

PERCUTANEOUS ENDOSCOPIC GASTROSTOMY (PEG) - THE LOCAL EXPERIENCE

Pages with reference to book, From 179 To 183

Huma Qureshi, Sarwar J. Zuberi (PMRC Research Centre, Jinnah Postgraduate Medical Centre, Karachi.)

Abstract

Percutaneous endoscopic gastrostomy was done for feeding purposes in 3 patients with inoperable carcinoma of oesophagus and oropharynx. Procedure was tolerated well by all with no complications. All the patients were able to maintain their weight till death. The procedure is safe and cost effective for enteral feeding in patients with dysphagia (JPMA 38: 179, 1988).

INTRODUCTION

Dysphagia/inability to swallow is a common symptom in patients with malignancies of the oropharynx, oesophagus, and in those with neurological impairments, resulting in malnutrition. Feeding gastrostomy is a well-established method for maintaining enteral nutrition in cases with dysphagia^{1,2}. Gastrostomy or jejunostomy were previously done as a part of laparotomy under general anaesthesia. PEG under local anaesthesia for enteral feeding was first reported in 1980³ and has been extensively used⁴⁻⁷ since.

The present study deals with local experience of PEG in biopsy proven cases of carcinoma of oesophagus and oropharynx.

METHODS

Preparation of gastrostomy tube:

The wide connecting end of a size 16 mushroom catheter is cut and a simple suture is applied to this end. Both ends of the suture are threaded through a size 16 medicut plastic cannula, exiting at the tip and tied to each other in a knot. The catheter is stretched, pulling on the suture, to facilitate the medicut to be slipped over the catheter. The medicut so placed provides a thin tapered tip that passes through the gastric and abdominal wall with minimal trauma. A hole is cut in the middle of a 2—3 inches long ordinary rubber tube, and this is threaded over the mushroom catheter in such a way that the tube lies just below the mushroom tip and acts as a bumper to keep the catheter and stomach in place.

Abdominal preparation:

Abdomen is cleaned and draped. A line is drawn between the umbilicus and mid left costal margin. A point at the junction of middle 2/3 with outer 1/3 is infiltrated with 2% xylocaine and nicked (3-5mm) with a scalpel (Figure 1).

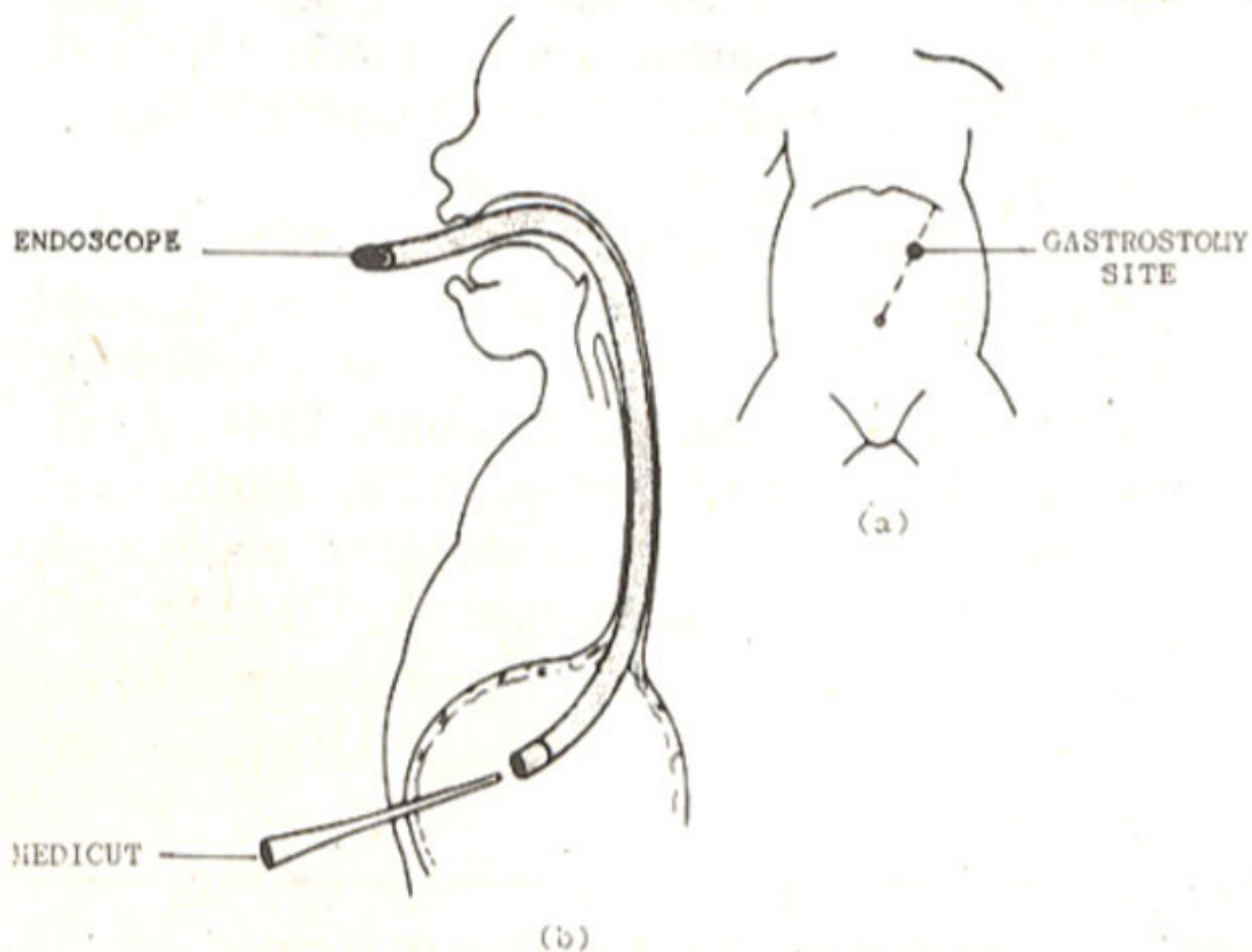


Figure 1. (a,b) Gastrostomy site and passage of cannula.

Insertion of the gastrostomy tube:

Gastroscopy is performed in the usual manner. Stomach is distended to mobilize liver, spleen and colon away from the gastrostomy site (Figure 1a) and to bring the anterior wall of the stomach in contact with the abdominal wall. Size 16 medicut cannula is passed through the nick in the abdomen in a quick motion to enter the stomach. Tip of the cannula is visualized in the stomach through the gastroscope (Figure 1b). The metallic needle is removed leaving the plastic cannula in place, and a long No. 2 black silk threaded through the cannula. One end of silk is grasped with a forceps once it emerges in the stomach and brought out with the gastroscope and forceps holding the silk (Figure 2,3).

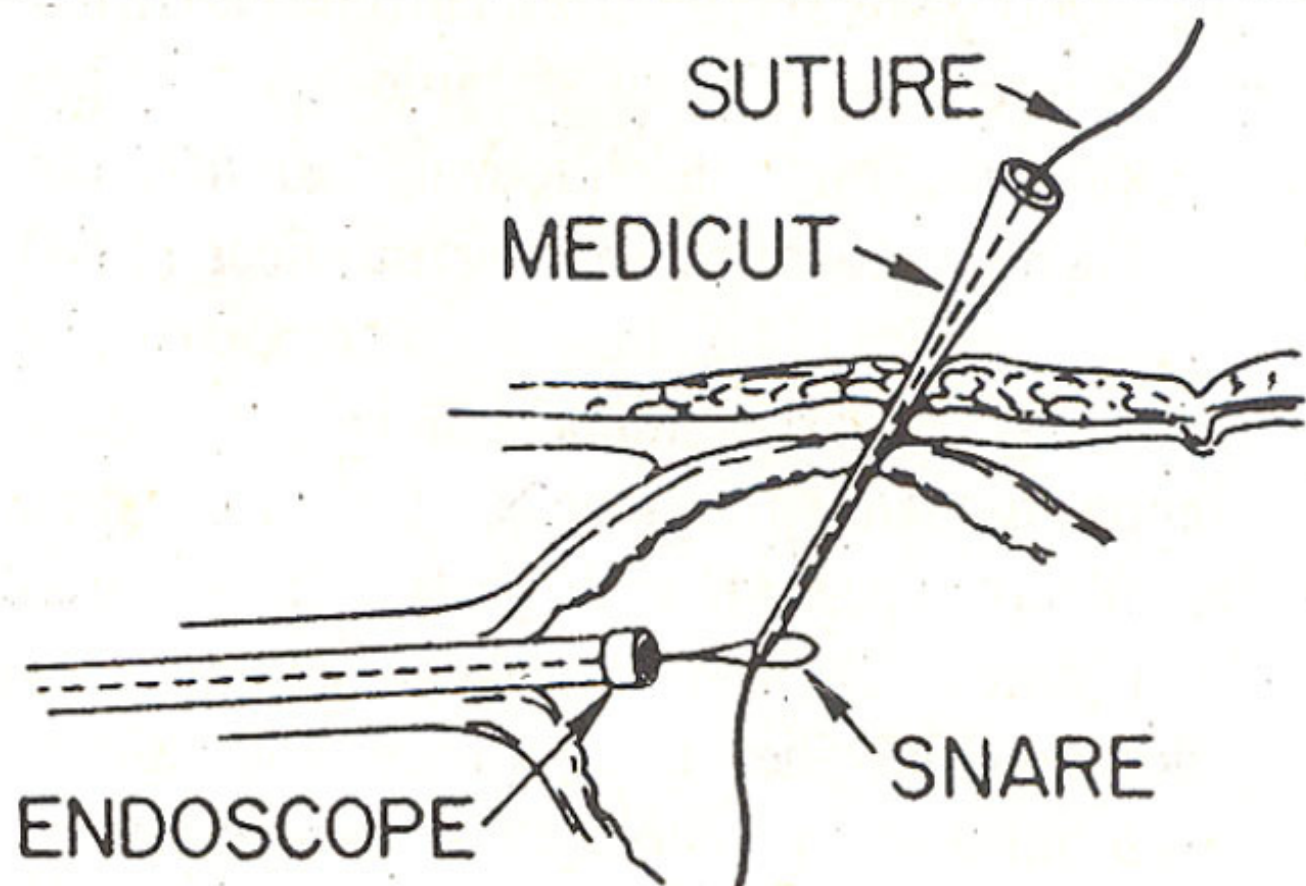


Figure 2. Silk threaded through the cannula.

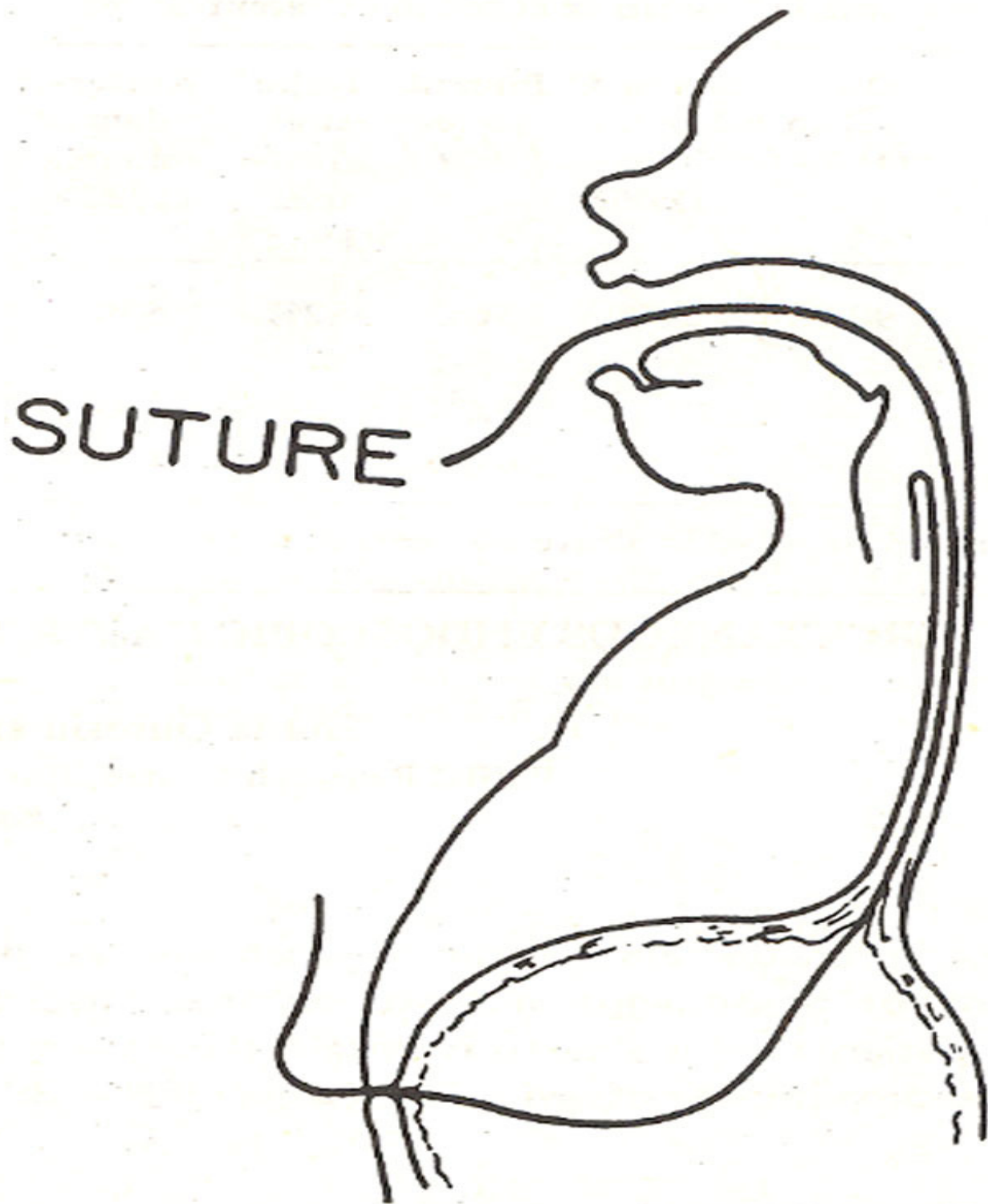


Figure 3. Silk brought out with gastroscope.

This end of the silk is tied to the previously prepared loop in the gastrostomy tube. By applying traction on the transabdominal silk suture, the lubricated gastrostomy catheter is pulled in a retrograde fashion through the patient's mouth,

Figure Gastrostomy site and passage of cannula.

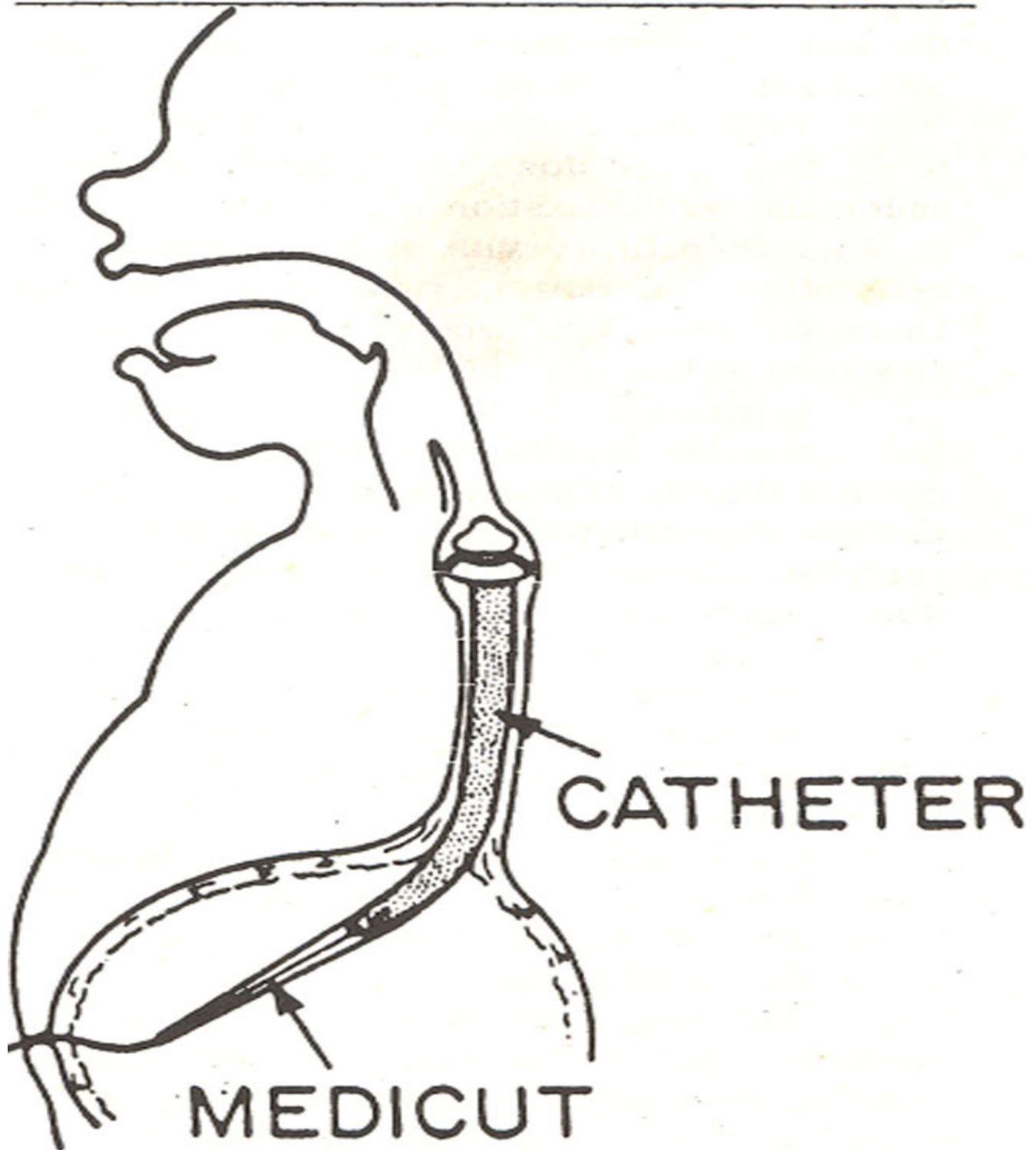


Figure 4. Gastrostomy catheter pulled in retrograde fashion through the mouth.

Gastroscope is reintroduced to confirm the position of the mushroom catheter. Tension is applied on the catheter until the gastric and abdominal walls are in close approximation; catheter is secured to the

abdominal wall by another heavy rubber guard to act as the second bumper (Figure 5).

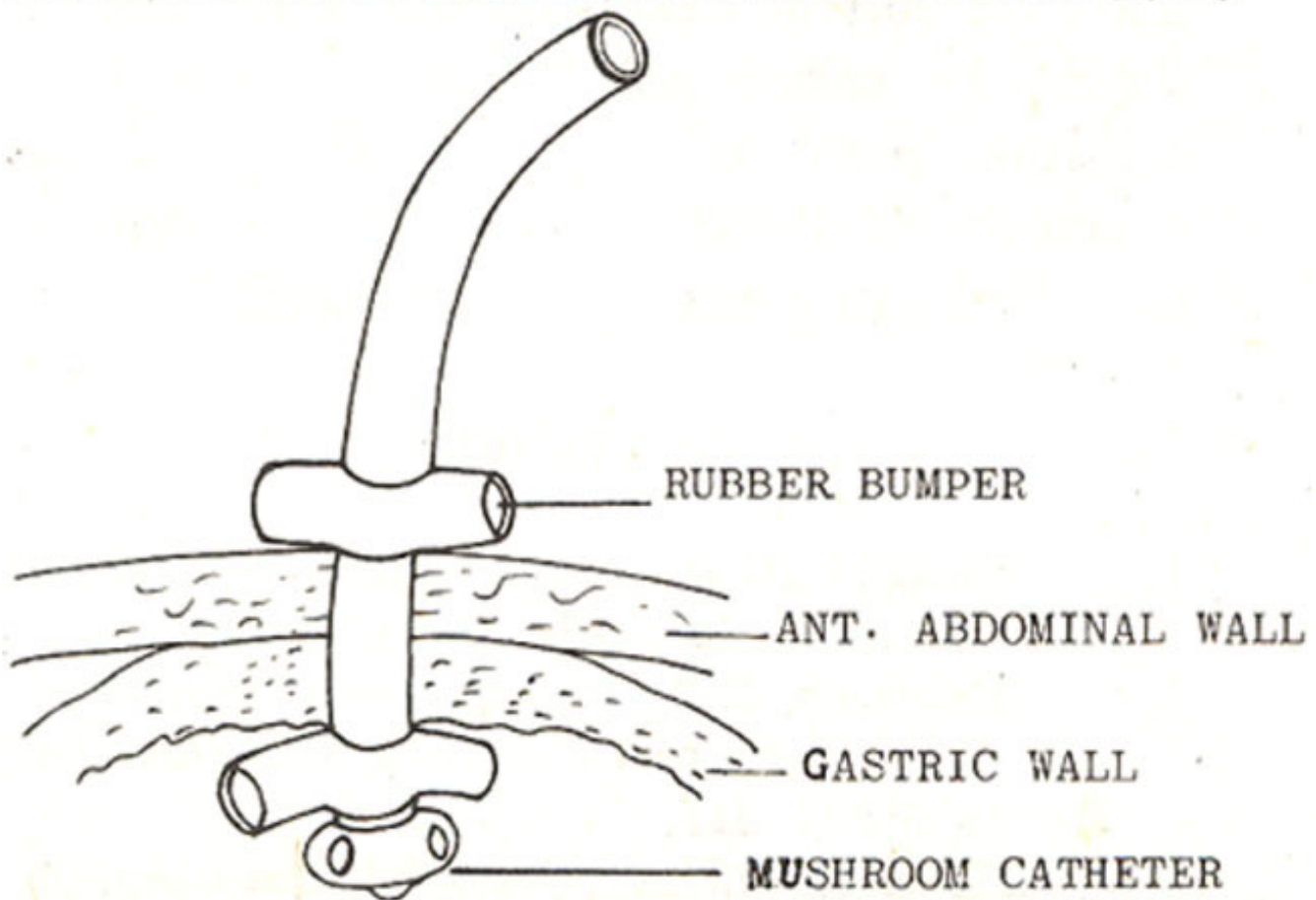


Figure 5. Gastrostomy tube in position.

The procedure, on an average, takes about 20 minutes.

M.S. 83 years old male presented in August, 1986 with 2 months history of progressive dysphagia and weight loss.

He gave a past history of histopathologically proven carcinoma of the larynx treated with radiotherapy in 1974, and a tracheostomy later because of subsequent airway difficulties. In late 1974 he went for a check up to New York where otolaryngological examination revealed bilaterally fixed vocal cords in the paramedian position; but there was no tumour. Post cricoid mucosa was oedematous which, on biopsy, showed a typical focal basal hyperplasia with no evidence of tumour. A size 8 tracheostomy tube was passed to facilitate respiration.

Patient remained well till 1984 when he had an attack of myocardial infarction. In 1986 he developed progressive dysphagia. Upper G.I. endoscopy in New York showed moderately severe oesophagitis at the lower end of oesophagus with nodularity and mass effect in the cervical oesophagus and pre-epiglottis area. A tumour mass was visible in the left tonsillar area which on biopsy was found to be squamous cell carcinoma. In Aug. 1986 patient came to Pakistan. On physical examination he weighed 36.5 kg., blood pressure was 110/70mmHg and pulse 80/min. Systemic examination did not reveal any abnormality. He underwent PEG on 21-8-1986, followed by a broad spectrum antibiotic for 7 days. Well blanderized high calori diet was given via gasterostomy tube. He maintained his weight for 5 weeks when he had haemetemesis, for which he was transfused in a private laboratory. During transfusion he complained of tightness in the chest and died.

CASE 2:

M.S. 33 years old male came in September 1986 with 5 months history of dysphagia for both solids and liquids, epigastric pain radiating to back, vomiting, weight loss and a hard mass on left side of the neck for 2 months. He also had haemetemesis 2 weeks prior to seeing us.

He gave past history of removal of a solitary thyroid nodule in March 1983 which on histology was found to be a nodular goitre.

Barium meal in March 1986 and swallow one month later showed a growth at the lower end of the oesophagus involving the gastric fundus. Lymphnode biopsy from the left side of the neck was reported as metastatic adenocarcinoma.

On physical examination he weighed 45 kg, blood pressure was 100/60mm Hg and pulse 80/min. Firm lymphnodes were palpable in left supra clavicular region. A mass was palpable in the epigastrium and liver was just palpable.

Examination of other systems was unremarkable. Upper G.I. endoscopy on 4-9-86 revealed a fungating growth extending from the lower oesophagus into the gastric fundus, which on biopsy was found to be an adenocarcinoma. PEG was done. He was also given radiotherapy and a course of 5FU. Two weeks later he weighed 46 kg, wound was clean, but he complained of vomiting sour fluid 3-4 times/day. He had haemetemesis on and off for 5 days, for which blood transfusion was given. Repeat endoscopy on 29-9-86 showed the growth almost obstructing the lumen. He maintained his weight till late December, when he again had haemetemesis and died.

CASE: 3

M.B. 50 years female came with 4 months history of dysphagia, vomiting, weight loss and haemetemesis.

Physical examination revealed a markedly dehydrated and cachexic female who weighed 30.5 kg.

Blood pressure was 90/60 mmHg and pulse 76/min; systemic examination was unremarkable. Barium meal showed a filling defect extending from mid-oesophagus downwards. Upper G.I. endoscopy on 24-12-86 revealed a fungating growth extending from 25 cm downwards and was also involving the fundus. PEG was done simultaneously. Follow up on 24-1-87 showed improvement in weight (35 kg) with no signs of dehydration. She received a course of 5FU and was feeling much better. On 7-2-87 she had a bout of diarrhoea which was controlled with antidiarrhoeals but her weight dropped to 33 kg. On 21-3-1987 she complained of excessive salivation which was difficult to swallow and, therefore, she was spitting it out. Her wound was clean and weight was steady. On 10-5-1987 daughter reported that the patient continued to have excessive secretions followed by fever and cough (aspiration pneumonia) and died at home few days later.

DISCUSSION

Percutaneous endoscopic gastrostomy (PEG) without laparotomy was first described by Gauderer et al. for feeding purposes in children with feeding problem³. Previously feeding gastrostomy was done under general anaesthesia and involved a laparotomy, which was often associated with risks like wound infection, dehiscence, patient discomfort and other complications.^{4,8-11}

Since the development and use of PEG in children, the technique has been widely used and modified by others for alimentary feeding in adults^{6,7}.

PEG has advantages over standard gastrostomy that it is, done under local anaesthesia, abdominal wall relaxation is not required, it can be done in patients with severe musculoskeletal deformities and post-operative pain is also less. Unusually there is no ileus, therefore, feeding can be started on the same day.

Gastrocolic fistula¹² and intraperitoneal leak⁷ can be avoided by⁸ transillumination to confirm the site of puncture and by close approximation of gastric wall with the abdominal wall by applying adequate

tension to the catheter, and direct examination of the intragastric T piece by endoscope. None of the patients in the present series developed post-gastrostomy complications.

In view of the high mortality in patients with neoplasia in the present study, PEG should be considered for enteral feeding in patients with neurological deficits, cerebrovascular accidents, head injuries, and other non-malignant debilitating disorder associated with anorexia in order to maintain their nutrition. The procedure is cost effective because, firstly it is done under local anaesthesia, secondly it would drastically reduce the cost from commercially available expensive parenteral nutrients to usual home cooked blanderized food which can be fed through the gastrostomy; and thirdly it can be done on outpatient basis and patient can be managed at home.

In countries like ours where a lot depends upon the cost of treatment, procedures like PEG should be encouraged for preoperative hyperalimentation prior to a major surgery and postoperative nutritional management of patients post operatively, with neurosurgical problems.

REFERENCES

1. Cunha, F. Gastrostomy. Its inception and evolution. *Am. J. Surg.*, 1946; 72: 610.
2. Heimbach, D.M. Suigical feeding procedures in patients with neuilological disorders. *Ann. Surg.*, 1970; 172: 311.
3. Gauderer, M.W.L. , Ponsky, J.L. and Izant, R.J. Jr. Gastrostomy without laparotomy; a percutaneous endoscopic technique. *J. Pediatr. Surg.*, 1980; 15: 872.
4. Gauderer, M.W.L. and Ponsky, J.L. A simplified technique for constructing a tube gastrostomy. *Surg. Gynaecol. Obstet.*, 1981; 152: 83.
5. Ponsky, J.L., Gauderer, M.W.L. and Stellato, T.A. Percutaneous endoscopic gastrostomy; review of 150 cases. *Arch. Surg.*, 1983; 118:913.
6. Steilato, T.A., Gauderer, M.W.L and Ponsky, J.L, Percutaneous endoscopic gastrostomy following previous abdominal surgery. *Ann. Surg.*, 1984; 200:46.
7. Strode!, W.E., Lemmer, J., Eckhauser, F., Botham, M. and Dent, T. Early experience with endoscopic percutaneous gastrostomy. *Arch. Surg.*, 1983; 118:449.
8. Campbell, J.R. and Sasaki, T.M. Gastrostomy in infants and children. An analysis of compli cations and techniques. *Am. Surg.*, 1974; 40: 505. K.W. Gastrostomy in pediatric patients. *An*
9. Gallagher, M.W., Tyson, K.R.T. and Ashcraft, analysis of complications and technique. *Surgery*, 1973; 74:536.
10. Haws, E\$, Sieber, W.K. and Kiesewetter, W.B. Complications of tube gastrostomy in infants and children. 15 yr. review of 240 cases. *Ann. Surg.*, 1966; 164 :284.
11. Holder, T.M., Leape, L.L. and Ashcraft, K.W. Gastrostomy; its use and dangers in pediatric patients. *N. Engi. J. Med.*, 1972; 286:1345.
12. Cook, R.C.M. Gastrocolic fistula; a complication of gastrostomy in infancy. *J. Pediatr. Surg.*, 1969;4:346.