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Case Report

Percutaneous colonic stent insertion via a radiologically placed distal 'cecostomy' tube for the management of acute malignant bowel obstruction

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ABSTRACT

Percutaneous cecostomy is an uncommon procedure but is reported as an effective temporising measure to achieve acute decompression of bowel obstruction. It has been reported as a safe procedure in the setting of bowel obstruction providing relief of symptoms. The insertion of a cecostomy in the distal colon is not routinely advised as it will not allow passage of formed faeces. Cases of antegrade stenting of proximal colonic obstruction via cecostomy have been described; however, antegrade stenting of the distal colon from access in the ascending colon can be technically challenging. We describe a case of a percutaneous colostomy inserted temporally at the splenic flexure, which provided close access to an obstructing descending colonic tumour, allowing definitive management with placement of a colonic stent. This technical feasibility case provides evidence that a temporary cecostomy placed in the distal colon can be performed as a measure to facilitate definitive management.

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Introduction

Historically, percutaneous cecostomy has been used to treat chronic neurogenic constipation in paediatric patients (antegrade colonic enema procedure) and has been proposed as a superior and less invasive alternative to the Malone procedure.^{1,2} Percutaneous cecostomy is reported as an uncommon but effective method for temporarily managing patients with acute large bowel obstruction, who are not a candidate for surgical intervention.³ In the adult population 'cecostomy' insertion is a temporising procedure performed for emergency decompression of large bowel obstruction prior to definitive surgical or endoscopic management.^{4–6} 'Cecostomy' without surgery or stent insertion has also been described as a measure for decompression of functional obstruction due to neutropenic colitis⁷ with subsequent 'cecostomy' removal.

Radiological 'cecostomy' insertion is performed under fluoroscopic guidance, similar to radiological gastrostomy. After puncture of the cecum and subsequent fixation with gastropexy type anchoring sutures, a large bore decompression tube is inserted into the cecum. This, however, may not allow antegrade stent of a mid or distal colonic obstruction. Similarly, retrograde stent place-

ment in the mid colon via the rectum can be challenging and has a high failure rate.

We present a case of left sided malignant colonic obstruction which was decompressed and definitively managed by therapeutic stenting via a left sided percutaneous 'cecostomy' after attempt at conventional stent insertion was deemed inappropriate.

Case Report

A 56-year-old female with metastatic pancreatic adenocarcinoma presented with shortness of breath and vomiting. Cross sectional imaging of abdomen and pelvis demonstrated acute large bowel obstruction due to malignant serosal encasement of the mid descending colon (Fig. 1). There was gross dilation of the large bowel proximal to the obstruction filled with reactive fluid and bowel content. Conservative management with intravenous fluid resuscitation and nasogastric tube insertion was instigated; however, there was progressive dilation of the large bowel due to a competent ileo-caecal valve. The patient developed clinical signs of peritonism and sepsis.

Surgical decompression with colostomy formation was not

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Fig. 1. Obstructive colonic stricture seen within the descending colon (arrow).

felt to be an option due to the hostile peritoneal disease and performance status of the patient. A decision was taken to insert a stent endoscopically; however, prior to endoscopic stent insertion the patient developed pulmonary oedema and labile atrial fibrillation suggesting the onset of sepsis induced acute respiratory distress syndrome (ARDS). She became profoundly unwell and was transferred to the coronary care unit for medical management. The tachyarrhythmia proved difficult to control and endoscopic stent insertion was felt to be contraindicated at this stage. Radiological 'cecostomy' insertion under light sedation was requested as a temporising measure until the patient became well enough for a definitive surgical or endoscopic procedure. As the computed tomography (CT) demonstrated a non-tortuous approach to the tumour stricture, a decision was taken to insert a 'cecostomy' in the splenic flexure to achieve emergency decompression of the bowel with a view to providing subsequent access to the tumour stricture and allow percutaneous stent placement if the patient remained a non surgical or endoscopic candidate.

Under fluoroscopic guidance 4 SafeTpexy sutures from a MicKey gastrostomy kit (Vygon, Cirencester, UK) were inserted into the distal transverse colon and position confirmed with contrast instilled into the large bowel (Fig. 2). The splenic flexure was punctured in the centre of the quartet of the previously inserted SafeTpexy sutures (Fig. 3), to allow Seldinger access with a stiff guide wire. Telescopic dilators contained within a 22 F peel-away sheath within a MicKey gastrostomy insertion kit (Vygon) were used to perform a stepwise dilatation. Following the removal of the telescopic dilators from the remaining 22 F peel-away sheath an 18 F balloon-retained MicKey gastrostomy tube (Vygon/Kimberly Clark, Cirencester, UK) was inserted, with the external fixation disk applied tightly to the skin to minimize the risk of leaks (Fig. 3). The patient was admitted to the critical care unit for close monitoring, and commenced on total parenteral nutrition.

A follow-up CT scan performed the next day showed successful decompression of the colon. As the tachyarrhythmia persisted, the patient was deemed not fit for surgery or endoscopic stent insertion, and a decision was made to insert a stent through the tube colostomy. The venting tube was removed and a combination of a 6 F KA2 catheter (Merit Medical Systems, South Jordan, UT, USA) and a 150 cm Laureate hydrophilic guide wire (Merit

Fig. 2. Colo-pxy insertion into the splenic flexure. Position confirmed with contrast instilled into the large bowel (arrow, T-fastener).

Fig. 3. Stiff wire passed through the puncture performed in the centre of the quartet of SafeTpexy sutures (Vygon; arrows).

Medical Systems) was used to negotiate beyond the stricture (Fig. 4). With the catheter securely in the colon the hydrophilic guide wire was exchanged for a 180 cm super stiff guide wire (Merit Medical Systems). Under fluoroscopic guidance a 24 × 120 mm double-covered nitinol stent (EGIS; S&G Biotech, Seoul, Korea) was inserted and deployed (Fig. 5). The colostomy tube was reinserted to prevent intra-peritoneal spill from an immature fistula tract and the patient was transferred back to the critical care unit for the ongoing management of her pulmonary oedema and atrial fibrillation.

A repeat CT scan was performed 4 days later to investigate increasing abdominal distension. This showed sustained bowel decompression, but new large volume ascites attributed to pulmonary oedema and disease progression was seen. There were no signs of peritonism or leak from the colostomy site. A week later, the atrial fibrillation had become more severe and refractory causing intractable pulmonary oedema and respiratory failure. The patient's overall condition deteriorated and she passed away nineteen days following initial admission and stent insertion.

Fig. 4. A combination of a 6 F KA2 catheter (Merit Medical Systems) and hydrophilic wire used to negotiate the colonic stricture (arrow).

Fig. 5. Colonic stent deployed through the malignant stricture site (arrows).

Discussion

Malignant bowel obstruction is a common and distressing pathology encountered in 3% of patients with advanced terminal cancer, occurring in around 20% of patients with bowel cancers and up to 50% in gynaecological malignancies.⁸ Surgery for patients with advanced peritoneal carcinomatosis is associated with a poor outcome and significant morbidity.⁹ Venting gastrostomy can be considered for patients with small bowel obstruction but is ineffective in patient with large bowel obstruction and a competent ileo-caecal valve.¹⁰

In acute large bowel obstruction, the colon fills with bowel content and becomes progressively dilated causing eventual failure of resorption and inflammation due to the distension secretion cycle. A combination of bowel contents, reactive fluid and air leads to an increased risk of caecal perforation, particularly in patients with a competent ileocaecal valve. Thus, whilst the caecum is the preferential geographic point to decompress, it is also more suited to tube decompression as the caecal contents are less formed than those in the distal colon.¹¹

Cecostomy insertion is performed in children with chronic neurogenic constipation² and a short term solution for acute malignant bowel obstruction.⁴ A radiologically inserted venting 'cecostomy' can achieve immediate decompression, minimising the risk of perforation while the patient is being stabilised to become a candidate for a more definitive surgical or endoscopic procedure.

Gillman and Latosinsky⁴ reported a case of antegrade colonic stenting of the right colon via a mature surgically created cecostomy. We have shown that a radiologically inserted distal colonic 'cecostomy' and subsequent insertion of a stent is a technically feasible treatment option for patients who are not a candidate for surgical or endoscopic options. Operators need to be cognisant of the fact that a distal tube 'cecostomy' in the distal colon may initially decompress the fluid filled bowel, but as the bowel content solidifies due to recovery from the distension secretion cycle, the contents will become more solid, with a risk of the tube occluding. Therefore, a distal tube colostomy must be deemed to be a temporising measure and should only be performed if it al-

lows access to achieve definitive percutaneous management, or if the caecum is not accessible.

This technical feasibility case reinforces the limited evidence that radiologically inserted 'cecostomy' can be used as a temporising measure in cases of bowel obstruction. Additionally, careful planning of the insertion site with a view to eventual colonic stenting is a feasible management strategy for those patients not clinically stable enough for alternative definitive management options.

Conflicts of Interest

No potential conflict of interest relevant to this article was reported.

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