Original Research Report

UROGENITAL FISTULA PATIENTS PROFILE AT A TERTIARY HOSPITAL IN SURABAYA, INDONESIA FROM 2015 - 2021

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ABSTRACT

A fistula is an extra-anatomical channel between two or more hollow organs, or between an organ and the body surface. WHO estimated there were two million patients with untreated urogenital fistula, with 130,000 new cases every year. The ideal approach for urogenital fistula depends on surgeon preference and individual clinical characteristics. Accordingly, we aimed to determine the profile of patients with a urogenital fistula at a tertiary hospital of Dr. Soetomo General Academic Hospital in Surabaya, Indonesia, from 2015 to 2021. A retrospective study with a descriptive design was carried out by medical records data retrieval of patients with urogenital fistula. It included age, etiology, anatomical location, surgical management, and recurrence rate. The study population consisted of 55 patients. The majority of the patients were among the 41-50 y.o. age groups (41.17%), while the least were in the <20 years group (1.96%). History of obstructed labor was the most common etiology (70.59%). Fistulas in the study population were also associated with a history of trauma (15.68%) and malignancy (11.76%). The vesicovaginal fistula was the most common type of fistula (88.23%). Other types found include urethrovaginal, ureterovaginal, rectovesical, rectovaginal, and vesicocolon fistulas. The transvaginal approach was preferred in almost all study populations. A total of two cases of vesicovaginal fistula recurred (3.39%). In general, patients with urogenital fistula are prevalent in the 4th decade age group, with the most common etiology being a history of obstructed labor. Transvaginal surgery is the treatment of choice with good results and low recurrence rates.

Keywords: *Urogenital fistula; vesicovaginal fistula; transvaginal repair; illness*

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Highlights:

1. Vesicovaginal fistula is the most common urogenital fistula.
2. The transvaginal approach is preferred in treating urogenital fistula.

INTRODUCTION

A fistula is an extra-anatomical channel between two or more hollow organs, or between an organ and the body surface. It estimated to account for l–4% all urogenital fistulas cases (Alamoudi et al. 2017, Harzif et al. 2021). The classification of fistulas is generally based on the origin of an involved organ or anatomical location and the point of termination, where the abnormal channel could develop in several adjacent structures. As such, urogenital fistula in women is defined as an abnormal channel that forms between the urinary tract (urethra, bladder, ureter) and gynecological organ (vagina, uterus) (Abrams et al. 2012).

Bodner-Adler et al. (2017) reported a success rate equal to 93.8% in a systematic review and meta-analysis of the management of vesicovaginal fistulas in women following benign gynecological surgery. Clinical manifestations among patients vary based on the urinary tract involved. Fistula can greatly affect the patient's quality of life, in terms of functional and psychological well-being (Hilton 2016).

The global prevalence of urogenital fistulas is unknown, but the World Health Organization (WHO) estimates that there are two million women with untreated urogenital fistulas, with 130,000 new cases each year (Abrams et al. 2012). In developing countries, fistula is a consequence of poor perinatal care and is directly related to one of the major risks of mortality in pregnant women, specifically prolonged or obstructed labor. Urogenital fistula is also considered a difficult complication of urological and obstetric-gynecological procedures, especially in countries with inadequate standards of antenatal and obstetric care (Mocumbi et al. 2017). However, obstructed labor is still regarded as the main factor which contributes to the development of urogenital fistula, besides medical intervention or iatrogenic causes (Tasnim et al. 2020).

The ideal surgical repair approach for urogenital fistula depends on surgeon preference and individual clinical

characteristics. Several factors can affect the success of fistula repair. Accordingly, we aimed to determine the profile of patients with a urogenital fistula at a tertiary hospital of Dr. Soetomo General Academic Hospital in Surabaya, Indonesia from 2015 to 2021.

MATERIALS AND METHODS

Our study was a descriptive study with a retrospective design. It was conducted by collecting the data, so that several outcomes can be compared simultaneously. Usually, a retrospective study uses existing data that have been recorded for reasons other than research (Hess 2004). The data were collected from the medical records of urogenital fistula patients treated in the urology ward of Dr. Soetomo General Academic Hospital, Surabaya, Indonesia from January 2015 to December 2021. The data collected were grouped according to age, location, etiology, and management. All the grouping results are displayed descriptively in the form of tables and narratives. The research data obtained are displayed descriptively in diagrams and narration. The inclusion criteria of this study were patients with a diagnosis of urogenital fistula who were treated and received therapy in the urology ward of Dr. Soetomo General Academic Hospital, Surabaya. Meanwhile, the exclusion criteria were patients with a urogenital fistula diagnosis not treated in the Urology ward of Dr. Soetomo General Academic Hospital Surabaya.

RESULTS

There were 51 patients with urogenital fistula treated in the Urology ward of Dr. Soetomo Hospital in the period between January 2015 to December 2021. The youngest patient was 17 years old, while the oldest patient was 85 years old. Table 1 shows that the age group with the highest number of cases was 41 to 50 years (41.17%), while the lowest number of cases was found in patients aged less than 20 years (1.96%).

The etiology of most urogenital fistulas is due to prolonged labor (70.59%), followed by trauma (15.68%) and malignancy (11.76%), as shown in Table 2. Table 3 shows vesicovaginal as the most common anatomic location as the site of pathology (88.23%). Ureterovaginal and ureterouterine fistulas were the rarest types, with only 1 patient in each group. All fistula-type fistulas reported were treated using a transvaginal approach. The fistula recurrence was found in only 2 vesicovaginal cases (3.39%) as shown in Table 4.

Table 1. Age distribution of urogenital fistula patients

Age	Urogenital fistula (n = 51)
<20 years old	1
20-30 years old	8
31-40 years old	10
41-50 years old	21
51-60 years old	9
>60 years old	2

Table 2. Etiology of urogenital fistula cases in research subjects

Etiology	Urogenital fistula (n = 51)
Obstructed labor	36
Trauma	8
Malignancy	6

Table 3. Types of urogenital fistula based on anatomical location

Type of urogenital fistulas	Number of cases (n = 51)	Surgical approach
Vesicovaginal	45	Transvaginal
Urethrovaginal	4	Transvaginal
Ureterovaginal	1	Transvaginal
Ureterouterine	1	Transvaginal

Table 4. Urogenital fistula recurrence rate

Type of urogenital fistulas	Recurrence rate
Vesicovaginal	2
Urethrovaginal	0
Ureterovaginal	0
Ureterouterine	0

DISCUSSION

Urogenital fistula is relatively uncommon in well-resourced countries. Successful repair remains a challenge for specialists (Wall 2006). Moreover, in many so-called low-resource countries, obstetric fistulas are still very common (Danso et al. 1996). This is due to differences in access to obstetric care, as surgical etiology is more common in well-resourced countries. The majority of surgical fistulas are associated with gynecological procedures, especially with hysterectomy (Harkki-Siren et al. 1998). However, there have not been many studies that have focused on urogenital fistulas in general, especially in Indonesia. In 2016, there was a similar study conducted at Cipto Mangunkusumo Hospital, Jakarta, which reported urogenital cases that occurred during 2011-2016, with previous study also documented cases from 1998-2008 (Djusad et al. 2016, Taher et al. 2013). Dr. Soetomo General Academic Hospital, Surabaya, is the largest general hospital in East Java, and the top

referral hospital for the eastern part of Indonesia (Widarta et al. 2015).

In our study, the total number of urogenital fistula patients from January 2015 to December 2021 was 51. The patients in this study were women with an age range of 17-85 years, with the age group with the most frequent cases of urogenital fistula being 41 to 50 years (41.17%). This finding was in contrast to the research conducted by Saeed et al. (2016) where most patients with urogenital fistulas were in the group with an age range of 20 to 30 years (Saeed et al. 2016), while in our study, urogenital fistula found in patients in this age range was only 15.68%.

The most common cause that we found in cases of urogenital fistula during the last 7 years was obstructed labor. This was in line with the studies that we found in developing countries, which stated that the most common causes of urogenital fistulas were uterine cases, such as obstructed labor (Pradhan et al. 2020, Saeed et al. 2016). Even in the research conducted by Mocumbi et al. (2017), it was also found that obstructed labor was the leading cause of urogenital fistulas (Mocumbi et al. 2017). Fistula cases in developing countries can be found in every 1000 deliveries, with a prevalence of about 0.1% to 0.5% per 1000 pregnancies. This number may not represent the true number of cases due to high undetected urogenital fistula cases (Hillary et al. 2016).

The proposed causes other than obstructed labor are related to pelvic surgery. However, trauma is also one of the reasons for the occurrence of urogenital fistulas in developed countries, such as iatrogenic trauma after a hysterectomy surgery, which is the most common cause of urogenital fistulas in the UK (Hilton 2016), and female genital mutilation, which was found to be a significant risk factor for the occurrence of urogenital fistulas obtained in a study in Turkey (Birge et al. 2016). Additionally, urological procedures for distal ureteral stones can also cause this condition (Lo et al. 2019).

The most common location for urogenital fistulas in our study was the vesicovaginal area. A vesicovaginal fistula is a distressing condition with abnormal communication between the vagina and bladder, leading to urinary incontinence, resulting in continuous urine leakage through the vagina (Malik et al. 2018, Medlen & Barbier 2022). Vesicovaginal fistula is rare in the developed world. It also remains one of the most significant global public health challenges. It has a much higher prevalence in the underdeveloped and developing parts of the world (Eilber et al. 2003). However, the prevalence and incidence in females worldwide are difficult to pronounce, given the significant stigmatization in many populations (Medlen & Barbier 2022).

It is estimated that there are 2-3 million women with untreated fistulas worldwide, and about 30,000-130,000 new cases occur annually, of which > 95% are in developing countries (Abrams et al. 2012). Surgical approaches that can be used to manage urogenital fistulas are divided into a transvaginal approach, transvesical approach, transabdominal approach, laparoscopic approach, and robotic-assisted repair (Ghoniem & Warda 2014, Milani et al. 2018, Purkait et al. 2017, Talla et al. 2017).

The most common method used to manage simple urogenital fistulas is the transvaginal approach. Although the fistula was located near the vaginal stump, it could be well elevated with a surgeon's finger in the rectum. Thus, the vaginal and rectal walls could be mobilized and separated adequately, and the fistula between these walls could be securely sutured without tension. In similar situations, transvaginal simple closure has a high probability of success.

The repair approach should be decided on a patient-by-patient basis. Consultation to gastrointestinal surgeons can be done if necessary (Matsuyama et al. 2022). Meanwhile, currently, the transvesical approach is rarely used, and the indication for a transabdominal approach is for complex fistulas, which require the interposition of a tissue flap between the bladder and vagina (Hadzi-Djokie et al. 2015, Stamatakos et al. 2014). Most surgical approaches performed at this center for urogenital fistulas are transvaginal approaches.

Complications of urogenital fistula include frequency disturbances, urgency, urgency incontinence, recurrence, stress urinary incontinence, ureteral obstruction, and bowel obstruction (Ghoniem & Warda 2014). In our study, we found 2 cases of recurrence (3.92%), which only occurred in the vesicovaginal urogenital fistula type. Recurrent fistulas may appear within 3 months of primary repair. The abdominal approach is usually preferred in patients with large fistulas (more than 3 cm), supraregional fistulas, fistulas near or involving the ureteral orifice, and recurrent fistulas after transvaginal repair.

Strength and limitation

Our study had many limitations, including the small number of urogenital fistulas recorded in the center. Therefore, further studies are needed to assess the overall profile and distribution of urogenital fistulas in Indonesia, and even in the world. It would be even better if a similar study could be conducted in major education centers in Indonesia to obtain accurate data on the prevalence and epidemiology of urogenital fistulas. Discussions related to risk factors or comorbidities would also be much better if included in future research.

CONCLUSION

Urogenital fistula cases in a female patient treated at Dr. Soetomo Hospital, a tertiary referral hospital, are mainly found in patients over 40 years, with the most common etiology related to obstetric causes or prolonged labor. Repair measures with a transvaginal approach can treat various types of urogenital fistulas, including vesicovaginal fistulas, urethrovaginal fistulas, ureterovaginal fistulas, and ureterouterine fistulas. The low recurrence rate indicates that the management of cases of urogenital fistula at this tertiary referral hospital brings satisfactory results.

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Conflict of interest

None.

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Author contribution

MAHJ and MAS was contributed the study's design, data collection, and data analysis. JR made intellectual revisions to the study and gave the final approval for publication

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