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RESEARCH ARTICLE

CAUSES OF OBSTETRIC GENITO-URINARY FISTULA: AN EXPERIENCE FROM THE UNIVERSITY HOSPITAL, YAOUNDÉ, CAMEROON

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ABSTRACT

Introduction: Many studies have reported the risk factors for obstetric fistula, but little is known on the causes particularly in Cameroon. Knowledge on the causes of obstetric fistula could help in preventing its occurrence.
Objectives: The purpose of this study was to assess the causes of obstetric fistula.
Methods: We conducted a cross-sectional descriptive study to identify the causes of obstetric fistula treated at the University Hospital of Yaoundé, Cameroon from January, 1, 2009 to September, 31, 2011.
Results: During the study period, we identified, 58 obstetric fistula cases, genito-urinary fistula, 35 cases (60.3 %), recto-vaginal fistula 19 cases (32.8%) and mixed fistulas 4 cases (6,9%) respectively. The causes of genito-urinary obstetric fistulas were: ischemic necrosis after obstructed labor (62.7%), direct tear by poorly conducted cesarean delivery (25.7%), emergency hysterectomy (5.8%), forceps delivery 2.9% and direct tear during induced abortion (2.9%) respectively. All cases of mixed fistula were caused by ischemic necrosis due to obstructed labor. Among the 39 patients with genito-urinary fistulas, 7(17.9%) prevention was envisaged by the use of an indwelling catheter, this measure was not used for 30 (76.9%) cases and 2(5.1) could not remember whether any catheter was used.
Conclusion: The most frequent causes of obstetric fistulas among patients treated at our institution were ischemic necrosis due to obstructed labor and direct tear complicating cesarean delivery that are all preventable.

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INTRODUCTION

Obstetric fistula is the presence of a communication between a woman's genital tract and urinary tract (i.e. vesico-vaginal fistula) or between the genital tract and the intestines (i.e. recto-vaginal fistula). Obstetric fistula occurs as a consequence of non-skilled delivery. The vesico-vaginal fistula is characterized by the leakage of the urine through the vagina, and recto-vaginal fistula is characterized by the leakage of flatus and stool through the vagina (Bangser, 2007; Cook *et al.,* 2004; Tebeu *et al.,* 2011).

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Several studies provide relevant information's on the risk factors for developing obstetric fistula and this was recently highlighted in a comprehensive review (Tebeu *et al.,* 2010). To date, no previous report has being focusing the causes of obstetric fistula. However, according to several studies, obstetric fistula could be directly attributed to three main causes (Melah *et al.,* 2007; Villagran-Cervantes *et al.,* 1996; Roberto *et al.,* 2007; Garcia Benitez *et al.,* 1997; IaE MESH, 1959; Leake *et al.,* 1988). The most common underlying causes is ischemic necrosis due to obstruction ; followed by direct tear of the same soft tissue during precipitated delivery or obstetric maneuvers including cesarean delivery. The least common cause is elective abortion (Melah *et al.,* 2007; Villagran-Cervantes *et al.,* 1996; Roberto *et al.,* 2007; Garcia

Benitez *et al.,* 1997; IaE MESH, 1959; Leake *et al.,* 1988). These causes are not mutually exclusive and may have additive effects. In a recent publication, we analyzed the risk factors for obstetric fistula, but we did not present the causes of obstetric fistula at the University teaching Hospital in Cameroon (Tebeu *et al.,* 2012). Better knowledge on the causes of obstetric fistula will contribute in instituting preventive measures.

Objectives

This study aimed at identifying the causes of obstetric genitourinary fistula among patients treated at the University Teaching Hospital of Yaoundé Cameroon.

MATERIALS AND METHODS

Study design, setting and population

This was a cross-sectional study carried out at the University Teaching Hospital of Yaoundé Cameroon after the approval of the National Ethics Committee. Women who consulted at the Yaoundé University Teaching Hospital, for leakage of urine or stools through the vagina between January, 1st, 2009 and September, 30th, 2011.were invited to participate to the study prior to the surgical procedure. The site and size of fistulas were confirmed by speculum examination, bladder sounding, and in difficult cases instillation of 1% methylene blue in the bladder to trace the leakage. We included all women with a confirmed diagnosis of obstetric fistula and who agreed to participate in the study. An assistant nurse explained the purpose of the survey to the patient, asked for verbal consent and provided health education counseling including issues related to obstetric fistula hygiene. When necessary, this information was translated in the local language by a health worker. Finally, the causes were identified for patients with purely genito-urinary fistulas.

Definition of terms

Ischemic necrosis by obstruction as cause of obstetric fistula

We defined as obstructed labor, each delivery which lasted more than 24 hours of labor and ended by obstetric fistula regardless of the final mode of delivery

Direct delivery tears

We defined as direct tear, each case of fistula that occurred in case of precipitated labor or after a surgical procedure in absence of prolonged labor

Tear during cesarean delivery as causes of obstetric fistula

We define as cesarean delivery cause, each case of fistula that occurs after cesarean delivery in absence of prolonged labor

Tear during obstetrical Emergency hysterectomy as cause of obstetric fistula

We defined emergency hysterectomy as a cause of obstetric fistula if the hysterectomy occurred in absence of a prolonged labor as it is common in hypotonic uterus, placenta previa, placenta accreta and coagulopathy .

Direct tear by Forceps delivery as cause of obstetric fistula:

We defined forceps delivery as cause of obstetric fistula if this occurs in absence of prolonged labor, if not, this will be attributed to obstructive labor.

Tear during precipitated delivery as cause of obstetric fistula

Obstetric fistula was attributed to precipitated delivery, if delivery occurred in a short length of time, classically as less than the recommended 12 hours since onset of labor and was complicated by fistula.

Abortion as cause of obstetric fistula

Obstetric fistula was attributed to abortion, if it was declared that fistula occurred during/ followed the interruption of the pregnancy with intrauterine use of instrument within the first 28 weeks of pregnancy.

Data collection and management

Data were collected using a structured questionnaire. Information on the circumstances that led to the occurrence of obstetric fistula and used of urinary catheter for prevention of vesico vaginal fistula were documented. The pregnancy and delivery which led to obstetric fistula were defined as index pregnancy and delivery. Data was entered by a doctor with good computer skills in an EPI Info database for obstetric fistulas at the Department of Obstetrics and Gynecology of the Yaoundé University Teaching Hospital.

Data analysis

Data analysis was performed using EPI Info 3.5.3 version. Descriptive analysis included the proportion of each cause and use of urinary catheter as preventive measure.

RESULTS

During the study period, 58 obstetric fistula cases were identified; genito-urinary fistula, 35 cases (60.3 %), recto-vaginal fistula 19 cases (32.8%) and mixed fistulas 4 cases (6.9%) respectively (Table 1). The causes of genito-urinary obstetric fistulas were obstructed labor (62.7%), cesarean delivery (25.7%), emergency hysterectomy (5.8%) forceps delivery 2.9% and abortion (2.9%) respectively. All cases of mixed fistula were caused by ischemic necrosis due to obstructed labor (Table 2). Among the 39 patients with genito-urinary fistulas, 7(17.9%), had urinary catheterization as a preventive measure for fistula 30(7.9%) did not and 2(5.1%) could not remember whether any precaution was taken (Table 3). Perinatal death was reported among 72% of women with obstetric fistula (Table 3).

Table 1. Distribution of obstetric fistula patients according to the organs involved

Organs related type	Obstetric fistula N= 58	
	n	(%)
Genito-urinary	35	60.3
Mixed	4	6.9
Recto-vaginal	19	32.8

N Number; % Percentage

Table 2. Distribution of genitourinary obstetric fistula according to the cause

Causes	Obstetric fistula N=35	
	n	%
Obstructed labor	22	62.7
Direct delivery trauma		
Cesarean delivery	9	25.7
Surgery for hemorrhage	1	2.9
forceps delivery	1	2.9
Obstetric hysterectomy	1	2.9
Abortions	1	2.9

N Number; % Percentage

The high proportion of pure recto-vaginal fistula reported at 32.8% in our series could be attributed to the fact that cases of forth degree perineal tears were taken into consideration. The commonest cause of genitourinary obstetric fistulas was ischemic necrosis due to obstructed labor (62.7%). The high prevalence of obstructed labor among our patients is coherent with findings in a recent report where 78% of patients had prolonged labor (Tebeu *et al.,* 2012). Delay in delivery increases the time of compression of the mother's soft pelvic organs (i.e. bladder, rectum) between the fetal presentation part (i.e. the fetal head) and the mother's pelvic bones, leading to uterine rupture, necrosis thus obstetric fistula and fetal death. This correlates with several studies that found, the mean duration of labor among the fistula patients range from 2.5 to 4 days (Jokhio and Kelly, 2006; Melah *et al.,* 2007; Melah *et al.,* 2006). In our study we consider the core duration of 24 hours because , studies reported that, twenty to 95.7 % of patients with obstetric fistula have been on labor for more than 24 hours (Holme *et al.,* 2007; Arrowsmith *et al.,* 1996; Hilton and Ward, 1998).

Table 3. Characteristics of indexed delivery

Characteristics	Obstetric génito-urinary/mixed fistulas N=39	
	n	%
Mode of delivery		
Vaginal with abdominal pressure		
No	20	51.2
Yes	18	46.2
NS	1	2.6
Vaginal with forceps		
No	34	87.1
Yes	4	10.3
NS	1	2.6
Vaginal with vacuum		
No	38	97.4
Others	1	2.6
Vaginal with craniotomy		
No	37	94.8
Yes	1	2.6
NS	1	2.6
Cesarean		
No	23	59.0
Yes	15	38.4
NS	1	2.6
Perinatal death		
No	10	10(25.6)
Yes	28	28(71.8)
Others	1	1(2.6)
Post-delivery urinary catheterization		
Yes	7	7(17.9)
No	30	30(76.9)
NS	2	2(5.2)

NS not specified

DISCUSSION

During the study period, we identified 58 obstetric fistula cases; genito-urinary fistula, 35 cases (60.3 %), recto-vaginal fistula 19 cases (32.8%) and mixed fistulas 4 cases (6.9%) respectively. A recent review suggested that among the overall fistula cases, genito-urinary fistula represented 79 to 100% of cases, recto-vaginal fistula 1 to 8%; and combined vesico and recto vaginal fistula, 1 to 23% of cases (Holme *et al.,* 2007; Rijken *et al.,* 2007; Jokhio and Kelly, 2006).

This delay in delivery is commonly due to cephalo-pelvic disproportion (CPD) (Cisse *et al.,* 1998; van Dillen *et al.,* 2007; Tebeu *et al.,* 2008). The cesarean delivery observed among 25.7% of obstetric fistula was the second most common cause of obstetric fistula followed by emergency hysterectomy (5.8%). Several studies reported that, operative delivery was performed for 11 to 60% of obstetric fistula patients at indexed delivery (Nafiou *et al.,* 2007; Meyer *et al.,* 2007; Wall *et al.,* 2004). In several studies, (CPD) was the most common indication for caesarean delivery in sub-Saharan Africa (Cisse

et al., 1998; van Dillen *et al.,* 2007; Tebeu *et al.,* 2008). Previous studies have found CPD as the primary indication in 30%, 33% and 34% of caesarean deliveries in Senegal, Cameroon and Namibia, respectively. In this obstetric condition, caesarean delivery is not the cause of obstetric fistula, as the bladder tissue was already softening and ischemic due to the compression by fetal head. However, obstetric fistula could be attributed to the cesarean if fistula occurs after cesarean delivery in absence of prolonged labor. Among the 39 patients with genito-urinary fistulas, 7(17.9%) had urinary catheterization for prevention of fistula, 30(7.9%) did not and 2(5.1) did not remind about catheter used.

Previous study found that, among the 36 patients with vesico-vaginal or combined fistulas who remembered the precise post-operative conditions, 9 (25%) said they were catheterized while 27 (75%) weren't (Tebeu *et al.,* 2009). UN organizations recommend that, after obstructed labor, the urinary catheter should be (in situ)kept for 10 to 15 days as this can prevent the occurrence of obstetric fistula (UNFPA, 2007; WHO, 2001; WHO, 2006). Fistulas that occurred in spite of catheterization where probably associated with larger necrosis surface that couldn't heal completely. One case of fistula was attributed to abortion. Some cases of abortion related obstetric fistula were reported in the literature (Keegan and Forkowitz, 1982; Singh *et al.,* 2005)

Conclusion

The most frequent causes of obstetric fistulas among patients treated at our institution were ischemic necrosis due to obstructed labor and complications of cesarean delivery that are all preventable. Our findings highlight the need for skill birth attendance in Cameroon.

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