CASE REPORT

Colon injury and gastrocolocutaneous fistula complication of percutaneous endoscopic gastrostomy

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Key words
colon injury, complication of treatment, fistulae, gastrocolocutaneous fistula, gastrostomy feeding, management, percutaneous endoscopic gastrostomy, surgery.

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Abstract

Percutaneous endoscopic gastrostomy (PEG) insertion is an effective endoscopic procedure for enteral feeding in patients with difficulty swallowing. Many postprocedural complications have been reported after the PEG procedure. The displacement of the transverse colon over the anterior gastric wall can predispose the patient to colonic injury and fistulae during PEG placement. Gastrocolonic fistulas represent a serious but rare complication post PEG placement. We report a 90 year old man with a background of multiple comorbidities and high preoperative risk who developed a gastrocolocutaneous fistula post PEG placement due to a colonic injury. He was successfully treated with nonoperative management.

Introduction

Percutaneous endoscopic gastrostomy (PEG) is a minimally invasive technique used for permanent enteral feeding. The displacement of the transverse colon over the anterior gastric wall can predispose the patient to colonic injury and colonic fistulae during PEG placement. Gastrocolocutaneous fistulae represent a serious, but rare (<1%) complication of PEG associated with a high morbimortality rate where PEG tube is placed directly through the bowel into the stomach. They can be asymptomatic, cause diarrhea, abdominal pain, distension, fecaloid vomiting, peritonitis, and abscesses. Computed tomography (CT) scan of the abdomen allows visualization of the fistula. In most cases, treatment consists of resection of the fistula and surgical gastrostomy. High-risk patients deserve individualized management, which may even reduce the need for surgical intervention; timely referral to a specialized center has repercussions on the evolution and prognosis.

Case presentation

A 90-year-old male with dependence for basic activities due to neuromotor sequelae of cerebrovascular accident, presented with a 24-h history of tonic–clonic seizures and fever. Chest X-ray revealed an infiltrate in the upper lobe of the right lung. He was diagnosed with bronchial-aspiration pneumonia and oropharyngeal dysphagia.

PEG was performed. Twelve hours after the procedure, pain and abdominal distension began, at physical examination, an area of peristomal induration with erythema and edema was noted. No fever, no toxic aspect, and bowel sounds were normal with no rebound or guarding. The general surgery team was consulted to evaluate PEG tube position and abdominal wall erythema and edema.

Complete blood count test was normal with no leukocytosis, anemia or thrombocytopenia. Abdominal-CT was recommended to confirm PEG tube position. Feeding through the PEG tube was suspended till its position could be confirmed with the CT scan.

Abdominal-CT (Fig. 1) reveals pneumoperitoneum, gastrostomy catheter through the transverse colon located in the gastric lumen (gastrocolocutaneous fistula).
Even though the high-risk for complications and fatal outcomes, conservative treatment was maintained for 4 weeks expecting the formation of a fistulous tract and an antibiotic was prescribed for 10 days because of the clinical infection signs at the site of PEG placement. Meanwhile, he received total parenteral nutrition. After 50 days of hospitalization, his condition gradually improved, the fistula closed, and was evidenced with endoscopic control after treatment. Complete resolution was achieved, and he was discharged. General recommendations were given on PEG tube manipulation to prevent complications associated with PEG use and wound care.

Follow-up was carried out at 3, 6 months, and 1 year, and the patient remains asymptomatic: he has not presented new complications related to PEG tube insertion or PEG use.

Discussion

PEG, described in 1980 by Gauderer and Ponsky, is a minimally invasive technique of choice for permanent enteral feeding. Despite being a technique with multiple benefits, it is not exempt from risks and complications, such as bleeding, wound infection, ileus, and necrotizing fasciitis. PEG tube placement can be associated with many potential complications. Complications can be classified according to the severity and vary between 1 and 30%.

Intestinal fistulas are an abnormal communication between two surfaces through an epithelialized pathway, being serious complications; they divert the gastrointestinal content and nutrients from one hollow viscus to another, or to the skin, causing a variety of pathophysiological effects. Gastrocolocutaneous fistulas represent a serious but rare (<1%) complication of PEG, are associated with a high morbidity rate, mortality is reported in 6 to 20% of cases worldwide. Nevertheless, up to 90% of the cases go unnoticed while being asymptomatic. Symptoms include diarrhea, abdominal pain, distension, fecaloid vomiting, abscesses, and peritonitis.

Gastrocolocutaneous fistulas can occur during or even after the procedure in the short- or long-term, usually becoming apparent after 4 weeks of PEG placement, since it is the time of maturation of the fistula. But time intervals as short as days or as long as years have been reported in immunosuppressed and malnourished patients. That is why some authors establish that 12 h after the procedure is considered too premature to refer to a fistula, and they prefer to say that we are facing a PEG placement malposition or transcolonic misplacement of a PEG. Despite that, in this case, the visualization of the PEG tube placed directly through the bowel into the stomach reveals that it is an

![Figure 1](https://example.com/f1.png)

**Figure 1** Oral contrast-enhanced abdominal computed tomography. (a and b) Green shows air outside the intestine compatible with pneumoperitoneum. (c) The gastric chamber is highlighted in red, the intestine in blue. Gastrostomy tube is visualized through the transverse colon located in the gastric lumen.
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Conclusions

PEG has become the modality of choice for providing enteral access to patients who need long-term enteral nutrition. Despite being a safety procedure, it can be associated with complications. Gastrocolocutaneous fistula is an infrequent complication; it usually requires resection of the fistula and gastrostomy implantation via surgery. The exposed case was resolved satisfactorily with conservative nonoperative management. These patients deserve comprehensive management, which may even reduce the need for surgical intervention; timely referral to a specialized center has repercussions on the evolution and prognosis.

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