Case Report

Use of the Aintree Intubation Catheter with the Laryngeal Mask Airway and a Fiberoptic Bronchoscope in a Patient with an Unexpected Difficult Airway

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Abstract

**Purpose:** To present a case where the Aintree intubation catheter was used in conjunction with the Laryngeal Mask Airway (LMA) and a fiberoptic bronchoscope (FOB) in a patient with an unexpected difficult airway.

**Clinical Features:** A 38 year old 90 kg man scheduled for nasal endoscopy with ethmoidectomy under general anesthesia was found to be unexpectedly difficult to intubate using a both a MAC 4 laryngoscope and a GlideScope® video laryngoscope, despite having an airway exam that was unremarkable except for a slightly decreased mouth opening and a large tongue. Intubation was achieved by inserting a size 5 LMA into the patient, introducing a FOB into an Aintree intubation catheter, inserting the FOB / Aintree catheter assembly into the trachea via the LMA, removing the LMA, and then passing a regular size (7.5 mm) endotracheal tube into the trachea over the Aintree catheter.

**Conclusion:** The Aintree intubation catheter provides an effective alternative to other methods for intubating through a regular LMA.
There are a wide variety of options for management of unexpected difficult intubation in patients under general anesthesia. These options include, but are not limited to, oral and nasal fiberoptic intubation, blind oral and nasal intubation, retrograde intubation, the use of a light wand (e.g., Trachlight®) or gum-elastic bougie, intubation through a laryngeal mask airway, and even the use of dental mirrors [1-5]. In this report we describe the successful use of the Aintree intubation catheter with the Laryngeal Mask Airway® (LMA) and a fiberoptic bronchoscope in a patient with an unexpected difficult airway.

Case Report

The patient was a 38 year old 90 kg African American male scheduled for a left nasal endoscopy with ethmoidectomy for chronic ethmoid sinusitis. The procedure was to be under general anesthesia. The patient had an unclear history of difficult intubation with his first surgery, but stated “I haven’t had any problems with surgery since then”. The patient’s airway exam was unremarkable except for a slightly decreased mouth opening and a large tongue.

Because of our favorable experience in using the GlideScope® video laryngoscope in patients who were previously difficult to intubate, we decided to proceed using the GlideScope [6-8] under general anesthesia. Intubation was not expected to be difficult. Following pre-oxygenation, anesthesia was induced with propofol (200mg), while succinylcholine (180mg) was used to facilitate tracheal intubation. Mask ventilation was
not difficult. We then attempted to intubate the patient using the GlideScope, but found that with the GlideScope in place, the large tongue made it hard to get enough remaining space in the oropharynx to successfully manipulate the ETT into position. The GlideScope was then abandoned in favor of trying an ordinary MAC 4 laryngoscope, which was also abandoned because the glottic structures were not able to be visualized at all.

Although we were still able to ventilate the patient by mask, we were concerned that further unsuccessful attempts at direct laryngoscopy could lead to airway trauma, converting a “cannot intubate” into a “cannot intubate, cannot ventilate scenario”. As a result we embarked on the following plan. A size 5 disposable LMA was placed, by which we were easily able to maintain ventilation. An Aintree intubation catheter was then placed over a fiberoptic bronchoscope (FOB), and both were then placed without difficulty through the LMA into the patient’s trachea. The FOB was then removed, followed by removal of the LMA, being careful to keep control of the proximal tip of the Aintree catheter at all times. Once the LMA was removed, a Parker size 7.5 ETT was then “railroaded” over the Aintree catheter into the patient’s airway. Following ETT cuff inflation and clinical / capnographic confirmation of the ETT position, the ETT was then secured. At the completion of the surgery patient was extubated and was sent home that day with information on obtaining a “difficult airway” Medic Alert bracelet.
Discussion

The Aintree intubation catheter is a disposable hollow ventilation/exchange bougie that allows a fiberoptic bronchoscope (FOB) to pass through [9]. It is 57 cm long, with a graduated scale on its outside, and has an internal diameter of 4.0 mm; this length covers the span of a standard fiberoptic scope, leaving the last 3 cm uncovered to allow directing the scope. The catheter can be used to insert endotracheal tubes 7.0 mm or larger and comes with a “Rapi-fit” connector to allow additional ventilation during intubation [9]. Patterned on a rigid jejunostomy tube which has been used for intubation through an LMA [10], it was specifically designed as an adjunct in intubating patients into whom an LMA has already been placed. Although authors have described its use in patients with normal airways [9] as well as in intubating a patient through the cuffed oropharyngeal airway (COPA) [11], its use in a patient with a difficult airway has not yet been reported.

In conclusion, the Aintree intubation catheter provides an excellent alternative to the other methods for intubating through LMAs, such as using a guidewire [12] or using a small diameter ETT and pushing it blindly through the laryngeal aperture bars of the LMA [13] or standard fiberoptic intubation through the LMA using a smaller diameter tube [14]. The main advantage of this technique is that it eliminates the need for changing a small diameter tube for a larger diameter tube along with the risks and costs incurred in doing so.
References


