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Case Report

Rare Use of Foleys Catheter as Airway Exchange Catheter in a Case of Difficult Intubation: A Case Report

Sakshi Chopra*

India

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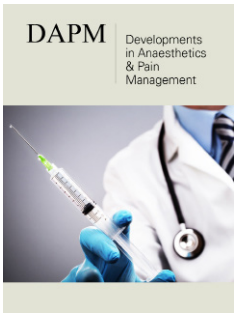

***Corresponding author:** Sakshi Chopra, India

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Abstract

Difficult airway is always a nightmare for an anesthesiologist, and even worst is the situation when that endotracheal tube, which has gone in with a lot of difficulty gets blocked. Answer to this situation is Endo Tracheal Tube Exchanger (ETTE), airway exchange catheter or gum elastic bougie. Endotracheal Tube Exchanger (ETTE) or Airway Exchange Catheter (AEC) are thin, long, rigid, hollow tubes that can be left in place as a safety device to be used as a guide for reintubation when inserted through an Endo Tracheal Tube (ETT) before its removal if extubation fails. Alternatively, AEC can be used to insufflate oxygen, monitor end tidal CO_2, or jet ventilation [1]. However, fiberoptic endoscopy has been suggested as a better and safer option to exchange ETTs [2-4]. But what to do in an emergency when nothing is available. Thus, we used a Foleys catheter as an airway exchange catheter for changing the endotracheal tube.

Abbreviations: ETTE: Endo Tracheal Tube Exchanger; AEC: Airway Exchange Catheter; ETT: Endo Tracheal Tube; COPD: Chronic Obstructive Pulmonary Disease; FOB: Fiber Optic Bronchoscope; AIC: Aintree Intubating Catheter

Introduction

A 65 year old male patient, known case of Chronic Obstructive Pulmonary Disease (COPD) in acute exacerbation, with kyphoscoliosis, short neck and obesity was present in our ICU on mechanical ventilator. Patient was a case of difficult intubation in view of short neck, kyphoscolioisis and obesity. He was intubated with a help of Fiber Optic Bronchoscope (FOB). After three days, his Endo Tracheal Tube (ETT) got blocked with thick, purulent secretions and we were unable to ventilate him adequately. Thus, we decided to change ETT, but in emergency FOB, airway exchange catheter and gum elastic bougie were not available. We decided to use a Foleys catheter as an airway exchange device, with guide wire used for intramedullary nails, inserted in it to provide shape and rigidity to the catheter. After ventilating the patient with 100% oxygen we disconnected the circuit, inserted Foleys catheter with guide wire in it, into the endotracheal tube. We deflated the pilot bulb and extubated the patient with Foleys catheter in his trachea that was used as a guide to railroad another ETT. Later Foleys was taken out, circuit connected, and bilateral air entry checked.

Discussion

Maintaining continuous access to the airway postextubation via an AEC can be an important component of an extubation strategy in selected difficult airway patients. The indwelling AEC appears to increase the first-pass success rate in patients with known or suspected difficult airways and decrease the incidence of complications in patients intolerant of extubation and requiring tracheal reintubation [5]. Airway exchange catheters (AECs) are long catheters designed for changing one airway device (LMA or tube) for another. They include the Cook™

Airway Exchange Catheter (standard or extra-long version for use with double lumen tubes) and the Cook™ Aintree Intubating Catheter, which has a larger internal diameter to allow placement using a fibre-optic bronchoscope. If a narrow gauge AEC is used, it can be combined with an Aintree Intubating Catheter (AIC) to ease passage of tube during re-intubation. The AIC acts as stiffener and also decreases step between catheter and tracheal tube which can impinge on the vocal cords or in the piriform fossae [6].

AECs range in size from 8-19Fr gauge and are between 45cm and 100cm in length. They usually have a hollow lumen for the delivery of oxygen, which is connected to the catheter by either a 15mm or Luer-lock Rapi-Fit™ connector. Oxygen can then be delivered by insufflation (via a 15mm connector at constant flow), ventilation (via an anaesthetic circuit) or jet ventilation (with a jet injector). Pressures of 15-50PSI have been described for jet ventilation (103-344kPa) the upper limit of which is approaching unrestricted wall oxygen (400kPa) [7]. The effect of the AEC itself on the rate of re-intubation is unclear. It seems reasonable that AECs might actually increase the re-intubation rate, by narrowing the airway lumen, causing trauma and inflammation, and precipitating cough and stridor.

Angiographic Catheter (AC) is commonly used in intervention cardiology, but its use as an airway exchange cathteter is also well known. Samanta et al. [8] used it as an airway exchange catheter through Proseal Laryngeal Airway Mask (PLMA) in an unanticipated difficult airway in Emergency Department (ED). Recently, a surprising high failure rate exchanging endotracheal tubes has been noted by Mort et al. [9] when using the oral approach. If a tube exchanger comes out through the side hole while the ETT is still in the trachea, there is danger to damage the mucosa of the tracheal wall and even perforate the trachea or bronchial wall. There have been case reports of endobronchial rupture using tube changers [10,11]. The use of a larger endotracheal tube exchanger eliminates the possibility of the exchanger coming out through the Murphy eye and it is recommended when available and feasible but, ETT partial obstruction or nasal tube exchanges require an instrument of smaller caliber and more flexibility respectively. If ventilation were necessary during the exchange with an adult size exchanger, it would have to be through the exchanger itself requiring a different set up (jet ventilation) and of course, it would expose the patient to additional risks such as a pneumothorax from barotraumas [12].

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