



# The Repair of an Urethrovaginal Fistula Using a Biologic Dermis Graft in Female Urologic Surgery

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## Case Report

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## Abstract

An urethrovaginal fistula is an abnormal connection between the urethra and the anterior vaginal wall. There are many ways to repair a urethrovaginal fistula, the most common being using a patient's tissue to place between the urethra and the vagina. However, a patient's tissue may be friable, causing a recurrence of the urethrovaginal fistula. This case report focuses on using a biologic graft dermis to successfully repair the urethrovaginal fistula.

**Keywords:** Urethrovaginal Fistula; Biologic Dermis Graft; Urinary Incontinence; Female Urologic Surgery

## Introduction

A urethrovaginal fistula occurs when the urethra has an abnormal connection to the anterior vaginal wall. Etiology in the developing world is from trauma or iatrogenic injury during pelvic surgery and commonly results in urinary incontinence [1]. Different repair procedures have been recommended; however, the Martius operation with a labial fat pad between the urethra and vagina has been the go-to surgery. There have been reported cases of vesicovaginal and rectovaginal fistula repairs using a biological graft dermis; however, there are no reported cases of repairing a urethrovaginal fistula using a biological graft dermis. In this case report, we present a female patient with health complications and the use of biological graft dermis to successfully repair her urethrovaginal fistula.

## Case Report

SG is a 75-year-old female with a past medical history of uncontrolled diabetes who presented to the office with complaints of urinary incontinence and stress urinary

symptoms. Her past surgical history is pertinent for posterior vaginal wall repair for a cystocele, rectocele, and mid-urethral sling. Over the last couple of years, she has experienced urinary incontinence ranging from moderate to severe and wearing a catheter for management. She has also had urethral bulking without success. In order to stay dry, the decision was made to place an indwelling catheter, and over the last year, she has had it changed every 4 weeks as recommended.

In one of her visits with one of her providers, she was examined and noted to have the Foley catheter balloon bulging through a large opening in the anterior vaginal wall. It was then removed, and a 22 inch French Foley catheter with a 30 cc balloon was placed to prevent the Foley catheter from falling through the defect and allowing emptying of her bladder at the same time.

Ultimately, the patient decided to have surgery to repair the fistula. During surgery, a 22 inch French Foley catheter was placed into the bladder, and two Allis clamps were placed on the labia majora for manipulation and visualization of the

operative field. Then two additional Allis clamps were placed 1.5 cm below the defect. The defect was two cm below the external urethral meatus. A 25-gauge needle was used for hydro dissection circumferentially around the defect to thicken the tissue to ensure that full-thickness dissection was performed, which created two layers of vesicovaginal fascia for proper closure. The full-thickness dissection was performed using electrocautery with the pinpoint Bovie tip as well as sharp dissection with the Metzenbaum scissors. Once the second layer was performed a 4-0 Vicryl suture was used to close it in a running fashion.

During the closure of the defect, a decision was made to place a biologic dermis graft to ensure the integrity of the urethra and bladder neck. The biologic dermis was approximately 2x2 cm in size. Once the biologic graft was sutured down using a coronary technique with 4-0 Vicryl suture, the second and third layer was closed using 3-0 Vicryl suture in a running fashion. The Foley catheter remained in place for approximately 3 weeks, and the patient was brought back to the office for a voiding cystourethrogram which was normal and did not show any extravasation of urine into the vagina. The integrity of the anterior vaginal wall and the previous area of the urethral vaginal fistula were thickened and intact.

## Discussion

A patient with a urethrovaginal fistula can have symptoms including incontinence, UTIs, urgency, and possible difficulty with catheterization [2]. There are many reported surgical procedures to repair a urethrovaginal fistula. One of the most common methods employed places a labial fat pad between the urethra and the vaginal wall, also known as the Martius procedure. Studies have demonstrated that fistula repairs were poor when patients had multiple operations due to local tissue ischemia and fibrosis resulting from previous interventions [3]. Furthermore, when using the patient's own tissue, there is a concern that it might be weak, constricted, or anatomically incorrect when suturing the tissue in place. The use of a graft allows for a larger base and eliminates the need to rely on the existing weak fascia and musculature [4]. Biological graft dermis has been used in repairs of rectovaginal and vesicovaginal fistulas; however, no report has been done on the use of it in an urethrovaginal fistula. Furthermore, fistulas between the urethra and the vagina should be treated differently than other pelvic fistulas, especially in the mid-urethra, due to potential sphincter involvement [5].

In this case report, the patient had previous pelvic surgeries, including a mid-urethral sling placement, and although uncertain of the cause of the fistulous formation, her comorbidities and poor health could have contributed to it. Since she had a history of previous pelvic surgery, research states that a graft should be used in patients who have failed previous reconstructive surgery and have inadequate tissue, especially in patients who are post-menopausal because of atrophic vaginal tissue. Complications could arise due to poor diabetic control leading to poor wound healing with the graft in place; however, this patient was pleased with the outcomes and is able to completely urinate, with some residual stress urinary incontinence, but she does not have to wear a catheter, nor does she have to wear a pad for heavy incontinence.

## Conclusion

The most common method to repair an urethrovaginal fistula is the Martius procedure. However, due to the friability of vaginal tissue in post-menopausal women, using a biologic graft dermis can be more effective in repairing the fistula than the patient's own tissue. In this case, we demonstrate the success of using a biologic graft dermis to successfully repair an urethrovaginal fistula with mild residual urinary incontinence.

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