



The Use of Biological Dermis Grafts in Recurrent Rectovaginal Fistula Repair

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ABSTRACT

A Rectovaginal Fistula (RVF) originates from the rectum and extends to the vagina. Obstetrical trauma is the most common risk factor, with the second most common being colonic disease. In this report, we look at a case with a recurrent RVF and how it was repaired using a biological graft, allograft dermis. Biological grafts have the ability to reintegrate into the surrounding tissue. Traditionally RVF repairs involve 3-4 layers of tissue. The use of the allograft dermis adds a 4th to 5th layer making recurrence unlikely. Thus, this adjuvant therapy is a novel approach for RVF repairs.

Keywords: Rectovaginal fistula repair; Biological graft; Allograft dermis; Recurrent rectovaginal fistula; Rectovaginal fistula due to CVA; Failed prior mesh repair

INTRODUCTION

A rectovaginal fistula (RVF) originates from the rectum and extends to the vagina. It results as a complication of an underlying disease, surgical event, or injury. Common causes include third- and fourth-degree lacerations during vaginal delivery, thinned out tissue between the rectum and vagina, or ischemia of the tissue resulting in perforation and fistula formation. Other causes include diverticular disease, Crohn's disease, malignancy, and radiation. Conservative treatments involve treating the symptoms and possible complications like site infection or irritation and underlying causes such as diverticulitis or Crohn's disease. These treatments are appropriate in high-risk patients. On the other hand, non-conservative treatment includes replacing unhealthy tissue

with healthy one with good blood supply or fistula debridement and flap placement [1].

CASE PRESENTATION

LV is a 64-year-old female with a history of prior RVF mesh repair in March 2021, Diabetes Mellitus Type 2, two cerebrovascular accidents (CVAs), and colonic polyps who presented to the office in October 2021 complaining of stool coming out of her vagina. According to the patient, her prior CVA resulted in chronic constipation, which led to her developing the RVF. On physical exam, the patient had an eight mm RVF in the distal posterior vaginal wall. The patient tried conservative therapy with diet control without improvement. The decision was made to proceed with an RVF repair with biologic graft placement.

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To prime the vaginal mucosa for surgery, the patient was instructed to use estradiol cream until the surgery date.

The patient was taken to the operating room, where general anesthesia was administered. She was prepped and draped in the usual sterile fashion. Her perineum was then prepped with Betadine solution. Her legs were then placed in the Allen stirrup position. Two Allis clamps were placed on the perineum and thus on the posterior vaginal wall. A linear incision was then made to open the rectovaginal septum. Once the rectovaginal septum was opened, the fistulous tract was located. This was cleansed with chlorhexidine irrigation. Afterward, the fistulous tract edges were freshened, and a flap was created to close the defect in its entirety. Then a 3.0 Vicryl was used to close the rectal mucosa in a running fashion. A second layer was then imbricated on top of the initial tract. Afterward, a 6 × 8 cm biologic graft, allograft dermis, was placed on top of the second layer for integrity and doubled plied. This was cinched down with a 2.0 Vicryl suture in an interrupted fashion. Next, the rectovaginal mucosa was closed with a 2.0 Vicryl suture on a UR-6 needle in a running locking fashion. Good hemostasis was noted at this time. A vaginal packing was placed.

On postoperative day one, the patient was doing well and had no complaints. She denied nausea, vomiting, fever, chills, and acute events during the night. On physical exam, the patient had no stool in the vagina. She was then discharged home with precautions and told to follow up in two weeks. Patient was sent home with Colace 100 mg PO BID, Flagyl 500mg PO BID for one week, Ciprofloxacin 500mg PO BID for five days, Motrin 600mg PO Q6H, and Norco 5-325 PO Q6H.

On postoperative day 14, there was no communication from the rectum to the vagina upon rectal examination on the vaginal exam, the patient had a minor opening defect on the vaginal side. The patient admitted to performing strenuous activities, such as lifting more than usual and walking due to the holidays. A one cm area of suturing was performed to close the defect with 2.0 Vicryl. Good hemostasis was noted. The patient was prescribed clindamycin 300mg BID for one week and will follow up in four weeks.

Discussion

RVFs make up five percent of all anorectal fistulas [2]. According to research, two million women suffer from RVFs worldwide [3]. Obstetrical trauma is the most common risk factor for developing rectovaginal fistulas, with the second most common being colonic disease. Patients will commonly present with complaints of passage of flatus or stool through the vagina. Spontaneous healing of RVFs has been noted in 7-10%; however, most patients will require surgical intervention [3]. There are different ways to surgically repair an RVF, including simple fistula repair, endorectal advancement flap, use of muscle flaps, and biosynthetic material.

According to Abbas MA, et al. [4] the success rate of endorectal advancement flap for RVF has been reported between 41 and 100%; however, a recurrent or persistent RVF has a lower

closure rate. Due to the patient having a prior failed repair, it can cause inadequate tissue from scarring. Various biological grafts have been used in various settings, from ventral hernia repairs to colporrhaphy to cleft palate repair.

The biological graft used at this time was allograft dermis, which is made of donated human tissue and undergoes a strenuous process to strip the material of all DNA. This bioimplant is commonly used in colporrhaphy. Once placed, the graft can reintegrate into the patient's tissue and correct the problem. Because of its reintegration properties, it can prove to be more effective than biosynthetic products and less likely to become infected or even result in erosion. Furthermore, this provides an alternative to using the patient's tissue, leading to a quicker recovery time [5].

CONCLUSION

Different approaches have been taken for an RVF repair. The most recent attempted method being the use of biosynthetic products, such as collagen fistula plugs. Various researches shows success when biological material is used to repair hernias, pelvic organ prolapse, and cleft palates. Traditionally, RVF repairs involve 3-4 layers of tissue, from the rectal mucosa to the rectovaginal fascia to the vaginal epithelium. With the use of the allograft dermis, there's a 4th to 5th layer of tissue added between the rectovaginal fascia and vaginal epithelium, decreasing the odds of recurrence, allowing for faster recovery time so long as the patient does not have comorbidities that can significantly affect wound healing like poor diabetic control, connective tissue disease, and smoking. Thus, making this a novel technique as adjuvant therapy for the repair of a rectovaginal fistula.

AUTHOR CONTRIBUTIONS

G.G. collected the data and typed the article; W.S. collected the references and edited the article; K.S. edited the article; C.W. examined, Performed the procedure, and edited the article. All authors have read and agreed to the published version of the manuscript.

CONFLICTS OF INTERESTS

Williams is a surgical consultant of Coloplast Urology.

INSTITUTIONAL REVIEW BOARD STATEMENT

Ethical review and approval were waived for this study, due to the nature of the case report being an observatory of the standard of care for the patient's diagnosis and not experimental.

INFORMED CONSENT STATEMENT

Informed consent was obtained from the patient.

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