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Percutaneous endoscopic gastrostomy/jejunostomy (PEG/PEJ) for decompression in the upper gastrointestinal tract

Initial experience with palliative treatment of gastrointestinal obstruction in terminally ill patients with advanced carcinomas

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Abstract
Background: Signs of gastrointestinal obstruction, with intractable vomiting and an inability to take oral food, are common symptoms in terminally ill cancer patients with advanced primary tumors or peritoneal carcinomatosis. The application of percutaneous endoscopic gastrostomy or jejunostomy (PEG/PEJ) instead of the usual nasoenteral tube is a simple method of achieving permanent decompression in the upper gastrointestinal tract. The goals of this study, in addition to establishing indications and outcome, were to identify specific aspects of tube placement and to determine the incidence of complications.
Method: Over a period of 3 years, a total of 24 consecutive patients (mean age, 64 years; range, 37–83 years) underwent either a PEG (17/71%) or a PEJ (seven/29%).
Results: In all patients, PEG/PEJ obviated the need for the nasoenteral tube. A total of 22 patients (92%) were enabled to take liquids orally, and 20 (83%) were discharged to home care. With the exception of a single spontaneous dislodgement of the PEG tube, no major complications were observed.
Conclusion: We believe that PEG/PEJ represents an effective, minimally invasive, and cost-effective method for gastrointestinal decompression in patients with advanced incurable cancer.

Key words: Percutaneous endoscopic gastrostomy/jejunostomy — Decompression — Advanced cancer — Cancer

Since its first description by Gauderer and Ponsky in 1980, PEG has become a widely accepted means of providing enteral alimentation. Its principal use for decompression has often been mentioned, but this application has not yet achieved general acceptance. In recent years, however, the use of PEG for decompression purposes has increasingly been reported in patients with gastrointestinal obstruction resulting in particular from advanced gynecological cancer [1–3, 7–9, 12–14]. On the basis of the results of our present study, we consider the palliative use of PEG or PEJ to be indicated—irrespective of previous surgical procedures—in all patients who, owing to advanced incurable cancer in the abdominal cavity, develop the symptoms of ileus.

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Patients and methods

The study comprised 24 consecutive patients (12 men and 12 women aged 37–83 years; mean age 64 years) admitted to the surgical department of the University Hospital, Erlangen, Germany, between January 1, 1995 and December 31, 1997 with massive symptoms of gastrointestinal obstruction due to a malignancy not amenable to surgical treatment. They therefore underwent PEG or PEJ for decompression purposes. In all these patients, the symptoms of obstruction were due to advanced malignant disease or a recurrent tumor. The diagnosis had either been confirmed histologically or, on the basis of the patient's history and findings (CT, ultrasound, exploratory laparoscopy), was considered to be the sole plausible explanation. In addition to the patient's history, the following parameters were recorded: concomitant diseases, previous operations, tube placement, nature of complications, course of hospital stay, and length of survival. Table 1 shows the data for patients' previous operations.

All patients first underwent careful decompression of the upper gastrointestinal tract with the aid of a nasogastric tube. For placement of the PEG or PEJ tube, which was done using the transoral pull-through technique described by Gauderer and Ponsky [6], all patients received local anesthesia, analgesia, and sedation with midazolam and opiates, together with single-shot antibiotic prophylaxis. Only large-caliber tubes (18 F) were used. Gravity drainage of the secretion was initiated immediately after the procedure. The external retention disk was loosened after 3 days, and the state of the wound at the site of tube insertion was regularly monitored at short intervals.

Table 1. Previous operations (primary tumor)

Procedure	*n*	%
Gastrectomy	4	17
GE/biliodigestive anastomosis	5	21
Whipple's operation	1	4
Colonic resection	7	29
Gynecological operation/pelvic exenteration	3	12
Exploratory laparotomy	4	17

Results

Of the 24 patients in our series, 17 received a PEG and seven a PEJ, while in four other patients it proved impossible to place a tube owing to a failure of transillumination (Fig. 1). Despite the difficult situation encountered in these patients (multiple previous operations, roughly half of which involved the stomach; ascites; peritoneal carcinosis), placement of the tube was usually achieved relatively easily.

In one patient (4%) with an inoperable cancer of the stomach who had already undergone gastrojejunostomy and in whom peritoneal and pleural carcinosis occurred during the further course of the disease, the PEG tube dislodged spontaneously through the anterior wall of the stomach and into the abdominal cavity on the same day of the procedure. The tube had to be removed surgically via an upper abdominal minilaparotomy. In a further five patients (21%), healing of the wound at the site of insertion was disturbed, but all five of them responded readily to conservative treatment.

The major benefits achieved by our patients are shown in Table 2. The nasoenteral tube was no longer needed in any of the 24 patients. Twenty-two patients (92%) were also soon able to take liquids by mouth. It proved possible to discharge 20 of the patients (83%) to home care. Where not already present, a Port catheter (two patients) or a Hickman catheter (eight patients) was placed for parenteral nutrition. In one case, a blockade of the celiac plexus was carried out under CT control to manage pain.

The average hospital stay following tube placement was 6 days (range, 3–31 days). The remaining four patients (17%) were so debilitated that they could no longer be discharged; all of them died in hospital within a matter of a few days to 4 weeks after tube placement. Average survival for the patients discharged home was 21 weeks (range, 6–52 weeks).

Discussion

Although PEG for palliative decompression has long been possible, it has not been generally accepted [6, 8, 14]. Its use has been limited in the symptomatic treatment of preterminal small-bowel obstruction resulting from advanced tumor disease [16]. In recent years, however, there have been a number of reports on the use of PEG for palliative decompression in small-bowel obstruction caused by incurable gynecological tumors [1–3, 8–10, 13–15].

In the present study, the spectrum of indications includes all metastasizing tumors in the abdominal cavity, regardless of the number of previous surgical procedures in the upper abdomen, of which almost 50% are performed on the stomach. Furthermore, the decompression procedure

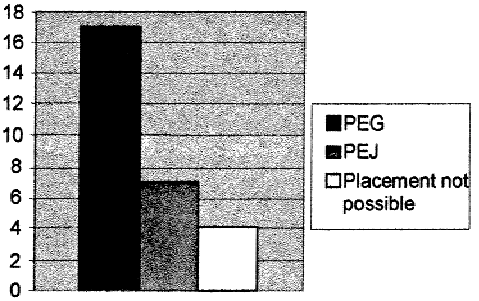

Fig. 1. Graph showing relative number of patients who received percutaneous endoscopic gastrostomy (PEG) or jejunostomy (PEJ) and number for whom placement was not possible due to failure of transillumination.

Table 2. Benefits of percutaneous endoscopic gastrostomy/jejunostomy (PEG/PEJ) for treatment of gastrointestinal obstruction in advanced cancer patients

Benefit	*n*	%
No further need for nasoenteral tube	24	100
Oral intake of fluids/soft food	22	92
Discharge to home care	20	83

has, for the first time, been expanded to include PEJ. As far as we are aware, the use of PEJ for this purpose has not been reported previously. Despite the difficult conditions seen in such patients, thus far no major technical problems have been encountered during tube placement [1, 8, 9]. Frequently mentioned contraindications, such as infiltration of the stomach by tumor, ascites, peritoneal carcinosis, etc., have been deliberately left out of the published accounts [1, 5, 11, 16]; apart from a relevant coagulation disturbance, the sole contraindication in our study was failure of transillumination.

None of the patients in our series needed a nasogastric tube following the procedure. For the patient, this not only eliminates permanent nausea, vomiting, and discomfort on swallowing, it also reduces the risk of developing parotitis, otitis and sinusitis, and prevents erosions. Oral ingestion of liquids or soft foods—and thus a significant and lasting improvement in quality of life—was achieved in 22 patients (92%). Parenteral alimentation was achieved via a Port or Hickman catheter which, if not already present, was placed during the same hospital stay. The type of catheter employed was determined by the individual home care situation.

In 20 patients (83%), discharge to home care was possible, thus relieving the social isolation of the patient, reducing the need for repeat hospitalizations, and , last but not least, lowering overall costs considerably [10]. We are of the opinion that these figures clearly demonstrate the highly efficient nature of this palliative therapeutic measure while confirming the positive results already reported [1–3, 10, 12, 13, 16].

Although complications occurred in six of our patients (25%), only a single patient developed (4%) a complication that could be described as major. This was a spontaneous dislodgement of the PEG tube through the anterior wall of the stomach in a woman with advanced gastric carcinoma. It is interesting to note that a study published by Cannizzaro