



Case Report

Temporary cecostomy as a life saving measure for functional obstruction secondary to neutropenic colitis



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ABSTRACT

Percutaneous cecostomy is mainly used to treat chronic neurogenic constipation in children. It may also be performed for emergency decompression of large bowel obstruction or to allow antegrade stenting in right-sided colonic obstruction. However, there are no dedicated or licensed tubes available for this purpose, and owing to the increased intracolonic pressure from the underlying obstruction, there is a high risk of fecal leak and peritonitis. We describe a unique case of emergency percutaneous cecostomy for functional obstruction because of severe neutropenic colitis of the sigmoid colon. The cecum was fixed with four T-fasteners designed for gastropexy during radiological gastrostomy, and a large gastrostomy feeding tube was inserted. Drainage of fecal matter was difficult and intermittent; however, it allowed sufficient decompression of the bowel to prevent perforation until the neutropenic colitis resolved. In the absence of dedicated drainage systems for the bowel, standard gastrostomy kits can be used as an emergency measure in life-threatening large bowel obstructions if surgical options or stenting are inappropriate.

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Keywords: cancer, cecostomy, colonic obstruction, interventional radiology, side effects of treatment

Introduction

Cecostomy is usually performed for irrigation of chronic neurogenic constipation (antegrade continence enema procedure) in children,¹ using a variety of different tubes, including low-profile (button) gastrostomies.² It may also be performed for emergency decompression of large bowel obstruction prior to surgery³ or to allow antegrade stenting in right-sided colonic obstruction.^{4,5}

We describe a case of emergency cecostomy for an impending bowel perforation from a functional obstruction due to severe neutropenic colitis affecting the sigmoid colon. In the absence of a licensed and suitable device for cecostomy, a commercially available kit for gastric fixation and radiologic gastrostomy was used in standard technique.^{6,7} As a temporary life-saving measure, the tube could be removed after resolution of the colitis.

This represents a unique case, not readily identified in the current literature.

Case report

A 66-year-old female with limited stage small cell lung cancer underwent curative chemoradiotherapy within a clinical trial comparing two radiotherapy schedules. She suffered recurrent and intermittent mild neutropenic sepsis during the first cycle of the cisplatin and etoposide based regimen. Three weeks after the

second cycle, she developed a further episode of neutropenic sepsis, with rapidly worsening abdominal pain and large bowel dilatation. Multidetector computed tomography demonstrated a severe segmental colitis affecting the sigmoid colon, with marked dilatation of the proximal large and small bowel but no occluding stricture (Fig. 1). Emergency laparotomy was deemed inappropriate on the basis of the underlying etiology and the poor performance status of the patient. Emergency stent insertion was felt to be too dangerous owing to the risk of perforation, and a decision to perform a radiological cecostomy was made.

On arrival in the interventional suite, the patient showed signs of early peritonism and pending shock, with tachycardia, hypotension, marked abdominal distension, and a lack of bowel sounds.

Antibiotic prophylaxis was given and cecostomy performed under combined fluoroscopic and ultrasound guidance with four resorbable SafeTpexy sutures (Fig. 2) from a MicKey gastrostomy insertion kit (Vygon/Kimberly Clark, Cirencester, UK). Following fixation, the cecum was punctured in the center of the square of the cecostomy. A stiff guidewire was inserted, and a stepwise dilatation was performed with the telescopic dilators contained within a 22F peel-away sheath within the gastrostomy insertion kit (Fig. 3). After the removal of the telescopic dilators, large amounts of liquid feces drained spontaneously through the remaining 22F peel-away sheath. After the initial decompression, an 18F balloon-replacement MicKey gastrostomy feeding tube was inserted through the peel-away sheath, and the

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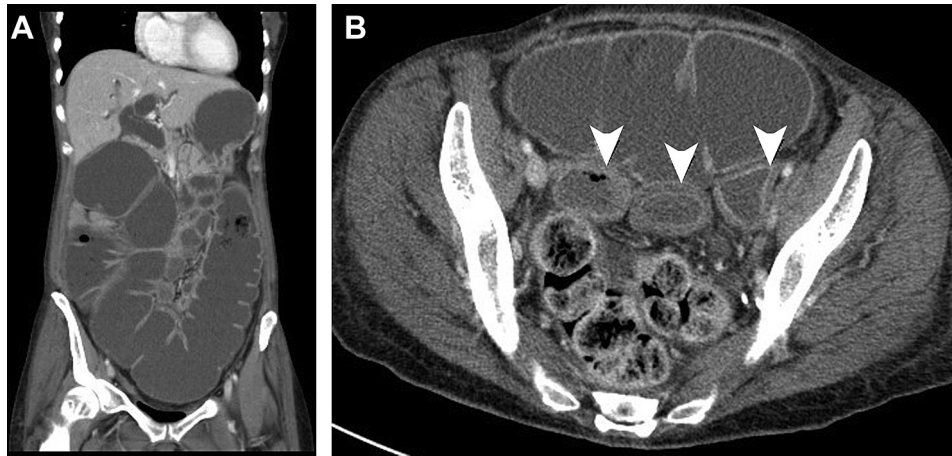


Fig. 1. Computed tomography at presentation. (A) Coronal reconstructions show marked dilatation of the colon. (B) Axial images show thickening and striation of the sigmoid wall (arrowheads) with feces in the distal sigmoid and rectum.

external fixation disk was applied tightly to the skin to minimize the risk of leaks. The patient was admitted to the critical care unit, and total parenteral nutrition was instigated.

The gastrostomy initially drained large amounts of gas and watery stools, but blocked intermittently, requiring regular flushing and aspiration. This was difficult, as the soft silicone tube would collapse with suction.

The white cell count returned to normal limits within 3 days of the cecostomy insertion, which was accompanied by recovery of peristaltic activity. Following gentle enemas, the patient started to pass loose motions *per rectum*. As the stool slowly solidified, output

from the cecostomy decreased. Follow-up computed tomography after 3 weeks showed resolution of the sigmoiditis (Fig. 4) with resumption of a normal solid bowel motion after 3 weeks, at which point cecostomy output was negligible.

The cecostomy tube was removed at 5 weeks (Fig. 5), by which time a well-formed tract had developed, and no intraperitoneal leak or peritonitis was reported after removal (Fig. 6). Granulation and healing of the tract were promoted by daily application of an enzymatic alginogel (Flaminal Hydro, Crawford Healthcare, Knutsford, UK).

Eight months after cecostomy, the patient is alive with no recurrence of the lung cancer and with a normal bowel function.

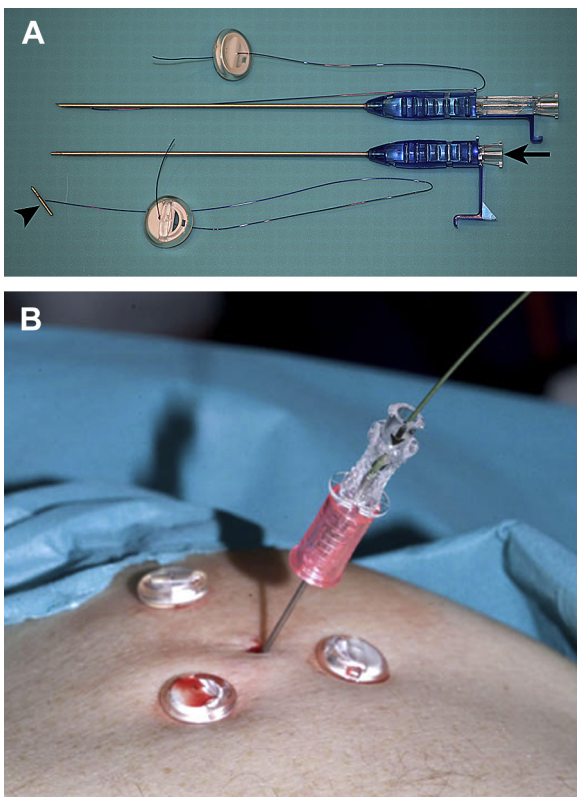


Fig. 2. MicKey gastrostomy introducer set. (A) Top: Gastropexy needle, preloaded with a metal T-bar on a resorbable suture. Bottom: Depression of the plunger (arrow) deploys the T-bar (arrowhead) into the target organ. (B) Gastric puncture and guide wire insertion after a three-point gastropexy performed during radiologic gastrostomy.

Discussion

Percutaneous cecostomy is an unrewarding procedure to perform for large bowel obstruction. No dedicated tubes are available that combine the requirements for a large lumen with a secure internal fixation mechanism, which can be passed through the skin and has the ability to compress the bowel against the abdominal wall to avoid a peritoneal leak.

Polyurethane catheters—either pigtail or Mallinckrodt type—are available in 20F and larger (sufficient for draining liquid feces), but they potentially allow the leakage of gas and feces around the tube. They also lack an external fixator to retain traction on the bowel wall and they are prone to kinking.

Foley catheters may occlude the track by the internal balloon, but have no external fixator, thus allowing the tube to be pulled in. Fixation plasters are only a very short-term measure and skin sutures invariably get infected.

Balloon-retained gastrostomy tubes are designed for insertion into a hollow viscus. They have an external fixator, which allows the internal retention balloon to be fixed under traction, compressing the bowel wall and occluding the puncture site. However, these tubes have a number of disadvantages: the balloon requires oversizing of the peel-away sheath by 4F and the air channel required for inflating the balloon reduces the lumen significantly (Fig. 7). Furthermore the silicone wall is soft, and aspiration tends to collapse the tube, making maintenance difficult.

Insufficient fixation of the cecum in endoscopic cecostomy has been identified as a risk factor for fecal peritonitis.⁸ Similar issues in radiologic gastrostomy led to the development of T-bar gastropexy, now in use for almost 3 decades.⁹ This reduces the risk of displacing the catheter into the peritoneum on insertion and provides

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