Endoscopic Treatment of Pouchocele

Aditya Pokala, Stuart Bentley-Hibbert, MD, and Bo Shen, MD, FACG

Center of Inflammatory Bowel Disease, Columbia University Irving Medical Center/NewYork Presbyterian Hospital, New York, NY

BACKGROUND

Ileal pouch-anal anastomosis (IPAA) is a standard treatment option for patients with medically refractory ulcerative colitis (UC), UC-associated neoplasia, or familial adenomatous polyposis (FAP) who require colectomy. However, this procedure is often associated with various adverse sequelae, one such rare complication being pouchocele, a form of floppy pouch complex, which describes the bulging of the anterior pouch wall into the vagina or perineum. Little is known about the management of pouchocele due to it being a rare complication. We describe a case in which a pouchocele was successfully treated with endoscopic banding ligation.

CASE REPORT

A 53-year-old woman who underwent a staged restorative proctocolectomy and IPAA for medically-refractory UC in 2019 presented with dyschezia, incomplete evacuation, and weight loss of 40 pounds. Barium defecography performed in February 2021 showed difficult evacuation due to an anterior pouchocele and a thick fold projecting into and narrowing the lumen of the pouch posteriorly. The pouchocele was treated with banding (Boston Scientific Corporation, Marlborough, MA, USA) x 7 with submucosal injection of 50% glucose. The pouchocele was further treated in the same manner during additional procedure performed in April 2021 and June 2021. After the 3 sessions of endoscopic therapy, the patient's symptoms resolved. Repeat defecography in July 2021 showed that the anterior pouchocele became significantly smaller, with minimal associated incomplete evacuation.

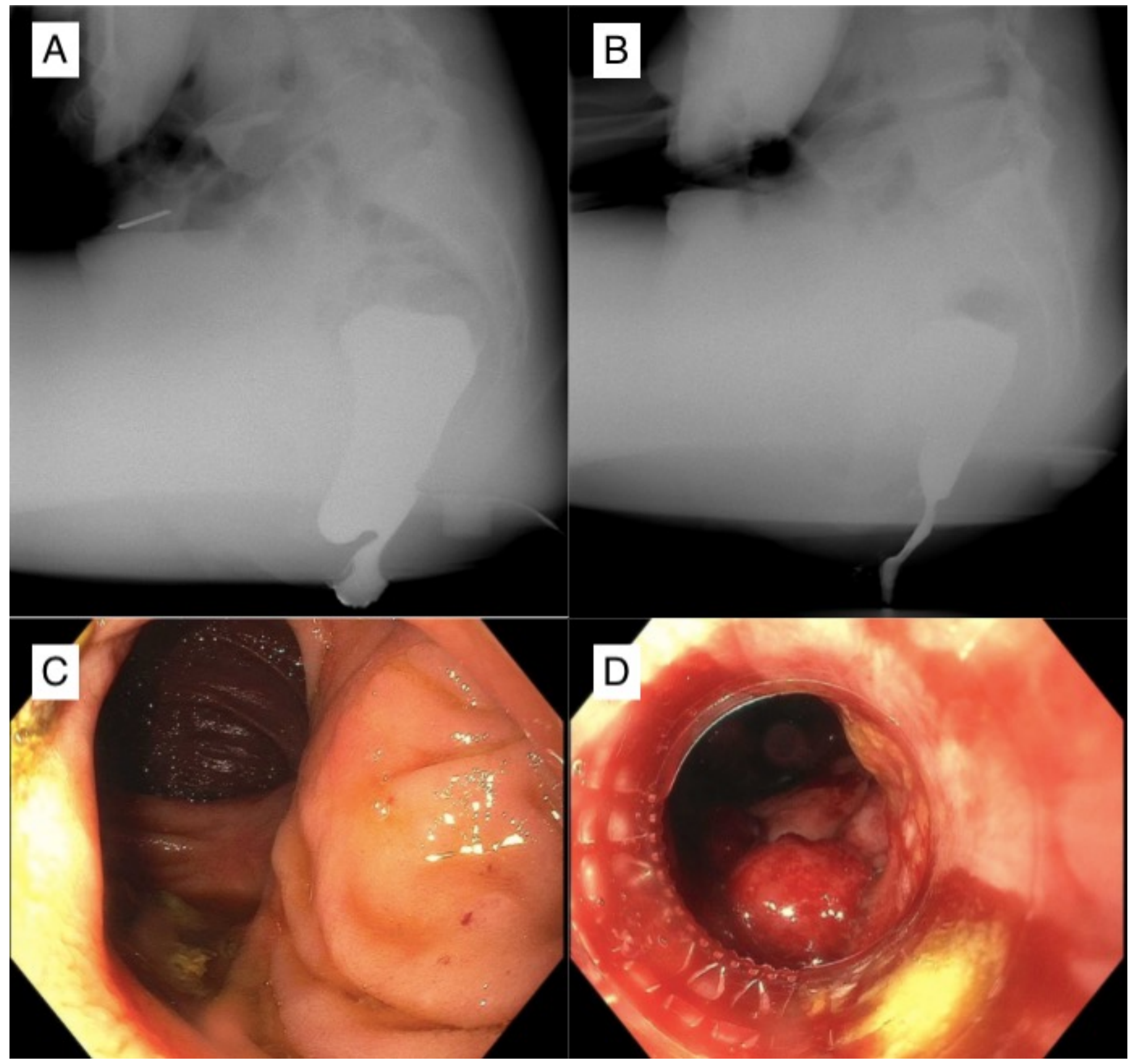

Figure Legend
A: Initial barium defecography
B: Post treatment barium defecography
C: Initial pouchoscopy
D: Treatment with banding

DISCUSSION

There are many structural complications following IPAA that can cause mechanical obstruction. Floppy pouch complex refers to disorders in which redundant pouch or bowel leads to luminal angulation or obstruction. Pouchocele often coexists with pouch prolapse, which may be mucosal or full-thickness, and anterior, posterior, or circumferential. Patients can present with symptoms such as dyschezia, incomplete evacuation, weight loss, and frequent passing of stools. These symptoms can affect quality of life. Here, we describe the treatment of a pouchocele using banding with good results. This is a novel treatment and has not previously been described.

Diagnosis and classification of ileal pouch disorders: consensus guidelines from the International Ileal Pouch Consortium

Bo Shen, Gursimran S Kochhar, Revital Kariv, Xiuli Liu, Udayakumar Navaneethan, David T Rubin, Raymond K Cross, Akira Sugita, André D'Hoore, Jason Schairer, Francis A Farraye, Ravi P Kiran, Philip Fleshner, Joel Rosh, Samir A Shah, Shannon Chang, Ellen Scherl, Darrell S Pardi, David A Schwartz, Paulo G Kotze, David H Bruining, Sunanda V Kane, Jessica Philpott, Bincy Abraham, Jonathan Segal, Rocio Sedano, Maia Kayal, Stuart Bentley-Hibbert, Dino Tarabar, Sandra El-Hachem, Priya Sehgal, James T McCormick, Joseph A Picoraro, Mark S Silverberg, Charles N Bernstein, William J Sandborn, Séverine Vermeire

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I. STRUCTURAL COMPLICATIONS
1. Pouch leaks and consequences
Point 1-1-1. Anastomotic leak is defined as anastomotic or suture-line separation leading to fluid collection, abscess, fistula, or sinus tract.
Point 1-1-2. Pelvic sepsis refers to an infectious process present around the pouch in the true pelvis distal to the pelvic inlet.
Point 1-1-3. Pelvic abscess refers to a collection of purulent exudate outside the pelvic pouch with or without anastomotic dehiscence.
Point 1-1-4. Perianal abscess refers to a collection of purulent exudate immediately surrounding the anus.
Point 1-1-5. Pouch sinus is defined as a blind tract or cavity with the orifice originating from the bowel and mostly resulting from chronic anastomotic leak and abscess. The most common location of a pouch sinus is the posterior presacral space.
Point 1-1-6. Epithelialized pouch sinus can evolve from presacral chronic abscess cavity or sinus, which resembles a diverticulum on imaging. A true diverticulum can occur at the stoma closure site or anterior wall of the distal pouch body which may result from the surgical technique or pouch dysmotility.
Point 1-1-7a. Fistula in patients with ileal pouches is defined as an abnormal passage from one epithelial surface (e.g. the ileal pouch, cuff, anal transition zone, or dentate line) to another epithelial surface (e.g. the vagina, bladder, or abdominal, perianal, or perineal skin).
Point 1-1-7b. Extra-pouch fistula can be categorized based on the location of the internal and external (or target organ) openings and complexity. Common types of extra-pouch fistulas are pouch-vaginal fistula, ano-vaginal fistula, fistula-in-ano, perianal fistula, and enterocutaneous fistula. The fistula can be simple or complex.
Point 1-1-7c. Pouch-vaginal fistula refers to a fistula tract originating from the pouch body, cuff, anal transition zone to the vagina or labia. Common causes of pouch-vaginal fistula are surgical ischemia-associated anastomotic leak, iatrogenic surgical injury, Crohn's disease or Crohn's disease-like condition, anterior distal pouch body or cuff prolapse, and cryptoglandular source.
Point 1-1-7d. Perianal fistula refers to an abnormal connection between the pouch, cuff, anal transitional zone, or anus canal and skin area immediately surrounding the anus. Perianal fistulas can be classified into single or multiple, and simple or complex, based on the number, relationship to internal and external anal sphincters, and presence of an abscess.
Point 1-1-7e. Leak at the tip of the "J" refers to a defect at the suture line or staple line of the location, which can lead to a pelvic abscess, fistula, or sinus.
Point 1-1-7f. Exit conduit/nipple valve fistula occasionally can occur in a continent ileostomy, often with the internal opening being at the base of the valve.
Point 1-2-1a. Pouch stricture refers to abnormal narrowed bowel in patients with ileal pouches. Pouch stricture can be intrinsic or extrinsic, based on its relation to the lumen, wall, and extra-luminal anatomy.
Point 1-2-1b. Pouch stricture can be categorized based on the location. Common locations of pouch strictures are the prepouch ileum (e.g. stoma closure site, prepouch ileum), pouch inlet, pouch body, and pouch-anal anastomosis in patients with pelvic pouches, and the nipple valve and exit conduit in those with continent ileostomies.
Point 1-2-1c. Pouch-anal anastomotic stricture is common and is considered a distinct clinical entity, which may be diagnosed with the digital examination.
Point 1-2-1d. Intrinsic pouch stricture should be characterized with a combined assessment of endoscopy, histology, and imaging.
Point 1-2-1e. We recommend using a combined classification with at least location, length, traversability to a gastroscope or pediatric colonoscope, and the presence of ulcer) to describe a pouch stricture, e.g. "a 3-cm passable ulcerated stricture at the pouch inlet".
Point 1-2-2. The long-term absence of the fecal stream can result in stricture of the diverted pouch.
Point 1-2-3. Floppy pouch complex refers to a constellation of disorders whereby redundant pouch or bowel leads to luminal angulation or obstruction. These disorders include afferent limb syndrome, pouch prolapse, intussusception, pouchocele, and some forms of pouch twist.
Point 1-2-4. Afferent limb syndrome refers to a condition in which a redundant loop of the distal afferent limb or adhesion causes a sharp angulation at the pouch inlet and an obstructive clinical presentation.
Point 1-2-5. Efferent limb syndrome refers to a condition in which a kinking of an excessively long efferent limb in an "S" pouch results in ineffective evacuation.
Point 1-2-6. Obstruction from pouch-rectal anastomosis may occur in an excessively long rectal stump in a pelvic pouch causing a sharp angulation between the pouch body and rectal stump. Proctitis or long rectal cuffitis is common in pouch-rectal anastomosis.
Point 1-2-7. Pouch prolapse is an intussusception of the distal pouch which can block the outlet or even come through the anorectal ring (overt pouch prolapse). Pouch prolapse can be mucosal or full-thickness. Anterior rectal cuff prolapse may also occur, mimicking cuffitis.
Point 1-2-8. Pouchocele is a term adopted from rectocele, describing the bulging of the anterior wall of the pouch into the posterior wall of the vagina or pouch wall to the perineum.
Point 1-2-9. Pouch twist refers to a condition in which a sharp horizontal bend or spiral turn (i.e. volvulus-like) causes an obstructive clinical presentation.
Point 1-2-10. Distal pouch septum refers to the presence of a bar-like structure at the pouch outlet, which mostly results from surgical technique. Patients with distal pouch septum may present with symptoms of outlet obstruction.
Point 1-2-11. Exit conduit/nipple valve stenosis is common in a continent ileostomy, resulting in difficulty with self-catheterization and obstructive symptoms. The stenosis can be intrinsic (e.g. from repeated trauma of the catheter) or extrinsic (e.g. from angulation and slipped valve).
Point 1-3-1. Megapouch refers to a functional complication characterized by diffuse dilation of the pouch body (> 12 cm in diameter) and/or small bowel (> 6 cm in diameter) in the absence of mechanical obstruction.
Point 1-3-2. Pouch bezoars often result from structural or functional obstruction of the pouch outlet. Underlying etiology should be treated and the bezoars can be removed endoscopically if feasible.
Point 1-3-3. Perianal or peristomal dermatitis refers to skin irritation or inflammation immediately surrounding the anus or stoma site.
Point 1-3-4. Trapped ovary syndrome, inclusion cysts, or retention cyst can occur in patients with pelvic surgery, including ileal pouch-anal anastomosis and are characterized by intermittent or persistent pelvic fluid collection.
Point 1-3-5. Portal or mesenteric vein thrombi can occur perioperatively in restorative proctocolectomy.
Point 1-3-6. Pouch bleeding refers to a passage of blood or blood clots transanally in patients with pelvic pouches or through exit conduit in those with continent ileostomies.
Point 1-3-7. Pain or discomfort at the stoma closure site is reported in patients with staged ileal pouch surgery.
Point 1-3-8. There are anastomotic variants from pouch construction, such as an excessively long efferent limb of a J pouch (the "rabbit-ear" configuration) and redundant corner of the distal rectal stump at the anastomosis ("dog-ear" configuration).
Point 1-4-1. Pouch failure is defined as the need for a permanent stoma, with or without excision of the pouch, or reconstruction of a new pouch.
Point 1-4-2. Chronic persistent perineal sinus often develops after pouch excision, particularly in those with perianal fistula or abscess.
Point 1-4-3. Post-pouch-excision U-shaped afferent limb is a rare cause of partial small bowel obstruction or fistula in those with permanent end ileostomy and pouch failure.
2. INFLAMMATORY DISORDERS OF THE POUCH
Point 2-1-1. Pouchitis is diagnosed based on a combined assessment of symptoms (e.g. increased stool frequency, urgency, incontinence, nocturnal seepage, abdominal cramping, and pelvic discomfort) and endoscopic findings of inflammation. Histology plays an important role in the diagnosis and differential diagnosis of chronic pouchitis.
Point 2-1-2. When pouchitis is present, there is inflammation of the pouch body characterized by altered vascular pattern, granularity, erythema, exudates, friability, erosions, and/or ulcers on endoscopy.
Point 2-1-3. Serological and fecal markers, such as C-reactive protein, fecal calprotectin or lactoferrin may be used as adjunct measures to further quantify pouch inflammation.
Point 2-1-4. Pouchitis can clinically be classified into acute or chronic with an arbitrary cut-off of 4 weeks based on the duration of persistent symptoms despite therapy.
Point 2-1-5. Pouchitis can be classified into idiopathic/primary or secondary based on the presence of identifiable etiological factor(s).
Point 2-1-6a. Pouchitis can be classified into antibiotic-responsive, antibiotic-dependent, or antibiotic-refractory phenotypes, based on the response to commonly used antibiotic agents.
Point 2-1-6b. Antibiotic-responsive pouchitis refers to pouchitis with a favorable symptomatic and/or endoscopic response to conventional antibiotic therapy.
Point 2-1-6c. Antibiotic-dependent pouchitis refers to pouchitis with a favorable symptomatic and/or endoscopic response to conventional antibiotic therapy but with recurrent (> 3-4 episodes per year) relapses requiring maintenance of antibiotics.
Point 2-1-6d. Antibiotic-refractory pouchitis refers to the failure of symptomatic and endoscopic response to 2-4 weeks of conventional antibiotic therapy, even if it had previously responded to antibiotics.
Point 2-1-7. Ischemic pouchitis or ischemia-associated pouchitis is diagnosed based on characteristic endoscopic and histologic features.
Point 2-1-8. Immune-mediated pouchitis is diagnosed based on a combined assessment of clinical, endoscopic, histologic, and serological features.
Point 2-1-9. In clinical practice, characterization of pouchitis requires a combined assessment of different perspectives. A practical classification system may consist of duration, response to antibiotic therapy, such as chronic antibiotic-refractory pouchitis.
Point 2-1-10. The etiology of pouchitis may evolve and shift over time and the disease phenotype of pouchitis is not static either.
Point 2-1-11. Pouchitis is infrequent in patients with underlying familial adenomatous polyposis.
Point 2-1-12. Prepouch ileitis is inflammation found in the prepouch ileum (>5-10 cm above the pouch inlet) and can coexist inlet stricture. It is associated with an increased risk of inflammation in the pouch body and the risk of pouch failure.
Point 2-1-13. The configuration of the ileal pouch in pediatric patients may appear different from that in adults on endoscopic and imaging due to different surgical technique, disease condition, and age-related factors.
Point 2-1-14. Small bowel bacterial overload is normally present in most patients with ileal pouches in the setting of fecal stasis in the pouch and the lack of a valve structure between the pouch body and afferent limb. Conventional breath tests may not be reliable in patients without a large bowel.
Point 2-2-1. Cuffitis is defined as the presence of endoscopic and histologic inflammation of the rectal cuff.
Point 2-2-2. Cuffitis is classified into (topical) mesalamine or corticosteroid-responsive, dependent, or refractory phenotype.
Point 2-2-3. Cuffitis is categorized into classic (i.e. remnant ulcerative colitis) and non-classic (e.g. Crohn's disease-associated, ischemia-associated, prolapse-associated, pouch-rectal anastomosis, neoplasia-associated, and dyssynergic defecation-associated) phenotypes.
Point 2-2-4. The disease course and treatment response of classic cuffitis (occurring in the 2 to 2.5-cm-long cuff) and the inflammation in the pouch-rectal anastomosis may be different.
3. Crohn's disease or Crohn's disease-like condition of the pouch
Point 2-3-1. The terms Crohn's disease of the pouch and Crohn's disease-like condition of the pouch can be used interchangeably. Crohn's disease of the pouch can affect any extra-pouch segments of the gastrointestinal tract synchronously or metachronously.
Point 2-3-2. Crohn's disease may result from 1) a pouch where the precolectomy diagnosis was Crohn's colitis; 2) inadvertently where the pre-colectomy diagnosis was ulcerative colitis but post-pouch creation the colectomy histopathological assessment suggests Crohn's disease; or 3) inadvertently where the pre-colectomy diagnosis was ulcerative colitis but post pouch creation de novo Crohn's disease emerged. The former two conditions are considered as true CD of the pouch, whereas the latter condition has been labeled as Crohn's-like.
Point 2-3-3. A diagnosis of Crohn's disease of the pouch is based on a combined assessment of clinical, endoscopic, histologic, and imaging features. Following features are suggestive of de novo CD of the pouch, irrespective of preocolectomy diagnosis of CD: 1) non-caseating, non-crypt-rupture-associated granulomas on intestinal biopsy of the prepouch afferent limb, pouch body, or cuff; 2) segmental or skip lesions (such as longitudinal ulcers) or strictures in the pouch and/or small bowel; 3) late development of fistulas or abscess (> 6-12 months after stoma closure); and 4) prepouch ileitis.
Point 2-3-4. The presence of noncaseating, non-crypt rupture-associated granulomas in the afferent limb, pouch body, or cuff biopsy is highly suggestive of, but not required, for the diagnosis of Crohn's disease of the pouch.
Point 2-3-5. The presence of transmural inflammation in the pouch is insufficient to make a diagnosis of Crohn's disease of the pouch.
Point 2-3-6. The differential diagnosis of nonhealing ulcers or persistent strictures or fistula of the pouch includes neoplasia as well as Crohn's disease.
Point 2-3-7. Crohn's disease of the pouch can be classified into inflammatory, fibrostenotic/stricturing, or fistulizing/penetrating phenotype.
Point 2-4. Diversion pouchitis refers to a diffuse inflammatory condition in patients with a diverted ileal pouch and ileostomy.
Point 2-5. Post-colectomy pan-enteritis can rarely occur after resection of the colon with or without the construction of the ileal pouch in ulcerative colitis. Its disease course is often aggressive requiring advanced medical therapy.
3. FUNCTIONAL POUCH DISORDERS
Point 3-1. Irritable pouch syndrome refers to a condition in which patients present with symptoms (e.g. urgency, abdominal cramps, increased bowel frequency, and/or decreased bowel consistency) in the absence of endoscopic, histologic inflammation, and structural disorders. Currently, irritable pouch syndrome is considered a diagnosis of exclusion.
Point 3-2. Dyssynergic defecation or functional evacuatory difficulty refers to a condition in which patients present with excessive straining and a sense of incomplete evacuation in the absence of structural outlet obstruction.
Point 3-3. Pouchalgia fugax, a term adopted from proctalgia fugax refers to functional recurrent anopouch pain with episodes of sharp pain lasting from seconds to several minutes in the absence of pain between episodes.
Point 3-4. Neuropathic pain at the pouch-anal anastomosis refers to a painful and sensitive spot at the anastomosis.
4. NEOPLASIA IN THE ILEAL POUCH
Point 4-1. Neoplasia of the pouch should be confirmed at least by one gastrointestinal pathologist.
Point 4-2. Neoplasia in the ileal pouch-anal anastomosis is predominantly glandular dysplasia or adenocarcinoma on histology.
Point 4-3. Dysplasia and adenocarcinoma in patients with ileal pouch-anal anastomosis predominantly originate at the cuff or anal transition zone, rarely in the pouch body or afferent limb.
Point 4-4. Lymphoma or squamous-cell dysplasia/cancer are rarely seen in patients with ileal pouch-anal anastomosis.
Point 4-5. Dysplasia and adenocarcinoma in patients with ileal pouch-anal anastomosis predominantly occur in those with a pre-colectomy diagnosis of colitis-associated colorectal neoplasia.
Point 4-6. Annual surveillance pouchoscopy is suggested in patients with a pre-colectomy diagnosis of colitis-associated dysplasia or cancer.
Point 4-7. The need and frequency of surveillance pouchoscopy depend on the risk. Irrespective of precolectomy colorectal neoplasia, surveillance endoscopy (every 1-3 years) is suggested for patients with other purported risk factors, i.e. the presence of primary sclerosing cholangitis, chronic pouchitis, chronic cuffitis, Crohn's disease of the pouch, long-duration of ulcerative colitis (a total ≥ 8 years), or the presence of a family history of colorectal cancer in first-degree relatives.
Point 4-8. Surveillance pouchoscopy (every 3 years) is suggested in the patients without the above risk factors.
Point 4-9. Patients with any dysplasia of the ileal pouch, cuff, or anal transition zone who do not elect to have surgery should undergo close surveillance pouchoscopy, initially 3-6 months and yearly afterward.
Point 4-10. In surveillance pouchoscopy, at least 3 biopsies are taken from the cuff or anal transition zone along with biopsies from the afferent limb and pouch body and submitted in separate containers. Endoscopically evident lesions should be sampled and submitted separately.
Point 4-11. Routine surveillance pouchoscopy is not recommended in patients with the continent ileostomy.
Point 4-12. Annual surveillance pouchoscopy is recommended for patients with familial adenomatous polyposis.
Point 4-13. Squamous cell carcinoma or adenocarcinoma may develop in long-standing fistulas from the anastomosis, persistent presacral sinus, or perianal fistulas, and referral to the colorectal surgeon is considered for the examination.
5. ASSOCIATED DEFICIENCIES, AND METABOLIC AND SYSTEMIC ABNORMALITIES
Point 5-1. Anemia is common in patients with ileal pouches, which is often multifactorial, predominantly from chronic inflammation and/or bleeding. We recommend annual screening for anemia and monitoring pouch disease activity with complete blood counts, comprehensive metabolic panel, and C-reactive protein.
Point 5-2. Vitamin B12 or vitamin D deficiency is common in patients with a continent ileostomy or ileal pouch-anal anastomosis and yearly evaluation is recommended.
Point 5-3. Low bone mineral density, including osteopenia and osteoporosis, is common in patients with ileal pouch-anal anastomosis, particularly in those with concurrent primary sclerosing cholangitis. Routine screening (minimal evaluation every 3 years) of bone loss with dual-energy X-ray absorptiometry is recommended.
Point 5-4. De novo celiac disease can occur after restorative proctocolectomy. On the other hand, false-positive celiac serology is seen in patients with ileal pouch-anal anastomosis. A combined assessment of clinical, endoscopic, histologic, and serological evaluation is recommended for the diagnosis. We recommend that duodenal biopsy and celiac serology (e.g. tissue transglutaminase A and IgA) in patients with chronic antibiotic-refractory pouchitis, anemia, or iron deficiency.
Point 5-5. Nephrolithiasis has been reported in patients with ileal pouches and its evaluation may be considered in those with acute abdominal or flank pain.
Point 5-6. Mental health issues such as depression and anxiety are common in patients with ileal pouches and bowel symptoms and/or structural, functional, or inflammatory disorders. We recommend routine screening of the patients with chronic bowel symptoms and mental health issues with appropriate psychological or psychiatric referral or intervention. We recommend using validated depression and anxiety questionnaires along with the quality-of-life scores.
Point 5-7. Sexual dysfunction can occur in both males (e.g. erectile or ejaculation dysfunction), and females (e.g. dyspareunia). We recommend asking about intimacy or using sexual questionnaires in preoperative evaluation and postoperative follow-up.
Point 5-8. Benign prostate hypertrophy is reported in adult patients with ileal pouch-anal anastomosis, including young patients. Digital examination for prostate cancer screening may not be reliable in pouch patients. Transperineal, rather than transpouch, approach is recommended if a prostate biopsy is required.
Point 5-9. Restorative proctocolectomy with ileal pouch-anal anastomosis decreases fertility or fecundity in female patients. The laparoscopic approach reduces risk when compared with open surgery.
Point 5-10. Cesarean section should be considered mode of delivery of choice for patients with ileal pouches, especially those with mucosectomy and hand-sewn anastomosis and/or those with difficulties in labor, to prevent anal sphincter injury and long-term effects on pouch function. Individualized decision should derive from the patient, obstetrician, and colorectal surgeon.
Point 5-11. Postoperative excessive weight gain may be associated with a risk for adverse pouch outcomes, such as chronic pouchitis, presacral sinus, and pouch failure. The measurement of mesenteric fat area and peripouch fat area with cross-sectional imaging may provide diagnostic and prognostic clues.
Point 5-12. Extraintestinal manifestations of inflammatory bowel disease are common in patients with ileal pouches and are risk factors for pouchitis.
Point 5-13. Concurrent primary sclerosing cholangitis in patients with ulcerative colitis and ileal pouches poses a higher risk for enteritis, pouchitis, and possibly neoplasia. Diagnostic and surveillance pouchoscopy (every 1-3 years) is recommended.
Point 5-14. Liver transplantation for primary sclerosing cholangitis does not seem to impact pouch outcome or vice versa. The diagnostic and surveillance pouchoscopy schedule is the same as those with non-liver transplanted primary sclerosing cholangitis.