

# Repair of a recurrent traumatic rectovaginal fistula using vaginal wall plication to reinforce a rectal wall advancement flap

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**Background:** Rectovaginal fistulas (RVF) can cause significant physical discomfort and psychological distress for patients and remain amongst the most challenging disorders for surgeons.

**Methods:** A 28-year-old female with a history of a traumatic cloaca repaired 12 years prior was diagnosed with a recurrent RVF and underwent repair using a rectal wall advancement flap reinforced with posterior vaginal wall plication. This case is used to demonstrate surgical technique. The study adhered to the prescribed ethical guidelines. Informed consent was obtained from the patient to use the video recording of her operation for educational purposes.

**Results:** The patient had an uneventful postoperative course. The fistula was fully healed without any signs or symptoms of recurrence at 8 weeks follow-up exam. Her protective ileostomy was successfully closed.

**Conclusions:** Transanal repair of a RVF through creation of a rectal advancement flap and plication of redundant vaginal wall can be used to treat appropriately selected patients with significant tissue defects.

**Keywords:** Rectovaginal fistula (RVF); rectal wall advancement flap; surgical technique

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## Introduction

Although rectovaginal fistulas (RVFs) are not life threatening disorders, they are amongst the most challenging diseases for surgeons. Patients with RVFs typically complain of passing flatus or feces from the vagina. These symptoms may cause both physical discomfort and psychological distress. The most common cause of RVFs is obstetric trauma (1). One study demonstrated that concomitant fecal incontinence is seen in 48% of women with a RVF (2). Examination with digital rectal and vaginal exam, anoscopy, and speculum exam should confirm the diagnosis in most patients.

RVFs can be classified as simple or complex based on etiology, location, and size (3). Simple RVFs are low (rectal opening near dentate line and vaginal opening just inside

the vaginal fourchette), small (<2.5 cm) and are typically caused by obstetric trauma or cryptoglandular infection. On the other hand, complex RVFs are high (vaginal opening at or near cervix), large, or associated with inflammatory bowel disease, radiation, cancer, or persistent despite attempts at prior repair. Rectal advancement flap repair (RAFR) is appropriate for most simple RVFs and can also be used on more complex RVFs though generally with less success (4).

We present a case of a 28-year-old female with a history of a traumatic cloaca repaired 12 years prior that was diagnosed with a recurrent RVF and underwent repair using a rectal wall advancement flap reinforced with posterior vaginal wall plication under protection of a loop ileostomy. This case is used to demonstrate a surgical technique that can be used to treat RVF in patients with significant tissue defects.



**Figure 1** Repair of a recurrent rectovaginal fistula using a rectal wall advancement flap reinforced with posterior vaginal wall plication under protection of a loop ileostomy (17).

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## Methods

### *Patient selection and workup*

The reported success rates of RAFR are highly variable ranging between 29% and 86% (2,3,5-16). This rate likely depends on the etiology of the fistula and the quality of the tissue used to repair the fistula. Better outcomes are achieved with primary procedure, simple fistulas, and fistulas caused by obstetric trauma. RAFR should be avoided in patients with active infection, inflammation, or neoplastic fistulas.

The etiology of the fistula should be sought after prior to performing a RAFR. Patients with traumatic fistulas should be evaluated for fecal incontinence and a concomitant sphincteroplasty should be considered when this symptom is present. If there are signs of an active infection, this should be controlled with drainage and possible seton placement prior to attempt at definitive repair. Also, fecal diversion can be considered with patients with a complex RVF. Patients with Crohn's disease should be medically optimized prior to attempting repair. A history of pelvic radiation is a relative contraindication to RAFR; tissue transfer procedures should be considered in these patients.

### *Preoperative preparation*

In our practice, patients typically undergo a full mechanical bowel preparation the day before surgery and preoperative antibiotics are administered within 30 min of initial incision. RAFR of a RVF is generally performed under general anesthesia. The patient is placed in the prone jackknife position with the buttocks taped apart. The anal canal and vagina are prepped with povidone-iodine solution.

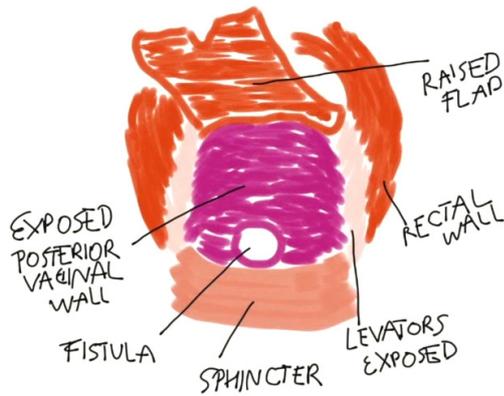
### *Equipment preference card*

- Anorectal tray;
- Headlight;
- Lone star retractor;
- Fine-tip electrocautery and forceps;
- 3-0 absorbable sutures;
- Suction device.

### *Procedure*

A digital rectal and vaginal exam should be performed along with anoscopy to confirm the presence of a fistula. A lone star retractor is then used to expose the rectal mucosa. The surgical technique is demonstrated in the video (*Figure 1*). Creation of a trapezoidal rectal advancement flap with the apex at the fistula opening is began by mobilizing the rectal mucosa just proximal and lateral to the fistula opening and carrying this incision in the proximal and lateral directions. Flap mobilization should continue 4–5 cm proximal to the fistula defect. The flap base should be at least twice the width of the apex to ensure adequate vascular supply. The dissection is carefully deepened exposing the levator muscles laterally. The flap is then retracted superiorly exposing the rectovaginal plane. The rectal flap is separated from the vagina through lateral to medial dissection along the rectovaginal plane. This approach avoids scar tissue and allows for easier identification of the correct plane. This maneuver is repeated along the opposite site of the flap. At the end of this dissection, the scar tissue at the fistula opening is incised connecting the two previously created planes in the rectovaginal septum. This dissection is carried proximally fully freeing the rectal flap from the posterior vaginal wall. The mobilization of the rectal flap should allow for a tension-free reconstruction. The anatomy visualized at this point is represented in *Figure 2*.

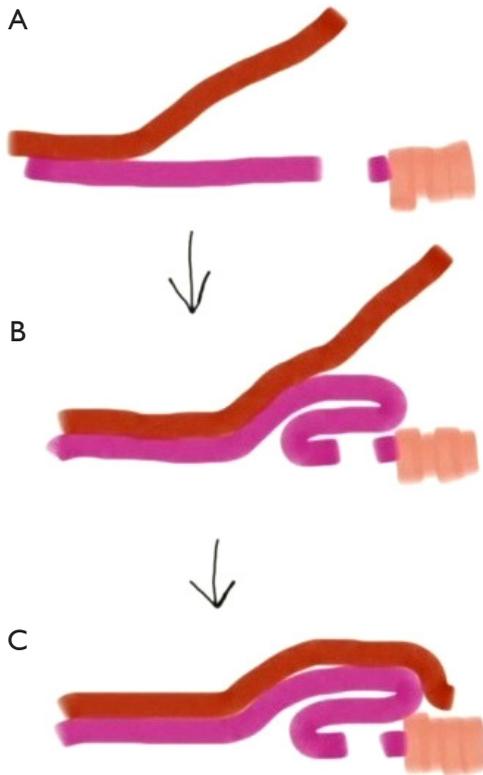
The fistula opening in the vaginal wall is identified and the scar tissue along the edges is debrided. The healthy edges of the vaginal wall can be loosely approximated using absorbable sutures. Alternatively, the vaginal opening can be left open for drainage. The posterior vaginal wall is dissected out as needed until enough pliable and redundant tissue is exposed to allow for plication over the fistula opening (*Figure 3*). This is done using 3-0 absorbable sutures (*Figure 4*). The proximal vaginal wall is sutured to the sphincter muscle complex during the plication process. In patients with a lax pelvic floor, a levatorplasty can be performed to reinforce the vaginal repair. At the completion of the vaginal wall plication, the rectal flap should be brought distally allowing for tension-



**Figure 2** Rectal advancement flap raised above the posterior vaginal wall.



**Figure 4** Suture plication of the posterior vaginal wall.



**Figure 3** Sagittal view of the posterior vaginal wall plicated over fistula opening. (A) Rectal flap raised above the posterior vaginal wall; (B) plication of the posterior vaginal wall over the fistula opening; (C) rectal flap brought down over the fistula opening.

free repair. The apex of the rectal flap can be trimmed and checked for bleeding to ensure excellent blood supply. The repair is completed by suturing the rectal flap to the distal

rectal wall using interrupted absorbable sutures.

At the end of the operation, the area is inspected for hemostasis. A dressing is placed over the perineum and secured with mesh panties. Rectal packing is not necessary. Most patients can be discharged same day as the operation with outpatient follow-up along with pain medication, stool softeners, and sitz baths.

Our patient had an uneventful postoperative course. The fistula was fully healed without any signs or symptoms of recurrence at 8 weeks follow-up exam. Her protective ileostomy was then successfully closed and she remains free of recurrence.

**Results**

*Tips, tricks and pitfalls*

As the rectal flap is developed, the width should gradually increase so that the base is at least twice the width of the apex to ensure adequate blood supply.

A clear plane in the rectovaginal septum should be visualized when dissecting the rectal flap free from the vagina. This can be achieved by first developing a plane proximal to the fistula opening and working laterally to medially on either side of the flap away from scar tissue. Those planes can then be connected at the apex of the flap, which contains the fistula opening, allowing for dissection in a bloodless plane and preserving the full vascular supply to the rectal flap.

The edges around the vaginal fistula opening should be debrided until healthy vaginal tissue is reached. If the surgeon

chooses to close the vaginal opening, this should be done loosely with absorbable sutures to allow for some drainage from underneath the rectal flap in case a hematoma develops.

## Conclusions

Transanal repair of a RVF through creation of a rectal advancement flap can be used to treat appropriately selected patients. We have demonstrated a surgical technique that utilizes vaginal wall plication to reinforce RAFR of a RVF in patients with significant tissue defects. Future studies are needed to further evaluate the efficacy of this technique.

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## Footnote

*Conflicts of Interest:* The authors have no conflicts of interest to declare.

*Informed Consent:* Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

*Ethical Statement:* The study adhered to the prescribed ethical guidelines. Informed consent was obtained from the patient to use the video recording of her operation for educational purposes. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

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