Sir,

Nasogastric tube (NGT) insertion is a common procedure in hospital wards, Intensive Care Units, and operating room. The technique is simple in awake patients who cooperate by swallowing it, but occasionally, there may be demand to insert in unconscious or even in an intubated anesthetized patient. There are high first attempt failure rates while inserting an NGT in an intubated patient\(^1\). Apart from failed attempts, these may be associated with complications.

A 66-year-old male with body mass index 32, diabetic, and hypertensive Mallampatti grade 3 was posted for laparoscopic cholecystectomy. General anesthesia was administered using internal diameter (ID) 7.5 mm cuffed endotracheal tube (ET) and then connected to ventilator, circle absorber, and standard gas flows. Intraoperatively, surgeon requested for gastric decompression; hence, a Ryle's tube no. 16 F was inserted with the help of laryngoscopy and Magill forceps with some difficulty due to improper positioning and limited neck mobility. After few minutes, the ventilator constantly alarmed of gas leak which was significant (200 ml). Ventilation was taken manually. The patient’s end-tidal CO\(_2\) (ETCO\(_2\)) was within normal range. ET cuff pressure was checked and inflated a little more. The circuit was rechecked, the leak however continued. Hence, suspecting ventilator malfunction another standby anesthesia workstation was attached (which was prior checked and was functional) to the patient, but the alarm kept sounding. We therefore suspected tracheal positioning of the NGT. A hissing sound was heard at every breath from the ventilator at the NGT tip which was confirmed by connecting it to a capnograph which showed an ETCO\(_2\) waveform. NGT was immediately withdrawn, the alarm stopped, and the leak was absent. After 10 min of monitoring, the NGT was repositioned by passing an ET tube with ID 6 in the esophagus over which the NGT was inserted and this ET tube removed. The proper positioning was confirmed with aspiration of gastric secretions. Surgery continued for 1 h and the patient was extubated uneventfully.

Inserting an NGT into anesthetized intubated patients is often difficult with a failure rate of almost 50%–60%\(^1\). Complications after several failed attempts increase and include traumatic bleeding, knotting of tube, but the most dreadful being tracheal insertion\(^9\). Failed insertion is mostly due to altered local anatomy; hence, some maneuver may be needed in addition to routine practice for successful passage and placement of tube. Deflation of the cuff of the ET, application of pressure at lateral border of the thyrohyoid, or pulling the cricoids cartilage can also help easily pass through the lateral or posterior hypopharynx\(^9,10\). Difficulty in insertion is compounded with difficulty in confirmation of placement. The draping and high diaphragm in laparoscopic procedure obstructs clear auscultation.

Inadvertent entry of NGT into trachea can cause serious to possible life-threatening complications such as laryngospasm, pneumothorax, and failure in ventilation. Thus, hospitals should have checklists to avoid such complications. Its correct intragastric position can be verified by capnography, checking the aspirate for acidic pH (<5.5), or by C-arm machine if possible. In our case, accidental displacement of NGT into the trachea caused the ventilator bellows to deflate and “malfunction” leading to a leak. Other possible causes of ventilatory malfunction could be due to fault in the anesthesia machine, leaks in circuit and vaporizer, or accidental extubation. We tried increasing the cuff pressure and even changing to standby ventilator, but the leak persisted. We suspected a malpositioning of NGT into the airway which was further confirmed by capnography. With removal of the NGT, the ventilatory parameters normalized.

Many techniques for safe placement of NGT in intubated patients have been described using a guide wire (angiogram/Rusch stylet) over which NGT is passed\(^5,6\). An alternative method uses a smaller size ET and NGT inserted through it\(^7\). Some authors suggest stiffening the NGT before insertion. This step significantly reduces NGT kinking and improves the success rate of insertion.

In conclusion, accidental insertion of NGT into the airway can be a cause of ventilatory malfunction, and we want to highlight the complication and create awareness for proper insertion of NGT in anesthetized intubated patient.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

Bhavna Sriramka, Shaswat Kumar Pattnaik
Department of Anesthesia, IMS and SUM Hospital, Bhubaneswar, Odisha, India

Saudi Journal of Anesthesia / Volume 11 / Issue 3 / July-September 2017
Letters to Editor

Address for correspondence:
Dr. Bhavna Sriramka,
106, Mahadev Orchid, Cosmopolis Road, Dumduma,
Bhubaneswar - 751 019, Odisha, India.
E-mail: bhavna.sriramak@gmail.com

References

1. Bong CL, Macachor JD, Hwang NC. Insertion of the nasogastric tube made easy. Anesthesiology 2004;101:266.
2. Hung CW, Lee WH. A novel method to assist nasogastric tube insertion. Emerg Med J 2008;25:23-5.
3. Ozer S, Benumof JL. Oro- and nasogastric tube passage in intubated patients: Fiberoptic description of where they go at the laryngeal level and how to make them enter the esophagus. Anesthesiology 1999;91:137-43.
4. Ghatak T, Samanta S, Baronia AK. A new technique to insert nasogastric tube in an unconscious intubated patient. N Am J Med Sci 2013;5:68‑70.
5. Tsai YF, Luo CF, Illias A, Lin CC, Yu HP. Nasogastric tube insertion in anesthetized and intubated patients: A new and reliable method. BMC Gastroenterol 2012;12:99.
6. Appukutty J, Shroff PP. Nasogastric tube insertion using different techniques in anesthetized patients: A prospective, randomized study. Anesth Analg 2009;109:832‑5.
7. Rathod Y, Bagade S, Sagare P, Kotak N, Patel RD. A rail-road technique of Ryle’s tube/nasogastric tube insertion in an intubated patient: A case report. IOSR J Dent Med Sci 2015;14:57‑60.

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

How to cite this article: Sriramka B, Pattnaik SK. Accidental insertion of Ryle’s tube in the airway in an intubated patient causing ventilator malfunction. Saudi J Anaesth 2017;11:361‑2.

© 2017 Saudi Journal of Anesthesia | Published by Wolters Kluwer - Medknow