

## ปกิณกะ

## Dislodged tracheostomy

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Tracheostomy patients may present to the emergency department (ED) with airway obstruction, bleeding, or infection. In our review of tracheostomy-related complications presenting to the ED, the most common complication was a displaced tracheal tube. Accidental extubation of the tracheostomy tube in the postoperative period is a well-recognized and not uncommon event. Familiarity with the tracheal anatomy and equipment facilitates replacement of the tracheal tube. Ideal care should focus on prevention of a dislodged tube. Despite the best efforts, a dislodged tracheostomy tube can create an airway emergency. Unscheduled replacement of dislodged tracheostomy tubes can be a challenging procedure for the physician and a

frightening event for the patient. Forceful attempts at replacement are both painful and dangerous; such attempts may disrupt the soft tissues adjacent to the tracheostomy tract, creating a false passage and potentiating acute respiratory failure. The visualization of the tracheostomy site without proper instruments, lighting, and suction can be difficult or impossible.

In Chaopraya aphaipubet hospital, in the past few years, we had found some patients with dislodged tracheostomy and we lost them. The causes of that may be from no specialist (ENT) available immediately, or the medical personnel in the situation had inadequate knowledge and skill, or there were insufficient instruments in that place

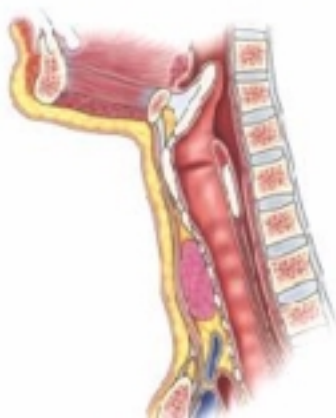
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**Table 1** Six Groups of Tracheostomy – Related Complications

Groups	No. of Complications
Tracheal stenosis	3
Infection	18
Tracheal plug	11
Bleeding	7
Dislodged tracheal tube	20
Pneumothorax	1

In the study at University of North Carolina between April 1988 to April 1995, show that most patients that came to the emergency department with tracheostomy-related complications were the dislodged tracheal tube patients. (Table 1) We should prevent the morbidity and/or mortality from this complication by some simple methods that facilitate the reinsertion of tracheostomy tube with few available instruments, which can be done by general doctors or medical personnels.



**Figure 1** Sagittal section demonstrating the normal relationship of the thyroid gland to the trachea.

### “FINGERTIP” TECHNIQUE

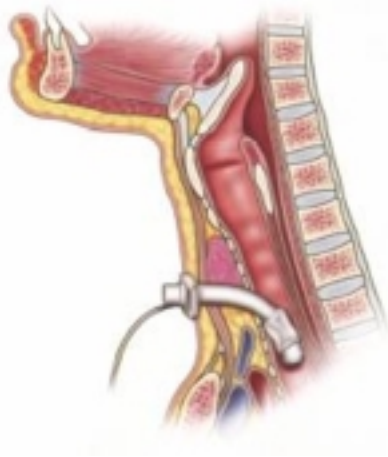
Direct access to the tracheal stoma from the skin opening is precluded by the presence of the thyroid gland isthmus and the strap muscles realigning themselves close to the midline (Figs 1–3).

Considering the serious implication of recannulation, the need for proper surgical instruments and personnel would be a logical solution. This must be weighed against the speed with which airway access has to be established. It is under these circumstances that the “fingertip” technique is being proposed as a fast, effective, safe, and simple aid to recannulation.

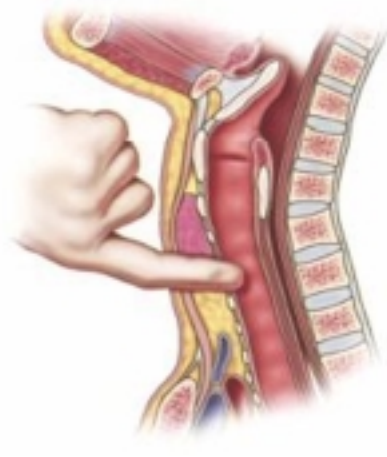
The neck is extended and a gloved forefinger is inserted into the tracheal stoma through the skin opening below the thyroid isthmus (Fig 4).

Having identified the tract, a mental plan is formulated regarding the direction and distance the tracheostomy tube has to traverse. The tube is then replaced as the finger is withdrawn (Fig 5).

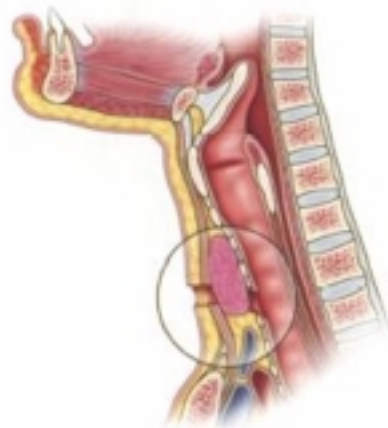
Ideally, the length of the tube to be used must be gauged by visual inspection at the time of



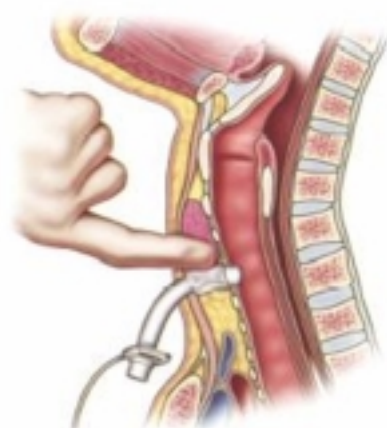
**FIGURE 2** Tracheostomy tube in place.



**FIGURE 4** With the neck extended, a gloved forefinger is inserted into the tracheal stoma through the skin opening below the thyroid isthmus.



**FIGURE 3** With the tracheostomy tube removed, the thyroid gland isthmus and the strap muscles make direct airway access difficult. In addition, the tracheal window and the skin opening are not aligned.



**FIGURE 5** The tracheostomy tube is replaced as the finger is withdrawn.

tracheostomy. Replacing a tracheostomy tube for accidental decannulation call for a reassessment of the tube size, keeping in mind the thickness of the tissues between the skin and trachea, and the size and shape of the patient's neck and skin.

## THE NASOGASTRIC TUBE “GUIDEWIRE” TECHNIQUE

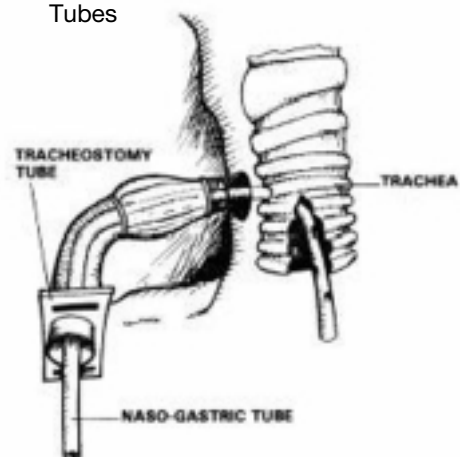
A multitude of factors including obesity, short neck stature, abnormal regional anatomy (i.e., secondary to a malignancy, surgical alterations, or radiation-therapy-related changes), excessive granulation tissue, heavy respiratory tract secretions, and lack of patient cooperation (due to pain or hypoxia) can complicate the reestablishment of a stable airway. Frequently, the major difficulty encountered is the inability to clearly define the tracheostomy tract from the adjacent tissue, resulting in forceful attempts by the physician at insertion of the replacement tube through the external orifice. Such forceful attempts are painful and frightening to the patient. These attempts also introduce the potential for significant hemorrhage and disruption of the preexisting tract, further aggravating the situation. With routine, scheduled tracheostomy tube changes, the situation may be similar. The easily performed technique, which requires minimal experience with tracheostomy care, for reinsertion of completely dislodged tracheostomy tubes using a nasogastric tube (NGT).

**Methods :** The patient should be placed supine with the neck in hyperextension to allow visualization of the stoma. The act of placing the neck in hyperextension aligns the tissue planes, facilitating replacement. Adequate

lighting, suction, supplemental oxygen, and cardiac monitoring should be available, as well as a selection of tracheostomy tubes including the patient's present size and the next smaller size tube. The patient should be preoxygenated with supplemental oxygen.

The tracheostomy cuff is completely deflated and the tube fully lubricated. A 12 F NGT is also lubricated. The inner cannula of the tracheostomy tube is removed. The NGT is then inserted through the tracheostomy tube. After preparing the patient, the portion of the NGT normally placed in the stomach is gently placed into the tracheostomy tract and advanced into the trachea. The tube should not be advanced more than approximately 7 cm into the trachea and should not be forced if resistance is encountered. The NGT should always be directed caudad toward the lower tracheobronchial tree. The NGT is now functioning as a guidewire for the tracheostomy tube, which is then advanced gently over the NGT and into the trachea. After the tracheostomy tube is in place, the NGT is removed, the tracheal balloon inflated.

**Figure 1** Nasogastric “Guidewire” Technique for Replacement of Dislodged Tracheostomy Tubes



## References

1. Kenan PD. Complications associated with tracheostomy : prevention and treatment. Otolaryngol Clin North Am 1979;12:807-15.
2. Kirchner JA. Tracheotomy and its problems. Surg Clin North Am 1980;60:1093-104.
3. Lore J. An Atlas of Head and Neck Surgery (ed 3). Philadelphia, PA, Saunders, 1989.
4. Myers EN, Carrau RL. Early complications of tracheostomy : inci-Clinical procedures in emergency medicine (2nd edn) Philadelphia and management. Clin Chest Med. 1991; 12:589-95.
5. Wood DE, Mathisen DJ. Late complications of tracheostomy. Clin Chest Med. 1991;12:597-609.
6. Chew JY, Cantrell RW. Tracheostomy : complications and their management. Arch Otolaryngol. 1972;96:538-45.
7. Bailey B, et al : Tracheostomies. In Head and Neck Surgery-Otolaryngology. Philadelphia PA, J.B. Lippincott Company, 1993:711-7.
8. Jackson C : Tracheotomy. Laryngoscope 1990; 19:285-90.
9. Heffner JE, Miller KS, Sahn SA. Tracheostomy in the intensive care unit : Indications, technique, management. Chest 1986;90:269-274.