Technical Communication

New device for Pentax-Airway Scope in pediatric intubation

Cheesang Ho 1,2

1 Department of Anesthesiology, Kuang Tien General Hospital, Taichung, Taiwan, R.O.C.
2 Taipei Medical University, Taipei, Taiwan, R.O.C.

A R T I C L E   I N F O

Article history:
Received 20 November 2009
Received in revised form 13 April 2010
Accepted 16 April 2010

Key words:
laryngoscopes: video-assisted;
tubation, intratracheal: pediatric

A B S T R A C T

The PBLADE® which is a component used with Pentax-Airway Scope® (AWS) has only one size that is essentially for use in adults. It cannot be used in children and neonates. We have made a new device to fit the Pentax-AWS for use in children and neonates. This new device will provide a good indirect visualization for intubation in pediatric patients.

Copyright © 2010, Taiwan Society of Anesthesiologists. Published by Elsevier Taiwan LLC. All rights reserved.

Fig. 1. A and B were the lateral and oblique view of our device with the detail data, and C was the product which was made by stainless steel.
The Pentax-AWS® (AWS), combined with PBLADE® was commercially available for clinical use in July 2006. Its limitation is that it can only be used in adults but not for children and neonates. So we designed a device to make up for this shortcoming.

The device was made of stainless steel and was a computer-aided design (Fig. 1). It could fit the AWS PBLADE adapter. An endotracheal tube (Fr. 8.0) was cut to the same length as the existing AWS flexible stick. Then the flexible stick was inserted into the shortened endotracheal tube and locked in place to the handle. Banded the flexible stick as long as necessary (Fig. 2), and the angle was 90°. Using our device for intubation (Fig. 2) in pediatric patients, it could produce a good view. The technical maneuver for intubation just likened the use of GlideScope.

Comparing the thickness and the width of endotracheal tube (Fr. 8.0) with those of AWS flexible stick inside (T: 11.3 mm; W: 10 mm) and the blade of Miller type laryngoscope (Medical devices (Pvt.) Ltd.) size 0 and 1 (T: 12.5 mm; W: 13.2), we found that the thickness and the width were less than the Miller type laryngoscope. So our device did not hinder intubation. When compared the direct view of vocal cords by Miller type laryngoscope with that of our device, we found that the view of vocal cords was magnified in the direct view than the indirect visualization of the vocal cords (Fig. 2).

The decisive factor for successful in intubation by this device was the hardness of the stick. If it was too soft, it could not support the elevation of the epiglottis. Also soon after banding, the stick would recover by itself. If too hard, it could not be banded to the desired angle that we need. Finally, we chose SUS304 stainless steel for the stick. Why we chose Fr.8.0, endotracheal tube because using Fr. 7.5 you could put the stick in, but it was difficult to withdraw it, so we recommend using endotracheal tube Fr.8.0.

In the future, we would carry on clinical practice after obtaining approval of the Institution Review Board.

References