

## Transvaginal Coloanal Anastomosis after Rectal Resection for the Treatment of a Rectovaginal Fistula Induced by Radiation

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### Rezumat

#### *Anastomoza coloanală transvaginală în tratarea unei fistule rectovaginale radice*

Fistulele rectovaginale radice, deși din ce în ce mai rare, se datorează unor defecte de iradiere și au ca substrat leziuni ischemice cronice. Majoritatea autorilor cu un număr semnificativ de operații recomandă rezecția rectală anterioară cu anastomoză coloanală pe cale abdomino-perineală pentru fistulele înalte. Prezentăm cazul unei femei cu o fistulă apărută la 23 de ani după histerectomie și radioterapie, la care la trei luni după o sigmoidostomie terminală s-a practicat o rezecție rectală pe cale abdominotransvaginală cu mini-pauch colic, anastomoză coloanală, și ileostomie de protecție. Disecția rectului distal prin colpotomie posterioară și anastomoză coloanală transvaginală este o variantă tehnică care în anumite situații poate oferi câteva avantaje față de procedeele descrise în literatură pentru rezolvarea fistulelor rectovaginale prin rezecție rectală.

**Cuvinte cheie:** fistulă recto-vaginală, leziuni radice, rezecție rectală, anastomoza colo-anală transvaginală

### Abstract

Although decreasing in number, radiation induced rectovaginal fistulas are caused by some radiation injuries and chronic ischemic lesions. Most of the experienced authors recommend anterior rectal resection with coloanal anastomosis accessed through the abdominal-perineum area for high fistula. We present a patient with a fistula that developed 23 years after hysterectomy and radiotherapy. In this case we performed an abdominal-transvaginal rectal resection with transverse coloplasty pouch, coloanal anastomosis and protection ileostomy three months after a terminal sigmoidostomy. The dissection of the distal rectum by posterior colpotomy and coloanal transvaginal anastomosis is a technical variant that may prove advantageous compared to the procedures featured in the literature as solutions by rectal resection for rectovaginal fistula.

**Key words:** rectovaginal fistula, radiation injuries, rectal resection, coloanal transvaginal anastomosis

### Introduction

The effects of radiotherapy are cumulative and progressive and chronic radiation lesions may occur randomly, even after tens of years after treatment. The cause of radiation lesions is defective radiation and the contributing factors are: associated chemotherapy, diabetes, high blood pressure, smoking, infections, post-surgery adherence (1,2,3). The psychopathology of chronic radiation lesions acknowledges chronic tissue ischemia secondary to obliterating endarteritis of the small vessels and tissue fibrosis (4). Microbiological studies have shown that

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chronic enteral radiation induced lesions are accompanied by a stimulation of the growth factor (TGF- $\beta$ /transforming growth factor) that may be inhibited the  $\gamma$  factor of interferon (IFN  $\gamma$ ). This might be used for preventing such lesions. (5) The most frequent radiation induced lesions are those that occur after radiation treatment in cervix cancer and are located especially at the level of the rectum (6). Chronic radiation induced rectal lesions are: ulceration, stenosis, rectovaginal, rectourethral and rectal-bladder fistula. Rectovaginal postradiation fistulas have an incidence of 0.3-6 % of all rectovaginal fistulas in any ethology (8). Rectal-vaginal postradiation induced fistulas shall be classified according to localization and dimensions just like those of any other ethology. According to localization we classify them in: anovaginal fistula, low and high rectal fistula. They are equivalent to the gynaecological classification in low, medium and high vaginal fistula (9). Small fistulas are those with a diameter up to 2.5 cm and big fistulas are those with larger diameters (10).

The surgery treatment of rectovaginal postradiation fistula is more difficult than that of other ethology (obstetric, post-surgery, neoplastic, Crohn disease etc.) especially because of the chronic ischemical modifications of the tissues. Terminal colostomy and exclusion of the rectum from transit may be the final solution for big, relapsing fistulas in the case of patients with important comorbidities (3). Some authors report good results after the surgery of low fistula in case of surgery procedures that approach the fistula directly through the perineum by interposing muscles between the vagina and the rectum (gracilis, sartorius) (11,12) or using bulbocavernosus - labial flaps (Martius) (13). All these procedures are associated with temporary faecal diversion. Most of the authors suggest rectal resection with coloanal anastomosis by different techniques for high fistula (8,14,15,16).

## Case report

*A 66-year-old woman was hospitalised with minimal rectal bleeding, flatulence and faeces eliminated through the vagina, fetid pus vaginal secretion, oedema and vulvovaginal erythema occurred approx. a month before hospitalisation. The woman was subject to radiotherapy and to surgery to eliminate a neoplasm of the cervix 23 years ago. The patient has experienced occasional minimal rectal bleeding over the last two years. Two colonoscopies were performed, showing ulceration on the anterior rectal wall 3-4 cm from the anocutaneous line with a diameter of 2-4 cm and bioptic analysis that excluded malignity. The patient is a smoker, suffers from diabetes and high blood pressure. The local vaginal examination revealed an approx. 6 cm long vaginal stump with pus secretion, oedema and inflammation. The rectal examination showed ulceration on the anterior wall approx. 5 cm from the anocutaneous line with a diameter of approx. 3 cm with sclerous edges centred by a fistula orifice with a diameter of approx. 1 cm. Transrectal echography confirms the data of the clinical examination. The biopsy of the edges of the fistula of the rectal and vaginal side excludes a malignant pathology. We performed a terminal sigmoidostomy because of the vulvovaginal inflammation, and*

*the genital inflammation disappeared in time. The patient was readmitted after 4 months. Local examination proved that the genital inflammation had disappeared. The rectovaginal fistula was located at about 5 cm from the posterior commissure of the vulva and was located at 5-6 cm from the anocutaneous line of the anus, having a diameter of approx. 1 cm. We decided on a rectosigmoid resection with lower colorectal or coloanal anastomosis. The abdominal time of the surgery presented no difficulties except that of passing the fistula orifice by losing the dissection plane due to rectal tear, given the previous hysterectomy. At this point we decided to continue the surgery through the perineum by posterior longitudinal colpotomy from the commissure of the vulva to the fistula orifice. Performed next was the lateral detaching of the vaginal flaps under the fistula orifice, followed by digital dissection enclosing the anal canal and distal rectum. The rectum was sectioned at the limit of the anal canal, followed by extraction of the resection specimen. T-T coloanal anastomosis was performed with separate wire suture, after the transverse coloplasty pouch created by longitudinal sectioning and transverse suture (17). An ileostomy to protect the anastomosis was left in place. Postoperative evolution was difficult due to an intestinal occlusion caused by the mesenteric - axial volvulus of the loop ileostomy 8 days after surgery, which required reintervention. 10 days after surgery parcelled necrosis of the sutured vaginal flaps complicated by infection at the level of the colporrhaphy was discovered, imposing a necrectomy followed by minimal dehiscence at the level of the coloanal anastomosis without affecting it. Later examinations confirmed a favourable evolution of the vaginal injury and the formation of granulation tissue closing the anastomotic dehiscence.*

## Discussions

The rectovaginal fistula appeared in this case in the context of the contributing factors described in the literature for chronic radiant lesions, namely high blood pressure, diabetes, previous surgeries, smoking (1,2,3). The terminal sigmoidian colostomy indicated by the vulvovaginal inflammation was followed by very good postoperative results. Terminal colostomy and excluding the rectum from transit may be the final solution in the case of big, relapsing fistula in patients with important comorbidities. The advantage of the colostomy is a low postoperative morbidity (3). Starting from the principle of removing the radiated tissue and repairing of the healthy tissues recommended by Marks we chose the rectosigmoidian resection with coloanal anastomosis. (16) We did not choose laparoscopy because of the postoperative adherence syndrome we discovered during sigmoidostomy. The tear of the rectum at the fistula level and losing the dissection plane had us carry on the surgery through the vagina. Previous experience in post-partum vagina prolapse surgery through the perineum was useful. The surgery through the vagina has some advantages compared to the abdominal-transsacral resection proposed by Marks. The patient stays in the same position during the whole surgery. The longitudinal posterior colpotomy offers enough space for a circular dissection of the anal canal and for

the coloanal anastomosis, even if the vaginal stump is only 6 cm. Transvaginal access is faster and easier than transsacral. Access through the vagina can be taken into account for rectal resection with sphincter preserving surgery and other types of lesions of the rectum, when the dissection performed through the abdomen cannot progress to the level of the elevator muscles of the anus for open or for minimally invasive surgery. Recently we performed the same type of abdomino-transvaginal access surgery in a patient with a gigantic villous tumour invading almost the entire rectum up to the anal canal.

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