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Surgical outcome of genito-urinary obstetric fistulas (GUOF) with or without bladder neck involvement: an experience from the University Teaching Hospital, Yaoundé, Cameroon

Summary

Surgical Outcome of Genito-urinary obstetric fistulas (GUOF) with or without bladder neck involvement: an experience from the University Teaching Hospital, Yaounde, Cameroon

Introduction: The GUOF is a solution of continuity between the genital tract and the urinary tract in connection with pregnancy or childbirth. The urethral involvement seems to be associated to a bad prognosis. However, little is known about this issue.

Objective: To analyze the result of post-surgical GUOF with or without urethral involvement.

Methodology: It was a retrospective cohort study. We identified the files of the patients with or without urethral involvement operated at the department of Obstetrics & Gynecology of UTH, Yaounde from March 03, 2009 to March 03, 2015 (six years). Data was collected from the files, registers, and by phone call from the participants after oral consent. Variables included the sociodemographic, clinical and therapeutic patterns. Data was analyzed using EPI-Info 7.1 software. We compared the data of patients with GUOF or without urethral involvement. A difference was considered significant if P<0.05.

Results: We analyzed the data of 92 GUOF patients, 23 (25.0%) with urethral involvement and 69 without. The fistulas with urethral involvement were more likely to have large size of more than 4cm (30% vs 10%), and to have a major fibrosis (39% vs 3%). Also, fistulas with urethral involvement were more at risk to have undergone more previous repairs (69.5% vs 17.4%; OR: 11.11; 95% CI [5.0 to 33.33]; P=0, 000007). In the urethral involvement group, the surgical technique had often been plastic surgery (52.2% vs 17.4%; OR, 5.8; 95% CI [1.85 to 14.48]; P=0.002). The patients without urethral involvement had the best results in terms of continence with closure at the end of 3 months (81.2% vs 30.4%; OR: 9.84; 95% CI to [3.36 to 28.8] P = 0.000014).

Conclusion: GUOF with urethral involvement were fibrous with large size. The rate of closure with continence was less satisfactory in case of urethral involvement.

Keywords: obstetric fistulas, post-surgical, urethral involvement, Cameroon

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Introduction

Obstetric fistula (OF) is a continuity between the urinary tract and the vagina (vésico-vaginal fistula) or between the rectal tract and vagina (recto-vaginal fistula).[1,2] OF usually occurs after prolonged and difficult labor in the absence of appropriate obstetric care to remedy it.[3–8] Fistula can be urethral, cervical, trigonal, retro-trigonal or juxta-cervical according to the location on the urinary tree.[9,10] Surgical results of genitourinary fistula are diversely reported, with cure rate of 46% to 95%.[11–15] WHO suggests for the first surgical attempt, an expected closure of 85% with 90% of continence among closed cases.[15]

This suggestion only takes into account the past surgical history, but not anatomical features of the fistula (location, size, fibrosis).[16–18] Some studies reported prognostic value of urethral location and the fistula increased failure risk in case their involvement.[19,20] Success of 57% was reported for cervico-urethral location and 79% for bladder body involvement.[21] Little data exists on the prognosis of obstetric fistula with urethral involvement in Cameroon.

Objective: Analyze post-surgical outcome of genitourinary obstetric fistula with or without urethral involvement.

Methodology

This was a retrospective cohort study in the University Teaching Hospital, Yaounde on GUOF patients operated from 03 March 2009 to 3 March 2015 (six years). We considered obstetric fistula with urethral involvement "subject group" and obstetric fistula without urethral involvement "control group". Patient's files were reviewed, we excluded non-obstetric, genitourinary digestive and vesico-uterine cases. After an oral consent, we collected data through registers,

patient files and telephone contact. We considered socio-demographic variables (age, occupation, residence, marital status, educational level). Clinical and reproductive characteristics of interest were antenatal care, delivery, perinatal and fistula surgery characteristics. Data was analyzed using EPI-Info7.1. Proportions, means or median were calculated. Variables were compared among the two study populations using Ch^2 test. Odds ratio (OR) with 95% confidence interval (CI) was used to assess the influence of the urethral location on the fistula outcome. The level of significance was set at $p<0.05$.

Results

Over a period of 6 years, we identified 102 files of GUOF at the UTHY among which we eliminated 3 files of vesico-uterine fistula, 3 ureteral fistula and 4 files of deceased patients. We retained 92 files of GUOF patients including 23 with urethral damage and 69 without urethral. Primary level of education was the most represented (54.3%), almost equal distribution between subjects (52.2%) and control (55.1%). Many patients had no occupation (77.2%) and were more from a rural area of residence (57.6%). Cameroonians from the western region were the most represented in the two study groups (30.4%) followed by the center region (25%). Single parity status was more common in the urethral location group (69.6% versus 47.8%) (Table 1).

Table 1 Patient's socio-demographic characteristics according to fistula location

Characteristics	Fistula with urethral location			P-Value
	Yes N1=23 n1 (%)	No N2=69 n1 (%)	Total N=92 n (%)	
Age groups				
15-19	6 (26)	18 (26)	24 (26)	
20-34	16 (69.6)	41 (59.4)	57 (62)	0.2701
35-45 years	1 (4.3)	10 (14.5)	11 (12)	
Educational level				
Primary	12 (52.2)	38 (55.1)	50 (54.3)	
Secondary	11 (47.8)	28 (40.6)	39 (42.4)	0.4985
Higher	0 (0)	3 (4.3)	3 (3.3)	
Marital status				
Married	8 (34.8)	21 (30.4)	29 (31.5)	
Single	15 (65.2)	45 (65.2)	60 (65.2)	0.5947
Widow	0 (0)	3 (4.3)	3 (3.3)	
Profession				
Public sector	2 (8.7)	2 (2.9)	4 (4.3)	
Private sector	1 (4.3)	3 (4.3)	4 (4.3)	0.1005
Housewife	15 (65.2)	56 (81.2)	71 (77.2)	
Student	5 (21.6)	8 (11.6)	13 (14.2)	
Ethnic group				
Bantu	12 (52.2)	40 (58)	52 (56.5)	
Semi-Bantu	9 (39.1)	24 (34.8)	33 (35.9)	0.4023
Sudanese	2 (8.7)	5 (7.2)	7 (7.6)	
Religion				
Muslim	3 (13)	5 (7.2)	8 (8.7)	
Christian	20 (87)	63 (91.3)	83 (90.2)	0.3992
Animist	0 (0)	1 (1.4)	1 (1.1)	
Parity (classes)				
Pprimiparous	16 (69.6)	33 (47.8)	49 (53.3)	
Pauciparous	6 (26.1)	27 (39.1)	33 (35.9)	0.0573
Multiparous	1 (4.3)	9 (13)	10 (10.9)	

Table 2 Characteristics of the causal pregnancy according to fistula location

Characteristics	Fistula with urethral location			P-Value
	Yes N1=23 n1 (%)	No N2=69 n2 (%)	Total N=92 n (%)	
Number of ANC				
No ANC	1 (4.3)	4 (5.8)	5 (5.4)	
1-3 ANC	16 (69.6)	43 (62.3)	59 (64.2)	0.794
≥4 ANC	6 (26.1)	22 (31.9)	28 (30.4)	
Dystocia				
Yes	21 (91.3)	51 (74)	72 (78.3)	0.0663
No	2 (8.7)	18 (26.1)	20 (21.7)	
Instrumental maneuvers				
Yes	1 (4.3)	2 (2.9)	3 (3.3)	1
No	22 (95.7)	67 (97.1)	89 (96.7)	
Mode of delivery				
Vaginal	18 (78.3)	34 (49.3)	42 (56.5)	0.0167
Non vaginal	5 (21.74)	35 (50.72)	40 (43.5)	
State of the child				
Living	1 (4.35)	20 (28.99)	21 (22.83)	0.019
Deceased	22 (95.6)	49 (71.01)	71 (77.17)	

N: Size of study population, percentage %

Low antenatal care (ANC) attendance (≤2 ANC) was common in the two study populations (69.5%). Dystocia was the most common among the subjects (91.3% versus 73.9%). Perinatal death was more frequent urethral involvement group (95.6% vs 71.01%; OR: 8.97; 95% CI [1.13 to 71.19]; P=0.019) (Table 2) (Table 3). The size of the fistula was more frequent among subjects compared to the control, from 2 to 4cm (61% vs. 23%); greater than 4 cm (30% vs. 10%). More subject's cases had already experienced at least one unsatisfactory surgical attempt (69.5% vs 17.4%). During the intervention, episiotomy was much more practiced in subjects compared to controls (73.9% vs 36.2%). Fistuloplasty was much more performed in fistula

with urethral location (52.2 vs. 17.4) (Table 4-5). At discharge, closure with continence was lower among the urethral location cases (95.6% vs. 42.2%) and similar trend was found from three to Twelve months (81.2% vs 30.4%). Thus, urethral location cases were 10 times more likely to fail compared to their counterparts (OR: 9.84; 95% CI [28.8 3.36-]; =0.000014) (Table 6).

Table 3 Association between delivery characteristics and fistula location

Characteristics	Fistula with urethral location			Odds ratio (95% CI)	P-Value
	Yes	No	Total		
	N1=23	N2=69	N=92		
	n1 (%)	n2 (%)	n (%)		
Mode of Delivery					
Vaginal	18 (78.3)	34 (49.3)	42 (56.5)	3.7 (1.23-11.1)	0.0167
Non vaginal	5 (21.74)	35 (50.72)	40 (43.5)		
Outcome of the child					
Deceased	22 (95.6)	49 (71.01)	71 (77.17)	8.97 (1.13-71.19)	0.019
Living	1 (4.35)	20 (28.99)	21 (22.83)		

N: Size of the study population, percentage%

Table 4 Distribution of fistula location according to anatomic characteristics

Characteristics	Fistula with urethral location	
	Yes	No
	N1=23	N2=69
	n1 (%)	n1 (%)
Vulva dermatitis		
Yes	15 (65.2)	29 (42)
No	8 (34.8)	40 (58)
Location of fistula		
Urethro-vaginal	23 (100)	0 (0)
Cervico-vaginal	0 (0)	10 (14.5)
Trigono-vaginal	0 (0)	32 (46.4)
Retro-trigonal	0 (0)	13 (18.8)
Juxta-cervical	0 (0)	14 (20.3)
Size of fistula (cm)		
<2	2 (9.0)	46 (67.0)
2-4	14 (61.0)	16 (23.0)
> 4	7 (30.0)	7 (10.0)
Vaginal fibrosis		
No	7 (30.5)	56 (81)
Moderate	7 (30.5)	11 (16)
Major	9 (39.0)	2 (3.0)

N: Size of the study population, percentage%

Table 5 Association between therapeutic characteristics and fistula location

Characteristics	Fistula with urethral location			Odds Ratio (95%)	P-Value
	Yes	No	Total		
	N1=23	N2=69	N=92		
	n1 (%)	n2 (%)	n (%)		
Surgical attempts					
More than one	16 (69.5)	12 (17.4)	28 (30.4)	11.11 (5.00-33.3)	0.000007
1 time	7 (30.5)	57 (82.6)	64 (69.6)		
Episiotomy					
Yes	17 (73.9)	25 (36.2)	42 (45.7)	4.98 (1.74-14.28)	0.003
No	6 (26.1)	44 (63.8)	50 (54.3)		
Repair technique					
Fistuloplasty	12 (52.2)	12 (17.4)	24 (26.1)	10.85 (3.67-32.11)	0.000003
Fistulorraphy	11 (47.8)	57 (82.6)	68 (73.9)		

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Table 6 Monitoring of urinary continence

Time since surgery	Fistula with urethral involvement			Odds ratio (95% CI)	P-Value
	Yes N1=23 n1 (%)	No N2=69 n2 (%)	Total N=92 n (%)		
When discharged from hospital					
Yes	12(52.2)	66(95.6)	78(84.7)	20(4.88- 83.2)	0.000005
No	11(47.8)	3(4.35)	14(15.2)		
At 3 months					
Yes	7(30.4)	56(81.2)	63(68.5)	9.84(3.36- 28.8)	0.000014
No	16(69.6)	13(18.8)	29(31.5)		
At 6 months					
Yes	7(30.4)	56(81.2)	63(68.5)		
No	16(69.6)	13(18.8)	29(31.5)		
At 12 months					
Yes	7(30.4)	56(81.2)	63(68.5)		
No	16(69.6)	13(18.8)	29(31.5)		

N: Size of the study population, percentage %

Discussion

The average age in both study groups was 26±8.02 years, similar to reports from Africa and Asia with the mean age at treatment around 25-29.[22–24] Proportion of unmarried women (65.2%) was higher than that of 40 to 50 % reported by others.[25,26] The majority of patients in both study populations had primary level of education (54.3%). Many studies reported high illiteracy rate among fistula patients (50 to 96%).[27–29] Housewife status was high (77.2%) as reporter by other.[25,30] Almost half of the participants were primiparous (53%) and lower than 60 to 86% reported in many studies.[5,31,32] More than half of the patients had done less than 3 ANC (69.5%). Other studies reported up to 92% of fistula patients without any ANC attendance.[27,28,33] This condition can be the consequence of illiteracy, ignorance and inadequate health education.

Labor duration of 24 to 48 hours in the indexed pregnancy (52.1%) was lower to those from many others who reported a proportion of up to 96% of prolong labor.[21,34–36] Dystocia was common in the subject group (91.3% Vs.73, 9%) and underscore the causal value of prolonged compression of the fetal head on soft tissue leading to necrosis. Higher proportion of perinatal mortality was reported in subjects group (95.65% vs 71.01%) as already reported by others (up to 96%) in fistula patients.[21,36,37] Surgical failure at first attempt was more common among patients with urethral involvement (69.5% vs 17.4%; OR: 11.11; 95% CI [5.0-33], P=0.000007). In Nigeria, 66% of fistula patients had already undergone at least one surgical attempt.[38] This observation could be due to the urethral location as a predictor for poor prognosis. In a Guinean study, 43% of patients experience at least two surgical attempts.[39] Fistula with urethral involvement was 10-times more likely to have an undue vaginal condition (sclerotic) than controls (69.6% Vs.18.8%; OR: 9.84; 95% CI [3, 31 to 28.81] P=0.000014). Many studies report fibrotic status of genitourinary fistula up to 20.5% in the DRC, 64.9% in Uganda and 70.4% in Nigeria.[19,22,40] This condition affects the prognosis of fistula surgery as limiting factor for tissue dissection. This sclerotic nature can be the consequence of previous surgical attempts that increase the risk of vaginal fibrosis. The fistula size of 2-4cm was more frequent among subjects compared to the control (61% vs. 23%); greater than 4 cm (30% vs. 10%). Many studies reported large sizes of genitourinary fistula. In Kenya, authors report that 15 of 31 genitourinary fistulas had a size of more than 2cm.[12] We found no study analysing the size of the fistula in case of urethral involvement or not.

Regarding the repair technique, fistuloplasty was performed 5 folds for urethral involvement (52.2% vs.17.4%; OR: 5.18; 95% CI [1.85 to 14.48] P=0.002). This observation is explained as in some cases used the Martius methods of turning scraps of the vagina and/or the labia minora and the interposition of fatty cellular tissue as suggested by some author.[41,42] At discharge, patients with urethral involvement were more likely to have a leaking flow than controls (47.8%) vs 4.35%; OR: 20; 95% CI [4,88-83] P =0.000005). This observation suggests a satisfaction rate of 52.2% for subjects and 95.65% for control. This result reveals a bad early prognosis in case of fistulas with urethral involvement.

From 3 to 12 months after surgery, patient satisfaction was 30.4% in subjects and 81.2% in controls. The difference in outcome observed in urethral involvement is similar to the report from others.[21,43] In India, success was reported for 3/4 and 30/34 (94%) of urethro vaginal and vesico-vaginal fistula respectively.[43] Success rate of 57% and 79% in case of cervico-urethral and bladder involvement was reported by Arrowsmith.[21] Concerning pure result of urethral fistula, mostly small case series have been reported, in India, authors reported the reconstruction of seven urethra with satisfaction and emphasize on the value of Martius graft which they used.[41] In an Erithrean's report,

urethral location did not affect the prognosis as 10 out of 13 patients had good result.[44] Among 37 fistulas with urethral involvement in Mali, satisfaction of 48.4% was reported.[45] Other authors reported the results of urethral reconstruction from advancement of vaginal flap of the posterior wall of the bladder with reconstruction of the bladder neck with satisfaction of 14/18 (70%). A urethral reconstruction with tabulated vaginal flap without Martius transplant was recently reported with satisfaction of 86.0 %.[46]

Poor satisfactory among fistulas with urethral involvement may be due to multiple operations, in Ghana. total satisfaction was 85% at the first operation, 50% at the second and 33% at the third.[16] In Zambia, an overall satisfaction of 59.1% was reported with 70%, 18% and 11%.[17] The previous surgery acts as proxi-factor promoting the fibrosis and enlargement of fistula. The importance of urethral destruction impact on the surgical prognosis. Kishner et al.,[47] reported a satisfaction at discharge according to the urethral status at (92.4%) when intact, (47.4%) if partial destruction and (21.2%) if total destruction.[47]

Conclusion

Genitourinary obstetric fistulas without urethral involvement have better chance of closure with continence (81.2%) compared to genitourinary obstetric fistula with urethral damage (30.4%).

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Conflicts of interest

Author has no conflict of interest to declare.

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