

# Laparoscopic Management of Complete Rectal Prolapse: Description of Technique

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Laparoscopic surgery has been successfully employed for many years by gynecological surgeons. Following the widespread success of laparoscopic cholecystectomy, minimally invasive surgery has expanded to be adapted to all general surgical procedures including hernia repair,<sup>1</sup> oesophagectomy,<sup>2</sup> appendicectomy,<sup>3,4</sup> Meckel's diverticulectomy,<sup>5</sup> and Nissen fundoplication.<sup>6</sup> Laparoscopic colonic surgery has not developed at the same rate as other procedures because of the requirement for advanced laparoscopic surgical skills, deficiencies in instrumentation and concerns about the potential risks of laparoscopic surgery for neoplasia. However, laparoscopic procedures for treating rectal prolapse may constitute some of the best applications for colorectal laparoscopic techniques. A technique of laparoscopic rectopexy performed using the endoscopic stapler and intracorporal suturing of mesh is described.

## INSTRUMENTATION

For routine laparoscopic rectopexy the following instruments are required: two Babcock type bowel grasping instruments; Endoshears (AutoSuture, Ascot, UK), disposable endoscopic scissors; Endosciz (AutoSuture, Ascot,

UK), another endoscopic scissors that have the advantage of holding tissues away from potentially important structures before cutting with diathermy; and Szabo-Berci needle holders, which are required to suture the mesh to the side wall of the rectum.

## OPERATIVE TECHNIQUE

A nasogastric tube and urinary catheter is passed when the patient is anesthetized. Pneumoperitoneum is created using a standard technique: A 10 mm zero-degree telescope is inserted through a subumbilical port and initial laparoscopy is performed.

The operator stands on the left side of the patient, two video screens are positioned on either side of the knees. Three 12 mm trocars are introduced into the abdomen to facilitate use of the laparoscopic stapling instruments (Endo-Hernia, AutoSuture, Ascot, U.K.) (Figure 1).

The camera is inserted into the right iliac fossa port and a Babcock is passed through the left iliac fossa port holding the recto-sigmoid junction anteriorly and to the left. A second Babcock grasping instrument is passed through the supra-pubic to elevate the middle

third of the rectum. This provides tension on the peritoneal reflection on the right side of the recto-sigmoid junction. The peritoneal reflection is divided using scissors, and by careful dissection, the avascular plane—between the fascial capsule of the rectum anteriorly and the fascia of Waldeyer posteriorly is dissected under direct vision. Identification of both ureters is established early in the dissection, and in order to reduce the risk of thermal injury, the use of diathermy is restricted until the ureters are identified. Ureteric stents illuminated by a xenon light source could be used and may lessen the risk of ureteric injury.

Division of the lateral ligaments is easily performed under direct vision. Posteriorly the pelvic nerves are identified and preserved. Close and magnified views of the mesorectum ensure that dissection continues within the correct planes with minimal bleeding. In a

female, retraction of the pouch of Douglas is facilitated by an assistant holding the cervix upwards with blunt Hulka cervical forceps (Rocket Ltd., Watford, U.K.) through the vagina. This elevates the cervix and body of the uterus, facilitating anterior dissection.

Having mobilized the rectum down to the pelvic floor, a strip of polypropylene mesh (Surgipro Mesh, AutoSuture, Ascot, U.K.), approximately 10 x 6 cm is introduced into the abdomen through the subumbilical port for placement in the presacral space. The endoscopic stapler is then introduced into the right iliac fossa port, and the mesh is initially stapled to the sacrococcygeal area. On average, three to four staples are then inserted cephalad to the initial staple to fix the mesh to the sacrum. After fixation of the mesh, the rectum is held on light tension using the laparoscopic Babcock forceps. The right limb of the mesh is sutured to the serosa of the rectum using 2:0 silk on a curved needle. Sutures are placed only along the superior and inferior mesh edges. The rectum is then retracted to the right, and the left limb of the mesh is brought around the rectum and secured in a similar fashion to the rectal wall at the upper and lower mesh edges. On average, two to three sutures are required on either side. The Szabo-Berci "parrot" needle holder and "flamingo" assisting grasper (Karl Storz Endoscopy, Tuttlingen, Germany) are used to facilitate suturing and knot tying.

The stapler is then used to re-approximate the peritoneal edges before the operation is completed. The laparoscopic ports are then removed, followed by closure of the facial defects with interrupted sutures. Perioperative antibiotics are employed in all cases.

## DISCUSSION

Since patients with rectal prolapse are frequently old and infirm, many surgeons have tended to favor local, low morbidity operations on the anal canal.<sup>8</sup> Such local procedures include the Thiersch wire or a silastic sling around the anal canal.<sup>9</sup> In contrast, some surgeons advocate radical operations such as anterior resection<sup>10</sup> or combined abdominoperineal pelvic floor repair<sup>11,12</sup> for those patients who are fit to undergo major procedures. Where resection is not undertaken, others have advocated rectal fixation or rectopexy.

Fixation of an inert polypropylene

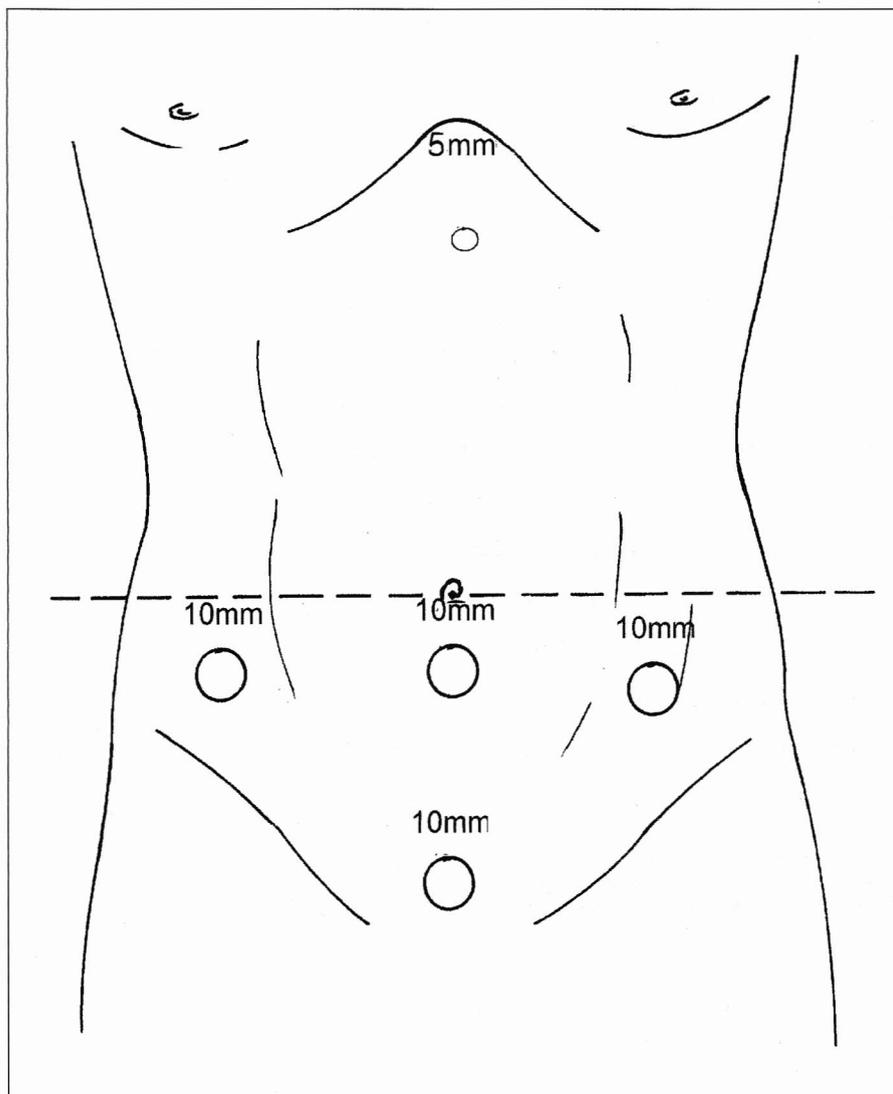


Figure 1. Port position.

mesh in front of the rectum was described by Ripstein but has been associated with acute kinking of the bowel, or if too tight, with intestinal obstruction.<sup>15</sup> Early experience with these complications led us to adopt a modification of the procedure whereby the inert polypropylene mesh is inserted behind the rectum and attached to the sacrum to achieve posterior fixation.

Our own preliminary experience with laparoscopic rectopexy has been encouraging. Early mobilization and discharge from the hospital has been a marked feature. Although follow-up is short, the functional results have been excellent.

Patients with normal bowel habit (or diarrhea) and no history of constipation or obstructed defecation are probably suited for laparoscopic rectopexy without resection, especially if there is no significant redundancy of the sigmoid colon. In patients with massive procidentia, the presence of a large mesorectum and redundant sigmoid will more likely mandate a resective procedure and simple rectopexy

should be avoided. As laparoscopic experience increases, it may be that those patients requiring resection for rectal prolapse may undergo this procedure laparoscopically. **STI**

## REFERENCES

1. Nyhus L.M. Laparoscopic hernia repair: a point of view. *Arch. Surg.* 1992; 127:137.
2. Hill A.D.K., Darzi A., Carey P.D., Guillou P.J., Monson J.R.T. Thoracoscopic oesophagectomy: minimally invasive direct vision oesophageal mobilization for cancer. In: *Minimally Invasive Surgery and New Technology*. Quality Medical Publishing, St Louis MO. Eds Steichen FM and Welter R. 1994, 547-549.
3. Hill A.D.K., Attwood S. E. A., Stephens R.B. Laparoscopic appendicectomy is safe and feasible in acute appendicitis. *Ir. J. Med. Sc.* 1991; 160:268-270.
4. Attwood S.E.A., Hill A.D.K., Murphy P.G., Thornton J., Stephens R.B. A prospective randomized trial of laparoscopic versus open appendicectomy. *Surg.* 1992; 112(3):497-501.
5. Attwood S. E. A., Mc Grath J., Hill A.D.K., Stephens R.B. Laparoscopic approach to Meckel's diverticulectomy. *Br. J. Surg.* 1992; 79:211.
6. Cuschieri A., Shimi S., Nathanson LK.

Laparoscopic reduction, crural repair and fundoplication of large hiatal hernia. *Am. J. Surg.* 1992; 163:425-430.

7. Monson J.R.T., Darzi A., Carey P.D., Guillou P.J. Prospective evaluation of laparoscopic assisted colectomy in an unselected group of patients. *Lancet* 1992; 340:831-833
8. Goligher J.C. *Surgery of the Colon, Anus and Rectum*, 4th ed. London: Bailliere Tindall, 1980.
9. Jackman F.R., Francis J.N. and Hopkinson B.R. Silicon rubber band treatment of rectal prolapse. *Ann. R. Coll. Surg. Engl.* 198; 62:386-387.
10. Porter N.H. Collective results of operations for rectal prolapse. *Ann. R. Coll. Surg. Engl.* 1980; 62:386-387.
11. Goligher J.C. The treatment of complete prolapse of the rectum by the Roscoe Graham operation. *Br. J. Surg.* 1957; 45:323-333.
12. Hughes E.S.R. and Gleadell L.W. Abdominoperineal repair of complete prolapse of the rectum. *Proc. R. Soc. Med.* 1962; 55:1077-1080.
13. Henry M.M. Rectal prolapse. *J. Hosp. Med.* 1980; 24:302-307.
14. Wells C.A. Polyvinyl-alcohol sponge. An inert plastic for use as a prosthesis in the repair of large hernias. *Br. J. Surg.* 1955; 42:618.
15. Miller R.L. Ripstein procedure *Surg.* 1979; 45:531-534.