

## Intestinal Perforation Due to Diverticulitis in Transposed Colon: An Unusual Complication after Esophageal Reconstruction. Case Report

Morales-Guzmán Diego I<sup>1</sup>, José Eduardo Rosales Jimenez<sup>2</sup>, Cisneros-Rodríguez Gilberto<sup>3</sup>, Alanis-Barrientos Mayahuel C<sup>4</sup>, Bañuelos-Hernandez Carlos E<sup>5</sup>, Sida-Martinez Jesus<sup>6</sup>

<sup>1,2,3,4,5,6</sup>Department of General Surgery, High Specialty Medical Unit Number 25 (UMAE 25), National Medical Center of the Northeast, Mexican Institute Of Social Security (IMSS), Monterrey, Nuevo León, México.

### ABSTRACT

Colonic interposition is a well-established technique for esophageal transit reconstruction when the stomach is not viable as a conduit. While it provides acceptable long-term functional results, it carries significant early and late morbidity. Among the rare late complications, diverticular disease in the transposed colon is extremely rare, especially when progressing to acute perforation. We present the case of a 50-year-old male who underwent colonic interposition nine years earlier due to spontaneous esophageal perforation (Boerhaave syndrome), presenting with sudden retrosternal pain, respiratory distress, and altered mental status. Imaging revealed pneumomediastinum and findings consistent with perforation of the transposed colonic segment. Emergency exploratory laparotomy confirmed distal perforation of the colonic graft secondary to complicated diverticulitis. Surgical management included resection of the affected segment, cervical esophagostomy, and gastrostomy. Postoperative course was complicated by intra-abdominal abscess and surgical site infection, requiring two reoperations. The patient was discharged in stable condition after 21 days and is currently functional, awaiting definitive intestinal transit reconstruction.

**KEYWORDS:** Diverticulitis, intestinal perforation, colon interposition, gastrointestinal transit reconstruction, esophagectomy, case report.

**ABBREVIATIONS:** Computed tomography (CT), diverticular disease (DD).

### ARTICLE DETAILS

**Published On:**  
**27 June 2025**

**Available on:**  
**<https://ijmscrs.com/>**

### INTRODUCTION

Esophageal transit reconstruction following esophagectomy is typically performed using a gastric tube. However, when the stomach is not suitable or available (due to prior gastric surgery, extensive corrosive damage, or synchronous tumor), colon interposition becomes the second most commonly used alternative (13).

This procedure (also known as esophagocoloplasty) involves elevating a segment of colon, usually the left or right colon with terminal ileum, to replace the resected or excluded esophagus. Colonic interposition can achieve good long-term functional outcomes in selected patients but is associated with significant morbidity and mortality. Perioperative mortality rates have been reported between 5% and 8% in various series, while early morbidity includes complications such as anastomotic fistulas, pulmonary infections, and graft

necrosis. Contemporary studies report cervical anastomotic leak rates between 10% and 15%, and operative mortality ranging from 0% to 7% (3,4).

In one series, up to 82.9% of patients experienced some form of postoperative complication, with the most common being cervical dehiscence (29.3%) and coloenteric anastomotic fistula. Although necrosis of the interposed colon is rare (~5% of cases), it is among the most feared complications due to its high associated mortality, which may reach 17%. In the long term, the most common complication is anastomotic stricture with dysphagia, requiring endoscopic dilations in 7–13% of patients (14). Despite these risks, colonic interposition remains a valuable resource when gastric replacement is not feasible. The surgical team's experience and careful patient selection, including screening for pre-existing colonic pathology, are critical to optimizing outcomes. In patients

## Intestinal Perforation Due to Diverticulitis in Transposed Colon: An Unusual Complication after Esophageal Reconstruction. Case Report

with extensive diverticular disease, inflammatory bowel disease, or colonic polyps, alternative conduits have been suggested due to the higher potential risk of complications in an interposed colon (4).

Late complications of esophagocoloplasty include those inherent to the transposed colonic tissue. In addition to strictures and graft redundancy (redundant colon), which may require reoperations in up to 40% of cases over the years, unusual complications such as neoplasms or diverticular disease in the transposed colon have been described. The ascended colon remains exposed to undigested food, altered pH, and a different bacterial flora compared to its original environment, which may contribute to these late pathologies (3). Indeed, although extremely rare, the development of colonic diverticulosis in the interposed segment is possible and may lead to diverticulitis of the colonic neoesophagus (1). In the literature, only a few isolated cases of diverticulitis in transposed colon have been reported, typically decades after the esophageal surgery. This entity represents an unusual and under-recognized complication, potentially presenting as an inflammatory cervical mass, mediastinal abscess, or even perforation with sepsis, depending on the location of the affected colonic segment (1,3). In this context, we present the case of a perforation due to diverticulitis in a transposed colon many years after esophageal reconstruction, highlighting the clinical findings, surgical management, and a review of the scarce literature on the topic.

### CASE REPORT

We present the case of a 50-year-old male patient, with no relevant medical history, who in 2014 developed a spontaneous esophageal perforation (Boerhaave syndrome), requiring progressive surgical management with exploratory laparotomy, primary repair, esophagectomy, cervical esophagostomy, and nutritional support via jejunostomy and gastrostomy. Subsequently, in 2015, esophageal transit reconstruction was performed using colonic interposition with a retrosternal cervical esophagocolic anastomosis, with satisfactory evolution and full reintegration into work activities. The patient remained asymptomatic for nine years under multidisciplinary follow-up.

In November 2024, while eating, he suddenly experienced severe retrosternal pain, respiratory difficulty, and altered mental status. Initial evaluation revealed cervical and thoracic subcutaneous emphysema, pneumoperitoneum, and computed tomography (CT) findings consistent with perforation of the transposed colonic segment (Figures 1, 2, and 3).



**FIGURE 1.** Simple axial CT scan at the chest level with dilation of the colonic graft loop and air-fluid level inside (red arrow), with small bubbles in the anterior mediastinum (white arrow).

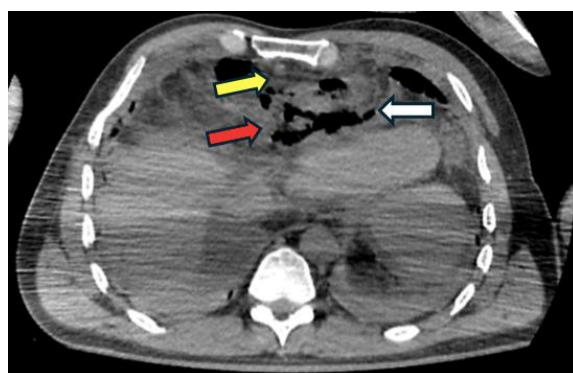


**FIGURE 2.** Simple axial CT scan at the upper abdomen showing dilation of the colonic graft loop (red arrow), free air in the cavity, striation of the pericolonic fat (white arrow) and diverticula in the colonic wall (yellow arrow).

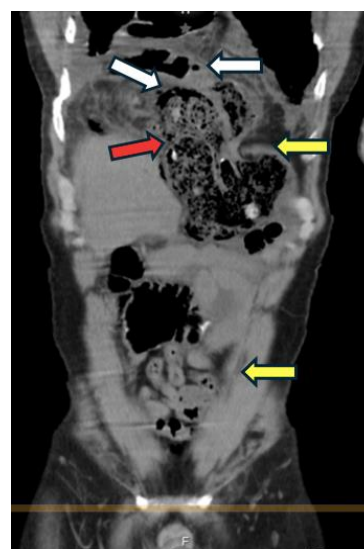


**FIGURE 3.** Simple coronal CT with significant dilation and redundancy of the colonic graft (red arrow), as well as free air in the mediastinum and abdominal cavity (white arrow) and diverticula in the remaining colon (red arrow).

## Intestinal Perforation Due to Diverticulitis in Transposed Colon: An Unusual Complication after Esophageal Reconstruction. Case Report

He underwent emergency exploratory laparotomy, which confirmed distal perforation of the colonic graft associated with complicated diverticular disease. Resection of the affected colonic segment, cervical esophagostomy, gastrostomy, and extensive peritoneal lavage were performed (Figures 4 and 5).



**FIGURE 4. Subxiphoid exploratory laparotomy approach, with removal of perforated transverse colon.**



**FIGURE 5. Surgical specimen after resection of colonic segment.**

In the immediate postoperative period, the patient developed local complications including surgical wound infection and intra-abdominal abscess, requiring two additional surgical procedures: exploratory laparotomy with abdominal lavage and application of negative pressure wound therapy. Definitive closure of the surgical wound was completed later. The patient was discharged in stable condition after a 21-day hospital stay.

As of six months postoperatively (April 2025), the patient remains fully functional, reintegrated into his work activities, without neurological or digestive complications, with functional esophagostomy and gastrostomy, and is under follow-up for planned reconstruction of the intestinal transit.

### DISCUSSION

Diverticulitis of the interposed colon following esophagocoloplasty is an extraordinarily rare complication. Cheng et al. (2006) published one of the first documented cases of a perforated diverticulum in a substernal interposed

colon, in a young patient who had suffered a caustic ingestion (2).

At that time, no prior English-language reports of diverticulitis or perforation of a transposed colon existed. Since then, only very small series or isolated case reports have been published illustrating various clinical presentations of this late complication. Reported experience suggests that diverticular disease in the transposed colon tends to manifest several decades after reconstruction, likely facilitated by the physiological changes previously discussed (3). For example, Lemos et al. described a case of cervical diverticulitis in a patient who underwent esophagocoloplasty during childhood and presented with a benign inflammatory cervical mass 47 years later, which resolved with conservative antibiotic therapy (5).

Similarly, Blencowe et al. reported a patient with recurrent episodes of diverticulitis in the cervical segment of the transposed colon following a laryngopharyngectomy. Each episode was uncomplicated and responded well to antibiotics, avoiding the need for surgical resection. These cases illustrate that when diverticulitis in a transposed colon does not progress to perforation or significant abscess formation, non-operative management with broad-spectrum antibiotics and percutaneous drainage (if collections are present) may be sufficient (5).

In fact, Veenstra et al. recently published the case of a man with a colonic interposition performed after caustic ingestion who, 60 years later, developed cervical diverticulitis complicated by an abscess. He was treated with image-guided drainage and antibiotics, eventually developing a colocutaneous fistula that closed spontaneously within eight weeks (1). This conservative outcome suggests that in selected cases, major reintervention may be avoided if sepsis is adequately controlled. However, when diverticulitis of the colonic neo-esophagus progresses to free perforation or is accompanied by uncontrolled sepsis, urgent surgical intervention is indicated (12).

Our case is an example of the most severe presentation. In such situations, the usual strategy consists of saving the patient's life at the expense of temporarily sacrificing esophageal continuity (2). This approach is consistent with other reports of severe cases. In another case, complicated cervical diverticulitis led to pulmonary abscesses, necessitating segmental resection of the interposed colon along with extensive drainage (3). In cases of intrathoracic or cervical colonic perforation, morbidity can be high. Therefore, many authors advocate for graft resection and damage control, deferring esophageal reconstruction to a second stage (2,12).

Delayed reconstruction presents a significant challenge. If the stomach remains available, a secondary gastric pull-up may be considered (13). Alternatively, colonic reinterposition or reconstruction using microvascularized free jejunal flaps has been described in specialized centers. Bonavina et al.

# Intestinal Perforation Due to Diverticulitis in Transposed Colon: An Unusual Complication after Esophageal Reconstruction. Case Report

emphasize that reoperation for failed colonic conduits is complex and high-risk; hence, reconstruction strategies must be individualized (4).

In any case, long-term functional prognosis will depend on the patient's baseline condition and infection control. Our report highlights the importance of long-term surveillance in patients with colonic interposition. While most will maintain a good quality of life, they should be educated on the potential to develop diseases inherent to colonic tissue. Early diagnosis may be decisive: the literature shows that timely management generally results in favorable outcomes (1,3).

## CONCLUSION

Complicated diverticulitis with perforation in a transposed colon constitutes an exceptional yet potentially serious complication following esophageal reconstruction with colonic interposition. The anatomical and functional alterations inherent to the interposed colonic segment, even many years after the procedure, may predispose to late-onset diverticular disease.

This case illustrates how the clinical presentation can be abrupt, with atypical manifestations such as cervical subcutaneous emphysema and pneumomediastinum, requiring a high index of diagnostic suspicion. Acute surgical management, consisting of resection of the perforated segment, immediate sepsis control, and temporary esophageal diversion, allowed for patient stabilization.

Furthermore, this experience highlights the importance of long-term follow-up in patients with colonic interposition, as well as the need to consider alternative conduits during initial planning, particularly in those with pre-existing diverticular disease or predisposing factors. This report contributes to the limited available knowledge on late complications of colonic interposition, underscoring the need for prolonged surveillance and individualized management.

## REFERENCES

- I. Veenstra, F., van Duyn, E., Venneman, N. G., & van den Beukel, B. (2025). Complicated diverticulitis: A rare long-term complication after esophagectomy with colon interposition. *ACG Case Reports Journal*, 12(2), e01600. <https://doi.org/10.14309/crj.0000000000001600>.
- II. Cheng, A., Wright, C., & Fielding, D. (2006). Rare complication of interposed substernal colon. *The Annals of Thoracic Surgery*, 81(2), 729–731. <https://doi.org/10.1016/j.athoracsur.2005.07.061>.
- III. Chirica, M., de Chaisemartin, C., Munoz-Bongrand, N., Halimi, B., Celerier, M., Cattani, P., & Sarfati, E. (2010). Late morbidity after colon interposition for corrosive esophageal injury. *Annals of Surgery*, 252(5), 748–754. <https://doi.org/10.1097/SLA.0b013e3181f5e2a5>.
- IV. Bonavina, L., Chirica, M., Skrobic, O., Kluger, Y., Andreollo, N. A., Contini, S., & Catena, F. (2015). Foregut caustic injuries: Results of the world society of emergency surgery consensus conference. *World Journal of Emergency Surgery*, 10, 44. <https://doi.org/10.1186/s13017-015-0039-0>.
- V. Lemos, D. W., & Blencowe, N. S. (2015). A novel complication of a neonatal colonic interposition graft: Diverticulitis. *BMJ Case Reports*, 2015, bcr2015211711. <https://doi.org/10.1136/bcr-2015-211711>.
- VI. Nelson, R. L., & Grayer, D. (1973). Diverticular disease in the transposed colon used for esophagoplasty: Report of two cases. *Annals of Surgery*, 177(1), 70–72. <https://doi.org/10.1097/00000658-197301000-00014>.
- VII. Bassiouny, I. E., Al-Ramadan, S. A., & Al-Nady, A. (2002). Long-term functional results of transhiatal esophagectomy and colonic interposition for caustic esophageal stricture. *European Journal of Pediatric Surgery*, 12(4), 243–247. <https://doi.org/10.1055/s-2002-34478>.
- VIII. Licata, A., Montalto, G., & Craxì, A. (2014). Malignancy arising in a 41-year-old colonic interposition graft. *Asian Journal of Surgery*, 37(2), 100–102. <https://doi.org/10.1016/j.asjsur.2014.01.008>.
- IX. Martínez, M. A., & Pérez, F. J. (2018). Late complications of colonic interposition in esophageal reconstruction. *Cirugía Española*, 96(2), 123–129. <https://doi.org/10.1016/j.ciresp.2017.09.003>.
- X. Sánchez, L. M., & Rodríguez, P. A. (2016). Diverticulitis in transposed colon: A case report and literature review. *Gastroenterology and Hepatology*, 39(7), 459–462. <https://doi.org/10.1016/j.gastrohep.2015.12.002>.
- XI. Coopman, S., Michaud, L., Halna-Tamine, M., Bonnevalle, M., Bourgois, B., Turck, D., & Gottrand, F. (2008). Long-term outcome of colon interposition after esophagectomy in children. *Journal of Pediatric Gastroenterology and Nutrition*, 47(4), 458–462. <https://doi.org/10.1097/MPG.0b013e31815ce55c>.
- XII. Verdugo Salazar, C. I., Kaloyan Lopez, S. Z., Rios, C. R., Bezies, Y. A. N., & Gálvez Coutiño, L. F. (2025). Perforation of colonic interposition graft in a patient with prior esophagectomy: A case report. *International Surgery Journal*, 12(5), 779–782. <https://doi.org/10.18203/2349-2902.isj20251176>.
- XIII. González, J. M., & López, J. A. (2020). Colonic interposition in esophageal reconstruction: Experience in a tertiary care hospital. *Spanish*

## **Intestinal Perforation Due to Diverticulitis in Transposed Colon: An Unusual Complication after Esophageal Reconstruction. Case Report**

- Journal of Digestive Diseases, 112(9), 688–694.  
<https://doi.org/10.17235/reed.2020.6630/2019>.
- XIV. Martínez, M. A., & Pérez, F. J. (2020). Long-term results of colonic interposition in esophageal reconstruction. *Chilean Journal of Surgery*, 72(6), 502–510.
- XV. Sánchez, L. M., & Rodríguez, P. A. (2016). Diverticulitis in transposed colon: A case report and literature review. *Gastroenterology and Hepatology*, 39(7), 459–462.  
<https://doi.org/10.1016/j.gastrohep.2015.12.002>.