

Letter to Editor

Confirmation of Correct Placement of
Nasogastric Tube *in Situ*

Sir,
Nasogastric or Orogastric tubes are inserted in various medical and surgical conditions for gastric decompression or enteral feeding. These tubes are inserted frequently without any complications, but may be potentially dangerous if they are misplaced during insertion or later. Complications of insertion include local trauma or irritation to the nose / nasopharynx, epistaxis, esophageal injury, endo bronchial placement (which is hard to recognize in a patient with depressed level of consciousness), sinusitis or otitis media, and unusually, even perforation of stomach (described in paediatric age group, which can be potentially fatal¹). Administering feeds through a tube, which is inadvertently placed in the tracheo-bronchial tree can be fatal. Hence, correct tube position should be confirmed to prevent any complications.

After the insertion of the Nasogastric tube and before the administration of any medication or feeds the tube must be checked immediately, and at least once daily, in patients on continuous feeds.

The Nasogastric Tube *in Situ* positioning can be confirmed by different methods:

A). *Whoosh test*- As air is injected through the tube (1.5 cc in children and 10 to 20 cc in adults), gurgling sound can be heard by auscultation over the abdomen. (b). *Aspiration of gastric contents*- aspiration of the food particles or gastric juices from the tube indicates presence of tube in the stomach. (c). *Air bubbling* - When the external end of the feeding tube is dipped in a bowl of water, air bubbles are seen with each expiration if

the tube is in the respiratory tract. (d). *Testing the pH (acidity/ alkalinity) of the gastric aspirate* : 0.5 ml to 1.0 ml of the aspirate will be sufficient to cover the reagent panels of the pH testing strips. pH indicator strips with 0.5 gradations are recommended. Colour change will occur in about 10 seconds. According to the National Patient Safety Agency (U.K.) guidelines, pH of the aspirate should be less than 5.5 before feeds can be administered². Use of blue litmus paper for detecting pH changes is not reliable as it does not indicate the exact range. (e). *Colorimetric test*: A Colorimetric sensing device (pedicap) which senses CO₂ (change from purple to yellow indicates the presence of CO₂) is used to detect proper feeding tube placement. The test will be positive if the feeding tube is inadvertently placed in the tracheo-bronchial tree³. (f). *Capnography*: Capnography, routinely used to monitor the end tidal CO₂ in intubated patients, can be used to monitor the feeding tube placement. Even though accurate, it is difficult to perform this test outside the operating room or ICU settings. (G). *Radiography*: Either fluoroscopy or X-ray can be used for confirmation of tube position. Fluoroscopy can be used in places like catheterization laboratory whereas Chest X-ray (with upper abdomen included) is a reliable method for confirmation otherwise. X-rays should be interpreted by trained personnel. The number of X-rays should be minimized in order to avoid increased exposure to radiation. Fully radio-opaque tubes that have markings should be used. Tube position

The first part of the paper discusses the importance of the study. It highlights the need for a comprehensive understanding of the subject matter. The authors emphasize that this research is crucial for advancing the field and addressing the challenges faced by the community. They also mention the potential impact of the findings on policy-making and practice.

The second part of the paper presents the methodology used in the study. The authors describe the data collection process, including the selection of participants and the use of various instruments. They also detail the data analysis techniques employed to extract meaningful insights from the collected data. The methodology is designed to ensure the reliability and validity of the research findings.

The third part of the paper discusses the results of the study. The authors present the key findings, which show a significant correlation between the variables under investigation. They also provide a detailed interpretation of these results, explaining their implications for the field. The authors conclude that the study has provided valuable insights into the complex phenomenon being studied.

The final part of the paper discusses the limitations of the study and suggests areas for future research. The authors acknowledge that there are certain constraints on the study, such as the sample size and the scope of the investigation. They also identify specific areas where further research is needed to build on the current findings and address the remaining questions in the field.

The study was conducted in a systematic and rigorous manner, following established research protocols. The authors have taken great care to ensure the integrity of the research process and the accuracy of the data. They have also been transparent about the limitations of the study and the potential biases that may have influenced the results. This transparency is essential for the credibility of the research and for the advancement of the field.

The findings of the study have important implications for the field and for the community. They provide a clear picture of the current state of knowledge on the subject and highlight the areas where further research is needed. The authors believe that their findings will contribute to a better understanding of the subject and to the development of effective interventions to address the challenges faced by the community.

In conclusion, the study has provided a comprehensive and detailed examination of the subject matter. The authors have presented a clear and concise summary of the research, highlighting the key findings and their implications. They have also identified the limitations of the study and suggested areas for future research. This study is a valuable contribution to the field and will undoubtedly influence future research and practice.

in the left costophrenic sulcus is difficult to distinguish from intra gastric placement especially in Antero - Posterior views.

In conclusion, nasogastric or orogastric tubes, frequently inserted for various purposes, must be checked for correct placement immediately after insertion and should be reconfirmed before each feed/ medications. The complications associated with malposition may range from mild to severe, or even be life threatening. Capnography, colorimetric devices, pH testing of gastric aspirate using pH indicator strips are reliable, but the most accurate method to confirm correct positioning is radiography.

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