Chronic gastrocolocutaneous fistula secondary to percutaneous endoscopic gastrostomy, a case report

Reporte de caso, fístula gastrocolocutánea crónica secundaria a una gastrostomía percutánea endoscópica

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Abstract
Percutaneous endoscopic gastrostomy (PEG) is a widely used procedure that enables enteral nutrition in patients with deglutition anomalies. While this procedure is safe and effective, it has been reported to rarely develop unusual complications such as fistulas. Herein we present a case report of a 68-year-old male presenting a gastrocolocutaneous fistula secondary to PEG. Two years after the PEG tube placement, this patient was hospitalized due to urinary retention, the tube was changed during his stay, which onset postprandial diarrhea and the flow of fecal matter through the tube, thus raising concern for the diagnosis of a gastrocolocutaneous fistula.
Keywords: Percutaneous endoscopic gastrostomy; gastrocolocutaneous fistula; gastrostomy.

Resumen
La gastrostomía percutánea es un procedimiento comúnmente utilizado para habilitar la nutrición enteral en pacientes con anomalías en la deglución. Aunque este procedimiento mayormente es segura y eficaz, en raras instancias se presentan complicaciones, como lo son las fístulas. Aquí reportamos el caso de un paciente de 68 años que desarrolló fístula gastrocolocutánea tras el procedimiento. A los 2 años de la intervención, el paciente fue hospitalizado por retención urinaria y se realizó recambio de la sonda, lo que provocó diarrea posprandial y flujo de materia fecal a través de la sonda, fundando sospecha del diagnóstico.
Palabras clave: Gastrostomía percutánea; gastrostomía endoscópica; fístula gastrocolocutánea; gastrostomía.

Introduction

Percutaneous endoscopic gastrostomy (PEG) is the standard of treatment for enteral nutrition in the medium and long term in patients with swallowing disorders with a functional digestive tract. This minimally invasive procedure has been distinguished by its effectiveness (95%-100% success rate) and low incidence of major complications (4%)[1,2].

The first PEG was performed in 1980 by Gauderer who reported a series of gastrostomies in pediatric patients as an alternative to conventional gastrostomy[3]. Currently, the techniques that are most used are: “Traction” (Ponsky-Gauderer pull technique), “Pressure” (Sacks-Vine push technique) and “Pressure on dilator” (Russel introducer technique)[1].

Case Report:

A 68-year-old male was admitted to our hospital because of holocranial headach, referred to in 10/10 intensity refractory to analgesia, for which a cranial CT scan was performed, establishing Fisher IV subarachnoid hemorrhage and cerebral panangiography with findings of a 4 mm aneurysm in the right middle cerebral artery, which was treated through embolization and the patient was admitted to the intensive care unit.

The patient has a medical history of multiple sclerosis, transurethral resection of the prostate after benign prostatic hyperplasia, acute myocardial infarction and recent cerebral vascular event.

During his hospital stay, a percutaneous endoscopic gastrostomy was performed on the anterior face of the body, confirming adequate transillumination, and the tube was placed by “pull’ technique, at a distance of 3 cm from the pylorus on the gastric wall. The patient was discharged without complications.

2 years after the placement of the catheter, the patient comes suffering urinary retention. During his hospitalization, the gastrostomy tube was changed, and the post-operative period was followed by postprandial diarrhea and the leak of fecal material through the tube. A fistulography was requested, which showed the location of the gastrostomy tip in the transverse colon (**Figure 1, A, B**), confirming the diagnostic suspicion. The patient was approached by placing a new percutaneous endoscopic gastrostomy in an adjacent site and removing the previous one with fistula closure (**Figure. 1, C, D**).

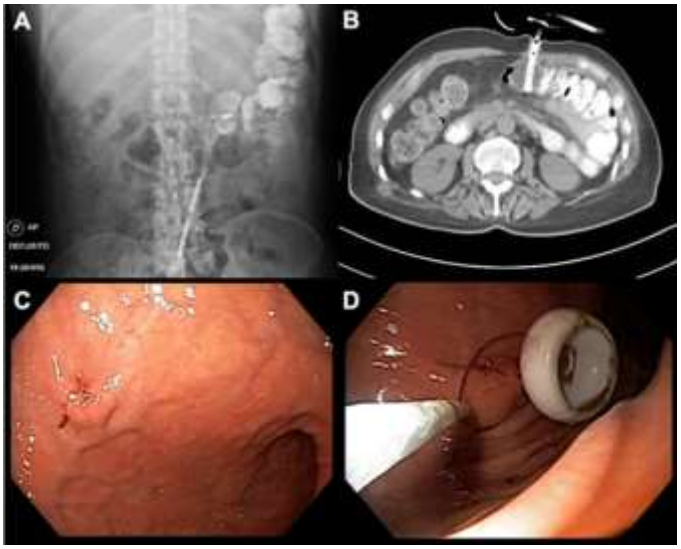

Figure 1. A) Fistulography which denotes the tip of the gastrostomy in the transverse colon **B)** Transverse Colon Gastrostomy Tube. **C)** Previous gastrostomy site. **D)** New gastrostomy placed in adjacent site.

Discussion

Regardless of the technique, possible complications include the formation of a gastrocolocutaneous fistula (GCF). Although its incidence is low (0.5 - 3%) it is considered a minor complication, it has the potential to develop fecal peritonitis. The first case of a gastrocolocutaneous fistula was described by Saltzberg in 1987, where he mentioned that this complication should be considered in the presence of severe diarrhea or peritonitis in a patient with a previously functional gastrostomy [4].

The mechanism commonly described is the transposition of the colon between the stomach and the abdominal wall, consequently placing the tube in the transverse colon. Another mechanism described is the migration of the gastrostomy tube into the colon[5].

Associated risk factors include mega colon, subphrenic colon transposition, abnormal posture and spinal deformity, previous abdominal surgery and over inflation of the stomach during the procedure[6].

The largest case series, including 28 patients, was reported by Friedmann in 2007[7]. This publication rules out that a history of abdominal surgery is the only risk factor associated with CJD fistula, so PEG continues to be recommended for patients with this history.

Typical symptoms occur most often in the year following PEG, when the tube is replaced; they are diarrhea, expulsion of undigested enteral nutrition solution, fecal vomiting, abdominal pain, malnutrition; although there are patients who attend asymptomatically. The patient's physical examination and laboratory results are usually normal in the absence of peritonitis[8,9].

Diagnosis is made by presenting typical symptoms (**Table 1**) usually months after placement; periods of 3 days up to about 3 years in the onset of symptoms has been described in the literature, with delays in diagnosis of up to 6 months[7].

Table 1. Diagnostic criteria for gastrocolocutaneous fistulas.

Clinical Data	Image study
Fecal matter or foul smell coming out of the probe Sudden diarrhea or leakage of undigested enteral solution[1] Fever Ileus[1]	Fistulography[10] Computerized Tomography Colonoscopy Barium enema

To prevent the development of gastrocolocutaneous fistulas, techniques such as transillumination and digital pressure can be used to guide the puncture site, needle aspiration (using a syringe to puncture into the insufflated stomach under continuous aspiration), perpendicular puncture of the abdominal wall, assisting with colonoscopy and fluoroscopy after the gastrostomy tube change[10].

Currently, there is scarce literature on the approach and management of fistula, which can be conservative since it is usually effective through spontaneous closure after the removal of the gastrostomy tube[7]. In these cases, the placement of a naso-jejunal tube could help maintain nutritional status. Other approaches described are endoscopic closure, closure of colocutaneous and gastrocolic fistula with Hemo-lok by laparoscopy or surgical treatment by laparotomy which is reserved for cases with evidence of peritonitis.

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