

# Wuscope-EndoFlex tube Technique in Difficult Airway

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## Abstract

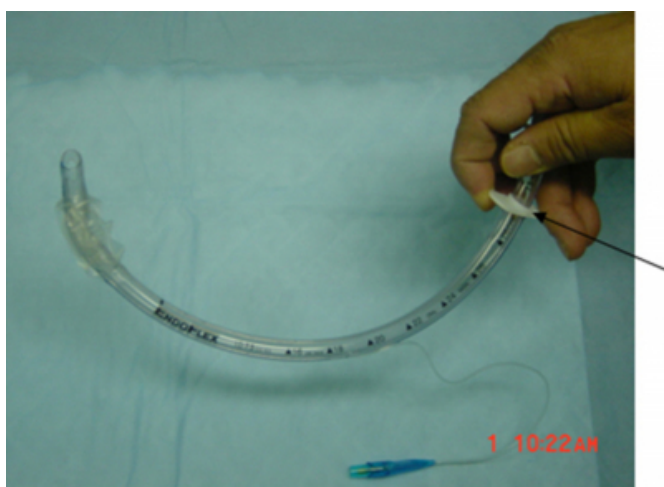
Difficult intubation presents challenge to the anesthesiologist. Many techniques have become available and adopted for managing the airway of patients with risk of difficult intubation. We report a case of anticipated difficult intubation due to cervical spondylosis with limited neck movement and Mallampati grade III. The patient underwent laparoscopic cholecystectomy under general anesthesia. Endotracheal intubation was successfully performed using combined WuScope-EndoFlex tube technique which we adopted. The glottic exposure was satisfactory and tracheal intubation was easy. To the best of our knowledge this is the first report on the use of WuScope-EndoFlex tube technique for difficult intubation.

## CASE REPORT

A 62-year-old female patient presented for laparoscopic cholecystectomy under general anesthesia. Preoperative assessment of the airway revealed limited neck movement and Mallampati III. Premedication included lorazepam 2mg (PO) and ranitidine 150mg (PO) 2 hr preoperatively. In the OR routine monitoring established. Intravenous and arterial lines were inserted. The EndoFlex tube has been recently introduced in our field (Merlyn Medical, Tustin, USA) (Figure 1).

### Figure 1

Figure 1: EndoFlex tube with flex tip after pulling the friction lock (black arrow)



The EndoFlex tube has flexible distal tip which is articulated by a durable monofilament cable, which is controlled by an exclusive friction lock. Protective membranes cover the

articulation notch and cable, maintaining tube integrity. Prior to induction of anesthesia the Wuscope was assembled (Pentax Precision Instruments, Orangeburg, NY). The device comprises of a tubular, curved, bi-valved, rigid blade portion and a flexible fiberscope portion (Fig 2).

### Figure 2

Figure 2: Wuscope



The main blade and the bi-valved element each having corresponding grooves that form a larger passageway for the endotracheal tube (ETT). The ETT can be advanced through the glottic opening without the need for an intubating stylet or head extension. However, the manufacturer advised the use of suction catheter through the lumen of the ETTA as a replacement of the intubating stylet. Endoflex tube 7.5mm was then uploaded in the Wuscope (Figures 3,4) (1).

**Figure 3**

Figure 3: Assembled Wuscope-EndoFlex tube



**Figure 4**

Figure 4: Wuscope-EndoFlex tube with activated friction lock



After preoxygenation induction of anesthesia consisted of sufentanil 10mcg and 200mg propofol i.v. Endotracheal intubation was facilitated using 100mg succinylcholine i.v. The loaded Wuscope combined with EndoFlex tube introduced into the oropharynx and advanced toward the larynx. The glottis was visualized and the tip of the EndoFlex tube was bended upward by pulling the friction lock upward and then the tube advanced to be at the glottis. Then the friction lock was deactivated the the tube advanced further between the vocal cords. Then the Wuscope was removed and the tube connected to anesthesia circuit. Muscle relaxation was achieved with cisatracurium. Anesthesia was maintained with sevoflurane 1-2 MAC and incremental doses of sufentanil and cisatracurium. At the

end of surgery reversal of muscle relaxant was given with atropine 1mg and neostigmine 2.5mg i.v. followed by tracheal extubation.

### **DISCUSSION**

In this case report, we demonstrated the use of fiberoptic laryngoscopy using the Wuscope combined with the EndoFlex tube with easy glottic exposure and tracheal intubation. The EndoFlex tube was introduced to facilitate endotracheal intubation. Unfortunately I couldn't find any published article to be used as reference. The manufacturer claims that it facilitates endotracheal intubation in difficult airway.

The WuScope had been used previously in approximately 300 adult patients to facilitate oral and nasal tracheal intubation, including 48 cases of difficult intubation. No failures were reported in the initial series, despite the large number of patients with high Mallampati grade III and IV, caudal larynx and receding jaw (2,3).

The reported advantages of the WuScope are an oropharyngeal airway-shaped blade to allow glottic visualization without the need for head extension, tongue lifting, or forceful jaw opening in addition to the tubular built-in ETT passage-way through which the tube can be advanced without stylet (4,5). Also it has been reported as tool of choice in cervical spine immobilization versus conventional laryngoscopy (6,7). The manufacturer has advised the use of suction catheter as a replacement of stylet to facilitate ETT. In our practice we found that each time you advance the ETT or the suction catheter, which rarely we use it, the tube hits the posterior end of the glottis. In that case we need to manipulate the scope on either sides of the oropharynx and readjust the ETT to pass it between the vocal cords. Therefore there is a real advantage of using EndoFlex tube along with the Wuscope. The important feature of the EndoFlex tube is when the friction lock activated and subsequently the tip of the tube will bend anteriorly and easily then can pass between the vocal cords. In previous reports we have described the so called Wuscope-Univent tube technique for difficult airway with very encouraging results (8,9).

In the present case report the patient was having cervical spondylosis with limited neck movement; therefore we found the WuScope-EndoFlex tube suitable for glottic visualization. Another advantage of the WuScope is that, unlike flexible fiberoptic endoscope, one can continuously view the ETT as it advances through the glottic opening into

the trachea.

## **CONCLUSION**

In conclusion, this is the first report on the use of combined Wuscope-EndoFlex tube technique in anesthesia practice. Moreover, and to the best of our knowledge this is the first case report on the use of combined Wuscope-EndoFlex tube technique in difficult airway.

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