Clearing the air…..

How to assist and rescue neck breathing patients

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Learning Objectives

• Define common terms identified with total (laryngectomy) and partial (tracheostomy) neck breathers.
• Identify anatomical and functional differences between a total and partial neck breather.
• Define and demonstrate three common means of communication for total neck breathers.
• Identify methods of oxygen delivery to partial and total neck breathers.
• Identify and understand emergency airway management (including CPR) techniques for partial and total neck breathers.
• Understand the “must haves” at the bedside for partial and total neck breathers.
Definition of Common Terms

**Tracheotony**
Surgical creation of an opening in the neck/trachea.

**Tracheostomy / Tracheostoma**
The opening in the trachea created by the tracheotony.
Definition of Common Terms

Laryngectomy

• Surgical removal of the larynx and remodeling of the lower pharynx / upper cervical esophagus.

• The trachea is rerouted to an opening in the neck/trachea. There is no longer any connection between a person’s mouth and trachea/lungs. However, the esophagus still travels from the pharynx to the stomach.
Definition of Common Terms

**Stoma**
Circular opening surgically created in the anterior trachea. Trachea exits at the stoma with a laryngectomee. Stoma is an opening in the trachea with partial neck breather.

**Laryngectomee**
Person who has undergone a laryngectomy.
Definition of Common Terms

TOTAL Neck Breather
- Absolutely no access to a person’s trachea from the mouth in a total neck breather (laryngectomy).
- Trachea exits at stoma.

PARTIAL Neck Breather
- Trachea can be accessed through the stoma (tracheostomy tube) and orally with a partial neck breather.
Anatomy and Physiology

Normal Airway

Post Tracheostomy
Anatomy and Physiology

Tracheostomy with a Tracheostomy Tube and Speaking Valve
Anatomy and Physiology

Normal Airway

Post Laryngectomy
Anatomy and Physiology
Laryngectomee with a Tracheo-Esophageal Puncture (TEP) / Voice Prosthesis
TOTAL Neck Breathers – Laryngectomees

Four Important Facts

1. Their mouth is no longer connected to their lungs.
2. They can only breathe through their stoma.
3. An airway can only be established at their stoma.
4. Laryngectomees can aspirate, but only if they have
   a) Pathological fistula (opening from esophagus to trachea/lungs)
   b) Leaking TEP/voice prosthesis
   c) If they vomit / aspirate through their stoma
PARTIAL Neck Breathers – Tracheostomies

*Four Important Facts*

1. Their mouth is connected to their lungs.
2. They may be able to breathe or have their airway accessed through their mouth. It depends.
3. An airway can usually be established either orally or through their tracheostomy.
4. Tracheostomies can aspirate even if their cuff is inflated on the tracheostomy tube.
Three Common Means of Communication for TOTAL Neck Breathers - Laryngectomees

1. Esophageal Speech

Injection of air into the proximal esophagus and releasing to vibrate the upper portion of the esophagus and create sound.
Three Common Means of Communication for TOTAL Neck Breathers - Laryngectomees

2. Artificial Larynx / Electro-larynx

Sound created by a vibrating source that travels through their neck/oral cavity to create sound.
Three Common Means of Communication for TOTAL Neck Breathers - Laryngectomees

3. Tracheo-Esophageal Puncture (TEP) / Voice Prosthesis

Surgically created tract from the trachea to the esophagus. A plastic prosthesis is placed. It allows air from the lungs/trachea to pass into the esophagus and causes it to vibrate to create a sound source for speech. It is closed on one end to prevent aspiration through the prosthesis.
Dr. Itzhak Brook, physician and laryngectomee
• Remember, the mouth and nose of a laryngectomee are NOT connected to the patient’s lungs.
• Oxygen and inhaled medications must be delivered through the stoma.
• Because the mouth and nose are bypassed, supplemental oxygen should be humidified to prevent mucus plugs.
Oxygen Delivery Methods – PARTIAL Neck Breathers

- Cuffed tracheostomy tube with cuff **inflated**: 
  - The connection between the mouth/nose and lungs is blocked 
  - Must use stoma / tracheostomy tube for oxygen and inhaled medications. Humidify the oxygen.
Oxygen Delivery Methods – PARTIAL Neck Breathers

• Cuffed trachestomy tube with **cuff deflated** or **cuffless** tube:
  – Potential connection between mouth/nose
  – Potential to use mouth, nose, or stoma for oxygen and inhaled medications. Patient dependent. Humidify if using stoma.
  – If tracheostomy tube is capped, air will not flow through the stoma and the mouth or nose should be used for oxygen and inhaled medications.
Delivering Oxygen via Stoma – Total and Partial Neck Breathers

Routine Oxygen Therapy
- Humidified oxygen via trach collar
- Water trap in line collects condensation

Oxygen During Transport
- Trach collar attached to venturi device
- Place back on humidified oxygen post transport

We’re in this together.
Emergency Airway Management – PARTIAL Neck Breathers

• Common emergencies:
  – Mucus plug occludes tube
  – Accidental decannulation (tube comes out)
  – Respiratory / cardiac arrest
Rescue for PARTIAL Neck Breathers

*Mucus Plug Occludes Tube*

1. **Call for help**
2. **Suction tracheostomy tube**
   - Use sterile saline if needed
3. **If suction catheter will not pass:**
   - Remove inner cannula
   - Suction again (can use saline)
4. **If suction catheter still will not pass:**
   - Deflate cuff
   - Administer oxygen via mask or nasal cannula until RT or Physician arrives
Rescue for PARTIAL Neck Breathers

Accidental Decannulation

1. Call for help

2. If patient is stable and breathing, while waiting for help:
   - Reassure patient
   - Administer oxygen
     • Via stoma (trach collar)
     • If stoma has closed, use face mask or nasal cannula
Rescue for PARTIAL Neck Breathers

**Accidental Decannulation**

3. If waiting for help is not an option:
   - If competent, reinsert tube
     - Use obturator and surgilube
   - If tube cannot be reinserted
     - ET tube can be inserted into the stoma to provide airway. Advance gently until cuff passes stoma, then stop and inflate cuff. Hold in place until RT or physician arrives. ET tubes are on every crash cart in the respiratory boxes.
   - If stoma has closed off, use ambu bag and face mask to ventilate through mouth and nose
   - If respiratory arrest occurs – CALL A CODE
Rescue for PARTIAL Neck Breathers

Respiratory / Cardiac Arrest

1. Call for help
2. If patient has cuffed tube –
   - Check cuff – inflate if not already inflated
   - Manually ventilate through tracheostomy tube per American Heart Guidelines
3. If patient has cuffless tube –
   - RT or physician will replace with cuffed airway
4. If stoma is closed off – use bag/mask to ventilate nose/mouth
5. No change in the delivery of chest compressions.
Emergency Airway Management – TOTAL Neck Breathers

- Common emergencies:
  - Occluded airway
  - Respiratory / cardiac arrest
Rescue for TOTAL Neck Breathers

**Occluded Airway**

1. Call for help

2. Expose the neck and remove anything covering the stoma
   - Cloth cover
   - Filter
   - HME

3. Do not remove prosthesis – unless it is occluding the airway.

4. With prosthesis secure, suction the airway
   - May use sterile saline

5. Wipe the stoma clean
Rescue for TOTAL Neck Breathers

Respiratory / Cardiac Arrest

1. Call for help

2. Follow American Heart Guidelines for CPR.
   - No change in delivery of chest compressions.
   - When checking for pulses, carotid may be difficult to palpate due to post radiation fibrosis. Also, radial pulses may be absent in one arm if tissue was used for flap during surgery.

3. Rescue breaths
   - Delivered directly to the stoma using an ambu bag with an infant mask (or adult mask turned 90°).

4. RT or physician will place tracheostomy tube in stoma for ventilation.

5. Total neck breathers **cannot** be intubated (oral or nasal).
Providing Rescue Breaths for TOTAL Neck Breathers
Admitting a Total or Partial Neck Breather – Who to notify?

• Upon admission of a laryngectomee or a tracheostomy patient, you should notify
  – Respiratory
    • Page your RT
    • They will confirm use of appropriate oxygen delivery system
    • For TOTAL neck breathers, they will bring the emergency laryngectomy box and the laryngectomy patient sign
  – Speech Therapy
    • Notify speech therapist
    • They will evaluate patient’s speech and swallowing as needed
Caring for a PARTIAL Neck Breather – *Supplies to keep at the bedside*

- Suction set-up
- Suction catheters
- Trach care supplies
- Inner cannulas
- Obturator
- Lubricant
Caring for a TOTAL Neck Breather –
*Supplies to keep at the bedside*

- Total neck breather sign posted (from RT)
- Emergency laryngectomy box (from RT)
- Suction catheters
- Stoma care supplies
  - Sterile saline
  - Gauze and swabs
Caring for Partial and Total Neck Breathers – One more consideration . . .
Questions?