

Female Genital Fistulas of Iatrogenic Origin: Epidemiological, Diagnostic and Therapeutic Aspects

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Abstract

Original Research Article

Introduction: Genital fistulas communicate an element of the urinary system and an element of the genital system. They are a major public health problem. Our study took place at the National Reference Center for Obstetric Fistulas (CNRFO). **Methodology:** This was a retrospective and descriptive study covering a two-year period from January 1, 2023 to December 31, 2024. **Results:** A total of 23 cases of genital fistulas of iatrogenic origin were collected. The average age was 36.69 years. The most common genital fistula etiology was hysterectomy in 69.6% of cases. The main reason for consultation was dominated by urinary leakage through the vagina in 87% of cases. All patients had benefited from a standard biological check-up in 100% of the cases each. With 54.5% of cases, the low track was the most realized. Fistulorraphy was the most practiced technical gesture, 59% of cases. The evolution was favorable in 95.7% of cases. **Conclusion:** Genital fistulas of iatrogenic origin are becoming a relatively common complication of cesarean section and hysterectomy in developing countries including Niger. Its eradication must go through prevention, training in surgery based on the acquisition of sustainable skills.

Keywords: Genital Fistulas, Iatrogene.

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INTRODUCTION

Obstetric fistula is a pathology that generally affects women and their maternal health, particularly sexual and reproductive health. It results from the risks of prolonged childbirth and reinforces social health inequalities (A. Desrumaux, 2013, p. 6). Obstetric fistula is an abnormal and direct communication acquired between the urinary tract (bladder, ureter, urethra) and genital and/or digestive tract with involuntary and permanent loss of urine and/or fecal matter by the vagina occurring after a laborious and dystocic delivery. [1,2] These fistulas have a very embarrassing and shameful symptomatology, serious due to the extent of the anatomical lesions and their age. The circumstances of occurrence and their impact vary according to the degree of medical development from one country to another [1]. According to the WHO, there are an estimated 2 million cases of genital fistula worldwide and 50,000 to 100,000 new cases each year, the majority of which are recorded in sub-Saharan Africa and Southeast Asia. [2]. In parallel with the multiple publications on the extent of obstetric

genital fistulas in developing countries, the incidence of iatrogenic genital fistulas is only growing due to surgical interventions on female genital organs or manipulation of obstetric instruments. These iatrogenic genital fistulas are due to a set of factors, including insufficient obstetric and medical supervision and training, inappropriate decision-making and delivery management, an increase in the number of caesarean sections and hysterectomies. [3,4]. Since Niger is a developing country, the vast majority of women who develop genital fistulas of iatrogenic origin have undergone surgical procedures such as hemostasis hysterectomies or for precancerous lesions of the cervix; caesarean sections. According to a study conducted in 2016 over 5 years in Niger, genital fistulas of iatrogenic origin represent 9.9% of cases. [5]. The main objective is to study the epidemiological, diagnostic and therapeutic aspects of the female genital fistula of iatrogenic origin.

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METHODOLOGY

Study framework

Our study was carried out at the National Reference Center for Obstetric Fistulas (CNRFO) in Niamey.

Type and period of study

This was a retrospective and descriptive study covering a two-year period from January 1, 2023 to December 31, 2024.

Study population

Our study focused on all women followed for genital fistula of iatrogenic origin regardless of their age.

Inclusion criteria

All women followed for genital fistula of indisputable iatrogenic origin, identified from January 2023 to December 2024, were included in our study.

Non-inclusion criteria

Have not been selected:

- women with congenital, obstetric genital fistulas occurring after 12 hours of work (non-iatrogenic)
- women with accidental injuries by caustic products or pelvic radiation
- Cases of incomplete files.

Data collection and analysis:

The data were collected on a pre-established survey form. The sources of the data were: Consultation records, patient records, patient follow-up books.

RESULTS

Epidemiological aspects

Frequency

During the study period from January 01, 2023 to December 31, 2024, 332 patients were admitted to the CRNFO for genital fistula, including 23 cases of genital fistula of iatrogenic origin, with a frequency of 6.92% and an average of 11.5 cases/year.

Table n° 1: Distribution of patients by age group

Age group (years)	Staff	Percentage (%)
[20 - 30[	7	30,43
[30 - 40[	3	13,04
[40 - 50[	9	39,13
≥ 50	4	17,39
Total	23	100

The average age of our patients was 36.69 years with extremes of 20 years and 53 years with a standard

deviation of 11.09. However, the most affected age group was 40 to 50 years.

Table n° 2: Distribution of patients according to their surgical history

Surgical history	Staff	Percentage (%)
Bladder lithiasis cure	1	4,34
Caesarian	3	13,04
Caesarean section/ hysterectomy	5	21,73
Hysterectomy	10	43,5
Hysterectomy + hernia cure	1	4,34
Nothing	3	13,04
Total	23	100

Ten (10) of our patients or 43.5% had a history of hysterectomy

Table n° 3: Distribution of patients according to fistula etiology

Etiology of the fistula	staff	Percentage (%)
Hysterectomy	15	65
Lithiasis cure	1	4
Forceps	1	4
Episiotomy	2	8
Cystoceles cure	1	4
Caesarian	3	13
Total	23	100

Hysterectomy was the etiology responsible for iatrogenic fistulas in our patients and represents 65.2%.

Diagnostic Aspects**Table n° 4: Distribution of patients according to the result of the clinical examination**

Physical examination	Staff	Percentage (%)
Urinary leakage	20	87
Vulvar fecal matter	3	13
Steppage	3	13
Tear of the perineum	3	13
Vulvar dermatological lesion	5	21,7
Rupture of the anal sphincter	2	8,7
Rectocèle	1	4,3

On physical examination, our patients had urinary leakage in 87%

Table n° 5: Distribution according to the methylene blue test**Tableau n° 5: Distribution according to the methylene blue test**

Methylene blue test	staff	Percentage (%)
Positive	11	47,82
Négative	9	39,13
Not realized	3	13,04
Total	23	100

The methylene blue test is positive in 47.82% of our patients

Table n° 6: Distribution according to paraclinical examinations (imaging)

Paraclinical examination	Staff	Percentage (%)
Uroscanner	1	4,34
Abdominopelvic Ultrasound	7	30,43
Not realized	15	65,21
Total	23	100

Only one (1) patient did the uroscanner which shows an abnormal passage of the PC

Seven (7) of our patients had the abdominal-pelvic ultrasound that shows the dilation of the ureters with hydronephrosis

Therapeutic aspects**Table n° 7: Distribution of patients according to their hygienic-dietary measure**

Hygienic-dietetic measurement	staff	Percentage (%)
Protein diet	20	87
Residue-free diet	3	13
Total	23	100

All our patients were under good hydration. With a diet rich in protein except patients who have rectovaginal fistulas (3) who were on a residue-free diet.

Table n° 8: Distribution of patients according to their drug treatments before surgery

Drug treatment before surgery	Staff	Percentage (%)
Nothing	3	13
Antibiotic	5	21,7
Anti-inflammatory	5	21,7
Antispasmodic	2	8,7
Anti-hypertensive	4	17,4
Antiretroviral	3	13
Iron	1	4,3
Total	23	100

The majority of our patients (21.7%) were on antibiotics (amoxicillin, metronidazole) and 21.7% on anti-inflammatory drugs (diclofenac).

Table n° 9: Distribution by track first

Way first	staff	Percentage (%)
Bass	12	54,5
Smash	9	41
Mixed	1	4,5
Total	22	100

The lower route was the most used (54.5%) and only one (01) patient was operated on by the mixed route.

Table n° 10: Distribution of patients according to technical gestures

Technical gesture	staff	Percentage (%)
Uretero-bladder reimplantation	10	41
Fistulorrhaphy	13	59
Total	22	100

Fistulorrhaphy was the most used technical gesture and represents 59%

Table n° 11: Distribution of gestures associated with the fistula cure

Associated gestures	staff	Percentage (%)
Reconstruction of the anal canal	1	33,3
Cystoceles cure	1	33,3
Evistiration cure	1	33,3
Total	3	100

The associated gestures during the fistula cure were the reconstruction of the anal canal, the cystocele and eviction cure.

Result of surgical treatment

Table n° 12: Distribution of patients according to the result of surgical treatment

Result of surgical tr	staff	Percentage (%)
Closed and dried fistula	21	95,5
Closed fistula with urinary incontinence	0	0
Residual fistula	0	0
Failure	0	0
Deceased	1	4,5
Total	22	100

After surgical treatment 21 of our patients (95.5%) had closed and dried fistulas. One (01) of the patients had died postoperatively.

occurrence of his lesions. And in our context, the majority of our patients had hysterectomies for uterine rupture.

DISCUSSION

During our study period (2 years), the frequency of genital fistulas of iatrogenic origin is 6.92%, an average of 11.5 cases per year. Our result is higher than that of Idi. N [6] which is 4.71% over 5 years with an annual average of 7 cases. This is explained by the fact that over the years women undergo more surgical, gynecological procedures with the prevention for the detection of cancerous lesions and also during obstetric procedures. In our study, the average age is 36.69 years with extremes of 20 and 53 years. The most worrying age group is between 40 and 49 years or 39.13% of our patients. Idi.N [6] in Niger in 2020 and Kaboré FA [22] in Burkina Faso in 2014 report an average age similar to our study which is 35 years. Cute. A. [7] in Côte d'Ivoire in 2021 and Bouya [8] in Brazaville in 2011 report a series of elderly patients with an average age of 42 years and 46.2 years respectively. The difference in average age could be explained by the circumstances of the

The current trend in developing countries is the increase in the number of cases of iatrogenic fistula with the multiplication of surgical procedures, access to health centers for the detection of precancerous cervical lesions in women and especially the number of operators who do not always have the required skills and experience. In our study, the most common etiology is hysterectomy in 65.2% of cases and cesarean section in 13% of cases. Farih [9] in 2018 in Morocco reports 7 hysterectomies and 5 cesarean sections. Odezebe [10] at the Brazzaville University Hospital reports (32.35%) of cesarean section and (17.64%) of hysterectomies.

During our study, the main reason for consultation is dominated by the loss of urine through the vagina in 87% of cases. Our result is comparatively higher than that of Sangaré D. [11] in 2013 in Mali and that of Dembélé DI. [12] in 2010 in Mali which report respectively 78.3% and 69% of urine loss through the vagina. The delay between the date of onset of signs and

the consultation (age of the fistula) of the majority of our patients is less than 3 months or 56.5%. Coulibaly M[13] reports a rate of 60% in one year. Sarr[14] in Senegal reports a delay of 13.5 ± 18 months. This rate is explained by the impact of raising awareness of the population on free of charge and the availability of fistula care. The methylene blue test is performed in 86.95% and is positive in 47.82% of cases

With regard to biology, all patients had benefited from a biological check-up made of blood count, grouping, kidney function, blood glucose and serological assessment in 100% of cases each. Complementary examinations are performed in 34.8% of our patients and this rate is 10% in 2005 in the DRC [15]; these different examinations were carried out to confirm the diagnosis of fistula and/or assess the impact of the disease on the rest of the urogenital tract. In our series, the various diagnoses were confirmed at the gynecological examination, the methylene blue test, the uroscanner and the abdominal-pelvic ultrasound. Singh V *et al*. [16] report a similar experience based on clinical signs and cysto-hysteroscopy. Late diagnosed, uretero-vaginal fistulas are manifested by intermittent urine leakage with preserved urination, isolated low back pain or acute pyelonephritis.

In our study all our patients benefited from a protein-rich diet except those who have recto-vaginal fistulas that were on a residue-free diet; good hydration and intimate toilets at least 3 times/day. Antibiotic prophylaxis is provided by a second-generation cephalosporin or an aminoglycoside-imidazole combination. 21.7% of our patients were on antibiotics and 21.7% on anti-inflammatory drugs.

The lower route is indicated for uretero-vaginal, vesicovaginal and recto-vaginal fistulas.

In our series, the most used first surgical route is the lower route with a rate of 54.5%. Our result is similar to that of Ouattara and Col [17] in Bamako and Coulibaly [13] in Ségou which reports 53.7% and 48.6% respectively. But ureteral and uretero-vaginal fistulas have been approached through the upper route and represent 41% of cases.

Fistulorrhaphy is the most practiced surgical technique with a rate of 59% (13 cases), followed by uretero-vesical reimplantation 41% (9 cases). Our study is comparable to that of Idi. N[6] which reports 18 cases (51.42%) of uretero-vesical reimplantation and 12 cases (34.28%) of fistulorrhaphy. Fofana. A [7] reports 64.71% of uretero-bladder reimplantation. Manconi [18] reports 3 cases of terminal anastomosis, 2 cases of ureteral reimplantation and a pseudo bladder. This difference is explained by the fact that the majority of our patients have more cases of vesico-vaginal (supravaginal) fistulas. In our series, the success rate of bladder sample treatment of fistulas is 4.3% (1 case). The rate of surgical

treatment is 95, .5% for closed and dried fistulas in our study.

The overall rate of closed and dry fistula by surgery and bladder probe of our patients is 95.7% (22 cases) and 1 case (4.3%) of death. Our study is comparable to that of Idi.N[6] which reports 29 cases (82.87%) of closed and dry fistula; 4 cases (11.43%) of closed and dry with probe; 1 case (2.85%) of closed with incontinence and 1 case (2.85%) of failure.

CONCLUSION

The female genital fistula is a morbidity but not a vital danger. This is a major public health problem in Niger. Our study concerns 23 cases of genital fistula of iatrogenic origin in 2 years treated. These are pelvic surgical complications (obstetric, gynecological, urological surgery) and the use of gynecological instruments (forceps, suction cup, episiotomy). Better knowledge of the relative modification of the female genital anatomy can improve pelvic surgery. Surgical techniques and instrumental manipulations can prevent iatrogenic fistula. The result of the treatment is almost excellent when done by trained and qualified surgeons. Particular emphasis should be placed on their prevention through training in surgery based on the acquisition of sustainable skills to avoid bladder and especially ureteral lesions during cesarean sections and hysterectomies.

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