

# The Martius flap for repair of low rectovaginal fistula: a case report

## Rektovaginalinių fistulių gydymas naudojant *Martius* lopa: klinikinis atvejis

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### Background

Rectovaginal fistula is defined as an epitheliumlined abnormal communication between the rectum and the vagina. It is reported to represent approximately 5% of all anorectal fistulas. The most common causes of rectovaginal fistulas are obstetric traumas, chronic inflammatory bowel diseases, low anterior rectal resection, hemorrhoid and pelvic surgery. There are many treatment options, such as endorectal, transvaginal or transperineal closure, resection of the affected part, treatment with autologous stem cells, seton drainage or graciloplasty. For low fistulas, the Martius flap is referred to as an excellent choice of tissue transfer with no functional and low cosmetic deficit of the donor site.

### Case report

A patient was diagnosed with low rectal cancer and after neoadjuvantive chemoradiotherapy underwent anterior rectal resection. Preventive ileostomy was made. Later, due to the fluent postoperative progress, ileostomy closure was performed. In the postoperative period, a rectovaginal fistula occurred. Then, the patient was given adjuvantive chemotherapy. After that, graciloplasty for the rectovaginal fistula and ileostomy were performed. After two months, a rectovaginal fistula occurred again, and the Martius flap repair was performed.

### Conclusion

The Martius flap technique using a fat pad flap is a decent choice for low rectovaginal fistulas. A well vascularised interposition flap between the vagina and the rectum gives good results.

**Key words:** rectovaginal fistula, the Martius flap

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## Ižanga

Rektovaginalinė fistulė yra apibūdinama kaip epitelizuota nenormali jungtis tarp tiesiosios žarnos ir makšties. Ši fistulė sudaro apie 5 % visų tiesiosios žarnos ir išangės fistulių. Dažniausios rektovaginalinės fistulės atsiradimo priežastys yra gimdymo traumas, lėtinės uždegiminės žarnų ligos, žema priekinė tiesiosios žarnos rezekcija, hemorojinių mazgų ir dubens srities chirurgija. Gydytojų galimybių yra daug: endorektalinis, transvaginalinis ar transperinealinis uždarymas, pažeistos vietos rezekcija, gydymas autologinėmis kamieninėmis ląstelėmis, fistulės drenavimas ar graciloplastika. Esant žemai rektovaginalinei fistulei, *Martius* lopus yra tinkamas pasirinkimas dėl gerų pooperacinių rezultatų bei mažo donorinės vietos kosmetinio ir funkcinio pažeidimo.

## Klinikinis atvejis

Pacientei buvo diagnozuotas žemas tiesiosios žarnos navikas ir po neoadjuvantinės chemoradioterapijos atlikta priekinė tiesiosios žarnos rezekcija bei suformuota prevencinė ileostoma. Tos pačios hospitalizacijos metu ileostoma uždaryta. Po operaciniu laikotarpiu atsirado rektovaginalinė fistulė. Tuomet pacientė gavo adjuvantinę chemoterapiją. Po jos atlikta graciloplastika ir suformuota ileostoma. Po dviejų mėnesių rektovaginalinė fistulė vėl pasikartojė. Dėl rektovaginalinės fistulės recidyvo atlikta *Martius* lopus operacija. Praėjus mėnesiui po operacijos, apžiūrėdamas pacientę chirurgas rektovaginalinės fistulės recidyvo nerado.

## Išvados

*Martius* lopus technika naudojant riebalinio audinio lopą yra tinkamas pasirinkimas gydant rektovaginalines fistules.

**Reikšminiai žodžiai:** rektovaginalinė fistulė, *Martius* lopus

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## Background

Rectovaginal fistula (RVF) is defined as an epithelium-lined abnormal communication between the rectum and the vagina. It is reported to represent approximately 5% of all anorectal fistulas [1]. The most common causes of rectovaginal fistulas are obstetric traumas, chronic inflammatory bowel diseases (mostly Chron's disease), and low anterior rectal resection. Rectovaginal fistula as a complication follows hemorrhoid or pelvic floor surgery [1–12]. Rectovaginal fistulas can be classified into simple and complex, depending on size and multiplicity, they can be recto- or ano-vaginal, and low, middle or high depending on its location on the posterior vaginal wall [13]. Nowadays, surgeons can select from many treatment options, such as endorectal, transvaginal or transperineal closure, resection of the affected part, treatment with autologous stem cells, seton drainage or graciloplasty [14–21]. The Martius flap technique was originally described by Heinrich Martius for urethro-vaginal fistula repair in 1928 [22]. Later, the Martius flap technique was modified for the treatment of low rectovaginal fistulas [23, 24]. For low fistulas, the Martius flap is referred to as an excellent choice of tissue transfer with no functional and a low cosmetic deficit of the donor site [22]. The first step of the operation is perineal repair. The ano-rectum and the vagina are separated

by a careful dissection until only the fistula keeps them together. The second step is the closure of the fistula. The edges of the fistula site are refreshed on both organs and the walls of both organs are closed [22, 25]. Some authors suggest to make the Martius flap interposition without closing the fistula opening. [26]. Thereafter, a preparation of the Martius flap is made. A longitudinal incision is made over labium majora. Then, the incision is deepened to the subcutaneous fat layer. After that, the fat pad is raised from labia majora. The fat pad can be divided either on the superior or the inferior side. The final step is an interposition of the Martius flap. The fat pad is delivered through the subcutaneous tunnel, laid between the rectum and the vagina and stabilised. Then the labial wound is closed [22, 25].

## Case report

In February 2013, a 29-year-old female patient was diagnosed with low rectal cancer, 2.5 cm away from *linea dentata*. To diagnose the outspread of the cancer, abdominal ultrasonography and thoracic roentgenography were taken, and no remote metastases were found. The pelvic MRI showed rT3N2 rectum cancer. Histological results – adenocarcinoma G2. On 21 February 2013, a laparoscopic bilateral transposition of uterus adnexa was performed to prevent the iatrogenic postcastration

syndrome. Between 4 and 10 April 2013, the patient was given chemoradiotherapy (total dose 50 Gy with two chemotherapy cycles by the Mayo Clinic regimen). On 27 May 2013, an anterior resection of the rectum was performed. During the operation, the rectum was detached 2 cm below the cancer. After that, colo-anal anastomosis and preventive ileostomy were made. Histological results – adenocarcinoma G2 pT2N0, the Dworak regression grade – 2 [1]. On 6 May 2013, during the same hospitalization, a closure of the ileostomy was performed due to the fluent postoperative progress. In the postoperative period, a rectovaginal fistula occurred. Later, adjuvant four cycle chemotherapy by the Mayo regimen was applied. On 10 October 2013, the pelvic MRI was repeated, and no progression of the disease was observed. On 12 November 2013, graciloplasty for the rectovaginal fistula and ileostomy were performed. In January 2014, the patient noticed a light mucus excreting from the rectum and the vagina. After revision, the surgeon stated that she had a rectovaginal fistula. On 23 January 2014, due to the rectovaginal fistula, the patient was operated on – the Martius flap repair was performed. During the operation, a perineum incision was made, and a 3 cm layer between

the vaginal and rectal stumps was dissected. The colon was lowered to the healthy tissue. After that, the defect in the bowel binding was stitched. Then, a longitudinal incision was made, and through the left *labium majus* the adipose–fascicular flap was raised (Fig.). Then, the flap was turned and, when covering the fistula in the bowel binding, stitched to the bowel. Thereafter, the vaginal defect was put in single stitches.

The postoperative progress was fluent. After one month, the patient was inspected by the surgeon. No fistula was found, and the patient had no complaints. On 17 March 2014 a closure of the ileostomy was performed. Patient was also inspected by surgeon. He stated, that condition of the patient is well and relapse of the fistula is not observed.

## Discussion

Not all rectovaginal fistulas can be cured by the Martius flap technique. The treatment is primarily determined by the local circumstances such as localization and size of the fistula and the tissue situation (inflammation, sphincter lesion) [28]. Outcomes of the martius flap technique in other articles are described differently, and successful results (healing of the fistula) vary from 50 to 100% [29–32]. Because of this fact, it is difficult to forecast the treatment prognosis, especially when only a little time has passed. Moreover, patients who had undergone previous repairs, like our patient, tend to have worse results than those without previous repairs [33]. On the other hand, the treatment results depend on the etiology of the fistula as well as on the technique [31]. Postoperatively, some patients may have complications. These include infections, fecal incontinence or dyspareunia. Patients tend to have a low sexual function even after operation [32]. Some authors recommend to use diverting stomas and antibiotics to prevent infectious complications [31]. In this case, ileostomy was made after rectum resection, and later a closure of the ileostomy was performed due to the young patient's age and good condition. Unfortunately, when the rectovaginal fistula occurred, the surgeon had to make an ileostomy for better results. In conclusion, the Martius flap technique using a fat pad flap is a decent choice for low rectovaginal fistulas. A well vascularised interposition flap between the vagina and the rectum gives good results.



**Fig.** Raised adipose fascicular flap through the longitudinal incision of the labium majus

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