

Closed-bowel Loop Obstruction—An Unusual and Forgotten Complication of Feeding Jejunostomy: Case Report

Balamurugan S¹, Mohammed Aslam M², Kadambari D³, Rajkumar Nagarajan⁴

ABSTRACT

Feeding jejunostomy (FJ) is done as a part of significant upper gastrointestinal surgical procedures for patients who cannot tolerate enteral feeds. This procedure is related to different mechanical, infective, and metabolic inconveniences. However, closed-bowel loop obstruction following FJ is rare. We report an unusual complication of closed-bowel loop obstruction in the postoperative period of FJ done for a locally advanced carcinoma of gastroesophageal (GE) junction for enteral access in a 67-year-old male patient. This patient required an emergency laparotomy, to forestall exacerbating of abdomen distension which could have led to gastric ischemia and perforation following obstruction. A redo FJ was done, and the patient had an uneventful postoperative recovery. Therefore, surgeons should have high clinical suspicion for a rarer complication like a closed-loop obstruction in a patient with upper abdominal pain and distension without vomiting following FJ.

Keywords: Bowel loop obstruction, Complications, Feeding jejunostomy, Gastrointestinal surgery, Laparotomy.

Euroasian Journal of Hepato-Gastroenterology (2022): 10.5005/jp-journals-10018-1377

INTRODUCTION

Closed-loop obstruction is a variant of mechanical obstruction wherein a segment of the bowel is obstructed at two focuses along its course at a particular area, therefore, forming a closed loop. Numerous surgical jejunostomy procedures have been proposed since the principle taking care of jejunostomy was recorded in the literature, which incorporates the Witzel and the Roux-en-Y strategies, each having certain downsides.¹ Feeding jejunostomy procedures can be open, laparoscopy, or percutaneous endoscopic technique. Open Witzel jejunostomy is actually easy to perform, however, Witzel's strategy is inclined to dislodgement with the potential for early closure leading to loss of jejunostomy site. Additionally, placement of a Witzel jejunostomy may bring about a block at the insertion side which may lead to intestinal intussusception.^{2,3} We herein present the case of a 67-year-old male who developed acute gastric distension and pain following jejunal obstruction due to kinking of jejunostomy tube, 7 days after its insertion.

CASE DESCRIPTION

A 67-year-old male with a history of diabetes for 2 years presented to a tertiary care center with complaints of weight loss, recurrent vomiting, and difficulty in swallowing for the past 1 month with worsening of symptoms after food intake. On examination, the patient was dehydrated and pale, but vitals were stable. On abdominal examination, he had mild epigastric tenderness, and the rest of the systemic examination was unremarkable. Esophago-gastroduodenoscopy (EGD) showed an ulceroproliferative growth 37 cm from incisor in the lower third of the thoracic esophagus. Histopathology of the biopsy specimen revealed a well-differentiated adenocarcinoma. Contrast-enhanced computed tomography (CECT) showed diffuse asymmetric wall thickening of 6 cm extending from the distal esophagus to the proximal stomach, gastroesophageal junction (GEJ) to the proximal fundus. He underwent emergency open FJ for absolute dysphagia by Witzel's technique with a 16-Fr nasogastric

¹⁻⁴Department of General Surgery, Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry, India

Corresponding Author: Rajkumar Nagarajan, Department of General Surgery, Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry, India, Phone: +91 9443292979, e-mail: rajjipmer@gmail.com

How to cite this article: Balamurugan S, Aslam MM, Kadambari D, *et al.* Closed-bowel Loop Obstruction—An Unusual and Forgotten Complication of Feeding Jejunostomy: Case Report. *Euroasian J Hepato-Gastroenterol* 2022;12(2):92–94.

Source of support: Nil

Conflict of interest: None

tube (NG), with a plan of neoadjuvant chemotherapy (NACT) since no signs of metastases like omental/peritoneal deposits or free fluid were present intraoperatively. The postoperative period was uneventful and the patient was started on FJ trial feeds on postop day 1. Gradual escalation of FJ feed was done, which the patient tolerated well.

On postoperative day 7, the patient had complaints of mild abdominal pain and distension with no episodes of vomiting. His abdominal pain and distension worsened in the following days and abdominal examination revealed distended upper abdomen with epigastric and umbilical tenderness, in spite of tolerating FJ feeds with no signs of distal obstruction. In view of ongoing severe upper abdominal distension, his FJ feeds were discontinued and CECT was taken, which revealed a transition point at the FJ site with grossly dilated stomach, duodenum, and jejunum up to the point of FJ. An emergency explorative laparotomy was performed revealing minimal free fluid with narrowing of the jejunum 4 cm proximal to the FJ insertion site at the site of tunneling. Stomach, duodenum, and proximal jejunum were grossly dilated with no gangrenous changes and the fixation of FJ tube to the parietal wall had given away leaving the jejunal loop with the FJ lying free in the peritoneal cavity. The rest of small-bowel loops below FJ were collapsed. The FJ was dismantled with decompression of the

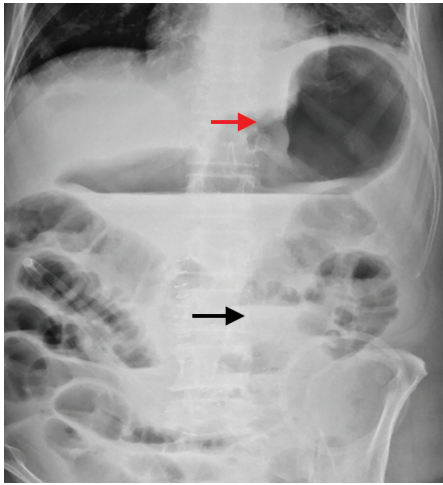


Fig. 1: Plain X-ray of abdomen erect view (Red arrow – gastric dilatation, Black arrow – multiple air-fluid levels suggestive of ileus)

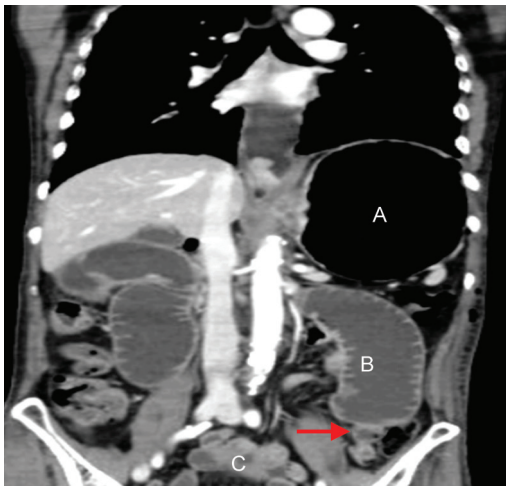


Fig. 2: Contrast-enhanced computed tomography image, coronal section: A – distended stomach; B – duodenum; C – collapsed bowel loops distal to FJ kink site. Arrow – FJ site transition point



Fig. 3: Intraoperative picture (1 – Distended stomach; 2 – Dilated proximal jejunum; 3 – FJ tube)

dilated segment followed by a redo FJ using Witzel’s technique. The postoperative period was eventful with the patient tolerating FJ feeds well (Figs 1 to 3).

DISCUSSION

Malnutrition is one of the important factors for postoperative morbidity and mortality for patients undergoing major abdominal surgeries. In our institute, we prefer doing FJ for all patients undergoing major upper-abdominal surgeries, as early introduction of enteral feeds in the postoperative period is essential for maintaining normal absorptive functioning of the small bowel.⁴ The most common preferred technique is Witzel’s FJ. Even though it is easy to perform and has a short learning curve, it has its own complications. Some of the most common complications due to faulty techniques are tube dislodgement, proximal placement of tube, tube blockage, diarrhea due to osmotic effects and unhygienic feeds, and electrolyte disturbances.^{5,6} Rare complications like mesenteric ischemia, volvulus, and jejuno-jejunal intussusception were reported in literature possibly due to purse-string suture near mesenteric-side retrograde jejunal peristalsis during vomiting episodes and the tip of feeding tube acts as the lead point, respectively.⁷ Here, we report a case of closed-loop obstruction occurring as a very rare complication of FJ following faulty technique.

Closed-loop obstruction occurs when a segment of the bowel is blocked at two contiguous sites, thereby leading to no outlet at both proximal and distal ends. It is most commonly found in small bowel following postoperative adhesions and causes like congenital malrotation, bands, and internal hernias also account for a small percentage of cases. Contrast-enhanced computed tomography is the investigation of choice, which shows C-shaped dilated fluid-filled bowel with twisting of the mesenteric vessels pointing at the obstructed site.⁸ It is an acute surgical emergency and has a mortality rate of around 80% if not intervened at its earliest. It can compromise the vascular supply of the obstructed segment, leading to gangrene and fecal peritonitis.

In the present scenario, our patient presented to casualty following 1 week after FJ with mild upper-abdominal distension, obstipation, and no vomiting episodes. He was evaluated and was diagnosed with closed-loop obstruction, proximally at the tumor site, and distally at the FJ site. This had led to massive progressive dilatation of stomach, duodenum, and proximal jejunum. Unfortunately, decompression of the stomach using NG to relieve the obstruction was not feasible, as FJ was done for absolute dysphagia for esophageal carcinoma. The natural course of such cases without intervention would have been gangrene and perforation of the stomach, when the intragastric pressure increases more than 30 mm Hg for which an emergency laparotomy followed by partial gastrectomy is needed, depending upon its viability.⁹ Early intervention and redo FJ has prevented complications like ischemia, gangrene, and perforation, and it is considered as the treatment of choice.

In our case, this unusual complication of closed-loop obstruction following FJ might have occurred due to the following reasons:

- Tight Lembert suturing at the tunneling site using modified Witzel’s technique.
- Kinking of FJ tube site due to single-anchoring stitch instead of triple-anchoring site at parietal wall, leading to volvulus formation.
- Tight purse string suturing of FJ tube.

All these aforementioned causes should be looked after carefully and this case report is an eye-opener to treating surgeons in the prevention of FJ obstruction in the near future.

REFERENCES

1. Busch W. Bietarag sur Physiology der Verdauungsorgane. *Virchows Arch Cell Pathol* 1858;14:140–186. DOI: 10.1007/s00595-007-3650-1.
2. Tapia J, Murguia R, Garcia G, et al. Jejunostomy: Techniques, indications, and complications. *World J Surg* 1999;23(6):596–602. DOI: 10.1007/PL00012353.
3. Wu TH, Lin CW, Yin WY. Jejunojejunal intussusception following jejunostomy. *J Formos Med Assoc* 2006;105(4):355–358. DOI: 10.1016/S0929-6646(09)60129-7.
4. DeLegge MH. Enteral access and associated complications. *Gastroenterol Clin North Am* 2018;47(1):23–37. DOI: 10.1016/j.gtc.2017.09.003.
5. Cataldi-Betcher EL, Seltzer MH, Slocum BA, et al. Complications occurring during enteral nutrition support: A prospective study. *J Parenter Enteral Nutr* 1983;7(6):546–552. DOI: 10.1177/0148607183007006546.
6. Cogen R, Weinryb J, Pomerantz C, et al. Complications of jejunostomy tube feeding in nursing facility patients. *Am J Gastroenterol* 1991; 86(11):1610–1613. PMID: 1951238.
7. Sakthivel H, Sahoo AK, Amaranathan A, et al. A surgical conundrum in feeding jejunostomy–jejunojejunal intussusception: A case series. *Cureus* 2018;10(2):e2233. DOI: 10.7759/cureus.2233.
8. Elsayes KM, Menias CO, Smullen TL, et al. Closed-loop small-bowel obstruction: diagnostic patterns by multidetector computed tomography. *J Comput Assist Tomogr* 2007;31(5):697–701. DOI: 10.1097/RCT.0b013e318031f516.
9. Moslim MA, Mittal J, Falk GA, et al. Acute massive gastric dilatation causing ischaemic necrosis and perforation of the stomach. *Case Rep* 2017;2017:bcr2016218513. DOI: 10.1136/bcr-2016-218513s.