Endoluminal vacuum therapy for the treatment of complete dehiscence of low colorectal anastomosis

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Anastomotic leakage is a serious and life-threatening adverse event associated with increased morbidity and mortality after anterior resection of the rectum.1 Broad-spectrum antibiotic coverage and percutaneous drainage is an option in conservative treatment for stable patients. Patients with peritonitis usually require surgical treatment with diverting stoma. The outcomes for the different treatment options vary widely in the medical literature.2

First described in 2008, the use of a local vacuum sponge system (Endo-SPONGE, B. Braun; Melsungen, Germany) represents a minimally invasive and well-tolerated alternative for treating patients with anastomotic leakage after rectal resection.3,4 The principle of this

Figure 1. Colonoscopic view of the ulcerated lesion with necrotic center located on the left lateral wall of the distal rectum.

Figure 2. Abdominal CT showing a perianastomotic collection, with fluid-gas level measuring 7.0 × 6.0 × 3.5 cm and an estimated volume of 75 cm3.

Figure 3. Follow-up abdominal CT showing the perianastomotic collection, with fluid-gas level measuring 7.0 × 6.0 × 3.5 cm and an estimated volume of 75 cm3.

Figure 4. Endoscopic view of the mucosa during the last session for removal of the Endo-SPONGE, showing healthy granulation tissue and the absence of anastomotic strictures.
method is the application of negative pressure on the wound surface with effective removal of fluid, tissue edema, and bacteria, thus improving local blood circulation and stimulating increased growth of granulation tissue. The result is accelerated wound healing, reducing hospitalization time. A recent systematic review concluded that Endo-SPONGE seems to be a useful method for the treatment of rectal anastomotic leak in a selected group of patients; however, the quality of available data is poor, and it is impossible to draw a final conclusion.

CASE REPORT

A 48-year-old man diagnosed with distal rectal neoplasia (Fig. 1) had been referred to neoadjuvant therapy and presented partial clinical response. The patient then underwent laparoscopic anterior resection of the rectum with end-to-end stapled anastomosis 3 cm above the anal verge and a diverting loop ileostomy.

On the eighth postoperative day, the patient presented with fever, rectal pain, and purulent anal discharge. A CT scan showed anastomotic leakage, a large pelvic collection, and signs of whole-circumference dehiscence (Fig. 2). A conservative approach with CT-guided percutaneous drainage and broad-spectrum antibiotic coverage was undertaken, given the good clinical status of the patient. Fourteen days later, there was no significant improvement. A follow-up CT (Fig. 3) showed a similar collection.

Endoluminal vacuum therapy was then performed, considering the size of the defect and proximity to the anal verge, which would make surgical rescue a more complex and morbid option. With the patient under conscious sedation, the Endo-SPONGE was applied using a flexible gastroscope (video-gastroscope EVIS EXERA III, GIF-HQ190, EUA, Olympus, Center Valley, Pa) connected to the controlled vacuum drainage system Redyrob Trans Plus (B. Braun, Melsungen, Germany). The sponges were replaced endoscopically every 72 hours.

After 2 sessions, the patient was discharged from the hospital and continued receiving outpatient care. In total, 8 replacement procedures were performed. The vacuum therapy was maintained for a total of 3 weeks. Figure 4 shows the endoscopic view on the last replacement session.

The patient presented good clinical response and progressive reduction of the cavity (Fig. 5). Endoscopic and radiologic follow-up examinations were performed 48 days later, confirming therapeutic success (Figs. 6 and 7). The diverting loop-ileostomy closure was then indicated. A late follow-up colonoscopic examination was performed 9 months after Endo-SPONGE removal, showing reduction of the recess dimensions, good appearance of granulation tissue, and absence of anastomotic stenosis (Fig. 8).
Biopsy specimens were taken from the dehiscence area for further histologic examination on the first and last session of the treatment and on the late follow-up examination, with no malignancies detected. The patient is currently under clinical and oncologic follow-up with no signs of residual disease or recurrence and with good-quality anorectal function. This case illustrates a less-usual indication of endoluminal vacuum therapy as salvage treatment for complete anastomotic dehiscence, avoiding a morbid rescue surgery with a high probability of definitive stoma.

CONCLUSIONS

The endoluminal vacuum therapy, Endo-SPONGE (Video 1, available online at www.giejournal.org), can be a safe and well-tolerated strategy for the management of large and even whole-circumference dehiscence after anterior resection of the rectum.

DISCLOSURE

All authors disclosed no financial relationships.

REFERENCES

1. Veloso N, Silva JD, Carvalho, et al. Endo-SPONGE® treatment for anastomotic leakage after colorectal surgery. GE J Port Gastrenterol 2013;20:132-5.
2. Lee WS, Yun SH, Roh YN, et al. Risk factors and clinical outcome for anastomotic leakage after total mesorectal excision for rectal cancer. World J Surg 2008;32:1124-9.
3. van Koperen PJ, van Berge Henegouwen MI, Rosman C, et al. The Dutch multicenter experience of the endo-sponge treatment for anastomotic leakage after colorectal surgery. Surg Endosc 2009;23:1379-83.
4. Weidenhagen R, Gruetzner KU, Wiecken T, et al. Endoscopic vacuum-assisted closure of anastomotic leakage following anterior resection of the rectum: a new method. Surg Endosc 2008;22:1818-25.
5. Strangio G, Zullo A, Ferrara EC, et al. Endo-sponge therapy for management of anastomotic leakages after colorectal surgery: a case series and review of literature. Dig Liver Dis 2015;47:465-9.
6. Mahendran B, Rossi B, Coleman M, et al. The use of Endo-SPONGE® in rectal anastomotic leaks: a systematic review. Tech Coloproctol 2020;24:685-94.