



Female Urogenital Fistula Profile at RSUD Prof. Dr. Margono Soekarjo in 2020 – 2024

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ABSTRACT

Urogenital fistula is an abnormal communication between the urinary tract and the genital tract that can result in continuous urinary leakage and adversely affect quality of life. This study aimed to describe the profile of female urogenital fistula cases at Prof. Dr. Margono Soekarjo Regional General Hospital from 2020 to 2024 based on age, anatomical location, etiology, and management. A retrospective descriptive study was conducted using total sampling of medical records of female patients with urogenital fistula who met the study criteria. A total of 43 patients were included in the study. The predominant age group was 41–50 years (51,16%). The most frequent anatomical location was vesicovaginal fistula (88,37%), followed by ureterovaginal fistula (9,30%) and urethrovaginal fistula (2,33%). In terms of etiology, the cases were most commonly attributed to iatrogenic or surgical causes (51,16%), followed by malignancy (46.51%) and trauma (2,33%), no obstetric etiology was identified. Based on the management, the majority of urogenital fistula cases were treated with definitive surgical intervention (53.49%), and all vesicovaginal fistula repairs were performed using a transvaginal approach. This study demonstrates that vesicovaginal fistula was the predominant anatomical type, while iatrogenic causes were the most common etiology in the study population. These findings may serve as a basis for evaluating case patterns, management strategies, and the urogenital fistula referral system at the hospital.

1. INTRODUCTION

Fistula is generally defined as an abnormal anatomical tract that forms between two or more hollow organs or between an organ and the body surface. In the context of urology and gynecology, urogenital fistula (UGF) is a pathological condition characterized by an abnormal communication between the urinary tract (ureters, urinary bladder, or urethra) and the female genital tract (uterus or vagina). The presence of this abnormal tract disrupts the normal function of urinary storage and voiding, resulting in continuous urinary incontinence (Jamhari *et al.*, 2022). When inadequately managed, urogenital fistula can have significant adverse physical consequences, including impairment of sexual and reproductive function, as well as psychological, social, and economic consequences for affected women (Rajaian *et al.*, 2019).

In clinical practice, UGF is often narrowly associated with obstetric fistula. However, UGF encompasses a much broader range of etiologies. In addition to obstetric complications, UGF may result from iatrogenic injuries occurring during gynecological or urological procedures, such as hysterectomy and cesarean section, as well as pelvic malignancies, radiotherapy, and trauma (Bodner-Adler *et al.*, 2017; FIGO, 2022; Wahyudin *et al.*, 2024). Differences in etiology contribute to variations in the clinical spectrum of UGF across different regions. The World Health Organization (WHO) estimates that more than 2 million women, particularly in Asia and sub-Saharan Africa, are living with untreated UGF, with approximately 50,000 to 130,000 new cases occurring annually. In developing countries with limited access to obstetric care, obstetric fistula accounts for approximately 90%–95% of cases. However, as access to obstetric services improves and the burden of gynecological surgical morbidity increases, the incidence of iatrogenic fistula has shown an upward trend in developing countries, including those in Southeast Asia (Adhikari

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et al., 2024). In Indonesia, the epidemiology of urogenital fistula (UGF) demonstrates variations in etiology across referral centers. Data from Dr. Soetomo Regional General Hospital, Surabaya, from 2015 to 2021, reported obstructed labor as the predominant cause (70.59%), with vesicovaginal fistula being the most common type (Jamhari *et al.*, 2022). In contrast, a report from Cipto Mangunkusumo Hospital, Jakarta, identified hysterectomy and other iatrogenic surgical procedures as the leading causes of UGF (Taher *et al.*, 2013). These variations indicate that the profile of UGF across healthcare facilities is highly dependent on the referral level and demographic characteristics of the respective regions. Therefore, global or national data cannot be directly generalized to regional referral centers. In addition to etiology, the anatomical location and complexity of UGF are important factors to assess, as they determine the technical difficulty of reconstruction, the likelihood of successful fistula closure, and the patient's overall prognosis (Stamatakos *et al.*, 2012; Bontrager *et al.*, 2018).

As a major referral hospital serving the southern region of Central Java, Prof. Dr. Margono Soekarjo Regional General Hospital plays a strategic role and is likely to manage a broad spectrum of UGF cases, ranging from complications of obstructed labor originating from rural areas to complications of surgical procedures referred from secondary healthcare facilities. However, to date, there are no published empirical data describing the profile of UGF cases at this hospital. The absence of baseline data poses challenges for evaluating the quality of care, planning resource allocation, and developing evidence-based strategies for prevention and management based on local needs. Therefore, a study investigating the profile of urogenital fistula cases at Prof. Dr. Margono Soekarjo Regional General Hospital is warranted as a foundation for efforts to improve the quality of healthcare services.

2. METHOD

This study employed a retrospective descriptive design to describe the profile of urogenital fistula cases at Prof. Dr. Margono Soekarjo Regional General Hospital during the 2020–2024 period. The accessible population consisted of patients recorded in the medical records with a diagnosis of urogenital fistula during 2020–2024 at Prof. Dr. Margono Soekarjo Regional General Hospital. The sample was determined using a total sampling method, which included all data that met the inclusion and exclusion criteria during the study period. The inclusion criteria comprised patients with urogenital fistula as the primary diagnosis, established based on the findings of the medical history, physical examination, and supporting examinations. Additional inclusion criteria included cases with a known etiology, namely obstetric etiology (history of obstructed labor), iatrogenic etiology (history of surgical procedures), malignancy-related etiology (history of radiotherapy), or a documented history of trauma. Cases with documented management were also included. The exclusion criteria were medical records in which the etiology or management of the fistula was unknown. Based on these criteria, a total of 43 study samples were obtained.

The data source consisted of secondary data obtained from patients' medical records. The variables examined included age, anatomical location of the fistula, etiology, and management. Age was categorized as <20 years, 20–30 years, 31–40 years, 41–50 years, 50–60 years, and >60 years. The anatomical location of the fistula was classified into vesicovaginal fistula (between the urinary bladder and vagina), urethrovaginal fistula (between the urethra and vagina), ureterovaginal fistula (between the ureter and vagina), vesicouterine fistula (between the urinary bladder and uterus), and ureterouterine fistula (between the ureter and uterus). The etiology was categorized as iatrogenic, obstetric, malignancy-related, and traumatic. Management was classified into surgical, conservative, palliative, and transfer/referral to another healthcare facility.

Data collection was performed by reviewing the medical records of patients who met the study criteria during the 2020–2024 period, using a data collection form as the research instrument. The collected data were subsequently checked for completeness, coded according to

the predefined variable categories, and organized into frequency distribution tables. Data analysis was performed using univariate analysis to describe the distribution of age, fistula location, etiology, and management. The results were presented in tables and narrative form, followed by the formulation of conclusions to describe the profile of urogenital fistula cases at Prof. Dr. Margono Soekarjo Regional General Hospital.

3. RESULT AND DISCUSSION

Result

Distribution of patients with urogenital fistula according to the anatomical location of the fistula at Prof. Dr. Margono Soekarjo Regional General Hospital, Purwokerto, is presented in the table.

Table 1. Distribution of Age Groups Among Patients with Urogenital Fistula.

Age (Years)	n	%
<20	0	0
21 - 30	0	0
31 - 40	9	20,93
41 - 50	22	51,16
51 - 60	8	18,60
>60	4	9,31
Total	43	100

The 41–50-year age group represented the largest proportion of patients with urogenital fistula, comprising 22 patients (51.16%). This was followed by the 31–40 years age group, with 9 patients (20.93%), the 51–60 years age group, with 8 patients (18.60%), and the >60 years age group, with 4 patients (9.31%). No patients aged 21–30 years or <20 years were diagnosed with urogenital fistula based on the medical record data.

Table 2. Distribution of Patients with Urogenital Fistula According to the Anatomical Location of the Fistula

Anatomical Location	n	%
Vesicovaginal	38	88,37
Urethrovaginal	1	2,33
Ureterovaginal	4	9,30
Vesicouterine	0	0
Ureterouterine	0	0
Total	43	100

In this study, the most common type of urogenital fistula was vesicovaginal fistula, accounting for 39 cases (88.37%). In contrast, no cases of vesicouterine fistula or ureterouterine fistula were identified in this study.

Table 3. Distribution of Etiological Factors Among Patients with Urogenital Fistula

Etiology	n	%
Iatrogenic	22	51,16
Malignancy	20	46,51
Trauma	1	2,33
Total	43	100

Table 3 shows that the most common etiology of urogenital fistula among patients at Prof. Dr. Margono Soekarjo Regional General Hospital was iatrogenic, accounting for 22 patients

(51.16%), followed by malignancy-related etiology in 20 patients (46.51%) and traumatic

Primary Management	Vesicovaginal Fistula n (%)	Ureterovaginal Fistula n (%)	Urethrovaginal Fistula n (%)	Total n (%)
Definitive Surgery	22 (57,89%)	1 (25%)	0 (0%)	23 (53,49%)
Conservative	3 (7,89%)	1 (25%)	0 (0%)	4 (9,3%)
Palliative	8 (21,06%)	0 (0%)	1 (100%)	9 (20,93%)
Transfer of Care/Refferal	5 (13,16%)	2 (50%)	0 (0%)	7 (16,28%)
Total	38 (100%)	4 (100%)	1 (100%)	43 (100%)

etiology in 1 patient (2.33%). No cases of obstetric etiology were identified.

Table 4. Distribution of Management Modalities Among Patients with Urogenital Fistula

Table 4 shows that the most common management modality performed for patients with urogenital fistula at Prof. Dr. Margono Soekarjo Regional General Hospital was definitive surgical treatment (53.49%). This was followed by palliative management (20.93%), transfer or referral to another healthcare facility (16.28%), and conservative management (9.30%), respectively.

Table 5. Surgical Techniques for Vesicovaginal Fistula Repair

Management	n	%
Surgical Approach	Transvaginal	22
	Transabdominal	0

Table 5 shows that all vesicovaginal fistula cases were managed with surgical repair using a transvaginal approach, accounting for 22 cases (100%) of the total cases.

Discussion

These findings are consistent with those of Jamhari *et al.* (2022) at Dr. Soetomo Regional General Hospital, Surabaya, who also reported the highest proportion of cases in the 41–50-year age group (41.17%). Other studies have also supported these findings. One such study by Mukti *et al.* (2018) reported that urogenital fistula among women at Dr. Kariadi General Hospital, Semarang, during the 2013–2016 period was predominantly diagnosed in women aged >35 years (86.1%), indicating that urogenital fistula is relatively uncommon among younger women. In contrast, the findings of this study differ from those of Mathur *et al.* (2010), conducted at a tertiary hospital, in which urogenital fistula cases were predominantly observed in the 21–30-year age group (36%), while the 41–50-year age group accounted for only 28% of cases.

The association between age and the occurrence of urogenital fistula in women, whether at a younger or older age, cannot be separated from the influence of medical history, surgical history, and obstetric history (Niswantoro *et al.*, 2024). Younger women may have a higher risk of developing urogenital fistula because they are within the reproductive age range, which is associated with a higher likelihood of first pregnancies and potential complications during childbirth. Older women, particularly those aged >40 years, may also have an increased risk of urogenital fistula due to a history of multiparity and a greater likelihood of previous cesarean sections or other surgical procedures (Chintakanan *et al.*, 2023). Therefore, the occurrence of urogenital fistula is not directly determined by age alone, whether young or old, but is more closely associated with the patient's medical history and socioeconomic circumstances.

The high prevalence of vesicovaginal fistula is consistent with findings from nearly all published studies, both in developing and developed countries (Jamhari *et al.*, 2022). A study conducted by Mukti *et al.* (2018) also reported similar findings, demonstrating a predominance of vesicovaginal fistula compared with fistulas at other anatomical sites, accounting for 36 patients (97.2%) of the total sample at Dr. Kariadi General Hospital, Semarang, during the 2013–2016 period. A study conducted at Dr. Soetomo Hospital, Surabaya, in 2013 likewise found that

vesicovaginal fistula was the most common diagnosis, accounting for approximately 18 patients (72%) of the total sample. This predominance may be attributed to the anatomical involvement of the urinary bladder and vagina, which are major structures frequently affected by surgical procedures in the abdominal and pelvic regions, as well as by childbirth-related injuries (Mukti *et al.*, 2018).

The findings of this study are not consistent with several previous studies, such as that conducted by Jamhari *et al.* (2022), which reported that the most common etiology of urogenital fistula cases at Dr. Soetomo Hospital, Surabaya, during the 2015–2021 period was obstetric in origin, particularly obstructed labor. Another study conducted by Mukti *et al.* (2018) at Dr. Kariadi General Hospital, Semarang, also reported that 66.7% of urogenital fistula cases were managed by the Department of Obstetrics and Gynecology. These findings are consistent with epidemiological data indicating that urogenital fistulas resulting from childbirth-related complications tend to occur more frequently in developing countries, whereas in developed countries, the most commonly encountered cases are those caused by surgical or iatrogenic procedures, which is consistent with the predominant etiology identified in the present study. Socioeconomic conditions, the level of education within the community, and limited access to adequate healthcare facilities are thought to be contributing factors (Jamhari *et al.*, 2022). This is further supported by a study conducted at Isra University, Pakistan, which found that 63% of all fistula cases were iatrogenic, with an increase from 37% during the first half to 63% during the second half of the study period. The estimated global risk of iatrogenic gynecological fistula is 0.8 per 1,000 gynecological surgical procedures (Srichand *et al.*, 2021).

The pathophysiological mechanism underlying iatrogenic injury as the primary etiology of urogenital fistula in this study is closely associated with surgical injuries, including those occurring during cesarean section, hysterectomy, and other pelvic surgical procedures. In developed countries, approximately 76% of vesicovaginal fistula cases occur following hysterectomy. Surgical procedures may cause direct injury to the urinary bladder, tissue devascularization due to extensive dissection, or hematoma formation. These conditions can compromise tissue vascularization, leading to ischemia and necrosis, ultimately resulting in fistula formation (El-Azab *et al.*, 2019). According to the findings of Narayanan *et al.* (2009) and Pushkar *et al.* (2009), the main indications for palliative management in patients with urogenital fistula include recurrent or persistent malignancy, poor performance status, limited life expectancy, severe renal dysfunction, and extensive pelvic tissue damage that precludes reconstructive surgery.

The high proportion of patients undergoing transfer or referral in this study may be attributed to the complexity of UGF cases exceeding the treatment capacity of Prof. Dr. Margono Soekarjo Regional General Hospital, thereby requiring more comprehensive management at a higher-level healthcare facility. Conversely, in cases with relatively small fistula openings, conservative management may be considered through urinary catheterization to divert urine flow and allow the fistula tissue to heal spontaneously, combined with anticholinergic therapy. However, conservative management has a relatively low success rate (approximately 8%), and therefore, most cases still require surgical intervention (Stamatakis *et al.*, 2012).

In addition to being referred to other facilities, some patients with UGF in this study underwent surgical procedures at Prof. Dr. Margono Soekarjo Regional General Hospital. One case of ureterovaginal fistula was managed with urinary diversion through the placement of a Double-J (DJ) stent. This is consistent with the findings of Al-Otaibi *et al.* (2011) and Al-Otaibi (2012), which demonstrated that ureterovaginal fistulas resulting from iatrogenic injury can be effectively managed using minimally invasive approaches, including endourological intervention. This approach has been shown to reduce surgical morbidity, shorten hospital stays, and achieve high fistula closure rates without the need for immediate open reconstructive surgery.

The choice between a transvaginal and transabdominal surgical approach is determined by the size and complexity of the fistula. Fistulas can be categorized as simple or complex. Simple fistulas are generally small (≤ 0.5 cm), solitary, and not associated with a history of radiation therapy. In contrast, complex fistulas include those that are large (≥ 2.5 cm), associated with chronic disease or a history of radiotherapy, or resulting from previous failed repair attempts

(Stamatakis *et al.*, 2012; Bontrager *et al.*, 2018). Another study conducted at Dr. Soetomo Hospital, Surabaya, reported that 80% of fistula cases were managed through a transabdominal surgical approach. Both approaches have their respective advantages, and the choice depends on the type and characteristics of the urogenital fistula being treated. A transabdominal approach may be considered when the fistula is located more proximally, typically involving the ureter, urinary bladder, or uterus. In contrast, a transvaginal approach may be preferred when the fistula is located distally, such as those involving the urethra and vagina (Shamout *et al.*, 2021). This study has several limitations. It employed a retrospective descriptive design with a limited sample size ($n = 43$) at a single referral center, making it susceptible to selection bias and limiting the ability to establish causal relationships between variables. In addition, this study did not evaluate long-term outcomes, such as the success rate of fistula repair, recurrence, continence status, or patient survival.

4. CONCLUSION

This study demonstrated that the profile of urogenital fistula among women at Prof. Dr. Margono Soekarjo Regional General Hospital during the 2020–2024 period was predominantly characterized by patients aged 41–50 years (51.16%) and vesicovaginal fistula (88.37%). Regarding etiology, the majority of cases were attributed to iatrogenic causes (51.16%), followed by malignancy and trauma, while no fistulas of obstetric etiology were identified in this study. In terms of management, most patients underwent surgical treatment (53.49%), with the majority of surgical procedures performed for vesicovaginal fistula cases. In practice, all vesicovaginal fistula cases were managed using a transvaginal operative approach. This study provides a comprehensive understanding of the clinical characteristics and management patterns of urogenital fistula at a regional referral healthcare facility and may serve as a basis for evaluating healthcare services and referral systems, as well as for developing strategies for the diagnosis and management of urogenital fistula. The interpretation of these findings should take into consideration the retrospective study design and the single-center setting of the study.

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