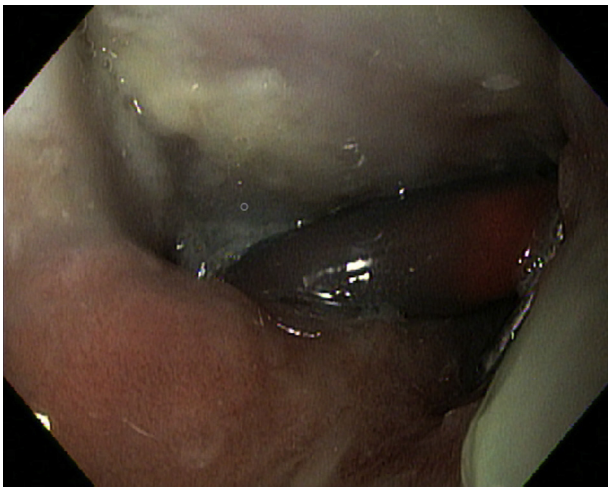




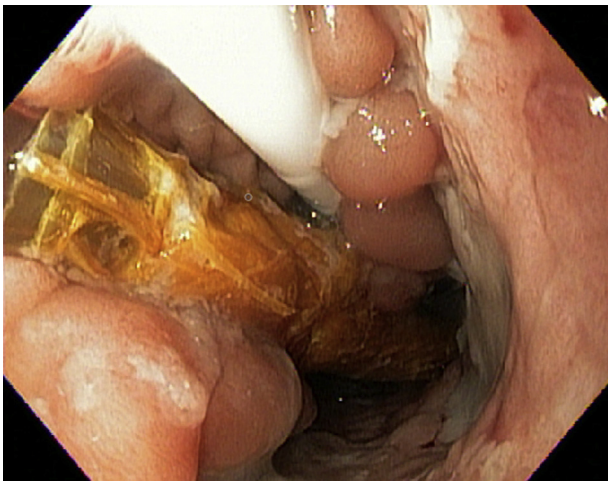
## Endoscopic vacuum therapy for postoperative GI fistula

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A 70-year-old man underwent laparotomy with total gastrectomy and Roux-en-Y reconstruction and esophagojejunal anastomosis for a poorly differentiated gastric adenocarcinoma on October 16, 2019. The adenocarcinoma was located in the lesser curvature and staged as pT4N0M0. Surgical margins were free, and the tumor measured 7.6 cm in its greatest axis.

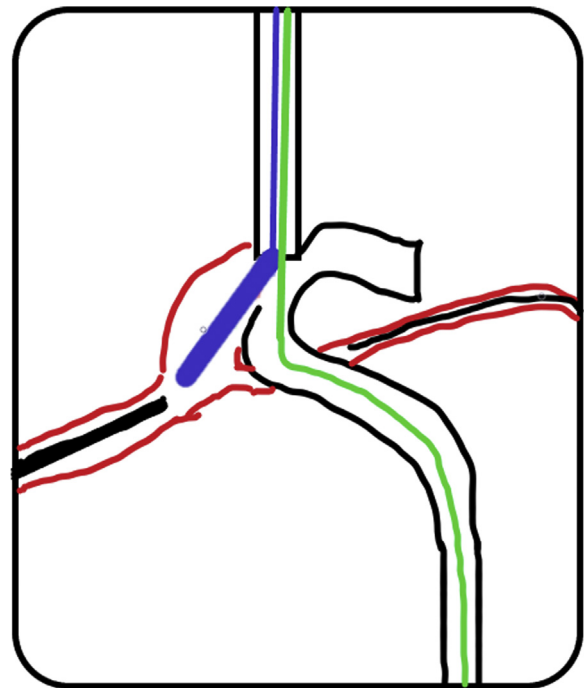


**Figure 1.** Fistulous tract in the abdominal cavity with an abdominal tube.

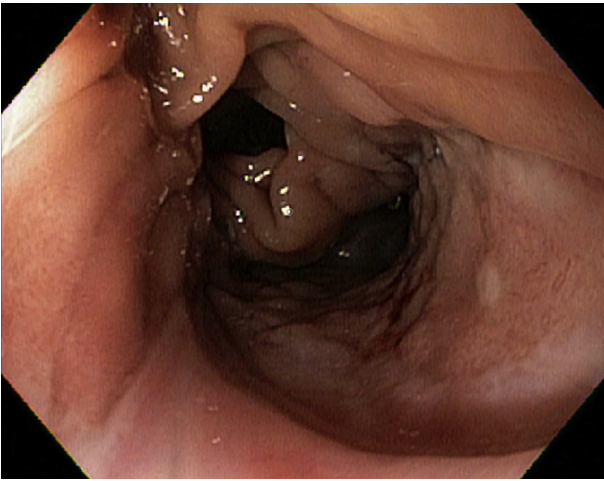


**Figure 2.** Nasoenteric catheter in the alimentary jejunal loop and endoscopic vacuum therapy catheter in the fistulous tract (intracavitary vacuum).

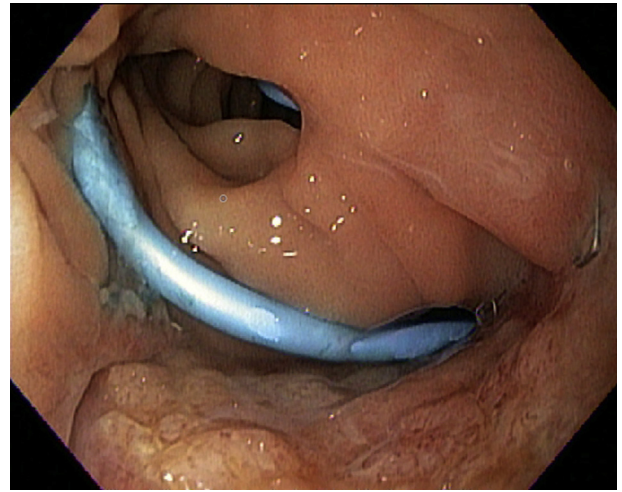
A month after surgery, on November 13, 2019, an endoscopic assessment was performed for a suspicious anastomotic fistula (Video 1, available online at [www.VideoGIE.org](http://www.VideoGIE.org)). After reaching the esophagojejunal anastomosis, the endoscope passed directly to the abdominal cavity and identified an abdominal drain and surgical metallic clips. Fluoroscopic assessment facilitated the identification of 2 fistulous tracts, ending in the right and left abdominal flank (Fig. 1). Two catheters were placed as follows: one nasoenteric in the efferent loop (for nutrition) and one connected to a vacuum system and placed in the fistulous tract (intracavitary) (Figs. 2 and 3). The number 18 vacuum catheter was placed through the patent naris. The vacuum was set for continuous  $-125$  mm Hg during the entire treatment. The patient retained the nasoenteric tube in the right naris and the vacuum catheter in the left naris. He tolerated both tubes well and had no related adverse events, such as naris lesions or sinusitis.



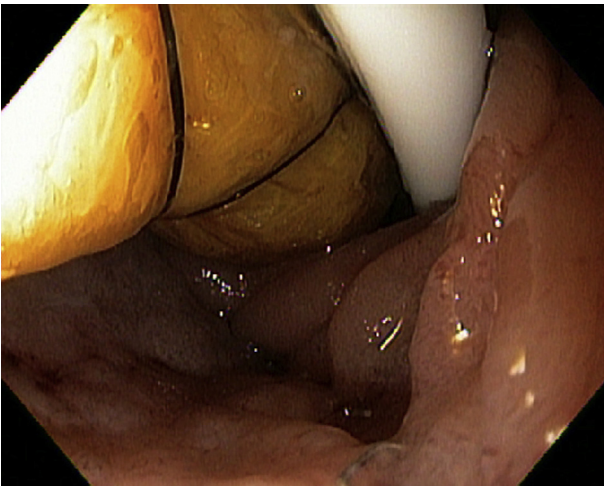
**Figure 3.** Cartoon depicting the final aspect of the first procedure. Note the dehiscence in the esophagojejunal anastomosis. Fistulous tracts (red) leading to the right and left flank in the abdomen with the respective drains inside (black). Vacuum catheter in blue (intracavitary) and nasoenteric tube in green.



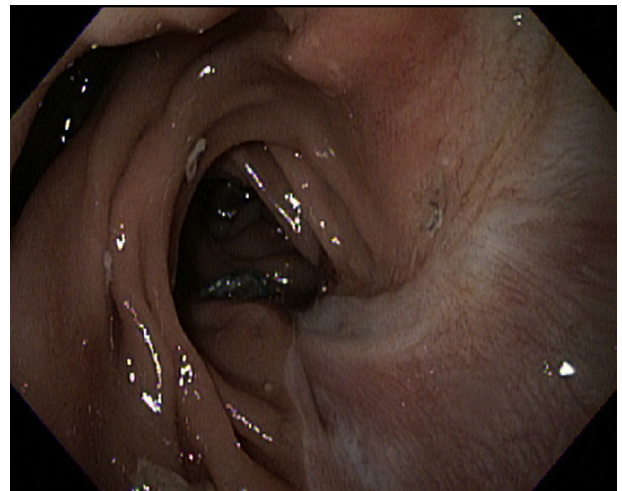
**Figure 4.** Epithelialized fistulous tract after 2 weeks of vacuum therapy.



**Figure 6.** Double-pigtail plastic stent placed in the remnant fistulous tract.



**Figure 5.** Vacuum and nasoenteric catheters in the alimentary jejunal loop (endoluminal vacuum therapy).



**Figure 7.** Final aspect: complete fistula closure.

The vacuum system used is made of 1 piece of gauze wrapped around the fenestrated area of the nasogastric tube, with an antimicrobial incise drape wrapped around the gauze. The gauze and incise drape size are chosen based on the size of the area where the system will be placed. They are both fixed to the nasogastric tube using a nylon suture. The tube is then attached to the vacuum device. When there is no sponge, the same vacuum catheter may remain for 1 to 3 weeks, although control endoscopy is advised to assess the response to vacuum therapy.

After 2 weeks of intracavitary vacuum therapy, the fistulous tract was epithelialized and exhibited significant shrinkage (Fig. 4). The patient had significant clinical improvement, and both fistulous orifices in the abdomen were closed. The option during this procedure (performed November 27, 2019) was to place the vacuum therapy catheter in the GI lumen and retain the nasoenteric tube for nutrition (Fig. 5). Once the fistulous

tract was epithelialized, it collapsed and healed during endoluminal vacuum treatment.

One week later, on December 4, 2019 (3 weeks after the start of vacuum therapy), there was only a remnant fistulous tract. It was managed with a double-pigtail plastic stent with the distal end inside the fistula and the proximal end in the alimentary jejunal loop (Fig. 6). The patient was discharged from the hospital with an oral diet.

The final procedure was performed on January 8, 2020, 4 weeks after the previous procedure and 7 weeks after the beginning of endoscopic vacuum therapy. The patient had a normal life, with good acceptance of regular diet. The double-pigtail was in an adequate place, and there was no endoscopic or fluoroscopic sign of the fistula. The stent was removed, and the patient remained asymptomatic in follow-up with the surgical staff (Fig. 7).

Fistulas and leaks are common adverse events after GI surgery.<sup>1</sup> Endoscopic vacuum therapy is a relatively new,

minimally invasive, widely available, cheap, and effective alternative in the management of such cases.<sup>2,3</sup>

## DISCLOSURE

*All authors disclosed no financial relationships.*

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