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**Endoscopic fenestration in the diagnosis and treatment of delayed anastomotic submucosal abscess: A case report and review of literature**

Zhang BZ *et al*. Endoscopic fenestration for delayed abscess diagnosis

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**Abstract**

BACKGROUND

Abscess formation is one of the complications after radical resection of rectal cancer; cases with delayed postoperative anastomotic abscess are rare. Here, we report a rare case of postoperative anastomotic abscess with a submucosal neoplasm appearing after rectal surgery. Ultimately, the patient was diagnosed and treated by endoscopic fenestration. In addition, we review the literature on the appearance of an abscess as a complication after rectal cancer surgery.

CASE SUMMARY

A 57-year-old man with a history of rectal malignancy resection complained of a smooth protuberance near the anastomotic stoma. Endoscopic ultrasonography revealed a hypoechoic structure originating from the muscularis propria, and a submucosal tumor was suspected. The patient was subsequently referred to our hospital and underwent pelvic contrast-enhanced computed tomography, which revealed no thickening or strengthening of the anastomotic wall. In order to clarify the origin of the lesion and obtain the pathology, endoscopic fenestration was performed. After endoscopic procedure, a definitive diagnosis of delayed anastomotic submucosal abscess was established. The patient achieved good recovery and prognosis after the complete clearance of abscess.

CONCLUSION

Endoscopic fenestration may be safe and effective for the diagnosis/treatment of delayed intestinal smooth protuberance after rectal cancer surgery.

**Key Words:** Anastomotic stoma; Rectal cancer; Submucosal tumor; Endoscopic fenestration; Delayed postoperative abscess; Case report

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**Core Tip:** Delayed postoperative abscess is a rare complication after radical resection of rectal cancer, especially those presenting several years after surgery. Here, we report a rare case of postoperative anastomotic abscess with a submucosal neoplasm appearing who was treated by endoscopic fenestration. In addition, we review the literature on abscess after rectal cancer surgery. Although extremely rare, delayed submucosal abscess should be considered in the differential diagnosis in cases with suspected submucosal tumors in patients after rectal cancer resection with intestinal smooth swelling. Meanwhile, endoscopic fenestration may be safe and effective for the diagnosis/treatment of delayed intestinal postoperative smooth protuberance.

**INTRODUCTION**

Currently, laparoscopic radical resection is the standard and mainstay surgical treatment for rectal cancer[1-3]. Abscess formation is one of the complications after rectal cancer resection and is usually found within a few weeks post-surgery[4-6].However, delayed postoperative anastomotic abscess is extremely rare, especially that presenting several years after surgery. Here, we report a rare case of delayed anastomotic submucosal abscess in a patient after rectal surgery who was diagnosed and treated by endoscopic fenestration. Furthermore, we performed a literature review on abscess complication following rectal cancer surgery.

**CASE PRESENTATION**

***Chief complaints***

A 57-year-old male patient was referred to our hospital for definite diagnosis and treatment of an intestinal smooth protuberance that appeared more than 3 years after rectal cancer surgery.

***History of present illness***

Initially, a smooth protuberance was found following a colonoscopy examination during a regular medical examination at a local hospital 3.5 years after rectal cancer surgery. The patient did not complain of any symptoms.

***History of past illness***

The patient presented with irregular stool and bloody stool since September 2015. He was admitted to a local hospital complaining of lower abdominal pain in February 2016. Colonoscopy revealed a large protuberant lesion located 15-18 cm from the anus, and a biopsy was taken. Endoscopic diagnosis was advanced rectal cancer, and pathological diagnosis was rectal adenocarcinoma (moderately differentiated). Laparoscopic radical resection of rectal cancer was performed in March 2016. Intra- and post-operative pathology confirmed rectal adenocarcinoma (moderately differentiated). Colonoscopy performed during postoperative follow-up at 6 mo, 1 year, 2 years, and 3 years after the operation showed good anastomotic healing (Figure 1A).

***Personal and family history***

The patient had no specific personal and family history.

***Physical examination***

The patient did not have positive signs on physical examination.

***Laboratory examinations***

Laboratory testing including C-reactive protein level and leukocyte count, showed no abnormalities.

***Imaging examinations***

In November 2019 (3.5 years after operation), a smooth protuberance measuring approximately 15 mm × 15 mm (Figure 1B) was found near the anastomotic site by colonoscopy at the local hospital. The diagnosis was a protuberant lesion near the anastomotic stoma. Subsequent endoscopic ultrasonography (EUS) at the local hospital revealed a hypoechoic structure (Figure 1C) of approximately 1.12 cm × 0.91 cm in the rectal wall. A submucosal tumor (SMT) originating from the muscularis propria was suspected. The patient was referred to our hospital for definitive diagnosis and further treatment. We analyzed the patient's past history and examination and suspected that the protuberance was local recurrence of rectal cancer, postoperative abscess, or SMT. Subsequently, pelvic contrast-enhanced computed tomography (CT) was performed, which revealed no thickening or strengthening of the anastomotic wall (Figure 1D).

***Further diagnostic work-up/endoscopic examination***

To clarify the origin of the lesion and obtain the pathology, endoscopic resection was performed. After dissecting the mucosal layer by using a dual knife, a soft cystic structure was observed. After opening the sac wall, a yellow viscous liquid can be seen flowing out (Figure 2A). Generally speaking, pus needs bacterial culture for further diagnosis; however, the lesion was at the rectum and highly susceptible to contamination by intestinal faeces and flora. Therefore, we did not culture the pus. We subsequently repeated the suction and irrigation procedures during endoscopic procedure to clean the area of the purulent exudate. The wound was closed using five metal clips finally (Figure 2B).

**FINAL DIAGNOSIS**

Based on the clinical, imaging, and endoscopic findings, we finally made a definitive diagnosis of delayed anastomotic submucosal abscess following rectal surgery.

**TREATMENT**

Diagnostic endoscopic fenestration that the patient underwent was also performed as a treatment for the intestinal protrusion lesion. In the process, the purulent exudate was cleaned completely, and the wound was entirely closed using clips.

**OUTCOME AND FOLLOW-UP**

After the endoscopic fenestration, the patient had no adverse effects and was treated with cephalosporin and glucose for anti-infection and nutrition therapy, respectively. The patient was discharged without complications 2 d after the procedure. Postoperative follow-up examination was performed, showing no evidence of recurrence in both white light endoscopy and narrow-band imaging (Figure 2C and D).

**DISCUSSION**

We report a case of delayed anastomotic submucosal abscess in a patient after rectal cancer surgery with a review of the literature. To the best of our knowledge, only 15 cases of abscess formation following rectal cancer surgery have been reported in the literature, including our case (Table 1), and this is the first report of delayed intestinal anastomotic abscess diagnosed and treated by endoscopic fenestration.

Currently, laparoscopic radical resection of rectal cancer has the advantages of less trauma, less bleeding, and rapid recovery of the intestinal function, and remains the most significant treatment for rectal cancer[2,3]. However, in any invasive procedures, complications cannot be completely avoided. These complications have an important impact on the postoperative recovery of patients. Postoperative complications of rectal cancer resection include postoperative hemorrhage, infection-related complications, and anastomosis-related complications (anastomotic fistula and stricture)[4-6]. Postoperative abscess is one of the severe complications after rectal cancer surgery. Patients with postoperative abscess are usually symptomatic. Indicators of infection in laboratory tests will also increase accordingly, including C-reactive protein level and white blood cell count[7-9]. Postoperative abscess is related to the following factors: (1) After anti-infective therapy, viable bacteria are stored in the deep rectal wall, stimulating the rectal wall to form an abscess for a long time; (2) Local hematomas resulting from intra-incisional bleeding are not fully absorbed and develop into abscesses in the event of infection; and (3) Anastomotic fistulas are caused by poor blood supply and excessive tension, which lead to infection and abscess formation around the anastomotic site[10,11].

In the 15 cases reviewed herein, the patient ages ranged from 32-76 years, with an average age of 56.7 years[12-24]. The retrieved literature indicated that when patients were diagnosed with postoperative abscess after rectal cancer surgery, they usually presented with abdominal pain, obvious mass, and fever, accompanied by fistula or leakage formation (66.67%). Among the 15 patients (including this case), nine achieved the ideal treatment effect by drainage (60%), and the remaining patients underwent colostomy and cutaneous vasostomy for excretion of the purulent secretions to relieve symptoms in a timely manner. Five (33.33%) of the 15 patients had pelvic abscess after rectal cancer surgery; in four (80%) of these patients, drainage was performed, whereas one (20%) was treated by colostomy. All five patients underwent successful abscess treatment (100%); four of these patients were followed (> 45 d), and the results showed improvement in three patients. In the fourth patient, Kollmorgen *et al*[15] reported an abscess recurrence after drainage of a small pelvic abscess, which improved after anti-infective treatment with ciprofloxacin. This suggests that conservative anti-infective treatment is a feasible option for limited abscess without increased risk of spreading. Presacral abscess was found in four (26.67%) cases, and three (75%) of these cases were treated by drainage. D'Hondt *et al*[19] reported intermittent fever, massive mucopurulent discharge from a perineal wound, and severe pain during radiotherapy after rectal cancer resection. After admission, CT showed a presacral abscess. Endo-sponge therapy was performed on the presacral abscess after biopsy confirmed no recurrent tumor. The prognosis was good after 5 mo of follow-up. A case reported by Mandai *et al*[20] showed abscess formation in the para-anastomotic and subphrenic areas after low anterior resection of rectal cancer. The patient was treated by EUS-guided transgastric drainage and naso-cystic drainage innovatively and had no abscess recurrence at the 3-year follow-up. EUS-guided drainage is suggested as a safe and effective method for the treatment of postoperative abdominal abscess.

Patients with postoperative abscess in the abdominal and pelvic cavity are usually symptomatic, whereas those with SMT are asymptomatic[25-27]. In the present case, the patient had no discomfort until colonoscopic examination detected the abnormality near the anastomotic site. Combined with the history of past illness, the patient was easily misdiagnosed with rectal cancer recurrence or rectal submucosal lesions. At this point, differential diagnosis was difficult, especially with SMT. The clinical features and EUS imaging were strongly suggestive of SMT after local tumor recurrence was disregarded based on pelvic CT findings. Endoscopic fenestration, however, ultimately indicated a rare delayed submucosal abscess rather than SMT.

 To date, there is little information on delayed postoperative anastomotic abscess, especially that appearing several years after an operation. The later an abscess develops, the more complicated the causal relationship between the abscess and previous surgery is, making differential diagnosis more difficult. Patients with postoperative abscess usually present with fervescence, abdominal pain, and abdominal mass. Inflammatory indicator levels on blood tests usually increase and imaging examination may also suggest inflammatory exudation. However, these conditions may not occur when the abscess is wrapped around the cyst wall and does not spread. Therefore, abscess can mistakenly and easily be ruled out as a diagnosis, thereby delaying the patient's treatment. Currently, there are no guidelines for the treatment of postoperative abscess of rectal cancer. In general and based on the reviewed literature, large abscesses with complex anatomical locations are more commonly treated by drainage. If an abscess is associated with peritonitis, emergency surgical treatment can be performed. However, endoscopic fenestration is a better minimally invasive procedure for enveloping an abscess in the intestinal tract.

Endoscopic fenestration is an intuitive, safe, and reliable diagnostic method when clinical features and imaging findings are uncertain. Endoscopic fenestration has been widely used for intracranial cysts[28,29]; in recent years, it has also emerged as an effective method for the diagnosis and treatment of gastrointestinal protuberance[30,31]. Endoscopic fenestration can safely and effectively diagnose abscess, reduce severe complications such as peritonitis, and reduce the use of invasive procedures such as abdominal drainage.

**CONCLUSION**

Although extremely rare, delayed submucosal abscess should be considered in the differential diagnosis in cases of suspected SMTs based on imaging during the late postoperative period in rectal cancer patients presenting with intestinal smooth swelling. When the protuberance is wrapped around the cyst wall without definite evidence of tumor recurrence or metastasis, endoscopic fenestration can be considered as a safe, effective, and feasible strategy for the definitive diagnosis and treatment of delayed intestinal smooth protuberance in patients after rectal surgery.

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**REFERENCES**

1 **Bray F**, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin* 2018; **68**: 394-424 [PMID: 30207593 DOI: 10.3322/caac.21492]

2 **Lirici MM**, Hüscher CG. Techniques and technology evolution of rectal cancer surgery: a history of more than a hundred years. *Minim Invasive Ther Allied Technol* 2016; **25**: 226-233 [PMID: 27415777 DOI: 10.1080/13645706.2016.1198381]

3 **Małczak P**, Mizera M, Torbicz G, Witowski J, Major P, Pisarska M, Wysocki M, Strzałka M, Budzyński A, Pędziwiatr M. Is the laparoscopic approach for rectal cancer superior to open surgery? A systematic review and meta-analysis on short-term surgical outcomes. *Wideochir Inne Tech Maloinwazyjne* 2018; **13**: 129-140 [PMID: 30002744 DOI: 10.5114/wiitm.2018.75845]

4 **Paun BC**, Cassie S, MacLean AR, Dixon E, Buie WD. Postoperative complications following surgery for rectal cancer. *Ann Surg* 2010; **251**: 807-818 [PMID: 20395841 DOI: 10.1097/SLA.0b013e3181dae4ed]

5 **Shearer R**, Gale M, Aly OE, Aly EH. Have early postoperative complications from laparoscopic rectal cancer surgery improved over the past 20 years? *Colorectal Dis* 2013; **15**: 1211-1226 [PMID: 23711242 DOI: 10.1111/codi.12302]

6 **Lyall A**, Mc Adam TK, Townend J, Loudon MA. Factors affecting anastomotic complications following anterior resection in rectal cancer. *Colorectal Dis* 2007; **9**: 801-807 [PMID: 17931170 DOI: 10.1111/j.1463-1318.2006.01197.x]

7 **Medina-Fernández FJ**, Garcilazo-Arismendi DJ, García-Martín R, Rodríguez-Ortiz L, Gómez-Barbadillo J, Gallardo-Valverde JM, Martínez-Dueñas JL, Navarro-Rodríguez E, Torres-Tordera E, Díaz-López CA, Briceño J. Validation in colorectal procedures of a useful novel approach for the use of C-reactive protein in postoperative infectious complications. *Colorectal Dis* 2016; **18**: O111-O118 [PMID: 26934854 DOI: 10.1111/codi.13284]

8 **Pedersen T**, Roikjær O, Jess P. Increased levels of C-reactive protein and leukocyte count are poor predictors of anastomotic leakage following laparoscopic colorectal resection. *Dan Med J* 2012; **59**: A4552 [PMID: 23290288]

9 **Ortega-Deballon P**, Radais F, Facy O, d'Athis P, Masson D, Charles PE, Cheynel N, Favre JP, Rat P. C-reactive protein is an early predictor of septic complications after elective colorectal surgery. *World J Surg* 2010; **34**: 808-814 [PMID: 20049435 DOI: 10.1007/s00268-009-0367-x]

10 **Chambers WM**, Mortensen NJ. Postoperative leakage and abscess formation after colorectal surgery. *Best Pract Res Clin Gastroenterol* 2004; **18**: 865-880 [PMID: 15494283 DOI: 10.1016/j.bpg.2004.06.026]

11 **Caulfield H**, Hyman NH. Anastomotic leak after low anterior resection: a spectrum of clinical entities. *JAMA Surg* 2013; **148**: 177-182 [PMID: 23426596 DOI: 10.1001/jamasurgery.2013.413]

12 **Aras A**, Celik S, Kiziltan R, Yilmaz Ö, Kotan Ç. Successful Treatment of a Large Pelvic Abscess Using Intraluminal VAC: A Case Report. *J Clin Diagn Res* 2016; **10**: PD19-PD20 [PMID: 27190889 DOI: 10.7860/JCDR/2016/18485.7659]

13 **Honma K**, Tango Y, Honma K, Isomoto H. Perioperative management of severe interstitial pneumonia for rectal surgery: a case report. *Kurume Med J* 2007; **54**: 85-88 [PMID: 18475042 DOI: 10.2739/kurumemedj.54.85]

14 **Martins BC**, Marques CF, Nahas CS, Hondo FY, Pollara W, Nahas SC, Ribeiro Junior U, Cecconello I, Maluf-Filho F. A novel approach for the treatment of pelvic abscess: transrectal endoscopic drainage facilitated by transanal endoscopic microsurgery access. *Surg Endosc* 2012; **26**: 2667-2670 [PMID: 22407154 DOI: 10.1007/s00464-012-2215-6]

15 **Kollmorgen TA**, Kollmorgen CF, Lieber MM, Wolff BG. Seminal vesicle fistula following abdominoperineal resection for recurrent adenocarcinoma of the rectum. Report of a case. *Dis Colon Rectum* 1994; **37**: 1325-1327 [PMID: 7995167 DOI: 10.1007/BF02257806]

16 **Brehant O**, Hanes A, Fuks D, Sabbagh C, Blanpain S, Brazier F, Regimbeau JM. Stapled marsupialisation of chronic low rectal anastomotic sinuses. *Int J Colorectal Dis* 2009; **24**: 1233-1237 [PMID: 19655154 DOI: 10.1007/s00384-009-0780-5]

17 **Rahimi H**, Venbrux AC, Obias V. Successful embolization of a enterocutaneous fistula tract with Onyx 34 following low anterior resection for rectal cancer. *Radiol Case Rep* 2018; **13**: 728-731 [PMID: 29765484 DOI: 10.1016/j.radcr.2017.09.007]

18 **Scabini S**, Pertile D, Boaretto R, Rimini E, Romairone E, Scordamaglia R, Ferrando V. [Leakage of colorectal anastomosis after neoadjuvant therapy with bevacizumab. Case report]. *G Chir* 2009; **30**: 413-416 [PMID: 19954580]

19 **D'Hondt M**, De Hondt G, Malisse P, Vanden Boer J, Knol J. Chronic pelvic abscedation after completion proctectomy in an irradiated pelvis: another indication for ENDO-sponge treatment? *Tech Coloproctol* 2009; **13**: 311-314 [PMID: 19603139 DOI: 10.1007/s10151-009-0505-3]

20 **Mandai K**, Uno K, Yasuda K. Endoscopic ultrasound-guided drainage of postoperative intra-abdominal abscesses. *World J Gastroenterol* 2015; **21**: 3402-3408 [PMID: 25805951 DOI: 10.3748/wjg.v21.i11.3402]

21 **Sadatomo A**, Koinuma K, Miki A, Horie H, Yasuda Y. [A case of metachronous gastrointestinal perforation of a patient with metastatic rectal cancer during treatment with bevacizumab-based chemotherapy]. *Gan To Kagaku Ryoho* 2013; **40**: 943-945 [PMID: 23863742]

22 **Kimura A**, Nishikawa S, Yachi T, Ito Y, Kudo Y, Kubo N, Tokura T, Umehara Y, Kurushima M, Takahashi K, Morita T. [A case of advanced rectal cancer treated effectively with intersphincteric resection and preoperative chemotherapy]. *Gan To Kagaku Ryoho* 2012; **39**: 2201-2203 [PMID: 23268023]

23 **Ikeda S**, Takeda H, Yoshimitsu M, Hinoi T, Yoshida M, Sumitani D, Takakura Y, Kawaguchi Y, Shimomura M, Tokunaga M, Kawahori K, Ohdan H, Okajima M. Abscess in the inguinal hernial sac after peritonitis surgery: a case report. *World J Gastroenterol* 2009; **15**: 1007-1009 [PMID: 19248203 DOI: 10.3748/wjg.15.1007]

24 **Goldman HS**, Sapkin SL, Foote RF, Taylor JB. Seminal vesicle-rectal fistula. Report of a case. *Dis Colon Rectum* 1989; **32**: 67-69 [PMID: 2910663 DOI: 10.1007/BF02554729]

25 **Kovacevic B**, Kalaitzakis E, Klausen P, Brink L, Hassan H, Karstensen JG, Vilmann P. EUS-guided through-the-needle microbiopsy of pancreatic cysts: Technical aspects (with video). *Endosc Ultrasound* 2020; **9**: 220-224 [PMID: 32611847 DOI: 10.4103/eus.eus\_12\_20]

26 **Oh D**, Ligresti D, Seo DW. Novel swine biliary dilatation model with temperature-controlled endobiliary radiofrequency ablation: An effective tool for training in EUS-guided biliary drainage. *Endosc Ultrasound* 2020; **9**: 245-251 [PMID: 32675461 DOI: 10.4103/eus.eus\_34\_20]

27 **Rana SS**, Sharma R, Gupta R. EUS-guided transmural pancreatic duct interventions for relief of pain in patients with chronic pancreatitis and failed ERCP. *Endosc Ultrasound* 2020; **9**: 274-275 [PMID: 32769236 DOI: 10.4103/eus.eus\_46\_20]

28 **Guerson A**, Ho S. The use of EUS-microforceps biopsies to evaluate patients with pancreatic cystic lesions. *Endosc Ultrasound* 2020; **9**: 209-210 [PMID: 32594027 DOI: 10.4103/eus.eus\_32\_20]

29 **Nishida T**, Kawai N, Yamaguchi S, Nishida Y. Submucosal tumors: comprehensive guide for the diagnosis and therapy of gastrointestinal submucosal tumors. *Dig Endosc* 2013; **25**: 479-489 [PMID: 23902569 DOI: 10.1111/den.12149]

30 **Pesenti C**, Bories E, Caillol F, Ratone JP, Godat S, Monges G, Poizat F, Raoul JL, Ries P, Giovannini M. Characterization of subepithelial lesions of the stomach and esophagus by contrast-enhanced EUS: A retrospective study. *Endosc Ultrasound* 2019; **8**: 43-49 [PMID: 30264741 DOI: 10.4103/eus.eus\_89\_17]

31 **Antonini F**, Delconte G, Fuccio L, De Nucci G, Fabbri C, Armellini E, Frazzoni L, Fornelli A, Magarotto A, Mandelli E, Occhipinti P, Masci E, Manes G, Macarri G. EUS-guided tissue sampling with a 20-gauge core biopsy needle for the characterization of gastrointestinal subepithelial lesions: A multicenter study. *Endosc Ultrasound* 2019; **8**: 105-110 [PMID: 29770781 DOI: 10.4103/eus.eus\_1\_18]

**Footnotes**

**Informed consent statement:** Written informed consent was obtained from the patient for publication of this case report and accompanying images.

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**Figure Legends**



**Figure 1** **Anastomotic site findings.** A: Previous colonoscopy showing no abnormalities near the anastomotic site; B: Last colonoscopy performed at the local hospital showing a smooth protuberance near the anastomotic site; C:Endoscopic ultrasound image showing a hypoechoic structure in the rectum; D:No obvious thickening or strengthening of the anastomotic wall was visible in the contrast-enhanced computed tomography scan of the pelvic cavity.

 

**Figure 2 Endoscopic images.** A: After opening the sac wall, a yellow viscous liquid can be seen flowing out; B: Colonoscopy image showing the five metal clips clipping the wound after complete clearance of the abscess; C and D: There was no evidence of abscess recurrence in both white light endoscopy and narrow-band imaging after a follow-up period of 11 mo.

**Table 1 Description of cases with abscess appearing as a complication after rectal cancer surgery**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Ref.** | **Year** | **Study design** | **No. of patient** | Age, yr | **Operation method** | **Time from surgery to abscess** | **Chemoradiotherapy before or after surgery** | **Fistula or leakage formation** | **Abscess position** | **Reoperation** | **Success** | **Follow-up** | **Result** |
| Aras *et al*[12] | 2016 | Case report | 1 | 34 | TME; coloanal anastomosis; diverting ileostomy | Postoperation | Before | Leakage | Pelvic | Drainage; intraluminal vacuum associated closure | Yes | 45 d | Development of granulation tissue at the pelvic sinus |
| Honma *et al*[13] | 2007 | Case report | 1 | 68 | LAR | 10 d | Before | Leakage | Pelvic | Colostomy | Yes | ND | ND |
| Martins *et al*[14] | 2012 | Case report | 1 | 37 | Hartmann procedure | 14 d | Before | ND | Pelvic | Transrectal endoscopic drainage facilitated by TEM access | Yes | 60 d | Reduction in the pelvic fluid  |
| Kollmorgen *et al*[15] | 1994 | Case report | 1 | 32 | LAR; abdominal perineal resection for recurrent rectal cancer | 8 d | After | Fistula | Pelvic | Drainage | Yes | 90 d | A smaller pelvic abscess cavity recurrence and resolved by ciprofloxacin and proscar |
| Brehant *et al*[16] | 2009 | Case report | 1 | 62 | Restorative proctectomy with TME, circular stapled low colorectal side-toend anastomosis, and loop ileostomy | Postoperation; 90 d; 225 d | ND | Leakage | Pelvic | Drainage | Yes | 300 d | No abscess recurrence |
| Rahimi *et al*[17] | 2018 | Case report | 1 | 61 | LAR with a diverting loop ileostomy | 14 d | Before; after | Fistula; leakage | Presacral | Drainage | Yes | ND | ND |
| Scabini *et al*[18] | 2009 | Case report | 2 | ND | AR; transanal anastomosis; temporary colostomy | 30 d; 60 d | Before | Leakage | Presacral | No; drainage | Yes | ND | ND |
| D'Hondt *et al*[19] | 2009 | Case report | 1 | 76 | AR; hartmann procedure; completion proctectomy | 6 yr | After | ND | Presacral | ENDO-sponge treatment | Yes | 150 d | No abscess recurrence |
| Mandai *et al*[20] | 2015 | Case report | 1 | 60 | LAR | 17 and 64 d | ND | ND | Around the anastomotic intestine; in the subdiaphragmatic area | EUS-guided transgastric drainage; naso-cystic drainage | Yes | 3 yr | No abscess recurrence |
| Sadatomo *et al*[21] | 2013 | Case report | 1 | 64 | ND | 28 chemotherapy courses | After | Leakage | Intra-abdominal | Drainage | Yes | 19 d | No abscess recurrence |
| Kimura *et al*[22] | 2012 | Case report | 1 | 50 | ISR | Postoperation | Before; after | ND | Dissection area | Drainage | Yes | ND | ND |
| Ikeda *et al*[23] | 2009 | Case report | 1 | 60 | LAR | 6 d | ND | Leakage | In the left inguinal hernial sac | Hernioplasty and resection of the inflamed sac | Yes | ND | ND |
| Goldman *et al*[24] | 1989 | Case report | 1 | 76 | LAR | 30 d | After | Fistula; leakage | Anastomotic; right seminal vesicle | Cutaneous; vasostomy | Yes | 2 yr | No abscess recurrence until death due to stroke associated with cerebral metastases |
| Present case | 2020 | Case report | 1 | 57 | ND | 3 and a half years | No | No | Anastomotic | Endoscopic; fenestration | Yes | 90 d | No abscess recurrence and well anastomotic healing |

ND: Not described; TME: Total mesorectal excision; LAR: Low anterior resection; TEM: Transanal endoscopic microsurgery; AR: Anterior resection; ISR: Intersphincteric resection; EUS: Endoscopic ultrasonography.