Tracheostomy Evaluation & Management

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Disclosure

> There are no relevant financial relationships to disclose

OBJECTIVES

> Why people need tracheostomies
> Type of tracheostomies
> Tracheostomy Emergencies
  – Obstruction
  – Dislodgement
  – Bleeding
Background

Why Do People Need A Trach?

> Facilitate Mechanical Ventilation
  - Neuromuscular disorders, Spinal Cord Injury, TBIs

> Bypass Upper Airway
  - Tracheomalacia, Tumors, Tracheal stenosis

> Airway protection
  - Unable to clear of secretions, aspiration

Tracheostomy

Tracheostomy Types

> Single-Cannula Tubes
  - Neonates, Infants

> Double-Cannula Tubes
  - Older Children and adults
Cuffed Tubes
  - Airway protection + positive pressure ventilation
Fenestrated Tubes
  - Allows speaking & breathing past trach

Called to home of 63 yo F for sick person
- Trach for chronic aspiration due to previous stroke
- Fever, cough, increased secretions
- Looks sick
- Increased respiratory rate and wheezes throughout
- O2 sat 76% on RA
- What’s going on?
  > Need any special treatment because of trach?

CASE #1
Obstruction
- Called to home of 63 yo F for sick person
  - Trach for chronic aspiration due to previous stroke
  - Fever, cough, increased secretions
  - Looks sick
  - Increased respiratory rate and wheezes throughout
  - O2 sat 76% on RA
  - What’s going on?
    > Need any special treatment because of trach?

Case continued

> Exacerbation of Chronic Issue vs Obstruction
  - Usually Gradual Onset
  - Reactive Airway disease
    > Wheezes
    - Bronchodilators through trach
  - Infection
    > Fever
    > Increased Secretions
    > Low oxygen saturation
Exchange of tracheostomy

> What if the patient has an uncuffed tube and you need to provide positive pressure ventilation?

CASE #2

Dislodged

> Called to home of 39 yo M trached for laryngeal cancer for SOB
  - Home care states having increased secretions and cough and dislodged the trach
  - Provider pushed trach back in and he started getting worse
  - Pt having trouble breathing and limited sounds from trach
  - Respiratory distress, SpO2 of 70%, tachypnic and restless

What to do
> Nothing, BVM, Intubate, replace trach?

Dislodged or the false track
Tracheostomy placement

Is patient ventilating well and oxygenating well?
Can you pass a suction catheter easily?
In hospital setting fiberoptic scope available?
Two team approach in crashing patient
- Bag from above while covering stoma and/or over stoma with pediatric BVM/LMA
- Intubate from above while second team is attempting to replace trach

CASE #3
Bleeding Trach
Called to the house of a 59 yo M for bleeding trach
- Trach for chronic vent secondary to Neuromuscular disease
- Arrive and see significant bleeding from trach site
- Looks pale with active bleeding
- What is going on and what to do?
Tracheo-Inominate Fistula (TIF)

Background & Anatomy

- Pressure necrosis of anterior tracheal wall from cuff or tip, causing erosion of trachea and innominate artery
- Rare
  - Incidence 0.7%
- Survival rate ~10%
- 75% of TIF develop within first 3 weeks after trach

Tracheo-Inominate Fistula

Causes

- When was the Tracheostomy placed?
  - Can occur anytime after first 48-72 hrs
- Risk factors?
  - Cuffed tube (overinflation)
  - Steroids, neck radiation, poor nutrition, inflammation
  - Abnormal anatomy
- Can be either sentinel bleed or large bleeding
  - Don’t underestimate tracheostomy bleeds

Bleeding Tracheostomy
**Sentinel Bleed**

- Half will have a sentinel bleed
- Maintain or secure the airway
- Local hemorrhage control
  - overinflation of the balloon and transport
- In hospital
  - Bronchoscopy and external exam
  - CTA
  - Rare to see active bleeding
  - Look at the relationship of tracheal wall and innominate artery

**Major Bleeding**

- Overinflate the cuff
- Slide finger beside trach and compress the innominate against sternum
- Intubate, remove appliance and compress

**Definitive Treatment**

To the Operating Room!

- Bronchoscopy of lower airway
  - Look for other source
- Sternotomy
  - Control bleeding and ligate innominate artery
- Securing airway
Summary

> Obstructed
  - Remove inner cannula, suction and standard care
  - Exchange for cuffed tube when positive pressure is needed

> Dislodged
  - What is the age of the stoma?
  - Use suction or bougie if needed
  - Two team approach in parallel

> Bleeding
  - >48-72hrs, especially within 2-3 weeks, worry about TIF
  - Sentinel bleed ~50%
  - If no clear source, CTA

True bleeds
  - Secure airway & Control hemorrhage
  - Over inflate balloon or direct pressure
  - Need OR and ligation

Thank you...