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Case Report

# Endoluminal Stenting for Long Term Management of Crohn's Ileoanal Pouch Stricture

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**Abstract:**

Fibrostenotic strictures are a challenging complication of Crohn's disease, particularly when involving the ileal pouch-anal anastomosis (IPAA) in patients with misdiagnosed ulcerative colitis. We present a rare case of a 70-year-old male with Crohn's disease-related afferent limb strictures following IPAA, successfully managed with endoscopic self-expanding metal stents over more than a decade. Initially treated with a fully covered stent, subsequent replacements with partially covered stents improved stability and reduced complications. Long-term follow-up demonstrated effective symptom control, preserved pouch function, and avoidance of permanent ileostomy. While early management required frequent interventions, the current stent has remained functional for nearly five years. Complications such as bleeding, migration, and mucosal ulceration were managed non-surgically. This case highlights the potential for endoscopic stenting to serve as a durable, organ-preserving alternative to surgery in complex Crohn's presentations and represents the longest reported use of stenting in this context, warranting further investigation.

**Key words:** ileal pouch-anal anastomosis; j-pouch; self-expanding metal stents; crohn's disease; stricture

## Introduction

Fibrostenotic strictures are a common manifestation of Crohn's disease (CD), and approximately 50% of patients will present with clinically apparent strictures during their lifetime. [1] Medically refractory and obstructive strictures often necessitate intervention, employing either endoscopic or surgical approaches. Endoscopic balloon dilation (EBD) has been implemented with impressive technical success. [2] Due to EBD's limitations in patients with long, complex, or refractory strictures, endoscopic stent placement has been increasingly used in recent years. Self-expandable metal stents (SEMS) placed endoscopically have been shown to be a promising treatment option for patients with CD as a way to avoid surgical options associated with high morbidity and recurrence. [3] Crohn's disease affecting an ileal pouch reservoir (J-pouch) is a well-documented phenomenon. [6,7] It can be challenging to manage and often results in pouch excision or permanent ileostomy – procedures associated with significant morbidity and lower quality of life. [4,5] Endoscopic stent placement offers a less invasive alternative that can potentially preserve pouch function and may allow patients to delay or avoid such surgeries. [3,14] Here we present a patient with a Crohn's-related J-pouch stricture that has been successfully managed with endoscopic stenting for over a decade, which we believe to be the longest follow-up period reported for use of SEMS in this patient population.

## Case Presentation

We present a 70-year-old male with a remote history of a restorative proctocolectomy with ileoanal pouch anastomosis for presumed ulcerative colitis in 1993. In 2004, he developed a bowel obstruction requiring a small bowel resection, at which time a pathologic diagnosis of Crohn's disease was discovered. The following year, the patient returned with another bowel obstruction, this time caused by a stricture in the proximal afferent limb of his ileoanal pouch. He was managed with operative exploration and stricturoplasty, which provided symptomatic relief, but the stricture recurred within 6 months. The patient was motivated to avoid pouch excision and permanent ileostomy. Thus, endoscopic management was offered. In 2009, the patient initially received an 18 mm × 12 cm Polyflex Wallstent, a self-expandable fully covered stent composed of nitinol with a biocompatible silicone polymer covering. This stent was initially effective for symptom relief but required frequent adjustments and replacement (Figure 1).

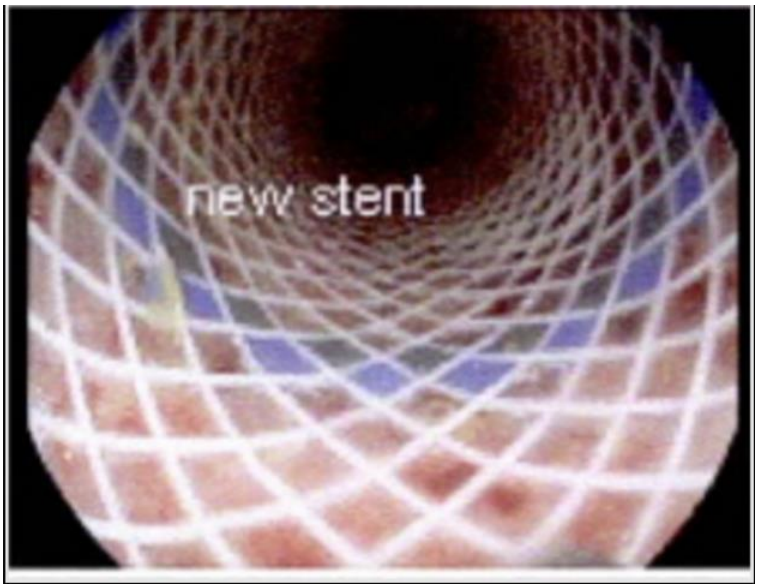


**Figure 1:** Endoscopic view of the initially placed fully covered nitinol stent showing early management approach before transition to partially covered stents due to migration and complications (March 2012).

In 2013, the patient developed a new afferent limb stricture proximal to the existing stricture for which overlapping Wallstent placement was unsuccessful due to migration and bowel intussusception within the stent. After careful consideration, we felt a partially covered stent might be necessary to prevent migration. Therefore, an Evolution partially covered nitinol double-flared stent with a 20-mm diameter at the covered portion, with 25-mm flared ends, 12.5 cm in length) was placed successfully, which resulted in long-lasting symptom relief. The patient initially needed stent replacements in the first several years of having the partially covered stent. In 2016, the stent was displaced and needed to be replaced. In 2018, the stent became impacted with stool and needed to be removed emergently. This was complicated by self-limiting bleeding, as the patient was anticoagulated, requiring repeat endoscopic evaluation, but the stent was eventually replaced a few months later. Despite these initial challenges, this patient has now had the same stent in place since May 2020. He continues to be surveilled twice a year to monitor stent integrity.

Figures 2-9 demonstrate endoscopic and fluoroscopic images of our stent taken over the last four years demonstrate endoscopic and fluoroscopic images of our stent taken over the last four years. The most recent pouchoscopy in November of 2024 reveals a patent and intact stent, and the patient continues to report ongoing relief of his symptoms (Figure 10-11).

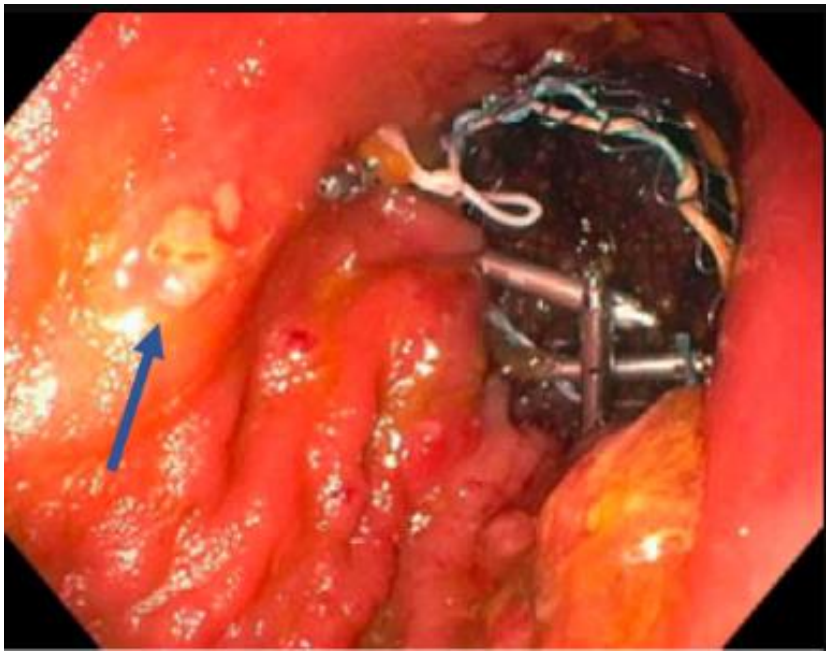

**Figure 2:** Endoscopic image after first partially covered stent placed (May 8, 2020).

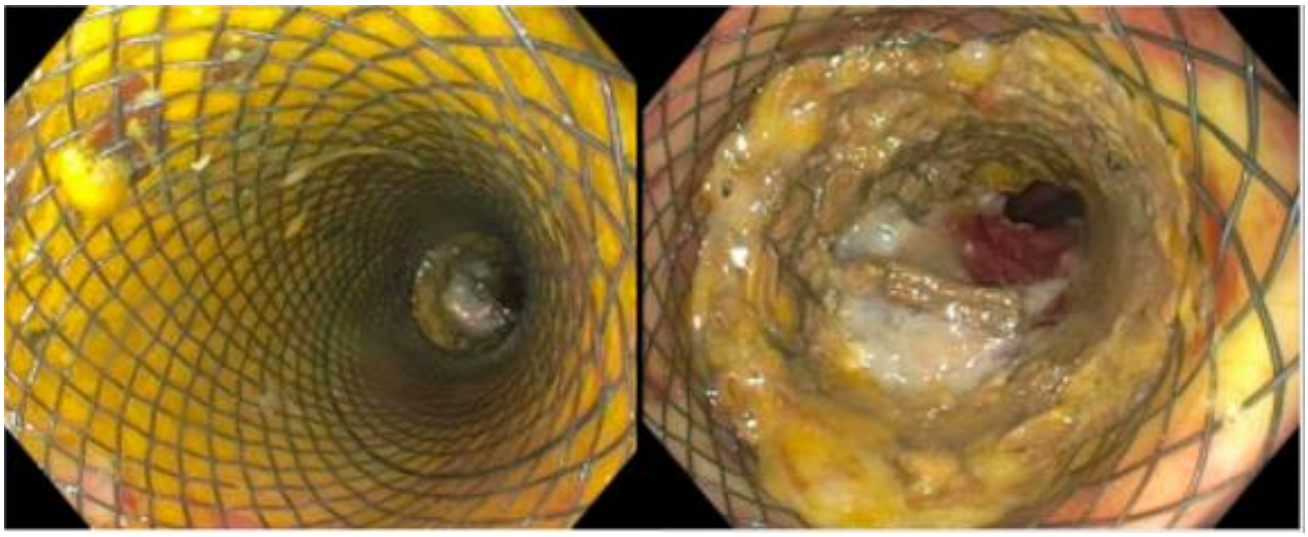

**Figure 3:** Endoscopic follow-up two weeks after initial placement of partially covered stent, demonstrating proper positioning and mucosal adaptation (May 29, 2020).

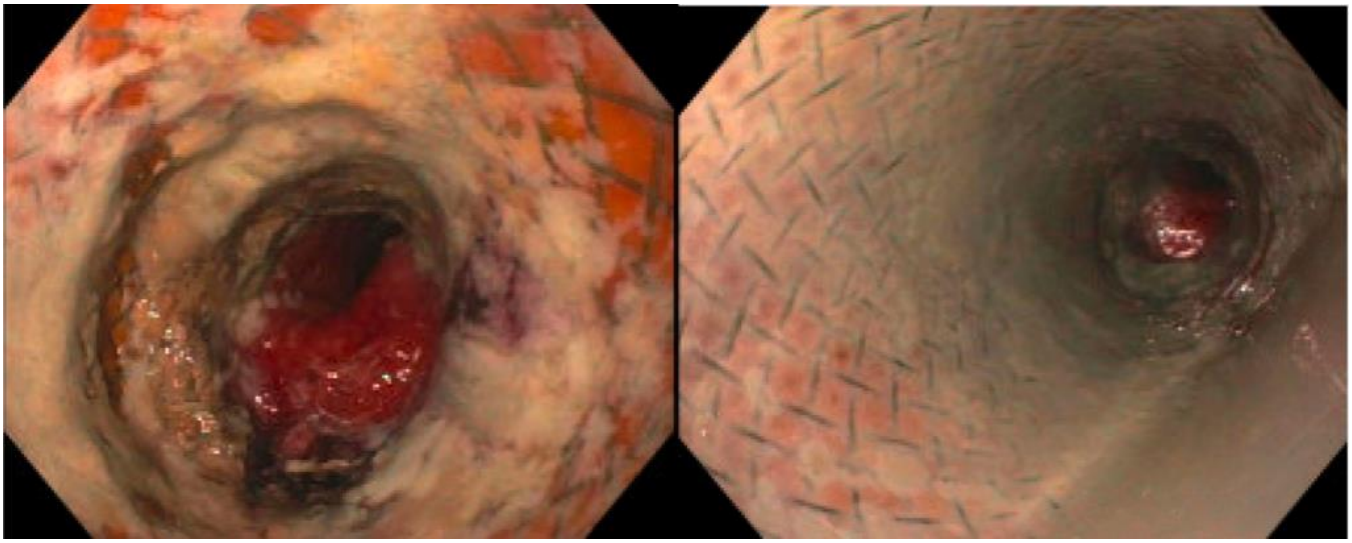

**Figure 4:** Endoscopic view of partially covered stent (June 2021).

**Figure 5:** Fluoroscopic images of partially covered stent (June 2021).

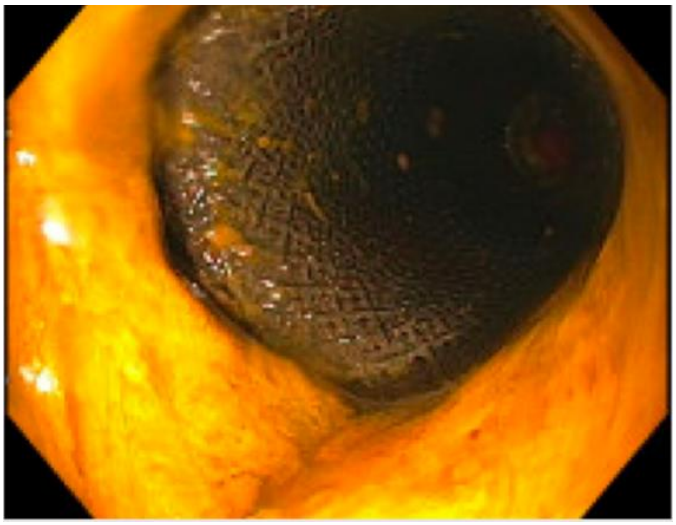

**Figure 6:** Surveillance pouchoscopy showing continued stent patency and absence of migration or mucosal overgrowth more than one-year post-placement (October 2021).

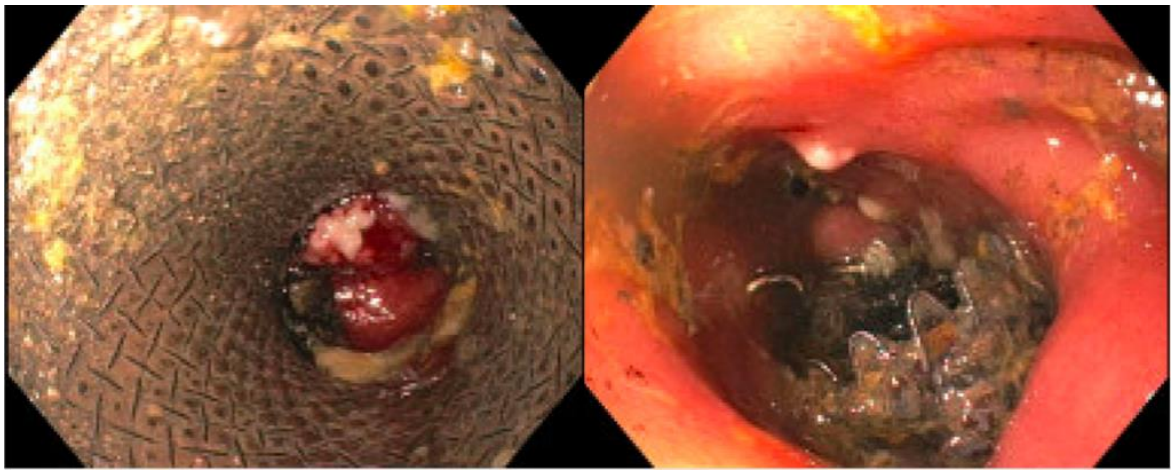

**Figure 7:** Endoscopic images of partially covered stent (August 2022).

**Figure 8:** Endoscopic images of partially covered stent (May 2023).

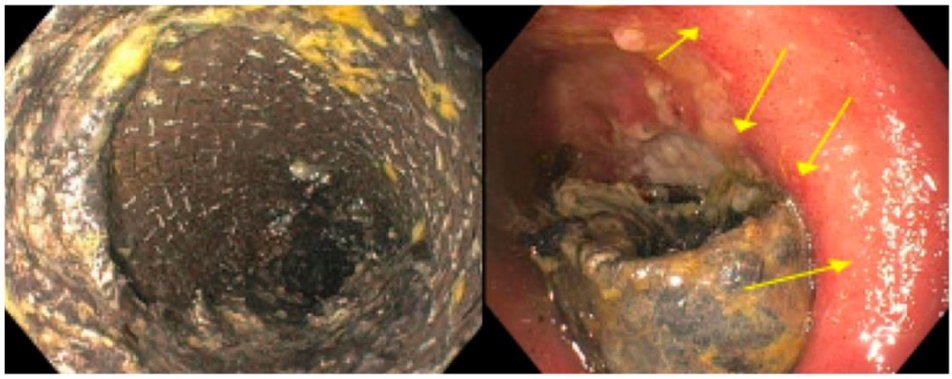

**Figure 9:** Endoscopic images of partially covered stent (June 2024).

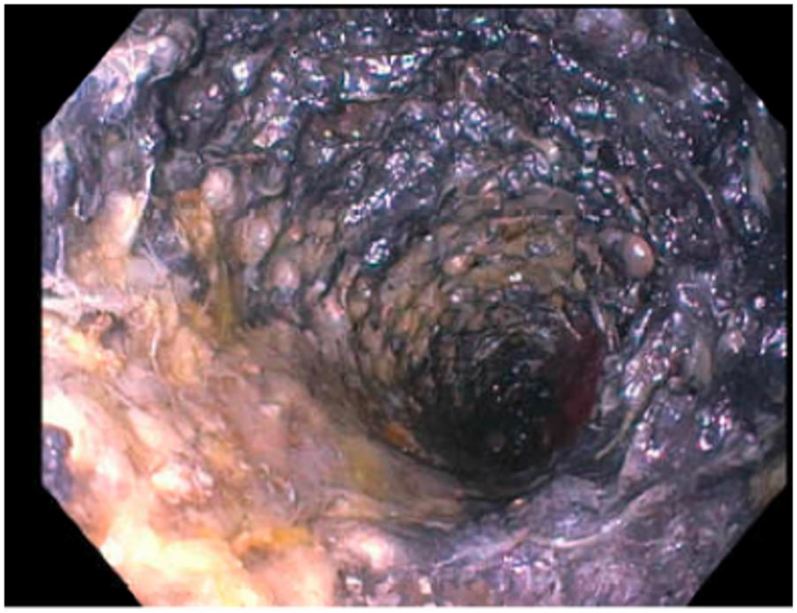

**Figure 10.** Most recent endoscopic view of partially covered stent (November 2024).


**Figure 11:** Most recent radiograph demonstrating partially covered stent position (May 2024).

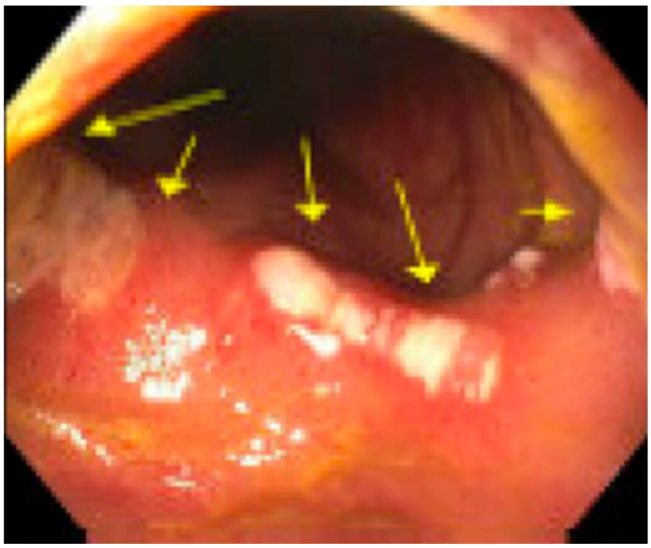

**Figure 12:** Endoscopic view showing multiple deep ulcers proximal to the stent, adjacent to the anastomosis (June 2024).

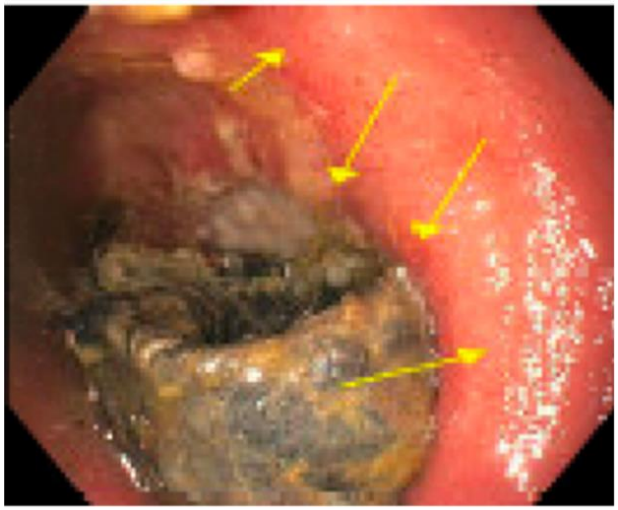

**Figure 13:** Endoscopic view of the distal end of the stent, showing mild pouchitis (June 2024).

## Discussion

Total proctocolectomy with ileal pouch-anal anastomosis (IPAA) is the standard operation for patients with ulcerative colitis (UC) but is less commonly performed for Crohn's disease (CD). Pouch failure, defined as the need for permanent diversion and/or pouch excision, has a higher incidence in patients with IPAA performed for Crohn's disease. [4, 5] A change in diagnosis to Crohn's disease is a less common yet well-described reason for pouch failure. Failure in this way occurs secondary to known Crohn's complications, such as fistulas, strictures, and abscesses. IPAA in the setting of Crohn's disease is divided into two groups – intentional and incidental. Intentional Crohn's IPAA is constructed in a patient with a preoperative diagnosis of Crohn's disease. Incidental Crohn's IPAA, as in the patient presented here, describes a pouch created for a diagnosis of ulcerative colitis that is changed to a diagnosis of Crohn's disease after pouch formation. [4] Studies have shown a change in diagnosis from UC to CD in 4-19% of patients undergoing IPAA for ulcerative or indeterminate colitis. [6] Crohn's disease of the pouch (CDP) is a diagnostic challenge due to the clinical, radiographic, and endoscopic similarity of more common pouch or postoperative complications, such as pouchitis, abscess, or ischemic stricture. This is especially true when histologic diagnosis is equivocal or not possible to obtain. Additionally, there is no standardized or validated definition of CDP. Most consistently, CDP describes a clinical presentation characterized by inflammation of the pouch or afferent limb resistant to antibiotics, stricturing of the pouch body, afferent limb, and/or proximal small bowel, and/or fistulizing disease involving the perineum or small bowel. [7] The complicated diagnosis of CDP makes for challenging management pathways. Although medical management is similar to that of other Crohn's presentations and is typically considered first-line, these patients have often failed to obtain disease remission with these medications previously. [6] In addition, treatment with these medications is often of little use for patients in the acute setting, such as fibrostenotic obstruction, as in the case of the patient presented here. Surgical options for such patients include pouch stricturoplasty or excision, redo pouch, and permanent ileostomy. [4,5] These procedures, in addition to their effect on patient quality of life, are prone to complications, especially in the setting of active disease. Therefore, there has been a transition to the use of more minimally invasive techniques, such as endoscopic dilation and stenting, in order to delay or defer surgery. [8] These approaches have become increasingly popular to

manage Crohn's disease-related strictures, particularly when surgical intervention provides diminishing returns. [9] The patient presented here underwent multiple surgeries, each offering decreasing effectiveness in controlling symptoms and managing his disease. This pattern is common in Crohn's disease, where chronic recurrence often requires repeated interventions. [10] Yet, each successive procedure tends to be less curative, leading to a frustrating cycle of complications and treatments. More specifically, in this patient, the placement of endoscopic stents has provided significant symptom relief and preserved the functionality of his J pouch for over a decade. His current partially covered self-expanding metal stent has been in place for nearly 5 years without the need for replacement. This outcome is consistent with the success of SEMS in CD patients within the literature. [11] The first case reports of SEMS used for patients with CD were published in 1997. Since then, several retrospective series have been published demonstrating the safety and efficacy of SEMS in CD. [12,13] A systematic review by Scotti et al in 2023 included 173 patients from 11 studies and demonstrated a high technical success rate of endoscopic stenting for CD and implied a role in patients without success with endoscopic balloon dilation first. [14] The mean follow-up period was 27 months, with 69 months being the longest reported follow-up, which is less than half the time of the patient in this case. Stents have been increasingly used for strictures and obstructions throughout the GI tract, and as a result, stent technology is quickly evolving. [15] Because CDP is relatively rare, there is currently no consensus on the ideal choice of stent, and a variety of different stents have been used in the literature. [14] In this case, our patient required a change of stent from a fully covered self-expanding nitinol stent with a biocompatible silicone polymer covering to a partially covered stent due to frequent migration and bowel intussusception within the stent despite fixation with clips. His latest partially covered stent has been in place for 5 years without requiring replacement. This stent is designed with a central silicone covering to prevent ingrowth and decrease impaction. It also includes uncovered dual flanges, which help secure the stent and reduce the risk of stent migration. Various self-expanding stents are available and are made of numerous materials, which broadly include metal, plastic, and biodegradable options. One can individualize the choice of stent for each patient with differing lengths, diameters, and shapes. Uncovered and partial or fully covered stents are also available. [15] This topic must be further studied in patients with CD and CDP before more specific recommendations can be made.

Crohn's disease of an IPAA is a nuanced presentation within an already complex spectrum of inflammatory bowel diseases. This emphasizes the need for individualized patient care and cautious optimism when considering stents for long-term management of Crohn's disease. [6] While stenting has shown promise in the literature for managing short-segment strictures, its long-term efficacy in benign conditions like Crohn's disease remains less well-established. [12] The systematic review mentioned earlier reported 100% efficacy (i.e., resolution of symptoms) immediately after stenting, but maintenance of symptom control dropped to nearly 50% within only 1 year, with many patients requiring further interventions within just a few months. [14] The complication rate of stent replacement was reported to be 56% on average and consisted of pain, stent migrations, and stent obstruction most commonly, as well as more serious complications such as perforation, reported less commonly. [14] This patient specifically experienced an episode of self-limited bleeding after emergent stent removal, which required hospital admission, blood transfusion, and endoscopic evaluation. In addition, pouchitis and ulceration of the mucosa adjacent to the stent had been identified on routine endoscopies performed for stent surveillance (Figures 12-13). For this reason, despite avoiding invasive surgeries, the patient requires endoscopic surveillance every 6 months. Most literature related to stent placement for CD is not specific to Crohn's disease of the pouch, which offers its own unique challenges in presentation, diagnosis, and management. Therefore, outcomes may not mirror those of stricturing disease within other parts of the GI tract. Ongoing investigation into outcomes related to endoscopic management of this subset of patients is warranted, and larger retrospective and prospective studies are needed.

## Conclusion

We present a patient with a Crohn's-related J-pouch stricture that has been successfully managed with endoscopic stenting for over a decade, which we believe to be the longest follow-up period reported for the use of SEMS in this patient population.

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