

PEG TUBE INSERTION: ENHANCED NEED FOR GREATER SELECTIVITY IN PATIENT REFERRAL

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ABSTRACT

Introduction: Percutaneous endoscopic gastrostomy (PEG) refers to insertion of a tube into the stomach percutaneously, aided by endoscope and was first described in 1980 by Gauderer. This was devised for feeding the patients who have swallowing problems due to any reason especially neurodisability. There is an enhanced need for greater selectivity in patient referral. Retrospective, single – institution case series. The study was performed in Waterford Regional Hospital, Waterford, Ireland. Jan 2003 to Dec 2007.

Materials and Methods: A total of 203 consecutive patients referred for nutritional support underwent PEG tube insertion during this period. Written informed consent was taken from all the participants or their attendants and the procedure was performed with prophylactic antibiotic and under intravenous sedation. Standard PEG set was used for the procedure. Feeding was started 12 hours after tube placement and care instructions were given. The parameters of study included indications, annual frequency, and overall outcome.

Results: A total of 203 patients having a male to female ratio 1:0.7 underwent PEG tube insertion. The age ranged from 26 to 96 years (mean 79 + 5.17. The mean duration of PEG feeding was 93 (3-785) days. The annual frequency of insertion increased from 19 (9.3%) patients in 2003 to 64 patients (31.5%) in 2007. The length of stay ranged from 1 to 350 days (median 93). In this cohort, 32 (15.7%) patients died during the same admission. A total of 79 (38.9%) were discharged for home, 92 (45.3%) were discharged back to nursing home care.

Conclusion: This study underscores the need for enhanced awareness and protocol – driven selectivity in patient referral for PEG tube insertion.

Key Words: Percutaneous endoscopic gastrostomy, PEG, Oesophagogastroduodenoscopy.

INTRODUCTION

Percutaneous endoscopic gastrostomy (PEG) refers to insertion of a tube into the stomach percutaneously, aided by endoscope and was first described in 1980 by Gauderer.¹ This was devised for feeding the patients who have swallowing problems due to any reason especially neurodisability.^{2,3} Feeding through nasogastric tube can be prolonged for several weeks but is inconvenient and cumbersome for such patients besides its mechanical adverse effects.^{4,5} Surgical gastrostomy is also not suitable for such patients as it requires general anaesthesia and such patients are usually frail and unfit for such anaesthesia.⁶ PEG is one of the most common endoscopic procedures performed today, and an estimated 100,000 – 125,000 are performed annually in United States.⁷ Currently, PEG enteral feeding is the most commonly used method of nutritional support. However, the procedure is not without risks. However high morbidity and mortality after PEG in elderly patients are commonly attributed to the severity of their underlying diseases. On the other

hand, procedure related mortality is highlighted as more than expected in the literature.⁸ We have selected this topic with the aim to review our unit's experience with PEG tube in relation to its indications, annual frequency, and overall outcome of the procedure.

MATERIALS AND METHODS

This retrospective study was conducted in Waterford Regional Hospital, Waterford, Ireland, from Jan 2003 to Dec 2007. A total of 203 consecutive patients referred for nutritional care underwent PEG tube insertion during this period. The project was approved by the Hospital Ethics Committee and informed consent was taken from all the participants or their attendants. The procedure was performed with prophylactic antibiotic cover along with intravenous sedation. Oesophago-gastro-duodenoscopy (OGD) was performed. The site for placement of PEG tube was positioned by transillumination on the abdominal wall and impression of finger pressure. With the gastroscope in the stomach maintain-

ing distension, a small incision was made at the site and an 18 gauge needle catheter was pushed through the anterior abdominal wall into the stomach. A guidewire was then passed through it into the stomach and grasped with a polyp snare. The guidewire was withdrawn through gastroscopically with the free end of the wire remaining outside the abdominal wall. The PEG tube was then tied to the wire at the mouth and pulled into the stomach by pulling on the free end of the wire at the abdominal wall. Position of the PEG tube was confirmed by check endoscopy. Feeding was started 12 hours after tube placement and care instructions were given. The parameters of our study included indications, annual frequency, and overall outcome.

RESULTS

A total of 203 patients, male to female ratio 1:0.7 underwent PEG tube insertion. The age ranged from 26 to 96 years (mean 79 ± 5.17). The mean duration of PEG feeding was 93 (3-785) days. Indications of PEG tube insertion are shown in Table 1. The annual frequency of insertion increased from 19 (9.3%) in 2003 to 64 patients (31.5%) in 2007. The length of stay ranged from 1 to 350 days (median 93). In this cohort, 32 (15.7%) patients died during the same admission, one oesophageal perforation, one haemorrhage, and one aspiration pneumonia, 29 patients due to primary disease. Four patients developed peritonism and ileus, which resolved after conservative treatment. Minor complications included peristomal sepsis 13.6%, tube blockage 12%, and tube connector leak 5%. Whilst 79 (38.9%) were discharged for home, 92 (45.3%) were discharged back to nursing home care.

Table 1: Indications of PEG for insertion.

Indications	No. of Patients	Percentage (%)
Neurological	152	74.8
Head and neck cancer	24	11.8
Chronic aspiration	15	7.3
Respiratory failure	12	5.9

DISCUSSION

The advancement in endoscopic procedures has led to the development of gastrostomy feeding tubes with the aim of improving the nutritional status of patients who are unable to take food orally. The indications are expanding with the better understanding of importance of nutritional support in critically ill and chronically debilitated patients. The adequacy of nutritional support should be the final outcome of successful PEG placement.⁹ There were 142

males and 61 females showing male preponderance requiring PEG intubation in this study. There are many studies which support this finding.^{10,11} This predominance in male persons is probably due to increased incidence of strokes in this group. In our study, the patients with neurological disorders outnumbered the candidacy for PEG. A number of studies have shown the main indication for PEG tube insertion is neurological.¹⁰⁻¹² Major complications resulting from PEG tube placement reported in the literature include peritonitis, haemorrhage, Buried Bumper syndrome and gastrocolic fistula.¹³ Only 3 patients (2.2%) in our study had PEG related major complications. We had 13.6% patients with peristomal infection which was treated with entered antibiotics. The frequency of local sepsis was reported 16% by Sadik et al¹⁴ 13% by Schurink et al¹⁵ and 3 – 15% by Anis et al.¹⁶

There are many studies advocating the positive role of PEG in the nutritional buildup of the chronically ill patient and according to them, PEG is considered to be the preferred technique for the patients who need long – term enteral nutritional support.¹⁷ The studies have shown adequate nutritional status obtained by PEG feeding, of patients with head and neck malignancies receiving radiotherapy.¹⁸ The medical literature has reported a considerable amount of experience which demonstrates its ease of placement and low incidence of complications associated with placement.^{19,20}

As with any surgical procedure, it is also not without complications especially when selection criteria for tube insertion is not observed properly. Many geriatric diseases result in eating difficulties and a number of patients undergo PEG to meet their nutritional requirement and for the medication purposes. Indications for selecting individuals for PEG are not yet precise and everybody may not benefit from the procedure. The high morbidity and mortality after PEG tube insertion especially in elderly patients is commonly attributed to the severity of their underlying diseases but procedure related mortality is higher than expected. Old age should not be a contraindication for PEG. A high early mortality indicates that there is a need of better criteria for selection and timing of PEG insertion in the elderly.^{14,21} A study conducted by Baltz et al, showed high percentage of mortality in patients with cirrhosis liver who underwent PEG tube placement. They recommended prior assessment and weighing of risks against the benefits of PEG tube placement in patients with cirrhosis.²² Long term dependence on PEG may lead to adverse effects on swallowing in head and neck cancer patients in postradiotherapy period.²³ In one study by Low, the patients and their attendants preferred to be treated in a hospital setting and most differed with the usage of artificial

feeding.²⁴

PEG tube feeding in severely and chronically ill elderly adults can be accomplished safely. However, there are important concerns associated with the PEG and there was limited evidence that the procedure improves functional, nutritional, or subjective health status in this group of older adults. The issue was raised by Callahan et al in their study in which they compared PEG tube feeding with alternative methods of patient care for elderly adults with difficulty in eating.²⁵

In patients with poor renal function, poor cardiac function, severe malnutrition or exhaustion, the indications for PEG need to be very carefully investigated.²⁶ The opponents recommend the formulation of strict criteria for the selection of patients for the procedure.

Several questions remain unanswered regarding the utility of nutritional support in many clinical scenarios in which PEG placement is considered. There is a multitude of evidence that artificial nutrition does not improve outcome or quality of life in patients with dementia who have decreased oral intake. Though in this regard, ethical, moral, religious, and legal considerations of family members and caregivers play a role in the decision to place a PEG in such patients despite the medical evidence representing lack of benefit.

LIMITATION

A single center, retrospective analysis.

In **conclusion** there is an increasing trend towards PEG tube insertion despite a generally poor outcome and prospect of quality of life. PEG tube insertion may be associated with considerable morbidity and even mortality. These findings underscore the need for enhanced awareness and protocol driven selectivity in patient referral for PEG tube insertion.

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