# Gastrostomy Tube Replacement

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# Gastrostomy Tube Replacement

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## Continuing Education Activity

A gastrostomy tube (G-tube) is indicated in patients that need long-term pre-pyloric feeding. Endoscopic gastrostomy tube placement is now the preferred modality over surgical gastrostomy owing to a less invasive nature and faster time to start feeding. If the tube is dislodged within 4 weeks of initial placement, patients are at significant risk of peritonitis and perforation due to peritoneal spillage of gastric contents through the immature track, and replacement should not be attempted without surgical consultation. This activity focuses on the methods of G-tube replacement, and possible complications of G-tube replacement. and highlights the role of the interprofessional team in the care of patients that require this procedure.

**Objectives:**

- Describe the anatomy of gastrostomy tube placement.
- Outline the indications and contraindications for bedside gastrostomy tube replacement.
- Review how to replace a displaced gastrostomy tube at the bedside.
- Summarize how the interprofessional team can work together to identify complications and how to manage them after gastrostomy tube replacement is performed to improve the care of patients that require this procedure.

Access free multiple choice questions on this topic.

## Introduction

A gastrostomy tube (G-tube) is indicated for long-term enteral nutritional support in patients with dysphagia secondary to various disorders. Endoscopic gastrostomy tube placement is now the preferred modality over surgical gastrostomy owing to a less invasive nature and faster time to start feeding.[1] During endoscopic gastrostomy tube placement, a small incision is made over the anterior abdominal wall through which the tube is placed via a push method (the tube inserted percutaneously through the incision) or a pull technique (the tube is pulled out from the stomach through the incision). Once the tube is placed, a fistulous gastrocutaneous tract is formed in about 2-4 weeks. However, in certain conditions such as severe malnutrition, immunocompromised patients, and large ascites, tract maturity is further delayed. If a percutaneous gastrostomy endoscopic (PEG) tube is dislodged within a month after placement, then endoscopic replacement is recommended. However, if the tube is dislodged after 4 to 6 weeks when tract maturity is expected, bedside replacement is usually sufficient. If the tube is dislodged within 4 weeks of initial placement, patients are at significant risk of peritonitis and perforation due to peritoneal spillage of gastric contents through the immature track, and replacement should not be attempted without surgical consultation. A blind attempt to re-insert the tube or even foley placement in an immature tract can lead to inadvertent placement of the tube into the peritoneal cavity. In this review article, we discuss the replacement of the Gastrostomy tube in adult patients with complete maturation of the gastrocutaneous tract.

## Anatomy and Physiology

During endoscopic placement of a G-tube, a gastroscope is inserted, and air insufflation inflates the stomach. About 2.5 cm below the costal margin and medial to the xiphoid process, an area of maximal transillumination is identified while shining an endoscope light through the anterior gastric wall. A good 1:1 contact is confirmed by firmly applying pressure on this point and visualizing the stomach wall sliding off by this pressure at the same time. Once the site is confirmed, this area is marked with a surgical pen for the incision site. After the tube placement with an endoscope, the mechanism of track maturation includes the anterior gastric wall adhering to the abdominal wall forming a gastrocutaneous fistula.

## Indications

The indications of percutaneous endoscopic gastrostomy (PEG) tube replacement are:

- Dislodged PEG tube: If the tube is dislodged within 24 hours, a temporary tube (e.g., Foley catheter) should be placed in the track to prevent track closure which starts occurring anytime between 8 to 24 hours and narrows further as time passes.
- Malfunctioning PEG tube
- Obstructed G-tube not responding to traditional unclogging measures(e.g flushing with water or pancreatic enzymes mixed with bicarbonate solution)

## Contraindications

Bedside/blind PEG tube replacement is contraindicated in the following situations:

- G-tube displacement or malfunction within 4 weeks of initial tube placement (due to track immaturity)[2]
- Massive ascites
- Any signs of peritonitis
- Coagulation disorders
- If the tube has been displaced for more than 24 hours, and the track has narrowed or closed

## Equipment

For bedside replacement of G-tube:

- G tube (size similar to prior G-tube)
- 10 mL saline syringe
- Guidewire
- Dressing kit
- 2 x 2 and 4 x 4 gauze
- Alcohol swabs and povidone-iodine swabs
- Gastroscope (if endoscopic replacement is being considered)

## Preparation

First, if the tube is still in place, it should be examined. There are cases of a malfunctioning tube. It is vital that the clinician take a careful history and review prior records when they are available, to know the type of tube that has been placed (with internal mushroom cap versus internal balloon). The dressing is removed, and the percutaneous incision site is examined for any signs of infection, track closure, or tube displacement in subcutaneous tissue. The area should be appropriately cleaned with sterilizing alcohol or povidone-iodine. The area is covered with either the sheath in the PEG replacement kit or surgical drapes to avoid contaminating the surroundings during PEG replacement.

## Technique

If the PEG tube is not completely dislodged but has been clogged or malfunctioning, the old tube needs to be removed. If the old tube is an endoscopically placed tube with an internal mushroom tip, then gentle traction is applied to the external portion of the tube to remove the internal mushroom. This has to be done with very gentle traction, and excessive force should be avoided at all costs as it can lead to disruption of even a well-formed track. If unusual resistance is felt during the attempted removal of the tube by gentle traction, it is best to remove the tube after endoscopic cutting of the internal bumper/mushroom cap and removal of the rest of the tube through external puling. If the old G-tube has an internal balloon, the balloon is deflated by aspirating fluid through the balloon port which usually consists of 8 to 10 mL of fluid. After this step, once the tube is removed, a similar size PEG tube is prepared to be inserted.

For replacement G-tube, tubes with the balloon tip are usually preferred to minimize the risk of disruption of the old track. A similar diameter PEG tube as the prior tube should be used as a replacement tube. First, the balloon functioning is confirmed outside the body by injecting 8 to 10 mL of saline in the balloon port. Once confirmed, the balloon is then deflated again. The balloon tip G-tube is either inserted into the track blindly or via the use of a guidewire with or without fluoroscopy and is advanced within the track. Once fully inside, the balloon is inflated with 8 to 10 mL of saline or distilled water. The tube is slowly retracted till gentle resistance is encountered due to the internal balloon opposing the gastric wall. At this point, the external portion of the tube is secured with a dressing. Both ports of a traditional G-tube (feeding port and med port) are flushed and then capped. A dressing is then applied based on institutional policy. It is vital to apply a protective dressing to avoid accidental pulling or dislodgement in patients with altered mentation.

The final step in PEG tube replacement is to confirm the placement. There are certain ways gastric placement can be confirmed. The simplest method is the bedside method of flushing air through the tube and auscultating for gastric gurgle. However, this method is quite unreliable. The most accurate way of confirming internal balloon placement is with an endoscope. However, this might not be cost-effective. The most commonly used technique in most practices is to place water-soluble contrast through the replacement tube and obtain a post-contrast-enhanced abdominal x-ray to confirm placement in the stomach.[3]

## Complications

The major complication of PEG tube replacement is accidental peritoneal placement of the tube. Peritoneal tube placement should be suspected after tube replacement or after resuming feeding through the tube, the patient starts having abdominal pain, fever, and signs of frank peritonitis on the exam. If this happens, a prompt investigation should be performed using a contrast x-ray with water-soluble contrast or with a computerized tomography (CT) scan of the abdomen. Tube feeds should be stopped immediately. A surgical consult should be obtained, and broad-spectrum antibiotics should be initiated as soon as possible. The patient is then managed conservatively with close hemodynamic monitoring along with surgical assistance if needed.

Other complications are rare, but the tube replacement site can get infected especially if the balloon is underinflated or not opposing the gastric wall. This can lead to leakage of gastric contents into the track. Bleeding due to trauma during tube replacement is rare but can happen.[4][5]

## Clinical Significance

G-tube malfunction is commonly encountered in clinical practice both in inpatient and outpatient settings. At some institutes, G-tube replacement is exclusively done by either the gastroenterology service or interventional radiology service depending on who initially placed the tube. However, if the patient is seen in the clinic, emergency department, or a nursing home for malfunctioning G-tube, an appropriate service, either gastroenterology or interventional radiology, should be consulted. If the tube has dislodged or come out, the gastrocutaneous fistula track will start to close as soon as in 8 hours but definitely in 24 hours. The longer the duration the tube has been out of place, the higher the chances that the track has narrowed or closed. If more than 24 hours have elapsed after G-tube has been displaced, a blind forceful attempt to put a Foley or G-tube should not be done, and replacement should be referred to specialized services (gastrointestinal or interventional radiology). If G-tube has been dislodged for less than 24 hours, consider putting a temporary tube such as a Foley catheter (similar size as G-tube) to prevent the closure of the track and contact a specialty service for replacement. Once the tube is replaced, gastric placement confirmation with contrast-enhanced abdominal x-ray is recommended.[6] If the patient develops any signs of peritonitis after tube replacement, accidental intraperitoneal tube placement should be suspected and further evaluated.

## Enhancing Healthcare Team Outcomes

G-tube malfunction is commonly encountered by nurses, physician assistants, nurse practitioners, and physicians in clinical practice. The team should have a working knowledge of how to handle G-tube problems and provide appropriate intervention and assistance in resolving the dysfunction.

## Review Questions

- Access free multiple choice questions on this topic.
- Comment on this article.

## References

1. Bankhead RR, Fisher CA, Rolandelli RH. Gastrostomy tube placement outcomes: comparison of surgical, endoscopic, and laparoscopic methods. Nutr Clin Pract. 2005 Dec;20(6):607-12. [PubMed: 16306297]
2. Maxwell CI, Hilden K, Glasgow RE, Ollerenshaw J, Carlisle JG, Fang JC. Evaluation of gastropexy and stoma tract maturation using a novel introducer kit for percutaneous gastrostomy in a porcine model. JPEN J Parenter Enteral Nutr. 2011 Sep;35(5):630-5. [PubMed: 21765053]
3. Jacobson G, Brokish PA, Wrenn K. Percutaneous feeding tube replacement in the ED--are confirmatory x-rays necessary? Am J Emerg Med. 2009 Jun;27(5):519-24. [PubMed: 19497455]
4. Pih GY, Na HK, Hong SK, Ahn JY, Lee JH, Jung KW, Kim DH, Choi KD, Song HJ, Lee GH, Jung HY. Clinical Outcomes of Percutaneous Endoscopic Gastrostomy in the Surgical Intensive Care Unit. Clin Endosc. 2020 Nov;53(6):705-716. [PMC free article: PMC7719425] [PubMed: 32229800]
5. Elalem U, Almahfouz A, Alfadhel A, Almohamedi A, Bin Ahmed I. A Case Report of Hypoglycemia Due to Late Dumping Syndrome After Jejunostomy Tube Insertion. Cureus. 2020 Feb 06;12(2):e6897. [PMC free article: PMC7059873] [PubMed: 32195064]
6. Showalter CD, Kerrey B, Spellman-Kennebeck S, Timm N. Gastrostomy tube replacement in a pediatric ED: frequency of complications and impact of confirmatory imaging. Am J Emerg Med. 2012 Oct;30(8):1501-6. [PubMed: 22306396]

## Publication Details

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