



## Research article

## Nasal fiberoptic intubation with and without split nasopharyngeal airway: Time to view the larynx &amp; intubate

Ahmed A. Mohamed El-Tawansy<sup>a,\*</sup>, Osama A. Nofal<sup>b</sup>, Akmal Abd Elsamad<sup>b</sup>, Hala A. El-Attar<sup>b</sup><sup>a</sup> Department of Anesthesia, Faculty of Medicine, Helwan University, Egypt<sup>b</sup> Department of Anesthesia, Faculty of Medicine, Zagazig University, Egypt

## ARTICLE INFO

## Keywords:

Fiberoptic intubation  
Nasopharyngeal airway  
Endoscopy time

## ABSTRACT

**Background:** Fiberoptic intubation requires long nasopharyngeal journey and mostly requiring jaw thrust to visualize larynx especially if done under general anesthesia. Use of split nasopharyngeal airway of appropriate length for better glottis visualization has been compared with the classic one.

**Methods:** Adult 68 patients; ASA I and II; undergoing surgery under general anesthesia were allocated randomly and equally into CL group in which classic nasal FOI with jaw thrust was done and NP group in which appropriate length of SNPA was inserted nasally followed by insertion of the scope with the application of jaw thrust if needed. Preprocedural heart rate, blood pressure and saturation and every minute for 5 min and also procedure and endoscopy time required to visualize the larynx (T1 and T3 respectively), carina (T4) and to remove the scope (T5) were recorded.

**Results:** Heart rate showed a statistically significant increase in CL and NP group during study time compared to pre-procedure reading. The MAP showed also statistical increase but only in CL group. There was a statistical (not clinical) significant increase between the percent of HR and MAP change in the CL group compared to NP group. T1, T3, and T5 in NP group were significantly shorter than in CL group but not for T4. Seven cases after SNPA needed jaw thrust.

**Conclusion:** Use of SNPA is safe and effective in reducing time to visualize larynx and intubate trachea. Developing longer specific “Naso-laryngeal (not nasopharyngeal) FOB intubating aid” is assumed to be more appropriate.

## 1. Introduction

Typically Fiberoptic bronchoscope is passed through the more patent nostril to follow the major nasal pathway at the floor of the nose along the superior aspect of the hard palate, the lateral aspect of the nasal septum inferior to the most lower turbinate to reach the nasopharynx where the operator identifies the pharyngeal structures, such as the base of the tongue and/or the epiglottis that are mostly “in-fall” precluding clear views of the larynx requiring a jaw thrust to visualize the laryngeal structures for patients planned to be intubated under general anesthesia [1,2].

Inserting a modified split tube nasally down to or near-by the larynx allows the FOB cable inserted through to be immediately in front of the larynx without need to verify the anatomical details of nasopharyngeal-laryngeal journey required during classic nasal FOB intubation and at the same time to peel it off away from the FOB allowing endotracheal tube (ETT) to be inserted along the FOB cable already advanced into the

trachea making FOB nasal intubation done easier and in a shorter time.

In the present study, the authors performed FOB nasal intubation as classically done (classic “CL” group) and thorough a longitudinally cut nasopharyngeal airway of an appropriate length (nasopharyngeal “NP” group) comparing the effectiveness and safety in each group done by junior staff inexperienced endoscopically.

## 2. Patients and methods

The present randomized control prospective study was done at Zagazig University Hospital after obtaining institutional review board approval and informed consent from all patients. Thirty-four adult patients in each group classified as ASA physical status I and II were included as sample size according to the mean of the total time (time starting from insertion of FOB in the nares till intubation and FOB removal) of a pilot study where mean I was  $176.2 \pm 100$  s for CL group and mean II was  $120 \pm 66$  for modified NP group, at 80% power and

Peer review under responsibility of Egyptian Society of Anesthesiologists.

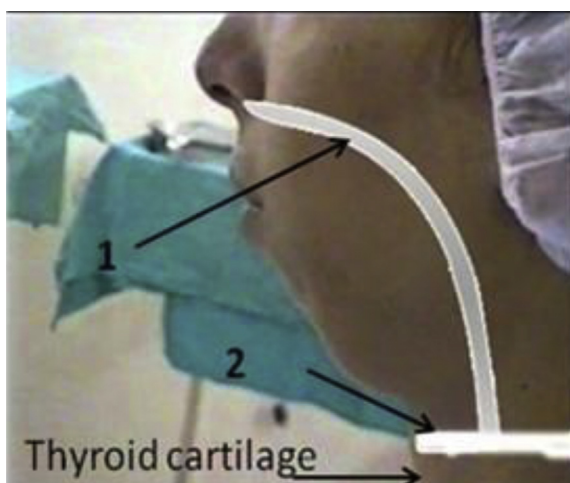
\* Corresponding author.

E-mail address: [Ahmed\\_El\\_Tawansy2018@outlook.com](mailto:Ahmed_El_Tawansy2018@outlook.com) (A.A. Mohamed El-Tawansy).<https://doi.org/10.1016/j.egja.2018.05.001>

Received 20 January 2018; Received in revised form 30 April 2018; Accepted 13 May 2018

Available online 26 May 2018

1110-1849/ © 2018 Egyptian Society of Anesthesiologists. Production and hosting by Elsevier B. V. All rights reserved. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).



**Fig. 1.** The appropriate length of assumed split nasopharyngeal (actually Nasolaryngeal) airway is represented by a line (1) between the patient's nostril, that passes parallel to the floor of the nose, to meet a horizontal line (2) passing through the thyroid notch level at the neck laterally.

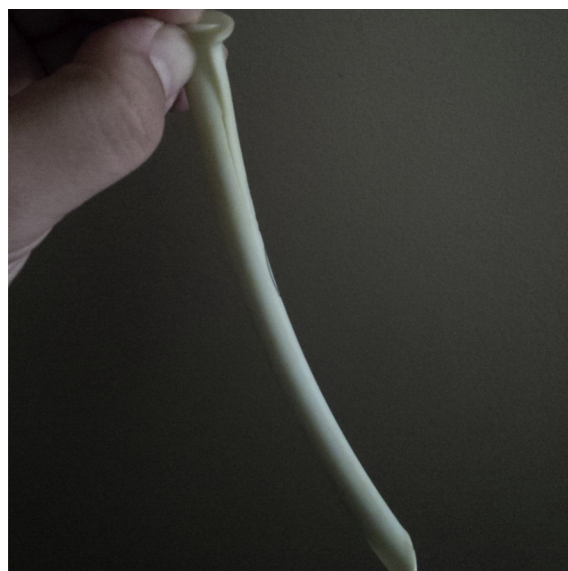
95% Confidence Interval. All patients were undergoing elective surgery under general anesthesia; requiring nasotracheal intubation. All patients had accepted routine laboratory investigations including coagulation profile (i.e. platelet count is  $\geq 100,000/\text{cc}$  and INR is  $\leq 1.45$ ). Hypertensive patients and cases predicted to have difficult airway have been excluded from the study. The Patients were randomized by Computer Generated Random Numbers into two equal groups, Classic nasal FOI group (CL group) and Nasal FOI through split nasopharyngeal airway group (NP group).

The cases were done by junior inexperienced staff in using FOB under supervision and guidance of a senior expert one. All patients were given atropine  $20 \mu\text{g kg}^{-1}$  I.M (1 mg maximum) one hour before surgery. At induction room appropriate IV cannula was inserted, wider nostril was selected and irrigated with vasoconstrictor (xylometazoline hydrochloride 0.1% solution drops with appropriate length of longitudinally split nasopharyngeal airway 3,4 for the NP group was chosen (Fig. 1) that was represented by a line (1) passing between the patient's nostril and parallel to the floor of the nose, to meet a horizontal line (2) passing through the thyroid notch level at the neck laterally. ECG, non-invasive blood pressure (NIBP), end-tidal carbon dioxide (E<sub>t</sub>CO<sub>2</sub>) and oxygen saturation (SpO<sub>2</sub>) monitoring were applied. After Pre-oxygenation with 100% oxygen, Fentanyl ( $1 \mu\text{g kg}^{-1}$ ) IV, propofol ( $2 \text{mg kg}^{-1}$ ) IV, cisatracurium ( $0.15 \text{mg kg}^{-1}$ ) IV were given as induction agents after testing the ability to ventilate the patient. Well lubricated ETT (one-half size smaller than assumed) with well-deflated cuff were used.

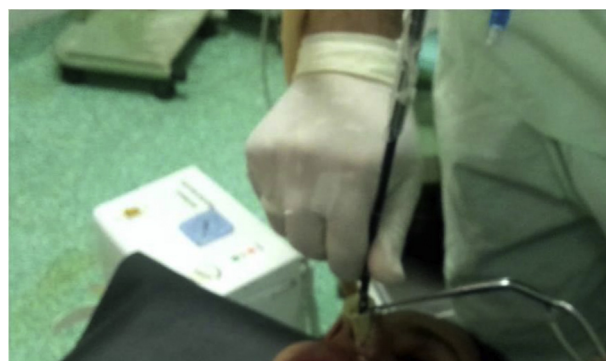
In CL group: the ETT was mounted around the fiberoptic cable before the fiberoptic cable was inserted through the wider nostril inferior to inferior turbinate along floor of the nose to the nasopharynx where FOB tip was slightly angulated anteriorly to visualize the larynx and get inside trachea till visualizing the carina followed by inserting ETT over the fiberoptic cable. In all cases, Jaw thrust was applied to prevent falling back of the tongue and obscuring the view.

In NP group: the ETT was mounted around the fiberoptic cable before the fiberoptic cable was inserted and advanced through manually performed appropriate Split Nasopharyngeal Airway (Fig. 2) that was already inserted into the wider nostril to get the larynx visualized once the fiberoptic cable passed the longitudinally split nasopharyngeal airway otherwise jaw thrust maneuver was done. After getting the FOB inside the trachea and visualizing the carina, the split nasopharyngeal airway was removed by the assistant (Fig. 3) and then ETT tube was inserted over the fiberoptic cable as in the classic group.

In both groups and after confirming ETT placement (E<sub>t</sub>CO<sub>2</sub> tracing or fiberoptic carina visualization), FOB was removed to fix the ETT and



**Fig. 2.** The Split Nasopharyngeal Airway. (The nasopharyngeal airway is longitudinally cut to facilitate removal after getting fiberoptic cable inside the trachea).



**Fig. 3.** The removal of split nasopharyngeal airway through its longitudinal cut using Magill forceps after getting the fiberoptic cable inside the trachea.

continue the case routinely.

Heart Rate, Blood Pressure and SpO<sub>2</sub> every minute during the procedure for 5 min and percentage of change of each was calculated (reading at the study time minus pre-procedural reading divided by the pre-procedural one).

Concerning time measurement (seconds), the authors were concerned to clarify all times involved including endoscopic and/or nasopharyngeal airway insertion time in studied groups. T1 is the time from insertion of the FOB in the selected nostril in CL group and insertion of the split nasopharyngeal airway in the NP group till visualization of the larynx i.e. procedure time to visualize the larynx. T2 is the duration of insertion of the split nasopharyngeal airway in NP group. T3 is the time from insertion of the FOB in NP group till ability to visualize the larynx i.e. only endoscopic time to visualize the larynx in NP group which equals T1 minus T2 in NP group. T4 is the time from visualization of the larynx till visualization of the tracheal bifurcation in both groups. T5 is the time from insertion of FOB in the selected nostril in (CL group) and the split nasopharyngeal airway in the (NP group) till ability to remove FOB.

Nasal bleeding was considered present when blood was seen collected at the nose before ETT insertion. The success rate was considered if FOB was removed within 3 min from starting to insert either of the split nasopharyngeal airways in NP group or FOB nasally in CL group otherwise the patient was then intubated using a different modality.

Download English Version:

<https://daneshyari.com/en/article/8616575>

Download Persian Version:

<https://daneshyari.com/article/8616575>

[Daneshyari.com](https://daneshyari.com)