



Treatment of benign rectal stricture caused by repeated anal insertion by endoscopy and balloon dilation: A case report

Shih-Hung Liu, Jung-Cheng Kang, Je-Ming Hu, Chao-Yang Chen, Kuan-Hsun Lin, Ta-Wei Pu

Specialty type: Gastroenterology and hepatology

Provenance and peer review: Unsolicited article; Externally peer reviewed.

Peer-review model: Single blind

Peer-review report's scientific quality classification

Grade A (Excellent): 0
Grade B (Very good): 0
Grade C (Good): 0
Grade D (Fair): 0
Grade E (Poor): 0

P-Reviewer: Gweon TG, South Korea

Received: October 12, 2023

Peer-review started: October 12, 2023

First decision: December 8, 2023

Revised: December 28, 2023

Accepted: January 22, 2024

Article in press: January 22, 2024

Published online: February 16, 2024



Shih-Hung Liu, Department of Surgery, Tri-Service General Hospital, National Defense Medical Center, Taipei 114, Taiwan

Jung-Cheng Kang, Division of Colon and Rectal Surgery, Department of Surgery, Taiwan Adventist Hospital, Taipei 105, Taiwan

Je-Ming Hu, Chao-Yang Chen, Division of Colon and Rectal Surgery, Department of Surgery, Tri-Service General Hospital, National Defense Medical Center, Taipei 114, Taiwan

Kuan-Hsun Lin, Division of Thoracic Surgery, Department of Surgery, Tri-Service General Hospital, National Defense Medical Center, Taipei 114, Taiwan

Ta-Wei Pu, Division of Colon and Rectal Surgery, Department of Surgery, Songshan Branch, Tri-Service General Hospital, National Defense Medical Center, Taipei 105, Taiwan

Corresponding author: Ta-Wei Pu, MD, Lecturer, Division of Colon and Rectal Surgery, Department of Surgery, Songshan Branch, Tri-Service General Hospital, National Defense Medical Center, No. 131 Jiankang Road, Taipei 105, Taiwan. tawei0131@gmail.com

Abstract

BACKGROUND

Benign rectal strictures can be categorized as primary (disease-related) and secondary (surgical anastomosis-related). Secondary strictures arise from surgical complications, whereas primary strictures have diverse etiologies, including various inflammatory conditions. Benign strictures are usually managed by surgery and endoscopy. We present an unusual etiology of benign rectal stricture caused by the repeated insertion of foreign objects into the rectum for sexual purposes, resulting in rectal injury and subsequent chronic inflammation.

CASE SUMMARY

A 53-year-old man presented to the outpatient clinic of the Colorectal Surgery Department with symptoms of chronic constipation and bloody stools. The patient previously experienced rectal injury due to foreign object insertion for sexual purposes. Colonoscopy revealed benign circumferential narrowing of the rectum. He underwent treatment by endoscopic argon plasma coagulation and balloon dilation and follow-up as an outpatient for 4 months. A colonoscopy at the end of the follow-up period revealed no evidence of rectal stricture relapse.

CONCLUSION

A history of rectal injury, followed by chronic inflammation, should be considered in patients with benign rectal strictures. Management with endoscopic argon plasma coagulation and balloon dilation can prevent the need for surgical resection of benign rectal strictures.

Key Words: Chronic rectal inflammation; Colonoscopy; Benign rectal stricture; Foreign body insertion; Rectal injury; Case report

©The Author(s) 2024. Published by Baishideng Publishing Group Inc. All rights reserved.

Core Tip: The etiologies of benign rectal stricture are primarily associated with chronic inflammation and post-surgical complications. We describe an unusual etiology caused by repeated insertion of foreign objects into the rectum for sexual purposes, resulting in rectal injury and subsequent chronic inflammation. Initiating treatment with endoscopic management and then considering surgical resection, if unsuccessful, might be the most suitable therapeutic strategy. Endoscopic argon plasma coagulation combined with balloon dilation is beneficial for treating benign rectal stricture.

Citation: Liu SH, Kang JC, Hu JM, Chen CY, Lin KH, Pu TW. Treatment of benign rectal stricture caused by repeated anal insertion by endoscopy and balloon dilation: A case report. *World J Gastrointest Endosc* 2024; 16(2): 91-97

URL: <https://www.wjgnet.com/1948-5190/full/v16/i2/91.htm>

DOI: <https://dx.doi.org/10.4253/wjge.v16.i2.91>

INTRODUCTION

Benign strictures of the rectum are classified as primary (disease-related) and secondary (surgical anastomosis-related) [1]. Secondary strictures arise from anastomotic dehiscence or ischemia, stapling devices, postoperative pelvic infections, or postoperative radiation-induced proctitis [2]. Etiological factors of primary strictures include nonsteroidal anti-inflammatory drug use [3], chronic proctitis (prevalent in inflammatory bowel disease) [4], tuberculosis [5], and complicated diverticulitis [6]. These factors primarily affect patients who have undergone recent surgery or have underlying inflammatory diseases. Proctitis is an inflammatory condition that affects the anal canal and/or rectum. It can result from inflammatory bowel disease, infectious proctitis due to sexually transmitted infections through genital-anal mucosal contact, or traumatic proctitis caused by digital contact or the use of foreign objects [7]. Benign strictures are usually managed surgically and endoscopically. However, an optimal approach to treating benign rectal strictures has not been established. We posit that initial endoscopy rather than surgical resection can improve patient satisfaction with more favorable postoperative outcomes. Here we describe a case of a homosexual male with an unusual rectal stricture. Although he denied receptive anal intercourse with men, he inserted toys or household items into the rectum *via* the anal canal for sexual eroticism. The rectum was damaged, chronically inflamed, and constricted. We applied a novel therapeutic approach comprising argon plasma coagulation (APC) and balloon dilation.

CASE PRESENTATION

Chief complaints

A 53-year-old Chinese man presented to the outpatient department of Tri-Service General Hospital, Songsang Branch with bloody stools.

History of present illness

The patient reported experiencing discomfort and difficulty passing stools for approximately 6 months that were not relieved by laxatives. He recalled having persistent anal pain and bleeding for approximately 2 wk after inserting anal toys and household items approximately 1 year before presentation; however, he did not seek medical assistance at that time.

History of past illness

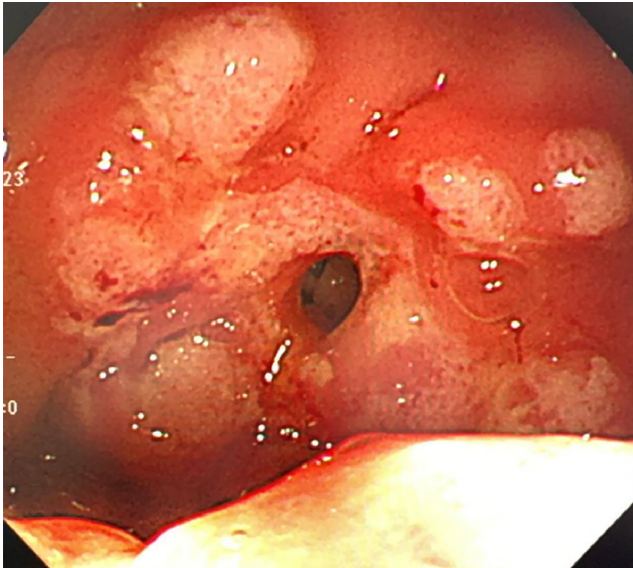
The patient had no history of chronic diseases or surgeries.

Personal and family history

The personal and family history of the patient was unremarkable.

Physical examination

Abdominal and digital rectal findings were not specific.



DOI: 10.4253/wjge.v16.i2.91 Copyright ©The Author(s) 2024.

Figure 1 Colonoscopy shows an apparently benign, circumferential rectal narrowing 6 cm above the anal verge.

Laboratory examinations

Laboratory serum examinations revealed no significant abnormalities.

Imaging examinations

Colonoscopy revealed an apparently benign, circumferential rectal stricture 6 cm above the anal verge (Figure 1) through which the colonoscope could not pass. A biopsy of the stricture revealed adenomatous hyperplasia with fibroblast proliferation.

FINAL DIAGNOSIS

Colonoscopy indicated a benign rectal stricture.

TREATMENT

A colonoscopy with APC for tissue ablation at the stricture edge was performed after the initial diagnosis was confirmed (Figure 2). One week later, balloon dilation using a Foley catheter was performed. The balloon was inflated with 15 mL of water, and the diameter of the inflated balloon was approximately 25 mm. The stenosis improved, as evidenced by the smooth passage of a 25-mm anal dilator (Figure 3). Improvement in the patient's symptoms was limited after 6 wk of follow-up. Therefore, the patient underwent a repeat colonoscopy with APC that achieved complete resolution of luminal narrowing (Figure 4).

OUTCOME AND FOLLOW-UP

No complications developed during the management. Four months after treatment, a repeat colonoscopy revealed no evidence of rectal stricture relapse (Figure 5). The patient's symptoms were completely resolved thereafter.

DISCUSSION

Rectal strictures typically form in an area of muscle that contracts over time and narrows or blocks the intestinal passage. These strictures have various underlying causes and are broadly categorized as benign or malignant. Benign rectal strictures often manifest as the outcome of an inflammatory cascade, leading to the development of hyperplastic scars and tissue fibrosis[8]. They can greatly affect the quality of life of patients, which leads to changes in bowel habits. They sometimes manifest as medical emergencies when they obstruct the bowel.

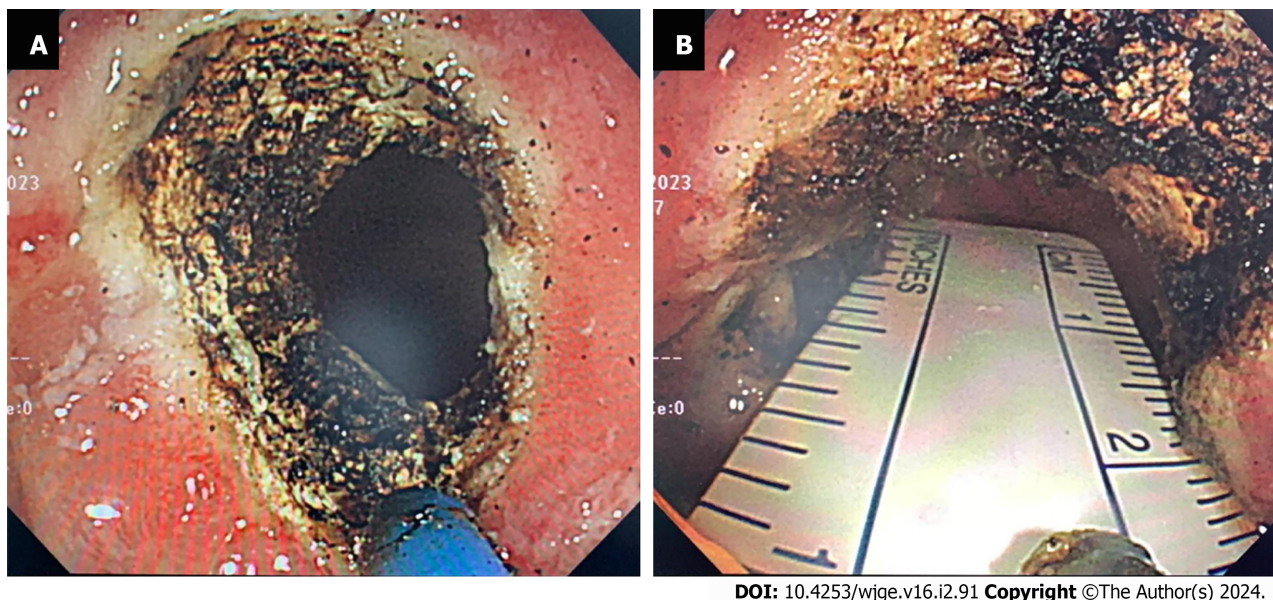


Figure 2 First endoscopic stricturotomy using argon plasma coagulation. A: Tissue ablation at stricture edge using argon plasma coagulation; B: The diameter of the stricture increased.

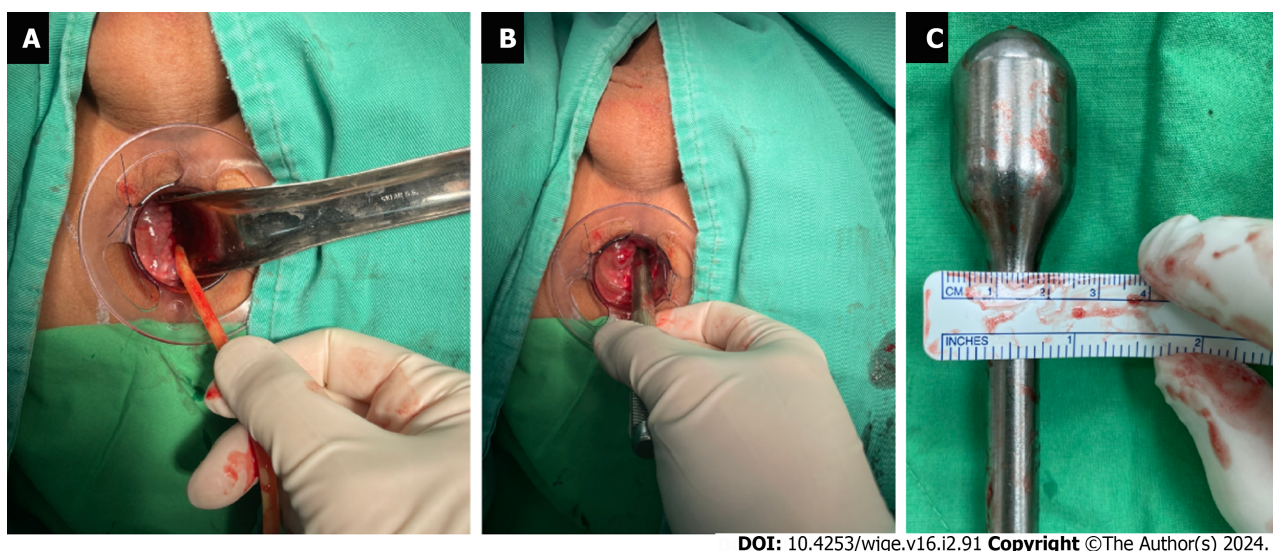
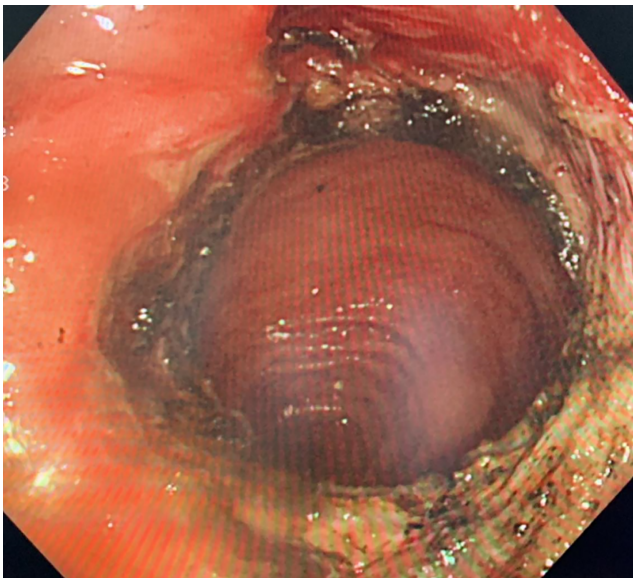


Figure 3 Balloon dilation using Foley catheter. A: Stricture site dilation to 25 mm with Foley balloon (15 mL water); B and C: A 25 mm anal dilator passes through smoothly.

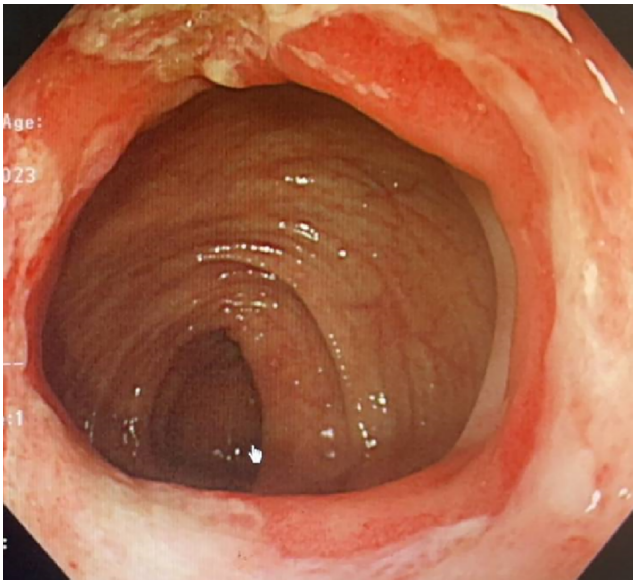
Anastomotic strictures associated with colorectal surgery were ruled out because the patient had not undergone any procedures. He had no history of drug use. Inflammatory bowel disease was unlikely as the patient did not have diarrhea. Endoscopic findings revealed no erosions, ulcers, edema, mucosal granularity, and friability[9]. Although rectal strictures are rarely associated with foreign bodies, one case report has described a rectal stricture caused by a chicken bone that had been retained for two years[10]. Rectal stricture can result from chronic inflammation caused by foreign body insertion. We inferred that repeated insertion of a foreign body over the long term caused the rectal injury in this patient. Rectal strictures can also occur due to burn injuries associated with hot water or coffee enemas[11,12]. All these causes similarly indicate that rectal injury can lead to strictures because of chronic inflammation. To the best of our knowledge, similar reports of rectal stricture caused by repeated foreign object insertion have not been published in the literature.

Various therapeutic approaches include the mechanical dilation of rectal strictures, electrocautery, manual widening, transanal mechanical stapling devices, endoscopic, and surgical methods[13]. Surgical procedures, such as resection and stricturoplasty, are more efficient than endoscopic approaches in addressing colorectal strictures. However, surgical resection and stricturoplasty are linked to a notably higher incidence of postoperative complications, which can require further diverting stoma and a greater likelihood of stricture recurrence[14,15]. Endoscopic methods such as implanted stents, electrocautery incision, balloon dilation, or combined management, are minimally invasive, simple procedures



DOI: 10.4253/wjge.v16.i2.91 Copyright ©The Author(s) 2024.

Figure 4 Second endoscopic stricturotomy with argon plasma coagulation. Complete resolution of the rectal stricture.



DOI: 10.4253/wjge.v16.i2.91 Copyright ©The Author(s) 2024.

Figure 5 Follow-up colonoscopy after endoscopic treatment. The luminal narrowing resolved completely without evidence of recurrent rectal stricture four months after the endoscopic treatment.

that can delay the need for surgery by an average of 6.5 years[16].

We avoided surgical resection for our patient because incontinence, frequency, and urgency, which are collectively described as low anterior resection syndrome would have adversely affected his quality of life[17]. The resolution of one issue would lead to the development of another. Stent placement was not selected because this can lead to complications over the long term such as stent dislodgment and obstruction due to fecal impaction[18]. We applied radial incisions using endoscopic electrocautery with APC to ensure that hyperplastic tissues were thoroughly cleaned within the incisions. An APC technique for benign colorectal strictures has been established[19]. The success rate of balloon dilation to treat surgical anastomotic and inflammatory disease-related strictures is approximately 97% and the incidence (< 3%) of major complications is low[20]. We used a Foley balloon instead of an endoscopic balloon because of the short length of the stricture. The Foley balloon could adequately cover the narrow area, which was close to the anus. Although recommendations for managing benign colorectal strictures have not been officially established, the outcome of treating our patient with APC combined with balloon dilation was successful. Nonetheless, long-term and regular colonoscopic surveillance is critically important to assess recurrence in patients with rectal strictures.

CONCLUSION

Benign rectal strictures are primarily associated with chronic inflammation and postoperative complications. Our patient had an unusual etiology that developed from the prolonged insertion of foreign objects into the rectum for pleasure, resulting in rectal injury and subsequent chronic inflammation. A standardized approach to treating this type of benign rectal stricture has not been established. However, initiating treatment with endoscopy and considering surgery if unsuccessful might be the most suitable strategy under such circumstances. We treated the rectal stricture using endoscopic APC in combination with balloon dilation, which avoided surgical resection of the rectum.

FOOTNOTES

Author contributions: Liu SH and Kang JC drafted the manuscript; TW Pu revised the final draft of the manuscript; Lin KS contributed to data acquisition; Chen CY and Hu JM contributed to the investigation and interpretation of the data; All authors have read and approved this version of the manuscript.

Informed consent statement: Written informed consent was obtained from the patient to publish this report and accompanying images.

Conflict-of-interest statement: All the authors declare that they have no conflict of interest to disclose.

CARE Checklist (2016) statement: The authors have read the CARE Checklist (2016), and the manuscript was prepared and revised according to the CARE Checklist (2016).

Open-Access: This article is an open-access article that was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution NonCommercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <https://creativecommons.org/licenses/by-nc/4.0/>

Country/Territory of origin: Taiwan

ORCID number: Shih-Hung Liu 0000-0003-1402-2107; Jung-Cheng Kang 0000-0001-7511-5337; Je-Ming Hu 0000-0002-7377-0984; Chao-Yang Chen 0000-0002-2246-7635; Kuan-Hsun Lin 0000-0002-3371-5489; Ta-Wei Pu 0000-0002-0538-407X.

S-Editor: Liu JH

L-Editor: A

P-Editor: Cai YX

REFERENCES

- Chen M, Shen B. Comparable short- and long-term outcomes of colonoscopic balloon dilation of Crohn's Disease and benign non-Crohn's Disease strictures. *Inflamm Bowel Dis* 2014; **20**: 1739-1746 [PMID: 25153504 DOI: 10.1097/MIB.0000000000000145]
- Luchtefeld MA, Milsom JW, Senagore A, Surrell JA, Mazier WP. Colorectal anastomotic stenosis. Results of a survey of the ASCRS membership. *Dis Colon Rectum* 1989; **32**: 733-736 [PMID: 2667922 DOI: 10.1007/bf02562119]
- Eis MJ, Watkins BM, Philip A, Welling RE. Nonsteroidal-induced benign strictures of the colon: a case report and review of the literature. *Am J Gastroenterol* 1998; **93**: 120-121 [PMID: 9448192 DOI: 10.1111/j.1572-0241.1998.120_c.x]
- Wibmer AG, Kroesen AJ, Gröne J, Buhr HJ, Ritz JP. Comparison of strictureplasty and endoscopic balloon dilatation for stricturing Crohn's disease--review of the literature. *Int J Colorectal Dis* 2010; **25**: 1149-1157 [PMID: 20628881 DOI: 10.1007/s00384-010-1010-x]
- Misra SP, Misra V, Dwivedi M, Arora JS, Kunwar BK. Tuberculous colonic strictures: impact of dilation on diagnosis. *Endoscopy* 2004; **36**: 1099-1103 [PMID: 15578302 DOI: 10.1055/s-2004-826046]
- Cain BT, Huang LC. Benign Colonic Strictures. *Dis Colon Rectum* 2021; **64**: 1041-1044 [PMID: 34108366 DOI: 10.1097/DCR.0000000000002179]
- de Vries HJC, Nori AV, Kiellberg Larsen H, Kreuter A, Padovese V, Pallawela S, Vall-Mayans M, Ross J. 2021 European Guideline on the management of proctitis, proctocolitis and enteritis caused by sexually transmissible pathogens. *J Eur Acad Dermatol Venereol* 2021; **35**: 1434-1443 [PMID: 34057249 DOI: 10.1111/jdv.17269]
- Davis B, Rivadeneira DE. Complications of colorectal anastomoses: leaks, strictures, and bleeding. *Surg Clin North Am* 2013; **93**: 61-87 [PMID: 23177066 DOI: 10.1016/j.suc.2012.09.014]
- Spiceland CM, Lodhia N. Endoscopy in inflammatory bowel disease: Role in diagnosis, management, and treatment. *World J Gastroenterol* 2018; **24**: 4014-4020 [PMID: 30254405 DOI: 10.3748/wjg.v24.i35.4014]
- Elmoghrahi A, Mohamed M, Wong K, McCann M. Proctalgia and colorectal stricture as the result of a 2-year transit of a retained rectal chicken bone: a case presentation and review of the literature. *BMJ Case Rep* 2016; **2016** [PMID: 27325671 DOI: 10.1136/bcr-2016-215913]
- Kim S, Cha JM, Lee CH, Shin HP, Park JJ, Joo KR, Lee JI, Jeun JW, Lim K, Lim JU, Choi JH. Rectal perforation due to benign stricture caused by rectal burns associated with hot coffee enemas. *Endoscopy* 2012; **44** Suppl 2 UCTN: E32-E33 [PMID: 22396264 DOI: 10.1055/s-0031-1291512]
- Kye BH, Kim HJ, Lee KM, Cho HM. Intractable rectal stricture caused by hot water enema. *J Korean Surg Soc* 2011; **81**: 350-354 [PMID: 22148129 DOI: 10.4174/jkss.2011.81.5.350]

- 13 **Garcea G**, Sutton CD, Lloyd TD, Jameson J, Scott A, Kelly MJ. Management of benign rectal strictures: a review of present therapeutic procedures. *Dis Colon Rectum* 2003; **46**: 1451-1460 [PMID: [14605561](#) DOI: [10.1007/s10350-004-6792-x](#)]
- 14 **Schlegel RD**, Dehni N, Parc R, Caplin S, Tiset E. Results of reoperations in colorectal anastomotic strictures. *Dis Colon Rectum* 2001; **44**: 1464-1468 [PMID: [11598475](#) DOI: [10.1007/bf02234598](#)]
- 15 **Wolters FL**, Russel MG, Stockbrügger RW. Systematic review: has disease outcome in Crohn's disease changed during the last four decades? *Aliment Pharmacol Ther* 2004; **20**: 483-496 [PMID: [15339320](#) DOI: [10.1111/j.1365-2036.2004.02123.x](#)]
- 16 **Shen B**. Interventional IBD: The Role of Endoscopist in the Multidisciplinary Team Management of IBD. *Inflamm Bowel Dis* 2018; **24**: 298-309 [PMID: [29361105](#) DOI: [10.1093/ibd/izz058](#)]
- 17 **Dulskas A**, Smolskas E, Kildusiene I, Samalavicius NE. Treatment possibilities for low anterior resection syndrome: a review of the literature. *Int J Colorectal Dis* 2018; **33**: 251-260 [PMID: [29313107](#) DOI: [10.1007/s00384-017-2954-x](#)]
- 18 **Lamazza A**, Fiori E, Sterpetti AV, Schillaci A, Scoglio D, Lezoche E. Self-expandable metal stents in the treatment of benign anastomotic stricture after rectal resection for cancer. *Colorectal Dis* 2014; **16**: O150-O153 [PMID: [24206040](#) DOI: [10.1111/codi.12488](#)]
- 19 **Emhmed Ali S**, Bhakta A, Bautista RM, Sherif A, Frandah W. Endoscopic stricturotomy with pulsed argon plasma and balloon dilation for refractory benign colorectal strictures: a case series. *Transl Gastroenterol Hepatol* 2022; **7**: 32 [PMID: [35892059](#) DOI: [10.21037/tgh.2020.03.06](#)]
- 20 **Ambrosetti P**, Francis K, De Peyer R, Frossard JL. Colorectal anastomotic stenosis after elective laparoscopic sigmoidectomy for diverticular disease: a prospective evaluation of 68 patients. *Dis Colon Rectum* 2008; **51**: 1345-1349 [PMID: [18454291](#) DOI: [10.1007/s10350-008-9319-z](#)]



Published by **Baishideng Publishing Group Inc**
7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA

Telephone: +1-925-3991568

E-mail: office@baishideng.com

Help Desk: <https://www.f6publishing.com/helpdesk>

<https://www.wjgnet.com>

