

# Vesicouterine Fistula in Burkina Faso: Report of 36 Cases in a Multicentric Study

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## Abstract

**Objective** To report etiological and therapeutic features of vesicouterine fistulas (VUF) in Burkina Faso.

**Patients and Methods** We performed a retrospective, descriptive, and multicentric study based on the medical records of women treated for VUF from January 2010 to December 2016.

**Results** VUF accounted for 7.2% (36/497) of urogenital fistulas managed during the study period. The median age of the 36 patients was 35 years (interquartile range = 27 to 37.5 years) with values ranging from 16 years to 64 years old. Among VUF, obstetric fistula accounted for 26 cases (26/36) versus 10 cases (10/36) of iatrogenic fistula. Obstetric VUF were consecutive to emergency Caesarean section (n = 16) and vaginal delivery (n = 10) after prolonged obstructed labor. The 10 cases of iatrogenic VUF were subsequent to prelabour Caesarean section. The main circumstance of VUF occurrence was Caesarean section (26/36). In 10 cases (10/36), VUF was associated with a vesicovaginal fistula. Thirty days after the removal of the catheter, the success rate fell from 89% to 80.6%.

**Conclusion** VUF is rare but its frequency is not negligible in our context. The main circumstance of occurrence remains Caesarean section. The best treatment remains prevention

## Introduction

Vesicouterine fistula (VUF) is an abnormal communication between the posterior wall of the bladder and the anterior wall of the uterus[1,2]. It is an uncommon condition compared with vesicovaginal fistula and mainly affects young women in their thirties[1,3]. It is such a rare phenomenon that the literature consists mainly of cases reports and case series. VUF accounts for 1% to 4% of all urogenital fistulas, with an increasing trend reported in the literature[1,4,5]. In 2014, Kaboré et al. performed a prospective cohort study of 170 patients in Burkina Faso managed for urogenital fistula (UGF) and reported a frequency of 8.2% for VUF[6].

VUF usually presents with a classic triad of symptoms described by Youssef: cyclical hematuria, amenorrhea, and urinary continence[7], although patients with VUF may sometimes present with a permanent urine leakage through the genital tract. Like vesicovaginal fistulas, VUFs have a devastating psychosocial and economic impact on the women who experience them.

The most common etiology of VUF is iatrogenic through pelvic surgery. Caesarean section is the most common

### Key Words

Vesicouterine fistula, Caesarean, bladder, uterus, Burkina Faso

### Competing Interests

None declared.

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## Abbreviations

IQR interquartile range  
 UGF urogenital fistula  
 VUF vesicouterine fistula

cause reported in the literature, accounting for approximately 83% to 93% of cases of VUF[8]. In Burkina Faso, Sombié et al. reported an increase in Caesarean section rate from 0.48% in 2000 to 2.1% in 2014[9]. This trend of increasing Caesarean section rates will likely be accompanied by an increase in the incidence of VUF. Treatment of VUF can be conservative or surgical. However, conservative treatment has shown a low success rate in contrast to surgical treatment which provides good results[10].

The aim of the present study was to analyze the etiological and therapeutic aspects of VUF in Burkina Faso through a multicentric study.

## Materials and Methods

### Study design and period

We conducted a multicentric retrospective study over a 7-year period (from January 1, 2010, to December 31, 2016).

### Study site and population

Our study population consisted of all patients managed for urogenital fistula at 7 referral centers for the treatment of urogenital fistulas in Burkina Faso: University Hospital Yalgado Ouédraogo of Ouagadougou, Regional Hospital of Fada N'gourma, Regional Hospital of Dori, Saint Camille Hospital in Ouagadougou, New PolyClinic of the Center in Ouagadougou, Medical Center with Surgical Antenna in Boromo, and Medical Center with Surgical Antenna of Schippbra in Ouagadougou. We analyzed the medical records of all patients managed for VUF.

### Definition of variables

The following variables were studied for patients with VUF: age, parity, female genital mutilation (Yes or No), history of prior fistula repair (Yes or No), duration of labor, time between fistula onset and the surgical repair, fistula size, Józwick's classification, etiological factors (obstetric and iatrogenic), duration of bladder catheterization, and postoperative results (success or failure). Etiological factors were divided into 2 groups: iatrogenic fistulas following prelabour Caesarean section, and obstetrical fistulas following vaginal delivery or emergency Caesarean section performed too late. We used the classification of VUF into 3 types proposed by Józwick[11]: type I presents with amenorrhea and cyclic menouria without urinary incontinence; type

II presents with cyclic menouria, but has regular menses and urinary incontinence; and type III presents with only urinary incontinence, without menouria and with normal menses. Data were collected on an individual and anonymous data sheet.

This study was performed in accordance with the ethical standards laid down in the Declaration of Helsinki.

### Analysis and measures

Data were analyzed using the SPSS software, version 21.0. The categorical variables were analyzed through the study of frequencies. The continuous variables were analyzed through the study of median and interquartile range (IQR), minimum and maximum. We defined a successful surgical repair outcome at one month as a complete closure of the defect attested by a methylene blue test and without urinary incontinence. The Shapiro-Wilk test was used to assess the normality for continuous variables. The continuous variables do not follow a normal distribution in the sample of 36 patients. We therefore used the medians.

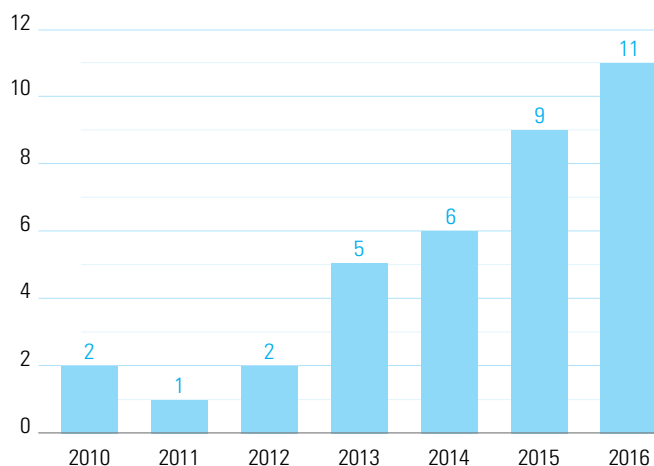
## Results

During the study period, 497 cases of urogenital fistula were managed in the 7 centers. VUF accounted for 7.2% (36/497) of all urogenital fistulas. The annual frequency of VUF was 5.14. The annual distribution of VUF is presented in [Figure 1](#). The median age of the 36 patients was 35 years (IQR = 27 to 37.5 years), with values ranging from 16 years to 64 years old.

According to Józwick's classification, 31 cases (31/36) were type II. In 10 cases (10/36), VUF was associated with a vesicovaginal fistula. Obstetric fistula was noted in 26 cases (26/36) versus 10 cases (10/36) for iatrogenic fistula. Among patients with obstetric fistulas, 5 patients (05/26) gave birth at home without medical assistance. The main circumstance of VUF occurrence was Caesarean section (26/36). The median duration of VUF was 125.8 months (IQR = 108 to 136.5), with values ranging from 24 months to 144 months. Patient and VUF characteristics are summarized in [Table 1](#).

The management of VUF was surgical in all patients. The transperitoneal route was used in 30 cases (30/36). A vaginal hysterectomy was performed in 6 cases (06/36). The 10 cases of associated vesicovaginal fistula were repaired during the same surgical procedure. Urine drainage was performed by systematic transurethral bladder catheterization in all cases after the surgery. The median duration of bladder catheterization was 14 days (IQR = 12 to 15.8), with values ranging from 10 to 21 days. Four patients (4/36) had postoperative complications: urinary tract infection in 3 patients, and hematuria in 1 patient. All patients were evaluated on

**FIGURE 1.**  
Annual distribution vesicouterine fistulas (n = 36)



the day of bladder catheter removal and 1 month after.

## Discussion

VUF is a very rare condition that has been estimated to account for 1% to 4% of all genitourinary fistulas[1,4,5,12]. However, recent studies have shown an increase in the prevalence of VUF. In a study of 272 women with obstetric fistula, Egziabher et al. reported 23% had VUF[13]. In 2020, Richter et al., describing the characteristics of genitourinary fistulas in Kigali, Rwanda, reported 185 (29%) cases of vesicouterine/vesicocervical fistula[14]. In our series, we report 36 cases of VUF, accounting for 7.2% of all genitourinary fistulas. To our knowledge it is one of the largest case series published to date. Indeed, these 7 centers are referral centers for the treatment of urogenital fistulas in Burkina Faso. Most of the published literature consists of cases reports and case series. Benchekroun et al. reported 30 cases over a 25-year period[15]. Hadzi-Djokic et al. reported 14 cases over a 37-year period[16].

Two main factors may explain the increasing trend in the prevalence of VUF in low-resource countries: the trend of increasing Caesarean section rate (with non-specialist staff sometimes deciding on the procedure without strong medical indication), and the high number of unassisted deliveries[5,17]. According to Sombié et al., the rate of Caesarean section delivery in Burkina Faso increased from 0.48% in 2000 to 2.14% in 2014[9]. VUFs most commonly occur following low-segment Caesarean section[1,2,10,11,18,19]. In a review including reports from 1986 to 1997, 83% of VUF were associated with Caesarean section[20]. In the present study, most VUF (26/36) occurred following Caesarean section. The mechanism by which communication

occurs between bladder and uterus may be a bladder injury during incision of the lower segment of the uterus, during vesicouterine detachment or by uterine rupture affecting the bladder. Excessive intraoperative bleeding may also lead to injury from attempts to achieve hemostasis[2,5].

VUF has been described following dystocic vaginal deliveries. It occurs in patients with a scarred uterus or after instrumental extraction[1,3,21,22]. The posterior wall of the bladder becomes progressively devitalized due to changes in the vascular network at the scar of the first operation. A dehiscence of the uterine scar and simultaneous injury of the bladder wall at the vesicouterine interface may occur with the thinning of the lower segment during labor, leading to the fistula[2,5]. In the present study, dystocia was the second most common cause of VUF. Drissi et al.[1] and Hodonou et al.[3] made the same observation. None of the patients in our study had a scarred uterus, and no instrumental extraction was noted. Deliveries were often unassisted, and 5 patients delivered at home. Other causes of VUF reported in the literature are gynecological (migration of an intrauterine device, degenerated or adherent myoma of the bladder) or congenital[1,2,7]. We did not find these causes in our study.

The purpose of VUF treatment is to suppress communication between uterus and bladder. Two therapeutic approaches are possible: conservative management and surgical management. Conservative management combines indwelling bladder catheterization with hormonal treatment that suppresses menstruation for 3 to 6 months[2,23,24]. Spontaneous closure of small fistulas seen at an early stage has been reported[2,23], providing some justification for conservative management. However, results are generally disappointing, with Józwick et al. estimating the success rate to be about 5%[24]. In our series, no patients were conservatively managed. We agree with Sylla et al. that large or late-onset VUF should receive surgical treatment[25]. DiMarco et al. in a series of 8 cases of VUF undertook conservative management of 2 patients, but this was not successful, and surgical intervention was eventually required[10]. This consists of the excision of the fistulous pathway and necrotic tissue and separate suturing of the bladder and uterus by either the extraperitoneal or transperitoneal route[1]. Bladder catheterization is maintained for about 2 weeks[5,21]. Hysterectomy is an option if no further pregnancy is desired. Vaginal hysterectomy was performed in 6 cases (16.7%) in our series. The laparoscopic approach is reported in the literature with similar results to open surgery[4,25]. VUF repair was performed by open surgery in our study. Our results were similar to those

**TABLE 1.**

Patient characteristics and vesicouterine fistula characteristics (n=36)

	Median	IQR (Min, Max)	Frequency
<b>Age, years</b>	35	27–37.5 (16, 64)	
<b>Parity</b>	4.1	2.6–5.6 (1, 11)	
<b>Genital mutilation</b>			
• No			30
• Yes			06
<b>Etiology</b>			
<b>Obstetric</b>			
• Vaginal delivery			10
• Emergency Caesarean section performed too late			16
<b>Iatrogenic (prelabour Caesarean section)</b>			
			10
<b>Jóźwik’s classification</b>			
• Type I			02
• Type II			31
• Type III			03
<b>Duration of fistula, months</b>			
<24			3
24–48			1
48–72			2
72–96			1
96–120			4
≥ 120			25
<b>Duration of labor, hours</b>	19.7	17.6–22.6 (01, 24)	
<b>Fistula size, cm</b>	02	1.4–2.8 (01, 04)	
<b>Prior repair of VUF</b>			
• Yes			17
• No			19

reported in the literature, with a successful closure rate of 88.9% 1 week after indwelling catheter removal. This excellent early result decreased to 80.6% after 1 month. This finding suggests the need for monitoring of patients undergoing VUF or, more generally, urogenital fistula surgery. Poor tissue vascularization and fibrosis are responsible for poor wound healing after surgery [26]. In addition, special attention has to be paid to the complete excision of perifistular necrotic tissue during surgery to allow better healing of tissues already weakened by ischemia. The postoperative failure rate

reflects the difficulty of closing some urogenital fistula, sometimes after several re-interventions [11,26]. In the present study, 17 patients (17/36) had a prior surgical repair of their VUF.

Caesarean section must be medically indicated, and more obstetricians and specialized nurses may be required to perform this procedure more proficiently. Meda et al. showed that in Burkina Faso, only 39.2% of Caesarean sections are performed by obstetricians and 28.7% by nurses specialized in surgery [27]. Every effort

must be made to prevent urogenital fistula, in particular by ensuring all women have access to prenatal care and to skilled medical assistance in delivery.

The limitations of this study lie in its retrospective nature, which means that some data were not available. Also, the postoperative follow-up of our patients was limited to one month. This study did not take into account data from all the urogenital fistula centers in Burkina Faso.

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## Conclusion

Globally, VUF is rare, but it presents a significant challenge in some areas. It occurs mainly after Caesarean section. The results of surgical treatment are good, but the best treatment remains prevention through pregnancy monitoring and delivery in medical facilities.

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