Letters to Editor

Modified Guedel’s airway for facilitation of fiberoptic laryngoscopy

Sir,

Fiberoptic laryngoscopy (FOL) is an important armamentarium for managing difficult airway. FOL is used for intubating the trachea in awake patients or in patients under general anesthesia. Literature proves the usefulness of various oral airways in facilitation of endotracheal intubation (ETI) using FOL.\(^1\)\(^-\)\(^3\) Oral airways aid in mask ventilation and directing the scope towards the glottis during FOL. During FOL in awake patients, these airways serve as the bite blocks while in FOL after induction of anesthesia these airways maintain the contour of the oropharynx. Several types of airway are available for this purpose namely William’s airway, Berman’s airway, Ovassapian’s airway. Various modifications of the oral airways have been suggested from time to time.\(^4\)

We have modified the Guedel’s airway to serve as FOL assist airway. In three simple steps, we can convert a conventional Guedel’s airway to FOL assist airway.

Step 1: An appropriate size Guedel’s airway is taken and an 8mm strip of the plastic is cut from the convex surface [Figure 1].

Step 2: An 8mm strip of plastic is cut from the color coded bite block if a 5mm FOL is to be used [Figure 1].

Step 3: The bite block is inserted into the airway so that the cut surface of the airway and bite blocks is opposite to each other [Figure 2].

This modified Guedel’s airway is inserted just like a conventional Guedel’s airway. The fiber-optic scope is inserted through the channel in the bite block and the scope is forwarded along the length of airway to visualize the glottis. Once the trachea has been entered, the airway has to be removed and the endotracheal tube rail-roaded in. While removing the airway over the scope the bite block has to be removed first followed by the airway.

We have used this airway in fifty patients, achieving almost hundred percent success rates. This modification of the airway is easily designed, cheap and disposable and due to the shape of the Guedel’s airway the distal end directs the scope to the glottis. Users have to remember that choosing an inappropriate sized airway may make their task difficult instead of simplifying it. One limitation of this airway is that it cannot be inserted in patients with restricted mouth opening.

Amit Rastogi, Anuj Jain, Surendra Singh, Prakhar Gyanesh
Department of Anaesthesiology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, India

Address for correspondence: Dr. Anuj Jain, Department of Anaesthesiology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, India. E-mail: anuj.jain.mln@gmail.com

References

1. Patil V, Stehling LC, Zauder HL, Koch JP. Mechanical aids for fiberoptic endoscopy. Anesthesiology 1982;57:69-70.
2. Ovassapian A. Fiberoptic tracheal intubation in adults. In: Ovassapian A, editor.Fiberoptic Endoscopy and the Difficult Airway. 2nd ed.Philadelphia: Lippincott-Raven Publishers; 1996. p. 71-103.
3. Patil V, Stehling LC, Zauder HL. Fiberoptic endoscopy in anesthesia. Chicago: Year Book Publishers; 1983.
Sir,

Ultrasound is popular for the brachial plexus block, allowing real-time visualization of the brachial plexus, pleura, blood vessels, needle, and the local anesthetic spread. Ultrasound guidance is the gold standard for nerve blocks and helps in detecting abnormal anatomy of the brachial plexus.

We report the occurrence of pneumothorax in a patient after administration of brachial plexus block under ultrasound guidance.

A 60 kg, 46-year-old man, a chronic smoker with chronic obstructive lung disease, suffered a fracture of the right radius. He was scheduled for open reduction and plate fixation, under the brachial plexus block. After initiating the monitoring and securing an 18G intravenous (IV) cannula, midazolam 1.5 mg was administered IV.

A 10 MHz, linear probe (Soneo, Kontron Medical, Plaisir, France) and a 22G, 4 cm stimulating needle were used for the brachial plexus block. Under all aseptic precautions, the probe was placed in the coronal oblique plane and the brachial plexus, first rib, subclavian artery, and the pleura identified in the supraclavicular area. The lateral to medial approach was used for insertion of the needle. Initially, the tip of the needle was not clearly visible. After adequate visualization, 25 mL of 0.25% Bupivacaine was injected into the sheath of the brachial plexus. The spread of the local anesthetic was observed during the injection.

After 10 minutes, the patient complained of dyspnea and became restless. The oxygen saturation decreased gradually from 98% to 78%. The air entry was decreased on the right side of the chest. After administration of oxygen via the ventimask, the oxygen saturation improved to 92%. The vitals remained stable during this period. A chest X-ray (CXR) anteroposterior (AP) view was taken revealed a right-sided pneumothorax [Figure 1]. The chest wall to the lung margin distance was 2.5 cm. Under local anesthesia, chest tube was inserted in the second intercostal space and continuous air bubbles were seen in the fluid-filled container. The oxygen saturation improved to 99%. The surgery was postponed and patient was shifted to the ICU for further management.

Repeat CXR (AP view) confirmed the re-expansion of the lung with minimal residual pneumothorax. After two days, the chest tube was removed and the patient underwent the surgery under IV regional anesthesia.

In this case, pleural puncture probably occurred during the transient loss of visualization while advancing the needle initially. The tip of the needle was wrongly visualized by the anesthesiologist, although he was experienced with the use of ultrasound guided brachial plexus block. The tip of the needle was actually more distal than its appearance on the image, because of the improper alignment of the probe with the needle. This transient loss of visualization of the tip of the needle is a potential cause of error for the beginners.

A continuous visualization of the tip of the needle and proper alignment of probe with the needle must be ensured and in addition the needle should be slowly advanced towards the brachial plexus to avoid complications.

There is higher risk of pneumothorax in chronic obstructive lung disease. Our patient was a chronic cigarette smoker and had chronic obstructive lung disease. In order to improve visualization of the tip of the needle, hydrolocalization using 5% dextrose can be used. An ultrasound machine with needle visualization enhancing technology, is advocated.

In contrast to our experience, Bameshki AR, Bakhshaee M. have described an airway which facilitates intubation with a fiberoptic laryngoscope. Iran J Otorhinolaryngol 2010;61:159-60.