

# A prospective randomised comparison of nasogastric tube insertion of two different techniques in anaesthetised intubated patients

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## Abstract

**Background:** Nasogastric tube (NGT) insertion is indicated almost routine procedure in patients undergoing below diaphragmatic surgery to decompress the stomach perioperatively. Insertion of NGT in an anaesthetised, intubated patients with conventional method sometimes maybe cumbersome. Different techniques of NGT insertion were tried with varying degree of success. **Method:** Sixty patients under general anesthesia and NGT insertion were studied. The patients were randomized into two groups: Head in Neutral position and reverse Sellick manoeuvre. The starting point of the procedure was the time when NGT insertion was begun through the selected nostril. If failed second attempt was tried with external laryngeal manipulation. The end point was the time when there was either a successful insertion of the NGT or a failure after two attempts. The success rate of the technique, duration of insertion procedure and the complications (bleeding, kinking, coiling etc.) were noted. **Results:** In neutral position first attempt success rate of insertion was 20% and increased to 90% with external laryngeal manipulation. In reverse Sellick manoeuvre group first attempt success rate was 46.7% which increased to 90% with external laryngeal manipulation. First attempt success rate was significantly higher ( $p < 0.05$ ) in reverse Sellick manoeuvre. **Conclusion:** NGT insertion is easier when NGT is inserted with reverse Sellick manoeuvre. External laryngeal manipulation makes NGT insertion easier.

**Key Word:** Nasogastric Tube, Neutral position, Reverse Sellick manoeuvre.

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## INTRODUCTION

Gastric tube insertion via nasopharyngeal passage through nose is a common procedure that produces access to the stomach for surgical, diagnostic and therapeutic purposes. Insertion of nasogastric tube may be easy in a quiet and calm cooperative patient. But sometimes it becomes a cumbersome, traumatic experience for the patient as well as the medical personnel. Hence,

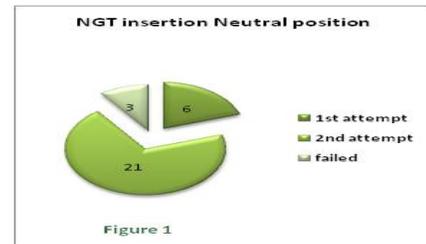
whenever there is a requirement of nasogastric insertion in the perioperative period nasogastric is inserted after induction of anaesthesia<sup>1</sup>. Surgical procedures such as laparotomies and laparoscopic surgical procedures requires gastric decompression and maintaining decompressed stomach as well as aspiration of gastric contents. Insertion of nasogastric tube to a paralysed and intubated patients is sometimes difficult and frustrating<sup>4</sup>. Potentially difficult insertion is difficult to predict by the external appearance of patient face. An average failure rate of nearly 50-65% was reported by 1<sup>st</sup> attempt made by conventional method with the patient head in neutral position<sup>1,2</sup>. Repeated attempts of NGT can cause nasal mucosal bleeding and trauma to oropharyngeal structures<sup>2</sup>. Some studies shows that reverse Sellick manoeuvre increases the success rate of NGT insertion so we decided to study this simple manoeuvre is of any help in increasing the success rate of NGT insertion.

## MATERIALS AND METHODS

This prospective randomised comparative study was conducted in Gadag institute of medical sciences college hospital. After getting the institutional Ethical committee clearance and after written informed consent 60 patients of either sex, aged between 20 to 70 years belong to ASA physical status I,II and III were included in the study. These patient were posted for abdominal laparoscopic surgeries or laparotomy patients for both elective and emergency surgeries were included in the study. Patient with expected difficult airway, nasal, pharyngeal, esophageal anomalies, coagulation and bleeding disorders were not included in the study. Preanaesthetic evaluation, premedication, induction of anaesthesia and intubation with cuffed orotracheal tube was done as per hospital protocol. After tracheal intubation, Sterile, lubricated, 14F, 110 cm ROMOLENE NGT (Romsons International, Agra, Uttar Pradesh, India) was used. The NGT is featured with Luer connector at proximal end, radiopaque line throughout the length, lead markings at the distal end and ball-weighted tip. NGT insertion was always performed by single anaesthesiologist. This is done with the aim to reduce skill bias. In the neutral position group (Group A), a lubricated NGT insertion is performed through the right nostril, the head being maintained in a neutral position. In the reverse Sellick manoeuvre (Group B), a lubricated NGT insertion was performed through the right nostril, with reverse Sellick manoeuvre. If any resistance is encountered in either group the lubricated NGT is reinserted in the left nostril. If the first attempt failed, the NGT is withdrawn fully and is cleaned. Lubricating jelly is applied generously and the procedure is repeated with External laryngeal manipulation moving the larynx to either side. If both attempts at insertion using the selected technique are unsuccessful, then the technique is considered a failure. The NGT is then inserted with the help of Magill forceps under a direct laryngoscopic view. The Duration of the successful procedure is documented. Total NGT insertion duration was recorded any evidence of complication was also documented.

## RESULTS

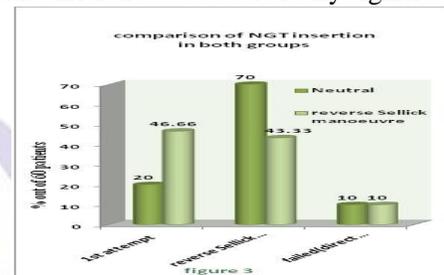
**Demographic data:**-Sixty patients under general anesthesia and endotracheal intubated were studied. Age of the patient varied from 20 years to 70 years. Mean age in years of Group A was 44.12 and Group B was 41.8. BMI of the patient varied from 21.26 to 27.72 in Group A with a mean of 25.43 and in Group B BMI varied from 21.25 to 27.34 with a mean of 25.12. In both groups there were 16 male patients and 14 female patients. In neutral position NGT insertion was successful in 6 out of 30 (20%) patients.



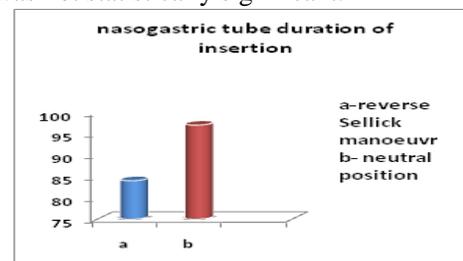
In reverse Sellick manoeuvre we were able to insert NGT in 14 patients out of 30 (46.7%) in first try.



This difference was statistically significant.



NGT insertion rate was increased to 90% with external laryngeal manipulation in both groups. Inability to insert NGT in two attempts was equal in both groups. 3 out of 30 (10%). Average duration of successful NGT insertion was 84 seconds in Group A and 97 seconds in Group which was not statistically significant.



Complications: two patients in Group A and One patient in Group B had minor nasal bleed which was controlled by compression.

## DISCUSSION

Most commonly insertion of NGT in an Anesthetised Intubated Patient is easy and simple. But rarely it may be cumbersome, frustrating and may cause nasopharyngeal trauma<sup>1-4</sup>. Near the tip of the NGT there are holes and can kink if there is any Obstruction to its smooth passage. Instrumentation to guide the NGT into the esophagus can cause trauma to uvula and nasopharyngeal structures in

the pharynx<sup>2-6</sup>. It is observed that most common sites of impaction of NGT to be the piriform sinuses and the arytenoid cartilages<sup>2</sup>. It was also found that reverse Sellick manoeuvre these impactions to successful passes 85% of the time. passage of the nasogastric or orogastric tube with reverse Sellick manoeuvre often results in a higher success rate than with the patient's head in the neutral position<sup>1</sup>. It was also found that the path taken by the tip of the tube follows the lateral border of the pharynx, and the tube glides smoothly through the esophagus into the stomach, without coiling in the laryngopharynx. thus aiding the passage of the tube<sup>2-8</sup>. This is one of the many methods used to aid the insertion of NGT<sup>5</sup>. In our study, in neutral position 6 (20%) patients had successful insertion of NGT at 1<sup>st</sup> attempt. Various studies have shown varying success rates at 1<sup>st</sup> attempt where as reverse Sellick manoeuvre the successful insertion of NGT was in 14 (46.7%). There was statistically significant increase in success rate  $p=0.029$ . 2<sup>nd</sup> attempt was done with the external laryngeal manoeuvre was done in both groups when 1<sup>st</sup> attempt was failed. External laryngeal manoeuvre consists of moving larynx left or right side. With this we were able to successfully insert NGT in 21 out of the remaining 24 patients in Neutral group and 13 out of Remaining 16 patients in reverse Sellick manoeuvre Group. In both groups three patients needed 3<sup>rd</sup> attempt where NGT was inserted under direct Laryngoscopic vision. This was considered as failed NGT insertion. Average duration of successful insertion in Neutral Group was 84 seconds and 78 seconds in reverse Sellick manoeuvre. In two patients in Neutral group and three patients had minor nose bleed and was controlled by pinching the nostril. No other Complication were Noted.

## SUMMARY AND CONCLUSION

This study was done to study the advantage reverse Sellick manoeuvre in easing the insertion of Naso gastric tube in Anaesthetised intubated patients. We observed that first attempt success rate is high when reverse Sellick manoeuvre. With external laryngeal manoeuvre we were able to pass NGT in most of the Patients. External Laryngeal manoeuvre is more useful when head is neutral position. This blind insertion with external laryngeal manoeuvre has a success rate of about 90%.we conclude that first time success rate is high when nasogastric tube is inserted in reverse Sellick manoeuvre compared to neutral position. better alternatives to conventional method for successful, quick and reliable NGT insertion with acceptable adverse events in anaesthetised, intubated adult patients

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