On-line Case Report

Combined endoscopic trans-anal rectal mucosal ablation and laparoscopic partial proctectomy for ulcerative colitis – a new procedure

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ABSTRACT

A case is reported in which endoscopic trans-anal rectal mucosal ablation (ETARMA) was employed in combination with laparoscopic partial proctectomy in order to decrease complications associated with open surgery.

Keywords: Laparoscopic partial proctectomy – Ulcerative colitis – ETARMA

The potential for proliferation of residual dysplastic cells or malignant change within the rectal stump in patients who have undergone sub-total colectomy with rectal stump preservation for ulcerative colitis or colorectal cancer is of serious concern. The options are either a restorative proctectomy with ileal pouch–anal anastomosis or completion proctectomy. Only 50% of such patients consent to a further definitive treatment option.^{1,2} Furthermore, pelvic dissection is associated with significant risks including pelvic sepsis, urinary and sexual dysfunction, haemorrhage, perineal wound complications and delayed mobilisation.

In those who fail to meet this treatment strategy, regular biopsy and visualisation of the rectal stump using flexible sigmoidoscopy is not without complication. Even with surveillance by random biopsying at multiple levels of the rectal stump, including the anal transitional zone, there remains the possibility for microscopic islands of dysplastic or malignant cells to evade detection, with potential disastrous consequences. The use of endoscopic trans-anal rectal mucosal ablation (ETARMA) has been

demonstrated as a safe alternative to proctectomy for treatment of the rectal stump mucosa in such patients.¹

We report a case in which ETARMA was employed in combination with laparoscopic partial proctectomy in order to decrease complications associated with open surgery.

Case report

A 62-year-old woman, who had previously undergone a laparoscopic sub-total colectomy with formation of ileostomy for Dukes' B colon carcinoma secondary to malignant change in chronic ulcerative colitis, complained of severe rectal stump discharge. Past medical history included long-standing colitis of 18 years, adjuvant chemotherapy (5-fluorouracil and folinic acid) post resection of Dukes' B carcinoma, lower mid-line laparotomy for emergency caesarian section, polycystic kidney disease, coeliac disease and hypertension.

Recent flexible sigmoidoscopy and biopsy of the remaining rectal stump demonstrated no evidence of dysplasia or malignancy.

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Figure 1 Ablation at the anal transitional zone.

Figure 2 Rectal mucosal stripe ablation technique with diathermy ball.

Surgical technique

Pre-operatively, a phosphate enema and prophylactic antibiotics (cefuroxime 1.5 g and metronidazole 500 mg) were administered. After placing the patient in the modified Lloyd–Davies position, a cystoscopy with insertion of bilateral retrograde ureteric stents was performed.

ETARMA was performed by one consultant surgeon (MS) using a 28-French gauge urological resectoscope (Karl Storz Endoskope; Tuttlingen, Switzerland) with attached diathermy ball. Continuous glycine irrigation was used to facilitate both rectal stump distension and optimal mucosal visualisation. Diathermy (Valleylab™ Force FX; Boulder, CO, USA) was initiated at the dentate line within the anal transitional zone with a marked ring of diathermy burns in order to ensure complete contiguous mucosal ablation of the columnar epithelium at this point (Fig. 1). A rectal mucosal stripe ablation technique, performed from proximal to distal to the full extent of the resectoscope (20 cm), in continuous longitudinal sections to encompass the circumference in adjacent segments was used to ablate the rectal stump mucosa completely (Fig. 2).

Simultaneously, a laparoscopy was performed by a second consultant surgeon (MCP). A closed pneumoperitoneum of 14 mmHg was achieved following Verres needle insufflation. Three ports (VersaStep™; Tyco, Norwalk, CT, USA) were introduced under direct vision; suprapubic, right iliac fossa and left iliac fossa. Mobilisation of the rectal stump was performed by close dissection using a harmonic scalpel (Harmonic ACE™; Ethicon, Cincinnati, OH, USA) down to the level of the pelvic floor preserving both ureters. The inferior mesenteric vessels were identified and the artery

transected using the harmonic scalpel and the vein clipped (Ligaclip® Allport; Ethicon) and divided. The long rectal stump was transected and excised, within the boundaries of the ETARMA diathermy, at the level of the pelvic floor using Multifire Endo GIA™ 30 3.5 mm (Autosuture; Tyco; Fig. 3). The residual rectal stump was then retrieved through a small (3.5 cm) opening in the previous lower mid-line incision and sent for histological analysis.

The lower mid-line incision and ports were closed by routine techniques. No peri-operative complications were encountered and an expedient, uneventful, postoperative recovery ensued. The patient was encouraged to perform

Figure 3 Transected and longitudinally incised resected rectal stump.

daily self-digitation of the remaining rectal stump in order to aid drainage of the resulting oedema and to avoid anal stenosis. She was discharged on day 2 postoperatively.

Discussion

ETARMA has previously been demonstrated as a safe treatment option for patients who have undergone subtotal or total colectomy with rectal stump preservation for ulcerative colitis.^{1,2} Further, endoscopic trans-anal resection techniques have been described previously as viable management options of rectal tumours³ and anastomotic strictures of the colon and rectum.⁴

ETARMA ablates the rectal mucosa, aids preservation of pelvic autonomic nerve function and negates both the complications of pelvic surgery and, hopefully, the need for long-term surveillance.

We offer further enhancement of this technique through the combination of laparoscopic shortening and removal of the majority of the rectal stump alongside ETARMA. This offers the patient the removal of potentially pathogenic rectal mucosa with the associated benefits of minimal access surgery and a lack of perineal wound complications and sepsis.

Although ETARMA offers a relatively simple and complication-free method of managing the rectal stump, there are potential complications associated with this procedure. There remains the possibility of missing microscopic islands of dysplastic rectal mucosal cells and the development of postoperative anal stenosis and anal leakage.^{2,5} Provided that the rectal stump is kept short (less than 7 cm), pelvic sepsis secondary to collections of

trapped exudate is not a regular complication. Significant persistent anal leakage after ETARMA is not demonstrated consistently.² All patients experience some minor discharge following ETARMA; however, this does not require the use of pads. Regular postoperative self-digitation encourages drainage of any local collections and will help to prevent continued leakage. In contrast, a longer stump may lead to sepsis. Complete fibrosis of the rectal stump has been reported after rectal mucosectomy.⁵

We are unaware of any restorative anastomotic surgery following ETARMA; in theory, it would not be contra-indicated since Fasth *et al.*⁵ have demonstrated near normal anal manometry after rectal mucosectomy.

At present, we recommend that the resected partial proctectomy specimen undergo histological examination to exclude malignancy and ensure complete ETARMA, with long-term follow-up of the rectal remnant.

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