

Severe delayed complication after percutaneous endoscopic colostomy for chronic intestinal pseudo-obstruction: A case report and review of the literature

David Bertolini, Philippe De Saussure, Michael Chilcott, Marc Girardin, Jean-Marc Dumonceau

David Bertolini, Philippe De Saussure, Marc Girardin, Jean-Marc Dumonceau, Divisions of Gastroenterology and Hepatology, Geneva University Hospitals, Geneva, Switzerland
Michael Chilcott, Department of Digestive Surgery, Geneva University Hospitals, Geneva, Switzerland
Correspondence to: Jean-Marc Dumonceau, MD, PhD, Divisions of Gastroenterology and Hepatology, Geneva University Hospitals, Micheli-du-Crest street, 24, 1205 Geneva, Switzerland. jmdumonceau@hotmail.com
Telephone: +41-22-3729340 Fax: +41-22-3729366
Received: 2007-02-08 Accepted: 2007-03-08

Abstract

Percutaneous endoscopic colostomy (PEC) is increasingly proposed as an alternative to surgery to treat various disorders, including acute colonic pseudo-obstruction, chronic intestinal pseudo-obstruction and relapsing sigmoid volvulus. We report on a severe complication that occurred two months after PEC placement. A 74-year-old man with a history of chronic intestinal pseudo-obstruction evolving since 8 years was readmitted to our hospital and received PEC to provide long-standing relief. The procedure was uneventful and greatly improved the patient's quality of life. Two months later, the patient developed acute stercoral peritonitis. At laparotomy, the colostomy flange was embedded in the abdominal wall but no pressure necrosis was found at the level of the colonic wall. This complication was likely related to inadvertent traction of the colostomy tube. Subtotal colectomy with terminal ileostomy was performed. We review the major features of 60 cases of PEC reported to date, including indications and complications.

© 2007 The WJG Press. All rights reserved.

Key words: Percutaneous endoscopic colostomy; Complications; Colonic pseudo-obstruction; Ileus; Peritonitis

Bertolini D, De Saussure P, Chilcott M, Girardin M, Dumonceau JM. Severe delayed complication after percutaneous endoscopic colostomy for chronic intestinal pseudo-obstruction: A case report and review of the literature. *World J Gastroenterol* 2007; 13(15): 2255-2257

<http://www.wjgnet.com/1007-9327/13/2255.asp>

INTRODUCTION

Chronic intestinal pseudo-obstruction (CIP) is a clinical syndrome characterized by the association of intestinal motor dysfunction and dilated bowel segments in the absence of mechanical obstruction^[1]. CIP may be primary disease of the intestinal smooth muscle or nerve plexus, or it may complicate a variety of conditions, including scleroderma, Parkinson's disease, amyloidosis or incomplete gut obstruction^[2]. Medical as well as surgical management are often disappointing, as about one third of patients require long-term home parenteral nutrition while two thirds suffer some sort of nutritional limitation^[3].

Percutaneous endoscopic colostomy (PEC) has recently regained interest as a minimally invasive approach to treat CIP. We report on a severe complication which developed two months after PEC placement for CIP.

CASE REPORT

A 74-year-old man with a history of CIP, sigmoidectomy for repeated volvulus, and Parkinson's disease, presented with moderate abdominal pain and massive colonic distension (Figure 1). Over the preceding 8 years, various therapies had been attempted to treat CIP, including 17 colonoscopic decompressions, but symptoms had progressively worsened. After discussion with the patient and his family, the placement of a PEC was decided, for which the patient provided informed consent.

Colonoscopy was performed under conscious sedation up to the splenic flexure and a 15-Fr tube from a standard percutaneous endoscopic gastrostomy kit (Nutricia Healthcare S.A. Fribourg, Switzerland) was inserted transanally into the left colon, as previously described (Figure 2)^[4]. Briefly, after infiltration of the puncture site (identified by abdominal wall transillumination) with lidocaine, a 19-gauge needle was inserted into the colon and grasped with a polypectomy snare to maintain apposition of this portion of the colon to the abdominal wall. The Seldinger needle of the percutaneous endoscopic gastrostomy kit was inserted beside the 19-gauge needle into the colon, the 19-gauge needle was removed, and the PEG string was passed through the Seldinger needle and the anus; the gastrostomy tube was inserted through the anus into the colon and through the skin using the pull technique. The procedure was uneventful and long-standing relief of abdominal distension and other



Figure 1 CT-scan showing massive distension of the colon (but not of the small intestine).



Figure 3 CT-scan showing the colostomy tube in place (arrow) and a normal-appearing colon.

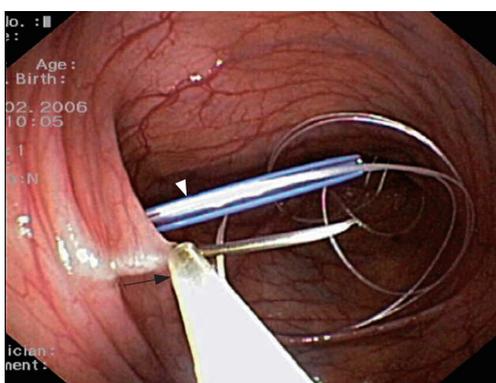


Figure 2 Endoscopic view of the left colon. A 19-gauge needle grasped with an endoscopic snare (arrow) serves to hold the colon close to the abdominal wall while a string is passed through a Seldinger needle (arrowhead) to allow for transanal insertion of the colostomy tube.

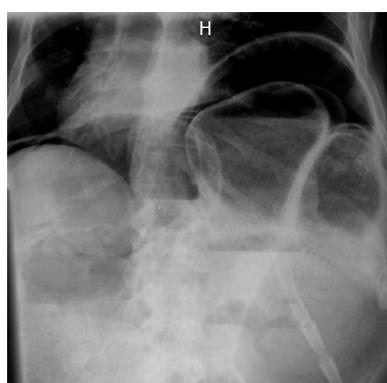


Figure 4 Abdominal plain X-ray showing a massive pneumoperitoneum.

symptoms ensued (Figure 3).

Two months later, the patient suddenly developed severe abdominal pain, nausea and vomiting. Abdominal plain X-ray revealed colonic distension and a massive pneumoperitoneum (Figure 4). At laparotomy, feces were found in the left parieto-colic gutter with the left hemi-abdomen presenting a peritonitic aspect. The colostomy flange was embedded in the abdominal wall (between the transversalis and internal oblique muscles), and a hole about 1.5 cm in diameter was found in the colon with stool spillage (this was circumscribed by post-operative adhesions). Subtotal colectomy with terminal ileostomy was performed in order to treat both CIP and the acute complication. Recovery was complicated two weeks later by leakage at the level of the rectal stump, which responded well to antibiotherapy and surgical drainage. The patient is doing well 8 wk after hospital discharge.

DISCUSSION

Management of CIP depends on its etiology, the extent and location of intestinal involvement, and the severity of symptoms. Treatment goals include maintenance of adequate nutrition and hydration, symptom relief, restoration of normal intestinal propulsion, and suppression of bacterial overgrowth^[1]. Prokinetic agents may be helpful: the efficacy of erythromycin, a specific

agonist to motilin receptors, has been reported to be sustained in some patients, and tegaserod may also be effective, particularly in patients with colonic involvement. Octreotide has been effective in patients with CIP secondary to scleroderma^[5]. In patients with symptoms suggestive of bacterial overgrowth, repeated courses of antibiotics, such as metronidazole and ciprofloxacin, may be useful^[6]. Surgical resection of the colon segments with impaired motility may improve symptoms and decrease the need for parenteral nutrition, but this requires careful preoperative evaluation (particularly of the length and site of resection) since CIP may relapse in previously normal-appearing colon segments.

PEC has been proposed as an alternative to surgery to treat CIP in selected cases, in which it dramatically improved the patients' quality of life. The advantages of the PEC option are that the insertion procedure does not require general anesthesia, and the possibility to easily remove the colostomy tube if colonic function later recovers^[4]. This technique has also been successfully used to treat other disorders, including recurrent sigmoid volvulus^[7], neurogenic bowel^[8], fecal incontinence and constipation (PEC inserted at the level of the cecum allows antegrade colonic irrigation)^[9]. However, complications with this technique, although generally minor, are common (42%, 25 of 60 cases of PEC have been reported to date) (Table 1). Distinctive features of the complication reported here include its high degree of severity and the delay between PEC placement and acute complication (two months). Three other cases of severe complication requiring surgery have been reported to date; they have

Table 1 Cases of percutaneous endoscopic colostomy reported in the literature

First author, yr	n	Median age (yr) (range)	Underlying condition	Outcome	Complications	Severity of complication ¹	Median follow-up (mo) (range)
Ponsky ^[12] , 1986	2	76 (70-82)	ACPO	Clinical improvement (PEC removed in 1/2)	None	NA	0.3
Salm ^[13] , 1988	2	64 (63-65)	ACPO	Clinical improvement (no PEC removed)	None	NA	Not available
Daniels ^[7] , 2000	14	78 (53-99)	Sigmoid volvulus	Recurrence of volvulus after PEC removal in 3/8	Peritonitis (n = 1)	Severe	13 (7-21)
Rivera ^[9] , 2001	12	(1.5-22)	Constipation	Clinical improvement (no PEC removed)	Granuloma formation (n = 5); urinary infection, seizures, systemic infection, and enterocolitis (1 each)	Mild (causal relationship for enterocolitis doubtful)	13 (2-31)
Ramage ^[8] , 2003	5	67 (37-76)	ACPO, neurogenic bowel	Clinical improvement (PEC removed in 1/5)	Self-limited bleeding and transient fever (1 each)	Mild (n = 1) and severe (n = 1)	6 (2-12)
Thompson ^[4] , 2004	3	57 (23-83)	CIP	Clinical improvement (no PEC removed)	None	NA	24 (1-30)
Rawat ^[11] , 2004	14	5.6 (1.5-11)	Constipation	Clinical improvement excepted in 1 patient (PEC removed in 3/14)	Granuloma formation (n = 6), local infection (n = 3), and sepsis (n = 1)	Mild (n = 9) and severe (n = 1)	12 (2-51)
Einwächter ^[14] , 2006	1	53	CIP	Clinical improvement (no PEC removed)	None	NA	6
Lynch ^[10] , 2006	7	77 (51-84)	CIP, constipation	Clinical improvement (PEC removed in 3/7)	Local infection (n = 2), and peritonitis (n = 1)	Mild (n = 2) and severe (n = 1)	6 (1-12)

ACPO: Acute colonic pseudo-obstruction; CIP: Chronic intestinal pseudo-obstruction; PEC: Percutaneous endoscopic colostomy; NA: Not applicable. ¹Severity as estimated by the present authors, according to original publications and the classification of complications proposed by Cotton^[15].

been attributed to the resolution of an hematoma resulting from inadvertent cecal-vein laceration (feces leaked into the peritoneum, probably due to the retraction of the cecum from the abdominal wall)^[10], to patient's learning difficulties^[7], and to colonic infection^[11].

In our patient, heteroanamnesis and findings at laparotomy (i.e. absence of pressure necrosis at the level of the colonic wall) strongly suggest that the colostomy tube was accidentally pulled out. Due to the relative fragility of the colonic wall and the prevalence of cognitive troubles in these patients, we think that particular care is necessary to avoid inadvertent traction of the colostomy tube, and that replacement with a button system should be systematically considered 4-6 wk after PEC placement. Alternatively, traction-removable tubes from selected percutaneous endoscopic gastrostomy kits (e.g. CORFLO-Bower, CORPAK MedSystems, Wheeling, IL) may be used.

In conclusion, the relatively high incidence of immediate and delayed serious complications ($\geq 5\%$) after PEC placement emphasizes the need to obtain fully informed consent, and to provide adequate post-procedural care.

REFERENCES

- Connor FL, Di Lorenzo C. Chronic intestinal pseudo-obstruction: assessment and management. *Gastroenterology* 2006; **130**: S29-S36
- Di Nardo G, Stanghellini V, Cucchiara S, Barbara G, Pasquinelli G, Santini D, Felicani C, Grazi G, Pinna AD, Cogliandro R, Cremon C, Gori A, Corinaldesi R, Sanders KM, De Giorgio R. Enteric neuropathology of congenital intestinal obstruction: A case report. *World J Gastroenterol* 2006; **12**: 5229-5233
- Stanghellini V, Cogliandro RF, De Giorgio R, Barbara G, Morselli-Labate AM, Cogliandro L, Corinaldesi R. Natural history of chronic idiopathic intestinal pseudo-obstruction in adults: a single center study. *Clin Gastroenterol Hepatol* 2005; **3**: 449-458
- Thompson AR, Pearson T, Ellul J, Simson JN. Percutaneous endoscopic colostomy in patients with chronic intestinal pseudo-obstruction. *Gastrointest Endosc* 2004; **59**: 113-115
- Soudah HC, Hasler WL, Owyang C. Effect of octreotide on intestinal motility and bacterial overgrowth in scleroderma. *N Engl J Med* 1991; **325**: 1461-1467
- Panganamula KV, Parkman HP. Chronic Intestinal Pseudo-Obstruction. *Curr Treat Options Gastroenterol* 2005; **8**: 3-11
- Daniels IR, Lamparelli MJ, Chave H, Simson JN. Recurrent sigmoid volvulus treated by percutaneous endoscopic colostomy. *Br J Surg* 2000; **87**: 1419
- Ramage JL, Baron TH. Percutaneous endoscopic cecostomy: a case series. *Gastrointest Endosc* 2003; **57**: 752-755
- Rivera MT, Kugathasan S, Berger W, Werlin SL. Percutaneous colonoscopic cecostomy for management of chronic constipation in children. *Gastrointest Endosc* 2001; **53**: 225-228
- Lynch CR, Jones RG, Hilden K, Wills JC, Fang JC. Percutaneous endoscopic cecostomy in adults: a case series. *Gastrointest Endosc* 2006; **64**: 279-282
- Rawat DJ, Haddad M, Geoghegan N, Clarke S, Fell JM. Percutaneous endoscopic colostomy of the left colon: a new technique for management of intractable constipation in children. *Gastrointest Endosc* 2004; **60**: 39-43
- Ponsky JL, Aszodi A, Perse D. Percutaneous endoscopic cecostomy: a new approach to nonobstructive colonic dilation. *Gastrointest Endosc* 1986; **32**: 108-111
- Salm R, Rückauer K, Waldmann D, Farthmann EH. Endoscopic percutaneous cecostomy (EPC). *Surg Endosc* 1988; **2**: 92-95
- Einwächter H, Hellerhoff P, Neu B, Prinz C, Schmid R, Meining A. Percutaneous endoscopic colostomy in a patient with chronic intestinal pseudo-obstruction and massive dilation of the colon. *Endoscopy* 2006; **38**: 547
- Cotton PB. Outcomes of endoscopy procedures: struggling towards definitions. *Gastrointest Endosc* 1994; **40**: 514-518