

CASE REPORT

Successful repair of a rectovaginal fistula caused by a tension-free vaginal mesh (TVM): a case report

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Abstract:

Rectovaginal fistula caused by a tension-free vaginal mesh (TVM) is a rare condition. Moreover, a rectovaginal fistula is a challenging issue to address for surgeons regardless of causes. Due to a low rate of occurrence, treatment modality for a rectovaginal fistula caused by a TVM has previously received little attention. A successful surgery using several key techniques to address a rectovaginal fistula caused by a TVM is herein reported. A 78-year-old woman who underwent a TVM for a rectocele three months ago was referred to our hospital with a two-month history of anal bleeding. Mesh protruding into both the vagina and the rectum was confirmed. The patient was operated on under diagnosis of a rectovaginal fistula caused by TVM. TVM was removed by transvaginal dissection of the rectovaginal septum with division of both anterior and posterior arms of the TVM. Layer-to-layer sutures of rectal and vaginal walls were crossly performed with a drain placed in the rectovaginal septum after saline irrigation followed by a covering sigmoid colostomy. The wound healed without infection after surgery, and a water-soluble contrast enema demonstrated the healing of the rectovaginal fistula two months after surgery. No recurrent fistula was confirmed 15 months after stoma closure.

Keywords:

rectovaginal fistula, mesh, tension-free vaginal mesh (TVM), stoma, transvaginal rectovaginal fistula repair

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Introduction

A tension-free vaginal mesh (TVM) has been increasingly used for pelvic organ prolapse (POP)^{1,2)}. However, the U.S. Food and Drug Administration (FDA) released a safety communication entitled “UPDATE on Serious Complications Associated with Transvaginal Placement of Surgical Mesh for POP” in 2011³⁾. The “UPDATE” listed the following complications: mesh erosion, pain, infection, bleeding, pain during intercourse, organ perforation, and urinary problems. Erosion by mesh is reported to occur in 3.2%-4.3%^{4,5)} of patients after insertion of TVM; however, rectovaginal fistula

caused by TVM has been rarely documented⁶⁻¹⁰⁾. In a retrospective multicenter study⁷⁾, rectovaginal fistula by TVM has been reported to occur in one of 684 patients (0.15%). Therefore, treatment modality for a rectovaginal fistula by TVM has rarely been documented⁸⁻¹⁰⁾. At the same time, a rectovaginal fistula is a rare condition which occurs following obstetric injury, rectal surgery including low anterior resection and other factors, and is a challenging issue to cure for surgeons and gynecologists¹¹⁻¹³⁾. We herein report a successful surgery with several key techniques resulting in the closure of a rectovaginal fistula caused by TVM.

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Case Report

A 78-year-old woman with a two-month history of anal bleeding, purulent vaginal discharge, and vaginal pain was referred to our hospital. She underwent a TVM operation for a rectocele three months ago in an outside hospital. An infected TVM, which was 1.5 cm in diameter, protruded from the posterior vaginal wall at a 1 cm distal to the uterine cervix (Figure 1). The TVM, which was 2 cm in diameter, protruded from the anterior rectal wall just proximal to the anal canal (2.5 cm from the anal verge, Figure 2), with a concomitant rectovaginal fistula. The anterior arms of the TVM were palpated at the lateral sides of the vaginal wall to the obturator, and the posterior arms were palpated at the lateral sides of the rectum to sacrospinal ligaments through a digital examination of the vagina and the rectum. Mesh shrinkage was also palpated in the rectovaginal septum between the proximally located (protruded) vaginal mesh and distally located (protruded) rectal mesh. Pelvic computed tomography (CT) demonstrated a TVM in the rectovaginal septum with bilateral anterior and posterior arms, but no abscess formation was confirmed. WBC count and CRP were 8,000/mm³ and 0.6, respectively, without any other abnormal blood test findings. The preoperative diagnosis indicated an infected TVM protrusion into both the vagina and the rectum by rectovaginal fistula.

Surgery was performed under general anesthesia with the patient in the lithotomy position. Visualization of the vagina was obtained using a Lone Star retractor and a retractor connected to an Octopus retractor holder (Figure 3). A longitudinal incision of the posterior vaginal wall was initially performed from just below the protruded TVM down to just above the anal sphincter to visualize the TVM. While grasping the TVM with forceps, the rectovaginal septum was bilaterally dissected with an additional transverse incision at the entrance of the vagina performed to fully visualize the TVM, though the severe adhesion of TVM to the surrounding tissues made the dissection difficult (Figure 3). During the procedure, fixation sutures of the TVM to the uterine cervix were cut. Posterior arms of the TVM were divided by scissors near the sacrospinal ligament through bilateral perianal routes. Bilateral perianal routes were made by bilateral 3 cm incisions 3 cm outside the anus while palpating the bilateral posterior arms of TVM by trans-anal finger. Anterior arms of the TVM to the obturator were divided as far as possible from the infected mesh in the lateral sides of the vagina. The fistula tract of the rectum and the vagina were trimmed, and the contaminated rectovaginal septum was curetted and irrigated with a 500 ml of saline. The rectal wall was transversely sutured and the vaginal wall was closed longitudinally followed by the drain placed at the rectovaginal septum (Figure 4). A covering sigmoid colostomy was simultaneously constructed. Finally, the TVM was removed

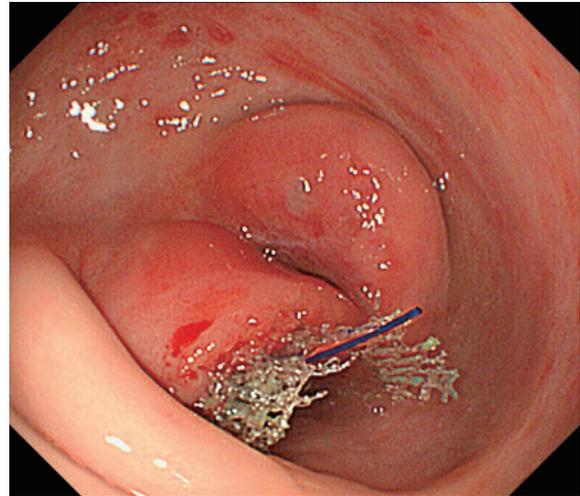


Figure 1. TVM 1.5 cm in diameter protruded from the posterior vaginal wall just distal to the uterine cervix.

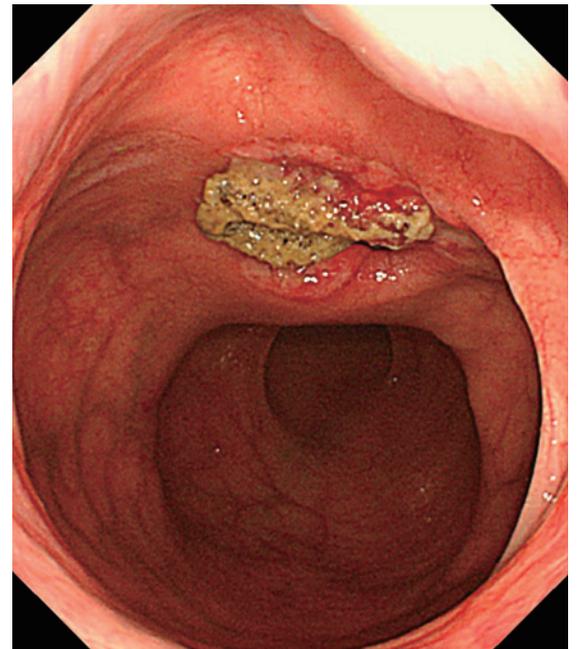


Figure 2. Two cm size of TVM protruded from the anterior rectal wall just proximal to the anal canal.

with anterior and posterior arms (9 × 5.5 cm in diameter) (Figure 5), though some tips of anterior and posterior arms of TVM were left behind.

The wound healed without infection after surgery, and a water-soluble contrast enema demonstrated a closure of rectovaginal fistula two months after surgery. The patient underwent a treatment for heart disease followed by stoma closure 17 months after the initial rectovaginal fistula repair. No recurrence of rectovaginal fistula was confirmed 15 months after stoma closure.

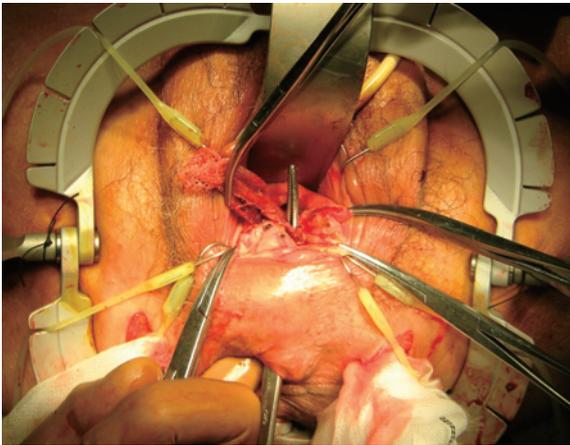


Figure 3. Forceps were inserted from the rectal side of the fistula to the vagina under visualization by a Lone Star retractor and a retractor connected to an Octopus retractor holder during the removal of TVM.

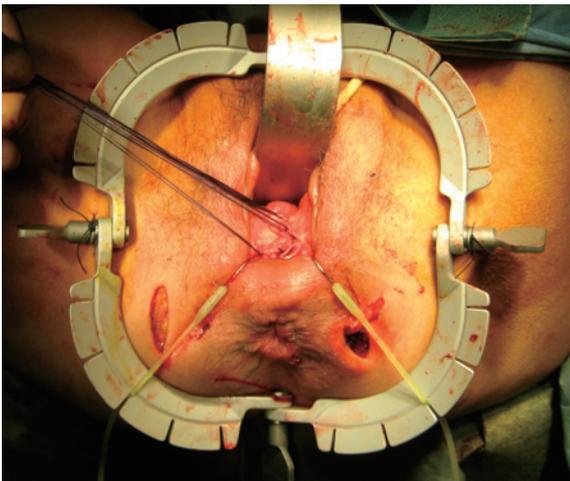


Figure 4. The vaginal wall was closed longitudinally followed by closure of the entrance of the vagina. Bilateral perianal wounds for division of the posterior arms of TVM can be seen.

Discussion

A retrospective multicenter study⁷⁾ has documented that a rectovaginal fistula caused by TVM is a rare condition occurring in 1 of 684 patients (0.15%) who have undergone TVM surgery. Rectovaginal fistulas occurred within the period between 1 week and 9.5 months after initial TVM surgery⁶⁻⁹⁾. Choi et al. reported that the time to presentation of rectovaginal fistula was an average of 7.1 months after POP repair¹⁰⁾. According to the joint terminology and classification of complications related directly to the insertion of prostheses (meshes, implants, tapes) and graft in female pelvic floor surgery defined by an International Urogynecological Association (IUGA) and International Continence Society (ICS)⁶⁾, the reported time to presentation (selection time

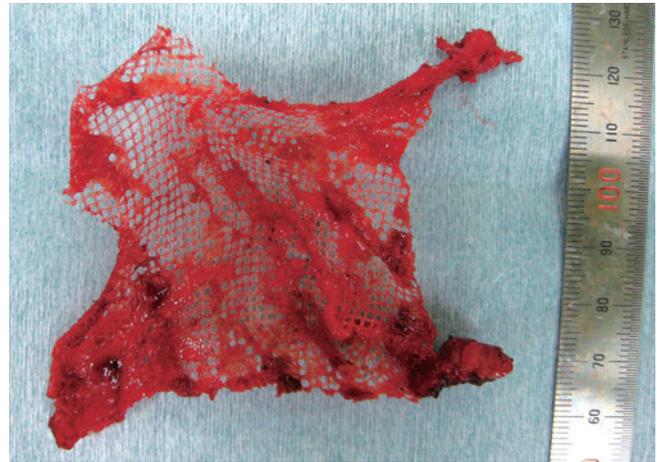


Figure 5. TVM with anterior and posterior arms (9 × 5.5 cm in diameter) were removed.

(T) division) of a rectovaginal fistula mostly correspond to T3: 2-12 months. Later healing abnormalities are more likely to occur. Our case also occurred in T3 division according to this classification.

The reported symptoms of anal discharge, vaginal discharge, and dyspareunia with protruding meshes in the rectum and the vagina⁸⁾ are consistent with our case. Diagnosis of rectovaginal fistula by TVM can, therefore, be made by these symptoms with confirmation of protruding meshes in the rectum and the vagina.

Treatment procedures of a rectovaginal fistula included endorectal closure, transvaginal closure, transperineal closure, Martius procedure, Gracilis interposition, transvaginal anterior levatorplasty, and so on performed for any etiologies. A wide range of success rates have been reported after these procedures¹¹⁻¹³⁾. Treatment modality for a rectovaginal fistula by TVM has received little documentation due to the fact that is a rare condition⁸⁻¹⁰⁾. Hilger et al. documented the first case report of a rectovaginal fistula after a posterior intravaginal slingplasty and polypropylene mesh augmented rectocele repair, but two failures in attempts to correct the fistula⁸⁾ were also documented. Choi et al. reported that patients underwent a mean of 4.4 surgeries for a definitive rectovaginal fistula repair, with 40% of patients requiring a bowel diversion¹⁰⁾. Dwyer et al. described a case of successful rectovaginal fistula repair with partial excision of the Atrium mesh and a layered closure of the fistula with a Martius graft⁹⁾.

It is emphasized that to optimize repair outcomes for a rectovaginal fistula, it is important to ensure that any associated perineal sepsis has been resolved as part of preoperative considerations¹³⁾. This needs to be achieved primarily by addressing the underlying cause of the fistula (e.g., medical therapy for Crohn's disease, removal of a foreign body such as a stapler, or drainage of an abscess)¹³⁾. However, any in-

ected mesh has to be removed during the repair of a rectovaginal fistula caused by TVM. No abscess formation was confirmed preoperatively in our case. Therefore, we planned to cut and remove the TVM at the non-infected site and to eliminate the contamination by irrigation of the wound. It was considered that an extensive surgery was required from the abdominal or retroperitoneal route to completely excise the anterior and posterior arms of TVM. Therefore, we divided the posterior arms through bilateral perianal routes and the anterior arms as far as possible from the infected mesh. These procedures, curettage and irrigation of the wound after removal of TVM and the drainage might contribute positively to healing without infection.

It is important to obtain a better surgical field for a proper removal of the adhered TVM to the rectum and the vagina without any additional injury to the rectum and the vagina. We used a Lone Star retractor and a retractor connected to an Octopus retractor holder (Figure 3) for better visualization of the vagina. For better visualization, we further added a transverse incision at the entrance of the vagina in addition to the longitudinal incision of the vagina which was often used for dissection of rectovaginal septum in performing anterior levatorplasty¹². These techniques for visualization of the vagina were also considered to be useful in getting a successful rectovaginal fistula repair caused by TVM. Furthermore, longitudinal closure of the vagina and transverse closure of the rectum might be beneficial in securing healing of the fistula wound.

Finally, we would like to emphasize that when symptoms of a rectovaginal fistula by synthetic mesh are present, collaboration with colon and rectal specialists should be initiated as soon as possible for evaluation and definitive repair as Choi et al. concluded in their paper¹⁰.

Conflicts of Interest

There are no conflicts of interest.

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