



The immediate management of fresh obstetric fistulas

Kees Waaldijk, MD, PhD*

Babbar Ruga Fistula Hospital, Katsina, Nigeria

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Objective: It has been a general rule to wait with the repair of an obstetric fistula for a minimum period of 3 months allowing the patient to become an outcast. In a prospective way an immediate management was studied and antibiotics were not used, all according to basic surgical principles.

Methods: A total of 1716 patients with a fistula duration of 3 to 75 days after delivery were treated immediately on presentation by catheter and/or early closure. Instead of antibiotics, a high oral fluid regimen was instituted. The fistulas were classified according to anatomic and physiologic location in types I, IIAa, IIAb, IIBa, and IIBb, and according to size in small, medium, large, and extensive. The operation became progressively more complicated from type I through type IIBb and from small through extensive.

Results: At first attempt 1633 fistulas (95.2%) were closed and another 57 could be closed at further attempt(s), accounting for a final closure in 1690 patients (98.5%); 264 patients (15.4%) were healed by catheter only. Of these 1690 patients with a closed fistula, 1575 (93.2%) were continent and 115 (6.8%) were incontinent. The results as to closure and to continence became progressively worse from type I through type IIBb and from small through extensive. Postoperative wound infection was not noted; postoperative mortality was encountered in 6 patients (0.4%).

Conclusion: This immediate management proves highly effective in terms of closure and continence and will prevent the patient from becoming an outcast with progressive downgrading medically, socially, and mentally.

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If a woman, still a teenager, survives the enormous stress of obstructed labor lasting 2 to 5 or even more days, the end result is usually a stillborn infant and the complex trauma of the obstetric fistula; and then the real trouble begins. Because the continuous urine leakage with wetting of cloths, bed, floor, and the offensive smell are unacceptable in any society, it constitutes a social disaster. The longer it takes to treat the fistula, the more difficult it becomes to reintegrate the woman

into her own community. Therefore, the first priority is to close the fistula to restore her dignity; the earlier the better.

Unfortunately, it has been a generally accepted rule to wait with the repair of an obstetric vesicovaginal fistula (VVF) for a minimum period of 3 months until all the tissue reactions have subsided.¹⁻⁵ The nonmanagement of the fistula for so long is the first step into the direction of becoming an outcast with progressive downgrading medically, socially, and mentally.

However, this passive attitude seems to be in sharp contrast with the established management of other necrotic lesions, such as bedsores (also pressure necrosis)

* Reprint requests: Kees Waaldijk, MD, PhD, Heijenseweg 38, 6591 HC Gennep, Holland.

Table I Duration of leakage in days at catheter/surgery

	0-15	16-30	31-45	46-60	61-75	Total
No.	234	509	422	343	208	1716
In%	13.6%	29.7%	24.6%	20.0%	12.1%	100%

Table II Classification of fistulas according to anatomic/physiologic location

	I	IIAa	IIAb	IIBa	IIBb	III	Total
No.	243	888	366	87	132	—	1716
In%	14.2%	51.7%	21.3%	5.1%	7.7%	—	100%

Type I: Fistulas not involving the closing mechanism; type II: fistulas involving the closing mechanism; **A**, without (sub)total urethra involvement; **a**, without circumferential defect; **b**, with circumferential defect; **B**, with (sub)total urethra involvement; **a**, without circumferential defect; **b**, with circumferential defect; type III: miscellaneous, e.g., ureter and other exceptional fistulas.

and burn wounds (thermal necrosis). Here the wounds are immediately attended to, first by repeated debridement and then by covering or closure as soon as the wounds are clean. So why should the obstetric fistula be treated differently?

Over the years 1984 to 1992 an immediate management of fresh obstetric fistulas was developed according to basic surgical principles: decompression of the bladder by catheter, debridement, early closure, high oral fluid intake, and no antibiotics.

A prospective study was started in August 1992, and after a preliminary report⁶ this is a final evaluation.

Patients

During the 9-year period August 1992 to August 2001, a total of 1,716 patients with an obstetric VVF of less than a 3-month duration were treated according to these principles in the centers in Katsina and Kano in Northern Nigeria. These 2 centers are the backbone of a large obstetric fistula project where, in 10 hospitals, almost 20,000 fistula operations have been performed and some 450 doctors, nurses, and other persons have been trained during the 20-year period 1984 to 2003. The conditions are very primitive and cannot be compared with those of hospitals in the industrialized world.

At first presentation of the patient, an extensive history was taken and a vaginal examination performed, together with an assessment of her general health and other lesions caused by obstructed labor.

The age of the patients varied from 14 to 41 years, and the parity varied from 1 to 18. However, 728 patients (42.4%) were younger than 16 years and 937 pa-

Table III Fistula size

	Small < 2 cm	Medium 2-3 cm	Large 4-5 cm	Extensive ≥ 6 cm	Total
No.	685	481	168	382	1716
In%	39.9%	28.0%	9.8%	22.3%	100%

tients (54.6%) were para 1; and 211 patients (12.3%) had an obstetric rectovaginal fistula (RVF) as well. A total of 1389 patients (80.9%) had signs of an obstetric unilateral or bilateral peroneal nerve motor trauma, whereas other lesions such as vagina stenosis, shortening, and/or stricture as well as (partial) pubococcygeus muscle loss were frequently encountered.

The duration between delivery and catheter insertion if healed by catheter only or between delivery and early closure ranged from 3 to 75 days, as presented in Table I.

The fistulas were divided into 6 types according to the following classification as used by the author in all VVFs (Table II).⁷

This classification has been based on the qualitative and quantitative amount of tissue loss of the closing mechanism with consequences for the operation technique and prognosis.

The size of the fistulas varied from 0.1 to 8 cm, and a further classification according to size could be made, as presented in Table III.

Methods

If the patient presented with a necrotic fistula, a Foley catheter Ch 18 was inserted and the patient instructed to drink as much as possible. The patient was examined vaginally once a week to determine the prospects of spontaneous healing or surgery. If it appeared the fistula would heal spontaneously, the catheter treatment was continued for in total 4 weeks.

If there were no signs of spontaneous healing, the catheter was removed; and if slough developed, this was excised to speed up the cleaning and healing processes, in addition, the patient was instructed to clean herself intravaginally with water and a detergent 3 times daily. As soon as the fistula edge was clean, even with some inflammation, the patient was considered to be a candidate for early surgical closure.

If the patient presented at first visit with an already clean fistula, she was in surgery the following day.

Under spinal anesthesia, the patient was placed on the operating table in the exaggerated lithotomy position with the legs flexed and abducted in legholders. If necessary, unilateral or bilateral episiotomies were given to improve the accessibility. An Auward-weighted speculum was inserted into the vagina, a careful examination was

Table IV Results as to closure and continence

	No	Closed	Continent	Incontinent	Fistula	Mortality
First attempt						
Catheter	265	264	257	7	—	1
Operation	1451	1369	1270	99	76	6
Total	1716	1633	1527	106	76	7
In %		95.2%	93.5%	6.5%	4.4%	0.4%
More attempts	62	57	48	9	5	—
Final		1690	1575	115	19	7
In %	100%	98.5%	93.2%	6.8%	1.1%	0.4%

A total of 14 patients with residual fistula defaulted 2 to 3 months after first attempt.

made, and a classification was performed. The fistula edge was freshened and a dissection of the anterior vagina wall from the bladder/urethra performed. The bladder/urethra was closed, most of the time transversely, with a single layer of inverting polyglycolic acid 0. In type I fistulas, only simple closure was performed; in type IIAa fistulas, an effort was made to restore the urethrovesical junction and its position; in type IIAb fistulas, a circumferential dissection was performed, followed by a circumferential repair as end-to-end vesicourethrostomy; in type IIBa and IIBb fistulas, the aim was to close the fistula as a first stage and to do something about the continence in a second stage, whereas type IIBb fistulas needed a circumferential dissection and circumferential repair. After closure of the bladder/urethra a Foley balloon catheter Ch 18 was inserted for total decompression of the bladder. The anterior vagina wall was only adapted or half closed by interrupted everting nonabsorbable nylon 0 sutures taking good bites, and if applicable, the episiotomies were closed. A loose vagina pack soaked in acriflavine was applied for 24 hours, the procedure ended, and the patient transferred to the postoperative ward.

The patient was instructed to drink as much as possible to produce a minimum of 4000 to 6000 mL of urine per 24 hours, and to report immediately when the catheter got blocked. If this occurred, the catheter was flushed or changed for another. No uroseptics or antibiotics were ordered, either preoperatively, intraoperatively, or postoperatively unless generalized sepsis or a specific infection should develop. After 14 days she was transferred to the hostel and instructed to continue drinking to sustain a high urine output. She had to report once a week as to leakage and then she was instructed again to drink.

After 4 weeks the catheter was removed and the patient instructed to pass urine immediately and frequently, and to continue drinking. One week later the intravaginal nylon sutures were removed and a careful examination performed as to healing and continence. If the fistula had healed, she had to report regularly, once every 1 to 2 months, for a check-up for up to 6 months postopera-

tively before she was allowed to resume sexual activities. At each check-up the patient was asked systematically about leakage, (in)continence, and micturition. She was examined vaginally for healing, (in)continence, and elevation of the bladder neck/urethra. All the patients were examined vaginally at least 2 times and more than 90% of them 5 to 6 times postoperatively. In any patient with persistent incontinence for more than 4 months, a dye test with gentian violet was also performed to exclude a minute fistula or to determine the type of incontinence.

If it had not healed she was prepared for another VVF-repair under spinal anesthesia. In principle, if there was a combination of VVF and RVF, both fistulas were operated in the same session, but this has not been worked out further in this study.

Results

The results have been based on the findings at the last check-up of the patients and in more than 90% of the patients, 5 to 6 months postoperatively. The management was considered to be successful if the fistula had healed completely. The management was considered to be a failure if there was still a fistula. If at the last check-up the patient with a healed fistula complained about leaking urine during stress and this was objectively verified as urine loss from the external urethra opening at cough, it was considered to be healed with incontinence.

The results at first attempt, either by catheter or by repair, the results at more attempts and the continence rate of the closed fistulas have been compiled in [Table IV](#).

Analysis of the 76 patients with a failure after first attempt according to fistula size was as follows: 9 (1.3%) of the 685 small fistulas, 21 (4.4%) of the 481 medium fistulas, 10 (6.0%) of the 168 large fistulas, and 36 (9.4%) of the 382 extensive fistulas.

Analysis of these 76 patients according to fistula type gave the following results: 4 (1.6%) of the 243 type I fistulas, 20 (2.3%) of the 888 type IIAa fistulas, 27 (7.4%) of the 366 type IIAb fistulas, 7 (8.0%) of the

Table V Results as to physiologic/anatomic location

Type	No.	Closed first attempt	Finally Closed	Incontinent	Mortality
I	243	238 (97.9%)	242 (99.6%)	1 (0.4%)	1
IIAa	888	868 (97.4%)	888 (100%)	11 (1.2%)	—
IIAb	366	333 (91.0%)	353 (96.4%)	30 (8.5%)	6
IIBa	87	80 (92.0%)	86 (98.9%)	14 (16.3%)	—
IIBb	132	114 (86.4%)	121 (91.7%)	59 (48.8%)	—

87 type IIBa fistulas, and 18 (13.6%) of the 132 type IIBb fistulas.

Among these 76 patients there were 21 (27.6%) who had an obstetric RVF as well. The results according to fistula type at first attempt, final attempt, and the incontinence rate of the finally closed fistulas have been compiled in Tables V and VI.

The 115 patients with severe postrepair stress incontinence were analysed according to fistula size as well with the following results: 3 (0.4%) of the 684 small fistulas, 35 (7.4%) of the 473 medium fistulas, 14 (8.4%) of the 167 large fistulas, and 63 (17.2%) of the 366 extensive fistulas.

Analysis of these 115 patients according to fistula type showed the following: 1 (0.4%) of the 242 type I fistulas, 11 (1.2%) of the 888 type IIAa fistulas, 30 (8.5%) of the 353 type IIAb fistulas, 14 (16.3%) of the 86 type IIBa fistulas, and 59 (48.8%) of the 121 type IIBb fistulas. The only patient with type I fistula was a para 7 who defaulted at 4 months postoperatively.

The distance of the external urethra opening to the fistula was less than 1.5 cm in 93 (80.9%) and even 1 cm or less in 74 (64.3%) of these 115 patients.

Of the 115 patients with severe postrepair stress incontinence, 7 showed signs of severe detrusor instability as well; these patients had a diminished bladder capacity.

There were 27 patients with mild postrepair stress incontinence at 4 to 6 months postoperatively, which did not disturb them. They were treated by bladder drill and did not return for further treatment.

Postoperative wound infection was not noted, and all the episiotomies were healed at suture removal 7 to 10 days after repair.

The cause of postoperative/postcatheter mortality was the use of native drugs resulting into abdominal distension with hepatorenal failure in 3 patients, severe gastroenteritis in 2 patients, cerebral malaria in 1 patient, and sudden unexpected death (pulmonary thrombo-embolism) in 1 patient. Fifteen patients with very poor general condition in whom a catheter was inserted died within 1 to 3 days of admission before anything else could be undertaken and were not included in this study.

Table VI Results as to size of fistula

Size	No.	Closed first attempt	Finally Closed	Incontinent	Mortality
Small	685	676 (98.7%)	684 (99.9%)	3 (0.4%)	—
Medium	481	460 (95.6%)	473 (98.3%)	35 (7.4%)	4
Large	168	158 (94.0%)	167 (99.4%)	14 (8.4%)	—
Extensive	382	346 (90.6%)	366 (95.8%)	63 (17.2%)	3

Comment

The continuous leakage of urine and offensive smell are unacceptable in any society. Therefore, the fistula management has to start the moment the leaking of urine becomes manifest to prevent this social disaster.

This is the first time a systematic study has been made of immediate (surgical) intervention in fresh obstetric fistulas. It means a radical change from a passive attitude of waiting 3 months allowing the patient to become an outcast to an active surgical strategy, immediately when a patient starts leaking urine post partum; the earlier the better.

Its main advantage is not only the high success rate, but especially the prevention of the woman from being ostracized from her own society, her friends, and even her family. The importance of immediate bladder catheterization cannot be stressed enough because this will cure 15% to 20% of the patients if performed within the first 4 to 6 weeks after delivery.⁸

The high oral fluid intake, already started preoperatively, with resulting polyuresis will contribute to cleaning of the fistula, keeping the patient well hydrated during the operation, identifying the ureters intraoperatively, keeping the catheter open, and preventing or curing ascending urinary tract infection.

The use of antibiotics seems to be unnecessary as illustrated in this study and illogical as the fistula is caused by pressure necrosis and not by infection; also, the high urine output will prevent ascending urinary tract infection. Because antibiotics are expensive, this money can be used for something that is needed such as a high-protein diet.

The high success rate is comparable to, though slightly better than, that of other VVF-repairs at first attempts or more by the same surgeon in the same hospitals (so far more than 13,500 procedures). Even if the catheter cures are excluded, the success rate at closure at first attempt is still 1,369 (94.3%) of 1,451 patients.

In principle, the dissection and operation become progressively more complicated from type I through type IIBb, whereas the success rate as to closure and continence becomes progressively worse; the same applies to fistula size from small through extensive.

Theoretically, it falls within the time of the physiologic wound healing processes, before fibrosis and scar-

ring develop. This might account for the low rate of severe postrepair stress incontinence. The critical urethra length for continence seems to be 1.5 to 2 cm; if it is 1.5 cm or less, there is little chance of becoming continent once the fistula has been closed.

The only exception to this management is when the fistula is complicated and the general health of the patient too poor for anesthesia.

The prevention of the obstetric fistula in Africa is a utopia for at least another 100 years because a network of 125,000 to 150,000 fully equipped and well-functioning obstetric units (secondary health care) are needed, evenly distributed throughout the inhabited parts of rural Africa; who is going to pay for them, who is going to establish them, who is going to train the personnel, and who is going to run them?

However, the prevention of the woman with an obstetric fistula from becoming an outcast is very well feasible even under primitive conditions as has been demonstrated in this study.

Conclusion

The immediate management of the obstetric fistula proves highly effective in terms of closure and continence. If successful, it will prevent the woman from be-

coming an outcast in her society and her family and will prevent her from progressive downgrading medically, socially, and mentally.

This management is simple, fast, safe, effective, easy to learn, and cheap, and can be applied under primitive conditions. That is exactly what is needed in developing Africa with an annual incidence of at least 100,000 new obstetric fistula patients.

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