Surg Endosc (1999) 13: 139–141

Surgical Endoscopy
Ultrasound and
Interventional Techniques

Laparoscopic rectopexy according to Wells

J. Himpens, G. B. Cadière, J. Bruyns, M. Vertruyen

Department of GI Surgery, University Hospital Saint Pierre, 322 Hoogstraat, Brussels 1000, Belgium

Received: 22 January/Accepted: 7 May 1998

Abstract

Background: The laparoscopic approach usually reduces the morbidity of procedures performed by laparotomy. The aim of this study was to demonstrate the usefulness of laparoscopic rectopexy.

Methods: A total of 37 patients were included in this prospective study. The indication was true rectal prolapse in all patients. Incontinence was seen in 33% of the patients. A slightly modified Wells procedure was performed laparoscopically. Postoperatively, the patients were evaluated for resolution of the prolapse and incontinence. They were also questioned about their satisfaction with the procedure.

Results: Laparoscopy was successful in all but one case. Follow-up is available in 32 of 37 patients. Prolapse was cured in all patients, and the incontinence resolved in 11 of 12. In addition, 38% of the patients experienced significant constipation preoperatively versus 5% postoperatively.

Key words: Laparoscopic rectopexy — Wells procedure — Rectal prolapse — Incontinence — Constipation

Several treatment modes are available for the correction of rectal prolapse. The patients with this condition are often old and debilitated. Therefore, less aggressive procedures are frequently used, with less than optimal results. The more effective procedures are more invasive and carry a high morbidity because of concomitant disease. The aim of this study was to analyze whether the laparoscopic approach can mitigate the morbidity of a well-documented procedure—the Wells technique of rectopexy—while still obtaining its excellent results.

Patients and methods

Patients

Between August 1993 and February 1997 a consecutive series of 37 patients were treated for true rectal prolapse. Thirty-six of the 37 patients were women. Their ages ranged between 45 and 86 years (median, 62.5 years). They had been referred by gastroenterologists, and all had preoperative defecograms and documentation of their condition. Twelve patients were incontinent. Anal manometry, which was performed on 11 of these latter patients, demonstrated maximum resting pressures of 12–41 mmHg (median, 31 mmHg). All patients complained of some constipation, but only two patients reported a debilitating degree of constipation, with a documented transit time of >5 days. Transit times in the remaining 35 patients were within normal limits (<2 days).

Surgical technique

The patient is placed supine with the legs abducted and slightly flexed. A Foley catheter is placed in the bladder. General anesthesia and endotracheal intubation are used. The surgeon and surgeon's assistant stand to the right of the patient. The laparoscopic hardware is positioned at the patient's feet. The peritoneum is entered by the first 10-mm trocar at the level of the umbilicus, ~2 cm to the left. Two additional 5-mm trocars are placed in the right lower quadrant on the anterior axillary line, one at the level of the umbilicus and the other at the level of the iliac crest. Another 5-mm trocar is placed in the left lower quadrant, a few centimeters distal to the umbilical level, on the anterior axillary line. A final 5-mm trocar is inserted suprapubically.

The surgeon operates a grasper in the left hand and a coagulating hook in the right hand. The assistant holds the forward-looking scope and the camera; he or she also manipulates a grasper in the left lower quadrant trocar.

Dissection is initiated by incising the right-sided parietal peritoneum lateral to the rectum while the assistant pulls the rectum anteriorly and superiorly. The right ureter is identified. The peritoneum located anteriorly to the rectum (Douglas' pouch) is incised while countertraction is assured by the assistant, who is now holding a grasper through the suprapubic trocar. The peritoneal incision is subsequently carried superiorly, while the assistant pulls the rectum to the right and superiorly. The left ureter is then identified. The next step is the dissection of the retrorectal space. A retrorectal window is created—i.e., the mesorectum is detached from the sacral hollow anterior to the sympathetic plexus.

The dissection is carried down as far as the levator diaphragm, which is freed over its entire surface. Fibrous strands withstanding the elevation of the rectum can be dealt with under direct vision using scissors or the coagulating hook. Next, the promontorium is exposed as well as the right iliac artery and vein.

A piece of polypropylene mesh (Atrium; Origin, Menlo Park, CA, USA) is cut in a T-shape. The long leg should be ~10 cm long (two-thirds of the length of the commercially available mesh). The short arm is ~7 cm long (half the length of the commercially available mesh) and 5 cm wide (one-third the length). The long leg is marked with a stitch for identification.

The mesh is introduced blindly through the 10-mm trocar and pushed

Correspondence to: J. Himpens

inside by the scope. It is oriented so that the long leg of the ''T'' follows the hollow of the sacrum and the short arm comes behind and perpendicular to the rectum, at the level of the promontorium. The short arm is then stapled to the promontorium with a tacker (Origin), which is introduced into the suprapubic trocar. During this maneuver, the surgeon moves to a position between the patient's legs. The rectum is subsequently grasped at its superior portion by an atraumatic forceps held by the assistant in the suprapubic trocar and is pulled superiorly and posteriorly.

Using 3/0 Vicryl while forceful traction is maintained on the superior rectum, the short arms of the mesh are stitched to the anterolateral aspect of the rectum, first to the right and then to the left. To do so, the surgeon needs to be situated to the right of the patient and to hold the needle holder (Ethicon, Hamburg, Germany) in the right superior trocar and a grasper in the left superior trocar. Three stitches (or so) are placed on each side. The level at which the stitches are placed on the rectum corresponds with the sacral promontorium; hence, it is determined by the traction on the bowel. The stitches must take deep bites on the rectal wall in order to include the submucosa, but care must be taken not to incorporate the anterior aspect of the rectum, so that at least one-third of the circumference remains free.

A suction drain is then introduced in the pelvis and exteriorized through the lower lateral trocar opening. The peritoneum is sewn with a running suture of Vicryl 3/0. The sigmoid loop is positioned so that no acute angulation with the fixated rectum occurs. It is stitched in this position to the parietal peritoneum by an additional two or three stitches of Vicryl 3/0. The pneumoperitoneum is released, the 10-mm trocar opening is closed in layers, and the 5-mm trocar opening are closed at the skin. At the end of the procedure, the Foley catheter is withdrawn.

Results

The operative time was 130 min (range, 80–200). Median blood loss was 75 cc (range, 50–1000).

Laparoscopic rectopexy was attempted in 37 patients, but conversion to laparotomy was performed in one patient (case 4) because of perioperative bleeding from the sacral veins.

There were no other perioperative complications. In all cases, As of the 1st postoperative day, all patients were out of bed and in the same ambulatory situation as preoperatively.

One patient developed postoperative urinary retention, which required straight catheterization for 2 days. Another patient developed pneumonia, which resolved with antibiotic and physiotherapeutic treatment.

Hospital stay ranged between 4 and 21 days (median, 7 days). There were no deaths perioperatively.

Follow-up is available for 32 of the 37 patients (range, 6–48 months).

No recurrence of rectal prolapse was noted. One patient remained incontinent. Severe constipation was mentioned by four patients, including the two who had been complaining of this condition preoperatively. These latter individuals needed cathartics on a regular basis. Eight additional patients required cathartics occasionally and noted a worsening of their constipation as compared with their preoperative status. All 10 newly constipated patients showed a lengthened transit time postoperatively (3–6 days; median, 4 days).

Hence, 12 patients (38% of the patients seen in follow-up) experienced worsening or no improvement of their constipation and expressed dissatisfaction with their clinical outcome. At physical examination, rectal prolapse was not seen in any patient. Postoperative anal manometry was performed in one patient because of persisting incontinence for stools; no change was noted as compared with preoperative values (12 mmHg).

Rectoscopy was performed on 28 patients 6 months postoperatively. In one asymptomatic patient, a posterior rectal ulceration was detected at 8 cm and biopsied. The pathology report mentioned dense inflammatory reaction with foreign-body granulomas.

Discussion

In our series of 37 patients, one conversion was performed early on in the series because of sacral bleeding. This was the result of dissection in the wrong plane. The right plane is the one located anteriorly to the presacral fascia, as was demonstrated already in open surgery [12]. One should never dissect in a deeper plane, in order to avoid jeopardizing the sympathetic plexus.

The operating time of ~2 h is acceptable, even for older patients [21, 30]. The postoperative stay of 5 days compares favorably to the open procedure [27]. Our group of patients was treated for true rectal prolapse, as diagnosed on defecography. This was a deliberate choice, since rectopexy does not provide convincing results in incomplete rectal prolapse [6]. Moreover, incomplete prolapse does not evolve into true prolapse [28]. Perineal procedures were not undertaken in our department because of insufficient documentation on the long-term results [1, 19], despite the fact that it is a benign [34] and effective procedure in good hands [2]. Consensus on which procedure to choose was still not reached [22].

In our hands, the Wells procedure cured the patients of their prolapse in all cases—at least so far as can be concluded from our follow-up of 90% with a relatively short follow-up time. However, delayed recurrence of rectal prolpase is a rare condition [27]. Twelve patients were treated for prolapse with incontinence, and rectopexy alone cured all but one patient of this annoying condition (92% cure rate). Similar good results have been obtained by other authors, provided that they limited their indication to true prolapse [4, 22, 27]. The mechanism is unknown but may be related to pudendal nerve decompression by the procedure [7, 35]. The only patient who remained incontinent did not show any anomanometric changes, as would be expected [11, 18]. Abdominal rectopexy is indeed a superior technique in dealing with the incontinence problem [23]. Our (and the patients) major disappointment with the technique, however, was the high incidence of postoperative constipation (38% of the patients we were able to follow), as documented radiologically by a transit time of >3 days. Unfortunately, these patients required frequent use of cathartics. The question is, Is this due to the laparoscopic technique or a failure of the Wells technique itself?

Apparently, the laparoscopic approach is not responsible, as other authors can testify [3, 8, 10, 15, 16, 29]. The Wells technique, however, despite the good results seen in some series [9], apparently often results in constipation [31, 33], which may not be the case with the Ripstein procedure [32]. Other authors, however, have reported problems with constipation after the Ripstein procedure as well [37].

The best technique—one that seems to deal with both the prolapse and the incontinence without causing constipation—seems to be a combination of sigmoid resection with rectopexy [20, 25, 26, 36]. This technique is also fea-

sible laparoscopically [3, 24], but it is more demanding. However, simple rectopexy without foreign material and without resection (which is actually a more straightforward procedure in laparoscopy) might also yield better results than the Wells technique [17] as far as constipation is concerned. It is possible that the use of a T-shaped mesh, which we employed to increase retrorectal fibrotic reaction [13], actually results in an aggravation of constipation when this technique is compared to others [5, 14]. This T-shaped mesh is the material that we formerly employed in open surgery.

Thus, in our hands, the Wells technique performed laparoscopically with the use of a T-shaped polypropylene mesh did not provide satisfactory results in our patients treated for complete rectal prolapse, despite the fact that the prolapse was cured in all patients and incontinence resolved in a majority of cases.

Conclusions

Our variation of the Wells technique performed laparoscopically is feasible and safe; it cures rectal prolapse and incontinence but also produces an unacceptable incidence of postoperative constipation.

References

1. Agachan F, Reissman P, Pfeifer J, Weiss EG, Nogueras JJ, Wexner SD (1997) Comparison of three perineal procedures for the treatment of rectal prolapse. South Med J 90: 925–932
2. Agachan F, Pfeifer J, Joo JS, Nogueras JJ, Weiss EG, Wexner SD (1997) Results of perineal procedures for the treatment of rectal prolapse. Am Surg 63: 9–12
3. Baker R, Senagore AJ, Luchtefeld MA. (1996) Laparoscopic-assisted vs open resection: rectopexy offers excellent results. Chirurg 67: 471–482
4. Birnbaum EH, Stamm L, Rafferty JF, Fry RD, Kodner IJ, Fleshman JW (1996) Pudendal nerve terminal motor latency influences surgical outcome in treatment of rectal prolapse. Dis Colon Rectum 39: 1215–1221
5. Blatchford GJ, Perry RE, Thorson AG, Christensen MA (1989) Rectal prolapse: rational therapy without foreign material. Neth J Surg 41: 126–128
6. Briel JW, Schouten WR, Boerma MO (1997) Long-term results of suture rectopexy in patients with fecal incontinence associated with incomplete rectal prolapse. Dis Colon Rectum 40: 1228–1232
7. Cheong DM, Vaccaro CA, Salanga VD, Wexner SD, Phillips RC, Hanson MR (1995) Electrodiagnostic evaluation of fecal incontinence. Muscle Nerve 18: 612–619
8. Cuesta MA, Borgstein PJ, de Jong D, Meijer S (1993) Laparoscopic rectopexy. Surg Laparosc Endosc 3: 456–458
9. Cuthbertson AM, Smith JA (1988) An abdominal repair for complete rectal prolapse. Aust N Z J Surg 58: 499–503
10. Darzi A, Henry MM, Guillou PJ, Shorvon P, Monson JR (1995) Stapled laparoscopic rectopexy for rectal prolapse. Surg Endosc 9: 301–303
11. Duthie GS, Bartolo DC (1992) Abdominal rectopexy for rectal prolapse: a comparison of techniques. Br J Surg 79: 107–113
12. Gallot D (1998) Colectomie pour cancer du colon pelvien. Encycl Méd Chir, Paris, Techniques chirurgicales, Appareil digestif, 10465, 4.910, 18 pp
13. Galili Y, Rabau M (1997) Comparison of polyglycolic acid and polypropylene mesh for rectopexy in the treatment of rectal prolapse. Eur J Surg 163: 445–448
14. Graf W, Karlbom U, Pahlman L, Nilsson S, Ejerblad S (1996) Functional results after abdominal suture rectopexy for rectal prolapse or intussusception. Eur J Surg 162: 905–911
15. Graf W, Stefansson T, Arvidsson D, Pahlman L (1995) Laparoscopic suture rectopexy. Dis Colon Rectum 38: 211–212
16. Henry LG, Cattey RP (1994) Rectal prolapse. Surg Laparosc Endosc 4: 357–360
17. Herold A, Bruch HP (1997) Laparoscopic rectopexy. Zentralbl Chir 122: 578–585
18. Hiltunen KM, Matikainen M (1992) Improvement of continence after abdominal rectopexy for rectal prolapse. Int J Colorectal Dis 7: 8–10
19. Houry S, Lechaux JP, Huguier M, Molkhou JM (1987) Treatment of rectal prolapse by Delorme's operation. Int J Colorectal Dis 2: 149–152
20. Huber FT, Stein H, Siewert JR (1995) Functional results after treatment of rectal prolapse with rectopexy and sigmoid resection. World J Surg 19: 138–143
21. Isbister WH (1997) Colorectal surgery in the elderly: an audit of surgery in octogenarians. Aust N Z J Surg 67: 557–561
22. Jacobs LK, Lin YJ, Orkin BA (1997) The best operation for rectal prolapse. Surg Clin North Am 77: 49–70
23. Keighley MR, Matheson DM (1981) Results of treatment for rectal prolapse and fecal incontinence. Dis Colon Rectum 24: 449–453
24. Kockerling F, Schneider C, Hohenberger W (1996) Rectal prolapse—choice of procedure and minimal invasive possibilities. Chirurg 67: 471–482
25. Lehur PA, Guiberteau-Canfree V, Bruley des Varannes S, Moyon J, Le Borgne J (1996) Sacral rectopexy-sigmoidectomy in the treatment of rectal prolapse syndrome: anatomical and functional results. Gastroenterol Clin Biol 20: 172–177
26. Leppert R, Fuchs KH, Kraemer M, Thiede A (1996). Surgical therapy of rectal prolapse. Zentralbl Chir 121: 698–703
27. Loygue J, Nordlinger B, Cunci O, Malafosse M, Huguet C, Parc R (1984) Rectopexy to the promontory for treatment of rectal prolapse: report of 257 cases. Dis Colon Rectum 27: 356–359
28. Mellgren A, Schultz I, Johansson C, Dolk A (1997) Internal rectal intussusception seldom develops into total rectal prolapse. Dis Colon Rectum 40: 817–820
29. Ratelle R, Vollant S, Peloquin AB, Gravel D (1994) Abdominal rectopexy (Orr-Loygue) in rectal prolapse: celioscopic approach or conventional surgery? Ann Chir 48: 679–684
30. Reissman P, Agachan F, Wexner SD (1996) Outcome of laparoscopic colorectal surgery in older patients. Am Surg 62: 1060–1063
31. Scaglia M, Fasth S, Hallgren T, Nordgren S, Oresland T, Hulten L (1994) Abdominal rectopexy for rectal prolapse: influence of surgical technique on functional outcome. Dis Colon Rectum 37: 805–813
32. Scaglia M, Ribero F, Comotti F, Campra D, Delaini GG, Hulten L (1994) The functional and manometric results of two surgical methods of posterior abdominal rectopexy. Minerva Chir 49: 383–392
33. Siproudhis L, Ropert A, Gosselin A, Bretagne JF, Heresbach D, Raoul JL, Gosselin M (1993) Constipation after rectopexy for rectal prolapse: where is the obstruction? Dig Dis Sci 38: 1801–1808
34. Shafik A (1997) Mucosal plication in the treatment of partial rectal prolapse. Pediatr Surg Int 12: 386–388
35. Shafik A (1996) Pudendal canal decompression for the treatment of fecal incontinence in complete rectal prolapse. Am Surg 62: 339–343
36. Solla JA, Rothenberger DA, Goldberg SM (1989) Colonic resection in the treatment of complete rectal prolapse. Neth J Surg 41: 132–135
37. Tjandra JJ, Fazio VW, Church JM, Milson JW, Oakley JR, Lavery IC (1993) Ripstein procedure is an effective treatment for rectal prolapse without constipation. Dis Colon Rectum 36: 501–507