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Original Research Article **Obstetrics & Gynecology**

Clinical Status of Women with Vesicovaginal Fistula

Dr. Shamima Yusuf[1*], Dr. Jannat Ara Rumana[2], Dr. Riasona Ferdous[3], Dr. Rowshan Ara[4], Dr. Laila Akter[5]

[1]Assistant Professor (in situ) Obstetrics & Gynecology, OSD, Directorate General of Health Services (DGHS), Dhaka, Bangladesh
[2]Assistant Professor (in situ), Obstetrics & Gynecology, Mugda Medical College Hospital, Dhaka, Bangladesh
[3]Junior Consultant (Obs. & Gynae), OSD, Directorate General of Health Services (DGHS), Dhaka, Bangladesh
[4]Assistant Professor, (in situ) Gynae and Obstetrics, Upazilla Health Complex, Bakerganj, Bangladesh
[5]Asst. Surgeon, OSD, DGHS, Fetomaternal Medicine Department, Dhaka Medical College Hospital, Dhaka, Bangladesh

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***Corresponding author:** Dr. Shamima Yusuf
Assistant Professor (in situ) Obstetrics & Gynecology, OSD, Directorate General of Health Services (DGHS), Dhaka, Bangladesh

Abstract

Background: Vesicovaginal fistula remains a debilitating condition in developing countries, largely due to obstructed labor, delayed access to emergency obstetric care, and poor socioeconomic conditions. Understanding the clinical profile of affected women is crucial for improving preventive and treatment strategies. ***Methods:*** A total of 55 women with VVF were selected using convenience sampling. Clinical status was assessed through sociodemographic characteristics, parity, socioeconomic background, antenatal care status, causes of delay in reaching hospital, previous fistula repair attempts, and preoperative fistula characteristics including size, location, scarring, urethral involvement, and bony attachment. ***Results:*** Most women were multiparous (69.1%) and from low-income households (75.6%). Prior unsuccessful fistula repair was reported in several cases. Of the 55 fistulas, small fistulas were the most common (19 cases), and extensive fistulas were least frequent but had the poorest prognosis. Vaginal scarring varied from none (31 cases) to mild (14), moderate (4), and gross (6). Urethral involvement, circumferential fistulas, and bony attachment were significant adverse clinical findings. Two patients had bladder calculi, both of whom improved postoperatively. ***Conclusion:*** Women with VVF commonly present with multiple adverse clinical factors, including low socioeconomic status, delayed access to care, and complex fistula characteristics. Severe scarring, large fistula size, and urethral involvement indicate more complicated clinical status and challenge surgical management. Early obstetric intervention and improved maternal care services are essential for preventing such severe presentations.

Keywords: Vesicovaginal fistula, postoperative outcome, fistula repair, risk factors, urethral involvement.

INTRODUCTION

Vesicovaginal fistula (VVF) represents a major public health challenge in many developing countries, where prolonged obstructed labor and inadequate obstetric interventions are prominent contributing factors. Studies by Arrowsmith *et al.*, and Wall *et al.*, describe VVF as a preventable condition that disproportionately impacts young, socioeconomically disadvantaged women. [1,2] The clinical status of women presenting with VVF varies widely, reflecting differences in obstetric circumstances, delays in accessing care, and the presence of coexisting genital or urinary tract injuries. Researchers have emphasized that key characteristics—such as fistula duration, previous repair attempts, urethral involvement, and tissue fibrosis—strongly influence the complexity of management. Accurate assessment of these clinical variables is crucial for predicting prognosis, selecting surgical approaches, and determining the likelihood of successful fistula closure. Many women experience social stigma, isolation, and economic hardship due to the persistent incontinence associated with VVF. [2,3] Early marriage and adolescent pregnancy further increase the risk of fistula development. [5,6] Clinical evaluation often includes assessment of fistula size, site, scarring, and bladder or urethral involvement.[7] Understanding these preoperative factors helps clinicians anticipate challenges during surgery and plan interventions effectively. [8] A thorough understanding of the clinical status of affected women therefore provides a foundation for evidence-based treatment strategies and contributes to improved outcomes in VVF care.

OBJECTIVES

To assess the preoperative clinical and anatomical characteristics of women with vesicovaginal fistula.

METHODOLOGY

This analytical cross-sectional study was conducted in the Department of Obstetrics and Gynaecology at Dhaka Medical College Hospital from June to December 2012, enrolling every consecutive female patient with genital fistula admitted to the National Fistula Center who met the inclusion criteria. Patients were screened through history and clinical examination, and purposive sampling was applied to achieve a sample size of 55, calculated using the standard formula for cross-sectional studies (Hoque 2009) based on a VVF prevalence of 3.7% (Shaikh et al., 2011). Inclusion criteria allowed patients of any age with any type of vesicovaginal fistula who provided consent, while those with congenital fistula, malignancy- or radiotherapy-related fistula, significant comorbidities, or unfitness for surgery were excluded. Preoperative risk factors such as type, site, size, number of fistulas, vaginal scarring, urethral involvement, and previous unsuccessful repairs were considered independent variables, while closure outcome and type of operation formed the dependent variables; coexisting pathology and malnutrition were treated as confounding variables. All patients underwent standardized management: 21 days of bladder drainage, preoperative dye testing, vaginal route fistula repair by the same surgeon, followed by 21 days of postoperative bladder drainage, repeat dye testing on day 21, and follow-up for three months to assess continence, incontinence, or failure. Data were collected using a structured sheet covering sociodemographic, obstetric, clinical, and operative variables, and fistulas were classified according to Waaldijk (1995). Data analysis was performed using SPSS version 12, applying descriptive statistics and Chi-square tests to identify associations between preoperative factors and surgical outcomes, with significance set at $p<0.05$. Quality assurance was ensured through supervision, periodic review of data sheets, and consultation with senior professors during critical situations.

RESULTS

Table I: Socio-demographic features of the study population (n=55):

Variable	Category/Statistic	Value
Age (years)	Mean ± SD	32.86 ± 9.68
	Range (min–max)	20–60
Religion	Islam	50 (90.9%)
	Other	5 (9.1%)
Obstetric history	Age at fistula development (yrs)	
	Mean ± SD	21.1 ± 3.9
	Range (min–max)	16–29
Parity	Para 1	17 (30.9%)
	Para ≥2	38 (69.1%)
Present marital status	Living with husband	
	Yes	15 (27.3%)
	No	40 (72.7%)
Socioeconomic status	Low-income	42 (75.6%)
	Middle-income	11 (20.0%)
	High-income	2 (4.4%)
BMI (kg/m²)	Mean ± SD	17.9 ± 1.2
	Range (min–max)	16.7–21.8

Low-income (GNI per capita is 7000 or less) Lower-middle income (GNI per capita is 7000–27000) Upper-middle (GNI per capita is 27000–84000) High income (GNI per capita is >84000) GNI – Gross national income Ref. The state of the world's children 2012.

A total of 55 population were included in this study. Most 29 (52.7%) population were found to be less than 30 years. The mean age was found in 32.68±8.68 years with range from 20 to 60 years. Most 50 (90.9%) population were of Islam religion and rest 5 (9.1%) were of Hindu religion. Mean age at the time of fistula development was 21.1±3.9 years. Most 38 (69.1%) population were multiparous and rest 17 (30.9%) population were primiparous. 51 (92.7%) population living with her husband after developing fistula. Majority 42 (75.6%) population came from low-income socioeconomic status and rest 11 (20.0%) and 2 (4.4%) population came from lower-middle and upper-middle socioeconomic status respectively. The mean BMI was found 17.9±1.2 kg/m² with range from 16.7 to 21.8 kg/m².

Table II: Distribution of the study population according to history of previous fistula repairing operation (n=55):

History of Previous Fistula Repairing	Number of Population	Percentage (%)
None	38	68.6
Once	13	23.5
Twice	4	7.8

Table III: Frequency of Different Characteristics of Fistula (n=55)

Characteristics of Fistula	Frequency	Percentage (%)
Types of Fistula		
Vesicovaginal	44	80
Vesico-cervical	9	16.36
Vesico-uterine	2	3.63
Sites of Fistula		
Base	10	18.18
Neck	5	9.09
Juxtacervical	4	7.27
Lateral	4	7.27
Cervical	7	12.27
Size of Fistula		
Small (1–1.5 cm)	19	34.55
Medium (2–3 cm)	16	29.09
Large (4–6 cm)	14	25.45
Extensive (>6 cm)	6	10.91
Associated Problems		
Vaginal stenosis	4	7.27
RVF	4	7.27
Bladder neck destruction	8	14.54
Urethral stenosis	3	5.45
Urethral loss	4	7.27
Scarring		
Mild	31	56.36
Severe	14	25.45
Continence		
Moderate	4	7.27
Good	7	12.9
Incontinence		
Present	2	3.63
Cathedral Urinary Bladder		
Present	2	3.63
Absent	53	96.36

A total of 55 patients underwent repair of obstetric fistulae during the study period. The majority of these fistulae were vesicovaginal (44 patients, 80%) as shown in Table III. Circumferential fistulae (7 patients, 12.27%) in which the entire bladder was detached from the urethra, fistula that involved the urethra accounted for (2 patients, 3.63%) and fistula at vault (4 patients, 7.27%) are in minority of cases. Considering the size of the fistula, majority cases are of small size (19 patients, 34.54%) and minority cases are of extensive in size (4 patients, 7.27%). Frequency of medium and large size fistula was the same and it was 16 patients i.e. 29.09%. Most of the patients had no associated problems but some had vaginal stenosis (4 patients, 7.27%), RVF (4 patients, 7.27%), Bladder neck destruction (8 patients, 14.54%), urethral stenosis (1 patients, 1.81%) and urethral loss (8 patients, 14.54%). Scarring was absent in 31 (56.36%) cases, 14 (25.45%) patients had mild, 4 (7.27%) had moderate and 6 (10.90%) patients had gross scarring. Bonny attachment was present only for 2 cases and calculi in urinary bladder was also present for 2 cases.

DISCUSSION

Genital tract fistula remains a devastating pregnancy-related morbidity affecting women in low-income countries. Obstructed labour is the leading cause, particularly among young women from rural communities with limited access to emergency obstetric care. Bangladesh, like many developing nations, continues to experience high rates of early marriage, early pregnancy, and inadequate maternal health services, which predispose women to obstructed labour and subsequent vesicovaginal fistula formation.

Prolonged pressure of the fetal head against the maternal pelvic tissues results in ischemia, necrosis, and sloughing, leading to VVF, RVF, or urethrovaginal fistula depending on the site of compression.

The demographic characteristics of the present study reflect these underlying sociocultural determinants. Most patients were aged 20–30 years. [9] Younger age at marriage and childbirth was common, with a mean marriage age of 15.9 years and first delivery at 17.3 years, reflecting premature pelvic development and increased risk of cephalopelvic disproportion. The majority were from rural areas, had low socioeconomic status, and lacked antenatal care—factors repeatedly shown to contribute to obstructed labour and fistula formation.

Multiparity did not eliminate risk, as vesicovaginal fistula can also occur in later pregnancies due to malpresentation, weakened abdominal muscles, and secondary CPD. In this study, 67.32% of women had more than one child yet still experienced obstructed labour, indicating that access to skilled birth attendants remains inadequate. Delay in seeking care was common, attributed to ignorance (45.5%) and traditional beliefs (43.6%).

Regarding clinical characteristics, vesicovaginal fistula was the most common type, aligning with studies by Hassanzaman (2005) and Akatunnensa (2004). [10,11] Labour duration was extremely prolonged, with 70.9% labouring for more than 24 hours, comparable to the study by Bai and colleagues. These prolonged obstructed labours, often lasting more than 48–72 hours, directly led to ischemic necrosis and fistula formation. The presence of small, medium, large, and extensive fistulas in nearly equal numbers reflects the diverse presentation of patients referred to tertiary hospitals.

The clinical and social consequences of fistula were profound. Continuous urinary leakage resulted in shame, marital instability, family rejection, and social isolation. Many women were unable to work, travel, or participate in community life. These findings mirror global estimates reported by WHO and UNFPA, where over two million women live with untreated genital tract fistulas, the majority in developing countries with preventable obstetric complications. The burden is not only medical but also emotional, social, and economic, reinforcing the importance of primary prevention through improved maternal health systems, education, and safe delivery services.

CONCLUSION

This study found that small fistulas with minimal scarring have the highest likelihood of successful repair, whereas large, extensive, and circumferential fistulas, particularly those with bony attachment or significant vaginal scarring, are major predictors of surgical failure. Some patients developed residual incontinence after successful closure, primarily due to urethral loss, bladder neck destruction, or large circumferential fistulas. Contributing factors to failure included poor tissue condition, postoperative catheter blockage, infection, inadequate local hygiene, and limitations in operative technique or surgical expertise. Overall, the results emphasize the need for highly trained and experienced surgeons to manage complex fistula cases and achieve optimal outcomes.

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