OMD Podcast: Tracheostomy Basics and Suctioning

Summary Points:

-Types of Tracheostomies
-Trach Parts, Equipment and Accessories
-Key Historical Questions
-Oxygenation Strategies
-Oxygenation Strategies in Critically Ill Patients
-Trach Suctioning

***Disclaimer: will not go into the nitty gritty step-by step of everything, but will discuss the thought process and some of the more high-acuity pathways

- **Types of Tracheostomies**

-Come in many shapes/sizes
-Most common brand is Shiley
-Tube Diameter sized similar to ETT (6.5/8.0 for example)
-The number means the inner diameter of the tube (in mm)
-This means that the inner diameter of a 6.0 trach is the SAME as the inner diameter of a 6.0 ETT!
-Keep in mind that the outer diameter may be a bit thicker in trachs
-Trachs come in cuffed and uncuffed forms
-Even if cuff is present, it may not be inflated at all times
-Cuff is usually used when patient uses trach for positive pressure ventilation (BiPAP or Vent)
-There are specialty variations with additional length, smaller bore
-The size of the trach is usually printed on the flange of the trach
-Size and type acronym
-DCT is a cuffed trach
-DCFS is uncuffed with Fenestration
-XLT means extra-long, may or may not have balloon
-BEFORE YOU TOUCH A TRACH- if you intend to pull it or move it, make sure you have a similar trach type available or at the LEAST a similar size ETT and the equipment to manage

Shiley DCT Trach

Shiley DCFS Trach

- **Trach Parts, Equipment and Accessories**

-Inner cannula is removable in most common trach types and acts as the ONLY attachment point for BVM or Vent (so don't lose it)

-Is a clear rubber tube that connects inside the trach top allow cleaning and attachment of devices

-In most common models is removed by pinching the tabs on the side of the inner cannula and gently pulling

-Other models requires a gentle twist to unlock

-Obturator is an accessory piece than can be put in place of the inner cannula for ease of trach insertion as it provides a rounded edge to glide down trachea wall

-Does NOT allow for airflow

-Patient may not have this part available

-Usually, trach will have some sort of buttress or dressing between the trach and skin

-Frequently made of 4x4 gauze with a slit cut in it

-Trach securing device may be used in restless patients, patients with baseline confusion or in a new trach

-May be a formal securing device (like for ETTs) or a twill "trach" tie

-T-piece- comes in a great variety of shapes and forms. Basically, is a ventilator tubing type adaptor/device for the trach that allows for delivery of supplemental oxygen and/or in-line suctioning

-Some have long, flexible tubing component

-Will be in the way if you need to manage airway

-Speaking Valve- a small 1-way valve (usually colorful) that allows patients to breath in through the trach, but forces air out over the vocal cords to allow the patient to speak with a trach

-Trach Cap- an occlusive cap that may be applied to trach in long-term care facilities to help the patient train to breathe via mouth for eventual trach removal

Shiley Inner Cannula

Trach Cap

Shiley Obturator

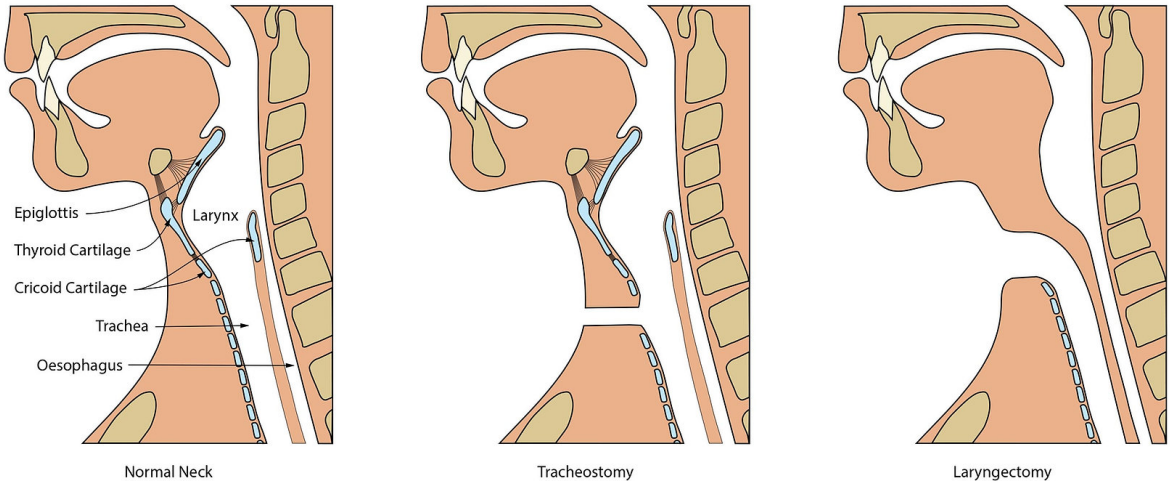
T-Piece

Trach Collar

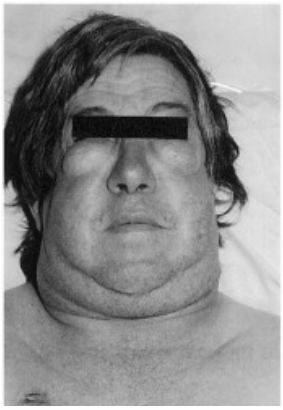
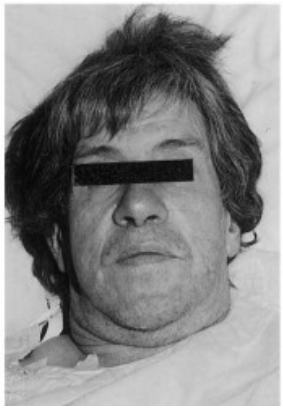
- **Key Historical Questions**

-Age of the trach
    -Extremely important piece of information
    -CANNOT manipulate a trach that is less than a week old
        -Stoma is not mature and could collapse
    -Scary complications (bleeding) most common in the first few months
    -Really old trachs may be subject to tracheal scarring
-When was the last time it was changed
    -If a trach hasn't been swapped in weeks/months, could be obstructed by mucus
-Why do they have a trach
    -The indication may help you find out what is the problem (if any) with the trach
-Laryngectomy
    -Ask about this surgery SPECIFICALLY
    -Implies that the patient has had surgical resection of parts of their upper airway
    -The upper and lower airway are NO LONGER CONNECTED in these patients
        -They are completely dependent on trach for breathing
-Secretions
    -Has the patient had increased secretions or needed more suctioning recently
    -Thicker and increased secretions, possibly a color change may indicate tracheal infection aka tracheitis
-Bleeding from trach/trach site
    -Has there been any bleeding from the skin around the trach
    -Has there been any blood coming out of the trach tube
        -Important difference as blood coming out of the tube can imply presence of dangerous bleed
-Do they have extras/backups
    -Does the patient have any backup trachs available in case they are needed

Laryngectomy vs Simple Trach



- **Oxygenation Strategies**



Subcutaneous Emphysema Before (Right) after (Left)

-The MOST important thing before attempting to oxygenate
    -Make sure the trach is in the right place!
        -Can use air movement or EtCO2
    -Most common issue is trach displacement
    -If you try to oxygenate through a displaced trach, it won't work
    -If you BVM through a displaced trach, you may cause subcutaneous emphysema
        -Air bubbles under the skin, feels like rice-crispies
        -If you SEE the skin inflating or are concerned for SubQ emphysema, recheck your airway!
-Passive Oxygenation
    -First line for any trach patient in distress is to place NRB masks to the trach and the face to oxygenate from above and below.
        - The goal is to oxygenate through the trach though, however this practice ensures even if your trach is non-functional, you are still oxygenating
        - If the patient is a laryngectomy patient you should not do this as regular practice
            - However when in doubt do both routes of oxygenation as laryngectomy are rare compared to standard trach patients
    -You may encounter at hospital/healthcare facilities purpose built O2 masks for trachs referred to as "trach collars" these are fine to maintain
    -Can place in-line EtCO2 adapter on the trach to monitor EtCO2 and confirm placement

- **Oxygenation Strategies in Critically Ill Patients**

-Have a plan for a patient in respiratory failure, cardiac arrest, or chronically vent dependent
-Oxygenation from Above
    -If the patient has a laryngectomy you can't do any airway interventions through mouth as it NO LONGER CONNECTS to the airway
    - MAX BVM via mouth in patients WITHOUT laryngectomy per usual except you MUST Cover stoma
        -Otherwise, air will just go out the trach and NOT to the lungs
    -If trach has been removed, use 4x4 gauze and cover the stoma to prevent air escape
        -Small amount of lube on the gauze can help get a better seal
    -Can use in-line EtCO2
-Oxygenation from Below/Trach itself
    ***Should ONLY be done after you have verified the trach is in the airway and checked the inner cannula to ensure no obstruction
    IF CANNULA IN PLACE AND NOT OBSTRUCTED
        -Attempt to BVM through the trach
        -The inner cannula must be in place to attach BVM to trach

Peds BVM to Stoma Ventilation

-If trach is occluded or not in the proper place, you CANNOT bag through it

IF CANNULA IS NOT IN PLACE OR OBSTRUCTED

-If you cannot replace trach or clear the obstruction, remove trach and BVM through stoma using a Peds BVM mask

-For either scenario, need to have in-line EtCO2 attached to BVM to ensure ventilation

- **Trach Suctioning**

-This is an Airway procedure

-Treat it with the same caution as ANY airway manipulation

-Preoxygenate prior to any suctioning attempts whenever possible

-If patient has obvious secretions in trach and good sats, a quick initial suction may improve preoxygenation for a secondary deep suctioning

-Do not do deep suctioning without at LEAST 60 seconds of preoxygenation with NRB (via mouth or stoma)

-Deep suctioning prevents the patient from being able to breathe well, think of it as temporarily occluding the airway (so prep your patient!)

- Consider talking a brief second about suction technique

-Treat like airway intervention

-Prepare in your head and prepare your equipment for troubleshooting the airway if something goes wrong

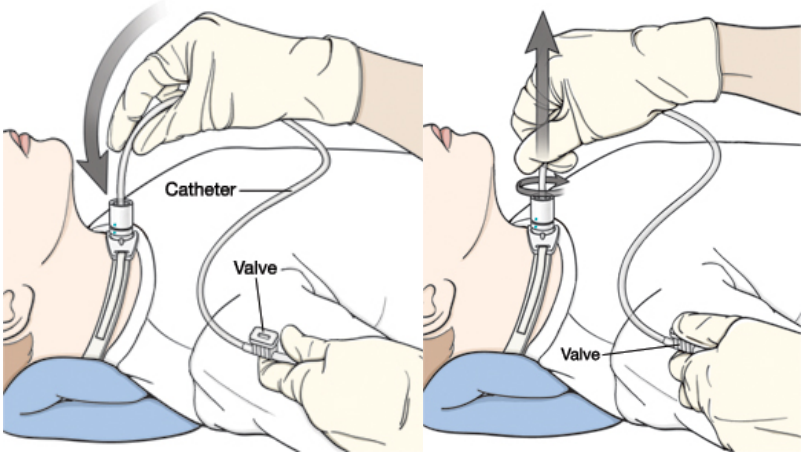
-Even the most trivial trach manipulation can turn into an airway occlusion

-Be prepared

-Have your equipment ready

-More on this in the next episode!

Trach Suctioning Technique



Summary in Brief

-Be familiar with the basic trach types to make sure you know what you are dealing with!
-Be familiar with the great variety of trach attachments and devices that you will need to remove to properly access and work on a trach
-Know the key history components so you get critical information:
    -At the MINIMUM you must know how old the trach is, why they got it and if they had a laryngectomy
-Before oxygenating through a trach make sure its in the right place
-Default should be to oxygenate from above and below unless the patient is known to have laryngectomy (then just below)
-In patients who have NOT had a laryngectomy, can oxygenate from above if you occlude the trach
-Can oxygenate through the trach or stoma using the BVM (and peds mask for stoma)