

Emergency Needle Cricothyrotomy may not be Useful in Case of Tracheal Collapse

Seiji WATANABE and Yasusi IINUMA

(Key Words: airway obstruction, tracheal collapse, cricothyrotomy)

Emergency cricothyrotomy using wide bore needles can be useful in alleviating an airway obstruction due to entrapment of foreign bodies such as food stuffs in the larynx or the top part of the trachea. However, our recent experience of an acute airway obstruction suggests that needle cricothyrotomy may not be a life-saving measure in case the trachea has collapsed.

Report of the Case

The patient is a 52 year old female, 152 cm high and weighs 38kg. Eight hours after the open biopsy performed on the thyroid nodule, she began to choke because of hematoma in the neck. In order to relieve this, suture threads were cut off but the airway status became worse and worse manifesting cyanosis. She tried to breathe with the neck extended as much as possible, just like a posture of opisthotonus. It appeared essential to establish a secure airway before entering the operating theater for hemostasis. An endotracheal intubation was attempted through the mouth but was unsuccessful because of poor visibility of the glottis due to the locked jaw, violent movement in addition to edema formation. During the intubation attempts through the nose, as the second step, a

complete airway obstruction suddenly occurred, then we attempted cricothyrotomy using Trahelper*(Top NO. 10, 9 cm long Tokyo Japan) through the biopsy wound but no amount of air was delivered by Mouth-to-Trahelper. Lastly, the trachea was manipulated by entering the finger tips through the wound but was found to have collapsed. We assumed that the trachea had flattened because of the effort of inspiration augmented by the stress of transnasal intubation attempts as well as the hematoma. Ultimately we managed to place an endotracheal tube, Fr. 6.0, through the mouth.

Discussion

When the neck swells because of hematoma, edema, etc., it may not be an easy task to identify the larynx or the top part of the trachea in the choking patient. In addition a large bore needle may not be long enough to reach to the air passage.

Consequently to prevent a disastrous outcome during emergency tracheostomy, it is an essential requirement, as advocated by Simon¹, to learn how to quickly identify the hyoid bone in cases of swollen neck, because the larynx and the remainder of the upper airway is suspended under this non-collapsible bone. Therefore, the identification of the the hyoid bone is a good landmark when performing tracheostomy even in the state of neck swelling, severe mandibular trauma, etc.

We must keep it in mind that the needle cricothyrotomy may not be lifesaving in all

Department of Anesthesia and Surgery, Mito Saiseikai General Hospital, Royal Gift Foundation, Mito, Japan

Address reprint requests to Dr. Watanabe: Department of Anesthesia and Surgery, Mito Saiseikai General Hospital, 3-3-10, 2-Choume, Futabadai, Mito City, Ibaraki, 311-41 Japan

the types of upper airway obstruction.

Acknowledgement: We are grateful to Dr.G. Trahern, Institute of High Energy Physics, for linguistic help with the manuscript.

(Received Dec. 7, 1988, accepted for publication Apr. 13, 1989)

References

1. Simon RR, Brenner BE: Emergency cricothyrotomy in the patients with massive neck swelling: Part 1: Anatomical aspects, Part 2: Clinical aspects, *Critical Care Medicine* 11:114-118 & 119-125, 1983