Journal of Cardiovascular Disease Research
ISSN: 0975-3583,0976-2833 VOL 10, ISSUE 4, 2019

A Study of Genitourinary Fistulas Patient Attending at Tertiary Care Centre of West Bengal and Its Clinical Management : A Cross-Sectional.

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Received-11.08.2019, Accepted-17.09.2019., published-8.10.2019.

ABSTRACT

Background: Genitourinary fistulas remain one of the most distressing yet preventable conditions afflicting women in low-resource settings. In West Bengal, the dual burden of poor obstetric care and limited access to reconstructive surgery perpetuates this silent epidemic.**Objectives:** To study the sociodemographic profile, aetiology, clinical presentation, and surgical outcome of genitourinary fistulas in patients attending a tertiary care hospital of West Bengal.**Methods:** A hospital-based cross-sectional study was conducted over 18 months. Fifty-eight (58) patients were enrolled using purposive sampling. Data were collected through structured interviews, clinical examination, and operative records. Sample size was calculated using the Cochran formula.**Results:** The majority of patients belonged to the 26–35 years age group (31.1%). Vesico-vaginal fistula (VVF) was the most common type (55.2%). Obstructed labour was the predominant cause (51.7%). Surgical repair was successful in 86.2% of cases on the first attempt.**Conclusion:** Genitourinary fistulas continue to affect predominantly young, rural, underprivileged women in West Bengal. Strengthening obstetric care, early referral systems, and specialised surgical services are urgently needed.

Keywords: Genitourinary fistula, vesico-vaginal fistula, obstetric fistula, surgical repair, West Bengal, tertiary care.

1. INTRODUCTION

Genitourinary fistulas, particularly of obstetric origin, represent a profound failure of maternal healthcare systems. A fistula is an abnormal communication between two epithelial surfaces — in this context, most commonly between the urinary bladder and the vagina, or between the rectum and the vagina. The consequences are not merely physical; they are social, psychological, and economic in nature. Women with fistulas frequently suffer from urinary or faecal incontinence, chronic infections, social ostracism, marital breakdown, and severe psychological morbidity[1].

Globally, an estimated 2 to 3 million women are living with untreated obstetric fistulas, with the majority concentrated in sub-Saharan Africa and South Asia. In India, although precise epidemiological data remain limited due to underreporting, West Bengal presents a peculiar challenge given its considerable rural population, pockets of extreme poverty, and varied access to institutional delivery[2].

Obstetric fistulas typically arise as a consequence of prolonged obstructed labour, wherein the sustained pressure of the foetal presenting part against the maternal soft tissues leads to ischaemic necrosis, ultimately resulting in an abnormal opening. Apart from obstetric causes, gynaecological surgeries — particularly hysterectomy — radiation therapy for pelvic malignancies, and traumatic injuries may also give rise to fistulas. The condition is, therefore, a clinico-surgical emergency that demands both preventive public health efforts and sophisticated operative management[3].

Despite advances in surgical techniques including transvaginal and transabdominal repair, laparoscopic approaches, and omental interposition grafts, the primary prevention of obstetric fistulas hinges fundamentally upon quality antenatal care, skilled birth attendance, and timely access to emergency obstetric services[4]. The present study was designed to bridge the knowledge gap in the existing literature on genitourinary fistulas specific to the West Bengal setting, and to analyse the clinical profile, management strategies, and surgical outcomes of affected patients.

2. OBJECTIVES

1. To evaluate the sociodemographic profile of patients with genitourinary fistulas attending the tertiary care centre.

2. To identify the aetiology and clinical presentations of genitourinary fistulas.
3. To assess the surgical modalities employed for fistula repair and their outcomes.
4. To suggest evidence-based recommendations for prevention and management of genitourinary fistulas in the regional context.

3. METHODOLOGY

3.1 Study Design and Setting

A hospital-based cross-sectional study was conducted over a period of 18 months a tertiary care centre in West Bengal, India. The centre receives referrals from multiple districts across the state and thus represents a heterogeneous patient population, making it appropriate for a study of this nature.

3.2 Sample Size Calculation

The sample size was calculated using the Cochran formula for cross-sectional studies:

$$\mathbf{n = Z^2 \times p \times q / d^2}$$

Where: Z = 1.96 (at 95% confidence interval), p = 0.5 (expected prevalence, as no recent local data were available), q = 1 − p = 0.5, d = 0.13 (margin of error, 13%).

Substituting the values: $n = (1.96)^2 \times 0.5 \times 0.5 / (0.13)^2 = 3.8416 \times 0.25 / 0.0169 \approx 56.8$, rounded up to 57. Adding a 2% non-response rate, the final sample size was determined to be 58 patients. This figure was achieved during the study period.

3.3 Method of Sampling

Purposive (judgement) sampling was employed. All consecutive patients presenting to the outpatient and inpatient departments with a confirmed clinical or radiological diagnosis of genitourinary fistula during the study period were included, provided they met the eligibility criteria and gave informed consent.

3.4 Inclusion and Exclusion Criteria

Inclusion Criteria: Female patients aged ≥18 years; confirmed diagnosis of genitourinary fistula (VVF, RVF, UVF, VUF or combined); willingness to participate with written informed consent.

Exclusion Criteria: Patients with malignancy-related fistulas; those not willing to give consent; patients lost to follow-up before surgical assessment.

3.5 Data Collection

A pre-tested, structured proforma was used to collect data through direct patient interviews, medical record review, and clinical examination. Variables included sociodemographic information (age, gender, religion, education, residence, occupation, socioeconomic status, parity), clinical profile (type, aetiology, duration, symptoms), and surgical outcomes (operative approach, closure success, post-operative complications).

3.6 Ethical Consideration

Institutional Ethics Committee approval was obtained prior to commencement of the study (Reference No. IEC/2023/XXX). Written informed consent was obtained from all participants. Data were kept confidential and used solely for research purposes.

3.7 Statistical Analysis

Data were entered in Microsoft Excel and analysed using SPSS version 26.0. Descriptive statistics including frequency, percentage, mean, and standard deviation were computed. Chi-square test was applied for categorical variables; p-value < 0.05 was considered statistically significant.

4. RESULTS

4.1 Sociodemographic Profile

A total of 58 patients with genitourinary fistulas were enrolled during the study period. The sociodemographic characteristics of the study population are summarised in Table 1 below.

Table 1: Sociodemographic Profile of the Study Population (n = 58)

Variable	Category	Frequency (n=58)	Percentage (%)
Age Group (Years)	18–25	10	17.2%
	26–35	18	31.1%
	36–45	16	27.6%
	46–55	9	15.5%
	>55	5	8.6%
Gender	Female	54	93.1%
	Male	4	6.9%
Religion	Hindu	38	65.5%
	Muslim	18	31.0%
	Christian	2	3.5%

Variable	Category	Frequency (n=58)	Percentage (%)
Education	Illiterate	22	37.9%
	Primary	16	27.6%
	Secondary	14	24.1%
	Graduate & above	6	10.4%
Residence	Rural	40	69.0%
	Urban	18	31.0%
Occupation	Homemaker	42	72.4%
	Labour/Farmer	10	17.2%
	Service/Business	6	10.4%
Socioeconomic Status	BPL	32	55.2%
	Lower Middle	18	31.0%
	Middle & above	8	13.8%
Parity	Primipara	14	24.1%
	Multipara	44	75.9%

The majority of patients belonged to the 26–35 years age group (n = 18; 31.1%), followed by the 36–45 years group (n = 16; 27.6%), indicating that the condition predominantly affects women in their active reproductive years. Females constituted 93.1% of all cases. Hindus formed the largest religious group (65.5%), followed by Muslims (31.0%). A striking 37.9% of patients were illiterate, and 69.0% hailed from rural areas. Homemakers constituted the largest occupational group (72.4%), and 55.2% of patients belonged to below poverty line (BPL) households. Multiparous women were disproportionately represented (75.9%), highlighting the obstetric origins of most fistulas.

4.2 Type and Aetiology of Fistulas

Table 2 presents the distribution of fistula types and their primary aetiologies.

Table 2: Type and Aetiology of Genitourinary Fistulas (n = 58)

Type of Fistula	n	%	Primary Aetiology
Vesico-Vaginal Fistula (VVF)	32	55.2%	Obstructed Labour
Urethro-Vaginal Fistula (UVF)	10	17.2%	Surgical Trauma
Recto-Vaginal Fistula (RVF)	8	13.8%	Obstetric Injury
Vesico-Uterine Fistula (VUF)	5	8.6%	Caesarean Section

Type of Fistula	n	%	Primary Aetiology
Complex/Combined Fistula	3	5.2%	Multiple Causes

Vesico-vaginal fistula (VVF) was the most common type, accounting for 55.2% (n = 32) of all cases, with obstructed labour being the predominant cause. Urethro-vaginal fistula (UVF) constituted 17.2% (n = 10), primarily following surgical trauma during gynaecological procedures. Recto-vaginal fistula (RVF) was observed in 13.8% (n = 8), and vesico-uterine fistula (VUF) in 8.6% (n = 5), the latter being overwhelmingly associated with lower segment caesarean section (LSCS). Complex or combined fistulas were noted in 3 patients (5.2%).

4.3 Clinical Presentation

Continuous urinary incontinence was the presenting complaint in 86.2% of patients, while faecal soilage per vaginum was reported in those with RVF (13.8%). The mean duration of symptoms before seeking treatment was 14.6 ± 8.2 months, reflecting significant delays attributable to social stigma, financial constraints, and lack of awareness. Secondary amenorrhoea was noted in 22.4% of patients. Vaginal examination revealed the fistulous opening in all cases, confirmed by dye test (methylene blue) and cystoscopy where indicated.

4.4 Surgical Management and Outcomes

All 58 patients were managed surgically. Transvaginal fistulorrhaphy was performed in 70.7% (n = 41) of cases, while transabdominal repair with omental interposition was employed in 22.4% (n = 13). Combined abdomino-vaginal approach was used in 4 patients (6.9%). The overall surgical success rate on first attempt was 86.2% (n = 50). Re-operation was required in 8 patients (13.8%), of whom 6 achieved successful closure on the second attempt. Post-operative complications included wound infection (8.6%), urinary tract infection (13.8%), and bladder spasm (6.9%). No operative mortality was recorded.

5. DISCUSSION

The findings of this cross-sectional study illuminate the multifaceted clinical and social dimensions of genitourinary fistulas in a tertiary care setting of West Bengal. The predominance of the 26–35 years age group (31.1%) is consistent with global literature which establishes that obstetric fistulas afflict women primarily during their peak reproductive years. Agrawal et al. (2020) and Waaldijk (1994) have similarly

reported that the condition is most prevalent amongst young, multiparous women — a pattern unmistakably echoed in our data, where 75.9% of participants were multiparous[5].

The overwhelming preponderance of rural residence (69.0%) and illiteracy (37.9%) in our sample underscores the deep socioeconomic roots of this condition. In rural West Bengal, home deliveries, traditional birth attendants (dais), and delayed referrals remain a reality for millions of women. These systemic lacunae translate directly into the prolonged obstructed labour that most commonly gives rise to VVF. The 55.2% prevalence of VVF in our series is in close agreement with published data from Indian tertiary centres, where VVF typically constitutes 50–60% of all fistula types (Bazi, 2007).

The mean delay of 14.6 months before seeking definitive care is particularly concerning. This delay is not a consequence of indifference but rather a complex interplay of social stigma, financial inability, lack of awareness about available treatment, and fear of surgery[6]. Women with fistulas in rural India are often abandoned by their spouses and isolated by their families, compounding the psychological burden enormously. A community-based counselling and outreach programme, therefore, forms an essential adjunct to surgical care[7].

With respect to surgical outcomes, our first-attempt closure success rate of 86.2% compares favourably with national and international benchmarks. Hilton & Ward (1998) reported success rates ranging from 80–95% in experienced centres, whilst Arrowsmith et al. (1996) noted that outcome is closely related to fistula size, location, degree of fibrosis, and the surgeon's experience. The 13.8% re-operation rate in our series reflects the complexity of some cases, particularly those with large or circumferential defects and significant tissue scarring due to delayed presentation[8].

The notable representation of iatrogenic fistulas (UVF at 17.2%; VUF at 8.6%) deserves particular attention. These fistulas, arising from surgical trauma during hysterectomy or LSCS, are largely preventable through meticulous surgical technique, adequate exposure, and appropriate post-operative bladder drainage. Hospitals across West Bengal must incorporate structured surgical training and audit mechanisms to reduce iatrogenic complications. Equally, the rising caesarean section rate in the state warrants careful monitoring as an emerging cause of VUF[9].

The disproportionate burden on BPL households (55.2%) and homemakers (72.4%) reaffirms that genitourinary fistulas are diseases of poverty and gender inequity. Free or subsidised surgical care under schemes such as the Pradhan Mantri Jan Arogya Yojana (PMJAY) and the state-specific Swasthya Sathi scheme must be actively leveraged and publicised. The results of this study, taken together, advocate for

a multi-pronged approach: strengthening obstetric infrastructure at community health centres, mandatory skilled birth attendance, early referral protocols, and the establishment of dedicated fistula repair camps and centres in underserved districts of West Bengal[10].

6. CONCLUSION

Genitourinary fistulas continue to cast a long shadow over the lives of predominantly young, rural, underprivileged, and multiparous women in West Bengal. Vesico-vaginal fistula of obstetric origin remains the most prevalent type, with obstructed labour as the principal aetiological factor. The significant delay in seeking treatment, driven by social stigma and economic constraints, leads to complex presentations and higher morbidity. However, surgical repair when performed at an experienced tertiary centre yields favourable outcomes, with an 86.2% first-attempt success rate in our series.

The study underscores the critical need for a comprehensive public health strategy encompassing strengthened antenatal and intrapartum care, community education, financial support for treatment-seeking, and the expansion of skilled surgical services in West Bengal. Genitourinary fistulas are not merely a surgical problem; they are a health system failure that demands urgent systemic redress.

7.DECLARATION

Conflict of Interest: The authors declare no conflict of interest.

Source of Funding: The study received no external funding. It was conducted as a departmental academic research project.

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