

# Complex recto-vaginal fistula following prolonged obstructed labor treated successfully by colo-anal pull-through: A case report

Uche Emmanuel Eni, Johnson Akuma Obuna, Fabian Olisa, Akputa Obasi Aja, Onyeyirichi Otuu, Michael Okoh Orji

## ABSTRACT

**Introduction:** Recto-vaginal fistulas (RVF) are abnormal epithelial-lined connections between the rectum and the vagina, allowing bowel gas and feces to leak through the vagina. Recto-vaginal fistula has a devastating effect on the quality of life of the patient due to the embarrassing and irritating symptoms. The management is also quite challenging because of the high failure rate after repair. It most commonly occurs as a complication of prolonged obstructed labor in low income countries, among other etiologic factors.

**Case Report:** We present a case of recurrent complex RVF following prolonged obstructed labor that was treated successfully by an uncommon technique of colo-anal pull-through.

**Conclusion:** Colo-anal pull-through is a viable option for the surgical treatment of a difficult RVF.

**Keywords:** Colo-anal pull-through, Complex recto-vaginal fistula, Quality of life

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## INTRODUCTION

Recto-vaginal fistulas (RVF) are abnormal epithelial-lined connections between the rectum and the vagina, allowing bowel gas and feces to leak through the vagina. Recto-vaginal fistula has a devastating effect on the patient's quality of life due to the embarrassing and irritating symptoms. The management is also quite challenging because of the high failure rate after repair. It commonly occurs following prolonged obstructed labor in low-income countries [1, 2]. Other common causes include neoplasm, operative trauma, radiation injury, infectious etiologies, and inflammatory bowel diseases [3].

Recto-vaginal fistula is classified as simple or complex based on size, location, and etiology. Classification of fistula helps determine appropriate therapy. By using size as a criterion, fistulas less than 2.5 cm in diameter are considered small, those greater than 2.5 cm are described as large.

Fistulas opening at the vaginal fourchette are classified as low, while those opening at the level of the cervix and above are classified as high. Fistulas opening in between the high and low ones are middle fistulas [4, 5].

Small and low fistulas resulting from trauma or infection are classified as simple RVF, whereas large or high fistulas are classified as complex. Also recurrent fistulas and those caused by inflammatory bowel disease are also considered complex due to their association with tissue scarring and decreased blood supply. Generally, complex fistulas repair are technically more challenging [4, 5].

## CASE REPORT

A 34-year-old female patient presented with fecal discharge per vaginam without control for one year. This followed a prolonged obstructed labor. She had a repair done four months previously by abdominal route, but the fistula recurred. She subsequently passed no stool at all per anum, but mucus discharge.

She had occasional abdominal colic, but no abdominal distension and no vomiting. She had retro-viral disease (RVD) and had been on highly active anti-retroviral therapy (HAART) for six years. There were no other co-morbidities. She was married and drank alcohol moderately. She did not smoke tobacco.

Examination showed an anxious young woman, mildly pale, anicteric, afebrile, no peripheral lymphadenopathy, and no pedal edema. She was well motivated. Her cardiovascular and respiratory system examination were essentially normal.

The abdomen revealed a sub-umbilical incision scar, otherwise it was normal. The vaginal examination (digital and speculum) showed profuse fecal discharge. The cervix was indurated, the vaginal wall was coated with formed feces. A large fistulous rent was palpable and visible at the posterior vaginal fornix. Rectal examination showed good sphincter tone. The rectum was empty. There was no palpable mass; the gloved examining finger was stained with mucus. A diagnosis of complex RVF with complete cut-off of rectal continuity, in a retroviral positive patient was made.

Combined barium enema and fistulogram was done. Following retrograde injection of diluted barium sulfate the distal part of the rectum was opacified with abrupt cut-off and rounding up of the margin. There was associated reflux of contrast. The sigmoid and the rest of the colon could not be opacified through the enema (Figure 1). A fistulogram done through the fistula tract located in posterior fornix of vagina using a Foleys catheter, opacified the proximal part of the sigmoid colon and descending colon, suggestive of sigmoid-vaginal fistula (Figure 2). A gastrografin enema was then done. This showed a string communication between the lower part of the rectum and the sigmoid, suggestive of recto-sigmoid stricture (Figure 3).

The retroviral test was positive. The CD4+ count was 643 cells/mm<sup>3</sup>; the hematocrit was 33%; white cell count was  $5.6 \times 10^9/L$ , the platelet count was  $311 \times 10^9/L$ . The total serum protein was 93 g/L (Albumin was 37 g/L;

Globulin was 56 g/L). Her fasting blood sugar was 84 mg/dL.

Urinalysis, serum electrolyte, urea and creatinine, chest X-ray, and electrocardiogram were essentially normal. She was then counseled for surgery. She received bowel preparation over three day period with nil residue diet, oral neomycin, and metronidazole. She also received bowel washout through the vagina before surgery.



Figure 1: Following retrograde injection of diluted barium sulfate the distal part of the rectum was opacified with abrupt cut-off and rounding up of the margin. There was associated reflux of contrast. The sigmoid and the rest colon could not be opacified through the enema.



Figure 2: A fistulogram done through the fistula tract located in posterior fornix of vagina using a Foleys catheter, opacified the proximal part of the sigmoid colon and descending colon, suggestive of sigmoid vaginal fistula.



Figure 3: A gastrografin enema was then done. This showed a string communication between the lower part of the rectum and the sigmoid colon, suggestive of recto-sigmoid stricture.

Operation was done under general anesthesia, in Lloyd Davis position and Trendelenburg tilt. Exploration was done via low midline abdominal incision. Findings include a fistulous tract connecting the recto-sigmoid junction to the vagina. There were extensive pelvic adhesions involving the rectum, omentum, and small bowel. The uterus was bulky, but there was no discrete mass. The ovaries and tubes were normal.

Adhesiolysis was done to free the small gut and the omentum. Fistulectomy was done disconnecting the sigmoid from the vagina. The vaginal rent was closed with vicryl suture. The strictured rectal segment was resected. The viable distal rectum was retracted deep in the pelvic cavity, morbidly adherent to the vaginal wall and could not be mobilized for anastomoses with the sigmoid. The rectal stump was scrubbed with povidone iodine. A colo-anal pull-through was done by mobilizing the sigmoid colon and pulled through the sleeve of distal rectum. This was done without mucosectomy of the distal rectum. It was then anchored distally to the anus via perineal approach, and proximally to the rectal wall with interrupted vicryl suture (Figure 4A before and B after pull-through). Sphincterotomy was not necessary to achieve that. A loop colostomy in the left iliac fossa using transverse colon, to avoid tension in the sigmoid, was done. Wound toilet with warm saline was done and wound closed.

The postoperative recovery was uneventful. She had colostomy reversal after three months. She was followed up to two years. She remains symptom free, with improved body mass index and defecates normally.

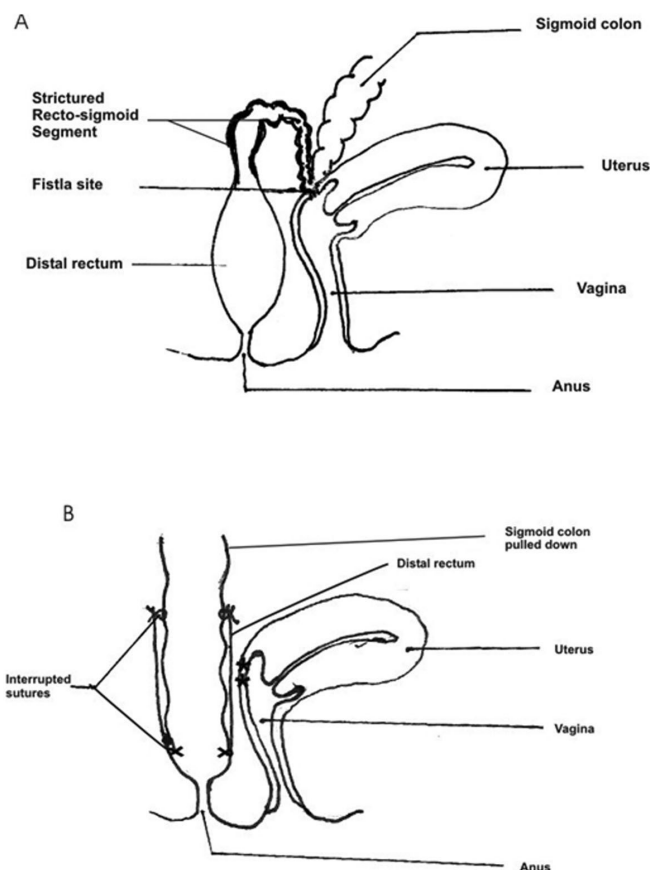


Figure 4: Diagrammatic representation of colon pull-through the distal rectal stump to the anus. (A) Before and (B) after pull-through.

## DISCUSSION

The clinical features of RVF are fairly peculiar. Most patients present with the passage of flatus or stool through the vagina, which is understandably distressing. The patients may also develop recurrent vaginitis, with foul smelling vaginal discharge. Fecal discharge is usually scanty, except when the patient has diarrhea [3]. Frank stool vaginal discharge, as presented by our patient is therefore uncommon. This was due to recto-sigmoid stenosis below the site of fistula, allowing all fecal discharge to pass per vaginam.

Recto-vaginal examination by digital palpation and speculum inspection usually confirms the diagnosis of RVF, as well as the size and location of the fistula. On some occasion, however, the fistula opening may be elusive at physical examination. Placing a vaginal tampon and instilling methylene blue into the rectum confirms the presence of RVF, if the tampon is stained. If the tampon is unstained, another part of the intestine may be involved. Our patient did not demonstrate tampon stain as there was rectal stenosis below the site of fistula.

Other ancillary investigations such as barium enema, fistulogram, computed tomography (CT) scan, magnetic resonance imaging, endorectal, and transvaginal

ultrasound, may reveal RVF that are elusive on physical examination and determine the possible etiology and extent of the disease [6–8]. However, these ancillary studies are only necessary when RVF eludes confirmation on physical examination or if the extent of the disease is unknown. In the index patient, combined barium enema and fistulogram revealed sigmoid-vaginal fistula and recto-sigmoid stricture. The recto-sigmoid stricture was apparently a complication of the initial failed attempt at the RVF repair.

Anal sphincter incompetence is commonly seen in RVF from obstetric origin [9]. Assessment of sphincter function prior to repair is therefore essential. The index patient, however, had good sphincter function on examination.

Basic laboratory investigations including complete blood count, serum electrolytes, urea, and creatinine are done to establish baselines. Retroviral test was positive in our patient, and constituted the only co-morbidity. However, the patient was on HAART, with CD4+ count on the healthy range.

Surgery is the definitive treatment, and consists of repair via either local or transabdominal approach. Mechanical bowel preparation is essential before surgical repair. Perioperative prophylactic antibiotics given at induction of anesthesia are needful. Local repair is most commonly done by transvaginal approach. General or local anesthesia may be used. The patient is placed in lithotomy position. The vaginal mucosa is dissected off the rectal wall. Interrupted inverting sutures are applied to close the rectal defect. The vaginal mucosa is then closed. This approach is suitable only for small low fistulas in otherwise healthy tissues. Other local approaches include transanal advancement flap repair or bioprosthetic repair [10, 11].

Transabdominal repair is generally used for high RVFs, or when the fistula originates from neoplasm, irradiation, as well as when there is concomitant disease such as diverticulitis [12]. This may be done with or without bowel resection. In abdominal approach without bowel resection, the recto-vaginal septum is divided, and the rectum and vagina closed separately. Interposition of tissue such as omentum may be used to buttress the repair and separate the suture lines. This achieves good result when the fistula is not large and the tissues available for closure are healthy.

However, when tissues are abnormal because of irradiation, inflammation or neoplasm, the abnormal tissues are resected, otherwise the repair is doomed to failure. Resection and reconstruction must strive to preserve anal sphincter function. This is achieved by use of low anterior resection, a colo-anal anastomosis, or a pull-through. A colo-anal pull-through via the distal rectal sleeve was done in the index case with excellent healing and good sphincter control. In a study by Schouten et al., sleeve advancement had an overall healing rate of 75% for persistent RVF [13].

Occasionally, abdominoperineal resection may be required for symptom control in the setting of radiation injury or neoplasm. In a few cases of poor operative risks or patients with limited survival, all that can be done may be simple fecal diversion with a loop ileostomy or colostomy [14, 15].

## CONCLUSION

The treatment of recto-vaginal fistula can be challenging. Concise diagnosis and meticulous workup of the patient enable systematic and individualized approach for a successful repair. Colo-anal pull-through is a viable option especially in difficult cases with pelvic adhesions that precludes colorectal anastomosis following resection.

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**Author Contributions**

Uche Emmanuel Eni – Conception of the work, Design of the work, Drafting the work, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Johnson Akuma Obuna – Conception of the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

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**Conflict of Interest**

Authors declare no conflict of interest.

**Data Availability**

All relevant data are within the paper and its Supporting Information files.

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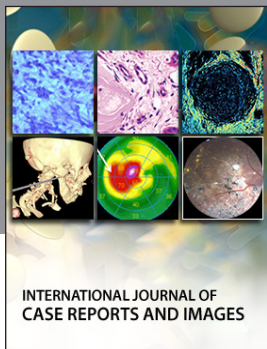
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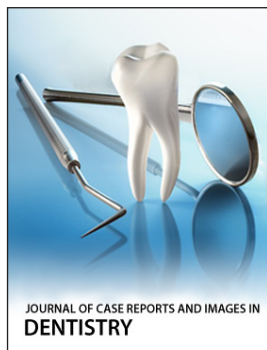
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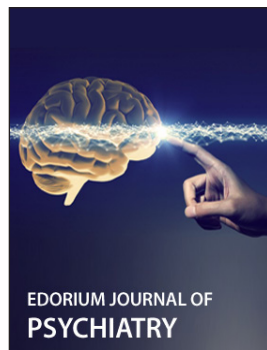
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