

Utility of Percutaneous Endoscopic Gastrostomy for Nutritional Support in Patients with Oropharyngeal Dysphagia

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Abstract

Background & Objectives: Maintenance of nutrition status of a patient is of paramount importance to clinicians treating medical or surgical diseases. Enteral nutrition is preferred over parental nutrition in patients who are unable to swallow. Percutaneous endoscopic gastrostomy (PEG) is the preferred route of nutritional support in patients with a functional gastrointestinal system who require long-term enteral nutrition and are unable to maintain oral intake. PEG offers superior access to the gastrointestinal system over surgical methods.

We aim to see utility of percutaneous endoscopic gastrostomy (PEG) for nutritional support in patients with oropharyngeal dysphagia secondary to neurological deficits and its effect on the quality of life of these patients.

Methodology: we studied retrospectively 25 patients with neurological oropharyngeal dysphagia in last 2 years needing PEG insertion. We reviewed data of the patients for 3 months post insertion of PEG. Study was based on body weight, haemoglobin and serum albumin level prior to and after PEG. All complications including sepsis, perforation, hemorrhage and death were recorded.

Results: Our study showed significant improvement in levels of hemoglobin, albumin and weight gain after Percutaneous endoscopic gastrostomy. There were no major complication.

Conclusion: Percutaneous Endoscopic Gastrostomy is an easy procedure that can be done bedside without complications in patients with neurological deficit. It improves nutritional status of the patient and also prevents aspiration pneumonia in patients with good gastric motility.

Keywords: Percutaneous endoscopic gastrostomy, nutritional support, Oropharyngeal dysphagia.

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Introduction

The primary indication for enteral and parenteral feeding is the provision of nutritional support to meet metabolic requirements for patients with inadequate oral intake¹.

Enteral feeding is easy, safe, inexpensive and practical to maintain². It also helps to maintain local gastrointestinal defence and integrity thus decreasing translocation of bacteria. Parenteral nutrition is associated with a higher degree of side effects. It is costly, cumbersome and needs special care for maintenance².

Several methods such as nasogastric tube (NGT), percutaneous endoscopic gastrostomy (PEG), percutaneous fluoroscopic gastrostomy (PFG) and surgical endoscopic gastrostomy are available for enteral feeding³.

Oropharyngeal dysphagia has been identified as a serious risk factor for patients developing aspiration pneumonia⁴.

Prolonged nutrition through nasogastric tube is difficult, It has been known to cause severe aspiration pneumonia, esophageal stricture and traumatic bleed from gastric mucosa⁴.

Gastrostomy is a well established mode of enteral nutrition. It can be either open surgical or percutaneous endoscopic gastrostomy.

PEG needs only local anaesthesia and expertise is needed to perform the procedure. It can be done bedside without needing to shift ventilated patients to the operation room.

Aims and Objective of the Study

The Aim of the study was to evaluate the effectiveness of percutaneous endoscopic gastrostomy for nutritional status in the patients with oropharyngeal dysphagia secondary to neurological deficits and its effect on the quality of life of these patients.

Objective of the study

1. To assess the nutritional status of the patient
2. To assess the rate of post procedure aspiration pneumonia in patients with oropharyngeal dysphagia
3. To assess any other complications associated with PEG.

Material and Methods

This retrospective study was done to include cases with neurological oropharyngeal dysphagia in last 2 years needing PEG insertion. Patients with limited life expectancy, having chest injury, contusion of lung, haemothorax or pneumothorax were excluded. Patients with deranged bleeding and coagulation profile were corrected prior to insertion.

We reviewed data of the patients for 3months post insertion of PEG.

All cases were with a proven diagnosis and were already on nasogastric tube feeding for at least 2weeks.

Study was based on body weight, haemoglobin and serum albumin level prior to and after PEG. Body weight was calculated with bed and then subtracting dry weight of bed in patients who could not stand.

Short-term complications (symptoms or signs within 30 days of PEG), and long-term complications (symptoms or signs more 30 days after PEG tube insertion) were obtained as the details available on patient's record sheets. Major complications were defined as per ESPEN guidelines and included sepsis, perforation, and haemorrhage and death⁵.

All statistics was done using JASP (JASP Team (2020). JASP (Version 0.14.1)) Values of $p < 0.05$ were considered statistically significant using student t test.

Our study includes 12 females and 13 male patients, youngest was 8 years of age, while the oldest was 92 years of age. 8 patients were having complex head injuries, 8 had neurological deficits post cerebral vascular events, 5 had deficits post tumour excisions, 3 patients had primary metabolic diseases with altered mentation while 1 had deficit post tubercular meningitis.

All PEG insertions were done by the same team of endoscopists. 5 were done bedside while the rest in the endoscopic suite. The average time taken for the procedure was 18.87 minutes. The minimum time was of 10 minutes and the maximum time taken was 35

minutes.

All the procedures were done under local anaesthesia with sedation when necessary. The procedure was done with patients supine and head high to prevent aspiration during procedure. Patients were given a test feed after 1 hour of insertion and regular feeding started thereafter. All patients tolerated the procedure and the test feed and went on regular feeding.

There was a rise in pulse rate of the patient by about 10 beats per minute above baseline in all the patients during procedure which returned to normal baseline in about 4-7 hours.

Haemoglobin level, weight of the patient and albumin level were compared based on the information taken from patient's records just before the PEG insertion and after 3 months follow up.

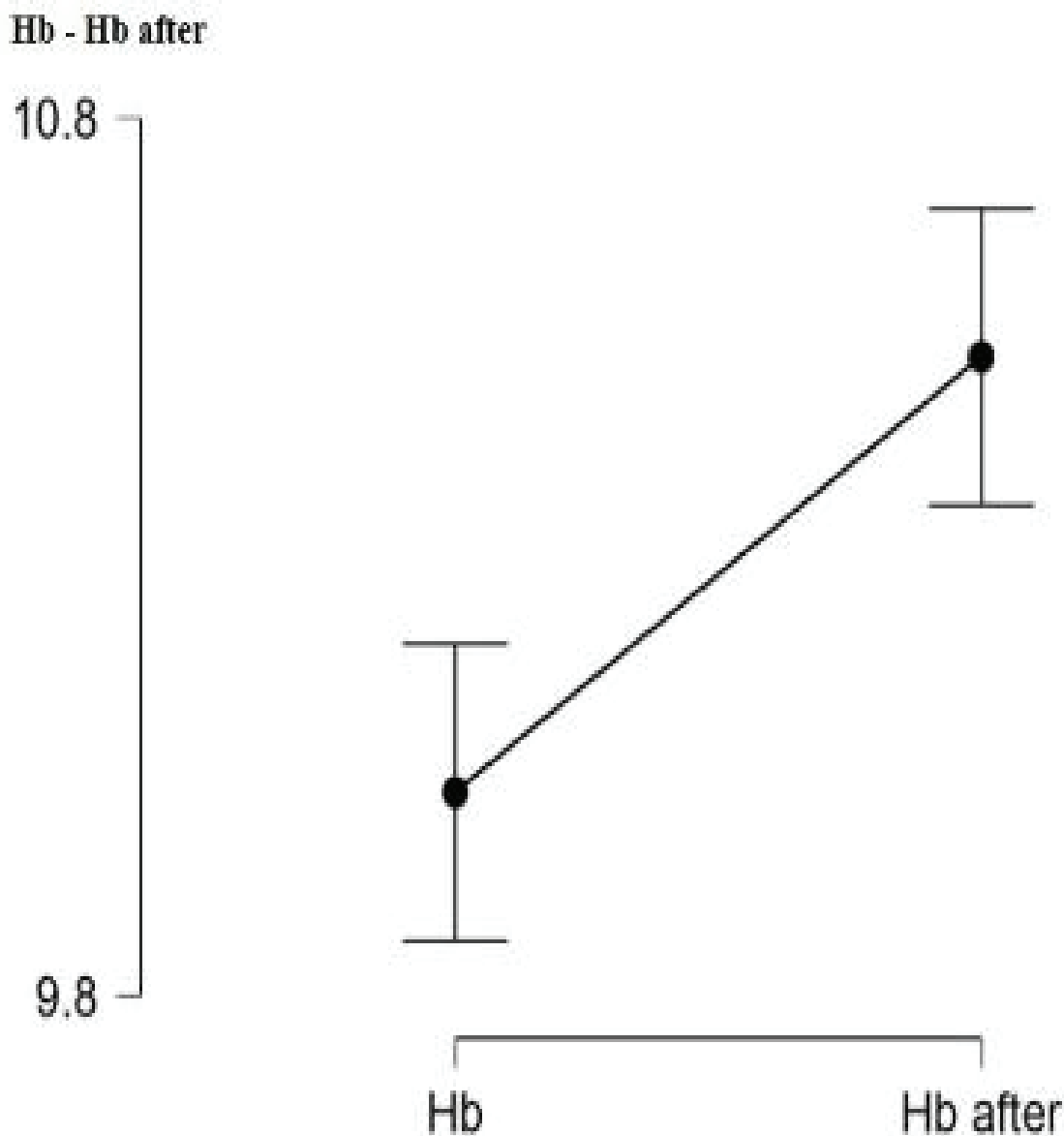


Figure 1: showing improvement of Hb(gm%) after PEG

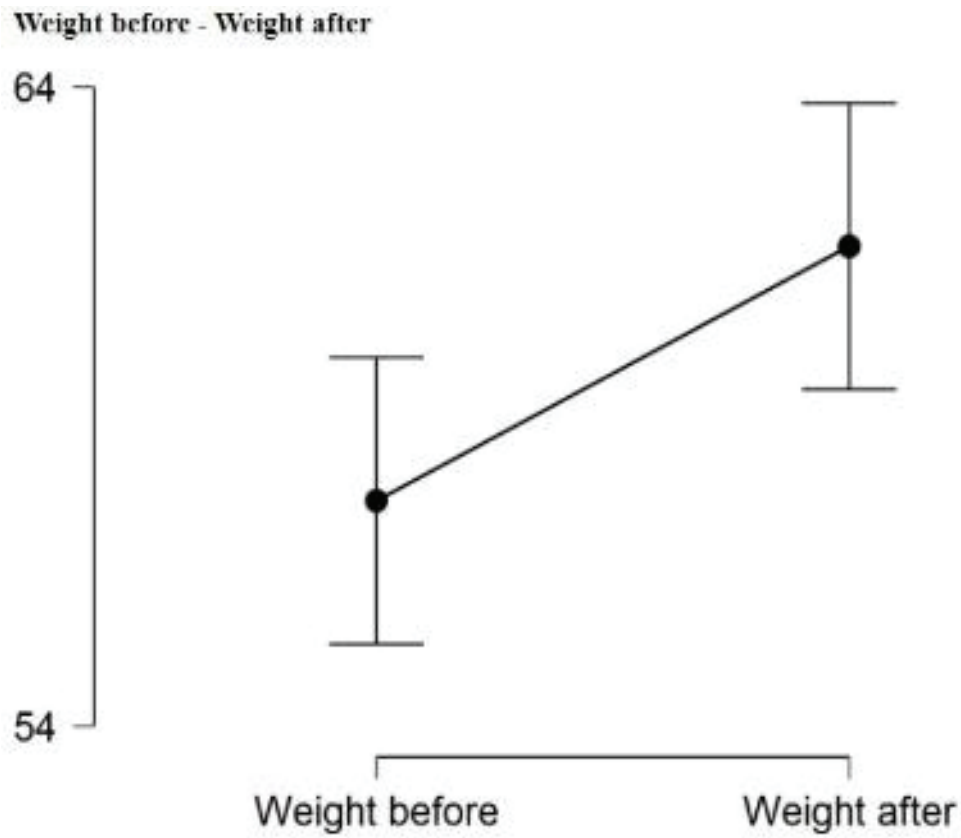


Figure 2: showing improvement in Weight(Kg) after PEG

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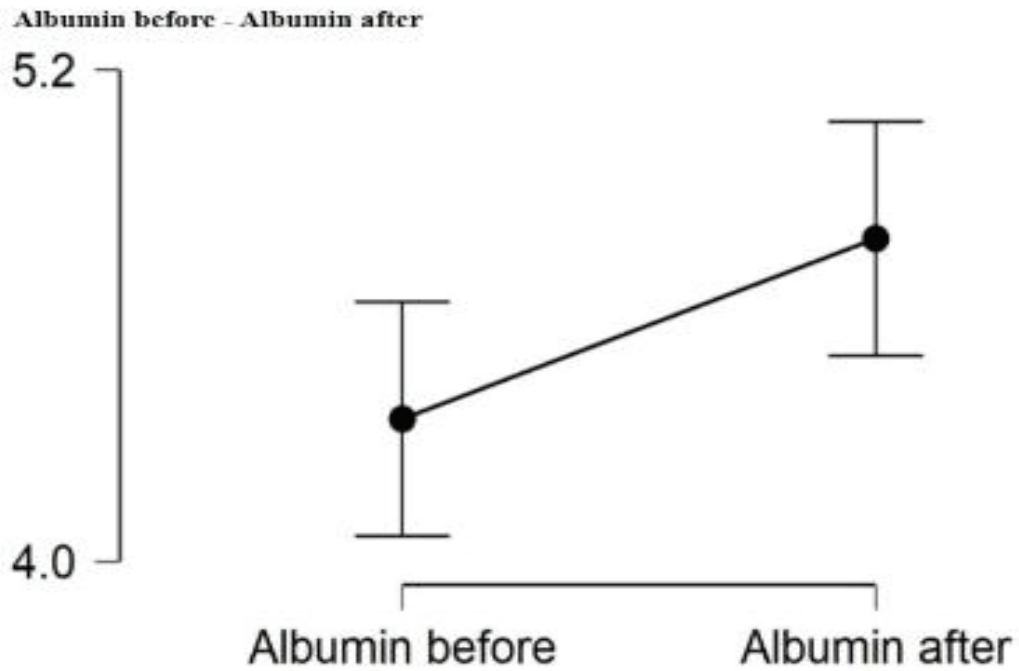


Figure 3: showing improvement of albumin (mg/dl) after PEG

There is significant improvement of Haemoglobin(Fig 1), weight(Fig 2) and albumin level(Fig 3) of the patient after PEG insertion.

One patient had accidental decannulation on 27th day, tube was reinserted without any problems. 7 patients could start oral intake and they were decannulated after 2 weeks of regular oral intake.

There was no procedure related death in the study. 1 patient died due to severity of underlying disease. There was minor wound infection in 2 patients which was controlled with dressings for less than 7 days. 2 patients had one episode of tube blockage after 2 months of insertion.

Discussion

Percutaneous endoscopic gastrostomy is an easy and safe procedure that can also be safely done bedside.

In 1980 Gauderer et al⁶ described inserting a percutaneous gastrostomy tube under local anaesthetic using endoscopy.

We had a delayed insertion of PEG tube as when patients have had a neurological insult, some tend to develop delayed gastric emptying (gastroparesis) even without a prior history of gastric motility disorder especially following severe head injury. Problem faced post PEG insertion related to gastric motility can be avoided if inserted after 15 days of primary insult. The lower esophageal sphincteric pressure and intracranial pressure have an inverse relationship. This combined with delayed gastric emptying and diminished gag reflex lead to higher incidences of aspiration. In critically ill patients on ventilator with or without a tracheostomy microaspirations are regular. This is increased with under inflation of tracheal cuff, Zero positive end expiratory pressure, low peak inspiratory pressure, tracheal suctioning, nasogastric tube and enteral nutrition⁷. A smaller size of the nasogastric tube does not decrease chances of the aspiration⁸.

Enteral nutrition decreases the translocation of gut bacteria and decreases chances of Multiorgan dysfunction syndrome and endotoxemia⁹. Beneficial in maintaining nutrition due better assimilation of nutrients.

PEG helps in decreasing amount of micro-aspiration as evidenced by improving Chest X-rays and TLC of patients with some aspiration before PEG insertion. This correlates to other studies¹⁰. This aspiration was further decreased by using semi solid feed instead of liquid feeds¹¹ and by continuous feeding than bolus feeds¹².

Our study showed improvement in levels of haemoglobin, albumin and weight gain which correlates with other studies showing increase in albumin levels¹³.

PEG can be done safely with minimal complications even in moribund patients. Patient not fit for anaesthesia can also undergo the procedure. The learning curve is not very steep, and reasonable expertise can be gained with few cases.

Conclusion

Percutaneous Endoscopic Gastrostomy is an easy procedure that can be done bedside without complications in patients with neurological deficit. Immediate procedure related complications are negligible. It improves nutritional status of the patient and also prevents aspiration pneumonia in patients with good gastric motility. Overall mortality depends on the primary disease process than on PEG insertion.

Conflict of Interest: The authors have no conflicts of interest

Source of Funding: This is a retrospective study. We have used institutional funds for research.

Ethical Clearance: This is a retrospective study. There is no direct involvement of the patients. Hence ethical clearance is not needed.

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