DISLODGED G-TUBE CLINICAL PATHWAY

EXECUTIVE SUMMARY

Physician Owner(s): Hannah Sneller, MD & Ahmad Miri, MD

Primary Objective

The Dislodged G-tube pathway was created to address standardization of treatment with children presenting to the Children's Nebraska ED with dislodged G/J and G-tubes. The pathway recommends standard practices for stoma preservation after dislodgement, assessment of the tube status (new vs. established), and confirmation of placement after it is replaced. Outcomes for this pathway include decreased use of X-rays after replacement and increased documentation of two methods of confirmation after tube replacement.

Recommendations

Stoma Preservation

The stoma is prone to narrowing and closure once the gastrostomy tube has been dislodged. Narrowing can start immediately after tube dislodgement, but the timeframe to significant narrowing or complete closure is not easily identified. Complete closure could be as fast as within 6 hours to a few days (Homan et al., 2021). It is critical to preserve the stoma to avoid more invasive management approaches such as stoma dilation under anesthesia or the creation of new stoma (Sharma et al., 2016). If no gastrostomy tube is available on hand for replacement, temporary Foley catheter insertion to preserve stoma was found to be safe with no severe complications (Kiatipunsodsai, 2015).

Tube Assessment

The dislodged gastrostomy tube clinical pathway will help to facilitate safe, prompt and streamlined replacements of dislodged gastrostomy tubes. By further assessing the tube we are able to analyze the safest and most efficient means to replace the tube. First, we must assess when the tube was initially placed, if less than 6 weeks, or has not previously been changed, that is considered to be a "new" gastrostomy tube and should be referred to the surgical service that placed the button, or if placed at an outside facility and less than 6 weeks post op should be referred to pediatric surgery. If greater than 6 weeks ago that is considered to be an established gastrostomy tube and would be appropriate to be replaced in the emergency department (Osuchukwu et al., 2021). In addition to knowing whether or not the tube is new or established it is imperative to know which service placed the gastrostomy button and what surgical procedure was performed as varying surgical techniques by different services or surgeons impact the management of tube replacement. Some surgical techniques do not involve securing the stomach with transabdominal wall sutures which would make the threshold for obtaining a fluoroscopic contrast study status post tube replacement much lower (Berman et al., 2017). It is important to note that PEG tubes are among the surgical procedures of which the stomach is not secured with transabdominal wall sutures which would be included among those gastrostomy tubes replaced that would be beneficial to obtain confirmatory fluoroscopy (Zamora et al., 2014).

Confirmation of Placement after Reinsertion

Although gastrographic radio contrast studies will conclusively confirm placement of a gastrostomy tube after replacement, they can cause a delay in care, increase costs, and expose patients to additional unnecessary radiation. Confirmation of a gastrostomy tube replacement in an established tract (greater than 6 weeks old or has previously been changed) can be confirmed by using one of the following methods:

- Aspiration of gastric content- caution: not being able to aspirate gastric contents is not always an indicator of incorrect position
- pH testing of gastric content - pH of less than 5 is an indicator of correct position. This method may not be reliable if patient is on gastric suppression medication or continuous feedings (Collins et al., 2013).

Decreased Use of X-rays

The main consideration in all pediatric imaging utilizing ionizing radiation is to adhere to the ALARA principle, or "as low as reasonably achievable" radiation exposure (American College of Radiology, 2011). Our current practice of evaluating a dislodged G-tube is a GI tube position check. A GI tube position check entails obtaining two radiographic images of the abdomen following administration of contrast and water through the patient's G-tube and assessing the images for proper tube position as well as for any contrast extravasation related to tube misplacement. The goal of all pediatric imaging is to eliminate gratuitous radiation exposure whenever possible. By doing so we are minimizing our patients' cumulative lifetime radiation exposures in hopes of limiting the delayed potential stochastic effects of radiation exposure as well as the potential for acute deterministic effects (Showalter et al., 2012). By adopting this pathway and encouraging clinicians to utilize other confirmatory methods to assess tube placement, we will be adhering to the ALARA concept and acting as good stewards for our patients' current and future health.

Considerations for Further Imaging

Confirmatory imaging for g-tube replacement has been associated with increased emergency department (ED) length of stays (LOS) and increased visit costs. Furthermore, associated complications with replacement are rare (Showalter et al., 2012; Zamora et al., 2014).
A "GI tube position check" x-ray to confirm g-tube replacement should be considered in the following cases:

1. Symptomatic patients presenting with g-tube concerns
2. Asymptomatic patients requiring g-tube exchange before development of a mature tract
3. Asymptomatic patient with a mature tract in which gastric contents cannot be aspirated

Symptomatic patients who should be considered for a "GI tube position check" x-ray have: leaking, vomiting/failure to tolerate feeds, pain, blockage/unable to aspirate contents, wound infection, or blood coming from the tube (Zamora et al., 2014).

Rationale

G-tube dislodgment is a common reason for emergency department visits. Literature supports creating a pathway for G-tube replacement and we aim to standardize the process for replacement (Osuchukwu et al., 2021). We aim to decrease the number of x-rays obtained for g-tube replacement confirmation which has been shown to decrease ED length of stay, contribute to decreased cost as well as decrease exposure to radiation. Additionally, we aim to improve documentation of g-tube confirmation by ED provider, hoping to prevent complications associated with g-tube replacement.

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Metrics

- Process Metric
  - Decrease the number of x-rays taken after an established g-tube is replaced in the ED
- Outcome Metric
  - Increase the percentage of one confirmation method selected within the "Placement/position confirmation" section in the "Feeding Tube Replacement" procedure note
- Balancing Metrics
  - Monitor consults to General Pediatric Surgery or GI surgery for g-tube encounters
  - Monitor complication rate of g-tube replacements performed within 30 days (complications: false track, peritonitis, leaking, infection)

Team Members

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Stakeholders: Surgery, Gastroenterology, ED, Nursing

Evidence

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