similarly to those of other authors (3,12). Some of our data have been already published elsewhere (8). Our practical experience with the modified IPAA does not demonstrate any danger of long stenosis with outlet obstruction as we do not left the residual rectal segment in situ. Most probably, this circumstance contributes to the better postoperative functional results in our patients. In fact, this IPAA creates a new and functionally active anatomical substrate. At the end of the first postoperative year the basal anal-canal pressure surpasses its preoperative values in the patients with a created muscle cuff that cannot be registered when performing the standard IPAA. It is maintained sufficiently high through the tone of the smooth muscle cuff and internal anal sphincter and could ensure a better patient's quality of life.

In our opinion, the modified method of IPAA with a mucosectomized and plicated rectal-residual segment represents a reliable and safe surgical technique. Besides it is relatively easy to perform. That is why this method deserves a much wider application in the coloproctological practice in Bulgaria and abroad as well.
REFERENCES