

Risk factors for obstetric major perineal tear and recto-vaginal fistula at the University Centre Hospital, Yaounde Cameroon

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Abstract

Background: Recto-vaginal fistula (RVF) is associated with the presence of persistent offensive odor leading to the social stigma and then patients are ostracized.

Objective: To determine the risk factors of obstetric recto-vaginal fistula among patients operated in Yaoundé, Cameroon.

Methods: This was a prospective and retrospective cross-sectional analytic study at the University Hospital Centre, Yaoundé, Cameroon from January, 2009 to June, 2014. Affected group included 40 RVF patients. Non-affected group included 120 consent non-fistula patients of childbearing age, with at least one obstetrical experience. The software Epi-Info 3.5.3 was used for data analysis. The level of significance was set up at $p < 0.05$.

Results: Out of the overall 118 obstetric fistulas managed during the study period, 40 were RVF (33.89%). Among the latter, 29 (72.5%) were sphincter,

4(10.0%) were lower supra-sphincteric, 1 (2.5%) were mid-vagina third and 6 (15.0%) were juxta-cervical. Fistula size varied from 1 to 6 cm. Non-obstetrical risk factors for RVF included teenage at first delivery (OR: 5.4; [95% CI: 2.5-11.8]; $P < 0.001$); housewife (OR: 2.7; [95% CI: 1.2-5.7]; $p = 0.008$); illiteracy (2.7 [1.0 – 7.5; $p = 0.04$]); non-university education (OR: 5.7; [95% CI: 2.2-14.5]; $p = 0.0001$); high < 155 cm (OR: 5.4; [95% CI: 1.9-15.3]; $p = 0.0007$). Obstetrical related risk factors for RVF included; labor > 12 hours (OR: 13.9; [95% CI: 5.7-33.8]; $p < 0.0001$); labor < 6 hours (OR: 9.5; [95% CI: 2.3-37.7], $p = 0.0002$), less than 4 Antenatal visits, (OR: 11.1; [95% CI: 3.6-33.7]; $p < 0.0001$); delivery out of health facility (OR: 64.1; [95% CI: 8.1-509.1]; $p < 0.0001$); non-assisted delivery, (OR: 25.2; [95% CI: 3.0-212.5]; $p < 0.0001$).

Conclusion: RVF patients several avoidable risk factors that might be used for preparing and implementing preventive strategies.

Keywords: perineal tear, recto-vaginal fistula, risk factors, causes

Introduction

Recto-vaginal obstetric fistula (RVF) is the presence of a hole between a woman's genital tract and the rectum (i.e. recto-vaginal fistula). The incidence of RVF is 0.5 to 2.1 per 10000 deliveries and that 4 000 to 16 000 new cases of obstetric RVF occur each year in the World.¹ The major perineal tear (ie: third and four degree) are assimilated to the lower third RVF. This pathology is characterized by the leakage of flatus and stools through vagina. Moreover, it's associated with the presence of persistent offensive odor leading to the social stigma and then patients are ostracized.²⁻⁴ RVF is a major cause of maternal morbidity in developing countries.¹ Usually, women with this handicap live in rural areas and are financially limited.

RVF is treated by surgery and the overall closure is between 79-100% with the overall continence level between 56-100%.⁵⁻⁹ The overall closure does not necessary mean that the patient is cured and in Australia 45.5% of the treated patients had closure of their fistula, but still with a residual fecal incontinence.⁵

The prime pillar for fight against obstetric RVF is the prevention that must be evidence based. Previous studies were conducted on risk factors for obstetric fistula in Cameroon, but all those studies focused on vesico-vaginal entity.¹⁰ Knowledge on risk factors of obstetric RVF will contribute in the avoidance of struggle against this disease.

Objective

To determine the risk factors of obstetric RVF among patients operated in Yaoundé, Cameroon.

Methods

We conducted a cross-sectional analytic study (affected/non-affected) at the Department of Obstetrics and Gynecology, of the University Teaching Hospital, Yaoundé, Cameroon. Data were collected retrospectively for affected group and prospectively for their non-affected counterpart. Retrospective component ranged from January, 1st, 2009 to August, 15th, 2013; and the prospective component from

February, 1st 2014 to June, 1st 2014. Participants were recruited from files and registers for the retrospective phase and at out-patient consultation for the prospective phase. Affected group made of 40 RVF patients (including major perineal tear). Non-affected group made of 120 non-fistula's women, in childbearing age, which had at least one obstetrical experience after clear informed consent. The software Epi-Info 3.5.3 was used for data analysis. Odds Ratio with its 95% confidence interval was used to assess the influence of different variables on the risk of RVF occurrence. The significant level was set up at $p < 0.05$.

Results

During the study period, there were 118 obstetric fistulas among which, 40 recto-vaginal fistulas (33.89%), including 34 pure RVF and 6 mixed FRV. Patient's age varied from 15 to 60 years, with the mean of 28.2(±8.9) years. Compared to patients without RVF, those with RVF were more likely to be teenagers at their first delivery (55.5% vs. 18.3%); singles (60.0% vs. 39.2%); housewives (45.0%

vs. 23.3%); with short status (i.e. 160 cm) (40.0% vs. 20.0%), less school attendance (\leq primary) (20% vs. 8.3%); and less high school attended (15% vs. 50%). RVF patients were more likely to be grand-multiparous (i.e.: 6 deliveries and above) (17.5% vs. 8.3%); have less than 4 ANC (32.5% vs. 4.2 %) (Table 1). RVF was also common for the sub-group of women who delivered before 6 hours of labor (20.0% Vs 2.6%) (Table 4).

Causes of obstetric recto-vaginal fistulas included ischemia due to obstructed labor, 30 /40 (75%), direct delivery tear (i.e.: poor/absence of perinea protection) (9/40) (22.5%), and tear during provoked abortion (1/40) (2.5%).

Among the 40 RVF cases, 29 (72.5%) were lower third sphincteric, 4(10.0%) were lower third supra-sphincteric, 1 (2.5%) was middle third and 6 (15.0%) were juxta-cervical. Fistula size varied from 1 to 6 cm, with 50% above 5 cm. Twenty-one out of 40 RVF cases had fibrotic edges (52.5%).

Table 1 Distribution of study populations according to their socio-demographic characteristics

Characteristics	Recto-vaginal fistula				Total N = 160		P – value
	Yes N = 40		No N = 120				
	n	%	n	%	n	%	
Age mean (SD)	28.2 (±8.9)		30 (±5.6)				
Age classes (years)							0.0003*
15 – 20	7	17.5	2	1.7	9	5.6	
21 – 30	20	50.0	62	51.7	82	51.3	
31 – 40	11	27.5	55	45.8	66	41.3	
41 – 60	2	5	1	0.8	3	1.9	
Marital Status							0.0677
Single	24	60.0	47	39.2	71	44.4	
Married	15	37.5	70	58.3	85	53.1	
Ever married	1	2.5	3	2.5	4	2.5	
Educational level							0.0011*
None	3	7.5	3	2.5	6	3.8	
Primary	5	12.5	7	5.8	12	7.5	
Secondary	26	65.0	50	41.7	76	47.5	
University	6	15.0	60	50.0	66	41.3	
Occupation							0.0002*
Housewife	18	45.0	28	23.3	46	28.8	
Salary	9	22.5	31	25.8	40	25	
Student	8	20	7	5.8	15	9.4	
Others**	7	12.5	54	45	59	36.9	
Originated Region							0.7218
Centre	24	60.0	63	52.5	87	54.4	

Table Continued

Characteristics	Recto-vaginal fistula						P – value
	Yes N = 40		No N = 120		Total N = 160		
	n	%	n	%	n	%	
West	10	25	44	36.7	54	33.8	
Litt /NW /SW	3	7.5	6	5	9	5.6	
North/FN/Adam	3	5	4	3.3	6	3.8	
East / South	2	2.5	3	2.5	4	2.5	
Height Mean (SD)	160.6 cm ±7.0		162.8 cm ± 5.8				
Height classes							0.034*
140 – 159	16	40	24	20	40	25	
160 – 169	21	52.5	79	65.8	100	62.5	
170 – 182	3	7.5	17	14.2	20	12.5	

Table 2 Distribution of study populations according to their reproductive characteristics

Characteristics	Recto-vaginal fistula						N	P – value
	Yes N = 40		No N = 120		Total = 160			
	n	%	n	%	n	%		
Deliveries								
0– 1	22	55.0	61	50.8	83	51.9	0.1426	
2 –4	11	27.5	49	40.8	60	37.5		
>=6	7	17.5	10	8.3	17	10.6		
Age at first delivery(SD)	20.3 (5)		23.5 (4.5)				0.0677	
12-19	22	55.0	22	18.3	44	27.5		
20-29	15	37.5	88	73.3	103	64.4		
30-38	3	7.5	10	8.3	13	8.1		
Duration of labor Median (q1-q3)	16.0 (7.5-39.5)		10 (8-11)				<0.0001	
0-12	16	40	109	90.8	125	78.1		
24-Dec	12	30	11	9.2	23	14.4		
24-36	2	5	0	0	2	1.3		
36-72	7	17.5	0	0	7	4.4		
72-120	3	7.5	0	0	3	1.9		
ANC Median (q1-q3)	5 (1-6)				5 (4-6)		<0.0001	
0-3	13	32.5	5	4.2	18	11.3		
4-8	27	67.5	115	95.8	142	88.8		

Table Continued

Characteristics	Recto-vaginal fistula				Total = 160	N	P – value
	Yes N = 40		No N = 120				
	n	%	n	%			
Place of delivery d'accouchement							0.00011
Home	7	17.5	0	0	7	4.4	
Maternity secondary maternité	7	17.5	1	0.8	8	5	
Maternity primarily	26	65.0	119	99.2	145	90.6	
Assistance to termination							< 0.0001
Family	3	7.5	1	0.8	4	2.5	
Nurse	10	25.0	52	43.3	52	38.8	
TBA	4	10	0	0	4	2.5	
Doctor	14	35.0	18	15.0	32	20	
Midwife	9	22.5	49	40.8	58	36.2	

* =P Significatif

Table 3 Association between socio-demographic characteristic and risk for RVF occurrence.

Characteristics	Recto-vaginal Fistula				Total	Odd ratio (95% CI)	P-value
	Yes		No				
	N	%	n	%			
Age							
26 – 60	22	19	94	81	116	1 ^b	
15 – 25	18	40.9	26	59.1	44	2.9 (1.4 – 6.3)	0.004
Age at first delivery							<0.001
15-19	22	50	22	50	44	5.4(2.5-11.8)	
20-60	18	15.5	120		84.5	1 ^b	
Housewife Occupation							
No	22	25	92	75	114	1 ^b	
Yes	18	39.1	28	60.9	46	2.7 (1.2 – 5.7)	0.008
Student as occupation							
No	32	22.1	113	77.9	145	1 ^b	
Yes	8	53.3	7	46.7	15	4.0 (1.3 – 11.9)	0.008
Lack of modern education							
No	32	22.5	110	77.5	18	1 ^b	
Yes	8	44.4	10	55.6	142	2.7(1.0 – 7.5)	0.0431
University education							
Yes	6	9	60	91	66	1 ^b	
Non	34	36.2	60	63.8	94	5.7(2.2 – 14.5)	0.0001
Height							
>=155 cm	30	21	113	79	143	1 ^b	
< 155cm	10	58.8	7	41.2	17	5.4(1.9 – 15.3)	0.0007

Table 4 Association between reproductive characteristic and risk for RVF occurrence

Characteristics	Recto-vaginal fistula		Total		Total	Odd ratio (95%CI)	P-value
	Yes	No					
	N	%	n	%			
Duration of labor > 12h							
Yes	16	13.6	102	86.4	35	1 ^b	
No	24	68.6	11	31.4	118	13.9(5.7 – 33.8)	<0.0001
Duration of labor < 6h							
No	31	22	110	78	141	1 ^b	
Yes	8	72.7	3	27.3	11	9.5(2.3 – 37.7)	0.0002
ANC classes							
4 – 8	27	19	115	81	18	1 ^b	
0 – 3	13	72.2	5	27.8	142	11.1(3.6 – 33.7)	<0.0001
Home delivery							
No	26	17.9	119	82.1	146	1 ^b	
Yes	14	93.3	1	6.7	15	64.1(8.1 – 509.1)	<0.0001
Staff assistance							
Yes	33	21.7	120	78.3	152	1 ^b	
No	7	87.5	1	12.5	8	25.2(3.0 – 212.5)	<0.0001

Socio-demographic risk factors for RVF included age less than 26 years (OR: 2.9; [95% CI: 1.4-6.3]; P=0.004); housewife status (OR: 2.7; [95% CI: 1.2-5.7]; p=0.008); illiteracy (2.7 [1.0 – 7.5; p=0.04]); non-university education (OR: 5.7; [95% CI: 2.2-14.5];p=0.0001); no-university education attended (OR:5.7; [95% CI:2.2-14.5];p=0.0001); and high less than 155 cm (OR:5.4; [95%CI: 1.9-15.3]; p=0.0007) (Table 2).

Health related risk factors for RVF included; labor lasted more than 12 hours (R:13.9; [95% CI: 5.7-33.8];p<0.0001); labor lasted less than 6 hours (OR:9.5; [95% CI: 2.3-37.7], p=0.0002), less than 4 ANC, (OR:11.1; [95% CI:3.6-33.7]; p<0.0001); delivery out of health facility (OR:64.1; [95% CI: 8.1-509.1]; p<0.0001); non-assisted delivery, (OR:25.2; [95% CI:3.0-212.5]; p<0.0001) (Table 3).

Discussion

During the study period, there were 118 obstetric fistulas among which, 40 recto-vaginal fistulas (33.89%), including 34 pure RVF and 6 mixed FRV. According to the literature, among the overall obstetric fistula identified, RVF represents 1 to 5%; vesico-vaginal, 79 to 98% of cases and combined vesico-vaginal and recto-vaginal fistula, 4 to 16% of cases.^{8,11-14} The difference from our report might be due to the variation in the denominator as including the huge number of major perineal tear.

Causes of obstetric RVF identified from this study included ischemia due to obstructed labor, 30 /40 (75%), direct delivery tear (i.e.: poor/absence of perineal protection) (9/40) (22.5%), and tear during provoked abortion (1/40) (2.5%). These causes are not exclusive and can present additive causal effects.^{8,11-14}

In the present study we found that 20% of patients did not attend more than primary education. Moreover, low education level increased the odds of developing the obstetric RVF including illiteracy (2.7[1.0–7.5; p=0.04]) and non-university attendance (OR: 5.7; [95% CI: 2.2-14.5];p=0.0001). A previous study in Maroua, Cameroon, revealed that, 3 out of the 6 recto-vaginal obstetric fistula patients had no formal education.¹ The illiteracy rate was quite similar to that reported by DHS in 2004 for women in Far North Region (68%).¹⁵ The illiteracy rate among the obstetric fistula patients had been reported in several studies as ranging from 78 to 96 %, but those studies included almost all vesico-vaginal fistula.¹⁶ But, those studies concerned or included totally a huge number of vesico-vaginal obstetric fistulas that could influence the findings.

We found that RVF patients included less mature women at their first delivery (15-19 years old) (55.0% vs. 18.3%); and this condition increased by 5-fold the RVF risk. Among the six obstetric RVF patients reported in Maroua, Cameroon, four were adolescent at their first delivery.¹ These findings are similar to the recent reports concerning the overall obstetric fistulas in the Far North Cameroon, and in Centre

Cameroon where we found that the vast majority 86% and 56% of obstetric fistula patients were teenagers at their first delivery.^{17,18} Very few studies examining the characteristics of obstetric fistula patients reported the teenage status at first delivery, with mean age of 17 at first delivery.^{19,20} Meanwhile, most of those studies were not focusing specifically on RVF. The teenage delivery rate among obstetric fistula patients is much higher compared with the country general female population (55% vs. 18.3%).¹⁵ These observations suggest that being a teenage at the time of marriage or delivery might expose to the development of obstetric RVF in Cameroon.

Regarding the parity of the patient, RVF patients were more likely to be grand-multiparous (i.e.: 6 deliveries and above) (17.5% vs. 8.3%), or with no more than one parity (55 % vs. 50.8%). The high proportion of primiparous women has been reported in many studies as ranging between 42% and 67%, of obstetric vesico-vaginal fistulas.¹⁵ A primiparous rate of 67% among 51 RVF patients was reported in Australia (Chew and Rieger, 2004). The high proportion of grand multiparous women could be due to precipitated labor with inappropriate perineal protection. This observation highlight the need for competence base training of the delivery staff on perineal protection.

Concerning the ANC attendance, less than 4 ANC was common among Obstetric RVF patients (32.5% vs. 4.2 %). In Maroua Cameroon, Five of the 6 patients declared to have undergone an ANC.¹ About half of obstetric fistula patients did not attend any ANC visits during the index pregnancy among the overall cases in the Far North Cameroon, but this focused on vesico-vaginal fistulas.¹⁷ The ANC attendance among our patients is even low compared to the Demographic Health Survey data that showed 59% of women reporting to have not undergone any ANC visit in Maroua Region. The majority of studies reported even higher percentages (72% to 92%) of women who did not attend an ANC visit during the index pregnancy but those studies included only very few cases of recto-vaginal fistulas.^{7,21}

We observed that of women who presented RVF delivered before 6 hours of labor (22% Vs 78%). Accordingly, labor lasted less than 6 hours was associated with an increased risk for RVF, (OR: 9.5; [95% CI: 2.3-37.7], p=0.0002). This observation may be associated with the inappropriate use of oxytocic drugs and poor perineal protection that were not assessed in the present study. These findings support that, poor quality emergency obstetric care (EmOC) at the right moment is important risk factors for the occurrence of fistula.

We found 24 out of 40 RVF patients experienced prolong labor compared to non fistula patients. Several studies have reported that 70% to 96% of patients had been in labor for more than 24 hours and again those studies included mostly vesico-vaginal fistulas.^{6,22}

We found that less RVF patients delivered primarily at the health facility (65.0% vs 99.2%). DHS 2011 also revealed 65% proportion of facility delivery in the overall Cameroon country.²³

Seven patients (17.5%) delivered in the health facility after failure of delivery at home. Health facility delivery is effective in preventing severe complications if the pregnant woman arrives in early labor, and if labor is monitored by a competent staff using the partograph, which helps to detect and manage complications in a timely way.²⁴

Conclusion

Socio-demographic risk factors for RVF included age less than 26 years; housewife status; no-university education attended and short

status (<155 cm). Health system related risk factors for RVF included; prolonged labor (>12 hours); precipitated labor (<6 hours); less ANC (<4 visits); delivery out of health facility and non-assisted delivery. Many of those identified factors are avoidable. Health system planners and health programmed managers must use those factors to reorient their strategies and prepare and implement specific activities leading to the challenge against obstetrics fistula.

Acknowledgments

None.

Conflicts of interest

The authors declare no conflicts of interest.

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