Review Article

Surgical Management of Rectovaginal Fistula: Review Article

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ABSTRACT

Background: Rectovaginal Fistula (RVF) development is a side effect of an underlying illness, wound, or surgical procedure. Although there are several surgical approaches for RVF, including advanced flaps, muscle interposition, plugs, and fistula excision, doing so is challenging and painful. The success rate of surgical repair, on the other hand, ranges from 0 to 80%.

Objectives: The study aims to summarize current evidences on prevalence, risk factors and management approaches of rectovaginal fistula.

Methods: For article selection, the PubMed database and EBSCO Information Services were used. All relevant articles relevant with our topic and other articles were used in the review. Other articles that were not related to this field were excluded. The data was extracted in a specific format that was reviewed by the group members.

Conclusion: The first line of defence against perianal sepsis is drainage and possibly seton placement, which may be the only treatment required. Medical treatments are recommended for both local and distant active Crohn's disease (CD). Repairs frequently fail, necessitating reoperative intervention with acceptable outcomes. It is critical to maintain realistic treatment goals and expectations.

Keyword: Anovaginal fistulae, Anal sphincter, Rectovaginal Fistula (RVF) development.

Introduction

An improper connection between two epithelial surfaces is known as a fistula. This is a broad term that covers the majority of fistulas that are known, but not all of them. Fistulae are distinguished from sinuses, infections, and more luminal tracts as well as extra-luminal collections based on the broad description [1]. Rectovaginal Fistula (RVF) development is a side effect of an underlying illness, wound, or surgical procedure [1, 2]. An ongoing connection between the Rectum and vagina might worsen illnesses affecting the pelvic or vaginal organs. One of Crohn's disease's most common perianal symptoms is fistula-in-ano, which was initially described from Gabriel [3], nine years prior to Crohn et al., in 1936 [4] as localised enteritis was recognised as separate clinical entity. Fistulas like this are divided into two categories based on how closely they are related for the sphincter complex: high (against extra- or supra-sphincteric) and low (Trans- or intersphincteric). Female genital

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Fistulas are a better word for low fistulae that cross the sphincter of the anal canal, however, by convention, all of these fistulae referred to as fistulas in the rectus are (RVF). The most frequent cause of RVF after obstetrical trauma is CD, which can happen in up to 10% of CD-positive women [5, 6]. Rectovaginal fistulae brought on by CD pose a higher risk of proctectomy and are linked with severe morbidity [7]. Significant harm results from it; on quality of life, is heartbreaking and crippling, and is a significant social humiliation. Additionally, the management of CD-associated RVF presents special, frequently irritating management issues, and is a very difficult dilemma for the clinician [8]. The rectovaginal septum is disrupted by obstetric trauma, which accounts for about 88 percent of RVF cases. RVF develops in 0.1% of women who needed during a natural birth, an episiotomy [9]. According to a study by Brown and coworkers that discusses the decline the United States' RVF repair industry, earlier studies demonstrated a higher frequency due to obstetric injury [10, 11]. Due to the inadequate standard of the medical care that is offered and the degree of cases of sexual assault, third world countries have a noticeably greater rate of maternal stress and RVF, particularly complex RVF [10].Although there are several surgical approaches for RVF; sophisticated flaps, muscle insertion, plugs, and fistula removal, doing so is challenging and painful. The success rate of surgical repair, on the other hand, ranges from 0 to 80% [12-16]. Most individuals have multiple surgical repairs performed. The unsatisfactory success rate, permanent stoma, reduced sphincter function, and recurrence following fistula healing are problems that both patients and surgeons must deal with.

Study Objective: The study aims to summarize current evidences on prevalence, risk factors and management approaches of rectovaginal fistula.

Methods

Sample & Study Groups: Exploratory research employing a quantitative approach was included in this Integrative Literature Review (ILR). ILR is a strategy used in the health sciences to find health-care approaches and determine innovations, allow the deployment of evidence-based services, ensure quality, and enhance patient safety. It consists of six phases that must be completed in the following order: PubMed and EBSCO Information Services were used as search databases for the papers used in the study due to their reputation as trustworthy sources. PubMed, one of the largest online digital libraries, was founded by the National Center for Biotechnology Information (NCBI), a part of the United States National Library of Medicine. Topics relevant to surgical management of rectovaginal fistula were used in the writing of the paper. The titles and abstracts of the published publications would be reviewed.

Inclusion criteria: the articles were selected based on the relevance to the project which included one of the following topics; Anovaginal fistulae, Anal sphincter, Rectovaginal Fistula (RVF) development.

Exclusion criteria: all other articles which did not have one of these topics as their primary end, or repeated studies, and reviews studies were excluded.

Statistical Analysis

The data was analyzed without the use of any program. The data was extracted using a specified form that includes (article title, author's name, objective, summary, results, and outcomes). To confirm the validity and minimize errors, each member's results were double-revised. During the article selection process, studies and their results were double-reviewed to ensure that we enroll research related to the purpose of our study and to avoid or reduce inaccuracies in the results.

Results

There have been studies that have demonstrated complete success in healing processes with no recurrence of the disease [23, 25, 26]. At the 4-month follow-up, no recurrences or complications were observed. An ileostomy or colostomy was not required. The patient's intestinal continuity was restored. Both practical and aesthetic results were excellent, with a considerable improvement in quality of life and excellent patient satisfaction [26]. 11 of 12 obstetric rectovaginal fistulas were successfully repaired. The type of rectovaginal fistula repair chosen was based on the underlying pathology, previous repair type, the patient's wishes, and the surgeon's background. It is unquestionably beneficial to treat rectovaginal fistulas at specialised facilities [25]. In some studies, disease recurrence occurred [17-20, 22, 24]. The findings of this research support the poor prevalence of RVF and demonstrate that vaginal birth and a background of pelvic surgery (to prevent rectal or cervical cancer) are the two most typical causes of RVF. Consequently, receiving medical care is always vital from a therapeutic standpoint. Since it makes it possible to lessen the fistula's flow, it facilitates the process of getting ready for the operation [17]. Treatment for rectovaginal fistulas, both high and low, is successful with omentoplasty [19]. A key determinant of the amount of resection, which can range from excision to exenteration, is the origin of rectovaginal fistulae. The surgical intervention must be included in an interdisciplinary therapeutic paradigm for the therapy to be most effective [20]. The included studies had different study designs (Table 1).

Table 1: The authors, publishing year, participants, methods and outcome of the included studies

Author, Publishing Year	Participants	Methodology	Outcome
El Karouachi *et al.* (2021) [17]	6 cases. The average age at diagnosis was 55.	All of our patients received surgical care. In this study, draining by Stenon was preferred surgical procedure in 83.33% of patients. All of the evaluated patients received a protective stoma, a colostomy in 66.66% of cases, and an ileostomy in 33.33% of cases.	All of the patients had great immediate postoperative outcomes, but a third of them (33.33%) experienced recurrence over the course of the next two to three years. The preferred course of therapy for recurrence was the modified Martius procedure, which involved inserting a pedicled fat flap from the labia majora. Morbidity, which was primarily represented by recurrence, was 25%, while death was 0%.
Milito *et al.* (2017) [18]	43 patients. The median age was 43 years (range 21-53).	Drainage and seton, rectal advancement flap (RAF), vaginal advancement flap (VAF), transperineal approach utilising pig dermal matrix (PDM), and Martius flap were the four surgical techniques used (MF)	A six-month median time to success was experienced (range 2-11). Throughout the 18-month follow-up period, no patient was lost. In contrast to the healing rate group, which had an 81% rate, the failure rate group had a 19% rate. There was no evidence that any demographic or disease-related factors affected recovery.
Schloericke *et al.* (2017) [19]	58 patients underwent surgery (53 curative, 5 palliative) for rectovaginal fistulas.	Omentoplasty was performed on all patients who underwent curative surgery, and resection was performed on 39 of 53 (73.6%) patients. Thirty of 39 (77.0%) resections were low anterior resections, while proctectomy (n = 2), pelvic exenteration (n = 2), and subtotal colectomy (n = 5) were not continence-preserving procedures. The fistulas were primarily brought on by diverticulitis (n = 13) or inflammatory bowel disease (n = 18), while 19 fistulas were brought on by various malignancies or precancerous lesions.	A 13-month median follow-up period was used (range 6-36). Fistula recurrence occurred in four patients (6.9%). (3 recurrences after low anterior resection, 1 after primary fistula closure). (n = 4) The mortality rate was 6.9%.

Schlöricke *et al.* (2012) [20]	34 patients with rectovaginal fistulas were treated.	In addition to anterior resection (n = 21), other surgical procedures included transrectal flap plasty (n = 7), subtotal colectomy (n = 3), pelvic exenteration (n = 2), and rectal extirpation (n = 1). Single suture (n = 25), flap plasty (n = 6, transvaginal omental plasty (n = 2), and posterior vaginal plasty (n = 1) were used to close the vaginal lesion. To safely divide the troublesome regions, an omental plasty was given to all patients. Transperineal omental plasty was used to treat patients with low fistulas (less than 6 cm).	The typical follow-up period was 12 months (6 - 36). Six patients experienced severe complications over this time period, including ARDS, anastomosis inadequacy, postoperative haemorrhage, and fistula recurrence (n = 3). Following surgery, three patients passed away due to a cerebral infarct, a septic Crohn's disease complication, and multiorgan failure due to a tumour recurrence.
Schloericke *et al.* (2012) [21]	A total of 9 patients with a low or mid rectovaginal fistula were treated.	All patients underwent additional treatment following local fistulectomy, which included rectovaginal and perineal space repair using an omental flap with laparoscopic assistance. In eight of the nine patients, a colostomy or ileostomy for protection was performed. The only patient without an ileostomy was the one who had a history of Crohn's disease.	At a median follow-up of 22 months, there had been no rectovaginal fistula recurrence in any patient. There was no perioperative death, and 22% of patients experienced mild problems. Anastomotic insufficiency following low anterior resection, which was addressed without additional operations, was one of the major consequences. Another issue was a sphincter fistula that persisted and required more surgery, bovine plug repair, and a mucosa flap.
van der Hagen *et al.* (2011) [22]	38 patients with a median age of 53 years (range 33-72).	Without performing an omentoplasty, the fistula was sealed, and a diverting stoma was put in place.	The typical follow-up period was 28 months (range 10-35). A recurrent fistula occurred in two patients (5%) in total. The interposed omentum in one patient developed necrosis and was effectively treated laparoscopically. Another patient underwent drainage treatments after an abscess formed. Before therapy, the mean Cleveland Clinic Incontinence Score (CCIS) was 9 (range 7-10) and after treatment, it was 10 (range 7-13) ($p = 0.5$ Wilcoxon test). Prior to therapy, the median the Gastrointestinal Quality of Life index (GIQLI) score was 85 (interval 34–129), and it increased to 120 (interval 75–142) following treatment ($p = 0.0001$, Wilcoxon test).

Narang *et al.* (2016) [23]	A total of 120 patients were contacted, and 99 of them agreed to participate in the study.	In total, 63 percent of patients recovered from their procedures, which comprised advancement flap (n = 59), transvaginal repair (n = 14), muscle interposition (n = 14), episioproctotomy (n = 6), sphincteroplasty (n = 3), and miscellaneous (n = 3). Sixty-eight patients had recent immunomodulation therapy, however the results after surgical repair did not show statistical significance.	After surgical repair, the average follow-up was 39 months. A 74% (n = 26) recovery rate was seen in the subset of patients with fistulas associated with obstetric damage following surgical repair. Healing was unaffected by age, BMI, diabetes mellitus, usage of steroids, probiotics, seton before repair, faecal diversion, and the number of repairs.
Mudrov *et al.* (2021) [24]	61 patients with rectovaginal fistula. Median age of patients was 35 years [31- 48].	27 (44.2%) cases of postpartum fistula were noted, compared to 10 (16.4%) postoperative cases, 15 (24.6%) inflammatory cases, and 9 (14.8%) cases from other causes. 29 patients (47.5%) experienced a disease recurrence.	A 36.2 [6–64] month median follow-up time was used. 19 (31.1%) patients experienced rectovaginal fistula recurrence after surgery. Hospital stays lasted from three to thirty-six days (median 14 [12-16]). The association between the probability of illness recurrence and a number of variables was examined, including the rectovaginal fistula's etiology, its location and dimension, intraoperative cautery, prior operations, and preventative colostomy.
Reisenauer (2019) [25]	12 patients.	Seven patients experienced a fistula recurrence, and five of the 12 rectovaginal fistulas that underwent surgical treatment were initial fistulas. The procedure was performed via a vaginal route after birth or at a subsequent delivery. Patients who had a high chance of recurrence or a high risk of postoperative functional pain underwent the latter surgery. The vaginal wall's modifications during pregnancy were utilised for the first time to increase fistula closure success rates.	11 out of 12 obstetric rectovaginal fistulas were successfully repaired. The underlying pathology, the previous kind of repair, the patient's preferences, and the surgeon's experience should all be taken into consideration when determining the best course of action for rectovaginal fistula repair. It is obvious that treatment for rectovaginal fistulas at specialised facilities is advantageous.
Wang *et al.* (2018) [26]	26-year-old woman who suffered from RVF caused by obstetric trauma.	The patient was brought in for the operation. There were around 40 minutes of operation.	At the 4-month follow-up, no problems or recurrence were found. A colostomy or protective ileostomy was avoided. Intestinal continuity was repaired by the patient. The patient satisfaction rate was very high, and the functional and cosmetic outcomes significantly enhanced quality of life.

Discussion

Like other forms of fistulas, RVFs also develop as a result of a problem, surgery, an underlying illness, or an injury. The deterioration of wall integrity brought on by a persistent inflammatory adjacent tissue or organs may erode as a result of infectious or cancerous processes in the vaginal or rectal wall resulting in the aberrant fistulous connection as a result [27]. RVF treatment entails addressing the primary illness, the fistula, and any side effects that may arise [28]. As a result, before beginning treatment, the etiology of the fistula should be confirmed. The treatment strategy is determined by the severity of the condition, the acuity of the symptoms, the general health of the patient, the underlying cause, as well as the fistula's side effects [29]. Treatment advice for RVF is influenced by a number of illness features patients. These elements include the location of the fistula (transsphincteric, transverse, or high), anal canal disease (stricturing or ulcers), active inflammation in the rectum, and rectal compliance. Treatment type and timing are also heavily influenced by the existence, intensity, and quality of symptoms, discomfort, and life. Because there is significant disagreement over the most effective therapies for these infamous fistulas are challenging to close, the first step is to have an open discussion about realistic treatment goals and expectations. Patients with few or no symptoms might receive advice, but not receiving any care at all [30]. While there are numerous RVF treatment options, they are dependent on the location of the fistula and the patient's comorbidities. Lower RVF reconstruction is typically performed via vaginally, perineally, or anally. Higher fistulas are repaired using transabdominal approaches [31]. While in contrast to combination treatments with the addition of healthy people, anatomic fistula repair alone is linked to decreased success rates in vascularized tissue [32]. The majority of treatment methods include transposing adding wholesome tissue to the perineal region between the vaginal and rectal layers to enhance granulation tissue and blood flow, remove "dead" area and the sutures used to heal anatomic fistulas, and guard against vaginal and rectal stenosis. Due to the low rate of spontaneous healing, given that the success rate drops off as the number of past procedures increases, it is essential to ensure proper RVF repair [33]. The elimination of the fistula is one of the fundamental tenets of local surgical repair and the replacement of the septum by tension-free tissues that are abundant. A trans-anal technique was widely employed by the colorectal surgeon, which also had a cutting-edge flap, whereas the gynaecologist trans-vaginal or trans-perineal approaches were recommended [34]. From our observations, sophisticated flap or tissue interposition were more favoured for patients' initial attempts with a sizable fistula to ensure a healthy blood supply and tension-free healing. In our study, fistulectomy was frequently used. For individuals with a straightforward condition, this surgery was advised RVF or those whose prior attempt at repair failed but still showed a smaller fistula than before. This treatment had the advantage of eliminating the septic system a fistula and the unhealthily positioned tissue around it, making sure that only healthy tissues received the suture. The abdomen, walls of the rectovaginal and vaginal septums were divided and rebuilt. The vagina and the rectum were separated by a thick, strengthened tissue. Similar to the trans-perineal method, the fistulectomy reconstruction did not require a perineum incision [35]. Trans-endoscopic microsurgery is developing. It was reported that such a method was carried out using transmission electron microscopy, which offered better exposure and permitted more accurate observations [36].

Conclusion

The most challenging fistula type is rectovaginal help address the perianal CD's symptoms. Both the patient and the doctor who is treating them find them annoying. Surgery should only be undertaken after medicinal care has failed and local conditions are favourable. Which might be the only therapy needed. Medical interventions are advised for both nearby and far-off active CD.

Conflict of Interest

None

Funding

None

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