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Dr. Durga K
Associate Professor, Department of Obstetrics and Gynaecology, SLIMS, Puducherry, India

Dr. Asayas Bosco Chandra Kumar
Professor and HOD, Department of Surgery, SLIMS, Puducherry, India

Corresponding Author:
Dr. Asayas Bosco Chandra Kumar
Professor and HOD, Department of Surgery, SLIMS, Puducherry, India

Successful repair of complex rectovaginal fistula by modified Martius procedure: A case report

Dr. Durga K and Dr. Asayas Bosco Chandra Kumar

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Abstract
A Rectovaginal fistula is one of the rare diseases accounting to 5% of anovaginal fistulas resulting in a distressing condition to the patient and a challenging task to her physician. Most fistulae arise in anal canal beginning distal to pectinate line and are more accurately be considered as anovaginal fistulae. This results in the uncontrolled passage of flatus or fecus through the fistulous tract into the vagina. It is a socially disabling condition for the patient. Further difficulties arise in planning the mode of treatment depending on the site and etiology of fistula. Treatment failures are because of contaminated operative site, high-pressure anal canal and usually procedures without diversion, creating a challenge for both the patience of the affected individual and surgeon`s skill.
Here we present a case report of a complex rectovaginal fistula which was successfully repaired by Modified Martius procedure.

Keywords: Rectovaginal fistula, modified Martius procedure

Introduction
Rectovaginal Fistulas [RVF] are rare accounting to about 5% of anorectal fistulas [1]. It represents a challenge for both patients and surgeons. It also creates a serious psychosocial burden for the patient. Unfortunately, they are also notoriously difficult to manage, despite the numerous surgical options presently described, and may even require fecal diversion to aid closure. RVF is an abnormal epithelialized communication between the rectum and the vagina in which patient complains of involuntary escape of flatus and/or faeces into the vagina or purulent vaginal discharge. For Rectovaginal fistulas, Modified Martius Flap technique is the upcoming surgery of choice. Hereby we are reporting a case of complex Rectovaginal Fistula which has been successfully surgically repaired by Modified Martius procedure.

Case report
30 year old female, P2L2 came to the OPD on 23/1/19 with chief complaints of fecal and flatus incontinence for 4 years along with dull aching pain in the perineal region for 1week with no specific aggravating and relieving factors. Not associated with foul smelling vaginal discharge, dyspareunia, involuntary leakage of urine or recurrent UTI, abnormal bleeding per vagina or bleeding, abnormal discharge per rectum. Patient had constipation for past 4 years.

Patient developed Complete Perineal Tear after delivery of first child at a government hospital in Puducherry. CPT repair was done but patient developed fistula within two weeks. Surgical repair of Rectovaginal Fistula was done 3 months after delivery. patient developed recurrent fistula. With this she conceived and delivered spontaneously 2nd baby after 2 yrs at a government Maternity Hospital. Puerperal sterilization and RVF repair was again done. But she developed recurrent RV fistula. She had normal bowel and bladder habits with no sphincter incontenience. No significant medical disorders. Local examination revealed a small defect of size 2x2 cms in the lower posterior vaginal wall, communicating through rectum. Uterus was normal. Surrounding edges were clear with fresh granulation tissue was seen covering the edges. The perineal body measured 3cms. No other fistulas seen. External anal Sphincter was intact and levator ani tone was normal. Per rectal examination confirmed the same low rectovaginal fistula. Surgical procedure by Modified Martius approach was planned for this patient. All the necessary pre operative investigation and preparation were done. Informed consent for surgery was obtained and the probability of surgical success and chances of recurrence was explained to the patient.

Operative procedure proposed -RVF REPAIR with MODIFIED MARTIUS FLAP. Under spinal anaesthesia patient in dorsal lithotomy position parts painted and drapped, bladder catheterized. Transverse perineal incision made at the mucocutaneous junction and skin was excised. Vaginal flap was separated from the underlying recto vaginal septum and rectum. Vaginal opening was trimmed off and the extensive fibrosis in the peri rectal space was carefully dissected. The Rectal opening was also trimmed and closed with 2-0 vicryl interrupted suture. Using 6cm linear incision on left labia majora (6cm from the perineum, 45 degree in an anterior-cranial direction and 8cm cranially) labial pad of fat was mobilized with posterior pedicle (careful preservation of the small dorsolateral arteries), and was tunneled into the para rectal space where it was approximated between the vagina and rectum and sutured to the same. In the repair of RVF it is important to use the posterolateral internal pudendal artery for the vascular pedicle to ensure sufficient flap length to reach dorsally into the Spatium rectovaginale. The vascular pedicled flap should be handled with care, rotation or twisting should be avoided during transposition to ensure optimal blood supply. Vaginal mucosa approximated with 2-0 vicryl interrupted stitches. The left labia majora skin flap also sutured with 1-0 ethilon. Vaginal packing and rectal packing was kept for 24 hours. Intra and post-operative period was uneventful. Patient was put on liquid diet for two weeks along with laxatives. On post op day 15, vaginal and rectal mucosa healed well with no gaping. Patient dischargd and advised to continue Kegel exercises, perineal care after every act of micturition and defecation and practice abstinence for 8 weeks. Patient reviewed after 1 month and after 0ne year with no recurrence of fistula and no evidence of sepsis.the wound healed well with excellent patient satisfaction and healthy life style.

Discussion

Majority of rectovaginal fistula about 88% are caused by obstetric trauma [2] (postpartum rectovaginal fistula). The total number of cases corresponds to 0.1% of all vaginal births [3]. These fistulas result from undue stretching with laceration of the perineum and the rectovaginal septum [4]. More commonly seen after repaired 4th degree perineal laceration.

As a result of their etiology, postpartum rectovaginal fistulas are often found in conjunction with sphincter lesions and fecal incontinence. Therefore, a thorough assessment is required in this regard. Many publications describe simultaneous anal sphincter reconstruction [5]. Rectovaginal fistula occurs in 0.2–2.1% of patients with chronic inflammatory bowel disease (particularly Crohn's disease) [1], and following low anterior rectal resection, the frequency is as high as 10% [6, 7].Only a small percentage of rectovaginal fistulas is of Cryptoglandular origin [7]. In recent years, rectovaginal fistula has become an increasingly common complication following hemorrhoid or pelvic floor surgery, particularly in cases where staplers or foreign materials were used [8]. Rectovaginal fistulas may also be caused by local infections, particularly Cryptoglandular infections and Bartholin gland abscesses [9].

- Congenital
- Local infection
- Traumatic
  - Postpartum
  - Secondary to surgery
    - Following low anterior rectal resection (with and without pouch)
    - Following procedures for pelvic floor dysfunction
    - Following hemorrhoid surgery
    - Following drainage of local infections
  - Resulting from violent acts
- Chronic inflammatory bowel disease
  - Crohn's disease
  - Ulcerative colitis
  - Indeterminate colitis
- Following radiation therapy of tumors in the lesser pelvis
- Resulting from carcinoma

Classification

Low fistulas are those that can be reconstructed via an anal, perineal, or vaginal access, while high fistulas require an abdominal approach. Low fistulas are those that open near the posterior vaginal fourchette. High fistulas are those that open behind or near the cervix.

Rothenberger *et al*. [10] differentiated RVF into simple and complex RVF

- Simple RVF are located in the lower and middle-third of the vagina; their diameter is less than 2.5 cm and they are typically caused by trauma or infection.
- Complex RVF are located in the upper third of the vagina, have a diameter of more than 2.5 cm and are caused by inflammatory bowel disease (Crohn's disease), irradiation or malignancy. Fistulas that have failed prior attempts at repair are also included in the category.

Fry *et al*. [11] categorized RVF with perineal injuries as

I-perineal injury without fistula

II-perineal injury with fistula in the lower third of the vagina

III-no perineal injury, but fistula in the lower third of the vagina
IV-no perineal injury, but fistula in the middle third of the vagina
V-no perineal injury, but fistula in the upper third of the vagina.
Diagnosis is made by classical clinical presentation of passage of air, mucus or stools via vagina. There may be recurrent history of UTI or vaginitis. Vaginal exploration along with proctoscopy may reveal typical anovaginal fistula. High fistulas may be better delineated by CT or MRI and to rule out accompanying pathology like malignancy. However, endosonography is a recognized, good alternative, particularly in the confirmation of sphincter lesions [12, 13].
Treatment depends upon number of factors such as site, cause, duration of the fistula and previous surgical procedures for RVF. Treatment also depends upon the presence of an associated sphincter defect and incontinence. Medical therapy plays an important role in immunomodulation, particularly in RVF patients due to Crohn disease. Even after initial failed surgical attempts, some patients with Crohns disease can maintain with 6-mercaptopurine or azathioprine. Infliximab and other immunomodulators act as adjunct to surgery. Medical therapy also has a role in radiation induced fistulas.
Surgical repairs in RV fistulas forms primary mode of therapy in complex fistulas. The type of surgical approach depends on the type of fistulas [14]. Low RVF generally require rectal, vaginal or perineal approach and augmented with tissue transfer using gracilis, bulbocavernosus pad of fat. High RVF generally require an abdominal approach. All procedures for RVF have a significant failure rate. Though closure is completely achieved, chances of recurrence is more. The most common procedure is fistula excision with sphincter suture and closure of the Ostium in the rectum by an advancement flap.

Table 1: Reported Outcomes with Various RVF Repairs (14)

APPROACH	PUBLISHED NUMBER OF CASES	SUCCESS RATE	COMPLICATIONS	FISTULA ANATOMY
Advancement flaps	515	68%	Incontinence, Recurrence, Larger fistula	Low
Transperineal / sphincteroplasty	72	64-100%	Incontinence, sexual dysfunction, wound dehiscence	Low
Plugs	49	45.9%	Recurrence, cost	Low
Martius flap	104	65-100%	Sexual function, Cosmesis	Low
Transabdominal approach	49	95-100%	Bleeding, intraperitoneal Rectal injuries	High
Gracilis muscle flap	99	43-100%	Sexual dysfunction, Cosmesis, Wound dehiscence	Low+High
Mesh repair	48	71-81%	Recurrence, Larger fistula,cost	Low+ High

S Most studies reported high healing rates with this procedure, indicating that the (modified) Martius flap can be recommended for the surgical management of complicated and recurrent RVF [15]. Modified martius flap method is most suited for complex, recurrent, or recalcitrant RVFs. They are best able to treat low and mid-level fistulas up to approximately 5 cm proximal to the vaginal introitus, but in reality is only limited by the reach of the bulbocavernosus pedicle. The only other more common complication reported in the literature are labial wound issues (< 10%), which largely resolve with local wound care.

Timing of surgery is controversial. If RV fistula recognised at the time of delivery, initial repair is performed at the time of delivery. B Particularly for fistulas of obstetric origin it is necessary to wait for 3 months until return of optimum viability of the perineal tissues. Return of adequate blood supply to the margins of the defect is needed. Some fistulas closes spontaneously in the postpartum period. For patients whose previous repair has failed, a waiting period of 3 to 6 months has been advocated that permits some healing of the surrounding tissues and often decreases the size of the recurrent fistula.

According to American society of colorectal surgeons (ASCRS Clinical Practice Guidelines, 2016)

- Non operative management-for benign and minimally symptomatic fistulas (weak recommendation, level of evidence,2c)
- A draining Seton-needed for resolution of acute inflammation or infection associated with an RVF(Strong recommendation; level of evidence,1c)
- An Endorectal advancement flap, with or without Sphincteroplasty (strong recommendation, level of evidence,1c)
- An episioproctotomy may be performed to repair obstetrical or Cryptoglandular RVFs associated with extensive anal sphincter damage.(strong recommendation, level of evidence,1c)
- A Gracilis muscle or bulbocavernosus muscle (Martius) flap is recommended for a recurrent or complex fistulas (strong recommendation, level of evidence, 1c).

Conclusion

Treatment of RVF should be tailored according to each case individually. The martius procedure for rectovaginal fistula repair is limited to a single operating field. It is Definetly the best surgical approach for recurrent low fistulas. It is safely performed procedure with good cosmetic and functional results. It improves healing by enhancing blood supply in the perineal region and through neovascularization. Long–term follow up of our patient indicates a low recurrence rate of RVF repair with good satisfaction and improved quality of life.

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