Case Report

Percutaneous Endoscopic Colostomy for Morbid Obesity with Chronic Intestinal Pseudo-Obstruction: Technical Challenges and Long-Term Outcomes

Irfan Salmi, Afiq Kodiron[1], Azmi Md Nor, Faisel Elagili

Colorectal Unit, Department of Surgery, Kulliyyah of Medicine, International Islamic University Malaysia, Kuantan, Pahang, [1]Department of Surgery, Sultan Ahmad Shah Medical Centre, International Islamic University Malaysia, Kuantan, Pahang, Malaysia

Abstract

Chronic intestinal pseudo-obstruction (CIPO) is a rare motility disorder, with recurrent sigmoid volvulus as a possible life-threatening complication. Surgical resection is curative; however, this is rarely possible in high-risk patients. A 68-year-old man, with a body mass index (BMI) of 52 kg/m² and multiple comorbidities, presented with recurrent sigmoid volvulus on a CIPO background. He had multiple colonoscopic decompressions, which only provided temporary relief. Given the high anesthetic risk, a percutaneous endoscopic colostomy (PEC) was performed under propofol sedation and a transversus abdominis plane block. Technical challenges included a thick abdominal wall, leading to poor endoscopic transillumination. This was overcome using a combination of transillumination, finger indentation, and the dark-room technique. Two 24 Fr PEC tubes were placed 4 cm apart in the right lumbar region, achieving immediate decompression. The post-procedural course was uneventful, with complete symptom resolution and no recurrence at 18-month follow-up. In morbidly obese patients with CIPO and recurrent volvulus, PEC can be performed safely with appropriate technical modifications. This case is the first highlighting weight and obesity and contributes to the PEC literature, while reaffirming PEC's role as a minimally invasive procedure for patients who are surgically unfit.

Keywords: Obesity, percutaneous colostomy, technical, volvulus

Introduction

Chronic intestinal pseudo-obstruction (CIPO) is a rare form of intestinal motility disorder, characterized by recurrent episodes of functional obstruction without a mechanical cause.[1,2] Volvulus is an uncommon complication of CIPO and can lead to significant morbidity and mortality if not addressed.[1,3] The only definitive treatment for recurrent volvulus is surgical resection. However, for patients with substantial comorbidities and prohibitive anesthetic risks, surgical resection is not an option.

Percutaneous endoscopic colostomy (PEC) has emerged as a minimally invasive option for patients with recurrent sigmoid volvulus and pseudo-obstruction. In the literature, there are reports of decreased recurrence and rates of hospital readmission associated with PEC utilization.[4-6] However, there is a lack of data related to PEC in morbidly obese patients. Moreover, the increased thickness of the abdominal wall poses considerable, and perhaps insurmountable, technical challenges. In this paper, we describe the technical challenges and long-term outcomes related to the successful placement of PEC in a morbidly obese patient with CIPO and recurrent sigmoid volvulus.

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Case Presentation

A 68-year-old man (body mass index (BMI) 52 kg/m²) with multiple comorbidities, including severe heart failure (ejection fraction 25%), chronic atrial fibrillation, obstructive sleep apnea, obesity hypoventilation syndrome, and benign prostatic

Address for correspondence: Dr. Faisel Elagili, Colorectal Unit, Department of Surgery, International Islamic University Malaysia, Jalan Sultan Ahmad Shah - 25200 Kuantan, Malaysia.
E-mail: elagili2009@gmail.com

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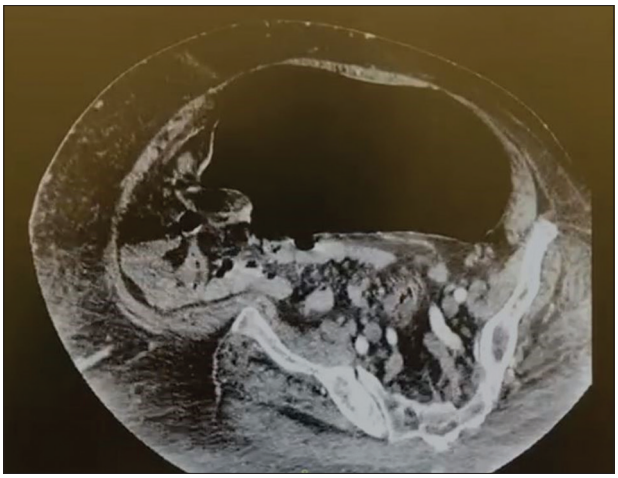

Figure 1: CT abdomen showing a massively dilated sigmoid colon with evidence of volvulus (red circle) in the context of chronic intestinal pseudo-obstruction

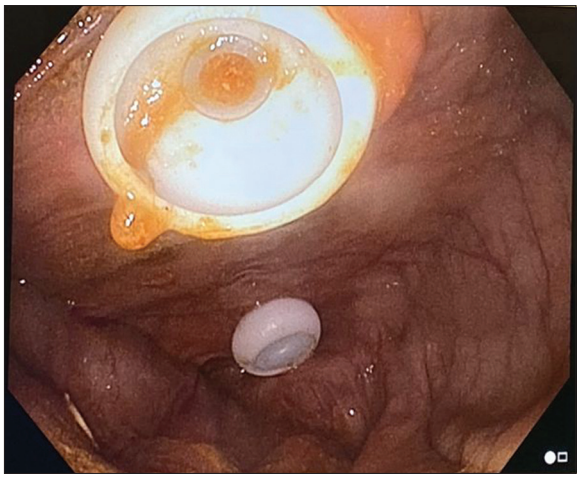

Figure 2: Two 24 Fr percutaneous endoscopic colostomy (PEC) tubes secured *in situ* in the sigmoid colon, providing decompression in a morbidly obese patient (BMI 52)

hyperplasia, presented with recurrent abdominal distension and constipation. Computed tomography revealed a markedly dilated sigmoid colon, consistent with volvulus on the background of CIPO.

His colonoscopies revealed a severely distended sigmoid colon, but with viable walls and no signs of ischemia. Endoscopic decompression was performed on three separate admissions, each providing only temporary relief, with rapid recurrence of distension. Given the levels of anesthetic risk and the lack of definitive resection options, a PEC insertion was planned as the next best option.

Following mechanical bowel preparation and prophylactic intravenous cefoperazone and metronidazole, the procedure was performed under propofol sedation and bilateral transversus abdominis plane block. The patient was placed in the supine position. The sigmoid colon was identified endoscopically using finger indentation and transillumination techniques. Endoscopic transillumination was initially inadequate due to the thick abdominal wall. The operating room lights were dimmed, and finger indentation was combined with endoscopic pressure to identify an appropriate colonic apposition site. The site selected for PEC tube insertion was prepared with chlorhexidine antiseptic solution. A 24Fr Endoscopic Gastrostomy (PEG) kit, under the brand of Medic Pro, was used for endoscopic colostomy creation.

Local anesthesia was administered with 0.2% lignocaine. A 14-gauge branula, 15 cm in length, was then inserted percutaneously at the chosen site. Upon visualization of the needle tip within the colonic lumen through the colonoscope, the needle was withdrawn, and a guidewire was advanced into the colon.

A snare, introduced via the colonoscope, was used to capture the guidewire, which was subsequently withdrawn through the anus. The PEC tube was securely tied to the distal end of the guidewire. A small skin incision was made at the puncture site to enlarge the entry tract, and the guidewire was pulled externally, drawing the PEC tube through the anal canal to the predetermined abdominal site [Figure 1].

The tube was shortened to the desired length, and an external bumper was applied to maintain fixation. A clamp was placed, and the Y-shaped adapter was attached to complete the assembly. The procedure was repeated for a second PEC tube, positioned approximately 4 cm apart from the first insertion site. Immediate decompression of the sigmoid colon was achieved, with the abdominal girth markedly diminished [Figure 2].

Post-procedure, two drainage tubes were connected to the PEC sites, and the surrounding skin was dressed with flavine antiseptic and keyhole gauze. The patient was commenced on clear fluids on the same day, advanced to a soft diet the following day, and then to a regular diet as tolerated. Analgesia was provided with oral paracetamol. The drainage bags were decompressed when distended with gas or fecal material. Both tubes were removed prior to discharge. The patient was instructed on home tube care, including flushing with water, opening the tube in cases of abdominal distension or inability to pass flatus, and seeking prompt medical attention if abdominal pain, fever, or tube dislodgement occurred. He was discharged on day 5. There was mild peristomal erythema after 1 month, which resolved with local care. At 18 months, the patient was symptom-free, with no recurrence of the volvulus or blockage of the tube. Unfortunately, the patient passed away after 18 months due to complications of his underlying heart failure.

Discussion

CIPO-associated volvulus is rare, yet may lead to significant and potentially life-threatening complications if left untreated.[1,2] For patients who are not fit for resection, minimally invasive procedures are necessary. PEC is viewed

as a safe and effective alternative method for recurrent sigmoid volvulus and pseudo-obstruction.[4-6]

Cowlam *et al*.[5] first published on left-sided PEC for recurrent pseudo-obstruction, describing excellent decompression and lower recurrence rates. Frank *et al*.[6] performed a systematic review of the literature, confirming the procedure's efficacy, although complications, such as peritonitis, tube dislodgement, and buried bumper syndrome, occurred in as many as 25% of patients. Notably, none of these studies sought to investigate outcomes in the morbidly obese patient population.

The patient's thick abdominal wall, particularly the difficulty of transillumination, which is critical for safe PEC site selection, posed some technical challenges. This was effectively resolved by combining endoscopic transillumination, finger indentation, and the dark-room technique. In addition, instead of the 15–20 Fr tubes that is more commonly reported, we used two 24 Fr tubes.[4-6] This was to better facilitate decompression of the overly distended colon and to provide double fixation to reduce the potential for recurrence and minimize tube migration. To our knowledge, we are the first to describe the use of dual large-bore tubes for PEC in a morbidly obese patient with CIPO.

The patient has enjoyed an asymptomatic period of 18 months, which is significantly better than the reported recurrence rate of 25% in the literature.[6] This case demonstrates that PEC can safely be offered to morbidly obese patients who have been considered too risky for endoscopic treatment, thereby broadening the use of PEC. Furthermore, it also serves as the first reported PEC case in Malaysia, highlighting the regional underutilization of this technique.

Conclusion

PEC is a safe, feasible, and minimally invasive alternative for recurrent sigmoid volvulus in surgically unfit, morbidly obese patients with CIPO. Technical adaptations, such as combined localization techniques and the use of large-caliber dual tubes, can optimize outcomes. This case underscores the importance of individualized treatment planning and expands the current indications for PEC

Acknowledgment

This article was written to highlight the rarely performed procedure at our centre and in Malaysia generally. This is the second time the procedure was performed and the first to be done in a morbidly obese patient.

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Conflicts of interest

There are no conflicts of interest.

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