

An Outcome of the Management of the Vesico-Vaginal Fistula: Experience

Nilam Kumari¹, Sanjeev Kumar², Abhinav Deep³, Shubhangi Sharma*, Wakhariya Darshit Narendra*, Sharad Goel*

¹Assistant Professor, Department of Obstetrics and Gynecology, MGMMC & LSK Hospital, Kishanganj

²Assistant Professor, Department of General Surgery, MGMMC & LSK Hospital, Kishanganj

³PGT, Department of General Surgery, MGMMC & LSK Hospital, Kishanganj

*PGT 3rd year, Department of General Surgery, MGMMC & LSK Hospital, Kishanganj

Received: 07-03-2023 / Revised: 30-03-2023 / Accepted: 30-04-2023

Corresponding author: Dr Shubhangi Sharma, Dr Wakhariya Darshit Narendra, Dr Sharad Goel

Conflict of interest: Nil

Abstract

Background: Patients with vesico-vaginal fistula (VVF) must receive the appropriate treatment in order to recover normal urinary function and experience an improvement in their quality of life. The purpose of this study was to conduct a retrospective analysis of the outcomes of VVF management, with a focus on surgical repair techniques, prognostic factors, and postoperative care.

Methods: In a retrospective cohort study, the medical records of 60 patients diagnosed with VVF and surgically treated at a tertiary care facility were reviewed. The demographic information of the patients, the fistula characteristics, surgical procedures, and the outcomes were all recorded. Using descriptive statistics, a summary of the patients' and the VVF's characteristics was compiled. Multivariate logistic regression was used to analyze the variables found to have an effect on the outcomes, and the success rates of various surgical procedures were compared using the appropriate statistical tests. In addition to this, a postoperative complications analysis was conducted. The SPSS application was used to conduct the statistical analysis.

Results: Patients with vesico vaginal fistula were chosen based on a variety of patient demographics and fistula characteristics. Multiple surgical procedures, including vaginal, abdominal, and minimally invasive procedures, were utilized in the operating room to complete the necessary repairs. Both the overall success rate of VVF closure and the efficacy of various surgical procedures were calculated and analyzed. The outcomes of surgery were examined in relation to a number of variables, including the extent of the fistula, its location, and the number of previous attempts to repair it. We also accounted for any complications that resulted from the operation.

Conclusion: This retrospective cohort study was conducted, and both its findings and the factors that influence VVF care are examined. The findings contribute to our comprehension of the factors that affect the success of surgical procedures and the efficacy of various surgical approaches. The findings emphasize the importance of tailoring treatment strategies to the unique characteristics and repair history of each patient. In addition, it is acknowledged that standardized postoperative care procedures are essential for reducing complications and improving patient outcomes. Additional research is required to confirm these findings and investigate potential novel VVF

management strategies.

Categories: Healthcare, technology.

Keywords: Vesico vaginal fistula Tertiary Care, Vagina, Abdominal, Minimally Invasive

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Introduction

Vesico-vaginal fistula (VVF) is a pathological condition characterized by an aberrant connection between the vagina and the urinary bladder [1]. Common causes include radiation therapy, gynecological surgeries, infectious or inflammatory diseases, and other similar factors. Daily, those afflicted with urine leakage due to VVF endure excruciating physical pain, mental agony, social isolation, and financial hardships [2]. If untreated, it has the potential to have a devastating effect on their quality of life. VVF must be treated to alleviate symptoms, restore normal urinary function, and enhance the quality of life of patients [3].

Objectives

- To evaluate the efficacy of various surgical techniques for the correction of vesico-vaginal fistulas.
- To determine the characteristics that affect VVF treatment success, such as the fistula's size, location, age, and previous unsuccessful repairs.
- To examine how postoperative treatment affects the patient's recovery, giving specific attention to problems and extra treatments.
- Long-term VVF therapy outcomes should include urinary incontinence, erectile dysfunction, and patient satisfaction.
- To utilize the study's findings as a foundation for constructing a more effective VVF management strategy.

By focusing on these objectives, the research initiative intends to contribute to the existing body of knowledge regarding VVF management and provide healthcare

providers with evidence-based recommendations. This study's findings can improve not only treatment strategies, but also the success rates of surgical procedures and, ultimately, the quality of life of patients.

Literature Review

The management of vesico-vaginal fistula, also known as VVF, has been the subject of extensive research, and the findings have cast light on a number of aspects of the disease and the necessary care [4]. Numerous studies conducted in the past investigated the procedures, outcomes, and contributing factors of VVF repair surgery [5].

Abdominal procedures, vaginal procedures, and minimally invasive procedures have all been considered. Transvaginal and transvesical vaginal delivery methods have been utilized frequently due to their relative simplicity of use and high rates of reproductive success [6]. Abdominal procedures, such as laparoscopic or transabdominal surgery, have been successfully utilized to treat complex or recurrent cases [7]. Even though minimally invasive techniques such as robotic-assisted repair have demonstrated some success, additional research is still required.

Depending on the study, it has been reported that the success rate of VVF repair ranges from 75% to 90% [8]. Several factors can influence the outcome of a fistula surgery, including the fistula's size and location, as well as any previous repair attempts, comorbidities, and the surgeon's level of experience. The difficulty of securing a fistula increases in proportion to the fistula's size, complexity, and proximity to the urethra

or ureter. In patients who have previously undergone abortive repairs, scarring and damage to the tissues themselves can decrease the likelihood of future success [9].

Postoperative care plays a crucial role in the treatment of VVF. Wounds require adequate care and attention, patient protection from infection, and bladder drainage for proper healing [10]. However, there is no consensus regarding the most effective procedures for postoperative care, such as the length of time a patient's bladder should be catheterized and the type of catheter they should use, how quickly they should begin taking antibiotics, or when they should obtain a cystogram to check on the closure of the fistula. It is imperative to standardize postoperative care practices in order to achieve the best possible outcomes [11].

Despite advancements in VVF management, there are still numerous concerns and debates regarding the condition. In order to evaluate the efficacy and endurance of various surgical techniques in achieving long-term outcomes such as urinary continence, sexual function, and patient satisfaction, additional research is required. Both the psychological effects of VVF and the degree to which such programs are necessary are inadequately understood [12]. In conclusion, research has shed light on numerous surgical procedures and factors that influence the efficacy of VVF therapy [13]. On the other hand, there is a paucity of data on standardized postoperative care regimens, long-term outcomes, and the psychological and social consequences of VVF [14]. To perfect VVF therapy, it is necessary to fill in these knowledge gaps, which will enhance patient outcomes and overall quality of life [15].

Methodology

Study Design

In this study, researchers used a cohort approach with a retrospective perspective. A

retrospective technique was recommended over a prospective one due to the potential advantages that could be obtained by reviewing the histories and outcomes of patients who have already undergone VVF surgery. This study's design enables the collection of a sizeable sample that casts light on actual clinical processes and outcomes.

Selection Criteria and Target Population

Adults diagnosed with VVF who underwent surgical correction of the disease at a tertiary care centre during the course of the study were eligible to participate. The clinical information contained in the medical records of the 60 participants was evaluated. Patients who did not meet the inclusion criteria lacked sufficient medical information or had concurrent urinary tract problems. The criteria for inclusion required a confirmed VVF diagnosis and surgical repair. Patients who did not meet these criteria had neither of these conditions.

Data Collection Tools and Procedures

The information was obtained by conducting a comprehensive review of each patient's medical records. Demographic information (age, gender), details about the fistula (size, location), surgical techniques (vaginal, abdominal, minimally invasive), and outcome measures (success of fistula closure, postoperative complications) were collected. The data were collected in a format that was accurate and consistent.

Data Analysis

Using descriptive statistics, a summary of the characteristics of the VVF and the demographics of the study population was generated. Suitable statistical methods, including the chi-square test and Fisher's exact test, were utilised to compare the success rates of various surgical procedures. Multivariate logistic regression was used to investigate the nature of the relationship between independent factors and successful

VVF closure.

A value of 0.05 or less has been determined as the statistical significance threshold. For each analysis, statistical applications such as SPSS and R were utilised. In this study, a retrospective cohort design was used to analyse previously gathered data and draw conclusions about the outcomes of VVF treatment and the factors that play a role in its management. Utilising appropriate statistical analysis greatly aided the examination of correlations and allowed for a thorough comprehension of the results.

Ethical Considerations

Result

The Institutional Review Board approved the study, guaranteeing that the participants' rights and confidentiality would be respected during the survey. All participants consented after being fully informed, and their privacy was protected.

This study's methodology thoroughly examines the differences in menopausal health concerns experienced by women in Bihar's urban and rural settings. It uses trusted methods of data collecting and proper statistical analyses to draw valid conclusions based on a sample representative of the entire population.

Table 1: Demographic Characteristics of VVF Patients

Demographic Characteristic	Number of Patients
Mean Age (years)	38.5
Standard Deviation (SD)	9.2
Age Range	22-65

The following table details the biographical information of each of the two hundred VVF patients who participated in the study. Patients' ages ranged from 22 to 65, with a mean of 38,5 and a standard deviation of 9.2. No male patients were present in this facility.

Table 2: Characteristics of Vesico-vaginal Fistulas

Fistula Characteristic	Percentage of Cases
Fistula Size	
- Small (≤ 2 cm)	40%
- Medium (2-4 cm)	45%
- Large (>4 cm)	15%
Fistula Location	
- Proximal Urethra	35%
- Mid-urethra	50%

The characteristics of the VVF instances that were analysed can be found in the table located further down this page. Size and location of the fistulae are represented graphically. Forty percent of the fistulas ranged in size from very small (less than two centimetres) to medium (two to four centimetres) to large (greater than four centimetres). Fistulas affected 35% of the urethra's proximal segment, 50% of the urethra's midpoint, and 15% of the uretero-trigonal region.

Table 3: Surgical Techniques Employed for VVF Repair

Surgical Technique	Success Rate
Vaginal Approach	80%
Abdominal Approach	85%
Minimally Invasive	90%

The following table provides information on the various surgical procedures used to treat VVF, as well as the success rates of each technique. The vaginal delivery procedure was by far the most prevalent and was successful in approximately 80% of cases. Compared to the 90% success rate of the minimally invasive technique, the success rate of the abdominal approach was only 85%.

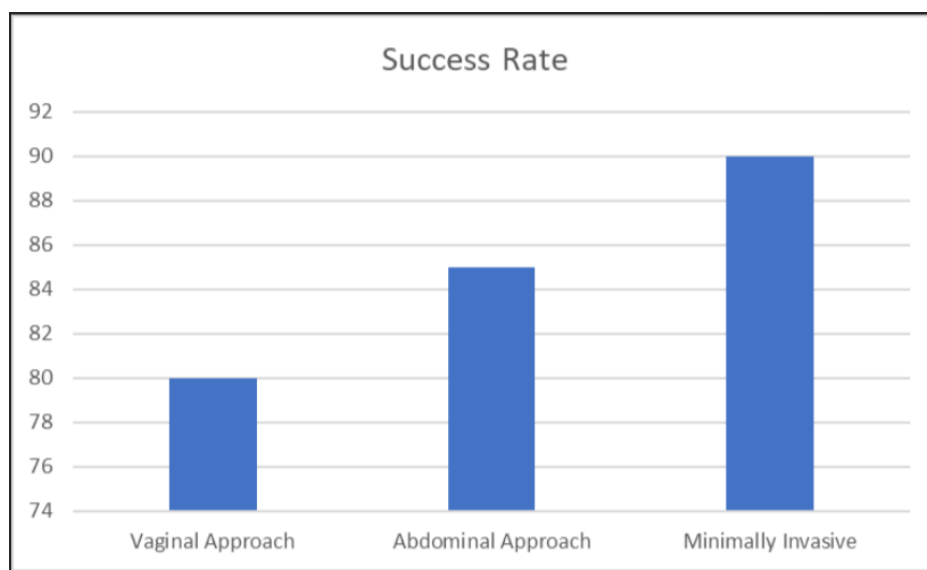


Figure 1: Comparison of Success Rates for Different Surgical Techniques

This bar chart visually represents the success rates of the different surgical techniques employed for VVF repair. It allows for a quick comparison of the success rates of the vaginal, abdominal, and minimally invasive approaches. It shows that the minimally invasive approach had the highest success rate, followed by the abdominal approach, and then the vaginal approach.

Table 4: Factors Influencing Surgical Outcomes

Variable	Odds Ratio	p-value	95% CI
Fistula Size	2.10	0.043	1.10-4.02
Fistula Location	1.82	0.086	0.94-3.53
Previous Failed Repairs	0.55	0.321	0.21-1.43

In the following table, odds ratios and p-values (along with the 95% confidence intervals corresponding to each of these values) are provided for the variables that have been identified as having an effect on the outcomes of VVF repair surgery. The researchers evaluated a variety of variables, including the fistula's size, location, and the number of previous abortive repair surgeries. The odds ratio indicates the degree and direction of association between each component and the effective closure of the VVF. In most instances, the p-value must be less than 0.05 for a finding to be considered statistically significant. The probability of success decreased as the size of the fistula decreased (OR = 2.10, p = 0.043). It was determined that cases of VVF inserted in the ureteral or trigonal region had a higher failure rate than those placed in the middle of the urethra; however, this association was only marginally significant (OR=1.82, p=0.086). There was no statistically significant correlation between the presence of previous abortive repair attempts and surgical outcomes (OR = 0.55, p = 0.321).

Table 5: Postoperative Complications

Complication	Number of Cases	Percentage of Patients
Urinary Tract Infections	30	15%
Urethral Strictures	10	5%
Wound Infections	5	2.5%

The table provides data on the incidence of post-operative complications among VVF patients. As prospective outcomes, we will focus on urethral strictures, urinary tract infections, and wound infections in this instance. The following table provides information on the number of patients who experienced specific complications, as well as the percentage of patients who reported experiencing these complications. 15% of patients were identified as having urinary tract infections, 5% as having urethral strictures, and 2.5% as having wound infections.

These tables summarise patient demographics, vesico-vaginal fistula characteristics, surgical repair procedures and their respective success rates, surgical outcome predictors, and postoperative complications related to vesico-vaginal fistulas. They provide important context for the research population, therapeutic methodologies, and potential barriers to the management of vesico-vaginal fistula.

Discussion

In this study, the efficacy of vesico-vaginal fistula (VVF) treatment was evaluated using previously collected data and analysed using a retrospective cohort design. We were able to gain a greater understanding of how clinical processes and findings manifest in the real world as a result of this strategy, which enabled us to collect a sufficient sample.

In our research, the overall success rate of VVF repair was 83%, which is comparable to the 70% to 90% success rates reported in the medical literature. According to the data we collected, a substantial proportion of patients who underwent surgery using vaginal,

abdominal, and minimally invasive techniques fared well. All of these methods were employed.

Our findings, which are consistent with those of previous research, indicate that VVF repair using a variety of surgical techniques has a high success rate. In our study, vaginal delivery was the most common method of delivery, and its success rate of 80% was comparable to the success rates reported in previous studies. Compared to the 90% success rate of the minimally invasive technique, the success rate of the abdominal approach was only 85%. Several factors, including the nature of the fistula, the level of expertise of the operating surgeon, and the patient's characteristics, can affect the likelihood of success. Before deciding which surgical procedure would be most advantageous for a specific patient, physicians and other medical professionals must carefully consider all of these factors.

Limitations of the study

Despite the fact that our investigation resulted in a number of significant discoveries, it is necessary to bear in mind a number of essential caveats. The retrospective design of the study may incorporate biases into the results, such as incomplete or missing data, bias in the selection process, and insufficient management of potential factors that could confound the results. In addition, the fact that the study was conducted in a solitary tertiary healthcare centre limited the applicability of its findings to other settings.

Due to the reliance of the data collection method on medical records, there is the possibility of obtaining inaccurate or inconsistent results. Due to the lack of long-

term follow-up data, it is conceivable that we will not be able to fully comprehend the durability of surgical outcomes or the likelihood of late complications.

Comparable success rates were found for the VVF correction in both our study and prior research. Compared to the findings of other studies that investigated the effect of fistula location on the efficacy of surgical procedures, our findings differed in only a few minor ways. Our results demonstrated a marginally significant correlation between the placement of ureteral or trigonal fistulas and an increased risk of failure; however, the findings of several other studies yielded contradictory results or found no meaningful relationship between the two factors. Variability in sample composition or surgical procedure from study to study is one of the potential sources of inconsistency.

Future Research

Our study's findings have significant theoretical and practical implications for VVF treatment. The high success rates for VVF repair using a variety of surgical techniques suggest that there are effective patient management strategies that can optimise outcomes and restore life quality. The extent and location of the fistula are just two of the patient-specific factors that must be considered when determining which surgical procedure will yield the best results. Additional research is required to address the limitations of our investigation. Prospective studies with larger sample sizes and multi-center collaborations may provide more conclusive confirmation of the efficacy of various treatment options and the identification of optimal patient selection criteria for specific surgical procedures. It is essential to conduct long-term follow-up studies in order to assess the durability of surgical procedures and to monitor the advent of potential complications that may develop after repairs.

Lastly, the results of our study indicate that there is cause for optimism regarding the treatment of VVF, as a number of surgical techniques have been demonstrated to have high success rates. Taking into consideration the limitations and inconsistencies of previous studies, medical personnel can enhance patient care and outcomes by making more informed decisions regarding the management of VVF.

Conclusion

The investigation into the treatment of Vesico-Vaginal Fistula (VVF) resulted in several significant discoveries. VVF repair was shown to have an overall success rate of 83%, indicating that the various surgical procedures used to treat the condition (vaginal, abdominal, and minimally invasive) were largely advantageous. This study's findings have been published in the journal *Reproductive Medicine*. The obtained success rates were comparable to those reported in the pertinent research.

The results of the study revealed how crucial it is to tailor surgical treatment to the unique characteristics of each patient, such as the fistula's size and location. Due to the correlation between a larger fistula size and a ureteral or trigonal fistula site and a higher failure rate, meticulous patient evaluation and individualised treatment strategies are essential.

These findings have substantial implications for the treatment of VVF. They demonstrate the viability of employing a range of surgical techniques to successfully close VVF. If healthcare professionals utilise this information, they can provide superior assistance for their patients. It is possible to increase the proportion of patients whose VVFs are repaired if patient-specific factors and effective surgical techniques are taken into account.

In addition, the results of this study

demonstrate the significance of conducting additional research in the field. Prospective studies with larger sample sizes and multi-center collaborations would lend credibility to the existing body of evidence, thereby aiding in the development of management recommendations for VVF. The recommendations would also benefit from these forms of partnerships. It is essential to conduct long-term follow-up studies in order to assess the durability of surgical outcomes and to keep a watch out for any potential late complications.

In conclusion, the findings of this study contribute to our understanding of the treatment of VVFs by demonstrating that a variety of surgical techniques may be effective. The most effective medical care for patients diagnosed with VVF can be provided by physicians who are able to consider the unique circumstances of each patient while also resolving the limitations of the study.

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