Medical Equipment Problems:
Tracheostomies and Gastrostomies

National Pediatric Nighttime Curriculum
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Learning Objectives

- Review the critical components of tracheostomy and gastrostomy tubes
- Begin initial management of tracheostomy emergencies
- Troubleshoot problems with gastrostomy tubes
Case 1

- You are called at 2am to evaluate a child with a tracheostomy because the RT just suctioned blood from the tracheostomy.
  - What clinical symptoms would make you call ENT emergently?
Trach Parts: Obturator and Uncuffed Trach
Cuffed Trach: Deflated and Inflated
Tracheostomy in situ
Evaluation of Tracheostomy Problems

- First and foremost, evaluate the ABCs:
  - Airway
  - Breathing
  - Circulation

- Provide respiratory support, as needed, including supplemental oxygen, suctioning, tube replacement, rescue breaths, and transfer to a higher level of care

- Call your supervisor/attending for any new or unfamiliar problems
## Differential Diagnosis of Trach Bleeding

<table>
<thead>
<tr>
<th>Problem</th>
<th>Treatment/Prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bleeding from stoma: Trauma at stoma site</td>
<td>Apply pressure, avoid trauma</td>
</tr>
<tr>
<td>Granuloma at stoma site</td>
<td>Triamcinolone, silver nitrate</td>
</tr>
<tr>
<td>Infection at stoma site</td>
<td>Antibiotics</td>
</tr>
<tr>
<td>Internal bleeding: Trauma from suctioning</td>
<td>Measure suction catheter; do not suction beyond length of trach tube; suction for 10 sec or less at a time.</td>
</tr>
<tr>
<td>Tracheal wall granuloma</td>
<td>ENT eval, possible excision</td>
</tr>
<tr>
<td>Tracheal wall erosion</td>
<td>ENT evaluation</td>
</tr>
<tr>
<td>Tracheal erosion into an artery</td>
<td>Emergent ENT evaluation</td>
</tr>
<tr>
<td>Pulmonary hemorrhage</td>
<td>Respiratory/ventilator support</td>
</tr>
</tbody>
</table>
## Differential Diagnosis of Desaturation in a Patient with Tracheostomy

<table>
<thead>
<tr>
<th>Problem</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obstruction:</td>
<td></td>
</tr>
<tr>
<td>Mucous plugging</td>
<td>Suction; replace trach if needed</td>
</tr>
<tr>
<td>Tube improperly placed against tracheal wall</td>
<td>Reposition trach</td>
</tr>
<tr>
<td>Decannulation</td>
<td>Replace trach</td>
</tr>
<tr>
<td>Pneumothorax</td>
<td>Needle decompression</td>
</tr>
</tbody>
</table>
Video of tracheostomy change

http://www.youtube.com/watch?v=T-Hh21TdB4w&feature=player_detailpage
Case 2

- A nurse calls you to evaluate a child with a gastrostomy tube because of excessive leaking of formula around the site.
  - What are potential causes?
Gastrostomy Tube

- Abdominal wall in cross-section
- Feeding tube
- Stomach in cross-section
Gastrostomy Problems: Tube Blockage

- Tube blockage commonly results from medications, especially pills, which are crushed and obstruct the lumen.

- Treat with:
  - Water
  - Carbonated beverage
  - Pancreatic enzymes
  - Replace tube
  - Change to liquid medications, if possible
Tube Displacement

- Stoma can close within hours if not held open
- Management: Keep site open!!!
  - Insert a foley catheter into the stoma
  - Discuss with the surgeon or gastroenterologist who placed the tube
  - After new tube is placed, ensure that it is in the stomach before using (a false passage may be formed between the abdominal wall and stomach, leading to peritonitis, especially in new tubes less than 4-6 weeks old).
Drainage around Gastrostomy Tube

- A small amount of drainage is acceptable
- Keep area dry using nonadherent gauze or foam; do not use occlusive dressings which may retain moisture and promote infection
- Ensure no cracks in tubing
- Ensure no excessive traction on tube which can stretch the stoma
- If drainage persists, may need to upsize tube
- In severe cases, may require surgical repair
## Redness Around Gastrostomy Site

<table>
<thead>
<tr>
<th>Causes</th>
<th>Treatment/Prevention</th>
</tr>
</thead>
</table>
| Granulation tissue                    | Treatment: triamcinolone cream > silver nitrate > surgical excision  
Prevention: avoid excessive traction and occlusive dressings |
| Infection                             |                                                          |
| Yeast infection                       | Topical vs. systemic antifungals                          |
| Cellulitis/necrotizing fasciitis       | Systemic antibiotics                                      |
| Irritation from gastric fluid leakage | Barrier creams; gastric acid suppression                   |
| Tape sensitivity                      | Avoidance of tape                                         |
Gastrostomy Problems: Vomiting

- **Causes**
  - GERD (may worsen after gastrostomy placement)
  - Gastrostomy balloon obstructing gastric outlet
  - Other medical causes

- Treat underlying cause(s)
Venting the G-tube

- Venting the G-tube is used to treat bloating, distention, or gagging/vomiting.
- 2 ways of venting the tube:
  - Draw back excess air/fluid from the gastric port using an empty syringe
  - Attach a drainage device to the G-tube port, such as a drainage bag.
Take-home Points

- Tracheostomy problems should first be evaluated by checking the ABCs
- If a gastrostomy tube is dislodged, a foley catheter should be immediately placed in the lumen to keep the site open
- Call your supervisor/attending to discuss any new or unfamiliar tracheostomy or gastrostomy problems
References