Early Experience with Percutaneous Endoscopic Gastrostomy in Pondok Indah Hospital

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ABSTRACT

Background: *Percutaneous endoscopic gastrostomy (PEG) is only recently being introduced in Indonesia with limited clinical experience. Clinical study of patients underwent PEG is very limited. This study was aimed to evaluate clinical profile of patients underwent PEG in a private hospital in Jakarta.*

Method: *A retrospective study was done to patients underwent PEG in Pondok Indah hospital, Jakarta using medical record. Clinical data collected were patients' demographics, diagnosis of underlying disease, indication for PEG insertion, and follow-up visits.*

Results: *Ten cases were found between 2000 and 2008, six among them were men. All but one cases aged more than 50 years. Ninety percents of the patients had cerebrovascular disorder as their primary diagnosis and 60% of the main indication was dysphagia.*

Conclusion: *No procedure-related major complications and death has occurred. This procedure was safe and potentially be offered to more widely clinical settings.*

Keywords: *dysphagia, percutanelus endoscopic gastrostomy, enteral feeding*

INTRODUCTION

Nutritional support is an essential part in the management of hospitalized patients who are at risk to develop undernutrition.[1,2] It should be the aim of every hospital to provide adequate nutrition to the patients. Oral active intake is the most preferable way to give nutrition; however, if oral intake is likely to be absent for certain period of time (usually 5-7 days), artificial nutrition support is needed in the form of Enteral Tube Feeding (ETF). The most common form of ETF is Nasogastric Tube (NGT) insertion. However, long-term NGT is usually avoided since it is associated with nasal irritation, risk of displacement, and cosmetically unacceptable.

Percutaneous Endoscopic Gastrostomy (PEG) has been the most common method of enteral nutrition in patients who require long-term tube feeding in the developed countries.[3] It is used if enteral feeding is likely to be needed for more than 4-6 weeks. PEG insertion has been shown to improve morbidity and mortality in patients with dysphagia due to acute stroke and oropharyngeal cancers.[4,5]

PEG tube insertion is a relatively new procedure in Indonesia with a few gastroenterologists currently performing it in Jakarta. This technique requires a special skill and training prior to be routinely done in a gastroenterology practice. Clinical evaluation of PEG procedure has not been done so far. This study was aimed to evaluate clinical profile of patients underwent PEG based on an early experience in a private hospital in Jakarta.

METHOD

We studied the clinical profile of patients who underwent PEG from 2000 to 2008 in Pondok Indah hospital, Jakarta. Data were collected retrospectively from the Medical Record Department and consisted of age, gender, primary diagnosis, indication of PEG, and other co-morbidities. Patients who died were also recorded.

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The PEG procedure was performed at the Endoscopy Unit under general anesthesia. Gastrostomy tube (Wilson-Cook Medical Inc., USA) was inserted by a pull-through method. A complete esophagogastro-duodenoscopy was performed after each PEG insertion. No antibiotic prophylaxis was specially given to patients.

Patient was lying down at supine or left lateral decubitus position. The head of the patient's bed should be at 30 degrees to reduce the risk of aspiration. The posterior pharynx was anesthetized with a topical anesthetic such as xylocaine. Afterwards, the endoscope was inserted through the oropharynx to the esophagus and stomach. Once the endoscope is in the stomach, all of the residual fluid was suctioned to prevent regurgitation and aspiration. Then, we carefully observed the abdominal wall for any signs of transillumination. At the time, another person palpated the abdominal wall with his forefinger so that the endoscopist could visualize a potential entry site. Once an appropriate PEG entry site was identified, the abdomen is cleansed with an antiseptic. The patient's abdomen was covered with a sterile drape containing a hole in the middle that is positioned over the PEG entry site. A safe gastric access entry site was then established by using a 22-gauge needle. Then, the abdominal skin was anesthetized using 3-5 mL lidocaine intradermally to raise a skin "wheal". At this place, an incision of about 1 cm was made vertically or horizontally with a scalpel. Following the incision, a needle catheter from the commercial PEG kit was passed into the gastric cavity. Once the needle catheter is in the stomach, it is snared by the endoscopist. The inner needle was removed, leaving the plastic outer sheath in the gastric cavity. A guidewire was threaded through the plastic sheath into the gastric cavity. Finally, the guidewire is snared, pulled out of the mouth with the endoscope, and released from the snare.

RESULTS

Ten patients underwent PEG tube insertion was assessed in this study, comprising 6 men and 4 women. The patients' median age was 72.5 years; the youngest patient was 17 years old. Other patients aged more than 50 years (table 1).

Almost all patients had cerebrovascular disorder as the primary diagnosis or underlying condition. The most common indication of PEG insertion was dysphagia. Hypoalbuminemia was noted in one patient, but many cases do not have records on albumin level. Several comorbidities was found, mostly involved the neuro-muscular system. One patient (the youngest) has been diagnosed with hydrocephalus since his infancy (table 2). There was no case of oropharyngeal or esophageal malignancy.

Table 1. Characteristics of patients underwent PEG

Characteristic	n	%
Sex		
Male	6	60
Female	4	40
Age (years)		
< 50	1	10
51 – 60	2	20
61 – 70	2	20
71 – 80	3	30
> 80	2	20

Table 2. Primary diagnosis, indication, and other co-morbidities of patients underwent PEG

Variable	n	%
Primary diagnosis		
Stroke	9	90
Hydrocephalus	1	10
Main indication for PEG		
Dysphagia	6	60
Vomiting	1	10
Malnutrition	3	30
Co-morbidities		
None	5	50
Chronic obstructive lung disease	1	10
Bell's palsy	1	10
Alzheimer's disease	1	10
Parkinsonism and hydrocephalus	1	10
Congenital hydrocephalus	1	10

A few patients needed PEG tube reposition within 30 days of first insertion and minimal bleeding was observed in one patient. No infection was found in the site of PEG tube insertion (peristomal infection) or along the upper gastrointestinal tract. There was no procedure-related major complication or death. Two patients died due to their underlying disease. PEG insertion is aimed for long-term enteral nutrition. Permanent removal of PEG tube is recommended

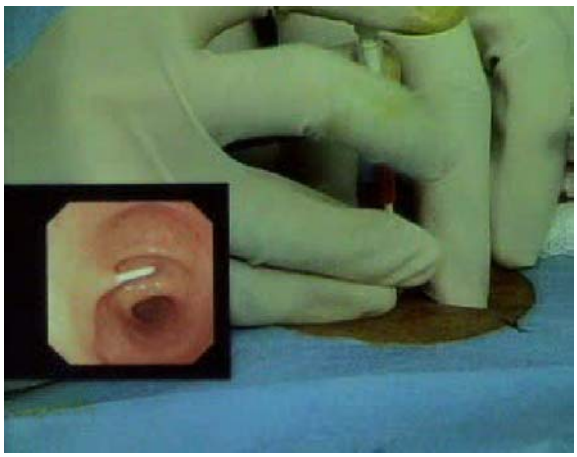


Figure 1. Incision of the abdominal wall



Figure 2. Insertion of the PEG tube



Figure 3. Placement of PEG in the gastric cavity

whenever the patient's oral intake function has returned to normal. PEG tube removal and re-insertion was done at an interval of 3 to 6 months. This was done without general anesthesia.

DISCUSSION

There are several indications for PEG tube placement i.e. neurological disorders of swallowing, cognitive impairment and depressed consciousness, mechanical obstruction to swallowing and long-term partial failure of intestinal function requiring supplementary intake.[6] Our data show that the most common indication for PEG procedure was dysphagia due to stroke. There was a patient with dementia (Alzheimer's disease). One patient also had hypoalbuminemia prior to PEG placement.

Cerebrovascular disease was accounted for 60.4% of 181 cases of PEG in Singaporean study. Other indications were Parkinson's disease and other neuromuscular disorders in 10.9% cases, naso-pharyngeal carcinoma and upper gastrointestinal malignancies in 24.7%, and head injury in 4%.[7] A retrospective study in 198 patients who underwent PEG showed that cerebrovascular disorder was also the most common primary diagnosis (75.3%) with a median age of 78 years (25-97 years). Alzheimer was found in 19 cases and hydrocephalus only two cases. That study also found high mortality rate; survival was decreasing from 84.7% at 1 month to 52.6% at 6 months, 38.1% at 1 year, 27.8% at 2 years, and 22.3% at 3 years. Pneumonia was the most common cause of death. Independent predictors of mortality were a low serum albumin concentration (≤ 2.9 g/dL) and history of pneumonia before the procedure.[8]

PEG procedure is occasionally offered to patients with dementia in hoping that it would improve their survival. Recent study concluded that demented patients were not associated with poorer survival after PEG compared to non-demented patients. However, in elderly patients, male gender, advanced age (> 80 years), hypoalbuminemia (< 2.8 g/dL), chronic heart failure, and previous subtotal gastrectomy were predictors of poor survival.[9]

In this series, PEG procedure was mainly offered to patients with cerebrovascular disorders since it is the most common condition that would need longterm enteral access. Moreover, our hospital is not an academic referral hospital which usually had more various medical conditions. Theoretically, PEG was not mainly indicated for enteral feeding only, but also for gut decompression in case of advanced abdominal malignancies causing chronic obstruction or ileus.[10] PEG tube insertion is contraindicated when there is pharyngeal or esophageal obstruction, active coagulopathy and other contraindication to endoscopy.[11]

At this moment, we do not routinely give antibiotic prophylaxis before PEG since many patients had received some antibiotics for their illness. Meta-analysis and randomized control trial supported the use of antibiotic prophylaxis before PEG tube insertion to reduce peristomal infection.[12,13] The antibiotic used for prophylaxis may vary such as cephalosporins, quinolones, macrolides and others. Ciprofloxacin and cloxacillin were used in the Singaporean study,[7] while others have used cefuroxime.[13] Recently, PEG site infections caused by methicillin-resistant *Staphylococcus aureus* has been reported and warrants further study on the adequacy of prophylactic antibiotic recommendation.[14]

CONCLUSION

Percutaneous endoscopic gastrostomy has increasingly gain acceptance as an alternative strategy for long-term enteral access in Pondok Indah hospital. The main indication for PEG tube insertion is dysphagia to cerebrovascular accident. Procedure-related complications were low and no death due to

this procedure. PEG procedure was safe and could potentially be offered to more patients in wider clinical settings.

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