




Medical Equipment Problems: Tracheostomies and Gastrostomies

National Pediatric Nighttime Curriculum

Written by Caroline Rassbach, MD

Lucile Packard Children's Hospital, Stanford





Learning Objectives

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

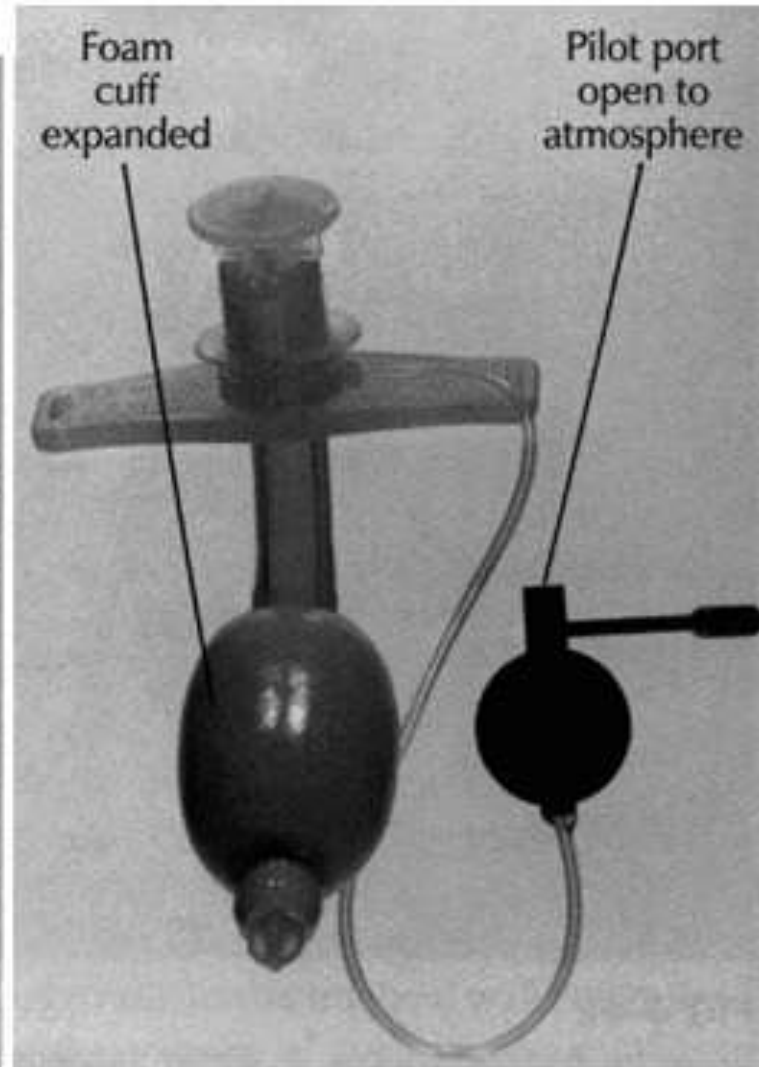
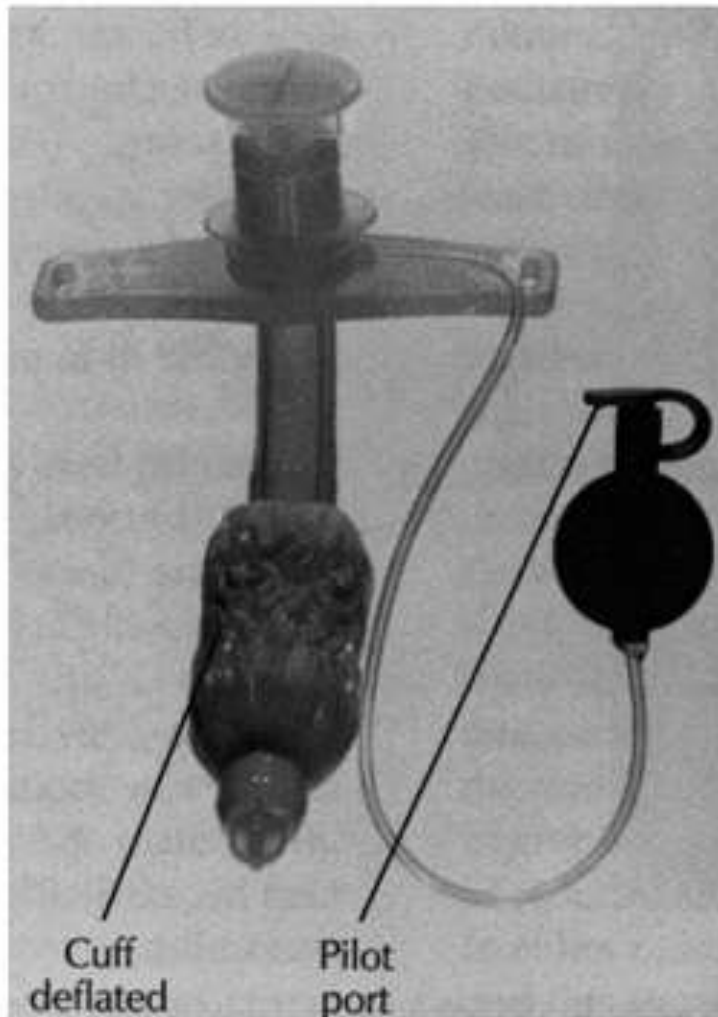
Case 1

- 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?

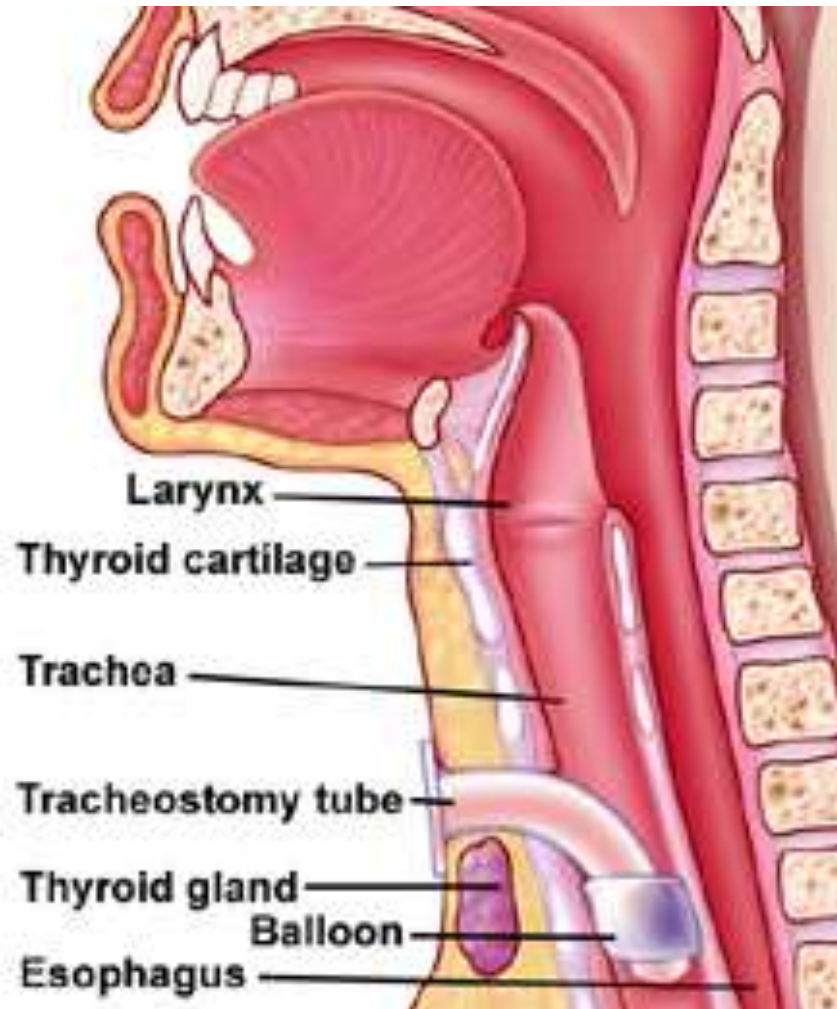
Trach Parts: Obturator and Uncuffed Trach



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

Problem	Treatment/Prevention
Bleeding from stoma: Trauma at stoma site	Apply pressure, avoid trauma
Granuloma at stoma site	Triamcinolone, silver nitrate
Infection at stoma site	Antibiotics
Internal bleeding: Trauma from suctioning	Measure suction catheter; do not suction beyond length of trach tube; suction for 10 sec or less at a time.
Tracheal wall granuloma	ENT eval, possible excision
Tracheal wall erosion	ENT evaluation
Tracheal erosion into an artery	Emergent ENT evaluation
Pulmonary hemorrhage	Respiratory/ventilator support

Differential Diagnosis of Desaturation in a Patient with Tracheostomy

Problem	Treatment
Obstruction: Mucous plugging	Suction; replace trach if needed
Tube improperly placed against tracheal wall	Reposition trach
Decannulation	Replace trach
Pneumothorax	Needle decompression

Video of tracheostomy change

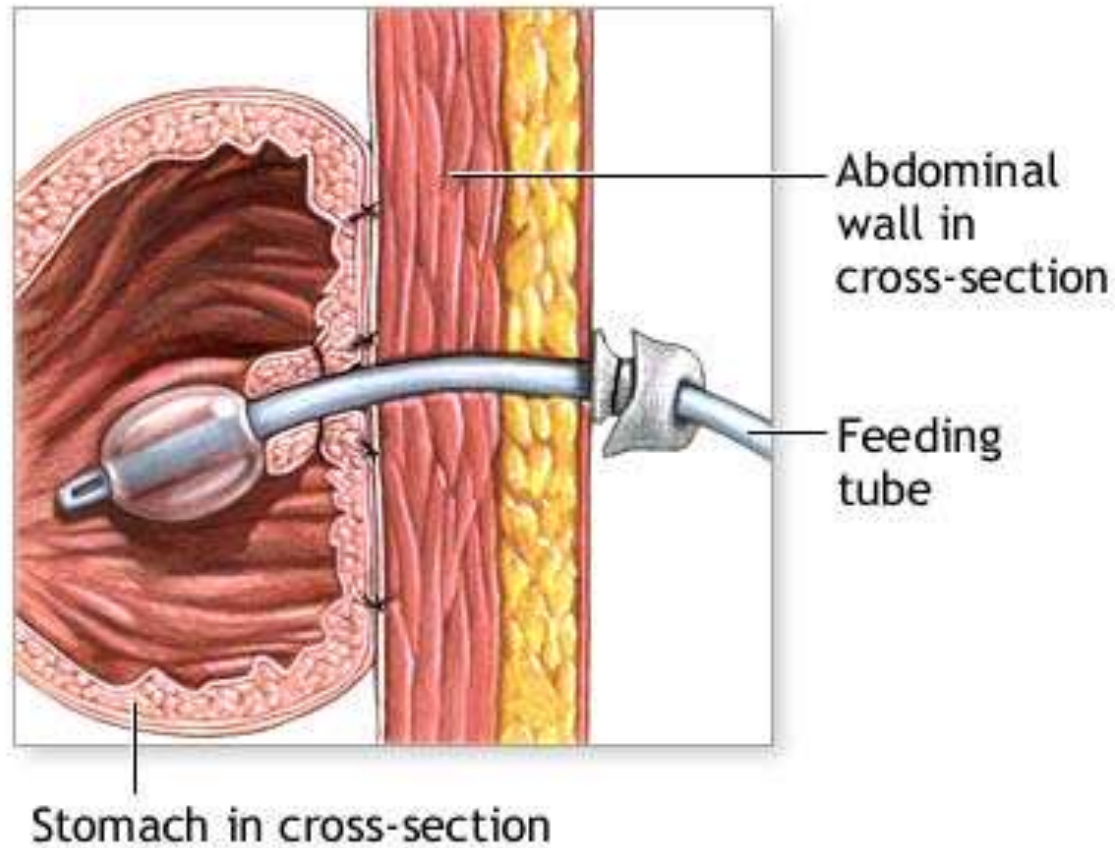
- http://www.youtube.com/watch?v=T-Hh21TdB4w&feature=player_detailpage



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



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

Causes	Treatment/Prevention
Granulation tissue	Treatment: triamcinolone cream > silver nitrate > surgical excision Prevention: avoid excessive traction and occlusive dressings
Infection Yeast infection Cellulitis/necrotizing fasciitis	Topical vs. systemic antifungals 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

- American Thoracic Society: Care of the Child with a Chronic Tracheostomy. *Am J Respir Crit Care Med*. 2000;161:297-308.
- Haffner JC, Schurman SJ. The Technology-Dependent Child. *Pediatr Clin N Am*. 2001;48:751-64.
- Mukherjee S et al. Common Skin Problems in Children with Special Healthcare Needs. *Pediatric Annals*. 2010;39:206-215.
- Srivastava R et al. Hospitalist Care of the Medically Complex Child. *Pediatr Clin N Am*. 2005;52:1165-87.
- Srivastava R et al. Dysphagia and Gastroesophageal Reflux Disease: Dilemmas in Diagnosis and Management in Children with Neurological Impairment. *Pediatric Annals*. 2010;39:225-31.