Case Report

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Gastrocolocutaneous Fistula-Delayed Complication of Percutaneous Endoscopic Gastrostomy

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Background: Percutaneous endoscopic gastrostomy (PEG) tubes are a well-established, effective, and a relative safe technique for long term feeding of patients. However, gastrocolocutaneous fistula is a major complication of PEG.

Case presentation: A 82-year-old woman with cerebral severe infarction underwent uneventful PEG tube placement for enteral feeding. A few months later transient diarrhea developed within minutes after each PEG tube feeding. Another gastrostomy tube was placed surgically and the fistula was then also excised. The postoperative course was uneventful.

Conclusion: Gastrocolocutaneous fistula must be cosidered as a complication of PEG tube placement when patients develop a sudden onset of unexplained diarrhea after tube feeding.

Keywords: Percutaneous endoscopic gastrostomy, gastrocolocutaneous fistula

Introduction

Percutaneous endoscopic gastrostomy is commonly used for long-term feeding for patients who are unable to feed by mouth. Since introducing of PEG in 1980 by Gauderer and colleagues, the procedure has become a well-accepted and safe technique (1). In general the complication rate is low. Most complications of PEG are considered minor including wound infection, tube dislodgement, and leakage (2-4). However, gastrocolo cutaneous fistula is a major complication of PEG.

Gastrocolocutaneous fistula which develops from the perforation of a loop of the colon, either by inadvertent puncture of the transverse colon during the PEG procedure or through erosion into the adjacent bowel over time. This complication is reported to be rare; a study by Pitsinis et al. revealed that the incidence rate of this complication was 0.5% in adults (5). Patients with this complication can remain without typical symptoms for a long time, and several cases with long asymptomatic periods have been reported (6,7). Therefore, awareness is helpful to avoid this complication, and a high index of suspicion can ensure an early diagnosis. Here, we report a case of this complication following PEG insertion after a long asymptomatic period.

Case Report

An 82-year-old woman with cerebral severe infarction underwent uneventful PEG tube placement for enteral feeding. The patient had no difficulty with enteral tube feeding for the next few months until replacement of the PEG tube. Asudden onset of transient diarrhea then developed invariably occuring within minutes after each PEG tube feeding.The skin surrounding the tube was inflamed with brown odorous fluid exuding. Upon checking the tube position using upper endoscopy no inner

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bumper was seen within the stomach. Radiographic images with injection of gastrografin from the PEG tube showed the tip of the tube in the transvers colon with colonic filling of gastrografin.

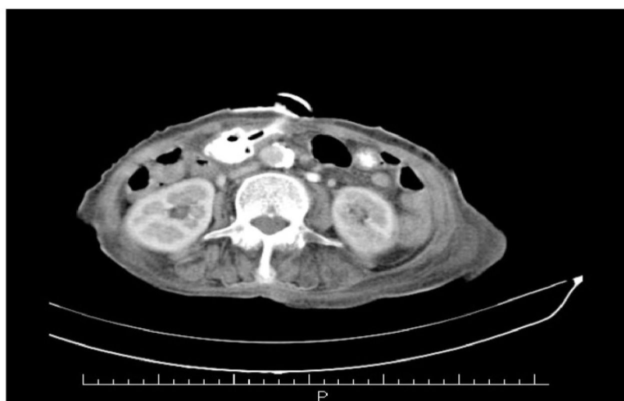

Figure 1: Computerized tomography scan of the abdomen with contrast. The gastrostomy tube is seen as a radiopaque linear density lying obliquely in the middle of the anterior abdominal wall with its bumper in the transverse colon.

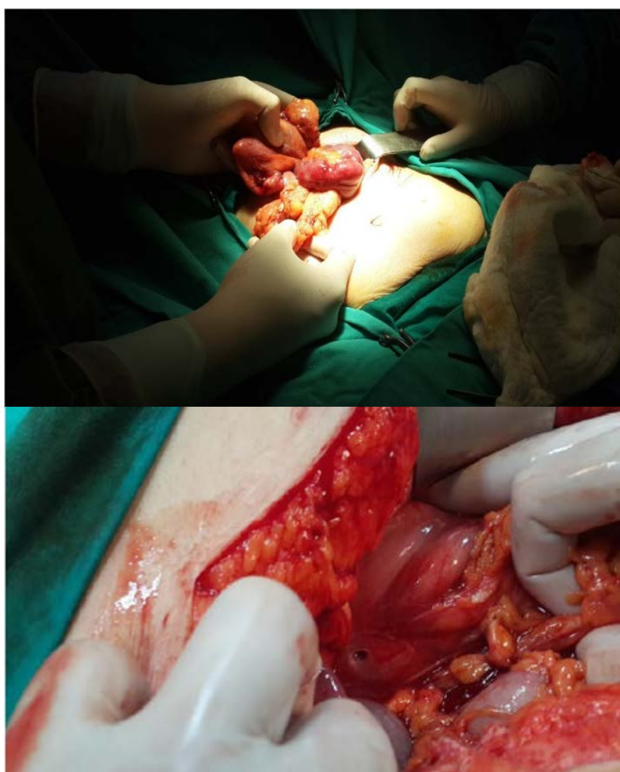

Figure 2: Gastrocolic fistula visualized in operation. New PEG tube was inserted subsequently correct the fistula.

Computirized tomography confirmed misplacement, localizing the position of the bumper in the transverse colon (*Figure-1*). No contrast material entered the peritoneal cavity. Laparotomy was performed to close the fistula and to replace the gastrostomy (*Figure-2*). The postoperative course was uneventful, and she had no further difficulty with enteral feeding via the new gastrostomy tube.

Discussion

Percutaneous endoscopic gastrostomy tubes are a well-established, effective, and a relatively safe technique for long term feeding of patients. In general the complication rate is low and migration of a PEG tube into the colon originally positioned in the stomach is an extraordinarily rare complication, typically occurring within days to month after insertion (8,9). It has also been found in patients with previous abdominal surgery (10). Feculent vomiting and profuse diarrhoea are the two most common symptoms of gastrocolocutaneous fistula, both being present in our patient. What was unusual in this case was the time of presentation of the gastro-colic fistula long time post-PEG insertion and has no previous surgery.

The exact mechanism of gastrocolocutaneous fistula is not well known. However, the most plausible theory is the interposition of the colon, usually the transvers colon, between the anterior abdominal wall and the gastric wall (11,12). The guide needle passed from the skin into the colon and then entered the stomach. The PEG tube followed that needle retrograde through the stomach, first penetrated the colon, and then exited the skin. This hypothesis is supported by the abdominal computed tomography scan (*Figure-1*).

Nonoperative management strategies for gastrocolo cutaneous fistula have been published, including fibrin glue, nonsteroidal anti-inflammatory drug, parenteral nutrition, and intravenous cimetidine (13-17). However, this non-operative managements may not be success in all patients. Surgery is required for definitive management of gastrocolic fistula. We demonstared the succesful surgical procedure for this case.

Techniques using both transillumination and finger pressure as a guide to place the puncture site are useful for preventing this complication. Guidance by ultrasound or CT can be used selectively but may have limited benefit. Foutch et al, suggested that an aspirating syringe filled with saline could be used to identify the intervening colon between the skin and the stomach if air bubbles appeared in syringe prior to the endoscopic visualization of the needle in the gastric lumen (10).

Conclusion

In conclusion, gastrocolocutaneous fistula must be cosidered as a complication of PEG tube placement when patients develop a sudden onset of unexplained diarrhea after PEG tube feeding, and should confirm the diagnosis by a CT. Delayed onset or intermittent occurrence of symptoms does not rule out a gastrocolocutaneous fistula.

To avoid this complication, patients in a high risk group have to undergo careful assessment before PEG.

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