



Epidemiology and Clinical Characteristics of Iatrogenic Urogenital Fistulas of Gynecological and Obstetric Origin: A 2013-2023 Study at CNHU-HKM Cotonou

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Abstract: -

Introduction: The management of uro-genital fistulas of gynecological and obstetrical origin is a common practice in urology. This study aimed to investigate the epidemiological, clinical, and therapeutic aspects of these fistulas at the CNHU HKM in Cotonou.

Patients and Methods: This was a retrospective, descriptive, and cross-sectional study examining the epidemiological, clinical, and therapeutic aspects of uro-genital fistulas of gynecological and obstetrical origin at the CNHU HKM in Cotonou from 2013 to 2023.

Results: A total of 94 cases were collected during the study period. The average annual incidence was 12.6 cases, with a range from 1 to 37 cases. The most affected women were primarily traders (24.47%), aged between 25 and 45 years (76.59%), uneducated (43.62%), multiparous (68.09%), and with low financial income (48.94%). Uro-genital fistulas were predominantly vesico-vaginal fistulas (72.34%), mostly secondary to cesarean sections (54.26%), with 52.13% of these procedures performed urgently. Surgical treatment was predominant in 47.87% of cases. The surgical approach included 41.48% of cases treated through vaginal repair and 41.48% through abdominal repair. The success rate of surgical interventions was 87.23%.

Conclusion: The management of uro-genital fistulas of gynecological and obstetrical origin remains a challenge for urologists in Africa.

Keywords: Uro-genital fistula, cesarean section, hysterectomy, Benin.

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INTRODUCTION

The African proverb, "The sun should not rise or set twice on a woman giving birth," highlights the vulnerability of women during the perinatal period and the severe consequences of complications associated with it [1]. The miracle of birth can turn into a nightmare when an iatrogenic urogenital fistula occurs, an abnormal communication between the urinary and genital tracts, often following gynecological and obstetrical procedures in developing countries where healthcare may be limited. These fistulas lead to significant health, physical, and psychosocial challenges [2]. The CUUA at CNHU-HKM in Benin plays a crucial role in managing these complications. This study examines the epidemiological and clinical aspects of iatrogenic urogenital fistulas of gynecological and obstetric origin over a ten-year period at this clinic, aiming to better understand these conditions and improve prevention, diagnosis, and treatment strategies.

Patients and Methods

This was a retrospective descriptive and analytical study conducted at the CUUA of CNHU-HKM in Cotonou over a ten-year period from September 2013 to September 2023. It included a cross-sectional component carried out via telephone interviews. The study focused on the records of patients admitted for iatrogenic urogenital fistulas of gynecological and obstetric origin. A comprehensive review of exploitable records was conducted, ensuring patient anonymity and receiving authorization from the hospital. The dependent variable is the iatrogenic urogenital fistula of gynecological and obstetric origin, including various types: vesicovaginal, ureterovaginal, vesicouterine, ureterouterine, and urethrovaginal fistulas. Independent variables include sociodemographic variables, diagnostic variables, treatment-related variables, and variables related to satisfaction assessment.

Results

Epidemiological Characteristics

A total of 94 records met the selection criteria and were retained during the study period. Figure 1 shows the annual frequency of iatrogenic gynecological and obstetric fistulas from 2013 to 2023. The hospital frequency of iatrogenic urogenital fistulas of gynecological and obstetric origin was 5.14% at CUUA of CNHU-HKM in Cotonou. We recorded 94 cases at CUUA of CNHU-

HKM, corresponding to an average annual frequency of 9.4 cases. Figure 1 also shows the distribution of cases by year.

Age

The average age of patients was 37.05 years with extremes of 18 and 71 years. The age groups of 25 to 35 years and 35 to 45 years were predominantly represented, with rates of 40.42% and 36.17%, respectively. Table I presents the distribution of women according to age groups.

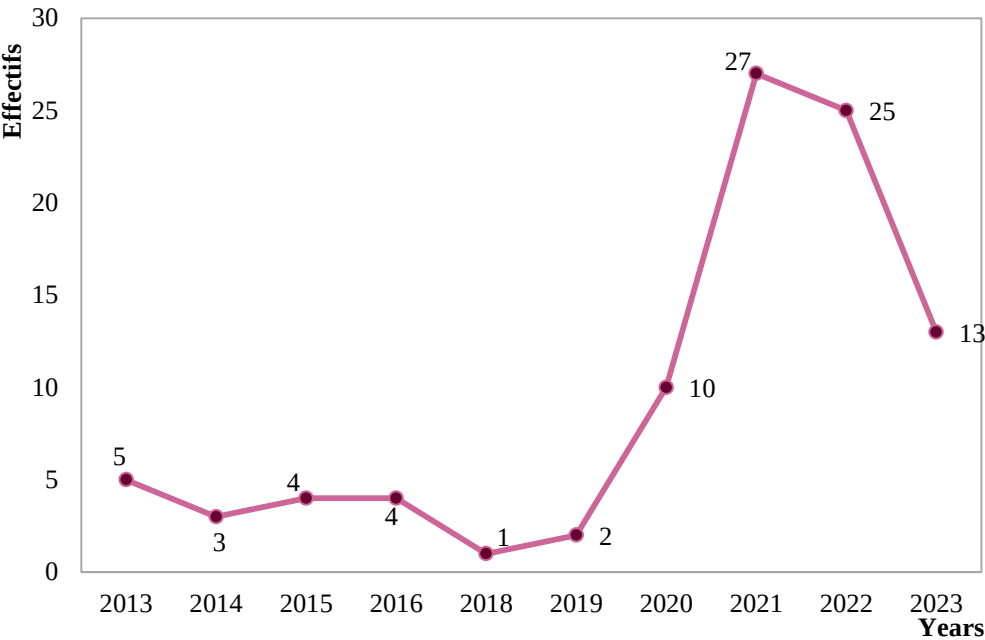


Figure 1: Distribution of patients according to the frequency of hospital admissions for iatrogenic urogenital fistulas of gynecological and obstetric origin at CUUA of CNHU-HKM in Cotonou from 2013 to 2023

The average age of patients was 37.05 years, with extremes of 18 years and 71 years. The age groups 25-35 years and 35-45 years were predominantly represented, with respective rates of 40.42% and 36.17%.

Occupation and Marital Status

The study population was predominantly composed of traders (24.47%) and farmers (23.40%). Nearly half of the study population, 60.64%, was in a relationship.

Educational Level and Financial Resources

43.62% of the women in this study were uneducated, and they had limited financial resources (48.94%). Table VI presents the distribution of women according to their educational level and financial resources.

	n	%
Educational Level		
None	41	43,62
Primary	10	10,64
Secondary	4	4,26
Higher	2	2,13
Not Specified	37	39,36
Financial Resources		
Low	46	48,94
Satisfactory	6	6,38
Not Specified	42	44,68

Source of Funding

The majority of women were treated during obstetric fistula surgical missions funded by the Claudine TALON Foundation, representing 68.08% of cases.

Diagnostic Aspects of Urological Complications**Causal Intervention**

Cesarean sections and hysterectomies were the most frequently associated interventions in our study, representing 54.26% and 25.53%, respectively. Table VIII: Distribution of interventions leading to iatrogenic urogenital fistulas of gynecological and obstetric origin at CUUA of CNHU-HKM in Cotonou from 2013 to 2023

Surgery	n	%
Cesarean Section	51	54,26
Hysterectomy	24	25,53
Extended Colpohysterectomy	1	1,06
Vaginal Delivery	18	19,15
Total	94	100,00

Delay in Seeking Care for Urogenital Fistula Management

In the majority of cases, women sought care for iatrogenic urogenital fistulas of gynecological and obstetric origin late. Indeed, 37.23% of them presented for care after a delay of over 2 years.

Table IX: Distribution by delay in seeking care for women with iatrogenic urogenital fistulas of gynecological and obstetric origin at CUUA of CNHU-HKM in Cotonou from 2013 to 2023

Month	n	%
<1 Month	9	9,57
1-3 Months	13	13,83
3-6 Months	14	14,89
6-12 Months	13	13,83
12-24 Months	10	10,64
>24 Months	35	37,23
Total	94	100,00

Context of the Causal Intervention

The majority of women were managed in an emergency gynecological-obstetric context (52.13%). Table X presents the distribution of patients according to the type of management.

Table X: Distribution of patients according to the context of the causal intervention of the urogenital fistula of gynecological and obstetric origin at CUUA of CNHU-HKM in Cotonou from 2013 to 2023

Causal intervention	n	%
Emergency	49	52,13
Scheduled Surgery	20	21,28
Not Specified	25	26,60
Total	94	100,00

Medical History

The majority of women had no medical history (82.98%).

Parity

The majority of women were multiparous (68.09%).

Reasons for Admission and Secondary Complications

The most common reason for admission was urinary leakage through the vagina (72.34%). Secondary complications were absent in 92.55% of cases.

Type of Urogenital Fistula Observed

Figure 6 illustrates the distribution of women with lesions associated with iatrogenic urogenital fistulas of gynecological and obstetric origin.

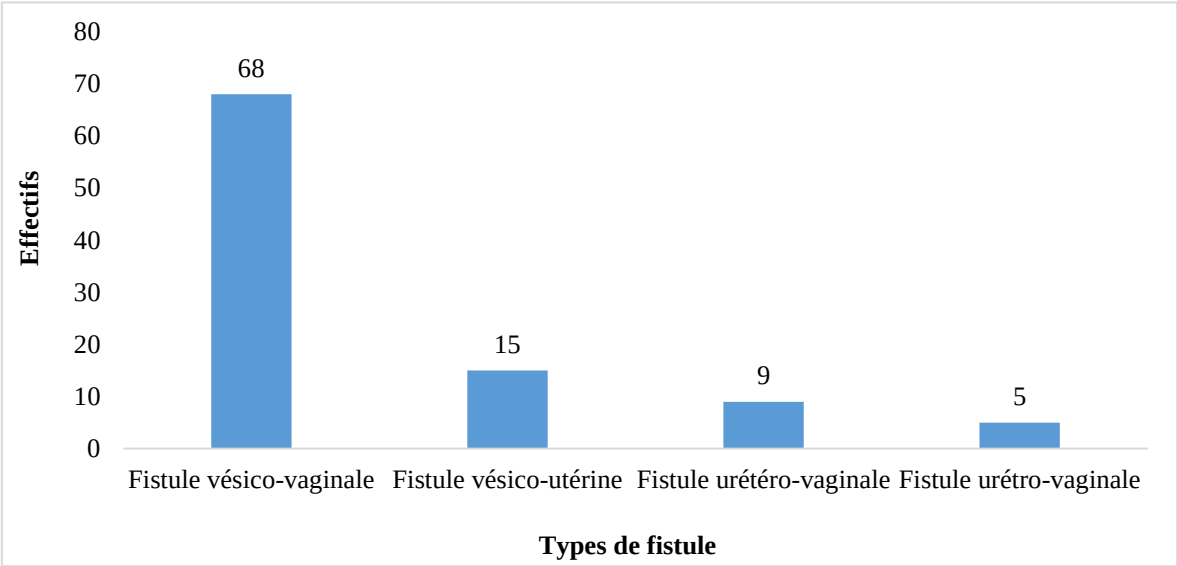


Figure 6: Distribution by type of fistula among patients with lesions associated with iatrogenic urogenital fistulas of gynecological and obstetric origin at CUUA of CNHU-HKM in Cotonou from 2013 to 2023

Type of Urological Lesions Associated with Iatrogenic Urogenital Fistulas of Gynecological and Obstetric Origin

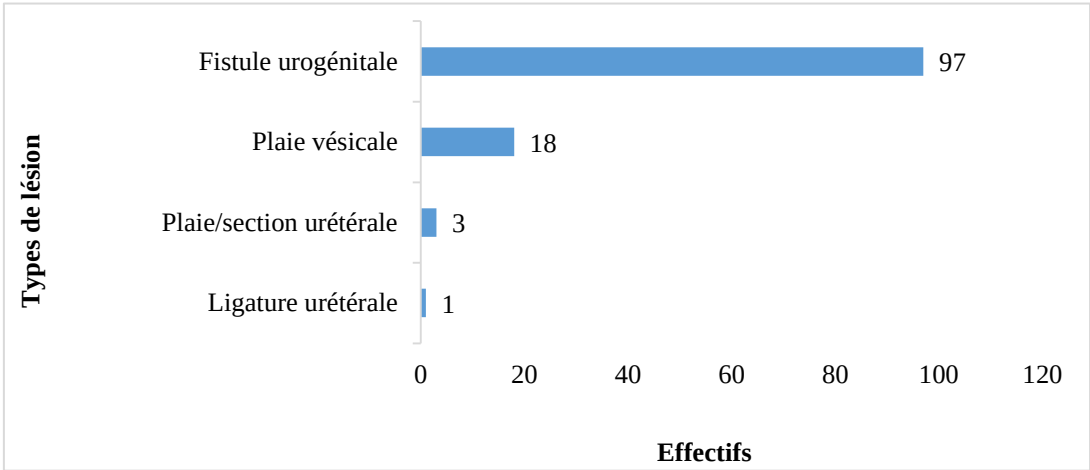


Figure 7: Overall distribution of types of urological lesions associated with iatrogenic urogenital fistulas of gynecological and obstetric origin at CUUA of CNHU-HKM in Cotonou from 2013 to 2023

Paraclinical Aspects

Medical Imaging

Intravenous urography and pelvic ultrasound were the most frequently performed examinations. However, the majority of women did not undergo medical imaging (85.11%). Table XVI presents the distribution of women according to the types of medical imaging performed.

Table XVI: Distribution by types of imaging conducted for women with iatrogenic urogenital fistulas of gynecological and obstetric origin at CUUA of CNHU-HKM in Cotonou from 2013 to 2023

Type of imaging	n	%
Intravenous Urography	6	6,38
Pelvic Ultrasound	5	5,32
Uro-CT Scan	3	3.19
None	80	85,11
Total	94	100,00

Therapeutic Aspects of Complications

Type of Urological Intervention

The most frequently performed reparative interventions were fistula repairs through the vaginal approach (47.87%) and the abdominal approach (41.48%). Other interventions included ureteral plications (2.13%), urethroplasties (2.13%), and perineoplasties (2.13%). Figure 8 illustrates the distribution of women by type of urological surgery they received.

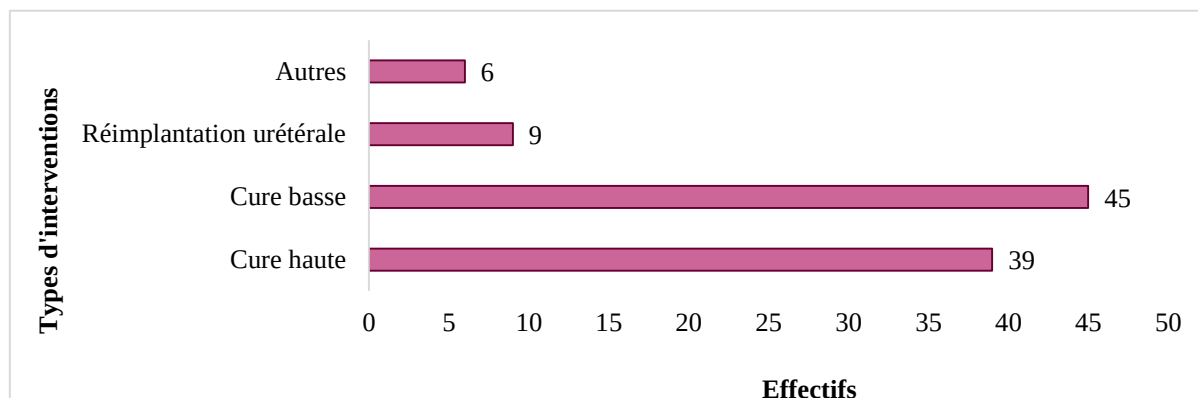


Figure 8: Distribution by types of interventions performed for the treatment of iatrogenic urogenital fistulas of gynecological and obstetric origin at CUUA of CNHU-HKM in Cotonou from 2013 to 2023

Evolutionary Aspects

Postoperative Outcomes

In 75.47% of cases, postoperative outcomes were straightforward, while 24.47% of cases presented complications.

Types of Complications Occurring in Women Treated for Iatrogenic Urogenital Fistulas of Gynecological and Obstetric Origin

The most frequently observed postoperative complications were urinary infections (12.77%) and recurrences (4.25%). Figure 10 presents the distribution of different types of postoperative complications among the affected women.

Repair Effectiveness

Almost all repairs performed on the affected women were successful, with a success rate of 87.23%. Figure 11 presents the distribution of women according to the effectiveness of the repair, distinguishing between successful and unsuccessful cases.

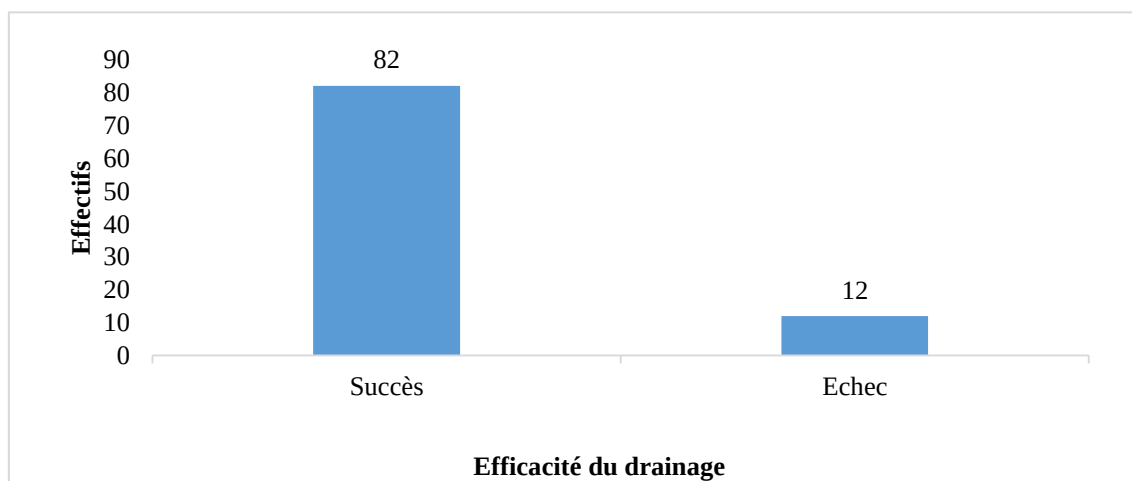


Figure 11: Effectiveness of repair for women treated for iatrogenic urogenital fistulas of gynecological and obstetric origin at CUUA of CNHU-HKM in Cotonou from 2013 to 2023

Satisfaction with Urological Treatment

Satisfaction with urinary function and the quality of urological care was good for 76.67% of patients. No patient rated her urinary outcome or care as poor. The following figure illustrates the distribution of reachable women who assessed the urological treatment they received.

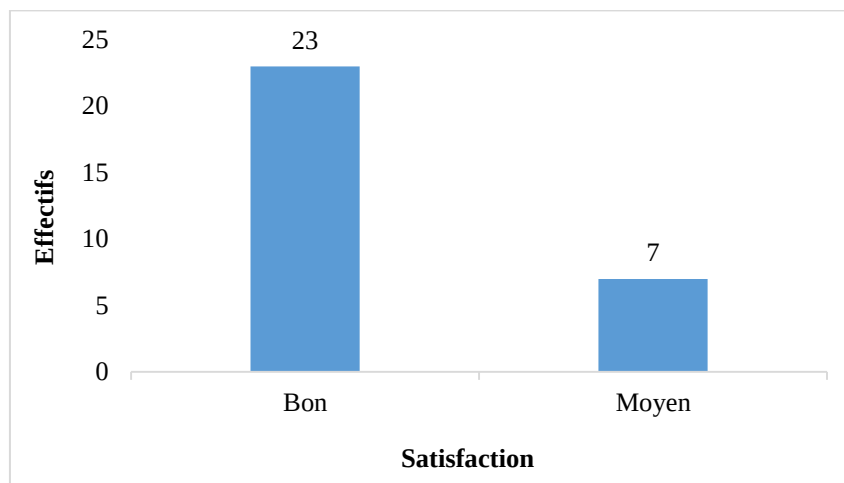


Figure 12: Distribution of the evaluation by phone call of satisfaction with the treatment received by women treated at CUUA of CNHU-HKM in Cotonou from 2013 to 2023

Treatment Cost

Patients assessed the cost of treatment as manageable (29.79%). Figure 13 presents the distribution of patients according to their evaluation of the treatment cost.

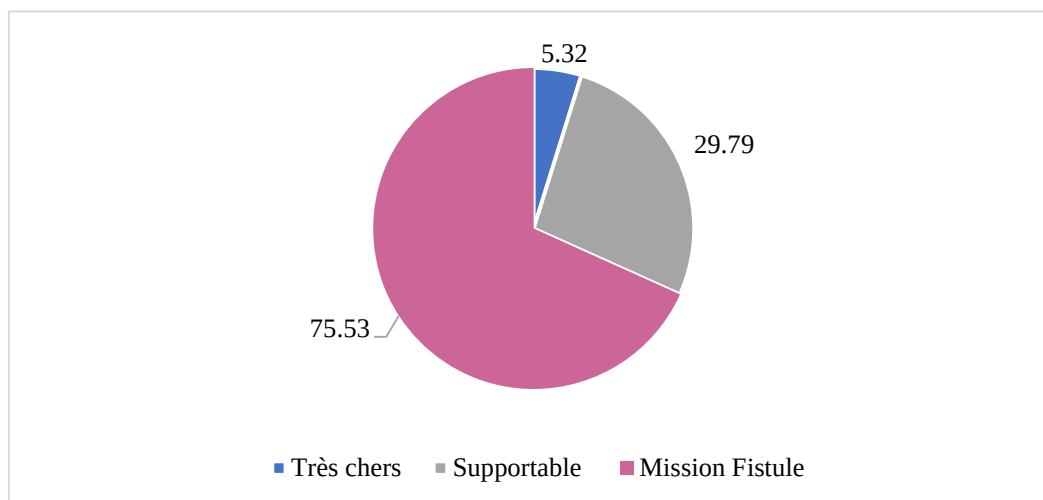


Figure 13: Distribution by evaluation of the cost of treatment received by women treated for iatrogenic urogenital fistulas of gynecological and obstetric origin at CUUA of CNHU-HKM in Cotonou from 2013 to 2023

DISCUSSION

Epidemiological Aspects

Age

The average age of patients was 37.50 years, with a range from 18 to 71 years. The most represented age group was 25-35 years (40.42%), followed by 35-45 years (36.17%). These findings are comparable to those of Diallo et al., who found an average age of 34.9 years with a range from 15 to 62 years [3]. In contrast, Nsambi et al. observed a younger average age of 23.20 years, with a range from 13 to 51 years, and a high prevalence in the 20-24 year age group (29.3%) [4]. Iatrogenic urogenital fistulas of gynecological and obstetric origin are thus frequently observed in women of childbearing age, though some cases are also recorded in younger or older women.

Occupation and Marital Status

Occupations were dominated by traders (24.47%), farmers (23.40%), and housewives (17.02%). The majority of women in the

study were in a relationship (60.64%). These results contrast with those observed by Kaboré et al., who found that 90.5% of women were housewives in Burkina Faso [2].

As childbirth typically occurs within a couple, women suffering from urogenital fistulas often face marginalization and rejection from their partners and surroundings. Progress made in mitigating this situation can be attributed to the ongoing efforts of various foundations and non-governmental organizations working to reduce stigma and promote the social and professional reintegration of these women who have lost their dignity through childbirth.

Educational Level and Financial Resources

Most patients had a low level of education, with 43.62% being uneducated. This result is lower compared to Kimassoum et al., where 91.6% of patients were uneducated, and Diarra, with 83.9% [5, 6]. Regarding income, 48.94% of patients had a low overall income, a percentage similar to that reported by Massandé et al.,

who had 71.0% of patients with low income [7]. Urogenital fistulas are often linked to low educational levels and precarious financial situations. Illiteracy and economic dependency contribute to delays in accessing quality care during pregnancy and childbirth. Less educated women are more likely to neglect regular prenatal care, often due to a lack of understanding of the importance of specialized care. These complications primarily affect disadvantaged women with modest incomes, limiting their access to specialized care centers.

Diagnostic Aspects of Urological Complications

Causal Interventions

Delay in Seeking Care

The delay in seeking care was more than 2 years in the majority of cases. This trend observed in our study may be explained by the fear of treatment costs, which leads patients to avoid healthcare facilities. However, these same patients are willing to undergo surgical intervention when offered free treatment. In addition to financial concerns, a misunderstanding of the signs of fistulas, often mistakenly perceived as divine curses, leads them to participate in cultural and religious practices that unfortunately have no beneficial impact.

Admission Motives and Secondary Complications

The primary reason for admission was urinary leakage through the vagina (72.34%), followed by urinary incontinence (22.34%).

Types of Urogenital Fistulas

In this study, iatrogenic urogenital fistulas of gynecological and obstetric origin were primarily secondary to cesarean sections (54.26%), followed by hysterectomies (25.53%) and vaginal deliveries (19.15%). These results are similar to those of Bencheikroun et al., who also observed a predominance of cesarean sections (76.67%) [26]. In contrast, Massandé et al. in Gabon found the opposite results: vaginal deliveries were the main cause in 67.7% of cases, followed by cesarean sections at 32.3% [7]. Similarly, Guirassy et al. in Guinea Conakry reported that vaginal deliveries predominated at 97.23% [8]. Conversely, Hilton et al. in the UK identified hysterectomy as the primary cause of iatrogenic urogenital fistulas [9]. These fistulas typically manifest in an emergency context related to interventions such as cesarean sections, vaginal deliveries, and hysterectomies, and are associated with various risk factors, including delays in seeking care, lack of prenatal follow-up, and socio-cultural ideals.

In this study, iatrogenic urogenital fistulas of gynecological and obstetric origin were predominantly vesicovaginal fistulas (72.34%), followed by vesicouterine (15.95%), ureterovaginal (9.57%), and urethrovaginal (5.31%) fistulas. These results align with those of Nsambi et al., who found a high prevalence of 96.3% for vesicovaginal fistulas [4]. The increased prevalence of vesicovaginal fistulas compared to other types may be attributed to more frequent compression of the anterior vaginal wall by the fetal head, leading to more marked ischemia of the bladder compared to the rectum. Moreover, ureterovaginal fistulas are rare, as corroborated by Tazi et al. in Morocco, who recorded 12 cases of vesicouterine fistulas compared to 116 cases of vesicovaginal fistulas over a decade [10]. Ureterovaginal fistulas are primarily associated with ureteral ligation during hysterectomy, while vesicouterine fistulas frequently occur after cesarean sections.

These findings underscore the diversity of origins for iatrogenic urogenital fistulas and highlight the importance of understanding the specific mechanisms of each type of fistula within the gynecological and obstetric context.

Therapeutic Aspects of Urological Complications

Types of Urological Interventions

The therapeutic management of patients involved fistula repairs via vaginal approach (47.87%) and abdominal approach (41.48%). In contrast, Diallo et al. in Senegal performed vaginal repairs in 89.20% of cases and abdominal repairs in 7.20% of cases [3]. Similarly, Massandé et al. observed that vaginal repairs represented 93.6% of interventions [7]. In this study, the majority of diagnosed iatrogenic urogenital fistulas were repaired via vaginal approach. Although this approach is commonly used, it is important to note that abdominal access should be preferred for high fistulas and when simultaneous treatment of associated pelvic lesions is necessary [11]. The management of urogenital fistulas still prompts debate, despite numerous studies available. Some authors recommend prolonged bladder drainage, while others advocate for aspirative drainage to accelerate the closure of the breach [12]. Regardless of the chosen approach, the goal remains to ensure adequate exposure for effective fistula closure.

Repair Effectiveness and Number of Repair Interventions

The intervention was successful in 87.23% of cases, with a recurrence rate of 4.25%, while 12.77% of interventions resulted in failure. These results are comparable to those of Diallo et al., who reported a success rate of 91.89% [3]. Regarding procedures, the majority of patients (89.36%) received a single repair intervention, while only 10.64% required multiple interventions. This trend contrasts with the study by Ayaz et al., where 45.9% of cases required multiple operations [13]. The prognosis of reparative surgeries is generally favorable, provided the repair is performed by an experienced surgeon.

In this study, the occurrence of iatrogenic urogenital fistulas is associated with a low financial income, an observation corroborated by several studies, including those by Massandé et al. in Gabon and Paluku et al. in Congo [7, 14]. Obstetric fistulas are now widely linked to poverty and inadequate organization of reproductive health services. Generally, in these countries, women face an increased risk of obstetric complications, such as urogenital fistulas, due to difficulties in accessing urgent and quality obstetric care [2]. Other factors also contribute to obstetric fistulas, including poverty, malnutrition, insufficient healthcare systems, defective health policies sometimes requiring pre-payment before accessing care, inadequate distribution of medical training and healthcare professionals, lack of specialized birth attendants, absence of access to sexual and reproductive health services (family planning, prenatal care, skilled birth assistance, and emergency obstetric care), dangerous traditional practices, gender inequalities, insecurity, and often precarious economic situations [14].

CONCLUSION

Iatrogenic urogenital fistulas of gynecological and obstetric origin are unfortunately common and typically affect young women of childbearing age. They often occur following cesarean sections, hysterectomies, or vaginal deliveries. A concerning aspect of this issue is the delayed seeking of care by these women, who are often multiparous with a scarred uterus. Addressing these challenges

requires a comprehensive approach that includes improving education, enhancing access to care, and addressing socio-economic barriers.

Conflict of interest: None

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