

Image-Guided Sharp Recanalization of a Benign J Pouch Anastomotic Occlusion Facilitates Surgical Repair

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ABSTRACT

A 27-year-old man with a 9-year history of ulcerative colitis who had undergone total proctocolectomy with construction of a continent pouch in 2008 presented 1 year later with occlusion of the ileal pouch–anal anastomosis precluding ileostomy closure. An attempt at surgical reconstruction at an outside hospital failed, and the patient was informed that he would have a permanent stoma. A further attempt at blind surgical recanalization of the occlusion risked sphincter damage and was deferred. In 2010, reconstruction was performed using a hybrid approach combining image-guided sharp recanalization of the occluded anastomosis with positioning of a large-diameter Foley balloon catheter across the recanalized segment, followed by immediate surgical revision of the J pouch. Ileostomy closure was performed 1 month later. Continence was preserved. Surgical repair preceded by sharp recanalization with positioning of a balloon catheter across the occluding membrane may safely regain durable patency in a chronically occluded ileal pouch–anal anastomosis.

Benign chronic total occlusion by a fibrotic membrane can affect nonvascular structures in the gastrointestinal, urogenital, or biliary tracts. Occlusion usually results from an inherent inflammatory or ischemic disease process, infection, trauma, or iatrogenic injury after surgery or irradiation (1). Clinical manifestations are related to the function of the occluded viscus and degree of obstruction. Surgical management carries the risk of further morbidity and mortality, and results may not be durable. Percutaneous image-guided sharp recanalization techniques for management of chronic total obstruction using various needles, the back end of wire guides, and “reentry” devices have been described more recently. The technical feasibility, safety, and clinical success of this minimally invasive procedure have been reported, although mostly in the setting of vascular occlusion (2–5). Nonvascular structures for which treatment by sharp recanalization has been reported in the English literature include the esophagus and bile duct (3–5). We report our experience with the use of percutaneous fluoroscopy-guided sharp recanalization in a

patient presenting with occlusion at an ileal pouch–anal anastomosis in whom attempts at conventional surgical repair failed.

CASE REPORT

The patient was a 27-year-old man with a 9-year history of unremitting biopsy-proven ulcerative colitis. He had elected to undergo subtotal colectomy and ileostomy at an outside hospital 2 years before this admission, followed 6 months later by completion proctectomy and J pouch ileoanal anastomosis. Subsequent occlusion of the anastomosis precluded closure of the ileostomy. An attempt to open the J pouch surgically resulted in intestinal perforation. The patient was told that the ileostomy would have to remain in place indefinitely, at which point he came to our medical center for treatment. The patient was deemed to be a poor candidate for conventional reconstructive surgery because a blind attempt at recanalizing the occluded segment risked damaging vital sphincter mechanisms that might affect future continence. Instead, recanalization was performed using a novel combined image-guided sharp recanalization and surgical approach, as described next.

Local institutional review board approval was waived for this retrospective case report. The patient gave written informed consent for the procedure. Using general anesthesia and fluoroscopic guidance, the efferent loop of the ileostomy was cannulated, and a 5-F Kumpe catheter (Cook, Inc, Bloomington, Indiana) and Glidewire (Terumo, Leuven, Belgium) were advanced as

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distally as possible. An Amplatz extra-stiff guide wire (Cook, Inc) was positioned at the occluding membrane, and a large-diameter (33-mm) latex occlusion balloon (Boston Scientific, Natick, Massachusetts) was inserted over the wire. The balloon catheter was positioned at the proximal side of the occluding membrane in the pouch with maximum inflation using dilute contrast material. Positioning in relation to the surgical suture line marking the site of ileoanal anastomosis was confirmed (**Fig 1a**).

A 6-F, 11-cm-long vascular sheath (Cordis Corporation, Bridgewater, New Jersey) was advanced via the anus to the anal side of the occluding membrane. A 19-gauge, 15-cm-long trocar needle (Gallini Medical, Mantova, Italy) was inserted into the sheath in a coaxial fashion and carefully advanced toward the occlusion balloon traversing the membrane. Rupture of the balloon with leakage of the contrast material confirmed successful intraluminal traversal of the membrane (**Fig 1b**). A 0.035-inch hydrophilic Glidewire and 5-F hydrophilic catheter were advanced into the ileal loop. Contrast material was injected to confirm intraluminal location without contrast extravasation (**Fig 2a**). The Glidewire was advanced out of the stoma to create through-and-through access and exchanged for an Amplatz extra-stiff guide wire. Sequential dilation of the perforation in the occlusive membrane was performed using high-pressure angioplasty balloons (Dorado; Bard Peripheral Vascular, Tempe, Arizona) up to 10 mm in diameter (**Fig 2b**) to facilitate insertion of a 24-F Foley balloon catheter (Zhanjiang Star Enterprise Co, Guandong, China). The Foley balloon was inserted over the wire by puncturing

the tip using a 19-gauge hollow femoral access needle with retrograde insertion of the “back end” of the wire. The balloon was inflated on the pelvic side of the membrane (**Fig 3**) and pulled snug, and the catheter was sutured in position externally at the anal verge.

The patient was transferred to the operating room for surgical reconstruction. Using the Foley catheter as a guide, the recanalized orifice was dilated further, and the mucosa of the pouch was dissected from the surrounding tissue. After achieving a tension-free mucosal flap of the entire small bowel, an anastomosis to the dentate line was constructed, using interrupted 3-0 polyglactin 910 sutures (Vicryl; Johnson & Johnson, Leuven, Belgium). At the completion of the procedure, a rectal tube was inserted and left in the pouch to maintain access for several days. The ileostomy was closed 1 month later. At 2 years after the procedure, the patient remained continent.

DISCUSSION

Symptomatic fibrotic strictures at the ileoanal anastomosis or proximal J pouch develop in 9%–16% of patients with an ileal pouch–anal anastomosis, usually within 6–9 months after surgery (6,7). These strictures manifest with a degree of obstruction proportional to the extent of stricture. Strictures are usually seen on computed tomography as abnormal intestinal wall thickening along staple lines (6,7).

Soft, incomplete strictures can be treated by graduated dilation, performed at home, at the clinic, or in the

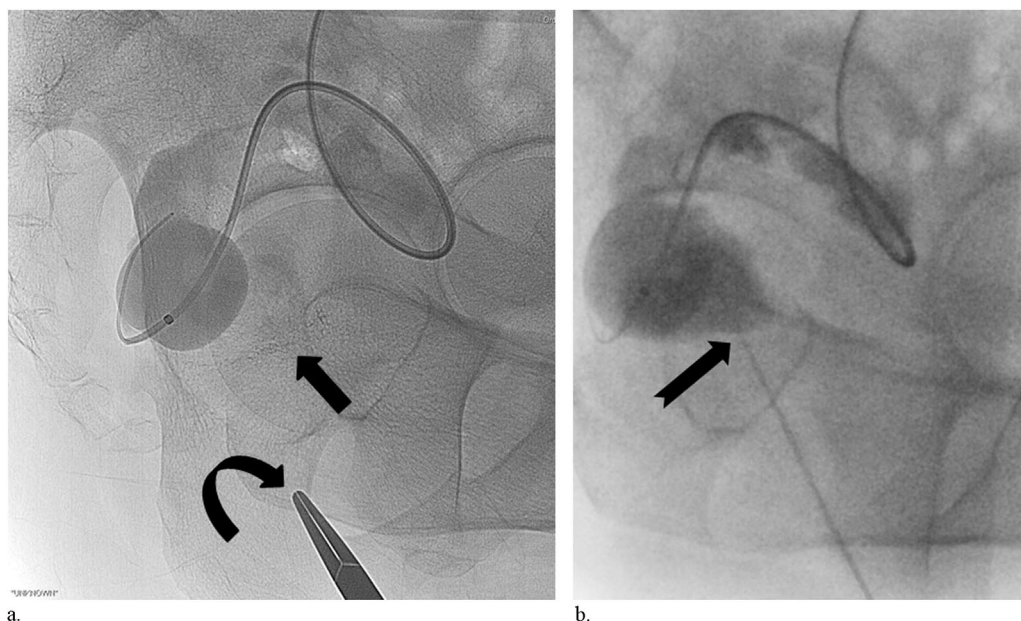


Figure 1. Fluoroscopic images of a 27-year-old man with a 9-year history of unremitting biopsy-proven ulcerative colitis who presented with occlusion of an ileal pouch–anal anastomosis 2 years after subtotal colectomy and ileostomy. The patient is in the left decubitus position. **(a)** The occlusion balloon is seen inflated above the occlusive membrane. Surgical clips indicate the level of the ileoanal anastomosis (straight arrow). A clamp is placed at the anal verge (curved arrow). **(b)** A 19-gauge coaxial needle is seen traversing the occlusive membrane (arrow) and rupturing the occlusion balloon on the pelvic side. Note contrast material within the pouch.

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