

USE OF A FEEDING JEJUNOSTOMY AFTER ESOPHAGEAL SURGERY

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SUMMARY

Over a 3-year period, 52 patients with esophageal malignancy were managed surgically. Twenty seven patients were fed temporarily with a catheter feeding jejunostomy placed at the time of surgery. All patients tolerated the feeding well. There were no catheter-related deaths and there were two cases of catheter blockage. Experience with this technique suggests that it is a safe and a cheap method of feeding patients after esophagogastric surgery. Such patients are particularly suitable for a feeding jejunostomy, as they are frequently malnourished, rarely have prolonged postoperative ileus, and may develop complications that delay the onset of oral intake.

INTRODUCTION

Enteral nutrition is associated with several benefits that may not be achievable with parenteral feeding, and some of its perceived disadvantages have been minimized with modern techniques¹. Its use after both emergency and elective surgery has been favourably reported²⁻⁵. Catheter feeding jejunostomy is a technique that has yet to gain widespread acceptance as an alternative to parenteral nutrition in major elective abdominal surgery, possibly because of the significant complication rates reported in some series⁶⁻⁷.

This study reports the use of catheter feeding jejunostomy in patients undergoing esophagogastric resection for malignant disease in a teaching hospital over three years.

MATERIAL AND METHODS

Between 1997 and 2000, 52 patients underwent elective surgery for esophageal malignancy. Twenty five underwent curative resection, 25 patients had endoluminal intubation, and 2 patients had feeding jejunostomy. Twenty seven patients had a catheter feeding jejunostomy placed at the time of surgery. Data

JEJUNOSTOMY FEEDING REGIMEN

Days	Feed	Kcal/Day
Day 1	25 ml sterile water hourly	600 ml or 0 Kcal
Day 2	25 ml Osmolite N liquid hourly.	600 ml or 600 Kcal
Day 3	50 ml Osmolite N liquid hourly.	1200 ml or 1200 Kcal
Day 4	75 ml Osmolite N liquid hourly.	1800 ml or 1800 Kcal
Day 5	100ml Osmolite N liquid hourly.	2400 ml or 2400 Kcal

TABLE-1

was retrieved retrospectively from hospital records.

The same technique was used in all patients. The jejunostomy site was selected 20-30 cm downstream from D-J junction. After passage through the anterior abdominal wall, the 24 Fr catheter (Silicon) was fed into the jejunal lumen through a 5-10cm intramural tunnel. The catheter tip was then advanced a further 50-60 cm to lie an adequate distance downstream from the D-J junction. This was to protect anastomoses from reflux of feed solution. An absorbable purse-string suture was used to secure the catheter entry site. Excess catheter was then withdrawn from the peritoneal cavity until the jejunum lay adjacent to the parietal peritonem. The jejunum was secured in this position with a few interrupted non-absorbable sutures. A standard protocol for postoperative feeding was followed (Table 1), using Osmolite N solution in 7 patients, and in nonaffording twenty patients, milk, juices, soup with added nutrients, (eggs, honey). This provided an intake of 2400kcal/day from the fifth day onwards and included an adequate supply of medium-chain fatty acids, protein, trace elements and vitamins (Osmolite). Patients were kept nil by mouth for 7-10 days. From then on oral fluids were introduced; building up to full nutrition. When this had been established

the catheter was withdrawn after 4weeks. The resulting fistula was left to close spontaneously. After return from theatre, the jejunostomy catheter is flushed every 4hours with 10 ml sterile water and this continued throughout jejunostomy feeding.

RESULTS

Fifty-two patients (45 men) of median age 65.4 (range 45-82) years were studied. The operations undertaken are shown in table 2. Placement of a catheter feeding jejunostomy was achieved without complication in all patients.

The enteral nutrition protocol was tolerated by all patients until after the contrast study. Five patients were shown to have anastomotic leakage and jejunostomy feeding was continued for 18, 21, 27 days until a subsequent contrast study showed the leak to have closed.

A total of eight complications directly related to the feeding jejunostomy were recorded; none of these led to death. Seven patients suffered from local cellulites at the site of catheter entry but none required any intervention. In one the catheter fell out on day 17; the resulting fistulas healed with no sequelae. One patient pulled the catheter out on the fourth day after operation; again the

OPERATIONS PERFORMED

Operations	No. of Patients
Laryngopharygoesophagectomy	7
Ivor-Lewis esophagectomy	7
Left thoracalotomy with Neck anastomoses	6
McKeown esophagectomy	5
Feeding jejunostomy	2
Total	27

TABLE-2

fistula closed without problem. There were two cases of catheter blockage, which were flushed with water.

DISCUSSION

Jejunostomy feeding provides the only safe route for enteral nutrition after upper gastrointestinal surgery. This study reveals a low complication rate. However, it contrasts with several papers reporting an unacceptably high rate of Jejunostomy-related morbidity and mortality. In one report of 143 patients⁶ an overall complication rate of 55 percent was recorded with 8 percent of patients developing serious or fatal complications. Five patients died from small bowel infarction. Other complications included peritonitis, aspiration pneumonia, necrotizing fasciitis at the site of catheter insertion, and catheter dislodgement, occlusion and leakage. Feed aspiration is a potentially serious complication that occurred in 10 and 16 percent of patients in two studies looking at long-term catheter feeding jejunostomy in patients with neurological impairment^{7,8}. The technique did not protect against aspiration in patients known to be prone to aspirate. These findings contrast with another report of 100 similar patients in which a substantial reduction in the incidence of feeding-related aspiration pneumonia was noted⁹.

Other reported complications of feeding jejunostomy include catheter knotting¹⁰, localized jejunal necrosis at the site of a catheter insertion¹¹, intestinal obstruction and pressure necrosis of the small bowel by catheter balloon¹², septicemia¹³ and pneumatosis intestinalis¹⁴⁻¹⁶.

In contrast to these findings, low complication rates are reported in studies with patients similar to those of the present series. Bower *et al.*⁴ reported on 20 patients undergoing a variety of upper gastrointestinal operations who were randomized to

receive either enteral feeding by way of a catheter feeding jejunostomy or TPN. Both routes provided adequate nutritional support with only minor complications, resulting from catheter displacement into the preperitoneal tissues⁵. The present results are in keeping with these reports in suggesting feeding jejunostomy as a safe technique after major upper gastrointestinal surgery.

Catheter feeding jejunostomy is particularly suitable for patients undergoing esophagogastric resection for malignant disease. Such patients are usually malnourished, not allowed oral intake for a significant postoperative period, may suffer complications for which prolonged nutritional support is required, and rarely suffer from prolonged postoperative ileus. In animal studies, gastrointestinal mucosal integrity, bacterial translocation and sepsis were all worsened by the absence of nutrient in gut. In addition, paracrine and endocrine functioning; immune defences and the ability to recover full absorptive capacity were all worsened by the lack of enteral nutrition¹⁷.

Enteral feeding in the immediate postoperative period can, however, lead to gastrointestinal complaints such as nausea, vomiting, abdominal distension, cramps and diarrhea. In a study catheter feeding jejunostomy in patients having laparotomy after major abdominal trauma¹⁸, 50 percent of the control group (given no enteral feeding) and 83 percent of the study group had one or more gastrointestinal complaint. However, these were usually mild and self-limiting, and the majority of patients sustaining major abdominal trauma tolerated full-scale jejunostomy feeding in the early postoperative period. Gastrointestinal complaints are common after esophagogastric surgery and it is not possible to determine from a retrospective study which were due to enteral feeding and which to the effects of

surgery. In our study, however, no patient had feeding jejunostomy withdrawn due to gastrointestinal complaints.

In our set up TPN is firstly not available, and if available, the costs of both the TPN and its monitoring are prohibitive. For our populations jejunostomy feeding is both affordable, convenient and can even be done by the attendants at home. For those who can afford ready made feeds are available. For most of our patients' simple milk, juice, soup with added eggs and honey, along with nutritional supplements like Ensure/Complan works fine.

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