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Surgical Management of Obstetric Fistulas in the Gynecology-Obstetrics Department of the University Hospital of Bouaké

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Abstract

Objective: Help improve surgical management of obstetric fistulas. **Materials and Methods**: This was a retrospective study with descriptive and analytical aims conducted over a period of 9 years. It involved 282 patients who were operated on in the gynaecology-obstetrics department of Bouaké University Hospital. **Results:** The average age of the patients was 27 years, with extremes of 12 and 49 years. The fistula patients were single (54.25%), had no schooling (75.2%), and were farmers (39.72%). They were in a couple (49.3%) before the fistula and divorced (25.2%) after the fistula. Causal delivery took place in a health centre (88.1%). The patients were multiparous (44.33%) and gave birth to stillbirths (88%). Labor lasted more than one day (61.3%). The average duration of fistula evolution was 07 years. In 86.88% of cases, the patients had vesico-vaginal fistulas. The fistulas were most often single (95.4%), type I (65.3%), and small (55.1%). In 72.3% of cases, the patients were undergoing surgery for the first time. Fistulorrhaphy inspired by the Latzko technique was the most frequently performed procedure (96.0%), and the success rate was 90.9%. The outcome of the surgery was statistically linked to a healthy vagina and a small fistula. **Conclusion:** Surgical treatment gives excellent results, subject to certain factors. Emphasis must be placed on prevention through community awareness-raising.

Keywords

Surgery, Obstetric Fistulas, Bouaké, Success Factor

1. Introduction

According to the WHO, approximately 830 women die every day worldwide due to complications related to pregnancy or childbirth. For every survivor, 16 to 30 women suffer from often preventable complications. One of the most tragic of these complications is obstetric fistula [1]. Obstetric fistulas are abnormal communications between the vagina and the bladder and/or rectum caused by prolonged and difficult labor in the absence of appropriate obstetric care [2]. It is estimated that more than 2 million young women worldwide are living with untreated fistulas, with 50,000 to 100,000 new cases occurring each year [3] [4]. Obstetric fistula has functional, economic, and psychosocial repercussions for women in the form of discomfort, physical and mental suffering, and changes to married life [2]. In fact, fistula leads to social ostracism and stigmatisation. Many case series show high rates of divorce or marital separation, absence of sexual intercourse, loss of fertility, amenorrhoea, and depression in women with fistula [3]. In Côte d'Ivoire, the prevalence of obstetric fistulas is estimated to be over 9424 cases, with more than 250 new cases each year [3]. These fistulas cause chronic urinary and/or fecal incontinence, with very detrimental effects on the social life and health of the woman [2]. Surgical repair is the only means of remedying the condition and the only hope for these women to regain their dignity. One can understand the tragedy for these women when, after so much hope is placed in restorative surgery, failure occurs. Restorative surgery performed by a trained surgeon specializing in fistulas can repair the lesion with a success rate of up to 90 percent in the least complex cases [5].

Since 2012, the Ministry of Health and Public Hygiene, along with Côte d'Ivoire's Universal Health Coverage in partnership with UNFPA and the KOICA agency, has initiated a project called "Prevention and Management of Obstetric Fistulas." As part of this, free fistula management caravans are organized by the obstetrics and gynecology department at the Bouaké University Hospital, which is one of the 7 reference centers for this project. We propose this study to evaluate the surgical management of obstetric fistulas and examine whether there is a statistically significant association between fistula size and the surgical success rate following repair. In the obstetrics and gynecology department at the Bouaké University Hospital, the aim is to improve the prognosis of managing this condition.

2. Methods

This was a retrospective study with descriptive and analytical aims. It was conducted over a period of 9 years, from January 1, 2014, to December 31, 2022, during which free management campaigns for urogenital fistulas were carried out at the Bouaké University Hospital. These campaigns were funded by UNFPA. The study population consisted of all cases of obstetric fistulas operated on in the obstetrics and gynecology department at the Bouaké University Hospital during the study period. Included in the study were all patients with an obstetric fistula who underwent surgical management (operations) in the obstetrics and gynecology

department of Bouaké during the study period and whose postoperative follow-up was properly conducted over a period of 3 months. The techniques used in the operating theatre for the main stages of surgical repair, whatever the fistula, are: exposure of the fistula, infiltration of the operating area with haemostatic solution (adrenaline, lidocaine, saline), incisions around the fistula to dissect the vesico-vaginal or recto-vaginal wall, etc. Tension-free suture (separate stitches) of the bladder or rectal wall in two planes, methylene blue leak test, closure of the vaginal skin/mucosa. The urinary catheter remained in place for fourteen days or even twenty-one days if necessary. Postoperative follow-up was carried out up to three months after the cure, according to the department's protocol. Excluded were patients who underwent surgery for obstetric fistula in the obstetrics and gynecology department of the Bouaké University Hospital but whose follow-up could not be conducted (women who did not attend follow-up appointments), or patients who were lost to follow-up immediately after discharge post-surgery. Quantitative variables were described in terms of mean and standard deviation, and qualitative variables in terms of percentages. The analysis of proportions involved using the Chi-square or Fisher's test, depending on validity conditions. The chosen alpha level was 5%.

3. Results

3.1. Socio-Epidemiological Characteristics

A total of 282 patients were registered during the period, considering the inclusion and non-inclusion criteria. The age of the patients at the time of treatment ranged from 12 to 49 years, with an average of (27.80 ± 9.10) years. In 39.72% of cases, the patients were between 20 and 29 years old, followed by those between 30 and 39 years old in 26.6% of cases. The average age at fistula repair was (34.88 ± 10.68) years, with extremes of 16 and 69 years. The most represented age group was between 30 and 39 years old in 40.4% of cases. Uneducated patients accounted for 75.2% of cases, followed by those with primary education (75.2%), and they resided in rural areas (60.5%). Farmers accounted for 39.72%, followed by homemakers (34.40%). Before the onset of the fistula, patients were in a relationship in 49.3% of cases, whereas after the onset of the fistula, 24.1% of patients were in a relationship, and 25.2% of patients had been divorced.

3.2. Obstetric-Clinical Characteristics of Patients

Multiparous women represented 44.33% of cases. Patients had delivered in a health center (88.1%). In 51.4% of cases, patients delivered by cesarean section, and spontaneous vaginal delivery occurred in 48.2%. Of the newborns, 88% were stillborn. Labor lasted more than one day in 61.3% of cases. The average duration of the fistula condition was (7.08 ± 7.95) years, with extremes of 0 and 39 years. Among the operated patients, vesicovaginal fistulas accounted for 86.88%, followed by rectovaginal fistulas (8.52%). The fistulous opening was single in 95.4% of cases and small in size in 55.1% of cases. The vaginal consistency was supple in 71.63%, sclerotic in 28.37%, and maceration lesions were noted in 2.84% of cases.

(Table 1)

Table 1. Obstetric-clinical characteristics of patients.

Parameters	No.	Percentage
Parity		
Multipara (≥4)	125	44.3
Paucipara (2 - 3)	91	32.27
Primipara (1)	66	23.40
Place of Delivery		
Health Center	248	88.1
Home	32	11.9
Mode of Delivery		
Cesarean	145	51.4
Spontaneous Vaginal	136	48.2
Instrumental Maneuver	1	0.4
Neonatal Status		
Stillborn	248	88
Alive	34	12
Person Responsible for Delivery		
Gynecologist	152	53.9
Midwife	69	24.5
Traditional Birth Attendant	35	12.3
General Practitioner	19	6.7
Nurse Assistant	7	2.3
Duration of Labor		
<12 hours	09	3.20
[12 hours - 23 hours]	100	35.46
[1 - 3 days]	158	56.02
>3 days	15	5.32
Duration of Fistula Condition (years)		
<1	58	20.6
[1 - 5]	98	34.7
[6 - 10]	58	20.6
>10	68	24.2
Anatomoclinical Type		
Vesicovaginal Fistula	238	84.4
Other Types	44	15.6

Continued

Size of the Fistula		
Small	155	55.1
Medium	69	24.3
Large	56	19.8
Extensive	2	0.8

3.3. Fistula Management Surgery

Patients who were undergoing their first surgery represented 72.3% of cases, followed by those with a history of one repair at 15.8%. The anesthesia techniques used were spinal anesthesia at 96.0%, general anesthesia at 1.5%, and combined anesthesia in cases of difficulty at 2.5%. The majority of patients were surgically managed via the vaginal route, at 90.4%. The abdominal route concerned 8.6% of patients, while the mixed route was used for 1% of patients. The operative technique used was splitting-suturing in 96.0% of cases, followed by ureterovesical reimplantation at 2.9%. Urethroplasty was performed on two patients, and vaginal plasty on one patient. Immediate complications were mainly hemorrhage at 2.5% and cardiorespiratory arrest at 0.35%. The overall surgical success rate was 90.9% (69.85% with closed and dried fistula and 21.05% with closed fistula without continence), and the therapeutic failure rate was 9.1% in this study.

3.4. Factors Influencing Surgical Outcomes

The surgical outcome was not statistically related to the number of previous attempts, the duration of the condition, the type of fistula, the number of fistulous orifices, or the type of fistula according to Kees Waaldijk's classification. A healthy vaginal state had a higher success chance compared to a sclerotic vagina (RR: 1.41; 95% CI: 1.22 - 1.63). We found that small-sized fistulas had a higher chance of success compared to other sizes (RR = 1.23; 95% CI: 1.07 - 1.42). (Table 2)

Table 2. Factors influencing surgical outcomes.

Parameter	Success	Failure	RR	95% IC
Number of Attempts				
R0	189	15	1.09	0.86 - 1.38
R1	39	6	1.02	0.79 - 1.32
R2	17	3	1.00	0.74 -- 1.35
R3	11	2	Ref	-
Duration of Condition				
<1 year	52	6	1.01	0.89 - 1.14
[1 - 5 years]	95	3	1.09	1.00 - 1.20
[6 - 10 years]	49	9	0.95	0.83 - 1.10

Continued

>10 years	60	8	Ref	-
State of the Vagina				
Healthy	200	2	1.41	1.22 - 1.63
Sclerotic	56	24	Ref	-
Size of the Fistula				
Small	149	6	1.23	1.07 - 1.42
Medium	62	7	1.15	0.98 - 1.35
Other Sizes (large and extensive)	45	13	Ref	-
Number of Fistulous Openings				
Single	248	21	1.49	0.97 - 2.30
Multiple	8	5	Ref	-
Type of Fistula				
FVV	221	24	0.95	0.87 - 1.04
Other Types (FRV, FUV, FRVV)	35	2	Ref	
Kees Waaldijk Classification				
Type I	152	6	1.15	0.89 - 1.48
Type IIAa	47	8	1.02	0.77 - 1.35
Type IIAb	17	3	1.02	0.74 - 1.39
Other Types (Type IIBa, Type III)	10	2	Ref	

4. Discussion

Our study is biased because its retrospective nature did not allow us to obtain data on all the items that were not filled in or were incorrectly filled in when the patients' files were compiled. The results must be qualified because the study was hospital-based and single-centre. The results cannot be extrapolated to all obstetrics and gynaecology departments. All these facts constitute biases that may overestimate or underestimate the results. Despite these methodological limitations, these results raise a number of points for discussion.

4.1. Socio-Epidemiological Characteristics

In our study, the average age at the onset of obstetric fistula (OF) was 27 years, with a range from 12 to 49 years, and the most affected age group was 20 to 29 years, with a frequency of 39.72%. Our result was comparable to that of Diallo [6], who reported an average age of 25 years, but higher than that found by Harouna [7] in Niger, which was 19 years. These age discrepancies may be due to the fact that the authors did not always specify whether the reported average age was at the onset of the obstetric fistula or during treatment. These average ages highlight a condition affecting women in their reproductive years, during which unman-

aged or poorly managed dystocic deliveries expose women to OF. These young women, in their reproductive prime, with their low levels of schooling or literacy and rural living, constitute a population at risk for OF. In our study, 75.2% of our patients were uneducated, and farmers made up 39.72%, followed by homemakers at 34.40%. This clear predominance of homemakers reflects the low socio-economic status of our patients as well as their low level of education. According to Sanou [8], in Cameroon, when a woman is educated, she is more likely to have a good understanding of health, making her aware of the importance of quality obstetric care and the adoption of better attitudes towards modern medicine. After the onset of the fistula, 25.2% of these women in relationships were divorced because of the fistula. However, Nsambi [3] in the DRC found a higher divorce rate (71.5%). This disparity could be linked to cultural and religious belief differences [3].

4.2. Obstetric-Clinical Characteristics of Patients

Deliveries took place in a health center for the majority of our patients (88.1%), with cesarean section accounting for 51.4% of deliveries, and 53.9% of these were performed by a gynecologist. The study conducted by Sanda [9] in Niger showed a higher frequency of home births at 64.6% compared to our 11.9%. Teguete [10] noted that a third of women with fistulas had delivered at home and that one in two fistula cases had delivered vaginally. This difference can be explained by the fact that most of our patients began their labor at home and went to a health center only when delivery became impossible. Additionally, the distance of women from health centers and the cultural habit of relying on traditional birth attendants contributed to home deliveries. In such a context, the newborns suffer the consequences, as we found an 88% stillbirth rate in our study. The stillbirth rate reported in the literature is generally over 90%, according to some authors [4] [10]. The average duration of the condition, regardless of the type of fistula, was 7 years, with extremes of 0 and 39 years. Bohoussou [11] in Côte d'Ivoire found an average duration of 1.5 years. In our study, fistulas on a supple vagina were predominant, with a frequency of 71.63% compared to 28.37% on a sclerotic vagina. The frequency of fistulas in a sclerotic vagina was not negligible in our study. This may be linked to the late management of fistulas in our regions and the use of traditional products and decoctions for therapeutic purposes, which turn out to be caustic for the vagina, causing sclerotic lesions.

4.3. Fistula Management Surgery

In our series, all patients underwent surgery aiming to restore the anatomical and functional integrity of the bladder and urinary continence. Although the surgical approach is not uniform, the best is the one that provides the best operative comfort. The vaginal approach was the best for us, being the most anatomical and simplest. The frequency found for VVF treated by the vaginal route in our study was 90.4%. These data were comparable to those in the literature [7] [12]. The

choice of surgical approach depends on the type and location of the fistula, vaginal compliance, and associated lesions. In our study, fistulorraphy was performed using Latzko's splitting-suture technique in 96.0% of cases. This technique has been described as the most used for treating fistula patients by several authors [3]. Postoperative courses were simple in 97% of cases and complicated by hemorrhages in 2.5% of cases. Our results were consistent with those reported by Kayondo [13] and Mafu *et al.* [14]. This low rate of per- and postoperative complications may be related to the predominant choice of the vaginal approach in our work. The overall surgical success rate was 90.9% (69.85% closed and dried fistula and 21.05% closed fistula without continence). Our closed and dried fistula rate is lower than the WHO target of 85% for quality care [15]. This relatively low frequency of closed and dried fistulas could be explained by the condition of the vagina, the duration of the fistula, and the fact that some patients had undergone multiple surgeries.

4.4. Factors Influencing Surgical Outcomes

Our study showed that surgical outcomes were not statistically linked to the number of previous attempts. Similar results were reported in the study by Venara *et al.* in France [16]. However, Lowry *et al.* [17] in the USA reported that the success rate was 85% during the initial operation and decreased to 55% by the third attempt. According to Pinto *et al.*, a history of fistula surgical repair is correlated with a higher failure rate. Some studies have suggested that a reduced interval between operations could improve the success rate [18]. Our study did not show a statistical difference between surgical outcomes and the duration of the fistula or the condition of the vagina. However, Mafu *et al.* [14] in the DRC showed that a duration of less than one year for the fistula tripled the chances of surgical success. Indeed, the fistula itself is a source of chronic sclerosing local inflammation. Furthermore, in the study by Diallo [6], the significant failure rate observed in older fistulas (duration of more than one year) could be explained by the extent of fibrosis in this type of fistula, making dissection laborious and compromising the final outcome. According to Mafu *et al.* [14], there was an association between scar fibrosis and fistula surgical repair outcomes, demonstrating a dependent effect of scar fibrosis on fistula closure. In our series, surgical outcomes were statistically linked to the size of the fistula. These results corroborated those of Vodouhe *et al.* in Benin [19], which showed a twofold risk of surgical failure associated with large size, as well as those of Nsambi *et al.* [3], who found an 11-fold higher risk of surgical failure for a large fistula. This high repair failure rate for this type of fistula is likely related to the prolonged duration of labor, making the fistula complex. However, Kumar *et al.* in India [20] and Mafu *et al.* [14] did not find any statistically significant difference regarding the size of the fistula and surgical outcomes. There was no statistically significant difference between surgical outcomes and the number of fistulous openings in our study. The studies by Zhou *et al.* [21] contradicted our observations, finding that single fistulas were significantly associated with a higher success rate. Indeed, it has been confirmed that multiple fis-

tulas (2 or more) had a significant relationship with unsuccessful fistula closure. This is probably due to the fact that large or multiple fistulas make it difficult to mobilize local tissues and perform a tension-free repair due to insufficient bladder tissue. In our study, surgical outcomes were not statistically linked to the Kees Waaldijk classification. However, Mafu *et al.* [14] showed that type I fistulas, according to the Kees Waaldijk classification, were twice as likely to have surgical success compared to type II, reflecting the complexity of the fistula, given that type I fistulas do not involve the closure mechanism, with the bladder neck and urethra intact. The surgical outcome was not statistically linked to the operative technique. However, Nsambi *et al.* [3] considered that the operative technique and the surgeon's expertise are determinants of surgical success; our study did not find a statistical link in this regard. Our observations were reinforced by those of Vodouhe *et al.* [22], who did not find an association between the choice of operative technique and the surgical success rate.

5. Conclusion

Obstetric fistula remains a significant public health issue in our region despite efforts made to combat this condition. The victims are mostly young women with no formal education, living in rural areas. Treatment yields satisfactory results. These results are influenced by certain factors, such as the condition of the vagina, the size of the fistula, and its duration. However, emphasis must be placed on prevention, as it is a condition that can be avoided through improved obstetric care and better quality of pregnancy monitoring.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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