Gastroenterocutaneous Fistula as a Complication of Percutaneous Endoscopic Gastrostomy Tube Placement

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INTRODUCTION

Percutaneous endoscopic gastrostomy (PEG) tube has been established as a standard of care to provide long-term enteral nutrition in patients with swallowing disorders. PEG tube placement can be complicated by injury to intra-abdominal structures. The most commonly injured part of the bowel is colon, with formation of colo-cutaneous or gastro-colo-cutaneous fistulae being most prevalent. Injuries to small bowel are very rare, with only a few reported cases which have presented as entero-cutaneous fistulae.(1, 2) Gastro-entero-cutaneous fistula has never been reported in the literature as a complication of PEG tube insertion.

THE CASE

We present an 80 year-old female who was a bedbound, nursing home resident, with past medical history of multiple strokes, admitted to our hospital due to a new ischemic stroke. As a consequence of the patient’s inability to tolerate oral feedings, a PEG tube insertion was planned. The procedure was carried out under sedation analgesia with the insertion site identified by means of 1:1 indentation and transillumination technique. Utilizing standard techniques, the PEG tube was appropriately placed and well tolerated by the patient (Fig 1).

On the 4th post-procedure day, purulent and bilious discharge was noted at the PEG site. The area around the site was erythematous and indurated with bloody, purulent discharge. The abdomen was soft, without distention, and with positive bowel sounds.

A computed tomography (CT) scan with water-based contrast via the PEG tube did not reveal any perforation or obstruction of the bowel. The PEG tube was removed due to continuous bilious discharge via the fistulous opening measuring 12 mm in diameter. Surgical consultation service evaluated the patient and recommended conservative management. The patient was kept NPO and placed on total parenteral nutrition (TPN). A colostomy bag was placed around the PEG site and broad-spectrum intravenous antibiotics were continued.

With the continued persistence of the significant bilious discharge on the 8th day post-insertion, a CT scan with contrast [via nasogastric (NG) tube] was carried out, revealing a loop of small bowel immediately adjacent to the abdominal wall fistulous tract without extravasation of contrast. A fistulogram confirmed the presence of a gastro-jejuno-cutaneous fistula (Fig 2).

The patient was placed on octreotide 50 micrograms subcutaneously three dimes a day with daily measurement of discharge, intermittent NG suction and continued TPN. Prior to subcutaneous octreotide, the daily discharge was approximately 200 ml, which
gradually decreased on the above stated regimen. The fistulous opening was also noted to decrease in size. On the 15th day post-insertion, the bilious discharge decreased to 50 ml/day and the size of fistulous opening was 5 mm. On the 26th day, the colostomy bag did not contain any discharge and the cutaneous opening was totally closed. The patient’s family refused another PEG tube placement so enteral nutrition was provided by nasogastric tube (NGT) after closure of the fistula.

**DISCUSSION**

The most common indications for PEG tube placement are cerebrovascular accidents, head and neck malignancy and head trauma. (3) Mortality post PEG tube placement as a complication of tube placement is < 1%. Major complications requiring surgical intervention occur in 6-7% while minor complications are reported in 17-24% of patients. (3, 4) Major complications include tube dislodgement, pneumoperitoneum with peritonitis, gastric perforation, abdominal wall necrosis/abscess and bowel perforation. Minor complications may include periostomal leak, tube displacement without peritonitis, pneumoperitoneum without peritonitis, minor bleeding, abdominal pain and tube blockage. (3, 4)

Bowel injury as a result of PEG tube placement is rare. A retrospective study of PEG tube placement in patients with head and neck cancers (N=137) found colonic perforation in 1 patient (0.7%). Small bowel injury is even more rare as it is protected from injury by the greater omentum. (5) Patients with small bowel injury during PEG tube placement may remain asymptomatic for months after initial procedure and present with diarrhea and GI bleed or discharge from the insertion site after tube replacement. (1, 2)

In our case, purulent discharge was evident as early as the 4th day post-PEG tube placement, but CT scan did not reveal any perforation. However, it showed a loop of small bowel immediately adherent to the fistulous tract, and only a fistulogram revealed the presence of gastro-entero-cutaneous fistula. So, we speculate that a part of the small bowel was pinched in between the abdominal and the gastric wall which in due course of time resulted in necrosis and perforation. However, perforation was contained by the omentum preventing frank peritonitis, but led to the development of a fistula.

Management of these fistulae in the absence of peritonitis or obstruction is mainly conservative with bowel rest, antibiotics and institution of TPN. Some studies have shown rapid closure of the tract with use of somatostatin analogues. (6) In our case, the amount of discharge and the size of the fistula decreased on conservative management and subcutaneous octreotide; finally the fistula closed on day 26 post PEG tube insertion.

**CONCLUSION**

A gastro-entero-cutaneous fistula is a rare complication of PEG tube placement and it can be managed conservatively with TPN and somatostatin analogues in the absence of signs of peritonitis or obstruction. Elevation of head end of the bed, avoiding over or under inflation of stomach, maximum endoscopic transillumination and finger indentation from outside are recommended during the procedure, however they do not completely eliminate the risk of bowel perforation.

**References**