

Percutaneous Endoscopic Gastrostomy A Novel Approach to Long Term Feeding

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PERKÜTAN ENDOSKOPIK GASTROSTOMİ
(Uzun süreli beslemede yeni bir yaklaşım)

SUMMARY:

Percutaneous endoscopic gastrostomy has supplanted surgical gastrostomy in a number of medical centre and the advantages of this technique including avoidance of general anesthesia, shorter procedure time, safety and cost savings are addressed.

We have performed the technique in a patient who has had neurological dysphagia. The gastrostomy has functioned well and provided an effective way of feeding. After 4 weeks the patient had gained 7 kg weight.

Key words: Percutan endoscopic gastrostomy Neurological dysphagia

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ÖZET:

Perkütan endoskopik gastrostomi son yıllarda cerrahi gastrostominin yerine çoğu merkezlerde uygulanmaya başlanmıştır. Bu yöntemin anesteziye ihtiyaç duymaması, kısa sürede uygulanabilmesi, daha güvenli ve ucuz olması gibi avantajları da gösterilmiş bulunmaktadır.

Biz bu yöntemi nörolojik yutma zorluğu olan bir hastada uyguladık ve metodun gayet iyi çalıştığını, yeterli ve efektif beslenmeye imkan sağladığını gördük. 4 hafta içinde de hasta 7 kg aldı.

Anahtar kelimeleri: Perkütan endoskopik gastrostomi, nörolojik yutma güçlüğü

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INTRODUCTION

Patients are occasionally encountered who have lost the ability to swallow but have an other wise intact gut. The conventional approach to this problem has been to leave a nasogastric tube in place for long periods or to perform a surgical gastrostomy (1,2). Fine bore polyethylene enteric tubes however may be unsatisfactory for long-term therapy because of blockage, pharyngeal discomfort, pulmonary aspiration or patient dissatisfaction (4). Surgical gastrostomy is easy but requires a laparotomy and anaesthetic which may be poorly tolerated in these patients. Percutaneous endoscopic gastrostomy (PEG) is a novel approach which overcomes many of these problems (3). We describe the case of a patient with neurological dysphagia in whom this method provided an effective way of creating a feeding gastrostomy without resort to laparotomy.

CASE REPORT

A 62 year old clergyman presented in 1979 with headache, nausea and vomiting which investigation

showed to be due to a haemangioblastoma arising from the floor of the fourth ventricle. The tumour was removed surgically but postoperatively the patient developed mild dysphagia, dysarthria and ataxia. These symptoms remained tolerable until 1985 when the swallowing difficulty became more severe and the patient began to lose weight. He also developed symptomatic postural hypotension thought to be due to an effect of the tumour on central autonomic control. Examination by barium meal showed incoordination of the pharyngeal component of swallowing. There was no evidence of recurrent tumour at the operation site on CT scanning but there was a vascular lesion in the right gracile nucleus and a second lesion in the upper part of the spinal cord, almost certainly due to recurrent haemangioblastoma, an interpretation also supported by vertebral angiography. The patient was treated with ephedrine 5 mg t.d.s. and fludrocortisone 200 mg b.d. and the symptoms due to postural hypotension improved. Swallowing remained difficult however, and there was prog-

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ressive weight loss (75 kg to 51 kg). Fine bore nasogastric feeding was commenced with a polymeric liquid feed (Duocal) but the patient found this treatment socially and cosmetically unacceptable. It was therefore decided to attempt to produce a feeding gastrostomy without general anaesthesia using an endoscopic technique first described by Ponsky et al (1).

THE PROCEDURE

The patient was fasted for 12 hours and sedated with intravenous diazepam 20 mg and pethidine 50 mg. Oesophagoscopy was performed using an Olympus GIF Q10 endoscope with the patient supine. The stomach was distended with air. A second operator prepared the skin of the abdomen with iodine and drapes and with lights dimmed located the illumination of the endoscope in the epigastrium. A 19G plastic intravenous cannula (Medicut) was then thrust into the epigastrium at that site and penetration of the gastric wall was confirmed by the endoscopist. A strong long silk suture was then passed through the cannula and retrieved by the endoscopist using an endoscopic snare. A size 19G intravenous cannula was then threaded over the oral end of the silk, followed by a small Argyl chest drain and a gastrostomy tube, fashioned from a size 22G Malecot catheter (with a cross piece to help secure fixation in the stomach) (Figure 1).

This series of tubes was then guided down the oesophagus into the stomach and through the gastric and anterior abdominal wall using the silk thread as a guide. The intravenous cannula and chest drain act as dilators, allowing subsequent passage of the Malecot catheter. A further cross piece was then attached to the Malecot catheter following traction of the gastrostomy tube through the abdominal wall. This was sutured in place to provide stability. The gastrostomy tube was spigotted and covered with a light dressing (Figure 2).

The patient tolerated the procedure satisfactorily and no important complications* were seen apart from some mild abdominal pain. After placing the PEG, the patient was fed parenterally for 24 hours. On the second day water was allowed and on the third a low osmolarity feed was commenced (1500 ml Fortison low sodium 1500 Real) and 200 g Polycal provided a further 1000 Real (60 gr protein, 20 mmol Na and 60 mmol K). Later the formulation was changed (250 ml Fortison low sodium with 100 gr Duocal providing 3000 Real, 25mmol/L Na and 95mmol/L K) and has been continued up to the present time. The gastrostomy has functioned well throughout and after 4 weeks the patient had gained 7 kg weight.

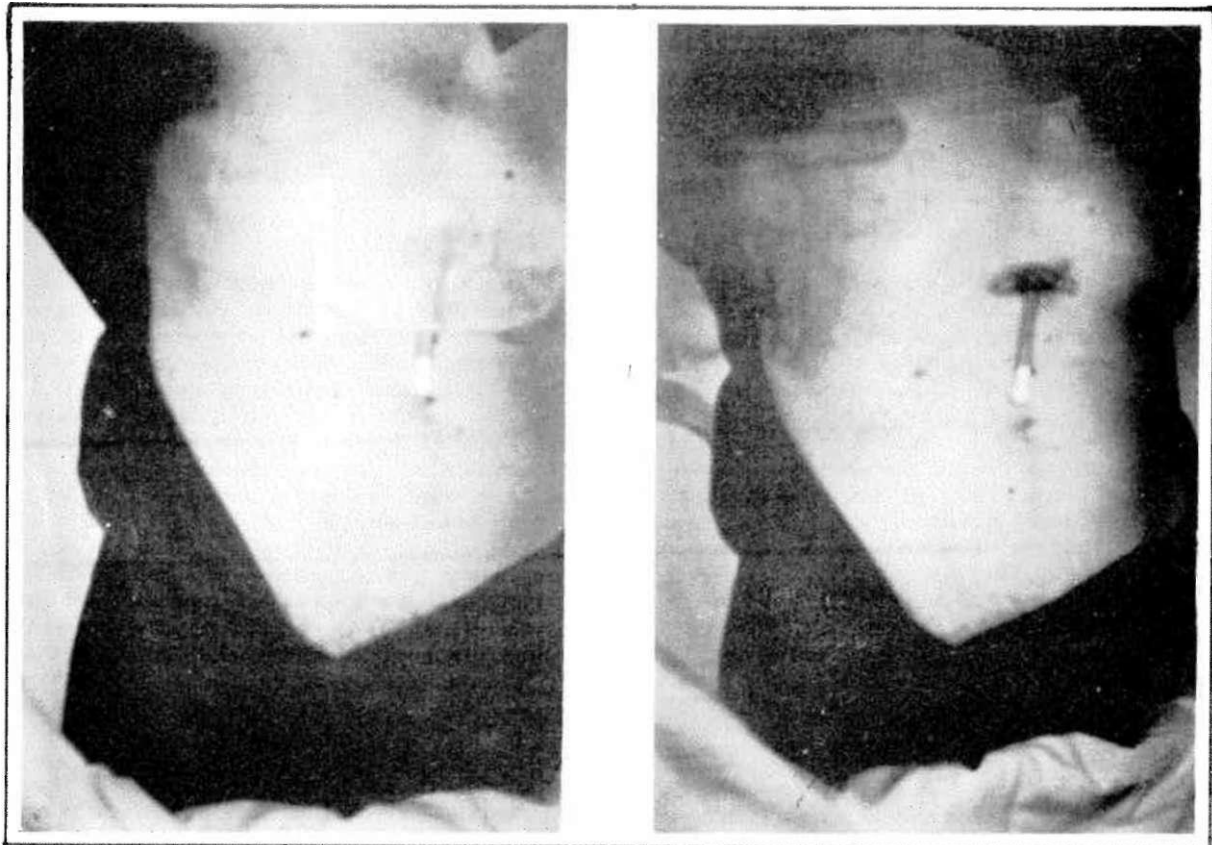


Figure 1.

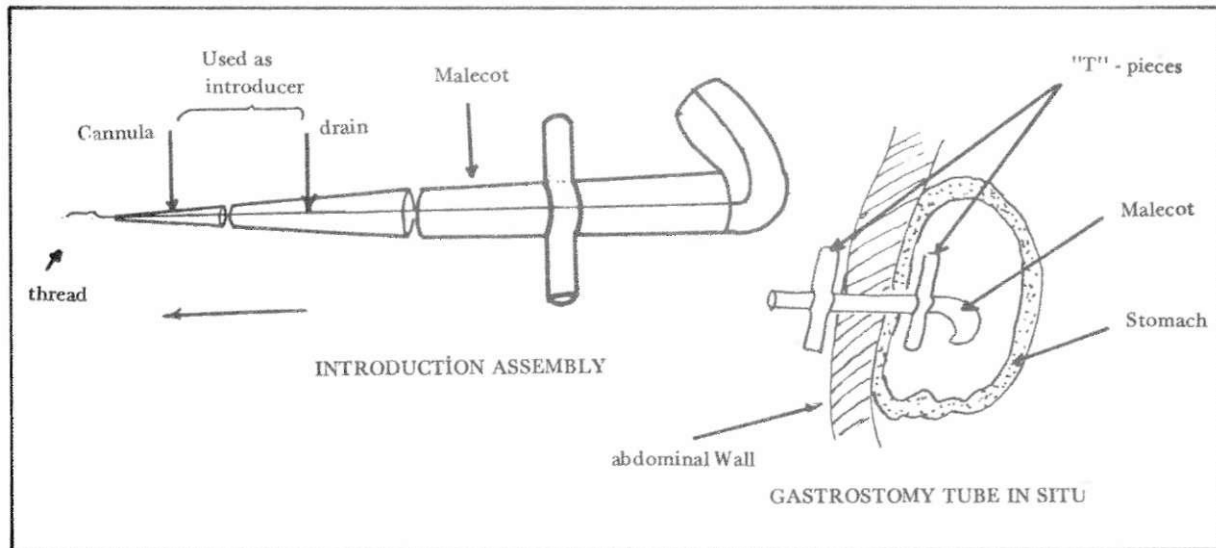


Figure 2.

DISCUSSION

It is generally accepted that enteral nutrition is preferable to parenteral in patients with a normally functioning gastrointestinal tract. The advantages include lower cost, increased safety, better patient tolerance and maintenance of gastrointestinal structural integrity.

Feeding by tube gastrostomy was first suggested by Egeberg in 1837, and was successfully performed by Vevneuil in 1876. The procedure has been evaluated gradually but it was often associated with significant morbidity and occasionally with mortality (2). In an attempt to simplify the procedure in 1980 Gauderer et al (5) developed a method for percutaneous endoscopic gastrostomy that did not require a laparotomy. In this innovative technique, which involves two passages of the gastroscope, a specially prepared mushroom catheter is pulled through the mouth and seated in the stomach. In 1984 Russell et al introduced an even simpler PEG method (6). A single gastroscopy is performed and a Foley catheter is inserted percutaneously directly into the stomach via a peel-away sheath introduced over a previously placed wire guide. Most currently (7) Wu et al introduced another new technique by using a needle equipped with a T shaped anchoring device, and claimed that this allowed them to avoid some of the problems associated with the earlier methods. We used a modification of the method of Wu with very satisfactory results.

A particular advantage of this technique is that it can be used at the bed side with minimal sedation in patients who are severely compromised by their underlying disease. Conventional operative gastrostomies involve a surgical procedure, usually with the use of general anaesthesia in high-risk patients in whom the morbidity and mortality may be high. The relative ease and low cost of PEG makes this

approach most attractive (2). PEG can be performed quickly with a procedure time ranging from 11 minutes (6) to 27.5 minutes (8).

However, PEG is not appropriate in every situation. It is obviously not possible in patients in whom an endoscope cannot be passed and the procedure is contraindicated in patients with an uncorrected coagulopathy.

Since its introduction a number of potential problems* with the PEG have emerged. Oesophageal perforation and aspiration pneumonitis is described but is rare (11). The risk of infection with organisms of oropharyngeal flora have been noted and prophylactic antibiotic treatment is recommended (11). Trapping of the colon and development of a gastrocolic fistula has been reported (18). Most authors agree that with increasing experience, PEG has become safer. A collected review of 369 PEGs revealed a complication rate of 7.3% (Table 1) (10). Our experience with PEG would lead us to recommend the procedure as a method of achieving feeding gastrostomy in patients in whom this mode of nutritional support is required.

Table I
Results of PEG in Literature

AUTHOR	CASES (n)	MORBIDITY	MORTALITY
Russell (6)	43	3	0
Ponsky	150	15	0
Strode! (8)	21	2	1
Larson (2)	23	2	—
Kozarek	30	—	0
Thatcher	16	—	—
Miller et al	141	0	0
TOTAL	369	27(7.3%)	0

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