Trends in Anaesthesia and Critical Care 6 (2016) 28–31

Contents lists available at ScienceDirect

Trends in Anaesthesia and Critical Care

journal homepage: www.elsevier.com/locate/tacc

Opinion

Digital intubation: Never blind anymore

H. Miguel Alcalde*, J. Bollici Martínez, A.M. Martín Rubio

Dept. Anaesthesiology and Resuscitation, Santa Bárbara Hospital, Spain

ARTICLE INFO

Article history:
Received 3 January 2016
Received in revised form
16 February 2016
Accepted 16 February 2016

Keywords:
Blind digital intubation
Ultrasound
Intubation technique

ABSTRACT

The anaesthetist is the physician with the highest degree of expertise in airway management. Blind digital intubation is a technique which only rarely can be regarded as the method of choice to ensure airway. However it provides an alternative which, even when conventional techniques fail, can be life-saving for a patient. Successful performance greatly depends on the anaesthetist's training, experience and skills. Ultrasound is a good tool which can help us learn to use this technique.

1. Introduction

No anaesthetist has ever faced a patient's death for ignoring what the Hoffman pathway is but this may have happened, however, as a result of an incorrect management of a patient's airway [1].

Even though blind digital intubation was first described in the late 18th century to save victims of drowning [2], little further attention was paid to this technique until Stewart started to use it in the setting of pre-hospital and emergency care in the mid 1980s [3].

We do currently have a range of devices (video-larylaryngoscopes, fibrobronchoscopes, laryngeal masks …) that help us manage the airway safely and reliably, but we still lack an infallible tool for this purpose. All such developments have turned routine use of such technique become obsolete; furthermore, both anaesthetist (experience with the procedure and finger length, especially short fingers) and technique-related factors (blind technique ensuing higher chances of injury for both the anaesthetist and the patient) have limited its use even further. However, this can be our only available tool, especially in an extra-hospital setting in cases where the usual equipment is not available or out of use. If we figure out, for example, that a laryngoscope is our only available device and has run out of battery, that the anaesthetist cannot be positioned at the head of the patient in order to perform a normal laryngospcopy or we have limited vision of the airway because the patient's mouth is full of bloody material [4].

Although this technique does not have a specific indication it is mentioned in the ASA Guidelines for the management of the difficult airway as an appropriate tool when required [5], it is unfortunately not mentioned in most textbooks or regularly included in the training programs for airway management in both the intra and extra-hospital settings. Thus, even though many anaesthetists, intensive care and emergency physicians have read or heard about it, not many have ever had the chance of either performing it or even having been trained on it.

2. Blind digital intubation technique

Just like in any other case, it is necessary to have both a ventilation and oxygenation device as well as trained personnel to assist us. The factors which will determine the effectiveness of the technique depend on the patient's anatomic features (mouth opening, presence or absence of teeth, neck length), the anaesthetist's experience and skills with the technique and finger length.

We must firstly have a metal sytlet available, which will reach Murphy eye and help us preshape the tube in a handlebars shape (Photo 1). The distal half of the tube is bent into a C shape (this will need to be individualized depending on the patient's features and the operator's experience) and must end up perpendicular to the proximal half. Lubrication of the stylet and the tip of the tube will make the whole process easier. We must wear double gloves in our dominant hand in order to prevent wounds to the operator's hand caused by the patient's teeth.

The patient should be supine with the head in a slight sniffing position. The operator must stand with its dominant side closest to the patient's body. The tube must be held with the dominant hand.

* Corresponding author. Anaesthesia and Resuscitation, Dept Paseo Santa Barbara S/N, 42005 Soria, Spain. Tel.: +34 696199744.
E-mail address: feihec@gmail.com (H. Miguel Alcalde).

http://dx.doi.org/10.1016/j.tacc.2016.02.002
2210-8440/

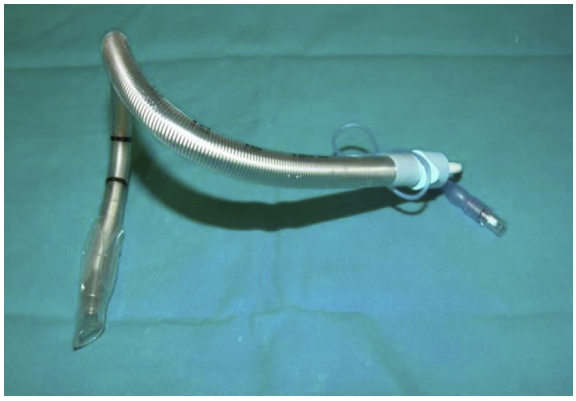

Photo 1. Preformed tube.

An assistant must gently grasp the patient's tongue with a piece of gauze and pull it outwards in order to elevate the epiglottis and thus introduce the tip of the tube inside the glottis.

The operator must then introduce the index and middle fingers of the non dominant hand inside the oral cavity with the palm of the hand facing down (Photos 2, 3) and must feel the tip of the epiglottis with the tip of the fingers; once identified, it must be lifted with the middle finger of the non dominant hand.

The tube must introduced into the patient's mouth and glided on either the palmar or volar surface of the index and middle fingers of the nondominant hand which keep the tube in the midline. The index finger may be used to guide the tip of the tube to the epiglottis; the tube must never be advanced forcefully against resistance. Eventually the metal stylet must be removed and correct placement of the tube must be checked with auscultation and capnography.

This technique is also useful for the use of tracheal introducers, commonly known as “gum elastic bougies”, which will later facilitate conduction of the endotracheal tube [7] (Photo 4).

The clicks that the advance of the introducer makes when it grazes the tracheal rings result in a tactile vibration which confirms correct placement of the tube in the trachea in 90% of cases, with search for resistance or stop found when the introducer is advanced 30–35 cm and is glided into the main right bronchus (which has been reported as a sign of 100% reliability to confirm correct placement into the trachea [8]) being unnecessary. We recommend

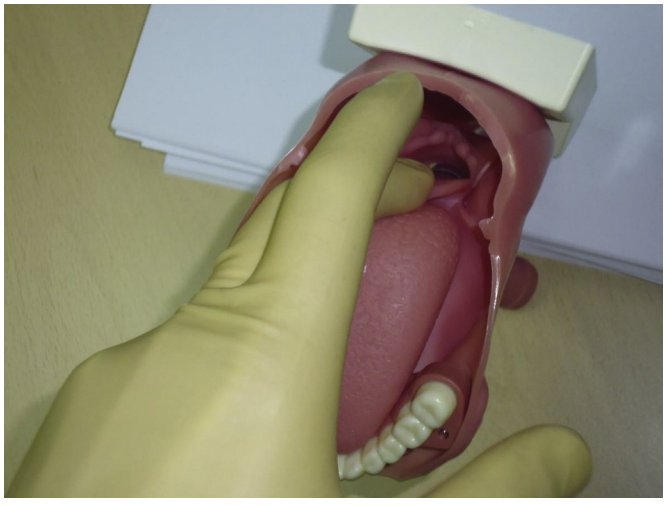

Photo 2. Middle finger position.

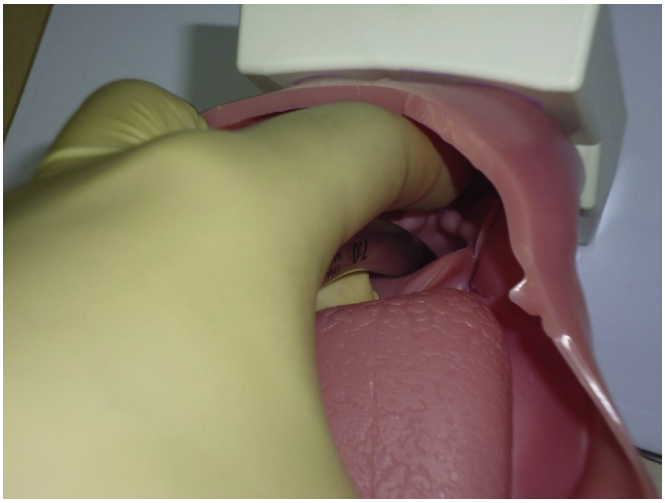

Photo 3. Middle and index finger position.

to start by using this technique with anesthetized patients undergoing elective procedures; this type of introducers are thinner and less rigid than the stylet-endotracheal tube and can thereof be more easily guided to the epiglottis with a lower injury risk. By

Photo 4. Introducer tracheal.