

# Gracilis Muscle Flap for Recurrent Rectovaginal Fistula: a Case Report

Flavius Mocian, Ruxandra Oancea, Marius Coroş

Department of Surgery, Clinical County Hospital Mureş, Tîrgu Mureş, Romania

## CORRESPONDENCE

### Flavius Mocian

Str. Gheorghe Marinescu nr. 1  
540103 Tîrgu Mureş, Romania  
Tel: +40 770 842 781  
E-mail: mocianfla@gmail.com

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Ruxandra Oancea • Str. Gheorghe Marinescu nr. 1,  
540103 Tîrgu Mureş, Romania. Tel: 0265 215 133,  
E-mail: ruxandraoancea@gmail.com

Marius Coroş • Str. Gheorghe Marinescu nr. 1, 540103  
Tîrgu Mureş, Romania. Tel: 0265 215 133, E-mail:  
corosmarius1@gmail.com

## ABSTRACT

We present the case of a 48-year-old patient with a recurrent rectovaginal fistula, who we treated surgically by transposing the gracilis muscle. The patient with a history of ulcerative colitis underwent colorectal resection with mechanical anastomosis and diverting ileostomy for rectal cancer. She was subsequently treated by radiation and chemotherapy. Six weeks later, the ileostomy was removed, but afterwards the patient developed a recto-vaginal fistula. A new diverting ileostomy was performed. After eight months, a transvaginal surgical procedure was performed, and the diverting ileostomy was closed after four months. Two years after the last surgery, the patient performed an MRI scan, which revealed the relapse of the rectovaginal fistula. This time the patient was reoperated using a flap of the gracilis muscle interposed between the rectum and the vagina, but the patient refused any diverting stoma. The rectovaginal fistula relapsed again after thirteen days. Fortunately, after six months of intensive systemic and local treatment with aminosalicilic-5-acid, the fistula closed by itself. Our conclusion is that with a well-managed medical treatment, the gracilis flap, because of its good vascular supply, could be successfully used to treat rectovaginal fistulas even in patients with ulcerative colitis who underwent rectal surgery and radiation therapy for cancer.

**Keywords:** rectovaginal fistula, recurrence, gracilis muscle flap

## INTRODUCTION

The recto-vaginal fistula represents an abnormal communication between the anterior rectal wall and the posterior vaginal wall, with a negative impact on the patient's quality of life, characterized by the presence of flatulence and fecaloid content on the vaginal level.<sup>1</sup>

Different surgical techniques have been researched for repairing fistulas, starting from transrectal or transvaginal sutures for simple fistulas, to tissue interpositions for recurrent fistulas, including gracilis muscle transposition.<sup>2</sup>

## CASE REPORT

We present the case of a 48-year-old patient diagnosed 4 years ago with inferior rectal neoplasm for which a low recto-sigmoid resection with mechanical colo-



**FIGURE 1.** Rectal mucosa (arrow) after excision of the fistula

anal anastomosis and diverting ileostomy was performed. The patient was known with a history of hemorrhagic ulcerative colitis. Six weeks after surgery, the diverting ileostomy was closed. Radiation therapy and chemotherapy were initiated two months after the primary surgery. Three months after the initial surgery, a gynecological consultation was performed, during which the presence of a recto-vaginal fistula was discovered. The patient was directed to our surgical department, where a terminal ileostomy was performed. Eight months after the initial diagnosis of the recto-vaginal fistula, the patient presented in our department, where the fistula was treated by a transvaginal approach. Four months after the transvaginal procedure, the terminal ileostomy was closed.

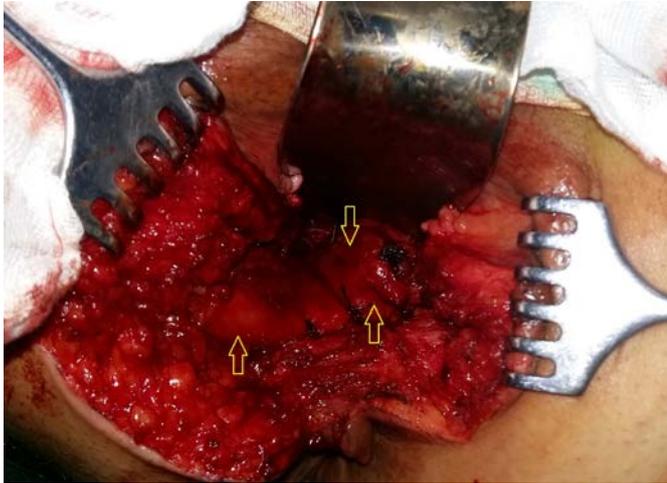
Twenty-eight months after the last surgery, the patient underwent an MRI scan, which revealed the relapse of the recto-vaginal fistula, despite the transvaginal resolution attempt.

Due to the relapse of the fistula and the patient's history of ulcerative colitis and pelvic radiation, we decided to treat the fistula by gracilis muscle transposition. With the patient in a gynecological position, under general anesthesia, a perineal incision and a careful dissection were performed in order to expose the fistula aperture. For better visualization, the posterior vaginal wall was incised, and after preparing the fatty tissue, the fistula was excised (Figure 1). To repair the parietal defect, a double layer suture with resorbable wires was performed. The integrity of the suture was assessed by injecting methylene blue via a transanal approach. During this procedure, a second fistula situated caudally was observed. After the excision of the fistula, a double layer suture with resorbable wires was performed. An incision was made on the inner upper third of the right thigh, and the origin of the gracilis muscle was identified. A second incision was made, and the gracilis tendon was dissected from its inserting point at the "pes anserinus" (Figure 2). The muscular flap was placed through a subcutaneous tunnel, with preservation of the vascular and nervous pedicles, into the cavity between the rectum and the vagina, where it was fixed with resorbable sutures (Figure 3). The surgical intervention was closed by suturing the posterior vaginal wall and the perineum.

The immediate postoperative evolution was favorable, but on the 13th day following surgery, the patient presented exteriorization of intestinal contents through the vagina. However, after six months of intensive systemic



**FIGURE 2.** Gracilis muscular flap



**FIGURE 3.** Muscular flap placed between the vagina and the rectum (arrows)

and local treatment with aminosalicilic-5-acid, the fistula closed by itself.

The patient agreed to the publication of her data, and the manuscript was written according to the ethical principles stated in the Declaration of Helsinki.

## DISCUSSIONS

The most common causes of recto-vaginal fistulas are: inflammatory bowel diseases (Crohn's disease and hemorrhagic ulcerative colitis), pelvic irradiation, colorectal and gynecological surgery, obstetrical trauma, tumor infiltration, and local inflammatory processes.<sup>1,2,3</sup> In our case, the patient presented a history of hemorrhagic ulcerative colitis and pelvic irradiation after rectal cancer surgery (colorectal resection with mechanical anastomosis). We can affirm that the patient had a cumulative number of predisposing factors for the appearance of a recto-vaginal fistula.

The most common variants of surgical treatment for rectovaginal fistula include the transvaginal approach and subsequent suture in case of a simple fistula. In special cases where inflammatory bowel diseases and pelvic irradiation exist, the preferred method is the interposition of healthy tissues with good vascular supply (gracilis muscle flap or bulbocavernosus flap/Martius flap).<sup>1</sup>

The first intention was to treat the fistula using the transvaginal approach, but without success, because the fistula has relapsed. In such situations, when there are multiple attempts to repair the fistula, and inflammatory bowel disease and pelvic irradiation exist, a surgical alternative is the transposition of healthy, non-irradiated, well-vascularized tissue between the vagina and the rectum.<sup>1,2</sup> Therefore, in the present case, we decided to perform the surgical treat-

ment of the fistula by gracilis muscle transposition, which consists of sectioning the tendon's insertion and tunneling the muscular flap with the preservation of the vascular and nervous pedicles, followed by suturing the flap between the vagina and the rectum.

The advantages of such an intervention are that the gracilis muscle is a superficial, easily accessible, well-vascularized muscle, and its exclusion from the thigh biomechanics does not lead to significant morbidity.<sup>3</sup> Another advantage would be that the method can be used in patients with pelvic irradiation as well.<sup>4</sup>

Immediate postoperative evolution was favorable, but on the 13th day after surgery, the patient presented exteriorization of intestinal contents through the vagina. Hokenstad *et al.* presented the case of a patient with gracilis transposition for recto-vaginal fistula secondary to a resection of a low rectal cancer treated with radio- and chemotherapy, without recurrence at 3 months, but in that case there was a diverting ileostomy present during the 3 months.<sup>4</sup> In our case, the patient refused the ileostomy, which probably contributed to the recurrence of the fistula. In a study by Lefèvre *et al.*, the healing rate after transposition of gracilis was 75% (6/8), and in two cases there was a relapse.<sup>5</sup> Another study carried out by Park *et al.* showed a 72.7% (8/11) healing rate.<sup>6</sup> They concluded that among the factors leading to relapse were the presence of an inflammatory bowel disease as well as a history of pelvic irradiation, both being present in our patient. Fortunately, after six months of intensive systemic and local treatment with aminosalicilic-5-acid, the fistula closed by itself.

## CONCLUSIONS

Our conclusion is that the gracilis flap, because of its good vascular supply, could be successfully used to treat the rectovaginal fistula even in patients with ulcerative colitis who undergo rectal surgery and radiation therapy for cancer, but with an associated well-managed medical treatment.

## CONFLICT OF INTEREST

The authors declare no conflict of interests.

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