Section: Surgery

Original Research Article

A COMPARATIVE EVALUATION OF FISTULECTOMY WITH SPHINCTEROPLASTY VERSUS FISTULECTOMY WITH SPHINCTEROPLASTY COMBINED WITH MARTIUS FLAP REPAIR IN THE MANAGEMENT OF RECTOVAGINAL FISTULA

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ABSTRACT

Background: Surgical intervention remains the primary and definitive treatment for anal fistula, a condition recognized for more than two millennia. Despite advances in operative techniques, management continues to be challenging due to variable recurrence rates and the potential risk of postoperative incontinence. The aim is to compare the efficacy, clinical effectiveness, and postoperative outcomes of fistulectomy with sphincteroplasty versus fistulectomy with sphincteroplasty combined with Martius flap repair.

Materials and Methods: This study included a total of 24 patients diagnosed with anal fistula. Among them, 13 patients underwent fistulectomy with sphincteroplasty, while 11 patients were treated with fistulectomy, sphincteroplasty, and Martius flap repair. Patients were evaluated for surgical success, recurrence, and postoperative complications.

Results: The success rate in the fistulectomy with sphincteroplasty group was 38.4% (5 patients), with recurrence observed in 8 patients. In contrast, the group treated with the addition of Martius flap repair demonstrated a higher success rate of 72.7% (8 patients). Recurrence occurred in 3 patients in this group; however, these cases were managed conservatively for two weeks, resulting in complete healing.

Conclusion: The findings of this study suggest that the incorporation of Martius flap repair with fistulectomy and sphincteroplasty provides superior postoperative outcomes, including lower recurrence rates, reduced risk of incontinence, decreased wound infection, and improved patient satisfaction.

Keywords: Anal fistula, Fistulectomy, Sphincteroplasty, Martius flap repair.

INTRODUCTION

A rectovaginal fistula is an abnormal epithelial-lined communication between the rectum and vagina, resulting in the passage of flatus, fecal matter, or purulent discharge through the vaginal canal. Although trauma remains the most common cause, several other etiological factors contribute to its development, including obstetric injury (particularly prolonged labor leading to ischemic necrosis of the rectovaginal septum), third- or fourth-degree perineal tears, episiotomy-related complications, inadequate surgical repair, infections, inflammatory conditions such as Crohn's disease, pelvic malignancies, and radiation exposure.[1-3]

The clinical presentation of rectovaginal fistula varies depending on its size, location, and underlying cause. While some patients may remain asymptomatic, others may present with recurrent vaginal infections, cystitis, fecal incontinence, and symptoms related to associated gastrointestinal or pelvic pathologies such as inflammatory bowel disease, diverticulitis, or malignancy.[4-6]

Rectovaginal fistulas are commonly classified based on location, size, and etiology. Anatomically, they are categorized into low and high types. Low fistulas

are located between the lower vagina and the distal rectum near or just above the dentate line, whereas high fistulas involve the upper vagina or posterior fornix and the mid-rectum. This classification is clinically significant, as it guides surgical management. Low fistulas are generally amenable to local or perineal repair, while high fistulas often require an abdominal approach.[7-9]

Based on size, fistulas measuring less than 2 cm are considered small, whereas those exceeding 2.5 cm are categorized as large. Furthermore, fistulas are described as simple or complex. Simple fistulas are typically small, low-lying, and often result from obstetric or localized infectious causes. In contrast, complex fistulas are larger, high in location, recurrent, or associated with conditions such as malignancy, radiation injury, or inflammatory bowel disease.[10-12]

Management of rectovaginal fistula requires a thorough clinical evaluation, including detailed history, physical examination, and appropriate radiological investigations. Assessment focuses on determining the fistula's size, location, surrounding tissue condition, and sphincter involvement. Diagnostic tools such as proctoscopy and vaginal examination play a crucial role in planning treatment.[13-15]

Although conservative management may be attempted in selected cases, surgical intervention remains the definitive treatment modality. A wide range of surgical techniques has been described, including fistulectomy, sphincteroplasty, advancement flaps (endorectal or endovaginal), coloanal anastomosis, gracilis muscle transposition, Martius flap repair, perineoproctectomy, and the use of biological materials such as fibrin glue or plugs. The choice of procedure depends on multiple factors, including fistula characteristics, etiology, prior surgical attempts, and the surgeon's expertise.[16,17]

Among these techniques, the Martius flap procedure involves the interposition of a well-vascularized bulbocavernosus muscle and labial fat pad between the rectum and vagina, providing structural support and enhancing healing. This technique has gained popularity due to its relative simplicity and favorable outcomes, particularly in recurrent or complex cases.[18-20]

The selection of an appropriate surgical approach is critical for successful outcomes. Therefore, the present study was undertaken to compare two commonly employed techniques—fistulectomy with sphincteroplasty and fistulectomy with sphincteroplasty combined with Martius flap repair—with the aim of evaluating their effectiveness and postoperative results.

MATERIALS AND METHODS

This prospective study was conducted in the Department of Surgery at Muzaffarnagar Medical College, Uttar Pradesh, between December 2017 and April 2022. A total of 24 obstetric patients diagnosed with rectovaginal fistula were included and evaluated based on etiology, clinical characteristics, type of surgical intervention, and postoperative outcomes.

Patients presenting with symptoms suggestive of rectovaginal fistula for less than three months were initially managed conservatively with antibiotics, sitz baths, regular wound care, maintenance of hygiene, and a high-protein diet. These patients were followed for up to 12 weeks. Surgical intervention was planned for those with persistent symptoms beyond three months after obtaining informed consent and explaining available treatment options.

All patients underwent detailed clinical examination along with necessary radiological investigations. They were categorized based on etiology, gravida status, prior surgical repair, fistula type, comorbidities, and surgical technique used.

Patients were divided into two groups:

- Group A (n=13): Underwent fistulectomy with sphincteroplasty
- Group B (n=11): Underwent fistulectomy with sphincteroplasty combined with Martius flap repair

Among the study population, 13 patients had simple fistulas, while 11 had complex fistulas. All patients were followed up for a period of six months.

Preoperatively, infection control was ensured through appropriate antibiotic therapy for 6–12 weeks, along with drainage of any abscess if present. Dietary modifications and fiber supplementation were advised. All patients received prophylactic third-generation cephalosporins and metronidazole prior to surgery.

Successful healing was defined as the absence of fecal discharge from the vagina for at least six months, confirmed clinically and by digital rectal examination. Recurrence or failure was defined as persistence or reappearance of symptoms within a few days after surgery. Final success was assessed at a minimum of three months following the last surgical intervention.

RESULTS

A total of 24 patients were included in the study, with a mean age of 26 years (range: 20–40 years) and an average body mass index of 22.38. Patients were analyzed based on demographic and clinical variables including gravida status, etiology, fistula type, recurrence, and surgical procedure.

The mean operative time for fistulectomy with sphincteroplasty was approximately 50 minutes, with an average blood loss of 10 mL. In comparison, the Martius flap procedure required a longer operative time of approximately 1.5 hours, with an average blood loss of 50 mL.

In Group A, the success rate was 38.4% (5 patients), while 8 patients experienced recurrence. Among these, 2 patients responded to conservative management, whereas 6 required secondary surgical intervention with Martius flap repair.

Figure 1: Martius flap harvesting.

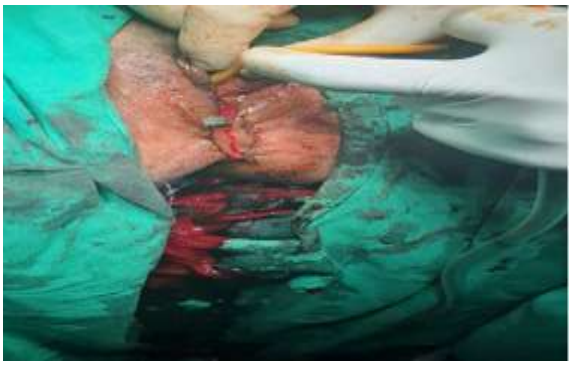

Figure 2: Fistulectomy with Sphincteroplasty.

Figure 3: ?

In Group B, the success rate was significantly higher at 72.7% (8 patients). Recurrence occurred in 3 patients; however, all were successfully managed with conservative treatment, resulting in complete healing.

Statistical analysis was performed using chi-square or Fisher's exact test for categorical variables and Student's t-test for continuous variables. A p-value of ≤0.05 was considered statistically significant.

DISCUSSION

Rectovaginal fistula is a distressing condition that significantly affects a patient's quality of life. Despite advances in surgical techniques, its management remains challenging, with no universally accepted gold standard procedure.[21]

The choice of treatment depends on multiple factors, including the etiology, size, location of the fistula, condition of surrounding tissues, previous repair attempts, and surgeon expertise. While conservative treatment may be effective in selected cases, surgical intervention is required in the majority.[22]

Various surgical approaches have been described, including local repair techniques, advancement flaps, and tissue interposition methods. Among these, the Martius flap technique has gained recognition due to its ability to provide a well-vascularized tissue layer between the rectum and vagina, thereby enhancing healing and reducing recurrence.[23]

In the present study, patients undergoing fistulectomy with sphincteroplasty alone showed lower success rates compared to those treated with the addition of Martius flap repair. The higher success rate observed in the Martius flap group may be attributed to improved vascularity and mechanical support at the repair site.[24]

These findings are consistent with previous studies, which have demonstrated superior outcomes with Martius flap repair, particularly in complex and recurrent fistulas. Additionally, the procedure has been associated with minimal morbidity and good functional outcomes.[25,26]

Table 1: Characteristics of Studied Subjects.

Variables	Number	%
Age	20-40 (26)	100%
Body mass index	22.38	
Primigravida	14	58.3%
Multigravida	10	41.6%
Difficult childbirth	11	45.8%
Simple fistula	13	54.1%
Complex fistula	11	45.8%
Recurrence after no flap cover repair	8	61.8%
Recurrence after flap cover	3	27.3%
Comorbidity present	6	25%
Comorbidity absent	18	75%
Sphincter defect present	8	33.3%
Fistulectomy with sphincteroplasty	13	54.1%
Fistulectomy with sphincteroplasty with Martius repair	11	45.8%

Table 2: Association of Patients' Characteristics with The Surgical Repair Technique Outcome.

Variable	Number of patients (n)	Success	Fail	P value
Primigravida	14	10 (71.4%)	4 (28.5%)	0.03*
Multigravida	10	6 (58%)	4(42%)	0.09
Difficult childbirth	11	5(45.4%)	6(54.5%)	0.2

Simple fistula	13	8(61.5%)	5(38.4 %)	0.05*
Complex fistula	11	8 (72.7%)	3 (27.2%)	0.04*
Comorbidity present	6	4 (66.6%)	2(33.3%)	0.5
Comorbidity absent	18	16(88.8%)	2(11.1%)	0.01*
Sphincter defect present	8	3(37.5%)	5(62.5%)	0.3
Sphincter defect absent	16	11 (68.7%)	5(31%)	0.02*

*p-value less than 0.05 considered as statically significant

CONCLUSION

Based on the findings of this study, the addition of Martius flap repair to fistulectomy with sphincteroplasty results in improved postoperative outcomes, including higher success rates, reduced recurrence, and better patient compliance. It appears to be a more effective surgical option, especially in complex and recurrent rectovaginal fistulas.

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