AWAKE TRACHEAL INTUBATION WITH COMBINED USE OF KING VISION™ VIDEOLARYNGOSCOPE AND A FIBEROPTIC BRONCHOSCOPE IN A PATIENT WITH GIANT LYMPHOCELE

MOHAMED R. EL-TAHAN*, D. JOHN DOYLE**, ALAA M. KHIDR*, MOHAMED A. REGAL***, AYMAN B. EL MORSY*** AND MOHAMED EL MAHDY*

Introduction

Airway devices such as the GlideScope® videolaryngoscope or the Airtraq® optical laryngoscope can facilitate fibreoptic-guided intubation1-4. In this report we show how a fiberoptic bronchoscope (FOB) guided through a channeled King Vision™ videolaryngoscope can aid awake tracheal intubation, as we illustrate in a patient with a giant lymphocele complicated by airway edema.

Case Presentation

A 33 year-old, 160 cm, 106 kg gentleman with 7 years of progressively enlarged chest and neck swelling presented with orthopnea and dyspnea and was scheduled for lymphocele excision. The patient’s hemogram, electrolytes, creatinine, and liver tests were normal. Pulmonary function tests showed a mild restrictive pattern (FEV₁ 68%, FVC 78%, and FEV₁/FVC 87% of predicted). A left anterior multi-cystic, non-tender chest wall swelling measuring 50 × 35 cm with dilated superficial veins was noted. This extended to surround the anterior neck as a collar and extended beyond the thyroid cartilage (Figures 1a and b). Neck movements were impossible, mouth opening was 3.5 cm, and the Mallampati score was II. Chest radiography showed a huge pedunculated left-sided chest wall mass extending to the neck, and compression of the middle third of the trachea. The trachea was deviated to the right (Figure 2). The lymphocele extended beyond the thyroid cartilage, precluding tracheostomy or suprasternal needle tracheotomy. CT demonstrated a large multiple loculated cystic mass arising from the chest wall superficial to the pectoralis muscles compressing the middle third of the trachea, obstructing approximately 40% of the tracheal lumen and extending beyond the thyroid cartilage. The major neck vessels and superior vena cava were patent (Figures 3a and 3b).

* Anesthesiology Department, King Fahd Hospital of the University of Dammam, Dammam, Saudi Arabia.
** Department of General Anesthesiology, Cleveland Clinic, Cleveland, Ohio, USA.
*** MD, Department of Surgery, Cardiothoracic Surgery Unit, King Fahd Hospital of the University of Dammam, Dammam, Saudi Arabia.

Corresponding author: Mohamed R. El-Tahan, Anesthesiology Department, King Fahd Hospital of the University of Dammam, Dammam, Saudi Arabia, P.O. Box: 40289 Al Khobar 31952, Saudi Arabia. Tel: +966 (56) 9371849, Fax +966 (13) 8651193. E-mail: mohamedrefaateltahan@yahoo.com
Fig. 1
Photographs showing the extension of the huge left anterior chest wall and neck lymphocele.
(a) Anterior view (b) Right lateral view.

Fig. 2
Postero-anterior views of the chest x ray showing a huge left anterior chest wall and neck lymphocele with no intra-thoracic extension.

Fig. 3
CT scan showing extension of the multi-cystic septated anterior neck and chest swelling.
(a) Coronal view (b) Sagittal view.
A plan for intubation was adopted, with the primary plan constituting of awake intubation using a FOB in conjunction with a King Vision™ videolaryngoscope, and with a back-up plan involving the use of an airway introducer, a tube exchanger and an intubating laryngeal mask airway, depending on the difficulties encountered.

A cardiothoracic surgeon was on standby to aspirate the neck cysts, or to initiate rigid bronchoscopy and jet ventilation. Cardiopulmonary bypass was available in the event of a failed airway or cardiovascular collapse. The upper airway was anesthetized with 2 mL of 10% lidocaine delivered by nebulization. The patient then gargled 1.5 mL of 10% lidocaine, followed by 2% lidocaine gel applied to the back of the tongue. Oxygen was delivered via nasal cannula, with sedation provided with an infusion in conjunction with 1 mg of midazolam.

Laryngoscopy was performed in a semi-sitting position using a King Vision™ video laryngoscope, where moderate hypopharyngeal edema and a grade III view of the glottis were observed. A 5.2-mm FOB loaded with a 7.5-mm endotracheal tube (ETT) was advanced via the King Vision™ video laryngoscope channeled blade. The ETT was then advanced into the trachea, while the glottis was visualized via the King Vision™ video laryngoscope.

After intubation, anesthesia was induced using propofol and remifentanil and maintained with desflurane and remifentanil, with no muscle relaxant administered.

The surgeon excised the cysts through neck collar and left sub-mammary incisions. Intraoperative vital signs remained stable throughout the 4 hour surgery. After the surgery, the patient was extubated, and was observed in the surgical intensive care unit for 24 hours.

Discussion

Experience indicates that awake fiberoptic intubation is successful in 88 - 100% of difficult airway patients. The flexible FOB is the preferred instrument in such patients, but the presence of restricted neck movement, pharyngeal edema or bleeding can preclude its use.

The use of video laryngoscopes as a FOB conduit can be helpful where the use of FOB alone is unsuitable. A channeled laryngoscope like as the Airtraq® optical laryngoscope facilitates fibreoptic-guided intubation using either a small FOB inserted through the ETT mounted in the guiding channel and then directed into the glottis or by using a large FOB inserted through the guiding channel and directed into the glottis, followed with railroading the ETT over its shaft. Additionally, video laryngoscope-assisted awake fibreoptic intubation has been shown to be a potentially useful technique in difficult airway management.

An expected problem in patients with a huge cervical partially-obstructing mass is hypopharyngeal edema. Awake tracheostomy was precluded in this case with the extension of the lymphocele beyond the thyroid cartilage.

In contrast to the fiberoptic bronchoscope, the King Vision™ video laryngoscope has many advantages: it is relatively inexpensive and easy to handle. It offers a 160 degree field of view, potentially eliminating the need for extensive manipulation of the bronchoscope, and is better suited for the tracheal intubation of patients with pharyngeal swelling as it displaces the pharyngeal tissue and may provide conduit for the FOB.

In conclusion, the combined use of King Vision™ video laryngoscope and a fiberoptic bronchoscope can be an effective method of awake tracheal intubation, as demonstrated in our patient with giant lymphocele.

Consent Statement

The patient’s written consent for publication of this report was obtained.

Conflict of Interest

All authors declare that they receive no support from any commercial organization or company, and have no conflicts of interest.

Financial support and sponsorship

None.
References


The key to

Lock-up

Postoperative Pain

Initial bolus
Inject 1 ampoule Tramal® 100 mg
i.v. or i.m. slowly over 2-3 minutes

Ways of administration after initial bolus

Infusion
Inject 2 ampoules Tramal®, each 100 mg, in 500 ml of infusion solution.
Infusion rate 12-24 mg Tramal®/h (16-
20 drops/min or 30-60 ml/h).

PCA
Subsequent increments of 25 mg
with a lock-out time of 5 minutes.

Injection
Usual dose 50 mg or 100 mg 4-6 hourly up to a total
daily dose of 400 mg except in special clinical circumstances
which might necessitate daily doses up to 600 mg.
Further treatment with Tramal® bolus on demand.

STEP III
Follow-up
- 50 mg
- 1-2 capsules every 4-6 hours
- 50 mg
- 20-40 drops every 4-6 hours
- 50 mg
- 1 suppository every 4-6 hours
- 100 mg
- slow release 1 tablet every 12 hours

Intra-Operative
Loading Dose
2.5 - 3 mg/kg at wound closure

Post-Anaesthesia Care Unit
An intra-operative loading dose of Tramal® will reduce
PONV rates

If intra-operative dose not given then:
BOLUS i.v.®
100 mg over 2-3 mins

For patients with localized BURNING SHOOTING STABBING Neuropathic pain

WORKS WHERE IT HURTS
BRIDION—for **optimal neuromuscular blockade management and improved recovery**

### Predictable and complete reversal

- 98% of BRIDION patients recovered to a TOF ratio of 0.9 from reappearance of \( T_2 \) within 5 minutes\(^1\)
- 97% of BRIDION patients recovered to a TOF ratio of 0.9 from 1 to 2 PTCs \(^1\) within 5 minutes\(^1\)

### Rapid reversal

- BRIDION rapidly reversed patients from reappearance of \( T_2 \) in 1.4 minutes\(^1\)
- BRIDION rapidly reversed patients from 1 to 2 PTCs \(^1\) in 2.7 minutes\(^1\)

BRIDION is indicated for the reversal of neuromuscular blockade induced by rocuronium or vecuronium. In children and adolescents (aged 2-17 years), BRIDION is only recommended for routine reversal of moderate rocuronium-induced neuromuscular blockade \(^1\).

**Important safety information**

BRIDION is not recommended in patients with severe renal impairment. Studies in patients with hepatic impairment have not been conducted and, therefore, patients with severe hepatic impairment should be treated with extreme caution. Caution should be exercised when administering BRIDION to pregnant women as no clinical data on exposed pregnancies are available.

BRIDION has not been investigated in patients recovering from rocuronium or vecuronium in the intensive care unit (ICU) setting.

If neuromuscular blockade is required within 24 hours of BRIDION administration, a non-depolarizing neuromuscular blocking agent should be used instead of rocuronium or vecuronium. The most commonly reported adverse reactions were oedema (oral or ophthalmic) and anaphylactic complications (urticaria, coughing, pruritus or flushing on the endotracheal tube). In patients treated with BRIDION, a few cases of awareness were reported. The relation to BRIDION was uncertain in a few individuals allergic-like reactions (e.g. flushing, hypotension). Following BRIDION were reported, clinicians should be prepared for the possibility of allergic reactions and take precautionary measures. In a total of patients with a history of previous complications, benzodiazepines were reported in 2 patients and a causal relationship could not be fully excluded.

Volunteer studies have demonstrated a slight (1-9%) and transient (<30 minutes) prolongation of the protamine time in patients treated with benzodiazepines and benzodiazepines and protamine with BRIDION; however, clinical studies have demonstrated no clinically relevant effect on the risk of postoperative bleeding complications with BRIDION, when or as a combination with benzodiazepines. An NRI [0.3] has demonstrated no in vivo pharmacodynamic interaction with benzodiazepines, and the combination is not recommended. This pharmacodynamic interaction is not clinically relevant for patients recovering from surgery.

**References**


Please see summary of product characteristics for full prescribing information.

MSD

Be Well

Copyright © 2019 Merck Sharp & Dohme Corp., a subsidiary of Merck & Co., Inc. Whitehouse Station, NJ USA. All rights reserved.
Pioneering Medical Technology

TAP Block And InfiltraLong
For Effective Treatment Of Long And Deep Incisions

Sono Cannulas
For Single Shot UltraSound Guided Nerve Blocks

SonoSystem And SonoLong Curl
For UltraSound Guided Nerve Blocks

Sprotte® 2.G
The New Generation Dura Punctre In Minimum Time

SonoEye Ophtalmic Block
For Peribulbar And Retrobulbar Blocks Under Ultrasonic Monitoring

www.mediline-lb.com  Tel:+961 1 697500