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Pediatric Gastrostomy Tubes and Infection

Background: Pediatric gastrostomy tubes are placed in babies and children when a child cannot take adequate oral nutrition reliably and safely. There are multiple indications for gastrostomy tube placement including underlying medical conditions, anatomical abnormalities, or developmental delays. The gastrostomy tube delivers nutrition, fluids, and medications directly into the stomach. There are several operative techniques used for gastrostomy tube placement including surgical gastrostomy tube, percutaneous endoscopic gastrostomy (PEG) tubes, and open gastrostomy tubes. The two main options of sutures are subcutaneous sutures which stay in place and dissolve over several months versus temporary transabdominal sutures which are removed at bedside on postoperative day 2 in our institution. The subcutaneous sutures may cause adverse reactions as compared to the temporary sutures, which is the purpose of this study. Background literature search obtained various studies evaluating postoperative complications after gastrostomy tube placement. Most common complications included infection at gastrostomy site, inflammation, leakage, and granuloma formation. The association between temporary sutures or subcutaneous absorbable sutures and postoperative complications was also studied which found that patients with subcutaneous sutures were more likely to develop a major complication such as tube dislodgement, but no relationship was found between suture technique and minor complications such as surgical site infections.

Goals: The project aims to study pediatric gastrostomy tube placement with varying types of sutures and operative techniques and their association with postoperative infection. We hypothesize that type of suture used in tube placement (buried versus temporary) affects postoperative infection rate.

Materials and Methods: Patient data will be obtained through Epic chart review. We have obtained a list of patients who fit the inclusion criteria of less than 18 years old and have undergone surgical gastrostomy tube placement with buried or temporary sutures or laparoscopic tube placement. We are in the process of collecting data including patient diagnosis and reason for gastrostomy tube placement, suture technique, suture type, and various outcomes including wound infection, leakage, antibiotics or local wound care, dislodgement, and any further operations within the six-week postoperative period.

Results: 20 patients who underwent laparoscopic gastrostomy tube placement with buried technique and 20 patients who underwent the temporary technique were included in this initial evaluation. Between the buried and temporary techniques, there was no difference in age (0.67 ± 0.8 vs 0.72 ± 1.4 years, $p=0.44$), male gender (10 vs 11, $p=1.0$), local wound infection (1 vs 1, $p=1.0$), leakage around the tube (0 vs 1, $p=1.0$), need for post operative antibiotic or silver

nitrate application (5 vs 8, $p=0.5$), dislodgement (2 vs 0, $p=0.49$), or further surgery (1 vs 0, $p=1.0$). 6 week follow up completion was similar (13 vs 14, $p=1.0$).

Conclusion: In our preliminary analysis, we did not find any statistically significant differences between laparoscopic gastrostomy tube insertion using buried versus temporary suture techniques and post-operative outcomes. Larger power will be needed to determine if this is a true finding.

Discussion/Future Directions: Some potential next steps could be working to refine our research goal and question based on preliminary findings. We could determine if any specific groups should be excluded from further analysis, or if there are any outliers in our data. At this point, it may be most helpful to increase our power and determine if further results demonstrate any statistical significance.