



A very feasible alternative in patients with feeding difficulties from gastrostomy: Jejunal tube advanced through the gastrostomy

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ABSTRACT

Background: Our aim is to share our experiences regarding patients who cannot be fed effectively through the gastrostomy tube, but were inserted feeding jejunostomy through the gastrostomy orifice using scopic fluoroscopic techniques utilised by the interventional radiology. **Patients and Methods:** Between January 2010 and May 2013 the patients that were inserted jejunostomy tube through the gastrostomy orifice using fluoroscopic techniques were retrospectively analysed. Data including primary indication for gastrostomy, sex, concomitant disease and the requirement for gastroesophageal reflux disease (GERD) were all recorded. **Results:** There were five patients with these criteria. They all received either medical or surgical GERD therapy; nevertheless enteral feeding failed to reach an effective level, they all had vomiting and did not gain any weight. Following conversion, all the patients gained minimum 2 kg in 2-5 months; all the patients tolerated enteral feeding and were discharged in the early period. There were neither procedure related complications such as perforation, bleeding nor sedation related complications. Procedure took no more than 30 min as a whole. There was no need for surgical intervention. However in one patient re-intervention was required due to accidental removal of the catheter. **Conclusions:** In case of feeding difficulties following the gastrostomy; instead of an invasive surgical intervention; physicians should consider jejunal feeding that is advanced through the gastrostomy, which does not require any anaesthesia.

Key words: Gastrostomy, scopy, tube jejunostomy

INTRODUCTION

Gastrostomy is commonly used for feeding patients with corrosive oesophageal burns, neurologic and

gastrointestinal disorders. This procedure can be done by endoscopic (percutaneous endoscopic gastrostomy [PEG]), laparoscopic or open surgical approaches.^[1] It provides feeding and thus promotes weight gain in most patients. However; there are special subset of patients that cannot tolerate gastrostomy, have intractable vomiting even if they have underwent anti-reflux procedures for gastroesophageal reflux disease (GERD) and, as a result, the feeding will be unsuccessful. In these patients, factors such as intestinal motility disorders, gastric emptying problems or neurologic problems may interfere with the enteral feeding.^[2] In these patients, more invasive procedures are required from the attending surgeon. In these subset of patients, it can be hypothesized that jejunostomy may provide a better feeding compared with gastrostomy. However, due to the comorbidities and prior abdominal operations in these patients; a less invasive approach is needed as a revisional procedure.

In the present study, we have inserted a jejunostomy tube over a guide wire advanced through the gastrostomy under fluoroscopic control. Here, we report the results of a few cases in whom transgastrostomic jejunostomy have been performed in our department.

PATIENTS AND METHODS

Patients were retrospectively analysed between January 2010 and May 2013 and the patients in whom a jejunostomy catheter have been advanced through a prior gastrostomy orifice have been analysed in-terms of primary indication of gastrostomy, treatment for GERD and demographic data such as age, sex, etc. Jejunostomy tube was inserted in our interventional radiology department together with the paediatric surgeon. Procedure is as follows; initially a pig tail guide wire was advanced to jejunum through the gastrostomy orifice. Once the guide was confirmed to be in the jejunum via fluoroscopic control, a feeding tube was advanced to

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the jejunum. Once the pig tail is removed, fluoroscopic control was again done to confirm the localisation of the tip of the jejunostomy tube [Figure 1]. Once the procedure is finished, the gastrostomy was reinstalled and the procedure was ended. Since the patients do not receive any anaesthesia feeding is reinstated with in few hours following the procedure.

RESULTS

Patient's demographic characteristics are summarized in Table 1. Two of the cases were complicated. Patient number 1 had been treated for corrosive oesophageal stricture. Following dilatation procedures there had been a tear in the thoracic oesophagus and a chest tube was inserted. During the procedure, an open gastrostomy had been performed. After the initiation of enteral feeding; gastric content started draining from the chest tube. Patient number 5 had gastric volvulus and was unable to feed. Patient had been hospitalised for a long time because of distension. During the repair process, gastropexy and fundoplication had been performed. However, during the process a 3 mm perforation in the posterior rectal was observed. As general characteristics, all patients had been surgically or medically treated for GERD nevertheless they had trouble in feeding through gastrostomy were unable to gain weight and had intractable vomiting. 2-5 months following the procedure each patient gained at least 2 kg



Figure 1: Jejunal tube in the jejunum of the fluoroscopic control

and following switch to full enteral nutrition they were discharged from the hospital. During the procedure there were no adverse complications; such as bleeding, perforation; observed and none of the patients received intravenous sedation. All of the procedures were completed in 30 min. No extra procedure was performed to any of the patients; however in patient number 1 the catheter accidentally came out and was re-inserted.

DISCUSSION

Gastrostomy has played an important role in the treatment of children with bowel anomalies, feeding difficulties, and neurologic diseases.^[3] However, many authors have emphasised complications of gastrostomy in paediatric and adult populations. In one study, 1042 gastrostomies have been evaluated over 10 years and complication rate was found to be 6%. The most important complications observed were prolapses, migration, persistent leakage. Most of the patients received GERD treatment due to neurologic damage or surgical aetiologies. Furthermore; these patients have trouble in enteral feeding and problems related with aspiration pneumonia.^[4] All these problems cause mortality in the patients and also cause economic problems. Therefore event if surgical or medical GERD was applied to the patients at the end these sub groups required other means of enteral feeding other than gastrostomy. In the present study, five patients that had undergone open gastrostomy (three patients also underwent concomitant antireflux procedure) however contracted problems in enteral feeding via the gastrostomy route were converted to the jejunostomy through the gastrostomy tube. The main problem in these patients with an antireflux procedure was the fact that GERD continued despite treatment in three patients, and two had leakage from the gastrostomy.

Furthermore, in another case series GERD patients were evaluated in terms of aspiration pneumonia. The patients were divided into two groups: Group one were the patients that received surgery for GERD and Stamm gastrostomy and the second group only received image guide gastrojejunostomy through percutaneously. The study surprisingly showed that

Table 1: Preoperative and postoperative data of jejunal tube placement of patients

Age/weight	Diagnosis	Concomitant disease	GERD/Fundoplication	Removal time/weight
2 year/16 kg	Corrosive Esophagus	Dilatation related esophageal perforation	+/+	5 months/22kg
2 months/3 kg	Classical esophageal atresia	Esophageal stricture	+/+	Continued 5 months/5.8 kg
3 months/3.5 kg	Bochdalek hernia	Diaphragmatic repair using composite mesh	+/-	Continued 4 months/6 kg
6 months/5 kg	Bochdalek hernia	Mental motor retardation	+/-	Continued 3 months/7 kg
6 month/5 kg	Gastric volvulus	Mental motor retardation Rectum perforation	+/+	Continued 2 months/6.5 kg

aspiration pneumonia was less frequently encountered in the second group.^[5] The risk of fundoplication failure requiring additional surgical intervention is dependent on the population of patients being studied and range of 25%. The incidence is highest in patients with neurological impairment, respiratory disease, repaired oesophageal atresia and infants who were <1 year of age at the time of surgery. Furthermore, in cases who had intractable GERD despite surgery and medical therapy underwent total gastro oesophageal dissociation (Roux-en-Y esophagojejunal anastomosis) to reduce reflux symptoms and complications like aspiration pneumonia.^[5,6] In the present study, our patients have undergone multiple laparotomies and therefore a revisional surgery such as Roux-en-Y esophagojejunal anastomosis to control reflux symptoms would be extremely difficult and instead of an invasive procedure jejunal catheter placement through the gastrostomy tube have been chosen. Non-invasive scopy guided catheter placement to the jejunum without the need for surgery. Jejunal feeding was started immediately. No adverse effects such as bleeding, perforation, etc. were observed in any of the patients. Presence of concomitant gastrostomy tube and through or aside, which a jejunostomy tube placement reduced the reflux symptoms and reinstated effective enteral feeding. In one patient with corrosive oesophageal injury underwent reinsertion of the catheter with same method due to accidental extraction of the feeding tube. This patient was an older patient and was very active when compared to other four patients. All patients started to have weight gain following the procedure, and parenteral feeding was stopped and the patients were discharged 5-6 days following the procedure.

CONCLUSION

Jejunal feeding tubes fluoroscopically inserted through the gastrostomy (PEG or open) seems to be a good alternative to open revision or invasive procedure when gastrostomy fails to provide effective enteral feeding due to various reasons such as GERD, leakage, etc. This procedure is not a surgical one, which makes it possible to be applied by radiologist, paediatricians, etc. as well.

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