

First Experiences in Using a Double Stapler Technique for the Transanal Resection of Rectoceles

¹Stefan Farke, ¹Boris Jansen-Winkel, ³Christian Franke, ²Roland Scherer,

²Harald Gögler, ²Thorsten Unglaube and ³Frank Fischer

¹Department of Surgery, Schlosspark-Klinik, Berlin, Germany

²Department of Surgery, University Clinic of Schleswig-Holstein, Campus Luebeck, Germany

³Pelvic Floor Surgery, Krankenhaus Waldfriede, Berlin, Germany

Abstract: Transanal resection of the distal rectal wall was developed by LONGO for the treatment of severe chronic proctogenic constipation. This prospective trial was designed to assess the introduction of this technique in our unit. Previously, our standard procedure for the transperineal therapy of a symptomatic rectocele was the anterior plication of the rectocele. We used the double-stapler resection technique to treat patients with proctogenic constipation that failed to improve with conservative management. The underlying diagnoses were symptomatic rectocele, descending perineum syndrome and intussusception. Slow transit constipation and spastic pelvic floor were ruled out pre-operatively. Each patient underwent a conservative therapeutic attempt involving laxatives and bio-feedback training. Between January 2003 and August 2004 the double-stapler resection of the distal rectal ampulla was used in 20 patients. All were female with a mean age of 57 years. The mean stay in hospital was 6,6 days. All patients could be operated on as planned. No conversion to a conventional technique was necessary. The mean operating time was 37 min. One complication had to be reoperated but was treated successfully with this. The symptoms of 13 women had disappeared or were significantly better, 4 subjects reported only slight improvement and 3 remained unchanged. Based on the data currently available, transanal resection of the distal rectal ampulla using the double-stapler method seems to have a low complication rate and leads to symptomatic improvement in the majority of patients.

Key words: Obstructed defecation, stapler resection, rectocele, transanal, resection, patient

INTRODUCTION

Currently, two operative approaches are available for conservative intractable chronic constipation caused by insufficient rectal evacuation. Depending on the symptoms and investigations the surgeon may choose between the abdominal and the transanal / transperineal access. Abdominal operations are favoured for patients suffering from rectal prolapse or a large sigmoidocele (cul-de-sac syndrome). A transanal or transperineal access to the rectum is preferable for symptomatic rectoceles, mucosal prolapse or other conditions caused by pathology of the pelvic floor and anus.

The transanal resection of the distal rectal wall was developed by Longo (1998) for the treatment of severe chronic proctogenic constipation, e.g. due to a symptomatic anterior rectocele (Stuto *et al.*, 2003). The procedure is based on the stapler operation technique for the treatment of haemorrhoids that was developed by Longo (1998).

This prospective trial was designed to assess the introduction of this new stapler technique in our unit. Previously, our standard procedure for the transperineal therapy of a symptomatic rectocele was the anterior plication of the rectocele and the adaptation of the levator ani muscle without incision of the posterior vaginal wall.

MATERIALS AND METHODS

We used the double-stapler resection technique to treat patients with proctogenic constipation that failed to improve with conservative management. The underlying diagnoses in female patients were symptomatic rectocele (n= 20), descending perineum syndrome (n= 20), and intussusception (n= 20). Slow transit constipation and spasm of the pelvic floor were ruled out pre-operatively. All patients were assessed by an experienced surgeon. The diagnostic tests were standardised and included

transanal ultrasound, manometry, pudendal nerve terminal motor latency testing, defaecography, colon contrast enemas and transit time measurement.

Each patient underwent a pre-operative conservative therapeutic attempt involving laxatives and bio-feedback training (Fig.1). Patients not improving with this management were prepared for the operation by oral bowel preparation with Golytely solution. The procedure was performed by a senior surgeon with specialisation in colorectal diseases.

Post-operatively all patients received a three day course of parenteral nutrition, loperamide to reduce peristalsis and antibiotic prophylaxis with a cephalosporin and metronidazole. Oral nutrition was started on day four and patients were discharged 5 to 7 days post-operatively.

Procedure: The operation was performed under general or epidural anaesthesia in lithotomy position. The PPH-kit by Ethicon® (Norderstedt, Germany) was used. We used an additional metal blade to protect the part of the rectal wall that was not involved in the procedure. The first step after careful widening of the sphincter muscle is the introduction of the transparent proctoscope that is stitched to the gluteal skin temporarily. For the total resection of the rectal wall 2-4 mucosal sutures are gathered semi-circularly in the anterior wall. The first suture should be around 3 cm above the dentate line. the following stitches 5, 7 and 9 cm, respectively. The number of stitches varies with the size of the rectocele. Once all sutures are set, the stapler is introduced to perform the total resection of the anterior wall of the rectum. The metal blade is used to protect the opposite wall of the rectum when stapling.

Under no circumstances should the posterior vaginal wall be injured when suturing or triggering the stapler. We carefully examine the vaginal wall digitally before triggering the stapler to prevent any complications. The posterior rectal wall is resected the same way. When introducing and closing the stapler the metal blade should prevent accidental damage of the opposite rectal wall again.

Finally, the overlapping areas at 3 and 9 o'clock in supine position are plicated and closed by another suture.

RESULTS

Between January 2003 and August 2004 we used the double-stapler resection of the distal rectal ampulla in 20 patients. All patients were female and the mean age was 57 years (range 44-73 years). The mean stay in hospital was 6,6 days (range 4-8 days).

Pre-operatively, all patients have been complaining of long standing severe constipation. All subjects had a symptomatic anterior rectocele. Previous treatments with enemas and laxatives had not resulted in any significant improvement nor had the pre-operative bio-feedback training. All of the 20 patients had supported their defaecation digitally. Three patients had been suffering from overflow incontinence.

All patients could be operated on as planned. No conversion to a conventional technique was necessary. The mean operating time was 37 min (Range 25-50 min).

Functional results: So far, all 20 patients were followed up until now. The mean follow up time was 9,8 months (range 1-20 months). For follow up a clinical examination was conducted by the operating surgeon and a questionnaire about symptoms of obstructed defecation was done. A complete work up in the pelvic floor laboratory including clinical examination, manometry, endosonography and electrophysiological tests was done one year postoperative (Fig. 1).

Postoperatively only three of the operated women reported no improvement of obstructed defecation. The still needed digital supporting for evacuation while all other did no longer need to evacuate digitally after the operation.

In 4 patients, a moderate improvement was noted without digital supported evacuation but still increased straining, the feeling of pressure and the need for laxatives.

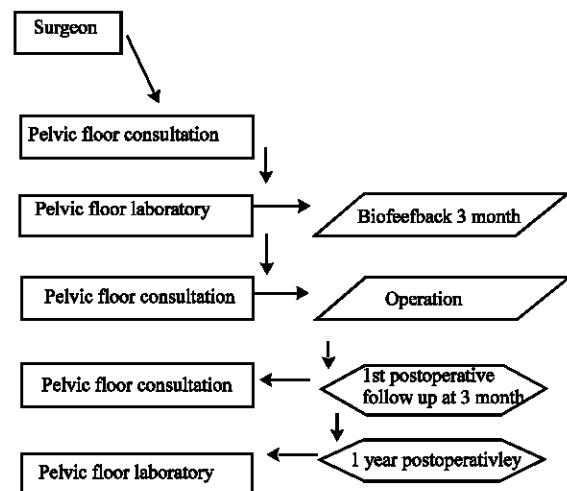


Fig. 1: Management of chronic proctogenic constipation

Another 4 patients were without complaints completely, no symptoms of obstructed defecation were seen in these women.

The remaining 9 patients demonstrated a significant improvement of symptoms without straining or the feeling of pressure while the need for digital evacuation was also gone. They still needed laxatives at a lower level compared to the preoperative use.

In conclusion of the results the symptoms of 13 women had disappeared or were significantly better, 4 subjects reported only slight improvement and 3 remained unchanged. The very unpleasant symptom of digital evacuation all women were suffering on preoperatively was cured in 17 of the 20 women (Table 1).

Complications: The 20 operation were done without serious or major complications. Only one intraoperative complication occurred, during one operation the stapler did not fully close all the staples resulting in a defect of the rectal wall. The resulting gap in the stapled anastomosis could be easily sutured conventionally. The postoperative course of this patient was without complication further on.

In the postoperative course, no severe complication was noted too. Only minor complications occurred in three patients altogether.

One patient showed a stenosis of the stapled mucosa postoperatively. This was easily treated by resecting the mucosal growth obstructing the rectum. Two women developed a urinary tract infection.

Costs: A major cost factor for the operation is the concurrent use of two staplers. The total cost per operation can be estimated at around EUR 2580.00. This figure is based on the price of EUR 300.00 per stapler and a mean hospital stay of 6,6 days amounting to EUR 300.00 per day.

When applying the German DRG system the cost coverage for the procedure is dependent on the coding. With correct classification chronic constipation is put as the main diagnosis and the transanal total resection of the rectal wall is the subsequent procedure DRG G13B will give a relative factor of 1.073 resulting in EUR 3111.70.

Table 1: Functional results

Complaint	Symptoms	n
No complaints		4
Significant improvement	No digital evacuation, No increased straining No feeling of pressure but use of laxatives	9
Moderate improvement	No digital evacuation, Increased straining Feeling of pressure Use of laxatives	4
No improvement		3

n= 20

When the main diagnosis is changed to rectocele and chronic constipation is put as a secondary diagnosis an Error-DRG 902Z will show up (minor OR-procedure not related to main diagnosis) and give a relative factor of 0,970. This will result in EUR 2813.00 based on basic case expenses of EUR 2900.00).

DISCUSSION

The surgical treatment of severe chronic constipation of proctologic origin is possible. Several methods have been described using transanal, transperineal or transvaginal access to close the rectocele.

In our opinion, the double-stapler technique by longo has several advantages. The duration of the operation is shorter than for conventional operations. Stuto *et al.* (2003) report an average time of 41.8 min (+/- 6,0) in a trial assessing surgery on 25 randomised patients. This is longer than in our study but much shorter than the duration of conventional rectocele surgery. The procedure is easy to learn for surgeons with experience in colorectal operations and stapler use for haemorrhoidal therapy.

Although the procedure was new to our department we did not encounter any technically induced complications. Minor complications were seen more frequently by Stuto *et al.* (2003) however, no major complications occurred in his study either.

Surgical treatment of proctogenic constipation seems to be successful in 74-93% (Ho *et al.*, 1998; Murthy *et al.*, 1996; Ommer *et al.*, 1998; Sloots *et al.*, 2003; Tjandra *et al.*, 1999). The double-stapler technique seem to be able to achieve similar results although the follow up period in our trial is short.

In order to compare this new technique with other surgical methods large, randomised trials are needed focussing on the long-term results.

A general problem that makes the comparison of existing trials difficult is the lack of clearly defined diagnoses causing constipation. Functional defecation deficits such as prolapse or chronic sphincter spasm are frequently combined using the term "obstructed defecation syndrome". This term, however, covers a wide range of conditions that should not necessarily result in a perineal approach and application of the double-stapler technique.

Until head-to-head comparisons and long-term data are available we advise to apply strict indication criteria for using this new procedure.

Furthermore, experience in patient's care before, during and after the operation is important.

CONCLUSION

Based on the data that is currently available, transanal resection of the distal rectal ampulla using the double-stapler method seems to have a low complication rate and leads to symptomatic improvement in the majority of patients.

When the disease and procedure are coded appropriately-with chronic constipation being the main diagnosis and anterior rectocele being the secondary diagnosis-the procedure seems to be cost efficient in the German DRG-system.

REFERENCES

- Ho, Y.H., M. Ang, D. Nyam, M. Tan and F. Seow-Choen, 1998. Transanal approach to rectocele repair may compromise anal sphincter pressures. *Dis. Colon Rectum*, 41: 354-8.
- Longo, A., 1998. Treatment of hemorrhoidal disease by reduction of mucosa and hemorrhoidal prolapse with a circular stapling device: A new procedure. *Sixth World Congress of Endoscopic Surgery*. Monduzzi, Bologna, pp: 777-784.
- Murthy, V.K., B.A. Orkin, L.E. Smith and L.M. Glassman, 1996. Excellent outcome using selective criteria for rectocele repair. *Dis. Colon Rectum*, 39: 374-8.
- Ommer, A., A. Kohler and S. Athanasiadis, 1998. (Results of transperineal levator-plasty in treatment of symptomatic rectocele) *Chirurg*, 69: 966-72.
- Stuto, A., P. Boccasanta, M. Venturi and C. Bottini *et al.*, 2003. Stapled Transanal Rectal Resektion (STARR) for obstructed defecation. A prospective multicentric trial. *Annual Meeting Abstracts of American Society of Colon and Rectal Surgeons*. *Dis. Colon Rectum*, 46: 21
- Sloots, C.E., A.J. Meulen, R.J. Felt-Bersma, 2003. Rectocele repair improves evacuation and prolapse complaints independent of anorectal function and colonic transit time. *Int. J. Colorectal Dis.*, 18: 342-8.
- Tjandra, J.J., B.S. Ooi, C.L. Tang, P. Dwyer and M. Carey, 1999. Transanal repair of rectocele corrects obstructed defecation if it is not associated with anismus. *Dis. Colon Rectum*, 42: 1544-50.