The Ins & Outs of Gastrostomy Tubes

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Today’s Lesson:

- What is a gastrostomy tube
- Indication for tubes
- Types of tubes
- G-tube placement
- Post-operative care
- Daily care
- Complications/Common problems
What is a Gastrostomy Tube?

- A tube inserted through the abdomen directly into the stomach
- A gastrostomy = surgically created opening in the stomach, called a stoma
- The tract = a channel-like formation between stomach and skin, created from continuous opposition created by the g-tube
- The g-tube enters the stomach through this stoma and tract
- Introduced in 1979 by Pediatric Surgeon, Dr. Gauderer, in Cleveland, USA
Indications for G-tubes

1. Nutritional support (feeding)
2. Administering medications
3. Stomach Decompression

- Can supplement oral feeds, or replace them completely
- Feedings can be given directly into the stomach (G-tube) or small intestine (GJ tube)
- Usually placed when enteral feedings are needed >6-12 weeks; often after trial with NG tube
Indication for G-tubes

- Swallowing/Aspiration problems/Dyphasia
  - CP
- Failure to thrive/poor growth
  - Inadequate oral caloric intake/high caloric needs
    - Oral motor feeding problems, feeding aversions, specific disease processes (CF, CHD, Chronic renal failure, malignancies – cancer patients in catabolic state)
- Need for special diet
  - IBD and metabolic disease
- Medications necessary for health
  - HIV, anti-seizure
- Head trauma/craniofacial abnormalities
  - Pierre Robin
Types of Tubes

- **G-tubes:**
  - PEG tube
  - Mic-Key™
  - Foley catheter
  - Pezzer or Malecot

- **G-J tubes**

- **J-tubes**
G-tube Placement

1. Surgery – open or laparoscopic
2. Endoscopic - Percutaneous endoscopic gastrostomy (PEG)
   - Percutaneously inserted under endoscopic guidance ** most common
3. Radiologic - Under fluoroscopy without endoscopy in IR
PEG Tube Placement

- Esophagus
- Stomach
- Skin

Percutaneous gastrostomy

- Internal balloon
- Skin
- Clamp
- Stomach
- Stoma tract
- Muscle
- Stomach wall

Gastrostomy Tube Placement

Image showing the placement of a gastrostomy tube through the skin and into the stomach.
Post-operative PEG Care

1. Admitted for ~3-4 days
2. First day pt is NPO, with tube to straight drainage
3. At 24 hours, clear fluids started, gradually increased
4. Formula feeds then started
5. Turn tube 180° every day
6. Normal for site to be slightly reddened post-op
7. Parental training of the pump/using the tube
8. Meet with surgical NP – care, management, and anticipatory guidance
9. D/C with emergency dislodgement kit – provided by NP
Balloon-Type G-Tube Buttons
(Secondary Device)

- Brands:
  - Mic-Key® - Kimberly Clark*
  - Nutriport™ - Kendall

- Sizes:
  - French: 12, 14, 16, 18, 20, 24
  - Cm: 1.0cm – 5.0cm

- Insertion:
  - Old tube removed 1 of 2 ways:
    - Cut and pull
    - Cut and push
  - Measure for accurate tube size
  - New tube inserted

- Balloon:
  - 5mL sterile/distilled water (children)
  - 3mL sterile/distilled water (infants < 1 year)

- Use:
  - Unlocked with extension set
  - Use feeding extension to administer feeds/medications
  - Rotate full circle once daily
  - Check balloon 1x/week
# PEG vs. Mic-Key™

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<tr>
<th>Advantages</th>
<th>PEG</th>
<th>Mic-Key™</th>
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<tbody>
<tr>
<td></td>
<td>Durable, lasts 2-3 years</td>
<td>Skin-level, more discrete under clothing, nothing to pull on</td>
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<td>No balloon to break</td>
<td>Easily replaced at home</td>
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<td>Hard to dislodge</td>
<td>Comes in multiple sizes</td>
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<td>Long tube provides easy access during night-time feeds</td>
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<table>
<thead>
<tr>
<th>Disadvantages</th>
<th>PEG</th>
<th>Mic-Key™</th>
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<tr>
<td></td>
<td>Not easily reinserted if accidental dislodgement</td>
<td>Balloon breaks</td>
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<tr>
<td></td>
<td>Requires surgical replacement</td>
<td>Easier to dislodge</td>
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<td></td>
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<td>Needs more frequent replacement, q3-6 months</td>
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<td>Expensive ~$200-$350</td>
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<td>Usually inserted into mature gastro-cutaneous fistula &gt;3 months after PEG (secondary device)</td>
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(Adapted from: Spector, 2012)
G-J Tubes

- **Indications:**
  - GER
  - Gastroparesis
- **Gastrostomy tube inserted through a gastric opening into the jejunum, through radiology assistance**
- **Bypasses the stomach for feedings**
- **Disadvantages:**
  - Requires continuous feedings for 18-24 hours
    - Bolus feedings not usually given – may lead to dumping syndrome
  - Easily blocks, displaces
  - Requires radiologic reinsertion
G-tube Care

- Daily Care:
  - Cleanse with mild soap and water
  - Keep stoma dry
  - Avoid daily use of creams and dressings
  - Turn crossbar at least 180° daily
  - Change dressings when soiled
  - Assess site for abnormalities
Major Complications

- Peritonitis
- GI Bleeding
- Tube dislodgement before tract maturation
- Severe infection
- Gastrocolocutaneous fistula
- Sepsis
- Death
Minor Complications

- **Stoma:**
  - Leaking
  - Bleeding

- **Skin:**
  - Irritant dermatitis
  - Granulation tissue
  - Skin Infection
  - Bacterial & fungal

- **Tube:**
  - Dislodgement
  - Obstruction
  - Migration
  - Buried Bumper Syndrome
Can you identify the problems???
Stoma: Leaking

- **Causes:**
  - An increase in intra-abdominal pressure – constipation, vomiting, coughing, heavy breathing, ventilation, crying, weight change
  - Balloon has deflated
  - Incorrect size, improper stabilization
  - Tube displacement
  - Poor wound healing
  - Body structure, ie. scoliosis
  - Underlying disorder, ie. slow motility
  - Positioning
  - Inability to decompress stomach
  - Feeding intolerance

- **Dry drainage = Can lead to crusting around tube**
Stoma: Leaking Cont’d

- **Tx:**
  - Treat underlying cause
  - Change to correct size tube
  - Add more water to the balloon
  - Acid blocking agent
  - Change rate/route of feeds
  - Use warm water to clean dry crusting around stoma
  - Protect skin
    - *Keep good moisture in and bad moisture out*
      - Barrier products: powder, creams (zinc oxide, petroleum)
      - Dressings: gauze, foam
      - Attach to drainage bag - if extreme leakage
Stoma: Bleeding

- Small amount of bleeding can be normal
  - Common if tube gets bumped or changed
- Blood coming from the tube is not normal
  - Requires emergency tx
Skin: Irritant Dermatitis

- **Cause:**
  - Leakage of gastric contents
  - Overuse of cleaners, antibacterial/other topical medications
  - Bolster too tight

- **Tx: Correct the cause**
  - Acid blocking agents
  - Barrier products
  - Ensure proper tube size – changing to larger tube is not recommended = enlarges stoma
  - Tube mobility - secure tube to skin with tape or disc
  - May require admission for NPO and IV fluids until heals
Skin: Granulation Tissue

• Causes:
  - Body trying to heal
  - Incorrect stabilization; tube moving around stoma too freely
  - Excessive moisture; occlusive dressings

• Symptoms:
  - Pink-red, cauliflower-like, beefy tissue; grows around tube
  - Friable – easily bleeds
  - Drainage – yellow and/or brown
  - May be painful
Skin: Granulation Tissue

**Tx:**

- Saline soaks QID x 5 min
- Silver nitrate sticks q2-3 days- may cause burning sensation
- Stabilize the tube, change size of Mic-Key, do NOT leave extensions on when not in use
- Barrier powder – moisture control
Skin: Infection - Bacterial

**Symptoms:**
- Erythema, gradually spreading
- Tenderness
- Warmth
- Foul, green/purulent discharge
- +/- fever
- Development of furuncle

**Causes:**
- Staph aureus and beta-hemolytic streptococci are common
- Poor hygiene
- Tight tube/tension on stoma

**Tx:**
- Antibiotics – Keflex
- Clean with saline QID
- Silver dressings prn
  - Consult Nancy
Skin: Infection - Fungal

**Symptoms:**
- Red, popular rash, often with satellite lesions

**Causes:**
- Excessive/retained moisture
- Hot, humid environment
- G-tube deep in skin fold
- Immuno-suppression, corticosteroids, diabetes

**Tx:**
- Keep area clean and dry
- Antifungal medication
Tube: Dislodgement

- **Causes:**
  - Balloon deflates
  - Accidentally pulled out

- **Treatment:**
  - **EARLY dislodgement:** Placed < 12 weeks
    - Call surgeon/come to ER; risk of peritonitis
  - **LATE dislodgement:** Placed > 12 weeks
    - Place foley (provided in emergency dislodgement kit), inflate balloon, restart feeds after aspirating gastric contents
  - Call surgeon on call or NP

  *FYI:* Stomas can start to close in < 1 hour!
Tube: Obstruction

**Causes:**
- Inappropriate medication administration
- Thick formulas
- Failure to flush
- Pill fragments
- Defective tubing

**Prevention:**
- Flush after each feed/medication
- Use liquid medication
- Ensure only water, formula, juice, or electrolyte solutions are given
Tube: Obstruction Cont’d

**Tx:**
- Check for kinks, make sure clamp is open
- Flush with warm water or carbonated water through a small syringe (gives higher pressure)
  - Push and pull the plunger to move the liquid in and out of the feeding tube
  - May need to repeat many times
- Change extension
- Milk tubing
- May need tube replacement
Tube: Migration/Malposition

- **Symptoms:**
  - Vomiting:
    - Balloon obstructing duodenum
  - Diarrhea:
    - Gastrocolocutaneous fistula - contrast study required

- **Tx:**
  - Measure length of tube from skin, outward
    - May need to be pulled back
  - Secure tube to skin
  - Check tube placement
    - May require contrast study, especially with diarrhea
Thank You!

Please feel free to contact me if you have any questions or concerns regarding g-tube care and management.

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Resources:

- MCH G-tube Education Booklet:
  - When your child has a gastrostomy tube: A guide for parents and families
    http://www.hamiltonhealthsciences.ca/documents/Patient%20Education/GastrostomyTubeChild-Iw.pdf

- MCH G-tube Dislodgement Guideline

- About Kids Health: Gastrostomy Tubes
  http://kidshealth.org/parent/system/surgery/g_tube.html

- Mic-Key™ Tubes
  http://www.mickey.com/media/40679/r8201b_mic-key_care_guide_english.pdf
References:


