Case Report

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A novel approach for management of recurrent recto vaginal fistula – Bilateral internal pudendal artery perforator flap

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Introduction

Rectovaginal fistula is a rare problem predominantly caused by obstretic trauma.

Rectovaginal fistulas are rare abnormal epithelial-lined connections between the rectum and vagina. It is reported to represent approximately 5% of all anorectal fistulas. They can be quite bothersome to both the patient and the surgeon due to their irritating and embarrassing symptoms and high failure rate after repair. An individualized, systematic approach to these fistulas based on their size, location, and etiology provides a more concise treatment plan. Different treatment options are discussed.

Etiology: Fistulas can be the result of congenital malformations or acquired etiologies. In this article, we will address acquired rectovaginal fistulas.

- Prolonged labor, vaginal tears during childbirth
- Abdominal or pelvic surgery, including C-section and hysterectomy.
- Cancer in your pelvic area, such as cervical cancer or colorectal (colon) cancer.
- Inflammatory Bowel Diseases (IBD) like Crohn's disease and ulcerative colitis.
- Colon infections like diverticulitis.
- Radiation therapy to pelvic region.

These issues being noted, a remarkably small number of patients suffer from fourth-degree lacerations and far fewer from anovaginal fistulae. In one historical report, out of 24,000 patients, 1.7% of patients suffered fourth-degree lacerations, and 0.5% of patients subsequently suffered rectovaginal fistulae [1]. In a review of the literature, Homsi et al found that rectovaginal fistulae were reported in the range of 0.1% of patients who underwent episiotomy during delivery. Notably, it was found that rectovaginal fistulae develop in 0.05% of patients who undergo a median episiotomy but in 1% of those who suffer third- and fourth-degree lacerations [2]. As expected, these fistulae are more common in developing countries due to less resources to aid with the process of childbirth [3].

Other rare causes of fistulas have been reported, including fecal impaction, vaginal dilatation after radiation to the vaginal cuff, viral and bacterial infections in patients with HIV, and sexual assault.

The best approach to manage RVF is on 1st attempt. Failed attempts leads to recurrent large rectovaginal fistula

We present one such case of complex recto vaginal fistula, manged by b/l internal pudendal artery perforator flap.

Case presentation

A 32 year female, with no co morbidities, case of primary infertility due to partial vaginal agenesis/ bicornuate uterus, H/o traumatic hematometra drainage followed by which the patient was having delayed cycles, and fecal discharge from vagina.

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Patient was initially treated in A4 Fertility centre, Chennai in April 2018

RVF repair + diversion transverse loop colostomy done on April 2018

5/9/22

C/o amenorrhea for 2 years

TVS of pelvis done on 5/9/22 showed normal uterus, endometrial cavity, right ovary, adnexae, pouch of douglas

Per vaginal examination:

RVF Rent present, connected to rectum

13/10/22

Upon review in MGMCRI general physical examination was unremarkable

Per rectal examination:

Rectovaginal fistula present at 12'o clock position 1cm from anal verge around ~4-5 cm in length

Rectum empty

No active bleeding/ discharge

CECT Abdomen:

Recto-uterine fistula as described Left kidney is malrotated and fused to lower pole of the right kidney -Cross fused malrotated kidney hypoattenuating lesion 4 x 3 mm with CT attenuation value 24HU in right lobe of liver (Segment VI). Lesion shows intense enhancement in arterial phase and retention of contrast in venous phase.

Patient underwent dismantling of rectovaginal fistula with primary repair of rectovaginal fistula, interposition bilateral pudendal artery perforator flapon 15/10/22

Post operative period uneventful.

Planned for reversal of colostomy

Discussion

It is one of the most difficult surgical problems in colorectal surgery.

Previous failed attempts will cause difficulty in next further attempts.

Many factors must be considered when choosing an operative approach to rectovaginal fistulae. The number and type of previous repairs, patient's risk factors, additional concomitant fistulae, and sphincter integrity are all concerns. Of these factors, the cause of the rectovaginal fistula and the status of the external anal sphincter are the most important.

Gracilis flap

The gracilis muscle is often used as an interposition flap. The procedure can be performed by the fistula surgeon or in conjunction with a plastic surgeon with similar results. The surgery is typically performed in the lithotomy position, with the gracilis muscle

being harvested from a 8 to 10 cm incision on the medial thigh. A perineal incision is then made, dissecting well above the fistula itself with care taken not to violate the rectal or vaginal mucosa. The pedicled muscle flap is tunneled to the perineal incision and secured into place with absorbable sutures.



Paint

Reported primary healing rates for gracilis interposition grafts generally range from 75 to 92%. It should be noted that most case series on this topic involve complex fistulae with multiple previous attempts at repair. A large number of these fistulae were secondary to Crohn disease and radiation injury, with a small number being secondary to obstetrical injury. In addition, most case series employed routine fecal diversion.

Martius flap

Another well-described tissue transfer and local flap repair is the use of the Martius or bulbocavernosus flap. Using a longitudinal incision over the labia majora, skin flaps are raised laterally and medially, with dissection continuing to the periosteum of the pubis and to the pubic symphysis. Once the entire fat pad with the bulbocavernosus muscle is mobilized, the anterior aspect is cut and used as a vascularized pedicled flap (perineal branch of the pudendal artery) and tunneledsubvaginally. The flap is then sutured to the posteriorvaginal wall to interpose it over the closed rectal aspect of the fistula.



Aartsen and Sindram [5] initially reported 100% success in 14 patients with fistulae secondary to radiation damage, but after a 10-year follow-up, 8 of the 14 patients required diversion for continued damage from radiation. Pitel et al [5] reported a 65% overall healing rate for Martius flap, with a 50% rate in patients with Crohn disease.

Bilateral internal pudendal artery perforator flap (IPAP flap)

After complete debridement of the fistula and the surrounding unhealthy tissue, and mobilizing rectum the exact localization of the flap to be elevated was determined via tracing of the IPAP The flaps were partitioned into 2 triangles, one on each side. The area of triangles were determined considering the size of the rectal opening and the distance between the vulva and the vaginal opening. The proximal part of the triangle was de-epithelialized



and folded with the subcutaneous fat sides facing each other, and was then transposed between the vagina and rectum to Replace the damaged rectovaginal septum. As a result, both the vaginal and rectal openings of the fistula were covered with a well-vascularized skin paddle

The utilization of IPAP flap for recurrent RVF is a reliable, safe, easy-to-execute option, which has the same urogenital dermatomal supply and low donor-site morbidity. Its versatile nature allows reconstruction of concomitant perineal skin defect with minimal anatomical disturbance and hence should be considered as a valuable tool in the armamentarium of RVF management.

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