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Case Report

# Transanal Endoscopic Operation for Rectocutaneous Fistula After Low Anterior Resection: A Case Report

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**Introduction:** Enterocutaneous fistulas can be caused by abscess formation at the site of anastomotic leakage (AL) after surgery. Rectocutaneous fistula following low anterior resection (LAR) is rare, and medical management of enterocutaneous fistulas is usually the initial treatment. We report a case of rectocutaneous fistula after laparoscopic LAR, which was successfully treated, for the first time, with a transanal endoscopic operation (TEO).

**Case presentation:** A 58-year-old man presented with a history of hypertension, benign prostatic hyperplasia, peptic ulcer, and recent diagnosis of rectal cancer. The patient underwent laparoscopic LAR with coloanal anastomosis complicated with AL. He then underwent transanal repair of the anastomosis site and laparoscopy with ileostomy. Six months later, he complained of a painful mass lesion over the right buttock that relieved after passing purulent fluid and feces. Colonoscopy and imaging revealed a fistula, for which he received antibiotics and wound incision and drainage. He also underwent TEO repair of the rectal fistula, recovered well, and was discharged from the hospital. On follow-up 7 months later, there was no recurrence or sign of localized infection.

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**Conclusion:** TEO repair may be an effective method for managing rectocutaneous fistula after LAR complicated with AL instead of a major operation.

*Key words:* Anastomotic leakage – Enterocutaneous fistula – Low anterior resection – Transanal endoscopic operation – Rectocutaneous fistula

Enterocutaneous fistulas (ECFs) are abnormal lesions caused by inflammatory bowel disease, surgery, abscesses, or iatrogenic causes,[1] such as abscess formation at the site of anastomotic leakage (AL). Nonoperative closure rates for ECFs are lower than surgical closure rates.[2] Transanal endoscopic operation (TEO) is a novel, minimally invasive surgical technique for treating rectal lesions. Although it is technically difficult to resect very large lesions,[3] TEO can be performed in a limited space with parallel placement of the instruments. Here, we report the case of a 58-year-old man who presented with a painful mass lesion over the right buttock 6 months after having undergone laparoscopic low anterior resection (LAR) with coloanal anastomosis complicated with AL. We diagnosed a rectocutaneous fistula and treated him with a TEO.

## Case Presentation

A 58-year-old Taiwanese man had a medical history of hypertension, benign prostatic hyperplasia, peptic ulcer, and recent diagnosis of rectal cancer. The patient underwent laparoscopic LAR with coloanal anastomosis and the pathology report revealed adenocarcinoma of the rectum, moderately differentiated, invading to the pericolic fat, pT3N0M0, and stage IIA after surgery. Four days after the operation, the patient started complaining of abdominal pain. Diffuse abdominal tenderness was noted while the physical examination was performed. He then underwent transanal repair of the anastomosis site with V-lock and laparoscopy with ileostomy and lavage of the abdominal cavity and received broad-spectrum antibiotics for rectum anastomosis leakage.

Six months later, the patient complained of a painful mass lesion over the right buttock and experienced slight relief of the symptom after passing purulent fluid and feces. A low-grade fever of 37.5°C was noted, whereas the physical examination revealed perineal tenderness. Laboratory testing showed that the white blood cell count was $5.48 \times 10^3/\mu L$, with 85.5% neutrophil count and 8.3% lymphocyte count. The C-reactive protein level was 12.13 mg/dL. Colonoscopy (Fig. 1) revealed a rectal fistula around the anastomosis site. An abdominal and pelvic CT scan (Fig. 2A) revealed irregularly shaped poorly enhancing lesions in the right perineal region, suggestive of an infection, and a rectocutaneous fistula extending from the skin to the rectum (Fig. 2B and 2C). The patient was treated with broad-spectrum antibiotics and received wound incision and drainage with a Penrose drain.

After 6 weeks, the patient underwent a TEO (Fig. 3) for repair of the rectal fistula. A TEO surgery port (Transanal Endoscopic Operations, TEO, Karl Storz, Germany) was used on our patient. Surgery was performed with the patient placed in the Lloyd-Davies position under general anesthesia. After platform insertion, the pneumorectum pressure was set at 10–12 mmHg. A rectal fistula was noted (Fig. 3A). Hook-type monopolar electrocautery was used for debridement and coagulation. The debridement was started on the necrotic tissue around the rectal fistula margins. The intraluminal pressure was reduced (7–8 mmHg) to avoid increasing the tension during endoscopic suturing (Fig. 3B). The full-thickness rectal fistula defect was closed with running sutures using the V-Loc wound closure device (Medtronic, Dublin, Ireland) (Fig. 3C).

The patient recovered well and was discharged from the hospital after 1 week. After 1 month,

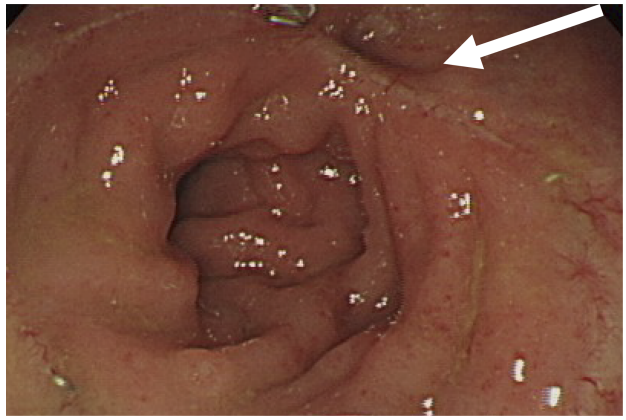

**Fig. 1** Colonoscopy: rectocutaneous fistula (white arrow) around the anastomosis site.

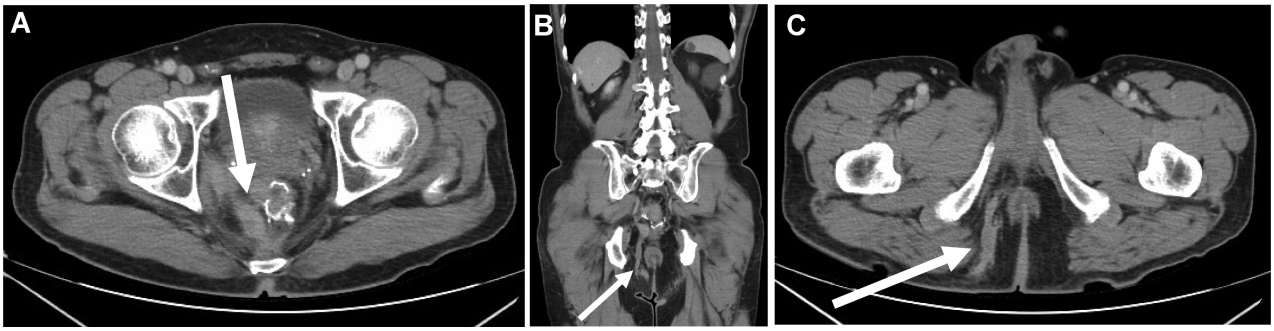


**Fig. 2** Abdominal and pelvic computed tomography. (A) Irregularly shaped, poorly enhancing lesions in the right perineal region, which might have been due to an infection (white arrow). (B) A rectocutaneous fistula extending from the skin to the rectum, coronal view (white arrow). (C) A rectocutaneous fistula extending from the skin to the rectum, axial view (white arrow).

revision of the ileostomy was performed smoothly, and he recovered well and was discharged. Seven months after discharge, he had no signs of localized infection and no recurrence of the rectocutaneous fistula.

Written informed consent was obtained from the patient for the publication of this report and the accompanying images.

## Discussion

ECFs are abnormal tracts that connect the alimentary system to the skin; the causes of ECFs include inflammatory bowel disease, surgery, abscesses, or iatrogenic causes.[1] In our case, the reason for the rectocutaneous fistula formation might have been abscess formation at the site of the AL, which gradually caused weakening of the rectal wall and tissue necrosis.

Most cases of AL occur 3.5–8 days after performing LAR.[4–6] A previous study showed that the incidence of colorectal AL increased in patients with tumors at the distal site (size larger than 3 cm) at an advanced stage or because of emergency surgery and metastatic disease.[7] Intraoperative risk factors included blood loss/transfusion and duration of surgery of more than 4 hours.[7] Another risk factor for fistula formation is the misuse of staplers.[8]

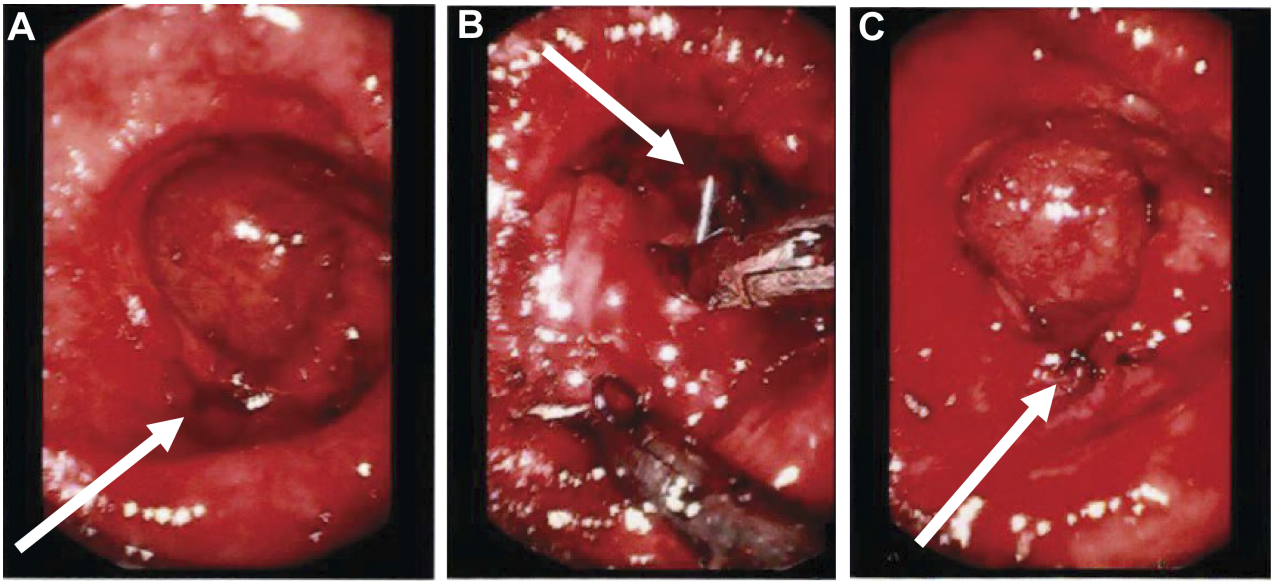


**Fig. 3** Transanal endoscopic operation steps. (A) The fistula (white arrow). (B) Suture placement: the defect is closed using an endoscopic suture with a V-Loc device (white arrow). (C) The fistula was closed by V-Loc sutures (white arrow).

Currently, stapled anastomosis in colorectal surgery is becoming the "gold standard."[8] It improves the anastomotic technique and reduces bleeding; however, attention should be paid when firing the stapler.[8] In our case, there was no obvious risk factor for AL.

ECF treatment is focused on the control and treatment of sepsis, nutritional optimization, and anatomic mapping.[1] The mortality and morbidity rates from ECFs have been reported to be between 6% and 33%.[9] Medical management is usually the initial treatment. Nonoperative closure rates for ECF tracts are between 5% and 20%.[2] Surgical closure rates for ECF tracts are around 75%–85%.[2] TEO microsurgery (TEM), which was developed and defined by G.F. Buess, has generally been accepted for the treatment of early rectal cancers and benign rectal lesions but cannot be performed for colonoscopic excision.[10–12] TEM involves a three-dimensional viewing system with a rectoscope and allows the creation of a pneumorectum, providing access to the entire rectum.[13] However, because of its high cost, the learning curve, and the complexity of the equipment, TEM is not commonly used.[14] In our case, exploratory laparotomy or laparoscopic management of rectocutaneous fistula could have been limited by intra-abdominal adhesions given the history of a previous operation. Hence, we opted to perform TEO on our patient. From the surgical viewpoint, TEO appears to be as efficient as the classical TEM; TEO has shown to have a lower cost with the use of standard laparoscopic equipment[15] and better ergonomics (owing to the camera).[16]

In conclusion, the main advantage of TEO is that it enables surgeons to expose the lesion using endoscopy with a novel surgical technique. TEO also provides a better view than conventional transanal surgery to assess middle and upper rectal lesions. Finally, surgeons can accurately dissect or debride middle and upper rectal lesions. Thus, patients with fistula tracts that develop after LAR can avoid undergoing a major operation such as exploratory laparotomy or laparoscopic management of rectocutaneous fistula.

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