Endoscopic Treatment of Postoperative Bleeding, Bezoars, and Foreign Bodies

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KEYWORDS

• Bezoars • Bleeding • Crohn's disease • Capsule • Foreign body
• Inflammatory bowel disease • Retention • Ulcerative colitis

KEY POINTS

- Pouch endoscopy is a successful technique for the treatment of postoperative bleeding with ileal pouch-anal anastomosis.
- Altered anatomy and strictures in inflammatory bowel disease may increase the risk of bezoar formation and retention of foreign bodies.
- Bezoars can be treated medically, endoscopically, or surgically.
- Care must be taken in using video capsule endoscopy in patients with inflammatory bowel disease.

INTRODUCTION

Surgical intervention is necessary for up to 80% of patients with Crohn's disease (CD) and approximately 20% of patients with ulcerative colitis (UC). In patients with UC, the surgery of choice is total proctocolectomy with ileal pouch-anal anastomosis (IPAA), while in CD, ileocolonic resection and anastomosis are most commonly performed. Though not curative, surgery in patients with CD helps treat complications such as obstruction, fistulas, abscesses, perforation, bleeding, or malignancy.[1] Stricture formation is a common complication that occurs in approximately 32% of patients with CD by 10 years after diagnosis; endoscopic therapy or surgery may be necessary for treatment.[2] Anastomotic strictures can also occur in patients with underlying inflammatory bowel disease (IBD) who had bowel resection, and anastomosis, surgical strictureplasty, or IPAA. This article will focus on the risk factors, presentation, and endoscopic diagnosis and management of postoperative bleeding, bezoars, and foreign bodies.

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ENDOSCOPIC MANAGEMENT OF POSTOPERATIVE BLEEDING

Postoperative bleeding can happen days or years after surgery for CD or UC and usually results from ischemic ulcers at the anastomosis. Endoscopic management can be helpful in the treatment of postoperative bleeding if medical therapy fails.

Postoperative Bleeding in Crohn's disease

Strictureplasty and bowel resection with anastomosis are the 2 most commonly performed surgical procedures for CD. Post-strictureplasty hemorrhage occurs in 4.6% to 9.3% of patients with CD with conventional strictureplasty (Heineke-Mikulicz or Finney techniques).[3,4] It typically presents in the first 6 days after the operation, most commonly on days 2 and 3. It can generally be managed nonoperatively, with blood transfusion as needed; angiography for treatment is necessary for a small number of cases.[4] Nonconventional strictureplasty techniques, including modified Finney, combined Heineke-Mikulicz and Finney, modified Heineke-Mikulicz, and Michelassi, have been reported to have a 1.9% rate of postoperative gastrointestinal (GI) tract bleeding, significantly lower than conventional strictureplasty.[3] In the authors' experience, endoscopic bleeding control with a topical injection of 50% glucose or placement of endoclips is feasible and can be attempted.

When bowel-sparing techniques such as strictureplasty are not feasible, bowel resection and anastomosis may be necessary; common procedures include ileocolonic resection with ileocolonic anastomosis, subtotal colectomy with ileorectal anastomosis, segmental colectomy with colo-colonic or colo-rectal anastomosis, or total proctocolectomy. Approximately 2% of patients with CD developed postoperative hemorrhage after open surgeries. Laparoscopic resection carries similar complication rates to open surgery, while data on postoperative bleeding specifically with laparoscopic surgery for CD are limited.[5]

Patients with CD may require temporary or permanent ileostomies or colostomies; CD is associated with higher morbidities after stoma surgery than those without CD.[6] One of the late complicationsis stomal bleeding. Stomal bleeding in CD may be attributed to local mucosal trauma, pressure ulcers, or inflammation or recurrence of CD. Recurrence of CD after ileostomy most commonly occurs in the neoterminal ileum near the stoma. After stoma surgery, CD patients can present with stomas can present with prolapse, obstruction, retraction, or primarily ulceration and bleeding.[7]

In the postoperative setting, upper and lower GI endoscopy, including ileoscopy via stoma, is the main tool to identify the source of bleeding as well as check for signs of CD recurrence. The endoscopy allows for biopsies as well as therapeutic interventions such as balloon dilation of strictures and bleeding control.[8] Endoscopic injection with epinephrine, triamcinolone, or 50% dextrose, and endoscopic clipping with through-the-scope or over-the-scope clips are useful techniques to control bleeding in patients with IBD.[9] In our clinical practice at Columbia University Irving Medical Center, we usually attempt to control bleeding with endoscopic clipping first (**Fig. 1**A, B). Normally, suture line or staple line bleeding with oozing or pulsatile can be controlled with endoscopic clipping. Nonpulsatile mucosal oozing may be controlled with a spray of 50% dextrose.[9]

Postoperative Bleeding in Ulcerative Colitis

The incidence of hemorrhage after restorative proctocolectomy with IPAA is 1.5% to 3.5%.[10–12] It is estimated that 66% occurs within 7 days of the operation. There is no difference in gender, pouch configuration, or anastomotic type between patients with hemorrhage and those without.[11] Nonevidence-based reinforcing or suturing of the

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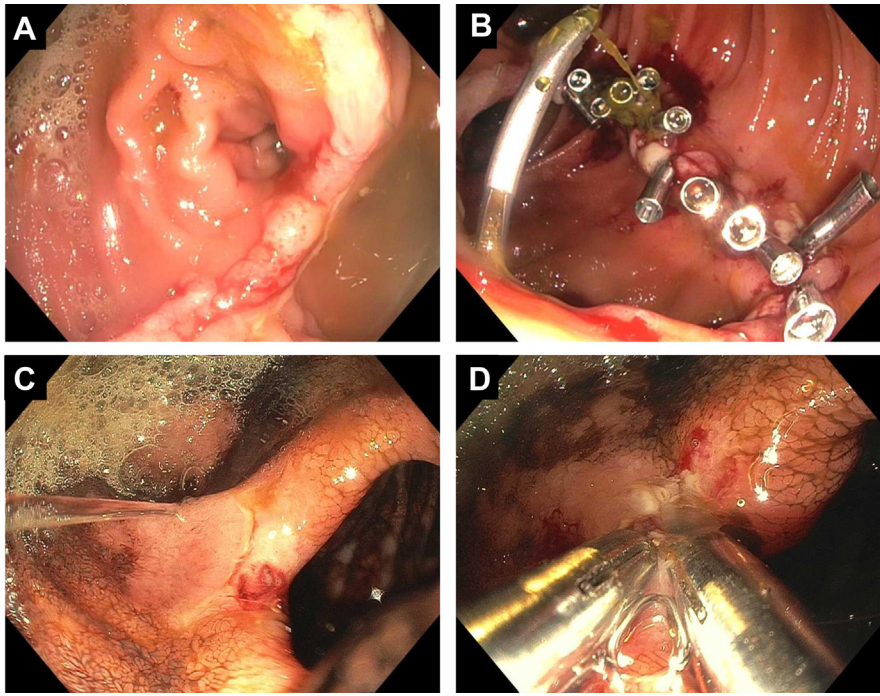


Fig. 1. Postoperative bleeding control. (*A*, *B*) Endoscopic clipping of anastomotic bleeding after ileocolonic resection for Crohn's disease; (*C*, *D*) endoscopic clipping of anastomotic bleeding at the stoma closure site in ileal pouch-anal anastomosis for ulcerative colitis.

staple line during surgery may reduce postoperative bleeding.[12] The common sites of bleeding in patients with IPAA or continent ileostomy are end-to-end or side-to-side anastomosis at the stoma closure site, pouch-anal anastomosis, distal pouch folds, or pouch inlet. Pouchoscopy may be used to treat pouch bleeding that is not self-limited. Clot evacuation is performed, followed by the cauterization of spot bleeding, or epinephrine or sugar water (50% glucose) enemas for generalized oozing. Lian and colleagues found endoscopy with cauterization to be 100% successful and epinephrine enema to be 96% successful.[11] We also found that endoscopic clipping is effective (**Fig. 1**C, D). Dislodged or misfired staples may also cause postoperative bleeding or anemia, as well as other complications including vaginal fistula or cuffitis in patients with IPAA. The sharp tips of dislodged or misfired staples can cause bleeding and can be removed endoscopically with biopsy forceps (**Fig. 2**).[13,14]

Some patients with UC may require ileostomies. Though uncommon, peristomal varices may develop in patients with UC with concurrent primary sclerosing cholangitis or patients with IBD with comorbid liver diseases. Endoscopy via stoma may help identify varices.[15] Endoscopic banding ligation or endoscopic sclerotherapy, which is commonly used for the treatment of esophageal varices, has not been described in the treatment of stomal varices. Local repair divides and resutures the mucocutaneous junction, interrupting collaterals, but varices will reform after weeks to months. Long-term treatment of bleeding from variceal vessels may require invasive procedures such as transjugular intrahepatic portosystemic shunt to reduce portal hypertension.[6,16,17]

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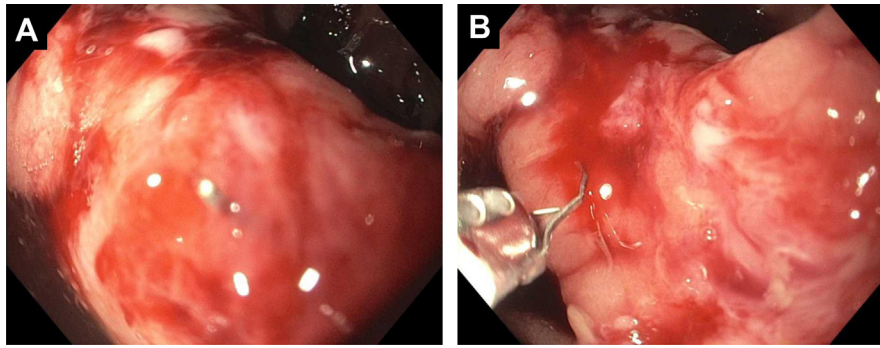


Fig. 2. Foreign bodies in patients with inflammatory bowel disease. (*A, B*) Dislodged staples at the outlet of surgical strictureplasty site causing bleeding and stricture.

ENDOSCOPIC MANAGEMENT OF BEZOARS AND FOREIGN BODIES

Altered bowel anatomy from complications of the disease or surgery puts patients with IBD at risk for bezoar formation or foreign body retention. There is no consensus on optimal management for bezoars, but endoscopy is increasingly popular for bezoar fragmentation and retrieval, often with concurrent stricture treatment.

Definition, Type, and Frequency

Bezoars are defined as accumulations of undigested material which can be located anywhere in the GI tract, though they are most commonly found in the stomach. The incidence of bezoars is uncertain; studies suggest that gastric bezoars are found in less than 0.5% of esophagogastroduodenoscopies and small intestinal bezoars are found in 0.4% to 4.8% of patients with intestinal obstructions.[18] Bezoars are classified according to their composition as pharmacobezoars, phytobezoars, trichobezoars, lactobezoars, and lithobezoars (see **Fig. 4**).[19] Phytobezoars consist of indigestible plant fibers and are the most common, accounting for 40% of reported bezoars.[20] Trichobezoars consist of hair and foodstuff; they are most common in women less than 30 years old and are associated with trichotillomania.[20,21] Lactobezoars are made of milk protein and typically occur in premature, low-birth-weight infants.[22] Pharmacobezoars are concretions made by medications, especially bulk-forming laxatives and those coated in insoluble material for extended drug delivery.[18,20] Oral mesalamines are a frequent contributor to pharmacobezoars (see **Fig. 4**A–C).[23] Lithobezoars are made of stone-like or calcified materials, such as cement or shellac (see **Fig. 4**D).[19,20]

The most common retained foreign bodies in patients with IBD are dislodged anastomotic staples (see **Fig. 2**) and retained video capsule endoscope (VCE) (**Fig. 3**) in those with strictures or surgery-altered bowel anatomy. The most common locations for retained bezoars or foreign bodies are prestenotic bowel, surgical strictureplasty, and pouch body in continent ileostomy or pelvic pouch with functional and/or structural outlet obstruction.

Risk Factors

Various characteristics in general or diseased population are associated with the formation of bezoars, including poor mastication, gastric surgery with vagotomy, gastroparesis, use of histamine-2 receptor antagonists, diabetes mellitus, and excessive intake of fiber.[24,25] These factors cause reduced gastric acidity and impaired motility,

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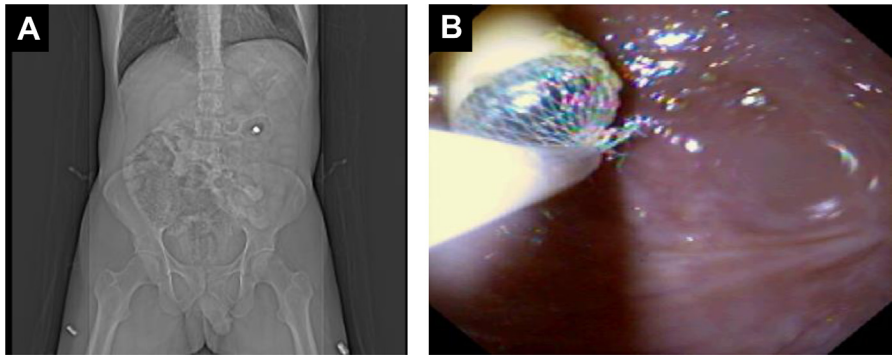


Fig. 3. Retained foreign bodies. (*A*) Retained capsule endoscope in the jejunum in Crohn's disease; (*B*) retained capsule endoscope in the Kock pouch. (*From* Wu XR, Shen B. Chapter 27: Endoscopic Treatment of Bezoars and Foreign Bodies in Patients With Inflammatory Bowel Disease. In: Shen B, ed. Interventional Inflammatory Bowel Disease. Academic Press, Elsevier; 2018: 309–317. (**Figure 3**B).)

the hypothesized root of bezoar pathogenesis.[18] Strictures or surgically altered bowel anatomy in patients with IBD may pose additional risk.

The prevalence of bezoars in patients with IBD is unknown but is likely to increase compared with the general population due to the high prevalence of strictures, abnormal GI anatomy from surgical interventions,[26] and dysfunction of pelvic floor muscles. Although data are scarce, IBD may also affect GI motility, promoting bezoar formation.[27]

Strictures: In CD, 5% to 28% of patients present with *de novo* and anastomotic strictures.[28–30] De novo strictures are most commonly found in the terminal ileum, ileocolonic region,[31] or anorectal ring. Most of the patients with stricturing CD require intervention, traditionally with surgical resection and now more commonly with bowel-sparing techniques such as strictureplasty and endoscopic balloon dilation (EBD) or endoscopic electrostricturotomy.[32] Postoperative recurrence of CD is common after intestinal resection, occurring in approximately 30% of patients after 18 months.[33] This promotes the formation of strictures at the sites of ileocolonic anastomosis, ileostomy, colostomy, or strictureplasty. Narrowing of the bowel lumen by strictures facilitates the retention of bezoars and foreign objects (**Fig. 4**D).[14] In addition, patients with strictureplasty may have bezoars or foreign bodies retained in the lumen (see **Fig. 4**C).

Motility: CD may also contribute to bezoar formation through the disruption of GI motility. Scintigraphic studies in pediatric patients show that 30% of those with CD have delayed gastric emptying.[34] Adults with CD can have delayed gastric emptying even with inactive disease, causing dyspeptic symptoms in the absence of strictures or obstruction.[35,36] Delayed emptying in patients with CD is likely related to excessive secretion of cholecystokinin and glucagon-like peptide-1, with a possible contribution to electrical rhythm abnormalities, primarily bradygastria.[37,38] Abnormal small bowel motility has also been noted in CD; there is an overall decrease in small intestinal contractions or an increase in single or clustered contractions.[39] Wireless motility capsules have shown increased transit times and decreased motility indices in patients with CD.[40] It is not clear whether GI dysmotility is a contributing factor for retained bezoars or foreign bodies in CD.

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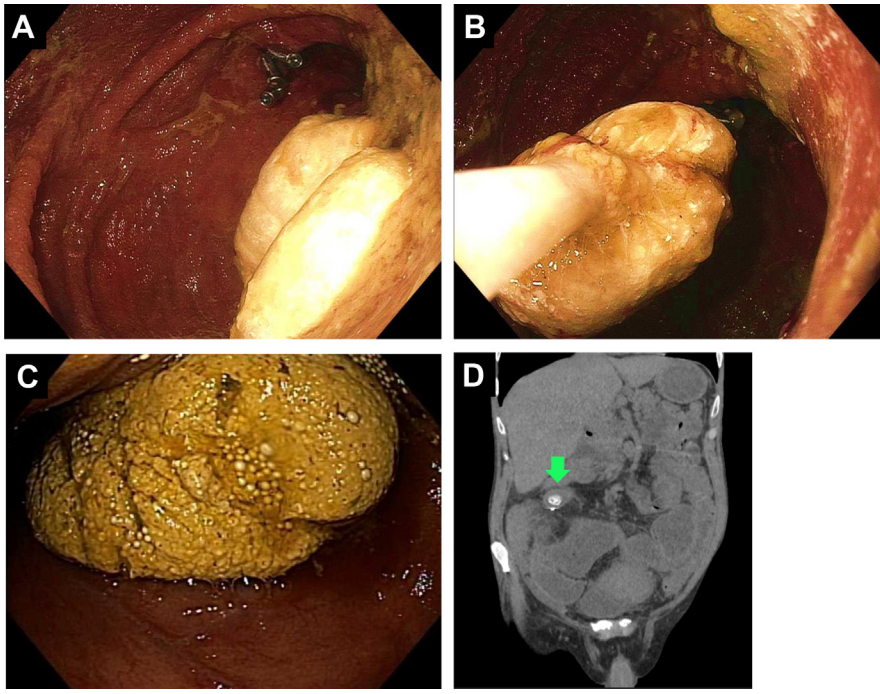


Fig. 4. Bezoars in patients with inflammatory bowel disease. (*A, B*) Pharmacobezoars (mesalamine pills) in a patient with ileal pouch-anal anastomosis with dyssynergic defecation which was removed with endoscopy; (*C*) pharmacobezoars (mesalamine granules) in a surgical strictureplasty site; (*D*) lithobezoar in a patient with small bowel Crohn's disease (*Green arrow*).

In contrast, patients with UC tend to show normal gastric emptying and overall accelerated colonic transit.[34,41,42] GI bezoars in surgery-naïve patients with UC have not been reported.

Pouches and diverted bowels: The main risk of bezoar formation or retained foreign bodies in patients with UC comes from surgically altered GI anatomy. IPAA is the procedure of choice for patients with refractory UC, colitis-associated neoplasia, or familial adenomatous polyposis. Patients with UC undergoing restorative proctocolectomy and IPAA may present with structural (such as strictures or prolapse) or functional (such as paradoxic contractions or sawtooth contraction patterns) pouch outlet obstruction.[43] For patients who fail IPAA or are not candidates for IPAA, alternatives include continent ileostomies, such as Kock pouch and Barnett continent ileal reservoir.[44] Continent ileostomies may serve as a site for the accumulation of bezoars or retention of foreign objects; case studies have detailed pharmacobezoars, as well as foreign bodies such as emptying tubes, gold teeth, and VCE, in Kock pouches (see **Fig. 3**B).[45–47] The J-pouch of IPAA also serves as a site for bezoars, though this is less frequent than with continent ileostomies. Wu and colleagues.[48] reported that the rate of J-pouch bezoar was 0.4% compared with 13% with continent ileostomies. The most common types of bezoar were phytobezoars, followed by lithobezoars and pharmacobezoars (see **Fig. 4**A, B)

Gastric acidity: Reduced gastric acidity, especially with the use of histamine-2 receptor antagonists, is a known risk factor for gastric bezoars.[25] Acid suppressing agents, namely proton pump inhibitors and histamine-2 receptor antagonists, are

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commonly used in patients with IBD for non-IBD indications such as peptic ulcer disease and gastroesophageal reflux disease as well as symptomatic relief of upper GI involvement in CD.[49,50] The use of acid-suppressing medications in IBD is controversial. Some studies have suggested that the use of acid-suppressing medications is associated with an increased risk of IBD flares and adverse outcomes though others have called into question the reported strength of this association due to the presence of confounding variables.[49,51,52] Recent studies have suggested that acid suppression may help decrease the risk of pouchitis in patients with UC and IPAA.[53] However, even without the use of acid-suppressing medications, gastric pH, measured by radiotelemetry capsule, is increased in patients with IBD, both during active and inactive phases of the disease, compared with controls.[54] Food bezoars are seen in patients with CD and gastric outlet obstruction. Whether gastric acidity contributes to the formation of food bezoars is not clear.

Clinical Presentations

Bezoars may be asymptomatic or manifest with various clinical pictures, from mild GI disturbance to visceral perforation. Symptoms include halitosis, abdominal pain, satiety, nausea or vomiting, hematemesis, dyschezia, constipation, and bloody or tarry stool.[18,20] Gastric ulcers are a common complication, appearing in 41% to 65% of patients; ulceration, bleeding, or perforation may occur due to pressure necrosis caused by the bezoar.[18] Initial presentations may be associated with the type of bezoar. Trichobezoars tend to form slowly over several years, with symptoms progressing from early satiety and nausea to potential obstruction or perforation. Phytobezoars form more rapidly and can cause nausea, vomiting, and gastric outlet obstruction. Pharmacobezoars have the risk of causing drug intoxication. Lactobezoars tend to present as feeding intolerance in infants. When located in the duodenum or biliary tract, bezoars may cause pancreatitis or cholestasis.[20] Patients with long-term bezoars in the small or large bowel may carry a risk for the development of stercoral colitis or pouchitis. Patients with bezoars in the pelvic pouch may present with dyschezia, constipation, obstipation, or pelvic pain. Bezoars in the diverted colon or diverted pouch can present with cramps and pelvic pressure.

Diagnosis

History and physical examination are key in the diagnosis of bezoars. Laboratory studies are often noninformative, though they may show mild microcytic anemia or leukocytosis.[20] Imaging studies are the initial diagnostic modality in most cases. Plain abdominal X-ray, computed tomography (CT) (see **Fig. 3**A; see **Fig. 4**D), and magnetic resonance imaging (MRI) may be useful in identifying bezoars as masses or filling defects. Barium upper GI series must be used with caution; they can interfere with endoscopy by worsening visualization and, in the case of suspected enteric-coated aspirin bezoars, barium can change the acid environment and lead to the absorption of salicylates.[55,56] Upper GI, lower GI, deep small bowel endoscopy or endoscopy via stoma remains the diagnostic modality of choice, especially with its potential for therapeutic intervention, but imaging is recommended before endoscopy to assist in planning for therapy.[26]

Treatment

Bezoars may be treated with medical, endoscopic, or surgical approaches. There is no consensus on management strategy; instead, it should be individualized for each patient. Fortunately, most bezoars or foreign bodies can be removed by endoscopic approach. However, in the presence of stricture, endoscopic treatment of the stricture

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with EBD or stricturotomy may be performed before bezoar or foreign body retrieval. Sometimes, the bezoars are so large or bowel outlet is so narrowed (such as the nipple valve of a Kock pouch), that a multidisciplinary approach including endoscopists and surgeons with laser or ultrasound lithotripsy is required.

In stable patients, it may be possible to watch and wait, as some bezoars may pass on their own. This has been shown more commonly in smaller gastric bezoars and cases of retained VCE.[57–60] Prokinetic agents such as metoclopramide may improve gastric motility and help facilitate the breakdown of softer bezoars through increased GI tract contractility.[18] However, promotility drugs in the treatment of bezoars or foreign bodies are not recommended, due to changed bowel anatomy, such as strictures, in most of the patients. With IBD, medical treatment may reduce inflammation, causing a decrease in stricture size, and allowing bezoars and capsules to pass spontaneously. Steroids and infliximab may promote capsule passage in 43% of patients with CD according to one study.[59]

Dissolution: Chemical dissolution of bezoars has shown success, particularly with phytobezoars. Chemicals may be delivered via nasogastric tube, endoscope, or laparotomy. Administration of Coca-Cola(R) or Coca-Cola Zero alone(R) resolves 50% of gastric phytobezoars.[61] The dose and timing are not standardized, but gastric lavage or drinking 3000 mL of Coca-Cola(R) over 12 hours has been recommended.[18,61] The mechanism of Coca-Cola(R)'s success is also uncertain, but hypotheses include the mucolytic effect of sodium bicarbonate or acidifying effect of carbonic acid and phosphoric acid. Carbon dioxide bubbles may also help penetrate and destroy the bezoar.[18]

An agent that may be used in conjunction with Coca-Cola is cellulase, which helps digest phytobezoars by cleaving the glycosidic bond in cellulose. Cellulase can also be used alone; however, this enzyme is not readily available in the United States.[18,20] Papain, found in commercial meat tenderizers, is no longer recommended due to adverse events such as hypernatremia, gastric ulceration, and esophageal perforation.[20,62] Gastric bezoars are exceedingly rare in patients with IBD, with only one recent case report[23]; therefore, the use of Coca-Cola and other dissolution agents is undocumented in this population.

Endoscopic dissolution of the bezoars has not been described in IBD.

Endoscopic fragmentation: Bezoars causing obstruction, commonly larger bezoars or those in the small intestine, often require more aggressive management than suggested above. Fragmentation can be achieved endoscopically using polypectomy snare,[63] water jet,[64] electrosurgical knives,[65] or biopsy forceps.[66] Trichobezoars tend to be resistant to dissolution and fragmentation, although fragmentation can be achieved sometimes using an electrosurgical knife.[18] However, this must be used with caution; a recent case study reported removing a trichobezoar using argon plasma coagulation and electrocautery, but multiple gastric and small bowel perforations occurred subsequently, possibly because the trichobezoar included doll hair, which produced noxious gases with the use of these endoscopic techniques.[67] For lithobezoars or other hard bezoars, endoscopic drilling,[68] neodymium yttrium aluminum garnet lasers,[69] and mechanical, electrohydraulic, or extracorporeal shock wave lithotripsy may be successful.[65,70,71] There is no consensus on the superiority of one technique over another, especially in the setting of IBD. Once fragmented, bezoars can pass spontaneously, undergo chemical dissolution as described above, or be retrieved endoscopically, which is recommended for any larger fragments greater than 1 cm.[72]

Endoscopic retrieval: Bezoars and bezoar fragments can be retrieved endoscopically using biopsy or Tripod forceps, snare or dormia basket, RothNet (US Endoscopy, Mentor, OH), or direct suction through a large-channel endoscope (see **Fig. 4**A,

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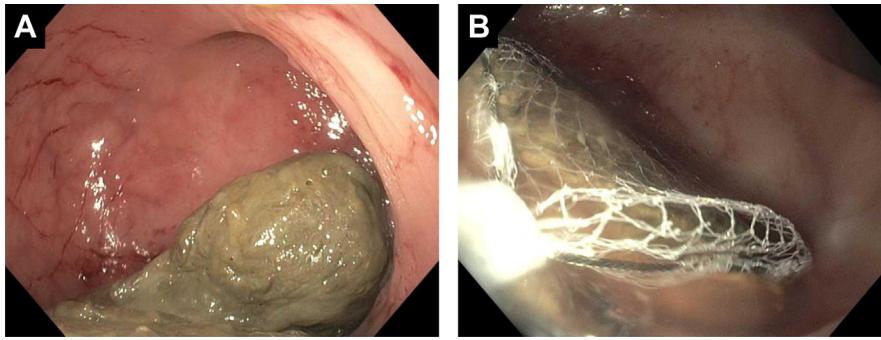


Fig. 5. Bezoars in patients with inflammatory bowel disease. (*A*, *B*) Fecal bezoars in the diverted colon for refractory rectal vaginal fistula from Crohn's disease, which was removed with an endoscopic net.

B).[25,26,73,74] Esophagogastroduodenoscopy, colonoscopy, double-balloon enteroscopy (DBE), ileoscopy via stoma, and pouchoscopy are often used (Fig. 5). An antegrade or retrograde approach can be taken, though retrograde may be more challenging as it often involves passing bezoars or foreign bodies through strictured or anatomically abnormal bowel. Endoscopic retrieval in these cases may require concurrent treatment of strictures (Fig. 6). Bezoars in the mid-small bowel also pose a challenge, and DBE or fluoroscopy guidance may be helpful in these cases. Antegrade

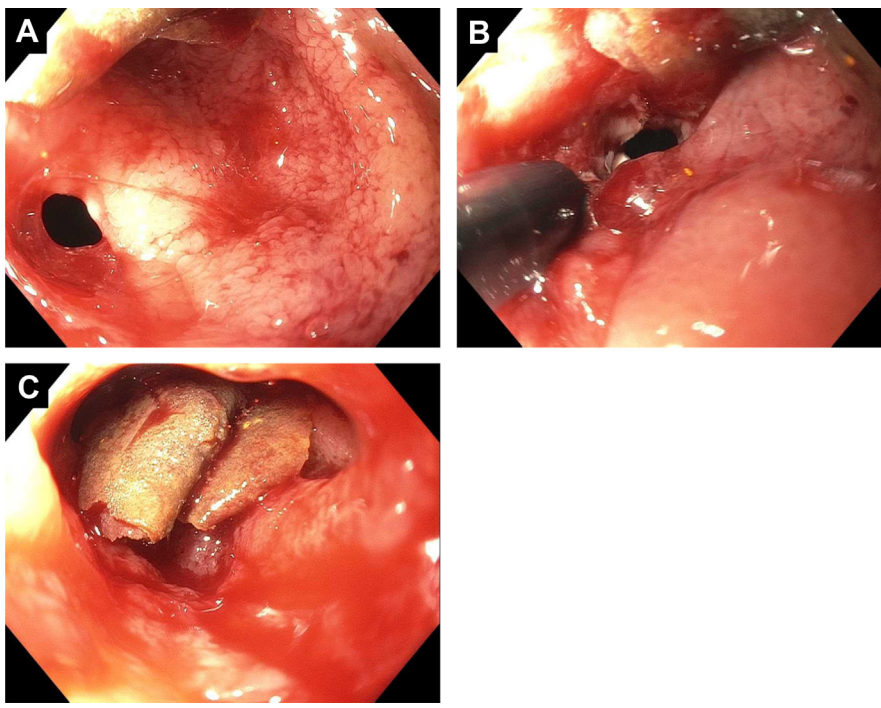


Fig. 6. Bezoars in patients with inflammatory bowel disease with endoscopic stricturotomy. (*A*) A small bowel stricture from Crohn's disease; (*B*) endoscopic stricturotomy; (*C*) trapped fecal bezoars in the prestenotic bowel lumen.

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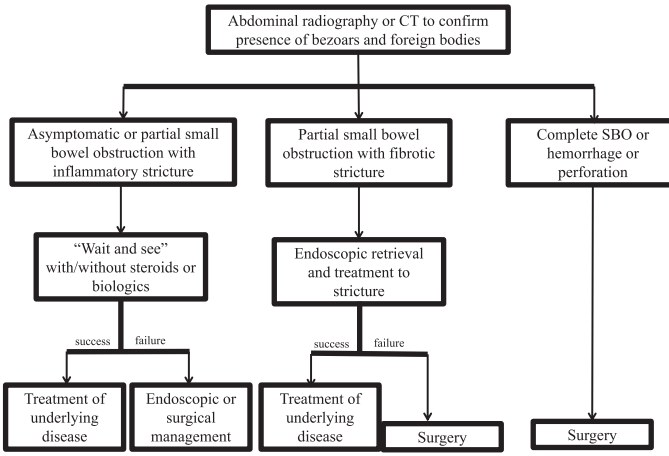


Fig. 7. Treatment algorithm for bezoars and foreign body. (*From* Wu XR, Shen B. Chapter 27: Endoscopic Treatment of Bezoars and Foreign Bodies in Patients With Inflammatory Bowel Disease. In: Shen B, ed. Interventional Inflammatory Bowel Disease. Academic Press, Elsevier; 2018: 309–317.)

endoscopic retrieval of bezoars or foreign bodies usually requires general anesthesia and intubation.

Treatment of strictures: Concurrent treatment of strictures may occur with endoscopic removal of bezoars through EBD or endoscopic stricturotomy. EBD is successful in approximately 90% of patients, with a total complication rate of 2% to 4%.[75–77] Endoscopic stricturotomy is more effective than EBD and carries a lower risk of perforation but a higher risk of bleeding.[78,79] Both methods have been used before the removal of bezoar or retained capsule.[80,81] Please see Chapters 5–7 for more information on the treatment of strictures.

Retained Video Capsules

Video capsule endoscopy (VCE) is a helpful technique for diagnosis and disease activity assessment in CD, improving diagnosis compared with ileoscopy and CTE, and detecting more lesions than CTE or MR enterography.[82,83] VCE must be used with caution in patients with CD, as they are at risk of capsule retention due to delayed transit times and strictures. CD was present in 36% to 50% of capsule retention cases.[59,84] It is recommended to use patency capsules and radiologic imaging before VCE to check for the ability to pass through the GI tract.[85] Double-balloon enteroscopy (DBE) is the preferred approach for the retrieval of capsules, decreasing the need for surgery.[86–88] Antegrade DBE with maximal insertion is the recommended technique, associated with a 70% success rate; if unsuccessful, a retrograde approach may be attempted.[89] If retrieval fails, capsule retention may be treated conservatively, waiting for spontaneous passage and pursuing medical therapy (such as the use of corticosteroids or biologics) with the hope of reducing inflammation and decreasing the size of problematic strictures.[59]

Surgical Treatment: Surgery is the last line treatment for the removal of bezoars or retained capsules. Fragmentation with milking beyond the ileo-cecal valve can be attempted; if it fails, enterotomy and/or resection is the next step. Laparoscopic approaches are preferred in patients with IBD. In either laparoscopic or open surgery,

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the entire length of the bowel must be traced as there is a risk of multiple bezoars.[90] Resection or strictureplasty of strictured bowel may be warranted.

SUMMARY AND RECOMMENDATIONS

Stricture is a frequent complication of long-standing CD. Surgery is often performed in patients with inflammatory bowel disease but poses the risk of postoperative bleeding as well as anastomotic stricture formation. Disease-associated strictures and abnormal gastrointestinal anatomy facilitate the formation of bezoars and the retention of foreign bodies. Endoscopic management is useful for postoperative bleeding. Endoscopic treatment is increasingly popular for bezoar fragmentation and retrieval, often with concurrent stricture treatment. Antegrade double-balloon enteroscopy is the preferred technique for retrieval of the retained video capsule. A treatment algorithm for bezoars and foreign bodies has been proposed (**Fig. 7**).

CLINICS CARE POINTS

- Lower GI endoscopy therapy is successful in the treatment of postoperative anastomotic bleeding in CD surgery or IPAA
- Endoscopic fragmentation and retrieval of bezoars are safe and feasible
- Double-balloon enteroscopy is preferred for the retrieval of retained video endoscopy capsules

DISCLOSURE

A. Malick and B. Shen declared no conflicts of interest.

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