DELL CHILDREN'S MEDICAL CENTER

EVIDENCE-BASED OUTCOME CENTER

POST OPERATIVE GASTROSTOMY BUTTON (G-BUTTON) MANAGEMENT GUIDELINE

Purpose

To provide guidance for the post surgical management of the pediatric patient with a gastrostomy button (G-Button).

Incidence

There are a variety of medical conditions that require placement of a gastrostomy button to assist in safely providing enteral nutrition or administration of medications. Placement of the G-button is done by a General Surgeon, but patients with G-buttons are often medically managed by primary and specialty care providers. While G-buttons provide patients with a way to safely receive nutrition and medications, there are a few common issues that patients with G-buttons experience such as hypergranulation tissue, skin irritation and accidental removal.

Guideline Eligibility Criteria

Patients at DCMC with a G-button.

Guideline Exclusion Criteria

- Children whose G-Button was placed less than 6 weeks before presentation should have a Surgery consult prior to replacement of the G-button. Please contact the Surgery Team at 512-589-6072.
- Children with a gastrojejunostomy tube (GJ tube). GJ tubes are placed and replaced in Radiology.
- This is a guideline only. Individual circumstances need to be considered, as there may be times when it is appropriate or desired to deviate from this guideline by the discretion and clinical judgement of the Surgeon or care provider.

Diagnostic Evaluation

History

Evaluate

- When the G-button was surgically placed.
  - If the G-button was placed less than 6 weeks ago and there are concerns or dislodgement, please call the Surgery APP at 512-589-6072 if patient is in the ER or hospital or call the Surgery Clinic at 512-708-1234 if the patient is outpatient.
- When the last time the G-button was changed.
  - It is recommended that the G-button be replaced every 6 months. If the caregiver states that the g-button was recently replaced and the G-button balloon appears to be broken, the patient may have received a faulty G-button.
- Symptoms of cellulitis such as worsening redness, swelling or pain around G-button may present with or without fever.
- Symptoms of other illnesses such as URI, acute gastroenteritis, or UTI.
  - These illnesses may result in a post-infectious ileus which can cause intolerance of feeds and/or increased leaking around the G-button.

Physical Examination

Evaluate For

- G-button positioning- if the G-button is too loose (can easily move in and out of stoma) or too tight
- Hypergranulation tissue
- Significant skin breakdown or irritation around the G-button
- Leaking around the G-button
- Signs of cellulitis such as erythema, induration, drainage or tenderness

Radiological Consult

- **G-button contrast study** (ordered as "XR feeding tube" in Compass) is obtained to evaluate G-button position. This is commonly ordered when a G-button is replaced within the 6 weeks after it was surgically placed or after a difficult replacement.
- **Upper GI (UGI)** is obtained to evaluate anatomy, specifically for intestinal malrotation, prior to G-button placement.
- **Abdominal wall US** may be obtained to evaluate for an abscess around the G-button site.

Critical Points of Evidence

Evidence Supports

- Hypergranulation tissue around the G-button and G-button dislodgement are the most common complications associated with G-button placement [2,3]. These complications frequently result in visits to the Emergency Department [1,3].
- Limiting moisture and friction and application of silver impregnated dressings assist in healing around the G-button site[1].
- A G-button belt or device to secure the G-button can prevent accidental dislodgement of the G-button[1].

Evidence Lacking/Inconclusive

There is no evidence based literature regarding application of alum powder to hypergranulation tissue around G-button sites, but it is an anecdotally effective and cost-effective option.

Evidence Against

Silver Nitrate application to hypergranulation tissue can cause damage to the periwound area and pain and should only be applied by a provider or caretaker proficient in applying the medication[2].

Principles of Clinical Management

Immediate Post-Operative G-button Care

Common Issues with G-buttons

Immediate Post-Operative G-Button Care

This information is meant to guide the RN and other caregivers on management of the patient immediately after placement of a G-button.

First 24 hours

- Post-operatively, the G-Button will be placed to gravity via extension tubing and a mucus trap.
- Document volume of drainage from G-Button in I&Os every 4 hours.
- Ensure there is no tension on the G-Button from the extension tubing.
- Ensure there is no pressure resulting in skin breakdown from the G-Button to the skin by tape, securing sutures or by any other means.
- Secure the ends of the G-Button and the extension tubing with small pieces of tape to prevent the G-Button from spinning or being pulled on. The extension tubing should be loosely taped to the abdominal wall so that the G-Button is not being pulled laterally. Patients with sensitive skin may need additional skincare products under tape to prevent skin irritation, such a Mepilex Lite, as instructed by the Surgery Team.
- Some patients may have sutures securing the G-Button for the first 48 hours. These will be removed by the Surgery Team on postoperative day 2.
- If G-Button manipulation or turning is felt to be necessary, please contact the Surgery APP at 512-589-6072.
- Please hang 'G-button Precautions' sign above bed.

General Care of the G-Button Post-Operatively

Feeds

Dietician

The hospital dietician may be consulted to provide nutrition recommendations. This is best done the day of surgery so that recommendations are available when feeds are ready to be started on postoperative day 1.

Clamping the G-button

The Surgery Team will indicate when to clamp the extension tubing in preparation for starting feeds. This is usually done the morning of postoperative day 1 if there has been minimal gastric drainage since surgery.

Starting Feeds

Feeds are usually started on the postoperative day 1 if the patient does well with clamping the G-Button. Some patients may have feeds started the day of surgery.

Advancing Feeds

The speed of advancing feeds is dependent on how the patient was fed prior to surgery and their medical condition. The Surgery Team typically recommends starting feeds at ⅓ the volume of the goal feed and advancing by ⅓ of the goal feed every 3rd feed as tolerated until goal volume is reached. If the patient develops abdominal distention, pain, retching, or vomiting with feeds, the advancement of feeds will need to be slowed down. If a patient had a Nissen Fundoplication, they will likely be started on continuous feeds at a small volume and increased slowly.

Remember to feed patients in an upright position and keep them upright for 30 minutes after feeding if possible to decrease reflux.

Venting the G-button

Vent the G-button before and after feeds and as needed (abdominal distention, pain, gagging, retching or vomiting), this is especially important with patients that have had a Nissen Fundoplication. A Farrell valve bag may be ordered by the patient's care team to assist with venting, but is typically not used immediately after a G-button is placed.

Flushing the G-button

Flush extension tubing with water after feeds and medications to clear formula or medications from the tubing.

- See Administering Intermittent/Bolus Feeds or Continuous Feeds Policy.

G-button Extension

The G-Button extension may be removed on postoperative day 2 if the patient is receiving bolus feeds. If the extension tubing is left attached for continuous feeds, please loosely secure extension tubing to the abdominal wall to prevent pulling on the G-Button. If the patient is very active or at high risk for pulling on extension tubing during bolus feeds, please secure the extension tubing to the abdominal wall to prevent pulling on the G-button.

Dressings Around G-button

- Specific instructions may be given regarding the G-Button dressing or extension tubing per the Surgeon's preference.
- The dressing and tape on the G-Button may be removed on postoperative day 2.
- If sutures are present, these will be removed on postoperative day 2 by the Surgery Team.
- If there is a telfa and tegaderm dressing on the umbilical laparoscopic incision, this may be removed on postoperative day 5. If steri-strips are on the umbilical laparoscopic incision, these will peel up and fall off on their own.
- On postoperative day 2, a split 2x2 gauze may be placed under the G-Button if needed for drainage.

Cleaning Around the G-Button

- Cleaning around the G-Button can be started on postoperative day 2 being careful not to rotate or manipulate the G-Button excessively.
- Clean the skin around the G-Button with a cotton tipped applicator twice daily with sterile water or normal saline, then a dry cotton swab.

Bathing and Umbilical Laparoscopic Dressing

- The child may take a sponge bath starting on postoperative day 2, but the umbilical incision and G-Button should not be submerged under water for 2 weeks from surgery. The child may take a shower starting one week after surgery.

- If a dressing is applied to the umbilical laparoscopic incision, this will be removed on postoperative day 5. If this dressing is covered in Tegaderm, it is waterproof, and the child may take a shower with it in place.
- 2 weeks after surgery, the child may bathe normally and the incision and G-Button may be submerged under water in the bath. If steri-strips are still present to laparoscopic incision 2 weeks from surgery, they may be removed.

Activity Restrictions

- Infants and young children with G-buttons should always have a onesie or G-button belt on to prevent accidental pulling or manipulation of the g-button.
- No tummy time unless done on an egg crate with a cut out for the G-button to avoid pressure or manipulation of the G-button for 2 weeks.
- No strenuous activity for 2 weeks, this includes physical therapy that involves core exercises. After 2 weeks, activities can slowly be resumed making sure that the g-button is not at risk of being manipulated or pulled on. Use of a onesie or g-button belt may be helpful during physical activity to provide additional protection from the g-button being manipulated.

Caregiver Teaching

- The RN is to give parents/caregivers the G-Button care handout the day of surgery.
- The RN is to begin teaching G-Button care to the family immediately after surgery. This includes cleaning around the G-Button, attaching and removing extension tubing, and administering medications and feeds.
- The RN will document teaching on the parent education check-off sheet.

Preparing for Discharge

- The Case Manager will be consulted to arrange for home g-button supplies. This includes: an extra G-button for home (type and size located in the operative note), split 2x2 gauze, cotton-tipped applications, 60 ml toomey-syringes and 10 ml feeding syringes, feeding pump, feeding bags and formula. Patients that were receiving enteral feeds at home via a NG tube will have an established home health company and some supplies, such as a feeding pump.
- Caregiver teaching must be completed and the home health company will arrange for in person teaching of the home feeding pump prior to discharge.

Common Issues with G-Buttons

Immediate Considerations

G-Button Dislodgement (G-button fell out)

- Once a G-button becomes dislodged (falls out) the tract will start to close up, so it is very important that the G-button be replaced as soon as possible.
- If the G-button was surgically placed within the last 6 weeks, the G-button tract may not be sufficiently healed and the surgery team should replace the G-button. Call the Surgery APP at 512-589-6072 for replacement.
- Physicians, nurses, and patients/parents who have received instruction on G-button placement can replace G-buttons at the bedside if the G-button tract is well established (>6 weeks from surgical placement of G-button).

Outpatient Considerations

- If the G-button becomes dislodged and was surgically placed less than 6 weeks ago it will need to be replaced by the Surgery Team. Instruct the caregiver to cover the site with gauze and tape and call the Austin Pediatric Surgery Clinic at 512-708-1234. If it is after hours, they will need to come to the DCMC ER for replacement.

- If the G-button becomes dislodged and was surgically placed more than 6 weeks ago, a family member that has been trained how to replace the G-button may reinsert the G-button if they feel comfortable and there is no sign of infection or concern around the G-button site. If the caregiver has not been taught how to replace the G-button yet they must go to the Austin Pediatric Surgery Clinic or DCMC ER for replacement.
- If the family does not have extra G-button to replace, they may insert a clean foley catheter or NG tube into the G-button tract and tape it to the abdominal wall to keep the tract open and prevent it from closing until they can go to DCMC ER for replacement. A G-button with a broken balloon may also be kept in the G-button tract and taped to the abdominal wall until the patient can seek further care for replacement of a new G-button.

How to Replace a Gastrostomy Tube

1. Perform hand hygiene and don non-sterile gloves.
2. Place the patient in a comfortable recumbent position.
3. Arrange supplies on bedside table: G-button, 5 ml syringe of water, lubricating jelly and gauze. Inflate the G-button balloon with the manufacturer's recommended amount of water (this is usually 5ml), to ensure there is not a leak in the balloon, and then withdraw the water from the balloon.
4. Inspect the stoma for signs of infection (e.g., redness, drainage of pus, swelling, increased tenderness) or granulation tissue.
   a. If there are signs of infection notify the primary service immediately and do not continue with G-button replacement. Contact Surgery APP at 512-589-6072 for any complications or concerns.

Removal

1. Place a 5 ml syringe on the balloon port and deflate the balloon.
2. Loosely cover the stoma with a clean 4 x 4 gauze to absorb any gastric secretions as the G-button is removed.
3. Slowly pull the G-button out of the stoma using constant steady pressure.

Insertion

1. Lubricate the tip of the G-button with water-based lubricant.
2. Insert the G-button using gentle, but steady pressure, until the button is all the way in and against the skin.
3. Attach the syringe with water and fill the balloon with the volume of water indicated on the manufacturer label or volume indicated in operative note (5 ml is standard, although smaller children may only have 4 ml).
4. If the patient is crying during insertion, wait until the patient is taking a breath in to apply gentle pressure to insert the G-button. If appropriate, assist the parent in performing a comfort hold during the placement to reduce anxiety and fear and ease G-button placement.
5. Attach the extension tubing and aspirate from the G-button to ensure there is aspiration of gastric contents prior to resuming feedings. If no gastric fluids are aspirated, reposition the patient upright or on their side and reattempt aspiration. If the patient has not had any enteral feeds in the previous few hours, there may be no aspiration of gastric fluids. If there are concerns regarding proper placement of the G-button call the Surgery APP at 512-589-6072.
   a. If there was difficulty inserting the G-button or concern that the G-button is not in the correct position, a contrast study may be ordered to confirm placement. Place order in Compass: XR feeding tube.
   b. If there are any concerns for G-button misplacement or with any concerns before attempting replacing a G-button, contact the Surgery APP at 512-589-6072.

Drainage around the G-button

Minor Drainage

Small amounts of leakage around the G-button that keep a 2" x 2" gauze damp over the course of a day is common and does not need any intervention except skin barrier protection.

- Treatment
  - Clean around the G-button twice a day.
  - Apply a barrier ointment such as Calmoseptine or diaper cream and apply a spit 2"x 2" gauze around the G-button.

Significant Drainage

Large amounts of formula or gastric fluid leaking around the G-button causing saturation of clothing or irritation of the skin is not normal. The following lists interventions and considerations when a patient is having significant leakage around the G-button.

1. Assess whether the balloon has the correct amount of water.
   a. G-button placed greater than 6 weeks ago:
      - Check the water in the G-button balloon by making sure there is 4-5 ml of water in the balloon (volume of water placed in the balloon during surgery is located in the operative note). Add water to the balloon if needed. You may also remove the G-button, check the balloon for a leak and reinsert if no leak is noted. If a leak is noted to the G-button balloon, replace with a new G-button.

   b. G-button placed less than 6 weeks ago:
      - DO NOT CHECK THE WATER IN THE BALLOON. Deflating the balloon in a new G-button can result in the stomach falling away from the inner wall of the abdomen which may result in the patient needing additional surgery. Only a member from the Surgical Team should check the water in the balloon of a recent postoperative patient.
2. Assess whether the G-button is too long.
   - If the correct amount of water is in the balloon and the G-button appears loose (slides in and out of the gastrostomy stoma with > 0.5 cm of space between the abdominal wall and base of G-button), the patient likely needs a shorter g-button. The length of the G-button is written on the top of the G-button where the extension tubing is attached. A shorter G-button can be ordered from the home health company or SPD (only MICKEY G-buttons are currently stocked at DCMC).
3. Assess whether the leaking may be associated with constipation or an ileus from an infectious process or recent surgery.
   a. Recent respiratory, gastrointestinal illness, or UTI may result in an ileus causing delayed gastric emptying and slowed intestinal motility.
   b. In these situations, it may be necessary to switch to pedialyte or decrease the volume of feeds. If the leaking is persistent, stopping the feeds completely to allow bowel rest may be needed.
   c. The G-button may also be placed to gravity to decompress the stomach if needed due to feed intolerance. Closely monitor the amount of gastric fluids lost as the patient may become dehydrated and need additional fluids.

- Treatment:
  - Clean around the G-button twice a day.
  - Silver-impregnated moisture wicking dressing (Mepilex AG) around the G-button. Change daily and as needed when saturated. Do not use creams under Mepilex AG[1].
  - Consult the Surgery Team at 512-589-6072 for persistent significant drainage not improved with above intervention.

Hypergranulation Tissue around the G-button

See Image 1 for example

Hypergranulation tissue is the extra growth of tissue around the G-button site. This tissue appears bright red, moist and can bleed with irritation, but is not painful or dangerous. This is a normal response of the body in an attempt to close the gastrostomy, but can be worse if the G-button is too tight or there is a lot of manipulation of the G-button (pulling from the extension tubing).

Assess the G-button is the proper size[1]

- If the G-button appears too tight, change out to a longer G-button.

Limit friction and movement of the G-button[1]

- Remove extension tubing when the G-button is not in use.
- Apply a securement device such as a G-button belt.

Silver Nitrate Sticks (prescription)[1]

Silver Nitrate sticks are used to chemically cauterize granulation tissue. These can be used every 3 days as needed for granulation tissue. It can cause damage to periwound area, pain and discoloration to surrounding skin, so it is important to apply a barrier cream to the surrounding skin. This should only be applied by a provider or caregiver knowledgeable in proper application.

How to Apply Silver Nitrate

1. Don non-sterile gloves.
2. Clean and dry the area around the G-button.
3. Apply a thin layer of zinc oxide containing barriers such as Desitin or calmoseptine to the normal skin around the hypergranulation tissue.
4. Apply the stick to hypergranulation tissue. Application involves gently rolling the tip of the stick to the entire surface area hypergranulation tissue. Do not apply prolonged pressure.
5. If accidental contact with normal skin is made with silver nitrate stick cleanse with saline or water.

Triamcinolone Cream 0.025% (prescription)[1]

Apply around the G-button on granulation tissue and cover with a 2 x 2 gauze 2 times per day. Can only be used for 14 days in a row, then must be stopped for 14 days.

Alum Powder (available in spice aisle at grocery store)

- Mix Alum powder with Calmoseptine or Desitin in a 50/50 mixture and apply to granulation tissue daily.
- Apply barrier cream around healthy skin around G-button to prevent skin irritation.

Calcium Alginate

For minor hypergranulation tissue, place a split 2” x 2” piece around G-button and change daily with site care. If G-button is loose, apply split gauze on top of the Calcium Alginate dressing to assure it is in contact with the granulation tissue. This can be obtained from SPD at the hospital, ordered through home health or bought online. Do not use creams or ointments when using calcium alginate dressing.

Skin Irritation Around The G-button

Minor Skin Irritation

- Apply a barrier ointment such as Calmoseptine (zinc oxide and menthol) or plain zinc oxide (as in Desitin) or Critic Aid Clear Antifungal Cream[1]. These products need to be ordered by a provider if the patient is hospitalized or can be found online or at a pharmacy if being managed as an outpatient.
  - Cover with a split 2” x 2” gauze.
  - Clean skin and re-apply twice a day or as needed when gauze is saturated.

Products that can be used for minor irritation with anti-infective properties:

- Citric Aid Clear Antifungal Cream
  - Apply BID. This can be purchased online or obtained from SPD at DCMC.
- Moisture-wicking silver-impregnated dressing (such as Mepilex Ag)[1]

- Apply a split 2” x 2” section around G-button daily. Do not apply any ointments or creams under dressing.

Significant Irritation Around G-button

- Apply a thicker barrier paste such as Calmoseptine mixed with Critic Aid Clear Antifungal.
- Consult WOCN RN (make referral through the intranet) for further recommendations. This can be done on patients in the ER and outpatient.
- For significant irritation or excoriation around G-button consult the Surgery Team at 512-589-6072.
- Use appropriate SINGLE treatment. Application of dressings (Mepilex or hydrocolloid) on top of ANY ointment or cream is ineffective.

Danger Signs

- Cellulitis
  - See Image 2 for example.
  - If the skin is intact, but the erythema is spreading, especially if the skin is indurated (hard) and tender (painful), the patient may have cellulitis and require antibiotics. Additional warning signs include fever and feeding intolerance.
- Abscess around the G-button site
  - If there is a fluctuant, tender, erythematous area around the G-button site, the patient may have an abscess.

Infection (Cellulitis or abscess) around the G-button

Treatment

- If there are no concerns for abscess or signs of sepsis, G-button cellulitis can be treated with oral antibiotics. Clindamycin 13mg/kg TID (max 600 mg TID) is recommended.
- If there is a concern for an abscess around the G-button, consult the Surgery Team or consider obtaining an abdominal wall US to evaluate for drainable fluid collection.

Gastrostomy-jejunostomy Tube Dislodgement (Fell out or was pulled out partially)

- Radiology replaces GJ tubes, not the surgery team. Please call radiology at 512-324-0000 x86498 to see availability for replacement.
- If a GJ tube (GJT) falls out, you can place a G-Button, foley catheter or NG tube in the gastrostomy tract to keep the tract open until the GJT can be replaced. Gastrostomy tracts can close up quickly, so it is important to place something in the tract as soon as possible to prevent the tract from closing.

Image 1

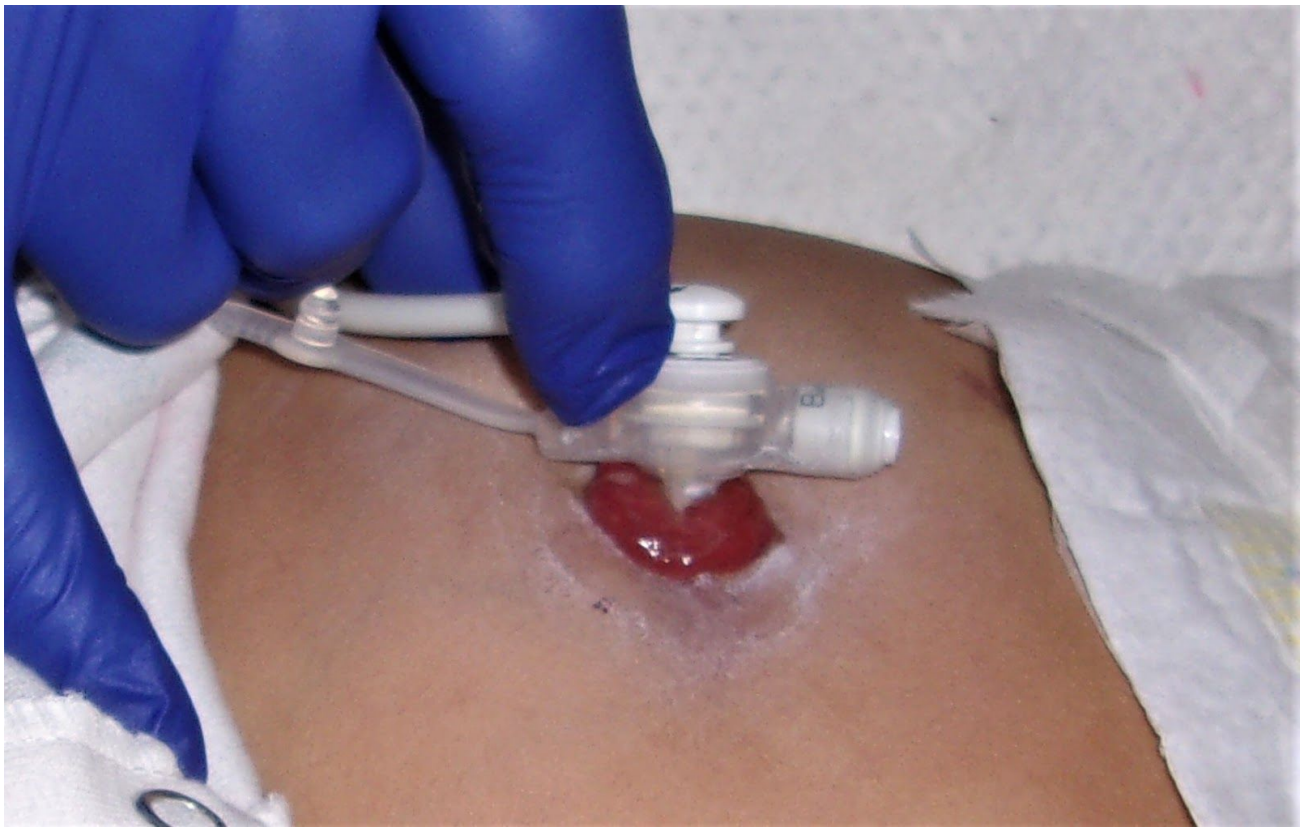
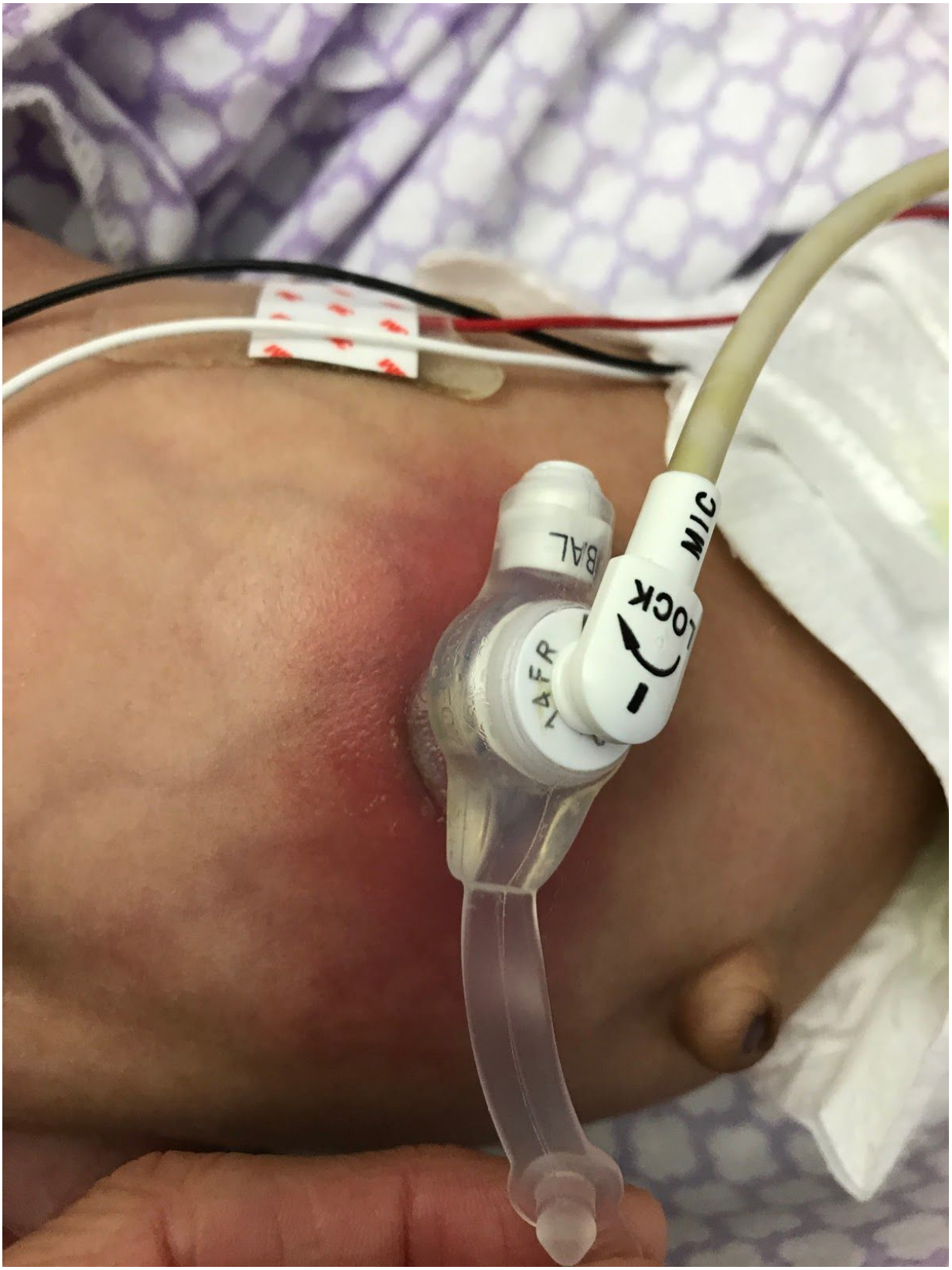


Image 2



Related Policies

Administering Intermittent/Bolus Feeds or CoAdministering Intermittent/Bolus Feeds or Continuous Feeds	Feb-2019

Key Contributors

Name	Revision	Title	Role
Michael Josephs	7/2020	Surgeon	Principle Author
Laura Seris	7/2020	Surgery APP	Principle Author
Michael Dougherty	7/2020	CPMG PM	Editor
Jessie Cowen	7/2020	Surgery APP	Author

Approvals

The signatures below indicate support for the attached guideline, protocol and/or algorithm. The intent is not to be prescriptive but to provide a cohesive, standardized, and evidence-based (when available) approach to patient care. The physician must consider each patient and family's circumstance to make the ultimate judgment regarding best care.

Approved by Surgical Council: 16July2020

By: _____<Signature on File>_____ _____
Dr. Michael Josephs, Date

By: _____<Signature on File>_____ _____
Dr. Nilda Garcia, Surgeon in Chief Date

Origination Date: 2013
Revision Date: July 2020

LEGAL DISCLAIMER

References

1. Abdelhadi, Ruba A, Katina Rahe, and Beth Lyman. “Pediatric Enteral Access Device Management.” Nutrition in Clinical Practice : Official Publication of the American Society for Parenteral and Enteral Nutrition 31, no. 6 (December 2016): 748–61. https://doi.org/10.1177/0884533616670640.
2. Goldberg, Elizabeth, Sharon Barton, Melissa S Xanthopoulos, Nicolas Stettler, and Chris A Liacouras. “A Descriptive Study of Complications of Gastrostomy Tubes in Children.” Journal of Pediatric Nursing 25, no. 2 (April 2010): 72–80. https://doi.org/10.1016/j.pedn.2008.07.008.
3. Naiditch, Jessica A, Timothy Lautz, and Katherine A Barsness. “Postoperative Complications in Children Undergoing Gastrostomy Tube Placement.” Journal of Laparoendoscopic & Advanced Surgical Techniques. Part A 20, no. 9 (November 2010): 781–85. https://doi.org/10.1089/lap.2010.0191.