Canadian journal of anaesthesia (2013.Jan) 60巻1号:85～86.

Nasotracheal intubation by combined use of a Bullard™ laryngoscope and a cuff inflation technique in a patient with a severely restricted mouth opening

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Key words: Bullard laryngoscope; Nasotracheal intubation; Restriction of mouth opening.
Word count: 531

To the Editor:

Bullard laryngoscope (Circon ACMI, Stamford, CT, USA) is an anatomically shaped rigid fiberoptic laryngoscope that has been used for more than two decades.[1] One of the unique characteristics of this laryngoscope is a very thin blade, which requires only 6 mm of mouth opening for insertion. We report a case in which nasotracheal intubation was performed by combined use of the Bullard laryngoscope and cuff inflation technique for a patient with severe restriction of mouth opening.

Written informed consent was obtained from the patient. A 66-year-old male patient of 157 cm in height and 45.5 kg in weight was scheduled for keratolpasty. His mouth opening distance was only about 9.5 mm because of radiation therapies for maxillary sinus cancer. Thus, nasotraheal intubation was planned for airway management. To observe the laryngeal structure, a fiberscope was considered, but the Bullard laryngoscope was selected because tracheal tube advancement over a fiberscope is performed in a blind manner, which may cause **airway traumas; arytenoid cartilage dislocation or vocal cord trauma**. General anesthesia was induced with 150 μg of fentanyl and 30 mg of propofol. Bag-mask ventilation was performed successfully, and then 40 mg of rocuronium and 0.3 μg/kg/min of remifentanil were administered. Even after administration of neuromuscular blockade, no additional mouth opening was obtained. A tracheal tube of 7.5 mm in internal diameter was inserted nasally, and the Bullard laryngoscope was inserted orally to lift the epiglottis directly. A laryngeal view was easily obtained through the eyepiece of the Bullard laryngoscope, and then the tracheal tube was advanced carefully in the view field. The tracheal tube cuff was inflated once to lift up the tube tip and direct the vocal cords and then deflated to pass through the vocal cords. The tracheal tube

was successfully inserted into the trachea and general anesthesia was maintained throughout the operation without any complications. Also, no complication was found in postanesthetic rounds.

In the past several years, anatomically shaped indirect laryngoscopes with a tracheal tube guide **channel** such as Pentax Airway Scope™ (HOYA, Tokyo, Japan) and Airtraq™ (ProdolMeditec SA, Vizcaya, Spain) have become very popular and have been reported to be useful in airway management. Although several studies have shown that the Airtraq and Airway Scope are more useful than the Bullard laryngoscope in tracheal intubation[2,3] and some studies have shown that rigid laryngoscopes are also useful for nasotracheal intubation[4,5], these laryngoscopes have a bulky blade configuration as a consequence of the tube channel being thicker than tube diameter. **Even the Airtraq designed for nasotracheal intubation which does not have the tube guide channel requires 18 mm of mouth opening for insertion. Therefore, the thinner blade of the Bullard laryngoscope was adequate for the case to obtain laryngeal view.** In our case, fiberoptic bronchoscopic intubation or the ligtwand technique through nostril could be alternatively used, but tracheal tube advancement over the fiberscope as well as lightwand intubation is performed in a blind manner, which may cause **airway traumas; arytenoid cartilage dislocation or vocal cord trauma**. Bullard laryngoscope-assisted nasotracheal intubation can be a useful approach in patients with severe restriction of mouth opening because it provides a good laryngeal view and continuous observation of tube insertion throughout the procedure.

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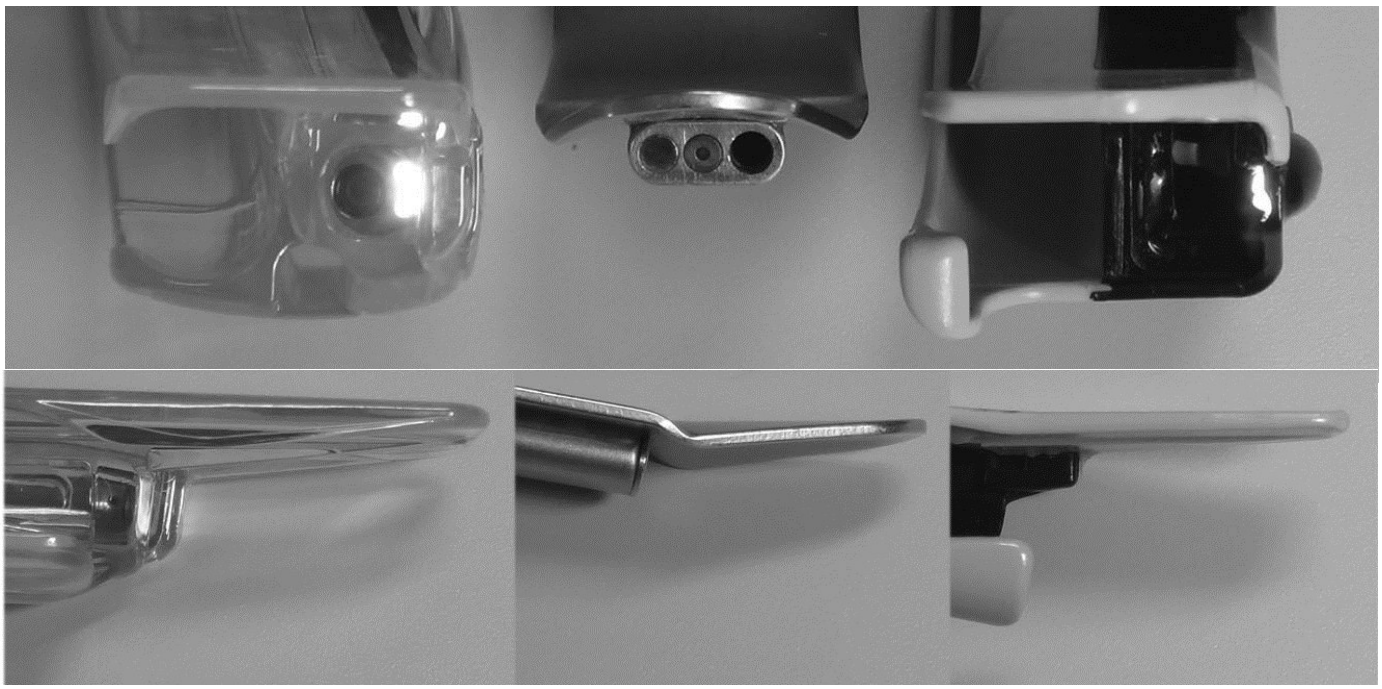
Figure Legend

The blade tips of Airway Scope (left), Bullard laryngoscope (center), and Airtraq (right). The thicknesses of these blades are 18, 6, and 18 mm, respectively.

Figure 1



Airway Scope Bullard laryngoscope Airtraq