

Obstetric Perineal Morbidity After Clitoral Re-exposure (CR) in Patients Who Have Undergone Genital Mutilation: A Retrospective Study

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Abstract: *Background:* Female genital mutilation is a real public health problem in developing countries. the consequences of this practice are sometimes obstetric and are responsible for high maternal and perinatal mortality. *Objective:* To analyse the effect of clitoral re-exposure surgery in patients who have undergone female genital mutilation on obstetric perineal complications. *Material and methods:* This is a retrospective cohort study, exposed - unexposed, multi-centric, carried out in two university hospitals in Ouagadougou, Burkina Faso: Yalgado-Ouédraogo and Bogodogo. We studied the first delivery of patients operated on for CR (exposed) between March 2006 and March 2019 (over 13 years), compared with a group of unexposed women (victims of unreconstructed FGM). A ratio of two unexposed women to one exposed woman was used. The two groups were comparable according to the matching criteria. *Results:* We included 44 patients who had given birth after CR and 88 non-operated (unexposed) patients. Patients who had undergone FGM had more perineal lesions during childbirth than patients who had undergone CR. In fact, women not operated on for CR were 2 times more likely to suffer a perineal tear than women operated on for CR (RR = 1.93; 95% CI (1.22-3.07); p = 0.005). The same applies to episiotomy, for which women not operated on for CR were 2.62 times more likely to undergo than women operated on for CR (RR=2.62; 95% CI (1.60-4.28), p=0.000). *Conclusion:* Clitoral re-exposure is associated with better obstetric perineal adaptation.

Keywords: Clitoral Re-exposure, Perineal Morbidity, CHU-YO, CHU-B, Burkina Faso

1. Introduction

Female genital mutilation (FGM) refers to any procedure resulting in partial or total removal of a woman's external genitalia (EGU) or any other mutilation of the EGU for non-medical purposes [1, 8, 9] FGM is internationally recognised as a violation of human rights [1]. Excision is one of the most widespread forms of FGM, affecting 200 million women worldwide, including 2 million each year, mainly in sub-Saharan Africa [1, 5]. The practice of excision is a social norm, underpinned by economic, cultural, religious and

moral causes, and deeply rooted in many regions of the world [1-4]. The countries most affected are Egypt, Indonesia, Mali, Somalia, North Sudan, Burkina Faso, Sierra Leone and Guinea [1, 6]. These enduring practices have led some countries to medicalise excision, a move denounced by the World Health Organisation (WHO) [1, 6, 7]. The consequences of FGM are numerous and disastrous (hemorrhage, pain, sepsis, dysuria, dyspareunia, obstetric complications, maternal and neonatal death).

Clitoral reconstruction surgery for FGM patients was developed by P Foldes and then adapted by S Madzou and CMR Ouedraogo and some other authors [3, 12, 13, 14, 15, 17, 27, 28, 38, 29, 45]. It involves identifying and anatomically repositioning the clitoral stump after resection of the scar tissue. Since 2006, annual reconstructive surgery campaigns for FGM patients have been organised in Burkina Faso, with the aim of "restoring" physical integrity, limiting obstetric complications and improving sexual discomfort.

A recent French study showed that clitoral reconstruction surgery in cases of FGM improved maternal obstetrical prognosis by reducing the risk of perineal tearing and reducing the risk of having to have an episiotomy during vaginal delivery [22, 23, 24, 32, 33, 38]. As access to care and perinatal morbidity may differ in Europe and in the sub-Saharan African countries most affected by FGM, the main objective of our study was to compare maternal and neonatal obstetric morbidity in FGM patients who had undergone CR with that in FGM patients who had not undergone CR in Burkina Faso.

2. Materials and Methods

2.1. Study Population and Type of Study

We conducted a retrospective cohort study of exposed and unexposed FGM patients who had or had not undergone bi-centric reconstructive surgery in the maternity wards of the Yalgado Ouédraogo and Bogodogo University Hospitals in Burkina Faso between 2006 and 2020. Patients were informed of the objectives of the study and their oral consent was obtained.

We included women with FGM who had undergone reconstructive surgery, who responded to our call to include them, and who had given birth after reconstructive surgery. These women constituted the "exposed" group. Exclusion criteria included: no response, history of multiple caesarean sections (>1), indication for scheduled caesarean section for maternal or fetal reasons, pregnancy complicated by fetal death in utero and when the type of FGM was not recorded in the file. Women in the 'unexposed' group were FGM victims who had not undergone reconstructive surgery, had already given birth and were matched to women in the 'exposed' group according to the following criteria: period of delivery, place of delivery (Yalgado or Bogodogo University Hospital), parity, previous caesarean section, type of FGM.

2.2. Diagnosis of Type of FGM

The diagnosis and type of FGM were defined after a clinical examination by an obstetrician with expertise in FGM, following WHO recommendations (reference and table).

2.3. Clitoral Reconstruction

According to the procedure described by S. Madzou (ref.), it consists of a modification of the surgical technique initially

developed by Doctor Pierre FOLDES (2004, 2006a, b). It is performed under general or locoregional anaesthetic. After resection of the scar, the knee and then the body of the clitoris are freed, preserving the innervation. A clitoral neogland is reconstructed using wedge-shaped plasty, then re-implanted in an anatomical position. Coverage and skin closure. The aim of the technique is to restore normal anatomy and obtain an organ that is normally innervated and, if possible, functional.

2.4. Perinatal Outcomes

Perinatal and neonatal outcomes were collected using a closed questionnaire, by rereading the health diaries of the patients included and by consulting the birth registers. Obstetrical outcomes included: progress of labour, presence or absence of perineal injury (with or without damage to the external sphincter of the anus), episiotomy, presence of postpartum hemorrhage. The neonatal data collected included the condition of the fetus at birth, the need for resuscitation at birth and the need for a stay in a neonatal unit.

2.5. Statistical Analysis

The data were exported and analysed using Stata. The first step was to describe the sample by giving the distributions of exposed and unexposed people according to the different independent variables. We used generalised linear mixed-effects models with the Poisson distribution (log fish) to measure the effect of clitoral reconstruction on perineal morbidity and immediate post-partum effects, adjusting for variables such as the woman's profession, the age of the pregnancy and the birth weight of the fetus. Apart from occupation (which was differently distributed in the two groups of women, making it necessary to add it to the model), these variables were chosen on the basis of a review of the literature which listed them as being important predictors of perineal tear. Other variables such as parity and excision after-effects were not added to the model because the women in the two groups were matched on these two variables. The significance level was 5%.

3. Results

3.1. Demographic Characteristics of the Population

During the study period, we managed to contact 158 of the 266 female victims of FGM who had undergone reconstructive surgery. Of these, 44/158 (27.8%) reported having given birth after reconstructive surgery and agreed to be included in our study. These patients were matched with 88 women who had undergone FGM, had not undergone reconstructive surgery and had already given birth.

The comparison of demographic characteristics between the "exposed" and "unexposed" groups is presented in Table 1.

Table 1. Characteristics of the women in the sample.

Clitoral re-exposure surgery for excised women				
	Yes (N=44)		No (N=88)	
	n	%	n	%
Women's religion				
- Christian	25	56.8	45	51.1
- Muslim	19	43.2	43	48.9
Woman's profession				
FAF	3	6.8	50	56.8
- Tradeswoman/Artisan	7	15.9	17	19.3
- Pupil/student	2	4.5	8	9.1
- Employed	32	72.8	13	14.8
Age at time of pregnancy				
- 17-24 years old	5	11.4	24	27.3
- 25-34 years old	25	56.8	56	63.6
- 35 and over	14	31.8	8	9.1
Number of gestures				
- First gesture	10	22.7	20	22.7
- Multi gesture	34	77.3	68	77.3
Parity				
- Primiparous	12	27.3	24	27.3
- Multiparous	32	72.7	64	72.7
History of caesarean section				
- Healthy uterus	39	88.6	78	88.6
- Single scar uterus	5	11.4	10	11.4
Type of excision				
- 1st degree	1	2.3	17	19.3
- 2nd-3rd degree	43	97.7	71	80.7
Number of ultrasounds				
- No ultrasound	1	2.3	17	19.3
- 1-2 ultrasounds	19	43.2	66	75.0
- 3-6 ultrasounds	24	54.5	5	5.7
Birth weight				
- Low birth weight	3	6.8	15	17.0
- Normal birth weight	41	93.2	73	83.0
Term of pregnancy (in SA)				
- Less than 37 SA	2	4.5	2	2.3
- 37 and over	42	95.5	86	97.7

Table 2. Association between clitoral re-exposure and the occurrence of perineal lesions and the practice of episiotomy among the women in the sample (univariate analysis).

	Number (percentage)	RR unadjusted	IC à 95%	p
Perineal tear				
- Women operated for CR	7 (15.9)	Ref		
- Women not operated for CR	34 (38.6)	1,93	(1.22-3.07)	0.005
Episiotomy				
- Women operated for CR	10 (22.7)	Ref		
- Women not operated for CR	50 (56.8)	2,62	(1.60-4.28)	0.000

3.3.2. Multivariate Analysis

Table 3 shows the association between clitoral re-exposure and the occurrence of perineal lesions and the practice of episiotomy among the women in the sample.

Table 3. Association between clitoral re-exposure and the occurrence of perineal lesions and the practice of episiotomy among the women in the sample (multivariate analysis).

	Adjusted RR *	IC à 95%	p
Perineal tear			
- Women operated for CR	Ref	--	
- Women not operated for CR	2.68	1.30-5,52	0.007

3.2. Description of Obstetric Perineal Morbidity in Patients Who Have Undergone Female Genital Mutilation

3.2.1. Frequency of Perineal Lesions

In the group of women not operated on for CR, 38.64% (n=34) suffered a perineal tear and 15.91% of women operated on for CR (n=7). The difference is significant with $p = 0.007812$.

Simple perineal tears (1st degree) were in the majority, with 71.43% in group 1 versus 61.76% in group 2, with no significant difference. There was only one case of complete and complicated tear (3rd degree) in group 2. However, the difference was significant for complete perineal tears (2nd degree) in both groups ($p = 0.01098$).

3.2.2. Frequency of Episiotomy

Episiotomy was performed more frequently in the group of women not operated on for CR (n=50 or 56.82%) than in the group of women operated on for CR (n=10 or 22.73%). The difference was significant with $p = 0.00020$.

3.3. Univariate and Multivariate Analyses of the Association Between CR and Perineal Complications

3.3.1. Univariate Analysis

After adjustment, we noted that women not operated on for CV had 2 times more risk of a perineal tear than women operated on for CV (RR = 1.93; 95% CI (1.22-3.07); $p = 0.005$). The same was true for episiotomy, for which women not operated on for CR were 2.62 times more likely to suffer than women operated on for CR (RR=2.62; 95% CI (1.60-4.28), $p=0.000$). Table 2 highlights the association between clitoral re-exposure and the occurrence of perineal lesions and the practice of episiotomy among the women in the sample.

	Adjusted RR *	IC à 95%	p
Episiotomy			
- Women operated for CR	Ref	--	
- Women not operated for CR	2.17	1.16-4,07	0.016

*: the RR was adjusted for the following variables: the woman's profession, the woman's age during pregnancy, the term of pregnancy and the child's birth weight.

4. Discussion

Our retrospective cohort study of exposed and unexposed women showed that FGM patients who had undergone reconstructive surgery had 3 times fewer perineal tears and

2.19 times fewer episiotomies during vaginal delivery than FGM patients who had not undergone reconstructive surgery. Neonatal outcomes were comparable between the two groups. This was the first study to examine obstetric outcomes after clitoral reconstruction in the context of FGM in Africa. The results of the comparison between the obstetrical experience of reconstructed and non-reconstructed excised women are similar to those of Madzou [43] and are in favour of a reduction in obstetrical perineal lesions and the practice of episiotomies in women who have undergone CR. The increase in the size of the population and the fact that the study was carried out in 02 maternity hospitals in Burkina Faso will improve the significance and external validity of our study.

Catania L. J. et al and Abdulkadir J. deplore the lack of evidence on the benefits offered by reconstruction with regard to sexuality, and express reservations as to its value [41, 42]. His main criticisms are the small numbers involved in the various studies and the absence of a control group. This position is contradicted by various retrospective studies carried out in Africa, which evaluated sexual satisfaction at 6 and 12 months after CR. The majority of patients were satisfied, with an improvement in sexual desire and comfort [3, 10, 11, 25, 29, 30, 36].

Our population is larger than those studied by Madzou and Dr Foldes, yet the results are similar in terms of the age at which the patient underwent mutilation, her age when she underwent reconstruction and the type of mutilation [29, 43].

There was no significant difference in the duration of labour (latent, active or expulsive phase) and the use of instrumental extraction during the expulsive phase in patients in the two (2) groups.

However, the absence of CR and therefore the presence of fibrotic scar tissue would prolong expulsive efforts. In fact, the duration of the expulsive phase is most often significantly altered in excised patients in various African studies [9, 18, 25, 26, 30, 31, 34]. In 2007, Millogo-Traoré et al. recommended, as a preventive measure, the systematic performance of an episiotomy and recourse to instrumental extraction for excised patients, in order to reduce neonatal morbidity [8].

A large retrospective case-control study carried out in Sweden between 1990-1996 found no difference in the 2nd stage of labour between excised and non-excised patients, and concluded that FGM does not appear to be associated with a prolonged 2nd stage of labour in societies with optimal obstetric care [37, 39, 40, 41, 43, 44, 45].

The rate of instrumental extraction is very low in our series (one (1) case); in fact, it is rarely used in our delivery rooms. The reasons for this are thought to be mainly material.

There is a strong trend towards systematic episiotomy in parturients who have been circumcised in the delivery room. Bakyono in Burkina Faso in 2006 and numerous other authors [18, 25, 30, 31, 35, 38, 43] justify episiotomy as a preventive measure against vulvo-perineal lesions (perineal tears) in 3rd degree FGM essentially, and certain ancestral beliefs in our country justify excision in order to protect against IUFU and neonatal death [7, 16, 18, 21, 25]. Siddig

and al, Bakyono and al. have investigated the mechanisms that may explain these obstetric lesions. It is clear that WHO type 3 FGM causes soft tissue dystocia and requires disinfection, unlike type 2 FGM. It is very likely that post-FGM scar retraction may explain the difficulty in expulsion and the perineal friability of mutilated patients. [7, 35] This probably reflects a better amplification of vaginal and vulvar tissues in operated patients, due to the resection of scar tissue [9, 20, 21, 37, 37, 41].

While the literature describes a higher risk of PPH for patients who have undergone FGM [7, 9, 16, 18, 20, 30, 41], the study of bleeding after childbirth did not reveal any significant difference between the two (2) groups in the occurrence of PPH (non-objective diagnosis). In fact, the 2006 WHO-coordinated study of 28,393 women in 6 African countries (Burkina Faso, Ghana, Kenya, Nigeria, Senegal and Sudan) reported a relative risk of PPH of 1.03 (0.87-1.21), which increased with the degree of extension of FGM [7]. However, the incidence of this event, 9.09% in exposed patients and 2.27% in unexposed patients, is similar to that in the general population, i.e. between 5 and 10% [4, 7, 18, 25], although the size of this study limits any conclusions.

Millogo-Traore and al. in 2006 [8] demonstrated a correlation between the lengthening of the expulsive phase and poor adaptation to extra-uterine life in children born to circumcised mothers. A study carried out in Sweden [34] on 96 cases of neonatal death in circumcised patients did not implicate FGM as a risk factor for neonatal death, but obstetric management was not the same as in Africa. In our study, no significant difference was found between the 2 groups in terms of their immediate adaptation to life outside the womb. Our study did not demonstrate any improvement in neonatal prognosis in terms of Apgar at 5 minutes of life, nor in the need for neonatal resuscitation or hospitalisation in a neonatal unit, depending on the group.

This study had its limitations. In our society, everything to do with sex remains a sensitive, even 'taboo' subject. We placed particular emphasis on our availability, our ability to listen, the confidentiality of the data and the preservation of the women's privacy in order to minimise any inaccurate responses. Our study included a selection bias. The two maternity units at CHU-YO and CHU-B are referral facilities and the vast majority of deliveries should be dystocic or with a high dystocic potential. Certain factors aggravating the maternal or fetal prognosis may have escaped criticism at the time of selection and would therefore influence our results.

5. Conclusion

The study has demonstrated the benefits of clitoral reconstruction in the case of FGM in preventing perineal lesions during vaginal delivery, by reducing the need for episiotomy and reducing perineal tears in the case of reconstruction.

Conflicts of Interest

The authors declare no conflicts of interest.

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