

TRANSANAL RECTOSIGMOIDIAN RESECTION IN CHILDREN. COMMENTS UPON THE SURGICAL TECHNIQUE

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Abstract

Purpose. This paper intends to expose and discuss the technical aspects of the transanal endorectal rectosigmoidian resection in children. Colic resection and coloanal anastomosis technique may be performed by totally endoanal or combined endoanal and laparoscopic approach for the mobilization and devascularization of the colon. Both techniques have, as a common surgical stage, the suprasphincteric endorectal dissection and transanal coloanal anastomosis. This paper analyses the indications, contraindications, technical details and surgical complications which strictly depends on the transanal endorectal surgical stage. *Materials and methods* This study was conducted on a number of 42 patients with rectosigmoidian resection. In 6 cases the resection was performed using exclusively the transanal endorectal approach and in the other 36 cases we used videoassisted technique. The patients were aged between 13 days and 17 years (mean 3y 2m). Five of these patients were admitted as an emergency case and were operated on as a single stage procedure, without performing a colostomy. There were 37 cases admitted as a chronic constipation syndrome with, or without aganglionosis. We used exclusively the endoanal technique in children with certified low type of aganglionosis. We practiced laparoscopic devascularization and mobilization of the colon in cases with resection above the rectosigmoid junction. *Results and Discussions* about operative results take into account only endoanal stage of the surgery, underlining the technical aspects with obvious impact over the postoperative results. There were 9 postoperative difficult outcomes: 2 anastomotic fistulas, 1 anastomotic stenosis, 1 insufficient resection and 4 cases with episodic soiling.

Key words: congenital megacolon, transanal rectosigmoidian resection

Background

Laparoscopic rectosigmoidian resection became very fast a revolutionary point of view in the strategy and technical aspects of congenital megacolon. This technique imposed itself as a single stage procedure, abandoning techniques that preserve aganglionic rectum (Duhamel technique and Soave). This technique was first presented simultaneous by Bax-1994(1) and Smith (2) as a reproduction of the Duhamel technique. After this, K.

Georgeson performed the rectosigmoid resection as a reproduction of the Swenson technique using laparoscopic approach. (2) Georgeson's technique imposed itself very quickly in clinical practice and many authors report improvement of the postoperative results. Starting from the rectosigmoid laparoscopic resection, J. de la Torre and A. Ortega performed an exclusively endorectal approach. (4)

Material and Method

This study take into account 42 patients with rectosigmoidian resection. There were 36 videoassisted surgery and 6 exclusively transanal endorectal procedures. Both techniques consist of a rectal resection after segmental rectal dissection on a variable length through endorectal approach. Mean age of the patients was 3 years and 2 months (aged between 13 days and 17 years). There were 5 patients admitted as an emergency case and operated on without a colostomy as a first stage of the procedure. A number of 37 patients were admitted in the hospital as a chronic constipation, with or without aganglionosis revealed by the preoperative histologic examination. Exclusive endoanal approach was practiced in low type of aganglionosis. We practiced laparoscopic devascularization and mobilization of the colon in cases with resection above the rectosigmoid junction. We practice this technique without infiltration of the submucosal rectal plane. The endoanal stage of this procedure consists of a good exposure of the terminal rectum, starting 1 cm above the dentate line This is possible by placing a circumferential row of staying suture which realizes a continuous traction over the rectal mucosa (photo 1).

The rectal mucosa is then dissected from the muscular plane on a length of 3 to 4 cm. After crossing the rectal wall, we continue the dissection of the perirectal plane until we reach the peritoneal reflexion (Douglas cull de sac) or until we meet the perirectal dissection plane initiated laparoscopically. Entering the peritoneum, we may exteriorize transanal the dissected colon traction it into the perineum and resect it. (photo 2).

The resection level is settled by the histologic examination performed during the operation or we may use key points settled at the time of laparoscopic preoperative biopsies. Coloanal anastomosis is done in one or two plane, total or half thickness.

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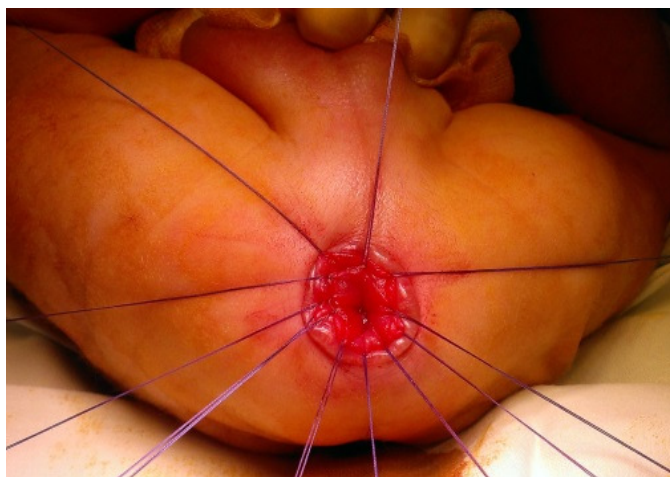


Photo 1. Exposure of the anal canal.

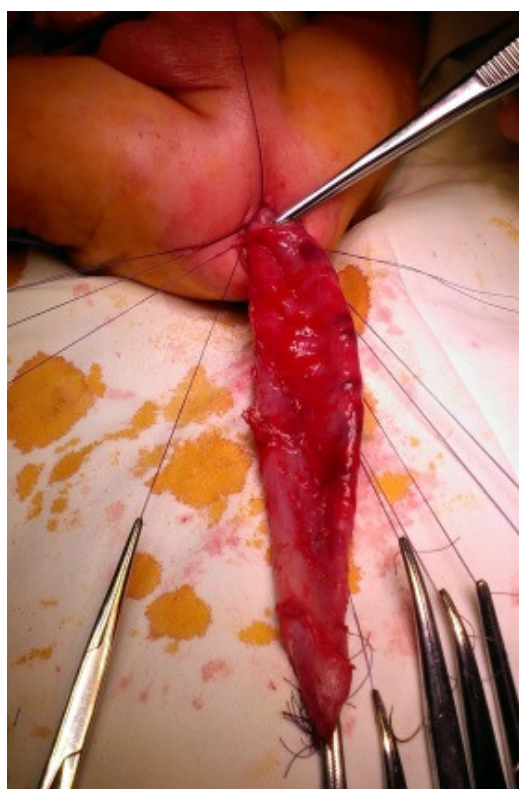


Photo 2. Pull-through of the dissected colon.

Results

Perineal stage of the procedure is not significant different in the two procedures. Mean operative time was 75 minutes (between 60 and 110 minutes). We did not take into account the blood loss during the surgery because they are clinical insignificant. Postoperative mean follow-up period was of 3 years. There are two criteria which scores the postoperative outcome: spontaneous rectal evacuation and anal continence. Minimum age that is usually take into account for rectal continence is at 3 years old, but, clinical observation of healthy children demonstrate that we may score continence after 4 years old. There were no postoperative complications in 36 patients. The surgery promotes daily rectal emptying once in 36 hours without laxative and without uncontrolled stool evacuation. There were 6 complicated postoperative outcomes. One patient presented successive anastomotic fistula, anastomotic stenosis and after that recurrent enterocolitis and persistent soiling. Postoperative anastomotic fistula was observed in two patients, one of them requiring colostomy and the other, with minor lesion, was cured after oral nutrition suspension and total parenteral nutrition for 8 days. In patient with colostomy we registered anastomotic stenosis after a period of 4 weeks and we controlled it through regular dilatations for three months. There was one insufficient colic resection and the patient developed an important pseudo-obstructive syndrome which necessitate a redo laparoscopic surgery. There were 4 cases with postoperative soiling, all of them presented in patients with at least 2 enterocolitis episodes in the first 3 postoperative months. One case of soiling appeared in one of the two children with anastomotic fistula. The other 3 cases did not reveal any pathologic findings as an explanation of soiling. In 2 cases we resolved this continence problem through nutritional therapy and Loperamid for 3 to 4 months. One patient presents recurrent postoperative soiling after 2 postoperative years and another after 3 years.

Comments

Laparoscopic surgery and totally transanal approach represent the return of surgery to the basic principles of the Swenson technique which resects the aganglionic rectum and practice coloanal anastomosis, giving up the procedures that maintain in transit the aganglionic rectum. There are, in fact, two clinical criteria which analyse the postoperative results: the frequency of spontaneous rectal evacuation and anal continence. Endorectal resection technique is practiced above the sphincteric structures, far from the anal discriminative reflexing zone, because the dissection starts at 1cm above the dentate line. There is an initial submucosal dissection on a bowel length of 4 to 6 cm, after that we enter the perirectal space. This approach preserves the sphincteric structure and genitourinary elements (urethra, seminal vesicles, deferent duct) which remain out of the dissecting plane. This is why the technique may be considered a Soave-Boley technique in cases which extend the dissection until the rectosigmoid junction. (5) Even in that case, the demucosed rectum is resected or cut in a longitudinal manner, anterior and posterior. Without this technical detail

the rectum may become a circular stenotic tube which may produce the postoperative incontinence phenomenon. The anal incontinence may appear in postoperative period as a recurrent or permanent complication without a correlation with technical aspects. Although this continence pathology was attributed to excessive dilatation of the internal sphincter with rupture of its elements, we have to notice that there are also other surgical techniques, as Duhamel technique which realise this sphincteric dilatation and there are patients presenting perfect postoperative continence even in the absence of the internal sphincter (anorectal malformations treated using posterior sagittal approach) The anal continence and frequency of rectal evacuation may be related also to other technical details: dilatation and thickness of the bowel wall at the level of the coloanal anastomosis, the degree of tension in anastomosis and the level of the colic resection. A coloanal anastomosis with an important colic dilatation is technically difficult and may generate postoperative complications: leakage, fistulas and mucosal prolapse. As a principle, it is recommended to start the resection above the dilated zone so that the anastomosis may be done with a normal colon. In clinical practice, this principle may consists of a too longer colic segment (colic surgery is, in fact, the surgery of the colic vessels -7) resection with unfavourable postoperative functional outcome (enterocolitis, soiling, perineal erosions). Mucosal prolapse may be avoided by suturing the anastomosis in two planes, with mucous superficial one. It is unanimously agreed that the level of the resection is an essential criteria of a good postoperative result. The usual histologic examinations for Hirschsprung's disease are limited to direct or indirect (AChE level) determination of the presence of ganglia in the myenteric and submucous plexus. For the rest of the entities, known as neuropathic disorders (chronic intestinal pseudoobstruction and neurointestinal dysplasia), myopathic disorders or connective tissue disorders (colic desmosis) the diagnosis is difficult to document except for the research Cliniques. The presence of these entities may explain the unsatisfactory results even in cases with standardized diagnostic and surgical technique. Another technical aspect is the tension inside the anastomosis. Beside the technical surgical details, a tension-free anastomosis depends on the anaesthesia technique and the relaxation of the sphincteric structures, which can be obtained combining a spinal anaesthesia. One patient was reoperated using endoanal technique after an insufficient resection. This redo surgery had a good postoperative outcome with restoration of intestinal function, without anal incontinence. The decision for the second surgery was made after the histologic finding of the absence of the ganglionic structure in the resected bowel. There are cited cases when endoanal redo surgery was recommended in patients with ganglionic structures present in the full thickness biopsy specimen but with clinical persistent constipation and frequent episodes of enterocolitis.(6)

Conclusions

One can say that endorectal transanal approach represents a technical progress in surgical strategy of

congenital megacolon. This technique is characterized by significantly diminished intraoperative trauma, avoiding or minimizing abdominal surgical stage and by rapid recovery of the general status. This approach can avoid some postoperative complications specific to surgical interventions which include pelvic dissection through open

technique or those who maintain the aganglionic rectum in transit. Endorectal dissection promotes a preservation of the sphincteric structures and pelvic urogenital elements. The results after this surgical procedure recommend it as a method of choice in surgical strategy of congenital megacolon.

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