Securing Success: Strategies for Preventing Early Gastrostomy Tube Dislodgement

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Background

- Early G tube dislodgement is defined as displacement within 7–14 days post-procedure.
  - Spillage of gastric contents into the peritoneal space can result in sepsis and even death, often necessitating emergent exploratory laparotomy.
- Studies suggest an early G tube dislodgement rate of 4% and a late dislodgement rate of 15%, up to as high as 30%.
- Most previously described solutions to this problem have involved placing additional fasteners or tacking sutures to the stomach with mixed results.
  - Dislodgement rates of 8% and increased risk of morbidity such as gastric perforation and bleeding.
- Breakaway pieces for the tubing have been described with mixed results.
  - These designs are not standardized and can be expensive to implement.
- Hospital guided protocols have been suggested by previous authors with some positive results.

G Tube Protocol

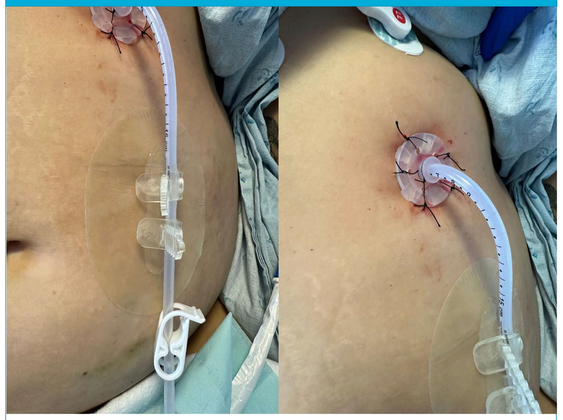


Figure 1: These figures demonstrate the implemented G tube protocol including the securing sutures and CathGrip device.

Objective

- One of the most serious and prevalent complications associated with the placement of gastrostomy (G) tubes is tube dislodgement.
- The objective of this quality improvement project (QIP) is to assess the efficacy of a novel G tube securement protocol designed to decrease the rate of postoperative G tube dislodgement.

Methods

- A pre-study power analysis calculation was performed and determined a targeted sample size of approximately 50 patients based on several studies quoting a G tube dislodgement rate of approximately 10-30%.
- A G tube securement protocol was developed based on extensive literature review:
  a. At least three interrupted 3-0 Silk sutures securing the bumper to the skin with one additional silk suture tied around the tube securing it to the bumper.
  b. A CathGrip double strap device attaching the tube to the abdominal wall.
  c. Placement of an abdominal binder.
- A total of 52 patients who underwent G tube placement performed by the AHMG General Surgery team from August 2023 - December 2023 were included in our study.
- Inclusion criteria were G tubes placed by the AHMG General Surgery group, age 18 years or older, and no immediate intraoperative complications from G tube placement.
- This included several different operative approaches such as open, laparoscopic, and percutaneous endoscopic gastrostomy tubes (PEG).
- We compared our data to published data to evaluate for G tube dislodgement rates and our 90-day postoperative complications and interventions.

Results

- A total of 52 patients were enrolled in our study, after applying our exclusion criteria.
  - No recorded subject dropouts during the 3-month follow-up.
- The indications for G tube placement were fairly uniform across our cohort and mostly included long-term feeding access and gastric decompression.
- At the 14-day follow-up, 1 patients (1.9%) experienced unintentional early G tube dislodgement.
  - Lower than historical average rate of 4%, (P=0.001).
- At the 90-day follow-up, 2 patients (3.8%) experienced overall G tube dislodgement (P=0.001).
  - Lower than historical average rate of 15%, (P=0.001).
  - Neither case of dislodgement necessitated exploratory laparotomy for G tube replacement.
  - One case required EGD with G tube replacement, and one required IR for replacement.
- Diagnostic assessments relied on physical exam findings, as no contrast studies were conducted.
- Notably, there were no G tube placement-related mortalities within the 90-day study timeframe.
- We demonstrate the safety and efficacy of introducing a set protocol for G tube placement in the hospital setting with reduction in early and late G tube dislodgement rates as well as overall patient morbidity.

Results

G tube dislodgement	Yes	N	Dislodgement rate (%)	P value
Overall dislodgement	2	52	3.85%	0.001
Early dislodgement	1	52	1.92%	0.001

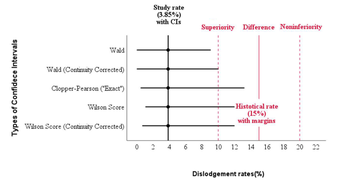


Figure 2: Compare the study rate with the historical rate with different types of confidence intervals.

- These figures demonstrate the decrease rate of early and overall G tube dislodgement.

Conclusions

- The adoption of a standardized protocol for securing a G tube significantly diminishes the incidence of early and late G tube dislodgement.
- There is also a decrease in the rates of surgical interventions, including exploratory laparotomy.
- This contributes to an overall reduction in patient morbidity and mortality.

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