Tell Me About a Trach Before I Need One

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Over the years, IVUN has received numerous calls from families and users of noninvasive ventilation who experienced respiratory failure and to save their lives, received a tracheotomy. These calls, coupled with the extensive networking among polio survivors and other vent users, made us aware that many individuals fear the idea of having a tracheostomy. We were asked to provide factual information and invited Linda K. Dean, a Registered Respiratory Therapist (RRT), to present the topic on IVUN's Fourth Educational Conference Call on Jan. 23, 2013.

Before agreeing to a tracheostomy tube, Dean recommends that all vent users ask their doctors: "Is there anything else I can do to postpone it?" Dean explained that noninvasive ventilation and attention to airway clearance are both ways of avoiding a tracheostomy.

"Is there anything else I can do to postpone it?"

She also clarified that not all patients who receive a tracheostomy tube require help with their breathing. They may have a weak cough and need help clearing their secretions, or they may have a tumor or other obstruction blocking their trachea (windpipe). Other reasons why some people obtain a tracheostomy tube are the need for prolonged mechanical ventilation; noninvasive ventilation no longer meets the need; upper airway (above the voice box) obstruction; to improve patient comfort.

Linda K. Dean, RRT, Educational Consultant and Clinical Specialist, Passy-Muir, Inc., has more than 26 years of experience that ranges from critical care, clinical education and sub-acute provider, to clinical specialist for Passy-Muir Inc. She has provided in-service education, with a focus on the "art" of speaking valve placement in the ICU, throughout the United States, Canada, Thailand and Vietnam.

Advantages

The advantages of a tracheostomy are that it can save lives; improve quality of life, e.g., frees up face/hands for eating, etc.; may decrease the need for continuous ventilation; makes available direct access to vent users' lungs to assist with secretion removal and to provide mechanical ventilation and medications.

Disadvantages

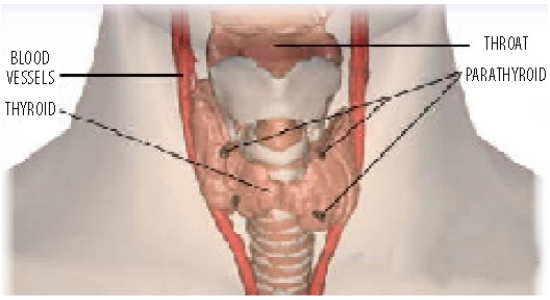
What are the disadvantages of a tracheostomy? It requires a surgical procedure, and there is an increased risk of infection, bleeding and development of scar tissue. There are emotional and psycho-social issues, such as an altered body image and changes in ways to communicate. The ability to swallow may be altered, and the sense of taste and smell can be lost. There is loss of the natural warming, humidification and filtering of air that usually takes place in the nose and upper airway. Lastly, there is a greater need for home health services/skilled caregivers due to increased equipment needs, which results in more expensive cost of care. Dean stated that it is up to each vent user to decide which of the advantages and disadvantages are the most important factors in making a decision.

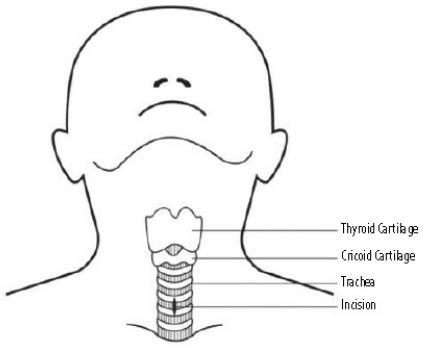
Tracheostomy or Tracheotomy? The terms tracheotomy and tracheostomy are used, but which is which? Tracheotomy refers to the surgical opening of the trachea. Tracheostomy also refers to a surgical procedure – the creation of a stoma (hole) at the skin surface – but most often the term is used to reference the tube itself. Sometimes the word is shortened to "trach."

How Is A Tracheotomy Performed?

A percutaneous one is performed at the bedside, usually while a patient is in critical care. An "open" tracheotomy takes place in an operating room with a surgeon, who is usually an ENT.

The tube itself is usually made of plastic or silicone, but all of them curve slightly to conform to the trachea in which they are inserted. The tube is inserted between the rings (usually 3-4 or 4-5) of cartilage of the trachea, just below the larynx (voice box). The tube is secured in place with stitches and a "trach tie" of some sort. The stitches usually come out in one week.





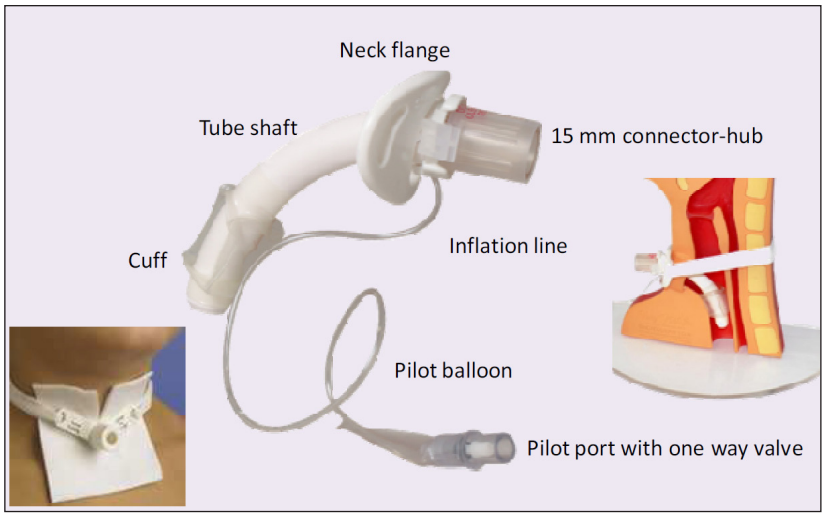
Surgical Tracheostomy

There are many brands and models of tracheotomy tubes. Shiley®, Bivona® and Portex® are the most common tubes available in the USA. (These names can be found in the handouts under the definitions pages at the end of Dean's presentation at www.ventusers.org/edu/ConfCall2013Trach.pdf.)

Some people can't use a standard tube, so measurements are taken and a custom tracheostomy tube is made and ordered.

Parts of a Tracheostomy Tube

Dean explained some medical terminology related to a tracheostomy tube. The neck flange, or neck plate, will rest on the skin of your neck. The only part that will be visible is the front of the neck flange and the hub of the tube. The neck flange front contains important printed information that tells caregivers the brand, size and cuff information about a specific tube. The hub may stick out slightly, but is necessary to attach ventilator circuits, emergency resuscitation devices and speaking valves.



The shaft of the tube will be centered inside your trachea or windpipe. The tube you receive may or may not have a cuff on the end. The cuff is used to seal the trachea during mechanical ventilation. If the tube has a cuff, there will be a pilot line, or inflation line, that leads to a spring loaded pilot balloon – this is where you put the air in, or take the air out of the cuff. Care should be taken to use the least amount of air possible to inflate the cuff once it is inside the trachea. If you do not require mechanical ventilation, you will receive a tube without a cuff, or cuffless tube.

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Choices of Tubes and Cuffs

Tracheostomy tubes may have a single lumen or double lumen cannula. (Lumen refers to a channel within the tube – one channel is a single lumen – 2 channels is a double lumen.) The single lumen tube is coated with material that helps keep secretions from sticking and clogging the inside of the tube should secretions be coughed up into the tube. It is usually changed and/or removed to clean weekly. Double lumen means there is an inner cannula that fits inside the tube. This inner cannula is changed and/or cleaned several times per day to make sure the opening remains free and clear of any secretions that may accumulate inside it. Some inner cannulas are disposable; some are re-usable and are cleaned and then put back inside the tube.

Another variation is that some companies offer water-filled cuffs instead of air-filled ones. They are referred as TTS, or tight to the shaft, because when the cuff is deflated, the material hugs the shaft of the tube and virtually disappears. This streamlines exhalation around the tube during speaking valve use, and makes it easier to tolerate.

After describing a tracheotomy and the tracheostomy, Dean explained the care required if one has a trach, including the importance of compiling personal information and regular assessment to maintain safety.

How Will I Communicate?

Another concern is speaking. Dean who works for Passy-Muir, a maker of a speaking valve, commented that there

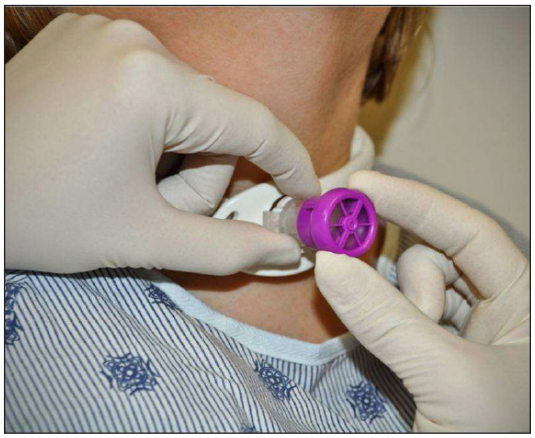
The Passy-Muir speaking and swallowing valve can be used while using a ventilator, as well as applied directly to the tube if not. The company sells three colors of valves. The aqua valve is most often used with the ventilator tubing. The purple valve is most often used on the trach tube while you are in the hospital, or a transitional facility. The clear valve is favored for use in the home care environment for patients who wish the valve to be less obtrusive.

Dean's presentation is online at www.ventusers.org/edu/ConfCall2013Trach.pdf and pages 5, 6 and 7 detail the problem of swallowing for people with a trach (the risk for aspiration can be as high as 85 percent). Additionally, the importance of humidification of air is addressed, since breathing through a trach bypasses the nose, our natural humidifier. She also outlines suggestions for trach care, trach changes, oral care, stoma care and personal hygiene.

If you do not have access to the Internet, email or call us for a copy of the presentation and the addendum of "Definitions," "Trach Safety" and a list of "Equipment Recommended for Home."

are countless communication devices and techniques. From simple tricycle horns to expensive electronic devices, so there should be no reason to be left without a voice.

Some people choose to use leak speech. Leak speech is when you partially (or fully) deflate the cuff on the tube and allow some of that ventilator breath to come up through the vocal cords to speak. Sometimes the volume of the breath is increased considerably to allow talking and ventilation to happen at the same time. The disadvantages to leak speech are that too much volume can be harmful to the lungs, and that a person must learn to talk during inspiration, not naturally during exhalation. ■



The valve can go directly onto the hub of the tracheostomy tube like the photo on the left. Or, it will fit into standard disposable ventilator tubing like the photo above.

The Passy-Muir valve is a one-way valve, and when it is attached to the trach or placed in line with the ventilator tubing, it re-directs exhalation past the vocal cords and out the mouth and nose. This redirected exhalation restores voice, improves swallowing, restores physiologic PEEP (the air in the lungs that never completely exhales), improves secretion management by restoring the natural cough, improves oxygenation, can be used as a ventilator weaning and decannulation (take the trach tube out) tool, may decrease the risk of aspiration, and improves smell and taste to make eating more pleasurable.

Photo credits: Linda Dean, Passy-Muir Inc.

The Adventures of Traveling With a Vent

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suggested that on future trips they act as a concierge for me. I tell them our destination, and they identify a company there that will work with me in case of a machine malfunction. I then contact the company and confirm that they will be available in case of an emergency and that they do have a vent similar to what I am using. This has given me huge peace of mind. To date, we have only used this back up plan in the United States, but I hope it will also work in Europe.

I consider myself fortunate to have traveled as often as I did with no problems, but from this point on, unless our destination is within driving distance of home, I will have a backup company in place and prescription in hand. ■