



## Rate of Vesicovaginal Fistula at Dr. Kariadi General Hospital Semarang in 2022



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Keywords:

ABSTRACT

*Fistula*  
*Vesicovaginal fistula*  
*Retrospective study*

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Article history:

Received 07-04-2023  
Accepted 25-07-2023  
Available online 27-12-2023

**Background:** Vesicovaginal fistula (VVF) is an abnormal connection between the vesicourinaria and the vagina, which causes urine to leak through the vagina continuously. The aetiology of VVF fistulas has changed from being obstetric to being more hysterectomy-related. At the same time, management is done as early as possible appropriately to prevent further complications.

**Objective:** Analyzing the comparison of the characteristics of patients with VVF at Dr. Kariadi General Hospital Semarang in 2022.

**Methods:** The research conducted employed a study design characterized as a retrospective descriptive observational study, wherein data were gathered by carefully observing and analyzing pre-existing information to provide a comprehensive portrayal of phenomena that occurred within a specific time frame.

**Results:** From 3 January to 30 December 2022, 20 patients were found with VVF. Based on the data obtained, the average age of the patients was 39.4 years. Parity in the study subjects consisted of 2 nulliparas (10%), five primiparas (25%) and 13 multiparas (65%). Types of fistulas in patients included 14 fistulas after gynaecological surgery (70%), four fistulas after caesarean section (20%), one fistula after radiotherapy (5%) and one fistula after trauma (5%).

**Conclusion:** The VVF incident in Dr Kariadi General Hospital Semarang in 2022 was 20 cases, with the majority of fistula types after gynaecological surgery, as many as 14 cases.

DIMJ, 2023, 4(2), 61-63 DOI: <https://doi.org/10.14710/dimj.v4i2.17873>

### 1. Introduction

Vesicovaginal fistula (VVF) is an abnormal passage between the bladder and vagina that causes urine to leak into the vagina. Based on the cause, fistulas are divided into gynaecological and obstetrical fistulas. VVF has a reasonably high incidence and has yet to be standardized in management. Conservative management consisting of fulguration or drainage of the vesicourinaria may be performed in small VVF. Surgery is the most common treatment, with a success rate of around 75–95%, although no studies have reported the success of surgery compared to conservative management.<sup>1–3</sup>

In developing countries, the most common cause of fistulas is related to delivery (>90%). The best-known cases of obstetric fistula occur in parts of sub-Saharan Africa and southern Asia. In Nigeria, many women are living with VVF. The annual incidence of obstetric fistulas is estimated at 2.11 cases per 1000 births. It is more common in northern Nigeria than in southern Nigeria. Prolonged labour is the leading cause of obstetric fistulas.<sup>4–6</sup> In developed countries on the western continents, obstetric fistulas are becoming

rare. Research at the Indonesian National Central Hospital, there were 36 VVF patients with a history of hysterectomy, 31 VVF patients with a history of gynaecological malignancies, 10 VVF patients had a history of prolonged labour and VVF patients with a history of other tumours, old radiation or infection of 0.9 - 2, 8%.<sup>7–9</sup> This study aims to determine the incidence and characteristics of VVF in Dr. Kariadi General Hospital Semarang.

### 2. Methods

This research has a descriptive observational research design with a retrospective approach and was carried out at Dr. Kariadi General Hospital Semarang. Data were collected and analyzed in December 2022. The inclusion criteria were female patients diagnosed with VVF who were recorded in medical records for the period January 2022 – December 2022 and underwent fistula repair surgery. The selection of research subjects was done using the total sampling method: the number of samples equal to the population size. The sample size in this study was the entire number of patients with VVF at Dr. Kariadi General Hospital Semarang for 2022. Patient data collected included

age, parity, history of gynaecological surgery, history of obstetric surgery, history of pelvic radiotherapy and history of trauma. The data collected from the medical record is first entered into the electronic tabulation file. Further data processing uses a statistical processing computer program. Descriptive analysis in the form of patient characteristics is presented in the form of tables and diagrams.

### 3. Result

From 3 January to 30 December 2022, 20 patients with VVF were found. Table 1 shows VVF patients with various characteristics, including age, parity and fistula type.

Table 1. Characteristics VVF patient

Variable	Amount
Age [Mean (SD)]	39.4 (10.174)
Parity	
Nullipara (%)	2 (10)
Primipara (%)	5 (25)
Multipara (%)	13 (65)
Post gynaecological surgery (%)	14 (70)
Fistula type	
Post caesarean section surgery (%)	4 (20)
Post-radioteraphy (%)	1 (5)
Post-trauma (%)	1 (5)

Based on the data obtained, the average age of the patients was 39.4 years. Types of fistulas in patients included 14 fistulas after gynaecological surgery (70%), four fistulas after caesarean section (20%), one fistula after radiotherapy (5%) and one fistula after trauma (5%). Parity in the study subjects consisted of 2 nulliparas (10%), five primiparas (25%) and 13 multiparas (65%).

### 4. Discussion

VVF is an abnormal passage between the bladder and vagina that causes persistent urinary incontinence. Based on the cause, the fistula is divided into two, namely obstetric fistula in the form of obstructed labour and gynaecological fistula in the form of a history of gynaecological surgery and a history of radiation to the pelvis. Overall, 90% of VVFs are obstetric fistulas, with the most common cause being obstructed labour. Fistulas that stem from obstructed labour are the result of an injury caused to the fetal head.<sup>3,8</sup>

In developing and less developed countries, obstructed labour is the most common cause of VVF (> 90%), especially in countries on the African continent. Poor socioeconomic status, early marriage, malnutrition, high illiteracy rates and poor healthcare systems contribute to the higher prevalence of VVF in these countries. Radiotherapy, tuberculosis, foreign body reactions, and pelvic trauma are other causes.<sup>2</sup> In developed countries, the most common cause of VVF is bladder trauma after pelvic surgery. Lower urinary tract trauma most often occurs in patients with a history of surgical removal of the uterus. Some other causes of urinary tract trauma are related to surgical procedures in

the pelvis, such as anterior colporrhaphy, anti-incontinence surgery and other urological procedures.<sup>3</sup>

A history of pelvic radiation is a significant cause of delayed VVF. Most fistulas form 1.5-2 years after the completion of radiotherapy. The recurrence of malignant disease at the edges of the fistula must be ruled out with multiple focal biopsies. Radiation-induced recurrent VVF has the lowest success rate and requires the most demanding treatment. Because of radiation-induced fibrosis, the scar needs to be excised entirely to the new tissue margins. Consequently, because of its large size, closure of the primary defect may be difficult. Radiation-induced fibrosis also causes tissue hypoxia, which complicates tissue repair. The management of the patient is determined by the location of the fistula and the surgeon's experience and must be tailored to the individual case.<sup>2,10</sup>

VVF with a history of trauma, such as a hip fracture, is rare and underreported. The injury site is at the bladder's neck and is often associated with urethral injury. Female urethral injury secondary to hip fracture is reported in 6% of cases.<sup>2</sup> Female urethral injuries can be classified as complete (avulsion) and partial (longitudinal). Immediate repair of hip fractures with urethral and vaginal injuries is advisable because mere suprapubic drainage often causes obliterative urethral strictures along with urethrovaginal fistulas. Affected patients are often hemodynamically unstable and may require intervention for associated injuries that may preclude prompt lower urinary tract repair. Primary endoscopic realignment of the separated urethral ends via a catheter may be an alternative method. Although the injury will heal, the resulting bladder neck or urethral stricture will require delayed reconstruction with a vaginal or bladder wall flap depending on the length of the stricture and the degree of scar tissue.<sup>2,10</sup>

### 5. Conclusion

Based on the results of the study, VVF cases at Dr Kariadi General Hospital Semarang in 2022 were 20 cases with 14 cases of fistula after gynaecological surgery, 4 cases of postoperative fistula after caesarean section obstetrics, 1 case of post-radiotherapy-fistula-and 1 case of post-traumatic fistula.

#### Ethical Approval

All procedures have been approved by the issuance of ethical clearance.

#### Conflicts of Interest

The authors declare no conflicts of interest.

#### Funding

No specific funding was provided for this article.

## Author Contributions

Conceptualization, E.A.N.; methodology, A.S.; software, R.Z.B.; validation, N.D.; formal analysis, S.R.A.; investigation, E.A.N., R.Z.B. and C.W.C.; resources, E.A.N.; data curation, E.A.N. and C.W.C.; writing—original draft preparation, E.A.N., R.Z.B., A.A.P. and C.W.C.; writing—review and editing, E.A.N., R.Z.B. and E.; visualization, A.A.P.; supervision, E.A.N. and E.; project administration, E.A.N. and R.Z.B.; funding acquisition, R.Z.B

## Acknowledgments

The authors want all patients who came to Dr. Kariadi General Hospital Semarang.

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