

Percutaneous Endoscopic Gastrostomy: Nine years experience in a tertiary care centre in Pakistan

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Abstract

Objective: To review the experience of percutaneous endoscopic gastrostomy (PEG) tube placement and its management in the last nine years, at a tertiary care center in Pakistan.

Methods: All patients who underwent percutaneous endoscopic gastrostomy from January 1995 to January 2004 at Shifa International Hospital, Islamabad, were included in this study. The indications, technique, complications and follow up were reviewed.

Results: A total of 182 persons underwent this procedure. There were 118 (65.0%) males and 64 (35.0%) females. Age ranged from 55-86 years. One hundred seventy five (96.0%) patients had cerebro-vascular accident, five (2.75%) had Parkinson's disease and two (1.25%) malignancy. More than 99% procedures were successful and no procedure related mortality was noted. Mild PEG site infections were encountered in eighteen (9.8%) patients which were manageable with local treatment and oral antibiotics. Four (2.2%) patients had severe tube site infection and needed parenteral antibiotics. Tube dislodgement took place in five (2.75%) patients and had to be removed and reinserted. Thirty days follow up was uneventful with regard to the tube. Longest follow up was 736 days.

Conclusion: Percutaneous endoscopic gastrostomy had proved a viable means of enteral nutrition in patients with neurological impairment. Complications were insignificant. However, patient and care giver's education could be improved for more effective tube management, and prevention of PEG insertion site infection (JPMA 55:108;2005).

Introduction

Enteral nutrition has been increasingly used in clinical practice during past several decades with nasogastric tube being the most common for short term purposes. However, for patients with long term nutritional requirement, percutaneous endoscopic gastrostomy (PEG) has been well established since its introduction in 1980.¹ Over

the years, experience with the gastrostomy tube management has been quite satisfactory.²⁻⁵ Thus, inspite of several complications which may ensue in these patients as aspiration pneumonia, PEG site infection, leakage, dislodgement and several others, PEG established itself to be the preferred mode for providing prolonged nutrition in those unable to swallow due to neurological impairment.⁵

There have been medical and ethical consideration in these procedures.^{6,7} It is claimed that no physiological benefits may be expected from PEG placements and this may not provide the patients adequate weight gain or other nutritional improvement.⁶ It has been observed that thirty days mortality after PEG insertion has been high in hospitalized patients. Thus, a waiting period of 30 days has been recommended after a request.⁷ In spite of all these considerations, PEG remains a clinically acceptable modality for providing enteral nutrition and hydration.²⁻⁴

In Pakistan, experience with percutaneous endoscopic gastrostomy has been limited.⁸ We had earlier reported our experience⁹ with PEG tube placement and now report 9 years experience in a tertiary care center which receives referrals from a wide area.

Patients and Methods

The records of all patients undergoing PEG placement from January 1995 to January 2004 were analyzed. Most of them had been referred from the neurology service due to inability to swallow with anticipated complications of prolonged naso-gastric feeding.

Patients were evaluated medically before the procedure, where indicated. Many patients were comatosed. They were assessed for suitability for PEG placement and previous abdominal surgery or other interventions were noted. Intravenous antibiotic was given to those patients who were not already on it and cefazolin or cef-triaxone 1g IV was injected one hour before the procedure. Patients were placed in left lateral position in the endoscopy suite. Minimal sedation was used and several patients required only 2.5mg of diazepam or 1mg of midazolam intravenously. Some comatose patients were not given any sedation and only local xylocaine spray was sufficient. Olympus fiberscope XQ-10 and XQ-20 were used in earlier cases. Later the Olympus video gastroscope CV-100 was put in practice. The "pull" technique was used in all cases and is described below.

The gastroscope was then introduced under direct vision and esophagus, stomach, antral area and duodenum were examined. The scope was then withdrawn slowly and area of maximal illumination noted. In majority of the patients, this area was just above the umbilicus and slightly to the left. The appropriate location was identified by pressing with the index finger at the area of light and indentation on the gastric wall was noted through the endoscope. This area was marked on the abdominal wall. The scope was slightly withdrawn but the insufflation was continued. A snare was inserted in the biopsy channel. The location marked was sterilized with povidone-iodine. PEG 24 tube (Wilson Cook, Durham, NC, USA) was used. After clean-

ing and appropriate sterile draping, a 5-7 mm incision was made on the marked area. Any minimal bleeding or oozing was secured with gauze pressure. The cannula was inserted with a jerk under direct vision and its entry in the gastric wall was seen on the videoscope. The needle was slightly withdrawn from the cannula and the snare, which was already present in the scope channel, was used to grasp the cannula. After this, the needle was removed from the cannula and the polythene coated metallic guide wire was inserted. As it appeared in the stomach, the snare grip was loosened and the guide wire was grasped. The snare and the scope were both withdrawn as the guide wire continued to pass from abdominal wall to the stomach and the esophagus and out through the mouth. The snare was loosened and the gastrostomy tube tied to the guide wire.

After slight lubrication, the guide wire was pulled and the tube guided gently through the mouth, pharynx and esophagus as the guide wire was pulled to the stomach and abdominal wall. If the abdominal opening needed to be enlarged, it was slightly extended and tube was pulled out and the bolster placed on the abdominal wall. The tube was cut at appropriate level. The stump was placed and feeding end was secured. The endoscope was introduced again in the stomach and placement of the bolster was noted to be against the gastric wall. A sterile dressing was placed on the external abdominal wall.

Initially feeding was withheld for 24 hours but the later cases were fed after 6 hours of the placement of the tube when the bowel sounds were noted to be present. In the beginning clear liquids and supplements were given and later blenderised diet according to the patient's caloric needs as advised by the treating physician, was instituted..

The dressing was changed every day when the patient was in the hospital. The area was noted for any redness or any wound infection and pyodine was used for dressing. The care givers were trained for the tube care and feeding procedures. After the patient's condition was stable from the neurological point of view, they were discharged, the tube care instructions were given to the patient's attendants and follow up was provided at regular intervals.

Results

A total of 182 patients received PEG placement during the nine years. There were 118 (65.0%) males and 64 (35.0%) females with an age ranged from 55-86 years. The primary diagnosis was cerebro-vascular accident in 175 (96.0%) patients, Parkinsons disease in 5 (2.7) and malignancy in 2 (1.25%). The procedure was successful in 181 patients with a success rate of 99%. One patient had a very obese abdomen and cannula could not traverse the stomach

very obese abdomen and cannula could not traverse the stomach wall. The tube was subsequently placed surgically. Patient's follow up on average was two to four weeks, with the longest being 736 days.

Most common complication was mild PEG site infection which occurred in 18 (9.8%) patients. This was managed with local antiseptic dressing and oral antibiotics. More severe infection occurred in 4 (2.2%) patients who were treated with intravenous antibiotics and recovered fully. Five (2.75%) patients had dislodgement of the tube and a new tube had to be placed. Perishing of tube material was noted in three patients who received a new one. Mild aspiration, which was manageable by conservative measures, was noted in six (3.3%) patients. No tube related mortality was encountered.

Discussion

Percutaneous endoscopic gastrostomy has become the preferred route of artificial nutrition and hydration since its introduction nearly a century ago.⁶ However, making a decision to place a PEG tube in neurologically impaired, especially in elderly and demented patients is a challenge to the clinician. Large cumulative studies have shown a mean procedure mortality rate of 0.6% and major complication rate of 3-5%, which include aspiration pneumonia and peritonitis.⁶

Indications for PEG placement are esophageal obstruction (due to esophageal cancer), non-obstructive dysphagia secondary to cerebrovascular accident or pseudo-bulbar palsy, patients refusing to swallow without a terminal illness (protracted pseudo-dementia) and for supplemental nutrition in patients with cancer under going chemotherapy/radiation with or without surgery.⁶ However, before placing a PEG tube, it must be ensured that it will provide the required physiologic benefits of adequate nutrition and hydration. All our patients had appropriate indications for insertion of PEG and all received adequate nutritional support. We used PEG tube by "pull" technique which gave a satisfactory placement. All individuals were rescoped to ensure the satisfactory placement of the bolster inside the stomach. This however, is not a routine recommendation and is the endoscopist's choice.¹⁰

The complication and PEG site infection rate in our patients is comparable with studies reported internationally.^{2,3} We used intravenous antibiotics prior to the procedure which is a general recommendation.¹¹ PEG site infections with methicillin resistant staphylococcus aureus is becoming a major issue.¹² However, we did not encounter any resistant organism.

Percutaneous endoscopic gastrostomy has been used more widely recently but there have been concerns that it may be associated with high mortality rates in the hospitalized patient.¹³ This may be the case in patients who

have hypoalbuminemia which is a poor predictor of survival after PEG¹⁴, especially in elderly patients with dementia.¹⁵ Suitability of patients with dementia and their outcome after percutaneous endoscopic gastrostomy also has raised several ethical issues as to the quality of life and survival.¹⁴ Despite all these considerations, a survey of gastroenterologists in North-West United States had shown that the PEG placement has been considered much safer and helpful in the past many years.¹⁶ However, it has been recommended that gastroenterologists should not just act as technicians and should evaluate the underlying disease process and ramifications of PEG placement against ultimate outcome before embarking on tube placement.⁶

Our experience in past nine years with PEG placement has shown that this procedure is safe and has been helpful in providing enteral nutrition to severely neurologically impaired patients and has acceptable complications. Care givers education may further help in minimizing the encountered complications.

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