



# International Journal of Reproductive Medicine & Gynecology

## Research Article

# Tebeu's Pronostic Classification of Obstetric Fistula According to Anatomopathologic Variables from the University Teaching Hospital, Yaounde Cameroon -

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**Submitted:** 19 August 2017; **Approved:** 20 September 2017; **Published:** 22 September 2017

**Cite this article:** Tebeu PM, Ngassa Meutchi GD, Noa Ndoua CC, Mawamba YN, Ekane GH, et al. Tebeu s Prognostic classification of obstetric fistula according to anatomopathologic variables at the University Teaching Hospital, Yaounde, Cameroon. Int J Reprod Med Gynecol. 2017;3(2): 029-033.

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## ABSTRACT

**Introduction:** Several studies revealed the prognostic value of the fistula location, size and the vaginal fibrosis on surgical result.

**Objective:** We conducted this study in order to evaluate a surgical outcome of Obstetric vesicovaginal fistula focusing on three leading prognostic factors combination including size, location and softening of surrounding tissue.

**Methods:** This was a retrospective case series study from 69 patients at the University Teaching Hospital, Yaounde, Cameroon involving patients operated from March 2009 to March 2015.

We collected data from registers, patient's folders and by phone call. We defined criteria of good prognosis based on the 3 prognostic factors (retrotrigonal location, size < 2 cm, soft vagina tissue); minor criteria of poor prognosis (bladder wall other than retrotrigonal, size between 2-4 cm, vagina less scaring); and major criteria of poor prognosis (Complete circumferential defect, size > 4 cm, major scaring/stenosis).

The combination of the above variables helped in defining prognostic classes as, class-I (3 criteria of good prognosis); class-II (1 minor criteria of bad prognosis); class-III (2 minor criteria of bad prognosis); class-IVA (3 minor criteria of bad prognosis, or 1 major criteria of poor prognosis), and class-IVB ( at least 2 major criteria of bad prognosis ). Closure with continence rate was assessed at discharge, and at 3 months after surgery.

**Results:** Obstetric fistula frequency was respectively class I (18.8%), class II 53.7%), class III (18.8%) and class IV (8.8%). The satisfactory result decreased from class I to IV as closure with continence rate were, respectively for class I (92.3%), class II (94.6%), class III (77%) and class IV (16.7%).

**Conclusion:** Fistula location, size and softening of surrounding tissue provide a promising prognostic classification of obstetric fistula in four entities. While waiting for additional researches this appears as a good field option.

**Keywords:** Fistula; Prognosis; Classification; Surgery; Result

## INTRODUCTION

WHO proposes the successful closure rate for first repair at 85% in each facility with the continence achievement among the closed cases at 90% [1]. Failure of obstetric fistula repair is associated with severe psychological and social implications [2]. Several experts published their closed rate of obstetric Vesicovaginal Fistulas (VVF) ranging from 63 to 100% [3-7]. In spite of closure, residual incontinence varies from 5 to 30% [8,9]. A report from Kenya showed that among women regularly seen at postoperative follow-up, 54% were still leaking [10]. They found that, this condition was associated with having had previous failed repairs, and greater fistula size (> 2cm).

Similar findings were reported in Uganda, where unsuccessful fistula closure was significantly associated with large fistula size (> 3 cm), circumferential defect and fibrosis [11]. They found that, independent predictors for residual stress incontinence after successful fistula closure were urethral involvement and previous unsuccessful fistula repair.

In Democratic Republic of Congo, the satisfactory rate in terms of closure with continence was weak for fistula size at 4 cm and above (65.2% vs. 83.7%) [12]. The same authors reported that the satisfaction was respectively 87.1%, 67.7% and 37.9% if no fibrosis, moderate or severe fibrosis [12]. An Egyptian study revealed that, previous repair, long duration of VVF until treatment, surgical approach and the location of the VVF had a significant effect on surgical outcome [13]. We previously compared 22 patients presenting closure with good continence to 10 others with failure/incontinence. We found that the later had fistula more likely to be localized at the bladder neck region (80% vs. 50%); with size more than 5 cm (30% vs. 9%); vaginal scaring (80% vs. 64%), and fibrosis (80% vs 55%) [14].

The evidence from previous studies is that fistula surgical outcome is strongly associated anatomical patterns including location, size and quality of tissue [15,16]. These anatomical features could be used for proper prognostic classification of VVF. Several classifications have

been proposed for predicting the surgical difficulties. Thus, Falandry in 1992, proposed a prognostic classification in 3 groups, as group I, also called simple, group II also called difficult, and group III, also called complicated considering bladder neck involvement, associated rectovaginal fistula, fibrosis and previous operation as independent factors for poor prognosis [8].

The prognostic implications of previous operations have been supported by several studies. In Ghana, Elkins revealed that the success rate after surgery was 85% at first attempt, 50% at second attempt and 33% at third one [17]. In a Zambian's study, the total satisfaction after fistula repair was respectively 70%, 18% and 11% at first, second and third attempts [18]. We recently reported similar trend in Cameroon [19]. The number of previous operations is associated with poor surgical outcome, and this could be attributed to the fibrosis of the tissue and merging resection formerly used and that could have increase the fistula size. Classification proposed by Falandry was later modified by Camey who distinguished three prognostic classes as simple, complex, and complicated fistulas, but did not specify the role of the fibrosis as prognostic factor [20].

Many other classifications have been proposed, like that from Goh, which consider the site, the size and the fibrosis but does not combined those factors to address the prognostic classes [21]. In 1995, another classification proposed by Waaldijk, consider the site, but did not consider the size and fibrosis as prognostic factors [22]. In 2007, WHO proposed this classification, but while expressing two groups of fistulas, those of good prognosis/simple and those of bad prognosis/complicated [1]. WHO classification suffers from the impact of the skill of the surgeon, as what appears simple for one surgeon could be complicated for another one depending on their competency. WHO classification suffers from the lack of fibrosis as a prognostic factor, and also, it considers the previous operation and associated rectovaginal fistula as independent poor prognostic factors.

Based on the review on available classification systems, authors revealed that, a standardized classification system with accepted

terminology is urgently needed while avoiding physiological terminologies as simple [23]. These observations called for the development prognostic classes of VVF depending on morphologic variables commonly reported as independent prognostic variables for surgical outcome (softening of the vagina, localization of fistula, and its size) that could better be reproducible [15,16]. In Niger, 60% cases were the sizes of the fistula greater than 4 cm, and 78.4% presented fibrous tissue [24]. Authors highlighted the need for prognostic classification and concluded that “A simple, reproducible and universally accepted scientific classification or staging system for OF dealing with outcomes rather than anatomic landmarks should replace the present proposed classification systems for prognostic and ethical purposes”.

As each of the three anatomical prognostic variables is not always presented as an isolated feature, the challenge in prognostic classification will be to combine all the three variables to define the prognosis classes. If this is done it will help in distribution case among the teams, better organize competency based training and compared different results from fistula units over the world.

## OBJECTIVE

We conducted this study intending to define a prognostic classification of vesicovaginal fistula based on three leading prognostic factors including site, size and fibrosis on the daily practice.

## METHODS

### Type, setting and duration of the survey

This was a retrospective cases series study at the University Centre Hospital, Yaounde Cameroon focusing on patients operated from March 03, 2009 to March 03, 2015 (six years).

### Population

The study population included obstetric vesico-vaginal fistulas. Patients with fistula involving urethra, uterus, and ureter were excluded.

### Variables

We collected data from registers, patient’s folders and by phone call. Variables of interest included, sociodemographic and reproductive health characteristics (name and first name, age, nationality, profession, residence, marital status, education, occupation, religion), pregnancy and delivery (antenatal care, duration of labor, place of childbirth, mode of delivery, neonatal status). Past medical features of the patients (laparotomy, dystocia, Caesarean, hysterectomy, instrumental delivery, smelling as urine or stools, vulva dermatitis, urines leaking, presence of stools on the vulva, speculum examination findings. Surgical outcome related information’s were also collected as presence or absence of leaking).

## STATISTICAL ANALYSIS

Data were collected using a pre-established individual questionnaire, introduced in a Microsoft file Excel 2010, then to transfer to EPI-7.1. For classification purpose, we defined criteria of good prognosis based on the 3 prognostic factors (retrotrigonal location, size < 2 cm, soft vagina tissue); minor criteria of poor prognosis (Wall other than retrotrigonal, 2-4 cm, vagina less fibrotic); and major criteria of poor prognosis (Complete circumferential defect, size > 4 cm, major fibrosis/stenosis). The combination of the above variables helped in defining prognostic classes as, class-I (3 criteria of

good prognosis); class-II (1 minor criteria of bad prognosis); class-III (2 minor criteria of bad prognosis); class-IVA (3 minor criteria of bad prognosis, or 1 major criteria of poor prognosis), and class-IVB (at least 2 major criteria of bad prognosis). Closure with continence rate was assessed at discharge, and at 3 months after surgery.

## RESULTS

The mean age of patients was 29 (SD: 9.03) years. Many patients were teenagers at surgery (26%), with primary educational level (55.1%), single (65.2) and housewives (81.2%) (Table I). Fistula was mostly trigonal (46.4%) and juxtacervical (20.3%). Many fistulas had small size less than 2 cm (67%), without vaginal fibrotic tissue (Table 2). Considering the frequency, obstetric fistula were respectively class I (18.8%), class II 53.7%, class III (18.8%) and class IV (8.8%) (Table 2). Three months follow up after surgery, revealed similar outcome among patients reported as Class I and II. Satisfactory result decreased with the severity of fistula class from I to IV. Closure with continence rate was, respectively for class I (92.3%), class II (94.6%), class III (77%) and class IV (16.7%) (Table 3).

## DISCUSSION

We found that, many patients were teenagers at surgery (26%). Teenage condition is found in a wide range in obstetric fistula

**Table 1: Socio-demographic characteristics of fistula patients.**

Characteristics	Overall fistulas N = 69	
	n	%
<b>Age mean (SD) 29 (SD: 9.03)</b>		
<b>Age (classes) (Years)</b>		
15-19	18	26.0
20-34	41	59.5
35-45	10	14.5
<b>Educational level</b>		
Primary	38	55.1
Secondary	28	40.6
High	3	4.3
<b>Marital status</b>		
Married	21	30.4
Single	45	65.3
Widow	3	4.3
<b>Occupation</b>		
Civil servant	2	2.9
Private sector	3	4.3
Housewife	56	81.2
Student	8	11.6
<b>Ethnic group</b>		
Bantou	40	58.0
Semi-bantou	24	34.8
Sudanese	5	7.2
<b>Residency</b>		
Urban	30	43.5
Rural	39	56.5
<b>Religion</b>		
Muslim	5	7.2
Christian	63	91.3
Animist	1	1.5

N: Study population, % percentage many patients were teenagers at surgery, with primary educational level, single and housewives.

patients ranging from 8.9 to 86 % [25-27]. The increase obstetrical risk in teenagers can be explained by anatomic immaturity. There is a need to struggle against teenager's pregnancies in Cameroon. Patients had primary educational level (55.1%). Poor educational level among the obstetric fistula patients had been reported in several studies as ranging from 78 to 96% [28,29]. This can be due to the fact that many of the teenagers could not continue their education due to the medical and social condition.

Most of the patients were single (65.2%); this is high compared to 38% of patients previously reported as single at the time of surgery in the northern Cameroon [26]. This can also be the fact that, in the northern Cameroon, many women will still be in the compound, but without real contact with the husband and are wrongly considered as married. However among 11 divorced patients, (n = 10) having divorced after the occurrence of the fistula. Almost all of our patients did not have an occupation (81.2%). Women with obstetric fistula are often solitary [30]. In the Far North Cameroon, 15% of patients were thinking about suicide as solution to their condition. Higher figure (38%) was reported in Ethiopia [31].

Fistula had moderate/severe fibrosis in 18%, lower than 64.9%

reported in Uganda [11]. We found fistula with a size of more than 4 cm only in 18.4%; similar to 18% reported in Uganda, lower than 25.3% reported in Niger for size of more than 3 cm [11,32]. Moderate to severe at 70.4% fibrosis was reported in Nigeria [33]. Fibrosis associated with fistula was similar to the report from DRC, where 20.5% of fistula was associated with vaginal fibrosis during surgical treatment [34].

We found that many fistulas were located at the trigon (46.4%) and at the juxtacervical area (20.3%). In a previous study in Far North Cameroon, we found that fistula was located on the bladder wall (15.6%), on the trigon (28.1%), on the bladder neck (31.3) and on the urethra (25.0%) [14].

Obstetric fistulas were mostly class-II with respectively class-I (18.8%), class-II 53.7%), class-III (18.8%) and class-IV (8.8%). This observation was in agreement with the report from Falandry who suggested a prognostic classification in three entities including respectively group-I (37.6%), group-II (41.7%) and group-III (20.7%) [8] and by Goh [21].

The fistula grouped as class I-II (72.5%) suggests that, if this classification is used, it will be rational to gathering class-I / class-II in basic training and class-III / class-IV as advanced training.

We reported the result initially at discharge, but finally at 3 months. Three months follow up after surgery, revealed similar outcome among patients reported as Class I and II. In overall, satisfactory results decreased with the severity of class from I to IV. Close with continence rate were, respectively for class I (92.3%), class II (94.6%), class III (77%) and class IV (16.7%).

There is a great discrepancy for the time of result report; some are still presenting their results at discharge, as this was recently published from Ethiopia, with closure and continence of 84.5% at discharge [35]. Among our patients, five of class III-IV who had closure with continence at discharge didn't at 3 months meaning the results should not be concluded before 3 months.

Decreasing satisfaction with the increasing in fistula prognosis class is in agreement with finding by Falandry who organized VVF in three groups (simple, difficult and complicated) and reported a result of 96.92% for group-I, 76.16% for group-II and 16.6% for group-III [8]. But this classification from Falandry had the weakness of misconsideration of some prognostic variables. Results as presented in the present study were at 3 months for a set of patient, therefore the repeated surgery was not considered and the censured result was the combination of closure and continence. Some studies present the result of obstetric VVF repair including repeating operations for the same patient [8]. Other studies present the result only as successful closure without taking into consideration the continence status [36].

Classification defined and highlighted by field result, can be considered in the training programs by organizing surgical trainees in 2 groups of competency Based Training. Yet, consider basic training (class I and II), and advanced training (class III and IV). This classification could also be possible used while distributing the surgical task among the staff.

## CONCLUSIONS

We have defined a prognostic classification system for vesicovaginal fistula in four classes. We found that, the surgical outcome diminish gradually with the prognostic class. This classification must be used while organizing training sessions and while allocating the task among the surgical team.

**Table 2:** Anatomic characteristics of the fistula.

Characteristics	Overall fistulas N = 69	
	n	%
<b>Location</b>		
Uretro-vaginal	0	0.0
Cervico-vaginal	10	14.5
Trigono-vaginal	32	46.4
Retro trigonal	13	18.8
Juxtacervical	14	20.3
<b>Size</b>		
< 2Cm	46	67.0
2-4 Cm	16	23.0
> 4 Cm	7	10.0
<b>Surrounding tissue</b>		
Soft	56	81.0
Moderate Fibrosis	11	16.0
Severe fibrosis	2	3.0
<b>Prognostic class</b>		
Class I	13	18.8
Class II	37	53.7
Class III	13	18.8
Class IV	6	8.7

N: Study population, % percentage  
Fistula were mostly trigonal and juxtacervical. Many fistulas had small size less than 2 cm without vaginal fibrotic tissue.

**Table 3:** Obstetric fistula outcome for each prognostic class.

Close and continent	Class I N = 13(%)	Class II N = 37(%)	Class III N = 13(%)	Class IV N = 6(%)
<b>At discharge</b>				
Yes	12(92.3)	35(94.6)	12(92.3)	4(66.7)
No	1(7.7)	2(5.4)	1(7.7)	2(33.3)
<b>At 3 months</b>				
Yes	12(92.3)	35(94.6)	10(77.0)	1(16.7)
No	1(7.7)	2(5.4)	3(23.0)	5(83.3)

N: Study population, % percentage  
In overall, satisfactory results after surgery decreased with the severity of class from I to IV.

## ACKNOWLEDGMENTS

We wish to thank the staff of the Department of Obstetrics and Gynecology at the University Teaching Hospital, Yaounde, Cameroon.

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