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Vesicovaginal Fistulas: Anatomical Clinical and Surgical Aspects in the Conakry University Hospital Center

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Abstract

Objective: To analyze the management of VVF in the Service of Urology-Andrology Obstetrics and Gynecology of the University Hospital in Conakry. Materials and Methods: From January 2012 to December 2013, 152 patients with a mean age of 30 years (14 - 80 years) were hospitalized in the Departments of Urology-Andrology and Gynecology-Obstetrics of the Conakry University Hospital Center. Clinically fistulas were divided according to the classification of Benchekroun as single, complex and complicated. The fistulas were diagnosed after a minimum period of three months and the results were assessed with a mean follow-up of 7 months (range 3 to 10 months) according to the following criteria: complete healing, intermediate healing and failure. Results: Fistulas occur mainly in young multiparous women. The obstetric etiology was dominant (98%). Clinically, there were 30% simple fistulas, 46% complex fistulas and 24% of complicated fistulas. From a therapeutic standpoint, the treatment consisted of a single fistulorraphie (Chassar Moir) in 82% of cases and a fistulorraphie with interposition of healthy tissue in 18% of cases. After a mean follow-up of 7 months we obtained a healing in 62% of cases, a failure in 31% of cases and the results were intermediate in 7% of cases. Conclusion: It appears that the VVF represents a public health concern in Guinea and surgical treatment is technical difficult due to the higher frequency of complex fistulas.

Keywords

Vesico-Vaginal Fistulas, Epidemiology, Treatment

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1. Introduction

Vesicovaginal fistula (VVF) is as an abnormal and more or less complex acquired communication between the lower urinary tract and genital tract. In addition to the medical sequelae, these fistulas represent a real psycho-social drama for the women with VVF [1]. It is still considered a common disease in developing countries. The WHO has estimated that about 3 million women have obstetric fistula worldwide, with 50 - 130,000 new fistulas reported each year [2]. In the developed countries, the most common etiologies of VVF include gynecological surgery injuries, pelvic surgery or radiotherapy lesions [3], whereas, in developing countries, particularly in Africa, obstetric causes are the predominant etiology [1] [4]-[6]. For decades, urologists have faced problems in treating VVF. Hence, many researchers have provided different surgical procedures for treatment of VVF. Therefore, the aim of this study was to analyze the management of VVF in the Department of Urology and Andrology Gynecology-Obstetrics of the University Hospital of Conakry.

2. Patients and Methods

This retrospective study was conducted at the University Hospital of Conakry. The study included 152 VVF patients diagnosed and treated in the Department of Urology, Andrology and Gynecology and Obstetrics of the University Hospital of Conakry during January 2012 and December 2013. The complete medical records of all patients including clinical and operative data and postoperative follow-up of at least three months were obtained. In the case of patients who had undergone multiple operations for VVF in the past, only the last operation was considered for the study.

Epidemiological, clinical and therapeutic variables were studied. We used Benchekroun's [4] classification of fistulas to classify the fistulas as follows:

- Simple Fistulas: These are variably-sized fistulas of the septum near the ureteral orifices respecting the urinary continence system without sclerosis.
- Complex Fistula: In this case, the fistulas have reached the urinary continence system, affecting the bladder neck, and the urethra is more or less involved. There is also a moderate peri-fistular sclerosis.
- Complicated fistulas: These are fistulas associated with impairment of urinary continence system as well as damage to the bladder neck and urethra and multiple major peri-fistular sclerosis. These fistulas are also commonly associated with a rectovaginal fistula.

All the surgical techniques used involved a surgical repair in order to restore the bladder capacity and voiding function. Vaginal, abdominal or mixed surgical approach was used. The abdominal approach was recommended in high fistulas that were virtually inaccessible through the vagina. In cases where the urethra, bladder neck or trigone were impaired, the vaginal route was preferred for direct access to the lesions and sampling of the interposing tissue between the bladder and vaginal sutures. Simple fistula was closed by performing a simple fistulorraphy as per Chassar Moir (for simple fistula) by urethrovesical anastomosis or urethroplasty using a bladder flap. In the case of complex and complicated fistulas, vaginal tissue was used for closure of fistulas. Interposition of healthy tissue (labial skin flap, vaginal or fatty from Martius) was performed in wide fistulas that do not allow direct suture.

Preferred therapeutic results after a follow-up of at least three months were judged according to the following criteria:

- Healing: total absence of loss of urine with intact urination after the fistulorraphie.
- Intermediate stage: Presence of stress urinary incontinence after the closure of the fistula or when there was pollakiuria associated with the reduction in bladder capacity.
- Failure: Persistence of the total loss of urine after surgical treatment.

3. Results

The age of the patients ranged from 14 to 80 years, with an average of 30.5 years. At the time of occurrence of the fistula, 65% (n = 99) patients were over 20 years (**Table 1**). Regarding the socio-professional category, 91% of patients were housewives and 72% (n = 109) of women were married (**Table 2**). About 76.3% of patients were affected with VVF for more than one year. A total of 65% (n = 99) of the VVF were never operated while 35% (n = 53) had received at least one prior fistulorraphie. The etiology of VVF was obstetrical in 98% (n = 149) and surgical (2 surgical treatment of uterine prolapse and one induced abortion) in 2% (n = 3) patients. A total of

Table 1. Clinical and demographic datas distribution.

Demographic and clinical datas	Number of cases	Percentage
Age interval		
11 - 20 years	53	35
21 - 30 years	58	38.1
31 - 40 years	27	17.7
41 - 50 years	12	7.9
51 - 60 years	1	0.65
71 - 80 years	1	0.65
Parity		
Nulliiparous	2	1.31
Primiparous	57	37.5
Multiparous	93	61.18
***Birth location* (*n* = 149)**		
Home	57	38.25
Health care facility	92	61.74
***Birth method* (*n* = 149)**		
Vaginal	92	61.74
Cesarean	57	38.25

Table 2. Marital status distribution.

Marital status	Number of cases	Percentage
Maried	109	71.7
Separate	20	13.2
Divorced	12	7.9
Widow	9	5.9
Single (never married)	2	1.3
Total	152	100

61.1% of patients were multiparous, 37.5% primiparous, and 1.3% was nulliparous. Around 62% of women with obstetric fistula gave birth in a health-care facility. On the 149 cases of obstetrical etiology, childbirth was done vaginally in 61.7% (n = 92) and cesarean in 38.2% (n = 57). In 1 patient, childbirth was done vaginally with forceps application. The average length of the labor was 3.6 days (range, 1 - 10 days). Clinically, 30% (n = 46) patients had simple fistulas, 46% (n = 70) patients had complex fistulas, and 24% (n = 36) had complicated fistula. The distribution of fistulas based on the anatomic type is listed in **Table 3**. Injury of the continence system (cervical, cervical-urethral and/or transection urethral) due to VVF (trigonal and retro-trigonal) was observed in 70% (n = 106) and 30% (n = 46) patients, respectively.

From a therapeutic point of view, the vaginal route was the most used in our patients, *i.e.*, in 96.7% (n = 147) patients. Surgical treatment consisted of a fistulorraphie by vesico-vaginal duplication and excision of sclerotic edges (Chassar Moir) in 82% (n = 125) patients and a fistulorraphie with interposition of healthy tissue (flap Martius or cutaneous fat flap the labia majora) in 18% (n = 27) cases.

Bladder drainage was ensured in all cases by a urethral Foley probe type CH 18, and the average length of the drainage was 16 days (range, 7 to 21 days).

A mean follow-up of 7 months (range 3 to 10 months) showed that 62% (n = 94) of cases were cured, 31% (n = 47) of cases showed failure, and 7% (n = 11) cases were in the intermediate stage. The best results were obtained in cases with simple fistulas (37 healings out of 46 fistulas). Urinary incontinence after fistulorraphie was observed in complex fistulas, and failures were noted in complicated fistulas, with 20 failed fistulas out of 36 fistulas (**Table 4**).

4. Discussion

VVF is a major public health problem in young rural women. The average age of patients in our study is in accordance with a previous study by Guirassy *et al.* [7], who also reported patients with an average age of 30 years (range, 15 - 60 years). However, our average age is higher compared to those noted by Kanyi *et al.* [5], Nguembi *et al.* [8], and Kambou *et al.* [9] in their series (*i.e.*, 20, 28, 14, and 17 years, respectively). Moudouni *et al.* [1] reported patients with an average age of 33 years (range, 17 - 76 years).

In the genesis of obstetric VVF, the dystocic labor in young women remains the most incriminating factor. However, in our study, this factor did not play a major role since over 65% of patients were over 20 years at the time of onset of fistula. This is in accordance with previous studies by Gueye *et al.* [10] in Senegal (70%) and Qi *et al.* [11] in Kati, Mali (82%). However, Harouna *et al.* [12] and Ibrahim *et al.* [13] have noted that 52% of patients aged less than 20 years. In our study, almost all patients (98%) did not attend any modern schools. A total of 71.7% of cases in our series were married, but they were unemployed with no income earning activities. Sombie *et al.* [14] found that Burkina Faso patients with fistulas usually had no paid employment.

According to a demographic and health survey, *i.e.*, EDSG-III [15], conducted in 2005 in Guinea, 72% of women with fistula had never attended school; in other words, the less the scholarity, the higher the rate of fistula. Hence, it can be said that the level of education and the socio-economic situation are factors that contribute to the occurrence of VVF.

Table 3. Anatomical types distribution.

Fistula type	Number of cases	Percentage [95% CI*]
Retro-trigonal	34	22.4 [8.4 and 36.4%]
Trigonal	12	7.9 [−7.4 and 23.2%]
Trigono-cervical	14	9.2 [−5.9 and 24.3%]
Trigono-cervico-uretral	4	2.6 [−13 and 18.2%]
Trigono-cervico-uretral + transection	36	23.7 [9.8 and 37.6%]
Cervical	35	23.1 [9.1 and 37.1%]
Cervico-uretral	17	11.1 [−3.8 and 28%]
Total	**152**	**100**

CI*: Confidence interval.

Table 4. Surgical results for each class of fistula.

Fistula type	Surgical results			Total
	Healing	Intermédiate	Failure	
Simple	37 (24.3%)	2 (1.3%)	7 (4.6%)	46 (30.3%)
Complexe	43 (28.3%)	7 (4.6%)	20 (13.2%)	70 (46%)
Complicated	14 (9.2%)	2 (1.3%)	20 (13.2%)	36 (23.7%)
Total	**94 (61.8%)**	**11 (7.2%)**	**47 (31%)**	**152 (100%)**

Obstetrical etiology was predominant in our series. This is in accordance with many African studies [1] [4] [8] [10]. Cortesse [3] reported that in developed countries, obstetric fistula has virtually disappeared; in his study, 90% of VVF cases followed a benign gynecologic surgery and 10% had complications of pelvic cancer surgery, radiation of the pelvis, and localized infections.

VVF are not frequent among primiparous. In the present study, it was found that VVF was most frequent in multiparous patients (in 61.1% cases); this is also consistent with those reported by Gueye *et al.* [10] and Moudouni *et al.* [1], *i.e.*, 53% and 72.5% of cases, respectively. Traditional child birth at homes is recognized as a predictor of VVF in our study as well in that of Ouattara *et al.*'s [16] study, *i.e.*, in both studies, births took place in a health care facility in 62% and 65.6% of cases, respectively. It must be emphasized that in our study, the birth followed a long labor, which started at home, and the patients could not travel to a health facility in the early hours of labor given the distance or a lack of transportation means. Furthermore, Harouna *et al.* [12] reported an average of four days of labor. Qi *et al.* [11] reported that 85.3% of patients had more than 3 days of work. In Ouattara *et al.*'s [16] study, 63.4% of VVF cases gave birth after 48 hours of work.

In our study, a predominance of complex fistulas was noted; this is associated to the long-duration of labor and delivery. Mensah *et al.* [17] and Gueye *et al.* [10] reported 54% and 70% of cases of simple fistulas, respectively.

The treatment of VVF is difficult; hence, many treatment techniques have been proposed [1] [3] [18] [19] with an aim to restore both the bladder continence and voiding function. In our study, the fistulorraphie was considered at least three months after the diagnosis, and vaginal surgical approach was preferred for most patients. This surgical approach was also adopted by many researchers, including Kambou *et al.* [9], Moudouni *et al.* [1], Ouattara *et al.* [16], and Falandry [20] in the respective proportions of 61.4%; 70%; 89.5% and 100%.

The vaginal route remains the best way for us because it allowed perfect exposure of the fistula when traction is induced on the balloon of a Foley catheter. Technically, a simple fistulorraphie by vesicovaginal duplication and excision of the sclerotic edges was performed in 82% of patients. Qi *et al.* [11] used this technique in 85.3% of their patients. A fistulorraphie with interposition of normal tissues was used in 18% of patients. Falandry [20] reported 29 interpositions using the method of Martius out of 247 surgical procedures, and 8.77% patients in Moudouni *et al.*'s [1] study benefited from the same technique.

Different researchers have reported different bladder drainage techniques after fistulorraphie. Our study involved a bladder drainage closed with a urethral Foley-type probe. The urine drainage by a cystostomy tube was preferred by Moudouni *et al.* [1] in 14% of cases. Couvelaire [21] advocated urine drainage by urethral probe in the case of high fistulas far from the neck and by cystotomy in cervical and urethral fistula. Falandry [20] [22] [23] reported bladder drainage by urethral catheter for 10 to 12 days in all series.

Although the treatment outcomes observed in our series were significant, they are far from satisfactory, especially as two in five patients showed failure in their fistula treatment. However, our results are similar to those of Kambou *et al.*'s [9] with an overall success rate of 73.70% and Moudouni *et al.*'s [1] with 67% cure rate, 8% of urine incontinence, and 25% of failure. Ouattara *et al.* [16] noted 71.6% cure rate, approximately 29.9% failure; they found that the results are less satisfactory in the case of vesico-cervico-urethral fistulae with 48.34% success against 76.2% for the fistula of the vesico-vaginal septum. Falandry [20], with 6 months of minimum follow-up, achieved healing in 62.4% cases, and the success was constant from the first intervention in the simple fistulas with 92.8% success rate. This success rate was 76.1% in complex fistulae and 16.6% in severe fistulas transection. In our study, we did not observe any relationship between the duration of the fistula and the therapeutic outcome; the only one pejorative factor was the type of fistula. The more the seriousness of the fistula, the more uncertain was its complete recovery.

5. Conclusions

VVFs are a major cause of morbidity and therefore, a public health concern in our country. These exceptional surgically-treated fistulas occur among women of childbearing age. The low level of education, poverty, lack of infrastructure and trained personnel, especially in rural areas, are the contributing factors to the occurrence of VVFs. Surgical treatment of VVFs presents many technical difficulties due to the high frequency of complex and complicated fistulas. Healing is easily achieved in the case of simple fistulas, but complex and complicated ones require the use of interposition or additional surgical techniques and/or multiple interventions.

Thus, there is a need for planning of vast public health management policies for preventive, educational and curative activities of VVFs.

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