

Low section of the rectum using the Contour™ device: An alternative technique

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We read with great interest the technical report on *Low section of the rectum during laparoscopic total mesorectal excision using the Contour™ device* by Targarona and co-workers, published in the February 2007 issue of *Surgical Endoscopy*.

We do agree with the author regarding the important role that laparoscopy may play in the field of colorectal surgery for both benign and malignant diseases [1–3].

Rectal transection is undoubtedly a crucial step in rectal resections with total mesorectal excision and also during restorative proctocolectomy for familial adenomatous polyposis or ulcerative colitis. Available devices, as mentioned by Targarona, are not that effective for several reasons: their length, the impossibility of firing the device along an optimal line of transection due to the lack of articulation or the dimension of the stapler's jaws and cartridge when working in a narrow pelvis, the need for multiple applications to accomplish the task, and sometime the need for a further cannula to overcome the difficulties in approaching the lower rectum from a right angle.

A new stapler for closure-division of the lower rectum designed for open surgery (Contour™, Ethicon) may be used even in laparoscopic surgery to perform safer low rectal transection and double-stapling anastomosis.

Targarona describes the use of the Contour™ stapler through a hand-assisted device (LapDisc, Ethicon) and a 6-cm-long Pfannenstiel incision after a five-port approach to laparoscopic rectal resection with total mesorectal excision (TME).

In our early experience with the Contour stapler, we have used a different approach in three rectal resections with TME and three restorative proctocolectomies with Jpouch-anal canal double-stapling anastomosis, avoiding the use of rather expensive hand-assisted devices.

Surgical Technique and Results

A three-port approach to rectal resection (cannulae inserted, respectively, 3 cm above the navel, on the right flank at the level of the transverse umbilical line, and on the right groin just above the inguinal fold) and a four-port approach to proctocolectomy (cannulae inserted on the four abdominal quadrants) are carried out.

In rectal resection the left curvature is approached first, medial to lateral, by dividing the gastro-colic ligament with harmonic scissors, then the inferior mesenteric vein is divided between absorbable clips at the level of the Treitz ligament and the sub-adventitial division between clips of the inferior mesenteric artery is carried out flush with the aorta with care to preserve the hypogastric nerves. Dissection proceeds along the avascular plane between Gerota and Toldt fascia, the sigmoid and descending colon are fully mobilized and the peritoneal reflection is entered. Once the rectal dissection with total mesorectal excision is accomplished as described by Heald [4, 5], and the distal rectal cylinder is dissected free, the laparoscopic incision on the left groin is extended to 5 cm medially. A ring-mounted Steri-Drape (3M) (ring diameter 12 cm) is inserted as usual to protect the abdominal wall. The curved end of the stapler is inserted through the opening of the steri-drape and the drape is wrapped around the stapler shaft (Fig. 1). This simple maneuver allows the maintenance of enough gas pressure within the abdominal cavity and a fairly clear view of the pelvis. The curved jaws of the stapler are

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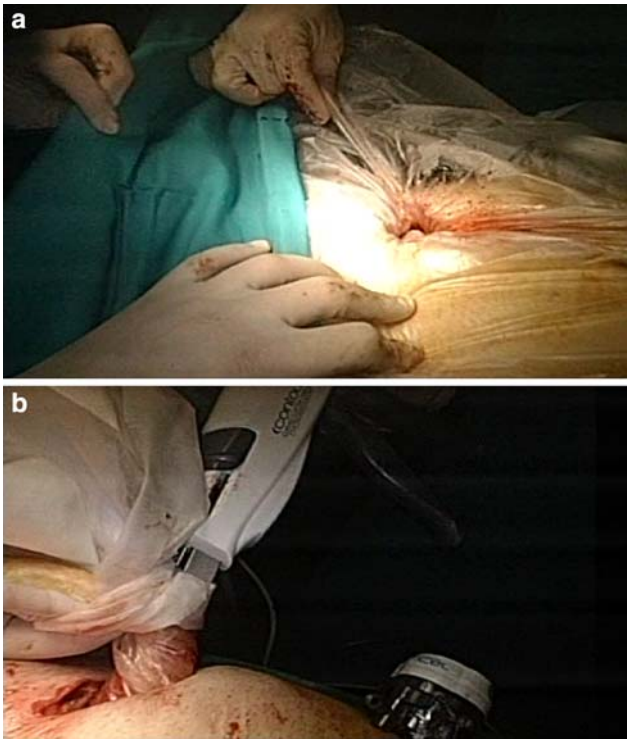


Fig. 1 A ring-mounted Steri-Drape (3M) is inserted through the minilaparotomy (a) and wrapped around the Contour™ shaft (b)

passed around the dissected rectal cylinder with gentle movements, and pushed carefully downward before closing and firing the instrument (Fig. 2).

In restorative proctocolectomy the right colon is dissected first, avoiding early division of the ileo-colic artery. The anatomical avascular plane between the Toltdt and Gerota fascia on the right side is dissected by harmonic scissors up to the duodenum. The right flexure is mobilized, and the right colic vessels (if existing) are divided between absorbable clips. Then, the gastro-colic ligament is divided and the splenic flexure mobilized medial to lateral as described above. Division of the inferior mesenteric vessels is accomplished as described for rectal resection, but the artery is not divided flush with the aorta to lower the possibility of nerve injury. Once the colon is fully mobilized, the mid-colic vessels are approached and divided by endo-linear stapler application. Rectal dissection with special care in sparing nerves is carried out down to the level of the anal canal. The correct level of dissection is checked by transanal finger exploration. A 5-cm minilaparotomy is created by extending the incision on the lower right quadrant medially. The ring-mounted Steri-Drape (3M) is inserted as described above and the stapler introduced into the abdominal cavity. Similar wrapping of the drape around the instrument shaft to allow gas insufflation and gentle maneuvers to apply the stapler properly around the anal canal are carried out. Before firing the instrument (Fig. 3) the level of jaws closure is checked by

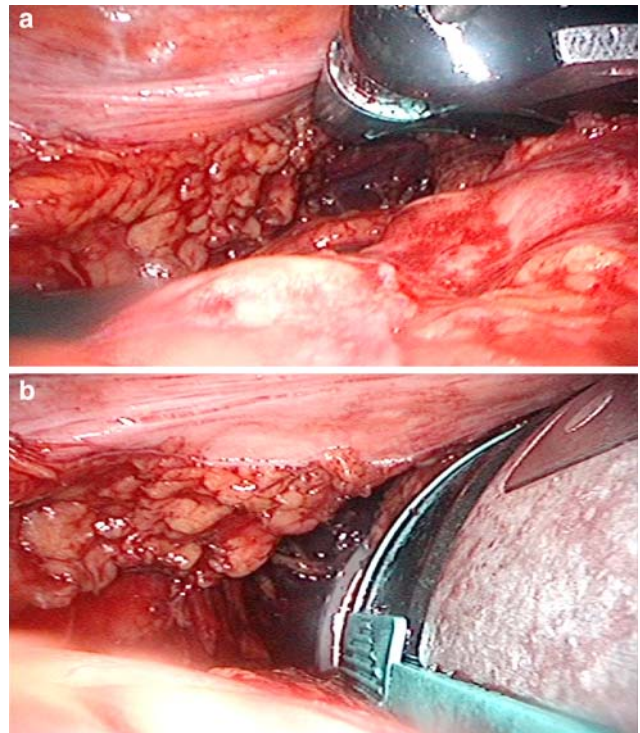


Fig. 2 The curved jaws of the stapler are passed around the distal rectal cylinder (a) that is encircled completely with gentle torsional movements (b)

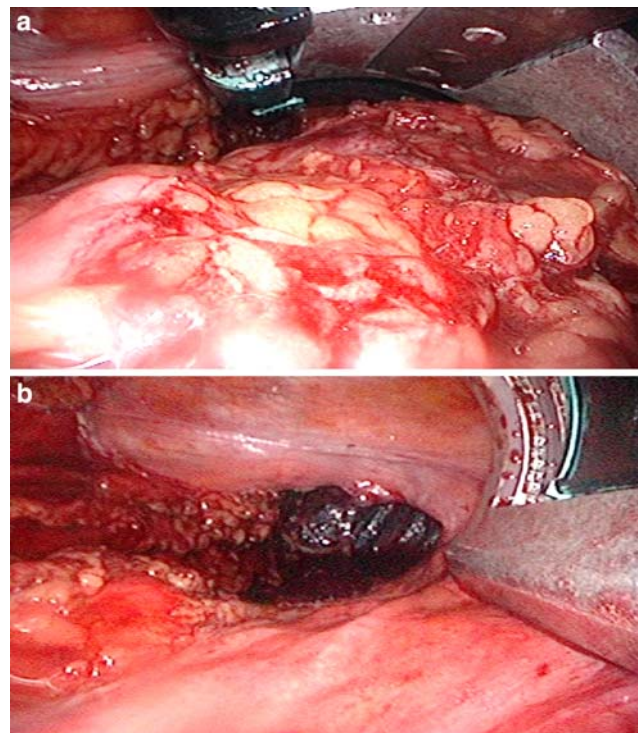


Fig. 3 The stapler jaws are closed at the level of the anal canal (a) after firing the instrument is opened and removed (b)

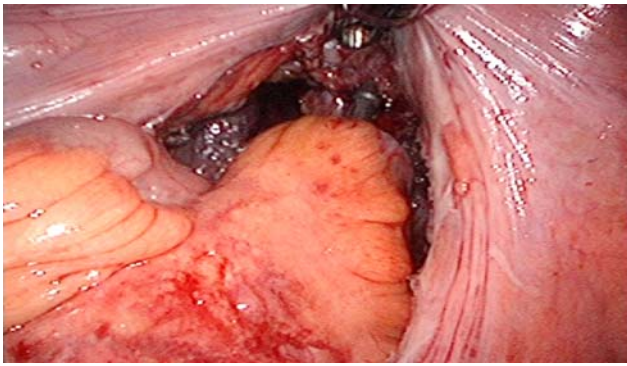


Fig. 4 The double-stapling ileal Jpouch-anal canal anastomosis is performed

transanal finger palpation (3 to 4 cm from the anal verge). Once fired, the stapler is removed and the colon and rectum withdrawn through the minilaparotomy. A 15-cm-long ileal Jpouch is fashioned, the minilaparotomy closed, and a double stapling Jpouch-anal canal anastomosis performed (Fig. 4).

After both low anterior resection and restorative proctocolectomy a diverting ileostomy is created to protect the anastomosis and/or the pouch.

All six procedures were successful, and the postoperative course was uneventful in all cases but one, a patient who suffered a myocardial infarction on postoperative day 5. No dehiscence of the anastomosis or anastomotic leaks occurred. Diverting ileostomies were all closed one month later. Follow-up ranged from 40 days to 11 months; all cancer patients are disease-free.

Based on our personal experience, besides reasons of cost, use of the hand-assisted device for insertion of the Contour™ stapler, as described by Targarona, has further disadvantages:

1. The stapler shaft has a rectangular section. This is not really compatible with the closure system of the hand-assisted laparoscopy disk, which works better when instruments with a circular section are introduced, unless the disk is tightened to the maximum.
2. When the disk is tightened too much it often breaks.
3. If the disk is tightened to avoid gas leakage, it is very difficult to move the stapler down to the level of transection because of friction.

When we introduced the Contour™ stapler for laparoscopic low rectal closure-division followed the technique described by Targarona. We tried to overcome these problems by wrapping a small swab around the stapler shaft to adapt it better to the closure system of the disk, with poor results. The ring-mounted Steri-Drape is a much cheaper device that not only enables easy introduction of the stapler while maintaining enough gas pressure and exposure of the lower pelvis, but also facilitates movement of the stapler down to the pelvic floor.

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