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Minimally Invasive Colostomy Revision for Palliation of Large Stomal Prolapse and an Adherent Sliding Peristomal Hernia

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Fifteen per cent of all patients who undergo surgery for colorectal cancer require palliation for obstruction or perforation, which usually entails a fecal diverting loop colostomy.¹ The reported risk of peristomal hernia for all patients with colostomy ranges from 5 to 50 per cent and prolapse ranges from 2 to 22 per cent.¹ Management of these complications in the palliative setting must take into consideration the diminished life expectancy of the patient with advanced metastatic disease, the impact of a morbid recovery in the setting of reduced longevity, and the degree to which an operation may reduce an already limited quality of life.² Patients with advanced colorectal cancer have advanced peritoneal disease, malnutrition, immune compromise, chronic pain, and elevated abdominal and/or portal pressures and are thus at increased risk of morbidity, recurrence, and postsurgical complications. Accordingly, management of ostomy prolapse and peristomal hernias in this patient population has usually focused on palliative medical symptom management rather than surgery, except in situations of obstruction or strangulation.¹ This report describes a technique we used to perform colostomy revision using a minimally invasive approach in a patient with a large prolapse and concomitant peristomal hernia that incorporated the small bowel. This was in the setting of a patient with advanced rectal cancer and provided significant symptom relief without the morbidity of a laparotomy.

The patient was a 56-year-old woman who previously had a diverting loop colostomy performed as a palliative procedure for an advanced obstructing and perforated adenocarcinoma. In addition to a 20-cm prolapse of the proximal end of her loop colostomy, she had peritoneal carcinomatosis and a computed tomography scan at that time demonstrated persistent hepatic metastases, suspicious pulmonary nodules, a pericardial effusion, and thrombosis of the portal, superior mesenteric and splenic veins with varices and ascites. The large stomal prolapse contained an adherent sliding peristomal hernia of a loop of jejunum that did not appear to be obstructed or strangulated. She had no peritoneal signs on physical examination and no leukocytosis. She required admission to the hospital for pain control and we were consulted for consideration of colostomy revision. Because of her advanced disease and high risk of morbidity from an open operation, we undertook a minimally invasive approach to the palliation of her symptoms.

After general anesthesia was induced, the prolapsed colostomy was prepped and draped, and the distal orifice was closed temporarily with a running silk suture to limit fecal contamination during the procedure. The mucosal surface of the prolapsed limb of the loop colostomy was incised using cautery to expose the contents of the prolapse at a point opposite to the herniated jejunal loop as shown in Figure 1. This full-thickness incision

provided exposure of the contents of the hernia without laparotomy, including the mesentery, colonic walls, small bowel, and adhesive bands. Blunt and sharp dissection was used to safely take down the adhesions and free up the small bowel, which were then easily reduced through this minimally invasive approach.

Using eight staple loads of the 63.8-mm GIA stapler, the colostomy was revised as follows. Accessing the stomal lumen through the previously closed orifice of the prolapsed limb, while simultaneously confirming no hernia into the prolapse through the exposure of the incision by direct vision and palpation, the stapler was advanced longitudinally down the length of prolapsed limb toward the base to a level of 2 cm above the abdominal wall (Fig. 2). Then staples were fired in a transverse fashion at the level of the 2-cm base along the circumference of the prolapsed stoma to maintain that new 2-cm height of the base above the abdominal wall while simultaneously confirming under direct vision that no structures would be injured. The colostomy was then matured in the usual fashion. The double-barrel ostomy was pink, viable, patent, and productive without obstruction, prolapse, or hernia. The patient had an uncomplicated postoperative course. Her presenting symptom of debilitating abdominal pain improved remarkably. She was discharged after a five-day course of prophylactic antibiotics with an immediate resumption of her pre-operative diet and it achieved high patient satisfaction. The patient died five months later as a result of cancer progression without prolapse recurrence.

The reports in the literature of palliating colostomy prolapse without laparotomy in terminal cancer patients describe blind stapling of the prolapsed segment.^{1–4} These authors all reported palliation without complication but had limited follow-up as a result of patients dying of their disease. Our approach with full-thickness mucosal through a serosal incision to provide transluminal exposure of the contents of the prolapse before stapling provides the benefit of palliation without the morbidity of laparotomy, but it does this by providing greater exposure and control than the blind stapling methods.

It should be noted that there are several interesting points to consider. First is whether five days of postoperative antibiotics to prevent infectious complications is open to question with a valid argument for only pre-operative antimicrobial prophylaxis. Second, the use of a pursestring suture to control fecal contamination⁴ provides more efficient access to the lumen than the running closure we describe. Third, the potential criticism that this approach is likely to produce a high recurrence rate if the patient survives long enough is valid because we do not repair the defect, although it did palliate the patient's symptoms with minimal morbidity. Although use of mesh to prevent recurrence may be considered, we believe the risks of infection are too high through a transluminal approach in this high-risk patient population. There are prospective randomized trials underway investigating the role of biologic mesh to prevent and treat peristomal hernias. Although this minimally invasive approach does not replace laparotomy in patients being treated with curative intent, it does have a role in palliating symptoms.

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Fig. 1.

The schematic demonstration of exposing the contents of the prolapse through a full-thickness incision made in the mucosa contralateral to the hernia through the serosa.

Stapler applied down the prolapsed ostomy and then across the base 2cm above the abdominal wall, all under direct vision through the incision to prevent stapling herniated structures

Fig. 2.

The stapler was applied down the prolapsed limb and then across the base 2 cm above the abdominal wall with direct visualization of the reduced hernia contents.